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LETTER REGARDING TRANSMITTAL OF FINAL CLOSEOUT REPORT REMOVAL ACTION  
AT SITE 28 WITH APPENDIX NSWC INDIAN HEAD MD  
8/10/2009  
SHAW ENVIRONMENTAL

August 10, 2009

Mr. Joe Rail  
NAVFAC Washington  
1314 Harwood Street, SE  
Washington Navy Yard, Bldg. 212  
Washington, DC 20374

RE: Final Closeout Report  
Removal Action at Site 28  
Indian Head, Maryland, Task Order 093, Shaw Project No. 126566  
Contract No. N62470-02-D3260

Dear Mr. Rail:

Enclosed is the Final Closeout Report for the above referenced project. If you have any questions or need additional information, please contact Skip Dunham at 757-640-6927 or myself at 609-2346361.

Respectfully,



Steve Carriere, PMP Project Manager

Enclosure

cc:

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Project File



*FINAL*  
CLOSEOUT REPORT

**REMOVAL ACTION AT SITE 28  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND**

CONTRACT No. N62470-02-D-3260

Prepared for:  
Department of the Navy  
NAVFAC - Washington  
Washington Navy Yard, Building 212  
1314 Harwood Street, S.E.  
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TASK ORDER 093  
PROJECT No. 126566

AUGUST 2009

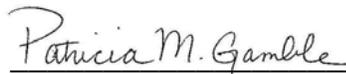
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**FINAL  
CLOSEOUT REPORT  
REMOVAL ACTION AT SITE 28  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND**

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**SIGNATURE PAGE**

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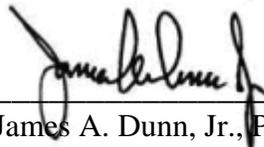
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## ***LIST OF ACRONYMS AND ABBREVIATIONS***

bgs	below ground surface
cy	cubic yards
DDESB	Department of Defense Explosive Safety Board
E&S	erosion and sediment
EE/CA	Engineering Evaluation/Cost Analysis
EP/PP	Environmental Protection/Pollution Prevention
ESCP	Erosion and Sediment Control Plan
ESS	Explosive Safety Submission
EZ	Exclusion Zone
FEAD	Facilities Engineering and Acquisition Division
IAS	Initial Assessment Study
JSA	Job Safety Analysis
NEW	Net Explosive Weight
MDE	Maryland Department of the Environment
MEC	Munitions or Explosives of Concern
MPPEH	Material Potentially Presenting an Explosive Hazard
MSDS	Material Safety Data Sheet
NAVFAC	Naval Facilities Engineering Command
NOS	Naval Ordnance Station
NOSSA	Naval Ordnance Safety and Security Activity
NSF-IH	Naval Support Facility, Indian Head
NTR	Navy Technical Representative
PBA	Project Business Administrator
PPE	Personal Protective Equipment
PRG	Preliminary Remediation Goal
QC	Quality Control
QCP	Quality Control Plan
RAO	Remedial Action Objective
RI	Remedial Investigation
SATTP	Strauss Avenue Thermal Treatment Plant
Shaw	Shaw Environmental, Inc.
SOW	Statement of Work
SSHSP	Site-Specific Health and Safety Plan
SSO	Site Safety Officer
TP	technical paper

UXO            Unexploded Ordnance  
UXOQCS       Unexploded Ordnance Quality Control Specialist  
WMA           Water Management Administration

## ***1.0 INTRODUCTION***

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Shaw Environmental, Inc. (Shaw) was contracted by the Department of the Navy, Naval Facilities Engineering Command (NAVFAC) Washington, to perform a removal action at Site 28, Naval Support Facility, Indian Head, Maryland. The work was performed under Contract No. N62470-02-D-3260, Task Order 093, and Shaw prepared this Closure Report in accordance with the corresponding Statement of Work (SOW).

### **1.1 PURPOSE**

This Closure Report describes in detail the tasks that were performed and the techniques used to complete the removal action at Site 28. The following appendices are included in this plan:

- Appendix A Photographic Documentation
- Appendix B Analytical Reports
- Appendix C Waste and Transport Disposal Documentation
- Appendix D Quality Control Documentation
- Appendix E Health & Safety Documentation
- Appendix F UXO Documentation
- Appendix G Explosive Safety Submissions
- Appendix H Task Order and Modifications

### **1.2 SITE BACKGROUND**

The Naval Support Facility, Indian Head (NSF-IH) is located in northwestern Charles County, Maryland, approximately 25 miles southwest of Washington, DC (Figures 1 and 2). The NSF-IH provides services in energetics, ordnance devices and components, and other related ordnance engineering standards, including chemicals, propellants and their propulsion systems, explosives, pyrotechnics, warheads, and simulators.

Site 28 is in the northeast corner of the facility, on the shore of Mattawoman Creek. The site encompasses observation Well 14 and the former locations of the zinc recovery furnace and shoreline burning cage. Because of past activities at the site, there are both potential human health and ecological risks associated with constituents in the soil.

Site 28 is also referred as the “Original Naval Ordnance Station (NOS) Burning Ground.” During World War I, the Navy initiated a metal-recycling program, which was vital during World War II and continues to present day. In 1928, the zinc recovery furnace, designated Building 415, was erected. The last station map on which the building appears is dated October 31, 1952, indicating that the building was demolished in the early 1950s.

Well 14 was installed in 1918 to a depth of 430 feet below ground surface (bgs) and was initially used as a potable water well, but it became an observation well in 1988.

Previous investigations included an Initial Assessment Study (IAS) to evaluate sites at NSF-IH and to determine if a potential threat to human health and the environment existed. The report concluded that smokeless powder may have been burned at the site and various contaminated wastes were burned openly. Several soil sampling events were conducted following the IAS. Soil sample results indicated several chemicals of concern: copper, magnesium, sulfate, zinc, and lead.

In 2003, a Remedial Investigation (RI) was conducted by CH2M Hill. Site 28 was then divided into two zones: Zones A and B (Figure 3). Zone A was a former zinc recovery furnace and a former burning cage. The location of the former burning cage is unknown. Zone B is south of Zone A and is referred to as the “Original Burning Ground” and the “Shoreline Burning Cage”. The human health risk assessment determined that potentially unacceptable risk was present for future adults, children, lifetime residents, and construction workers exposed to soil in Zone A and groundwater at the site. The ecological risk assessment determined that potentially unacceptable risk was present in Zone A soil and sediment as well. The soil in Zone B does not pose an unacceptable risk to human health or the environment; therefore, the removal action at Site 28 only addressed the soil in Zone A.

In September 2006, CH2M Hill provided an Engineering Evaluation/Cost Analysis (EE/CA) to present remedial action alternatives to reduce risks to human health and ecological receptors associated with site soil to acceptable levels through excavation and removal and/or treatment of affected soil at Site 28. Alternative 2 – Soil Removal for Human Health and Ecological Risks was selected for the remedial action at Site 28.

### **1.3 PROJECT OBJECTIVES**

The objective of this project was to execute Alternative 2 – Soil Removal as derived from the EE/CA.

The Remedial Action Objectives (RAO) for Site 28 were to:

- Reduce potential risks to human health and ecological receptors associated with site soil contaminants to acceptable levels, represented by the agreed upon Preliminary Remediation Goals (PRGs),
- Restore the site to existing grade conditions with necessary improvements and vegetation, and
- Implement land use controls to prohibit the use of groundwater on site as a potable water supply.

#### **1.4 PROJECT ORGANIZATION**

The key Shaw personnel involved in the successful completion of this project included the NAVFAC Program and Deputy Managers, Project Manager, Site Superintendent, Site Quality Control (QC) Manager, Site Safety Officer (SSO), Project Business Administrator (PBA), Unexploded Ordnance (UXO) Technicians, equipment operators, and laborers. In addition, various subcontractors and vendors were used to supply the specialized services and materials needed to complete the project.

## ***2.0 DESCRIPTION OF ACTIVITIES***

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This section outlines the sequence of major field activities associated with the Site 28 removal action.

### **2.1 MOBILIZATION AND SITE PREPARATION**

This subsection discusses the activities that were completed in order to prepare for the removal action.

#### **2.1.1 Mobilization/Site Set up**

The Preconstruction Meeting was held on 18 October, 2007 and the meeting minutes are provided in **Appendix D**. The necessary personnel, equipment and materials were mobilized to the site to complete the project as defined in the Final Work Plan dated October 2007. Key individuals were on site to receive the trailer and other equipment essential to the start of project activities. Initial site set up included preparing a temporary office and connecting work related utilities. Sanitation facilities and trash dumpsters were brought in for personnel generated wastes. Emergency equipment was available for potential health and safety incidents, as called for in the Site Specific Health and Safety Plan (SSHSP). Personnel were mobilized from various Shaw offices.

Upon completion of the initial site set up, the appropriate construction equipment was mobilized for expected activities, which primarily consisted of: clearing, grubbing, excavating, screening, loading, hauling and grading (**Appendix A**, Photo 1). A connex box was provided for the storage of small tools and power equipment. All mobilizations and site set ups were carried out according to the Final Work Plan.

#### **2.1.2 Site Survey**

Survey control points were set up throughout the site (**Appendix A**, Photo 2). Shaw provided survey support for the duration of the removal action. The final as-built conditions of Site 28 were surveyed and are provided in Figure 5.

#### **2.1.3 Utility Search**

A utility search was conducted through the FEAD office as part of the approval process for Shaw's excavation permit application. Shaw's Site QC Manager requested a Class IR Work Approval Permit from the FEAD office (**Appendix G**) and requested a utility mark out prior to

beginning the excavation activities. Shaw contacted Miss Utility (1-800-257-7777) for areas outside the Navy fence line. Shaw also subcontracted Dave Roberts, an independent utility locator, to verify underground utilities at the Navy's request.

#### **2.1.4 Well Abandonment**

Four monitoring wells were abandoned on October 19, 2007 (**Appendix A**, Photos 3 & 4). These wells were numbered as IS28MW01, IS28MW02, IS28MW03, and IS28MW04. They were abandoned by MIG Environmental, a licensed well driller in the state of Maryland. A well abandonment report from MIG Environmental is provided in **Appendix D**.

#### **2.1.5 Waste Staging and Mechanical Screening Area**

A soil berm of clean overburden material was installed along the perimeter of the staging area, which was inside of the excavation limits. A loadout area was located within the material screening area and adjacent to the haul road (**Appendix A**, Photo 5). Mechanical screening was necessary due to the presence of Material Potentially Presenting an Explosive Hazard (MPPEH) and Munitions or Explosives of Concern (MEC).

#### **2.1.6 Preparation for Erosion and Sediment Controls**

A section of the perimeter fence was removed to allow access to the waterfront for construction of erosion and sediment (E&S) controls (**Appendix A**, Photo 6). A minimal amount of necessary clearing was performed before all E&S controls were finished, but the trunks of trees were left in place until their completion. Crane mats were also used to reduce the amount of sediment unearthed by heavy machinery. At the end of each work shift, the chain-link fence was re-secured to the main support corner poles.

### **2.2 EROSION AND SEDIMENT CONTROLS INSTALLATION AND MAINTENANCE**

This subsection describes the various E&S controls that were used during earthmoving activities at the site. All controls complied with the manufacturer's installation specifications and were installed as directed by the Site Superintendent. All control measures were installed in accordance with the approved Erosion and Sediment Control Plan (ESCP) and the "1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control" by the Water Management Administration (WMA) of the Maryland Department of the Environment (MDE).

The installation of E&S control features allowed the site activities to take place, while minimizing soil erosion to the adjacent waterways. Work covered under this task included the

installation of super silt fence, perimeter dike/swale, temporary gabion outlet structures, stabilized construction entrance, stone check dam, and erosion control seeding.

At a minimum, the E&S controls were inspected weekly and after each significant rain event. The stabilized construction entrance was inspected daily. The Site QC Manager kept a log of the E&S inspections. As needed maintenance was performed immediately and documented in the E&S log. The super silt fence, earth dike/temporary gabion outlet structure and perimeter dike/swale will remain in place until vegetation is established and the final site inspection by MDE and the FEAD/NTR is performed to approve the removal of E&S controls.

### **2.2.1 Super Silt Fence**

Super silt fence was installed in accordance with and at the locations shown on the ESCP (**Appendix A**, Photo 7).

### **2.2.2 Perimeter Dike/Swale**

A perimeter dike/swale was installed along the northeast side of the site in accordance with and as shown in the ESCP (**Appendix A**, Photo 8). At the end of the perimeter dike/swale and Swale 4, a rip-rap apron was installed near Mattawoman Creek.

### **2.2.3 Temporary Pipe Slope Drain**

A temporary pipe slope drain at the southern end of the existing culvert was to be installed in order to channel the clean water from the culvert to Mattawoman Creek during excavation activities. Due to field conditions it was determined that this temporary pipe slope drain was not needed and a rip-rap channel was installed at the end of the existing culvert to guide the water to the gabion outlet structure at the end of swale 4 (**Appendix A**, Photo 9).

### **2.2.4 Temporary Gabion Outlet Structures**

A temporary gabion outlet was installed at the end of Swale 4 near Mattawoman Creek in accordance with the ESCP (**Appendix A**, Photo 10).

### **2.2.5 Stabilized Construction Entrance**

To reduce the amount of soil transported onto paved public roads by motor vehicles and water runoff, a stone pad with underlining filter fabric was constructed at all points of vehicular egress. The stabilized construction entrance was installed in accordance with the ESCP. Heavy equipment was used to install the stone pad and new replacement stone was added as needed so

that the entrance remained a stable area for vehicles entering from the road (**Appendix A**, Photo 11).

### **2.2.6 Stone Check Dam**

A stone check dam was placed near the middle of the perimeter dike/swale in accordance with the ESCP (**Appendix A**, Photo 12).

### **2.2.7 Temporary Seeding**

Temporary seeding was completed on the diversion dikes for E&S control in accordance with the ESCP.

### **2.2.8 Wetland Plants**

Native wetland plants were installed according to the direction of the NSF-IH Natural Resources Department and in accordance with the figures and tables of the Final Work Plan. The disturbed soil around the planted trees in the forested slope was stabilized with standard seed and straw or erosion control matting where needed. Table 1 below lists the wetland plants used in this action.

**Table 1  
Wetland Plant List  
Removal Action at Site 28  
Indian Head, Maryland**

<b><i>Freshwater Intertidal Marsh (random spacing for all plants)</i></b>	<b>Size</b>	<b>Spacing</b>
Spartina pectinata - Prairie cordgrass	2" plugs	2 feet (0.25 plants/ft <sup>2</sup> )
Scirpus acutus - Hardstem bullrush	2" plugs	
Scirpus pungens - Three-square	2" plugs	
Juncus effusus	2" plugs	
Juncus canadensis	2" plugs	
Pontederia cordata - Pickerelweed	2" plugs	
<b>Total Number Plants Required</b>	<b>2,520</b>	
<b><i>Scrub-Shrub High Marsh (random spacing for all plants)</i></b>	<b>Size</b>	<b>Spacing</b>
Alnus serrulata - Smooth alder	2'-3'	8 feet (0.01 plants/ft <sup>2</sup> )
Sambucus canadensis - Elderberry	1.5'-2'	
Viburnum dentatum - Arrow-wood	0.5'-1'	
Cephalanthus occidentalis - Buttonbush	2'-3'	
Clethra alnifolia - Sweetpepper bush	2'-3'	
<b>Total Number Plants Required</b>	<b>270</b>	
<b><i>Forested Slope (random spacing for all trees/shrubs)</i></b>	<b>Size</b>	<b>Spacing</b>
Acer rubrum - Red maple	3'-4'	10 feet
Acer saccharinum - Silver maple	3'-4'	
Platanus occidentalis - Sycamore	3'-4'	
Quercus bicolor	3'-4'	
Vaccantum corymbosum	0.5'-1'	
Cercis canadensis - eastern redbud	2'-3'	
Amelanchier canadensis	2'-3'	
<b>Total Number Plants Required</b>	<b>210</b>	

### 2.3 CLEARING AND GRUBBING

Tree cutting, stump removal and brush clearing were required to install erosion control features (Appendix A, Photo 13 & 14). As per the direction of the NSF-IH Natural Resources Department, lumber greater than 6 inches caliper were taken to a tree stockpile, located on base off of Patton Road, to be used as firewood. Roll-offs were used for the disposal of stumps (Appendix A, Photo 15). Branches, small trees, and brush were chipped and spread on site

(Photo 16). UXO Technicians were present during clearing and grubbing activities to monitor the discovery and handling of MPPEH and single base propellant grains of MEC.

## 2.4 WASTE CHARACTERIZATION AND POST-EXCAVATION CONFIRMATION SAMPLING

During the initial phase of field work, representative samples were taken from the waste within the soil/debris area at Site 28 on 18 October 2007. Accutest performed the sample tests used to characterize the waste and prepared the waste profiles for disposal documentation (**Appendix B**).

Post-excavation confirmation sampling was not conducted at Site 28 per the Final Work Plan. The Partnering Team decided that confirmation sampling following excavation was not required due to the extensive delineation achieved through the RI sampling conducted by CH2MHill.

## 2.5 SOIL AND DEBRIS EXCAVATION HANDLING

This subsection discusses the activities associated with the removal and disposal of the soil and debris from Site 28 within the final limits of excavation shown on Figure 4.

### 2.5.1 Soil and Debris Removal and Material Handling

Once the E&S controls were in place, the excavation of soil and debris began (**Appendix A**, Photo 17). UXO Technicians made a visual inspection of the site to locate MPPEH and single base propellant grains of MEC before the soil was removed by excavators. The top 6 inches of soil from Site 28 was removed and transported to the Caffee Road Landfill on base to be reused. However after MEC and MPPEH items were found at Site 28, the topsoil that was relocated to Caffee Road Landfill was required to be mechanically screened for MPPEH and MEC. The screening of this material occurred at Caffee Road Landfill. Soil removed below the initial 6 inches was mechanically screened on site as required by the Explosive Safety Submission (ESS) that was approved by NOSSA. The ESS was amended, corrected and revised at various points during the project in order to reflect the changing conditions on site. Copies of each ESS version and their approval letters are provided in **Appendix G**.

Excavators were used to remove the soil from the surface to an average of 2 ft bgs in the area that was determined to be a threat to human health (outlined in blue on Figure 3) and 1 ft bgs in the area that was determined to be a threat to ecological receptors (outlined in yellow and brown on Figure 3). The exact excavation depth also depended on the depth to groundwater and the grading of the slope. Soil and debris were not excavated below groundwater.

Additional excavation was completed outside the original limits of excavation due to MEC and MPPEH found at Site 28. Figure 4 shows both the original and final limits of excavation.

When necessary, a 10 to 20 foot section of the existing fence line was taken down to allow equipment access to excavation areas outside of the fence line at the northeast corner of the site. At the end of each work shift, the chain-link fence was re-secured to the main support corner poles using the existing clamps and bolts.

### 2.5.2 Waste Loadout and Disposal

The excavator and track loader were used to relocate soil from the waste staging area to the loadout area. Shaw prepared a lined stockpile/staging area for loadout within the limits of excavation. Kiln dust was used to absorb excess water content from the waste soil during loading (**Appendix A**, Photo 18). The waste material was then loaded onto haul trucks for off-site disposal (**Appendix A**, Photo 19).

Site personnel inspected each truck load before it left the site. The inspection verified that no waste or soil was on the outside of the truck and that there was no standing water within the truck bed. When standing water was observed, kiln dust was added and mixed into the load. The truck inspection also verified that the trucks were in proper working order and acceptable for travel on public roads.

Table 2 summarizes the waste types, quantities and disposal locations for materials removed from Site 28. Documentation on the transport and disposal of soil is located in **Appendix C**. Documentation on the transport and disposal of MEC and MPPEH is located in **Appendix F**.

**Table 2**  
**Waste Disposal Summary**  
**Removal Action at Site 28**  
**Indian Head, Maryland**

Waste	Quantity	Disposal Site
Soil and Debris	3,200 cubic yards (5,734 tons)	Soil Safe Inc., Brandywine, Maryland
Stumps and Miscellaneous Construction Debris	10 rolloffs, 30 cubic yards each	King George County Landfill, King George, Virginia
Single Base Propellant Grains	14,185 grains; 222,244 grams (490 pounds)	Strauss Avenue Thermal Treatment Plant, NSF-IH, Maryland
MPPEH 5X (rings, lids, cans)	88,662 pieces; 68,407 pounds (34 tons)	Montgomery Scrap, Rockville, Maryland

## 2.6 MECHANICAL SCREENING

This subsection discusses the procedures that were followed during the mechanical screening of excavated material.

### 2.6.1 MPPEH Training

The mechanical screening operation was supported by two Shaw UXO Technicians designated by the Shaw Ordnance and Explosives Service Center. They were qualified in accordance with Department of Defense Explosives Safety Board (DDESB) Technical Paper 18 (TP 18) and listed in the Huntsville UXO Technician credentials database. The most qualified UXO Technician conducted Explosive Ordnance Recognition training for those on the field crew who previously had not had the training. The training was performed prior to conducting the screening operation and consisted of describing basic MPPEH characteristics, identification and safety precautions. Documentation of the training is provided in **Appendix F**.

### 2.6.2 Exclusion Zone

An exclusion zone (EZ) was established in order to protect site workers from exposure to fragmentation and overpressure hazards of an unexpected initiation of energetic material. The EZ encompassed the area of activity in essentially a bubble and provided for access and egress control. Only essential personnel were allowed unescorted access into the EZ.

### 2.6.3 Mechanical Screening Operations

The soil was piled adjacent to the material screening area (**Appendix A**, Photo 20). An excavator was used to load the soil in a mechanical screener, which had three screens of 5 inch, 1½ inch and ¼ inch openings and soil was processed in that order. The first screen separated MPPEH, while the smaller screens separated propellant grains from the soil (**Appendix A**, Photos 21 and 22). During loading, the excavator Operator was required to keep the bucket at least 7 feet from the cabin, and the UXO Technician kept the same distance while observing. The UXO Quality Control Specialist (UXOQCS) was required to use a 5 foot square screen with 1/8 inch wire mesh openings to re-screen 25% of the screened soil (**Appendix A**, Photo 23). If MEC or MPPEH were found, the entire pile was mechanically re-screened. Soil passing the screen test was moved to the loadout area on a daily basis and certified as MEC- and MPPEH-free by the UXOQCS before being transported offsite.

## 2.6.4 MEC and MPPEH Identification and Classification

When the UXO Technicians identified single base propellant grains of MEC disposal procedures were followed as per the ESS. Disposal required placing the materials in a Velostat™ conductive bag. The bag was labeled with an appropriate ID and the weight of its contents. It was placed in a non-fragmenting container with an exclusion zone (EZ) of 85 feet. The total weight of single base propellant MEC in each Velostat™ conductive bag was not allowed to exceed 1 lb net explosive weight (NEW). DD Form 1348-1 was filled out by a UXO Technician at the end of each work day and the bags were transferred to Naval Surface Warfare Center Indian Head Division, which was responsible for transporting the bags to Bldg 80, Indian Head's Strauss Avenue Thermal Treatment Plant (SATTP), for disposal (**Appendix A**, Photos 24 thru 28).

MPPEH at Site 28 most often took the form of cans, lids and rings made of metal, which had been exposed to explosive material in the past and had the potential to hold explosive residue. When the UXO Technicians identified MPPEH, two UXO Technicians were required to do separate 100% inspections of the piece. Both UXO Technicians could be Shaw employees, but one of them could not work directly for the Project Manager of Site 28. All MPPEH was visually free of explosives and was classified as 5X, crushed, painted orange and placed in the Connex provided (**Appendix A**, Photos 29 and 30).

Table 2 in section 2.5.2 summarizes the quantity of MEC and MPPEH items found at Site 28 and the final disposal locations.

## 2.7 RUNOFF MODIFICATIONS TO SWALE 4

An existing culvert was located just west of Observation Well 14 and ran under the gravel access road toward Mattawoman Creek (**Appendix A**, Photo 31 & 32). The culvert was partially removed, replaced and realigned with Swale 4. Swale 4 was then reshaped, armored and extended to Mattawoman Creek in accordance with the ESCP.

Due to off site construction activities by another contractor, and a series of spring rain events, Swale 4 was significantly disfigured by flooding (**Appendix A**, Photo 33 & 34). Temporary sediment controls were installed (Photo 35), but permanent controls were necessary to ensure the long-term protection of Site 28 against erosion. Task Order Modification 4 was conducted for the purpose of installing two new culverts that would direct runoff down a rip-rap channel (Photos 36 and 37).

## 2.8 SITE RESTORATION

Site restoration included activities associated with returning the site to suitable conditions in preparation for demobilization. These activities included backfilling, planting site vegetation, conducting the final site inspection, and the removal of temporary facilities and structures. Regrading was completed during the backfilling process to promote better drainage over the site.

### 2.8.1 Backfilling

A total of 3,561cy (5,342 tons) of select fill and 1,187 cy (1,424 tons) of topsoil were obtained from Farm Service Construction located in Accokeek, Maryland. The select fill and topsoil materials were sampled and tested for clean fill requirements prior to being brought on site. The analytical results are provided in **Appendix B**. The select fill material was placed with a dozer in 8 to 12-inch loose lifts (**Appendix A**, Photo 38) and compacted with a 10 ton roller. Compaction tests were not required. Topsoil was spread in one 6-inch lift over the compacted select fill material (**Appendix A**, Photo 39).

### 2.8.2 Site Vegetation

Permanent vegetation was established in all areas within the limits of disturbance. Native wetland plants were planted as per the direction of NSF-IH Natural Resources Department. Table 1 provided in Section 2.2.8 lists the plant varieties that were used and the spacing between them.

Seed and fertilizer were applied to the disturbed areas as described in the ESCP. Hydroseeding was accomplished by mixing the seed, lime and Hydroblanket material together and spraying it evenly over the entire site using a vacuum pump and hose (**Appendix A**, Photos 40 and 41). The Hydroblanket consisted of biodegradable fibers that bond with the soil to provide both erosion protection and efficient nutrient delivery to the seeds.

Trees were planted at regular intervals to further secure the soil against erosion (**Appendix A**, Photo 42).

### 2.8.3 Final Site Inspection

Prior to the site teardown and demobilization, Shaw, the FEAD, the NAVFAC Washington RPM and the NSF-IH Natural Resources Department representatives conducted a pre-final site inspection on 19 November, 2008. A final site inspection will be conducted once the vegetation has been established.

---

## 2.9 SITE TEARDOWN

Once the project was complete, the temporary facilities, sanitary units and trash dumpsters were removed from the site. Other temporary facilities, such as the equipment decontamination pad and waste staging area, were removed. The temporary structures, such as safety delineations, were also removed when appropriate and the spent materials were properly disposed. The temporary E&S controls, such as super silt fence, will be removed and disposed of once the vegetation has been established and approval has been obtained from the FEAD and MDE.

## 2.10 DEMOBILIZATION

Personnel and equipment were demobilized once their tasks were complete and Shaw received approval.

## ***3.0 OVERVIEW OF HEALTH AND SAFETY***

---

Shaw demanded a safe, healthy and accident-free workplace, and ensured that the workplace was maintained in accordance with all regulations, policies and standards. Shaw adopts responsible proactive programs to provide appropriate protective measures where specific regulations relating to health and safety do not exist. This section describes the policies, procedures and programs implemented to ensure that safe work was performed at Site 28. Site Specific Safety Controls

### **3.1.1 Site Specific Health and Safety Plan**

The SSHSP was prepared by Shaw to describe potential site hazards, hazard control measures for anticipated tasks, definitions of work and support areas, protective equipment, air monitoring methods and equipment, emergency response procedures, and other information pertaining to a safe work environment. All on-site personnel, subcontractors and site visitors reviewed the SSHSP, and certified their understanding of the document by signing the acknowledgement form, attached in **Appendix E**.

### **3.1.2 Daily Safety Meetings**

A safety meeting was held each morning. All Shaw employees and subcontractors were required to attend the safety meetings. The focus of these meetings was to discuss tasks to be performed that day, identify the known and potential hazards of these tasks and clearly define the safety precautions to be utilized to mitigate the hazards.

### **3.1.3 Orientation Program**

All new employees, subcontractors and visitors to the site were required to complete a job-specific orientation program. Along with reading and signing the SSHSP, this orientation program explained the tasks Shaw was performing on-site. Additionally, site history, scope of work, site contaminants and Material Safety Data Sheets (MSDSs) were discussed. Emergency escape routes were also explained at this meeting. Daily work areas and the level of personal protection equipment (PPE) needed to enter these areas were discussed.

### **3.1.4 Job Safety Analysis**

All activities associated with the project scope of work underwent thorough review prior to mobilization using procedures developed for Job Safety Analysis (JSA). A JSA for each

individual task was reviewed with employees involved in that task prior to beginning the activity.

### **3.1.5 Personal Protective Equipment**

As per the ESS and SSHSP, level D was the required PPE level for this site. Personnel wore authorized steel toed boots, hardhats, protective glasses, reflective safety vests and gloves.

### **3.1.6 Equipment Inspections**

All equipment was inspected on a daily basis. Any equipment found to be defective in any way was immediately taken out of service until it was repaired or replace.

## **3.2 SITE SPECIFIC SAFETY PERFORMANCE**

The work at Site 28 was completed without any injuries to Shaw personnel, subcontractors, or visitors. During the 15,910 man-hours on-site there were no Occupational Safety and Health Administration (OSHA) recordable, lost time, or first aid accidents reported.

## ***4.0 QUALITY CONTROL SUMMARY REPORT***

---

This section discusses the quality controls, inspections, and testing that was performed during the removal action at Site 28. Supporting QC documents are included in **Appendix D**.

### **4.1 PROJECT QUALITY CONTROL PROGRAM**

The purpose of the QC program for this project was to ensure compliance with the contract specifications and drawings to the satisfaction of the Navy. The Site QC Manager was responsible for the management and implementation of the Program QC Plan and the delivery order specific QC Plan for both on- and off-site activities.

### **4.2 MANAGEMENT AND ADMINISTRATION**

The Program QC Plan describes the quality system used to satisfy QC of the Department of the Navy Contract No. N62470-02-D-3260. Management and administration of the Program QC Plan are discussed in this section. The initial Submittal Register contained in the site QC Plan was reviewed and approved by the Navy. Preparatory meetings were conducted by the Site QC Manager prior to each subtask. These meetings with the Site Superintendent, FEAD representative, field personnel and subcontractors, if applicable, included:

- Review of the contract specifications and contract drawings,
- Verification that submittals for materials and equipment were approved,
- Verification of testing requirements,
- Discussion of construction methods,
- Review of the safety requirements for the various tasks.

The Site QC Manager observed the initial phase of each definable feature of work to ensure compliance with the contract specifications and drawings. Follow-up inspections were performed on a daily basis until the completion of each definable feature of work. These inspections were documented in the daily Contractor QC Report (**Appendix D**). Work that did not comply with the contract, and could not be corrected the same day, was identified on the Rework Items List. For this project, there were no work activities requiring listing on the re-work form.

### **4.3 WASTE REMOVAL/EXCAVATION**

The waste removal/excavation operations were directed and monitored by the QC Manager/Site Superintendent to ensure compliance with the Final Work Plan. Post-excavation confirmation sampling was not conducted at Site 28 per the Final Work Plan. The Partnering Team decided that confirmation sampling following excavation was not required due to the extensive delineation achieved through the RI sampling conducted by CH2MHill.

### **4.4 WASTE TRANSPORTATION AND DISPOSAL**

The waste from the excavations was staged in the mixing cells as it was excavated and dewatered as necessary. The sediment was then loaded out for transportation and disposal (see waste disposal documents in **Appendix C**). Sampling and disposal characteristic analyses were performed to determine the proper transportation and disposal requirements (see **Appendix B**). The staging operation and the sampling were monitored by the Site QC Manager/Site Superintendent to ensure compliance with the Final Work Plan.

### **4.5 SITE RESTORATION**

Restoration activities, including backfilling, compacting, grading, planting and seeding were monitored by the Site QC Manager/Site Superintendent to ensure compliance with the Final Work Plan.

### **4.6 QUALITY CONTROL MEETINGS**

QC meetings were conducted throughout the course of this project. These meetings took place bi-weekly beginning on October 10, 2007 and concluding on November 11, 2008. Topics discussed included a review of project status, upcoming project schedule and rework items. The minutes from these meetings are included in **Appendix D**.

### **4.7 TASK ORDER MODIFICATIONS**

Five Task Order Modifications were made during this project. The first task order modification was issued to perform the removal action at Site 28. The second task order modification was issued due to the need for Shaw to submit an ESS, which was not included as part of the original SOW. The third task order modification was issued due to the amount of expected MEC and MPPEH increasing and an amendment to the ESS being required. The fourth task order modification was issued to address the installation of two new culverts and a rip-rap channel and the disposal of excess soil, as explained in Section 2.7. The fifth and final task order

modification was issued to address the excessive amount of MPPEH discovered in the soil that needed to be separated, stored and disposed of, beyond the previous cost estimates for the project.

# FIGURES

---



O:\Project\LAN\DIV\Indian Head\1265666\126566A2.dwg  
 Plot Date/Time: 06/07/07 11:16am Xref: .  
 Plotted by: william.snyder Image: LOCATION NAVFAC

**OFFICE** Pittsburgh, PA  
**DRAWING NUMBER** 126566-A2



REV	DATE	BY	CHK'D	APPROV	DESCRIPTION/ISSUE

**Shaw-Shaw Environmental, Inc.**

DESIGNED BY *D. Pringle* 6/17/07 CHECKED BY *S. Seger* \_\_\_\_\_  
 DRAWN BY *B. Snyder* 6/17/07 APPROVED BY *S. Corriere* \_\_\_\_\_

**NAVFAC**  
 Naval Facilities Engineering Command  
 U.S. NAVY

INDIAN HEAD, MARYLAND  
 NAVAL SUPPORT FACILITY, INDIAN HEAD  
 SITE 28 - REMOVAL ACTION  
 SITE VICINITY MAP

SCALE: AS SHOWN SIZE: A  
 DELIVERY ORDER NO. 093  
 CONSTR. CONTRACT NO. NB2470-C2-D-3260  
 NAVFAC DRAWING NO. \_\_\_\_\_  
 SHEET I.D.  
**FIGURE 2**

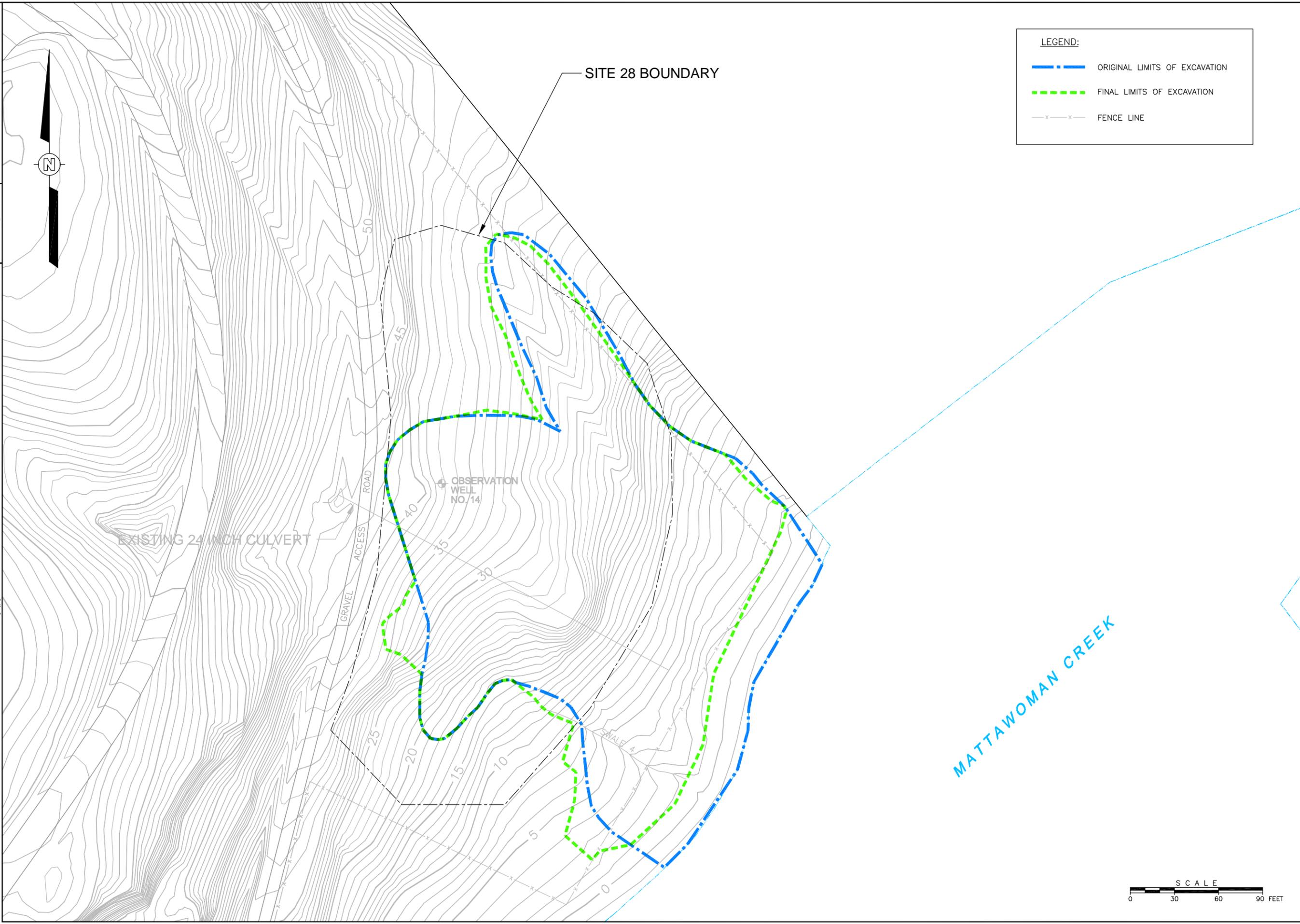
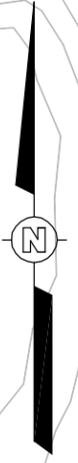


File: C:\Project\LANDM\Indian Head\126566\126566D15.dwg  
 Plot Date/Time: Aug 07, 2009 - 9:45am  
 Plotted By: gregjones

Xref:  
 Image: 22.jpg  
 NAVFAC\_Logo.jpg

OFFICE  
 Pittsburgh, PA

DRAWING NUMBER  
 126566-D15



**LEGEND:**

- - - ORIGINAL LIMITS OF EXCAVATION
- - - FINAL LIMITS OF EXCAVATION
- x - x - FENCE LINE



 NAVAL SUPPORT FACILITY, INDIAN HEAD, MARYLAND <b>SITE 28 - REMOVAL ACTION</b> EXCAVATION LIMITS		 <b>Shaw Environmental, Inc.</b>	
DESIGNED BY G. Jones	CHECKED BY P. Gamble	DATE 4/2/09	REVISED BY S. Corfield
DRAWN BY		DATE	REV
		BY	DESCRIPTION/ISSUE
		CHKD	APRVD
		<b>REVISIONS</b>	

**FIGURE 4**

OFFICE  
Pittsburgh, PA

DRAWING NUMBER  
126566-D14

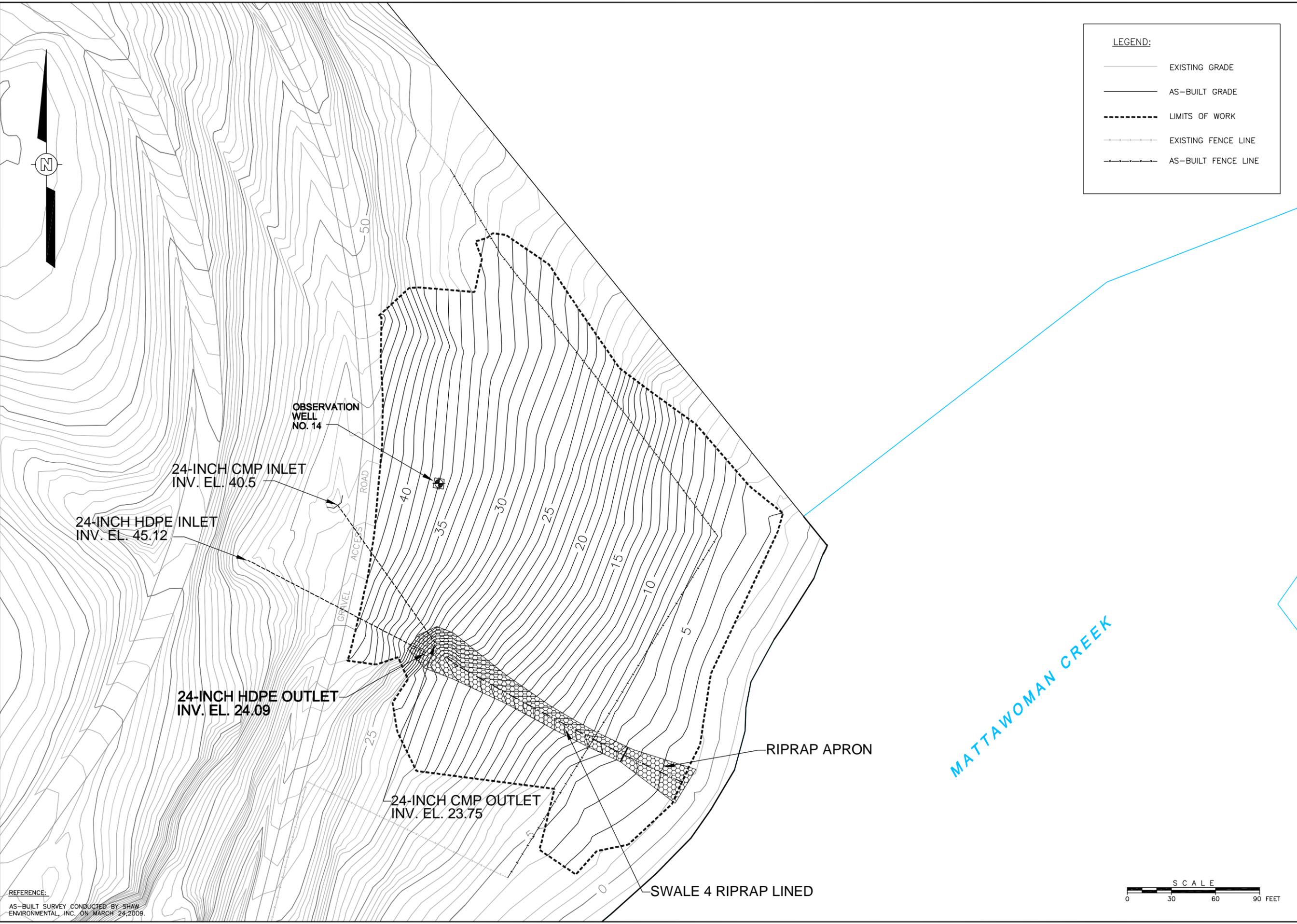


**LEGEND:**

	EXISTING GRADE
	AS-BUILT GRADE
	LIMITS OF WORK
	EXISTING FENCE LINE
	AS-BUILT FENCE LINE

Xref:  
Image: NAVFAC Logo.jpg

File: C:\Project\LANDM\Indian Head\126566\126566D14.dwg  
Plot Date/Time: Aug 06, 2009 - 1:51pm  
Plotted By: greg.jones



**REFERENCE:**  
AS-BUILT SURVEY CONDUCTED BY SHAW ENVIRONMENTAL, INC. ON MARCH 24, 2009.



		DESIGNED BY G. Jones	CHECKED BY P. Gamble
NAVAL SUPPORT FACILITY, INDIAN HEAD, MARYLAND <b>SITE 28 - REMOVAL ACTION</b> AS-BUILT CONDITIONS		DRAWN BY G. Jones	APPROVED BY S. Cornejo
SCALE: AS SHOWN		SIZE: D	DESCRIPTION/ISSUE REVISIONS
TASK ORDER NO. 093		REV 	DATE 
CONSTR. CONTRACT NO. N62470-02-D-3260		BY 	
NAVFAC DRAWING NO.			

**FIGURE 5**

---

# APPENDIX A

## *PHOTOGRAPHIC DOCUMENTATION*



*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 1

Date: 04-15-2008

Corresponding Section:

2.1.1



Photograph No. 2

Date: 03-06-2008

Corresponding Section:

2.1.2





*Photographic Documentation*

**Client:** NAVFAC WASH

**Prepared by:** Shaw E&I, Inc.

**Location:** Site 28 – Indian Head, Maryland

**Project Number:** 126566

Photograph No. 3

Date: 10-19-2007

Corresponding Section:

2.1.4



Photograph No. 4

Date: 10-19-2007

Corresponding Section:

2.1.4





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 5

Date: 03-11-2008

Corresponding Section:

2.1.5



Photograph No. 6

Date: 10-22-2007

Corresponding Section:

2.1.6





*Photographic Documentation*

**Client:** NAVFAC WASH

**Prepared by:** Shaw E&I, Inc.

**Location:** Site 28 – Indian Head, Maryland

**Project Number:** 126566

Photograph No. 7

Date: 11-02-2007

Corresponding Section:

2.2.1



Photograph No. 8

Date: 11-02-2007

Corresponding Section:

2.2.2



*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 9

Date: 02-28-2008

Corresponding Section:

2.2.3



Photograph No. 10

Date: 11-02-2007

Corresponding Section:

2.2.4





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 11

Date: 06-25-2008

Corresponding Section:

2.2.5



Photograph No. 12

Date: 11-05-2007

Corresponding Section:

2.2.6





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 13

Date: 11-07-2007

Corresponding Section:

2.3



Photograph No. 14

Date: 11-06-2007

Corresponding Section:

2.3





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 15

Date: 06-25-2008

Corresponding Section:

2.3



Photograph No. 16

Date: 11-02-2007

Corresponding Section:

2.3





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 17

Date: 03-05-2008

Corresponding Section:

2.5.1



Photograph No. 18

Date: 4-15-2008

Corresponding Section:

2.5.2





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 19

Date: 03-18-2008

Corresponding Section:

2.5.2



Photograph No. 20

Date: 05-01-2008

Corresponding Section:

2.6.3





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 21

Date: 07-28-2008

Corresponding Section:

2.6.3

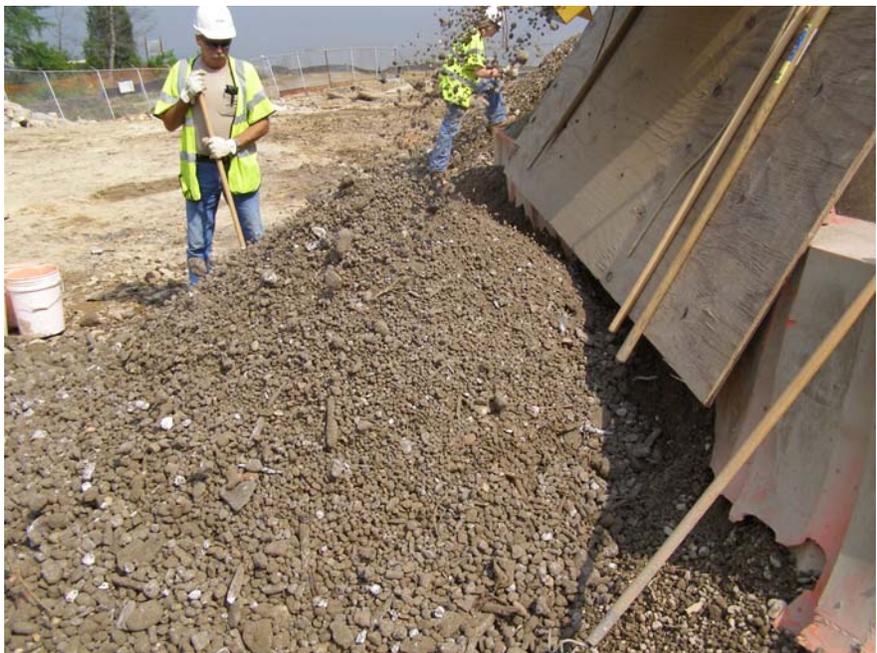


Photograph No. 22

Date: 07-28-2008

Corresponding Section:

2.6.3





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 23

Date: 05-01-2008

Corresponding Section:  
2.6.3



Photograph No. 24

Date: 02-28-2008

Corresponding Section:  
2.6.4





*Photographic Documentation*

**Client:** NAVFAC WASH

**Prepared by:** Shaw E&I, Inc.

**Location:** Site 28 – Indian Head, Maryland

**Project Number:** 126566

Photograph No. 25

Date: 06-30-2008

Corresponding Section:

2.6.4



Photograph No. 26

Date: 02-27-2008

Corresponding Section:

2.6.4





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 27

Date: 02-27-2008

Corresponding Section:

2.6.4



Photograph No. 28

Date: 02-27-2008

Corresponding Section:

2.6.4





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 29

Date: 06-30-2008

Corresponding Section:

2.6.4



Photograph No. 30

Date: 07-17-2008

Corresponding Section:

2.6.4





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 31

Date: 04-11-2007

Corresponding Section:

2.7



Photograph No. 32

Date: 05-09-2008

Corresponding Section:

2.7





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 33

Date: 03-17-2008

Corresponding Section:

2.7

Swale 4 Before Flooding



Photograph No. 34

Date: 05-09-2008

Corresponding Section:

2.7

Swale 4 After Flooding





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 35

Date: 05-30-2008

Corresponding Section:

2.7



Photograph No. 36

Date: 07-15-2008

Corresponding Section:

2.7





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 37

Date: 07-15-2008

Corresponding Section:

2.7



Photograph No. 38

Date: 7-15-2008

Corresponding Section:

2.8.1





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 39

Date: 10-17-2008

Corresponding Section:

2.8.1



Photograph No. 40

Date: 11-11-2008

Corresponding Section:

2.8.2





*Photographic Documentation*

**Client:** NAVFAC WASH

**Location:** Site 28 – Indian Head, Maryland

**Prepared by:** Shaw E&I, Inc.

**Project Number:** 126566

Photograph No. 41

Date: 11-11-2008

Corresponding Section:

2.8.2



Photograph No. 42

Date: 11-11-2008

Corresponding Section:

2.8.2



## **APPENDIX A – PHOTOGRAPHIC DOCUMENTATION**

THE FOLLOWING DOCUMENTATION IS CONTAINED ON CD

- ADDITIONAL PHOTOS

---

# **APPENDIX B**

## ***ANALYTICAL REPORTS***

## **APPENDIX B – ANALYTICAL REPORTS**

THE FOLLOWING DOCUMENTATION IS CONTAINED ON CD

- SELECT FILL AND TOPSOIL
- WASTE CHARACTERIZATION

## **APPENDIX C**

---

### ***WASTE TRANSPORTATION AND DISPOSAL DOCUMENTATION***

## **APPENDIX C – WASTE TRANSPORTATION AND DISPOSAL DOCUMENTATION**

THE FOLLOWING DOCUMENTATION IS CONTAINED ON CD

- FACILITY PERMIT
- SOIL CERTIFICATION
- WASTE MANIFESTS
- WASTE PROFILES

# APPENDIX D

---

## *QUALITY CONTROL DOCUMENTATION*

## **APPENDIX D – QUALITY CONTROL DOCUMENTATION**

THE FOLLOWING DOCUMENTATION IS CONTAINED ON CD

- DAILY QC REPORTS AND CONTRACTOR PRODUCTION REPORTS
- MDE INSPECTION
- MONITORING WELL ABANDONMENT
- QC MEETING MINUTES AND SIGN IN SHEETS
- WORK PERMIT

# **APPENDIX E**

---

## ***HEALTH AND SAFETY DOCUMENTATION***



**ADDENDUM 2-22-08 TO THE:  
SITE-SPECIFIC HEALTH AND SAFETY PLAN FOR THE  
REMOVAL ACTION AT SITE 28  
NAVAL SUPPORT FACILITY, INDIAN HEAD  
INDIAN HEAD, MARYLAND**

**Contract No. N62470-02-D-3260  
Task Order No. 093**

Prepared for:

NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON  
1314 Harwood Street, S.E.  
Washington Navy Yard, DC 20374-5018

Prepared by:

Shaw Environmental & Infrastructure, Inc.  
500 East Main Street, Suite 1630  
Norfolk, VA 23510

February 22, 2008  
Shaw Project No. 126566

Approved by:

A handwritten signature in black ink, appearing to read "S. Carriere", written over a horizontal line.

Steve Carriere, PMP  
Project Manager

A handwritten signature in black ink, appearing to read "Kym Edelman", written over a horizontal line.

Kym Edelman, CSP  
Program Safety Manager

## **Plan Amendment**

This document is an amendment to the Site Specific Health & Safety Plan (SSHSP), for Site 28, current revision, to address air monitoring requirements.

### **The Amendment modifies the following sections of the Plan:**

Section 8.0: Air Monitoring

#### **Reason For Amendment:**

Air monitoring utilizing a PID and Multigas Detector were included in the original SSHSP in anticipation of encountering debris and possibly containers of unknown contents during excavation activities.

#### **Amendment:**

The nature of the material being excavated does not contain materials such as those mentioned above. Additionally, screening of the excavation area utilizing the PID and Multi-gas detector does not indicate the presence of volatile organics, explosive vapors, or abnormal levels of oxygen in the breathing zone. Therefore, monitoring utilizing the PID and Multigas detector will discontinue.

In the event conditions change and debris and/or containers are encountered, the Site SSO will stop work until appropriate instrumentation can be obtained and utilized to conduct monitoring as originally stated in the SSHSP.

**Completed by:** Kym Edelman, CSP  
Health and Safety Manager



## WORKER ACKNOWLEDGEMENT TO HEALTH-AND-SAFETY PLAN

Page 1 of 3

I have been informed of, and will abide by, the procedures set forth in the SSHSP developed for Indian Head. I have also been provided with an opportunity to read this SSHSP and the hazard communication program. I also have been properly trained, medically monitored, and fit tested for the work that I am to perform.

Name	Date	
<del>Stephen Butler</del>	<del>10-18-07</del>	<del>OFF SITE</del>
<del>Devin Hudson</del>	<del>10-18-07</del>	<del>OFF SITE</del>
<del>Bob</del>	<del>10-18-07</del>	<del>OFF SITE</del>
<del>Richard Forshey</del>	<del>10-18-07</del>	<del>OFF SITE</del>
<del>Steve McFeeley</del>	<del>10/18/07</del>	<del>OFF SITE</del> OK-ON SITE
<del>Bob</del>	<del>10/18/07</del>	
<del>Jim</del>	<del>10/22/07</del>	<del>OFF SITE</del>
<del>W. K.</del>	<del>10/22/07</del>	<del>OFF SITE</del>
<del>S. A. WA</del>	<del>10/23/07</del>	
<del>Steve Whit</del>	<del>10/23/07</del>	<del>OFF SITE</del>
<del>OCOS</del>	<del>10-23-07</del>	<del>OFF SITE</del>
Donnee Lee	2-20-08	
Arthur Harris	2-20-08	
Bruce D. TINKNELL	2/20/08	
Steve Hutchings	2/20/08	
John F. Allen	2/25/08	
Doug Boyden	2/25/08	
Frank Beck	2/25/08	
Jimmie Drake	2/26/08	
Frank	4/9/08	
Wynne Allen	4/14/08	
Charly Thomas	4/14/08	
Mike	8/11/08	

Bruce Mc.

OK-ON SITE



## ATTACHMENT 1 HEALTH-AND-SAFETY PLAN CERTIFICATION

By signing this document, I am stating that I have read and understand the Site Health and Safety Plan Amendment for personnel and visitors conducting work on the Site 28 removal action.

REPRESENTING	NAME (PRINT)	SIGNATURE	DATE
SHAW E&I	LESTER F ALLEN III	<i>[Signature]</i>	3/6/08
Shaw	HANK PECK	<i>[Signature]</i>	3-6-08
SHAW	ADAM FORSHEY	<i>[Signature]</i>	3/6/08
Shaw	BRUCE TINKNELL	<i>[Signature]</i>	3/6/08
Shaw	DOUG BRANTON	<i>[Signature]</i>	3/6/08
Shaw	DONNIE LEE	<i>[Signature]</i>	3/6/08
Shaw	CARL HERNANDEZ	<i>[Signature]</i>	3/6/08
Shaw	ART HARRIS	<i>[Signature]</i>	3/6/08
SHAW	JAMES DEAKE	<i>[Signature]</i>	3/6/08
Shaw	Steve Hutchings	<i>[Signature]</i>	3/6/08
SHAW	BRUCE McLAUGHLIN	<i>[Signature]</i>	3/6/08
SHAW	MARIO VILLARREAL	<i>[Signature]</i>	5/29/08
SHAW	JOHN BLOSHOM	<i>[Signature]</i>	6/9/08
Shaw	Edwin Bennett	<i>[Signature]</i>	6-12-08
SHAW	TYRONE DARBY	<i>[Signature]</i>	6-12-08
SHAW	DAN HILDEBRANDT	<i>[Signature]</i>	6-16-08
SHAW	CHARLIE THOMAS	<i>[Signature]</i>	6-16-08

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# **APPENDIX F**

## ***UXO DOCUMENTATION***

## **APPENDIX F – UXO DOCUMENTATION**

THE FOLLOWING DOCUMENTATION IS CONTAINED ON CD

- EXPLOSIVE ORDNANCE RECOGNITION TRAINING
- FIELD ACTIVITY DAILY LOGS
- MPPEH 5X DISPOSAL
- SINGLE BASE PROPELLANT GRAINS DISPOSAL

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# **APPENDIX G**

## ***EXPLOSIVE SAFETY SUBMISSIONS***

**REQUEST FOR A NOSSA  
EXPLOSIVES SAFETY SUBMISSION DETERMINATION**

**Instructions for use:**

The responsible project manager may request a NOSSA N5 determination that an ESS is not required by completing and submitting this form. A blank copy (as a Word document) may be downloaded at <https://intranet.nossa.navsea.navy.mil>.

MRS identifier:  
Activity, City and State

Installation Restoration (IR) Program Site 28  
Activity: Naval Support Activity South Potomac  
Location: Naval Support Facility, Indian Head  
Indian Head, Maryland

Date submitted:

13 June 2007

Responsible project manager:  
Name, activity, and contact information

Shawn Jorgensen  
Naval Support Facility, Indian Head  
(301) 744-2263 (Phone)  
(301) 744-4180 (Fax)  
shawn.a.jorgensen@navy.mil

EOD/UXO technical support:  
Contact information

On-site: Shaw Environmental UXO Technicians (Personnel to be determined)  
  
Emergency: EOD Mobile Unit II, Dahlgren Detachment  
GMC Joel Nelson  
(540) 653-7425

Site history:  
Briefly describe past site use; discuss why MEC are known or suspected to be present

Site 28, also referred to as the "Original NOS (Naval Ordnance Station) Burning Ground," the "Slavins Dock Area," and the "Wildlife Area," is located along Mattawoman Creek on the northeastern side of Naval Support Facility, Indian Head (NSF-IH), Enclosure (1). The site was identified in the Initial Assessment Study (IAS) of 1983 as "The Original Burning Ground," a 1.8-acre site that only burned smokeless powder, based on the material manufactured when the site was operational (circa 1890s to 1942), Enclosure (2). The report also states that it is possible that various other contaminated wastes were open-burned there. The IAS shows the site located in Zone B, which is depicted on Enclosure (3) as the Shoreline Burning Cage.

A literature search of the site conducted by Navy Historian Jim Dolph in September 2001 revealed that the site was also the location of a zinc recovery furnace designated as Building 415, shown in Enclosure (4). The building was constructed in 1928 and the last map showing the building is dated October 31, 1952, indicating that the building was demolished in the early 1950s. Mr. Dolph also found information showing that the burning cage was located in Zone A near the zinc recovery furnace shown in Enclosure (3). Unfortunately, the exact location of the former burning cage is unknown. The burning ground is

shown outside of the existing perimeter fence on at least one historical map; however, burned debris, glass, and slag-like materials have been observed inside the fence, between the mouths of Swales 3 and 4, shown on Enclosure (3). Based on this information and results obtained during sampling events, we believe that the location originally identified by the IAS in Zone B, as shown on Enclosure (3), is incorrect.

The Final Remedial Investigation Report for Site 28 of April 2005 identified a potential risk to human health for hypothetical residents and for future construction workers due to arsenic and zinc concentrations in soil and shallow groundwater. The Baseline Ecological Risk Assessment Report of September 2006 identified zinc as a contaminant of potential concern for ecological receptors. Explosives analyses included the full list of nitroaromatics and nitroamines published in US EPA's SW-846 method 8330, nitroglycerin, nitroguanidine, and perchlorate. Detections ranged from 57 µg/kg to 670 µg/kg and included 2,4,6-trinitrotoluene, 2,4,-dinitrotoluene, and nitrobenzene. Most of the explosives detects were in the center of the former zinc recovery furnace area, which is where the burned debris, glass, and slag-like material discussed above is located. However, based on the human health and ecological risk assessments, none of these detections pose an unacceptable risk to human health or the environment.

MEC encountered or believed to be present:  
Quantity,  
type/nomenclature,  
and condition

Other than the low levels of explosives discussed above, no MEC has been discovered during previous PA, RI or EE/CA investigations.

Proposed operation:  
Describe on-call construction support, anomaly avoidance activities, or other proposed actions; identify if operation is encumbered by existing ESQD arc

This action will remove approximately 2,400 cubic yards of contaminated soil and sediment using excavators and loaders. The removed soil/sediment will be sent to an approved landfill for disposal and the excavation will be backfilled to an improved grade to eliminate the current erosion problem. The soil will be excavated to an average depth of two feet in the blue area shown on Enclosure (5) and to one foot in the yellow area. The sediment shown in the orange area will also be excavated to a depth of one foot. Since soil/sediment will be sent off-site for disposal, NAVFAC requires the soil to be mechanically screened to ensure that no MEC is inadvertently sent off-site, regardless of whether or not MEC is suspected to be present at the site. Based on the site history, we do not expect to find any MEC at this site. Therefore, we consider the soil/sediment screening an ultra-conservative measure. As an additional conservative measure, we will have UXO technicians present during the soil/sediment excavation and screening to ensure that no UXO is inadvertently sent off-site. Following the excavation, the soil/sediment will be stockpiled and hauled to an approved off-site landfill for disposal. All contract personnel working at the site will be briefed on the approved UXO Hazard Control Briefing provided in Enclosure (6).

As a precaution, if any potential MEC is found, the work will stop and EOD Dahlgren Detachment personnel will be contacted to assess the item before any additional work is conducted at the site. If EOD personnel determine that an item is live or potentially live, then an Explosive Safety Submission will be prepared for NOSSA approval prior to continuing work at the site.

The area of excavation is outside of all Inhabited Building Distance (IBD) and Public Transportation Route (PTR) arcs, as shown on Enclosure (7). In addition, this work will be coordinated with the Naval Surface Warfare Center, Indian Head Division Explosives Safety Office prior to starting construction to ensure that all explosives safety requirements are met.

Risk Assessment Code from page 2:<sup>1</sup>

**5** (Mishap Probability - D, Hazard Severity - IV)

Risk/hazard assessment. In accordance with OPNAVINST 3500.39, Operational Risk Management (ORM), Department of Navy activities must incorporate the principles of ORM into all phases of planning, operations, and training. This includes munitions response actions taken by the Department of Navy and its contractors. Since determining an ESS is not required carries with it inherent risks, the responsible project manager submitting this

request must evaluate those risks using facts, prudence, experience, judgment, and situational awareness. Together with OPNAVINST 3500.39, the table below can serve as a tool in determining the overall risk. Transcribe the Risk Assessment Code to the page 1 of this enclosure.

		Mishap Probability <sup>2</sup>			
		A	B	C	D
Hazard Severity <sup>3</sup>	I	1	1	2	3
	II	1	2	3	4
	III	2	3	4	5
	IV	3	4	5	5

Mishap Probability <sup>10</sup> :	Hazard Severity <sup>11</sup> :	Risk Assessment Codes:
<b>A</b> Likely to occur immediately	<b>I</b> May cause death	<b>1</b> Critical
<b>B</b> Probably will occur in time	<b>II</b> May cause severe injury	<b>2</b> Serious
<b>C</b> May occur in time	<b>III</b> May cause minor injury	<b>3</b> Moderate
<b>D</b> Unlikely to occur	<b>IV</b> Presents a minimal threat	<b>4</b> Minor
		<b>5</b> Negligible
		} High
		} Low

Enclose page 1 of this request in a letter or memo, or attach it to a digitally signed e-mail, and send to:

- Mail: COMMANDING OFFICER  
NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY  
ATTN: CODE N53  
23 STRAUSS AVE, BLDG D327  
INDIAN HEAD, MD 20640-5555

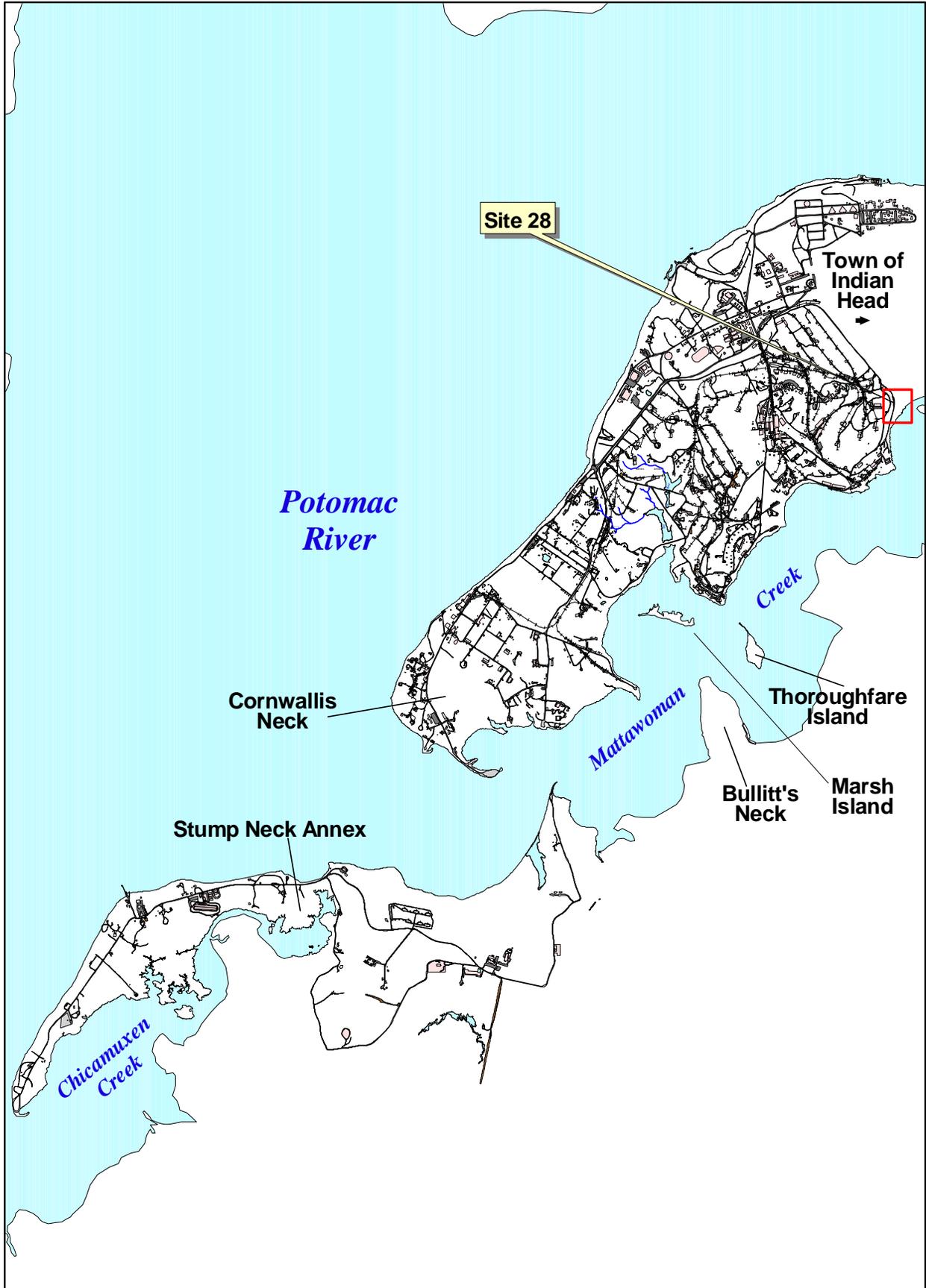
- Fax: 301-744-6749 (DSN 354)

E-mail: (call 301-744-4450 to obtain an e-mail address)

<sup>2</sup> Note: NOSSA will only consider determining that an ESS is not required when the Risk Assessment Codes are 4 (minor) or 5 (negligible).

<sup>2</sup> "Mishap Probability" is the probability that a hazard will result in a mishap or loss, based on an assessment of such factors as location exposure, affected populations, experience, or previously established statistical information.

<sup>3</sup> "Hazard Severity" is an assessment of the worst credible consequence that can occur as a result of a hazard. Severity is defined by potential degree of injury, illness, property damage, loss of assets, or effect on mission. The combination of two or more hazards may increase the overall level of risk. For the munitions encountered or believed to be present, consider the munitions and fuzing type and configuration, and its armed/unarmed status.



**LEGEND**

-  IR Site Boundary
-  Perennial Swale
-  Intermittent Swale
-  Railroads
-  Buildings
-  Asphalt Road
-  Dirt Road
-  Gravel Road



Figure 2-1  
Location of Site 28  
NSF-IH Site 28 EE/CA  
Indian Head, Maryland

6.6.28 Original Burning Ground (MAP GRID S36, 37) (SITE NO. 28)

This site is the location of the 1.8-acre original NOS burning ground. Team file searches were not able to determine what materials were burned at this site. However, based on the materials manufactured when the site was operational (circa 1890s to 1942), only smokeless powder was burned at this site. It is also possible that various other contaminated wastes were open-burned here. Team site reconnaissance did not indicate any visible signs of these materials. There is not sufficient information to characterize the potential hazard at this site. A Confirmation Study is not recommended at this time.

6.6.29 The Valley (MAP GRID A37 to D41)(SITE NO. 29)

The naturally occurring valley along Torrence Road from grid location A37 to D41 was the site of test firing of naval guns. Magazines, firing points, and a railroad were all built along this valley for about one-half mile beginning at the Potomac River. Firing of guns lasted from 1891 to 1921 by which time proving ground activities had been shifted down river to Dahlgren, Virginia. References to the firing indicate that shells were fired into butts in the valley walls as well as down-river over the Stump Neck area. Occasionally, shells were inadvertently fired across the river into Virginia. References tell of accidental damage from shrapnel and bursting shells on the proving ground. The records search did not reveal specific impact areas.

6.6.30 Stump Neck Impact Area (MAP GRID F-16 and G-16)(SITE NO. 30)

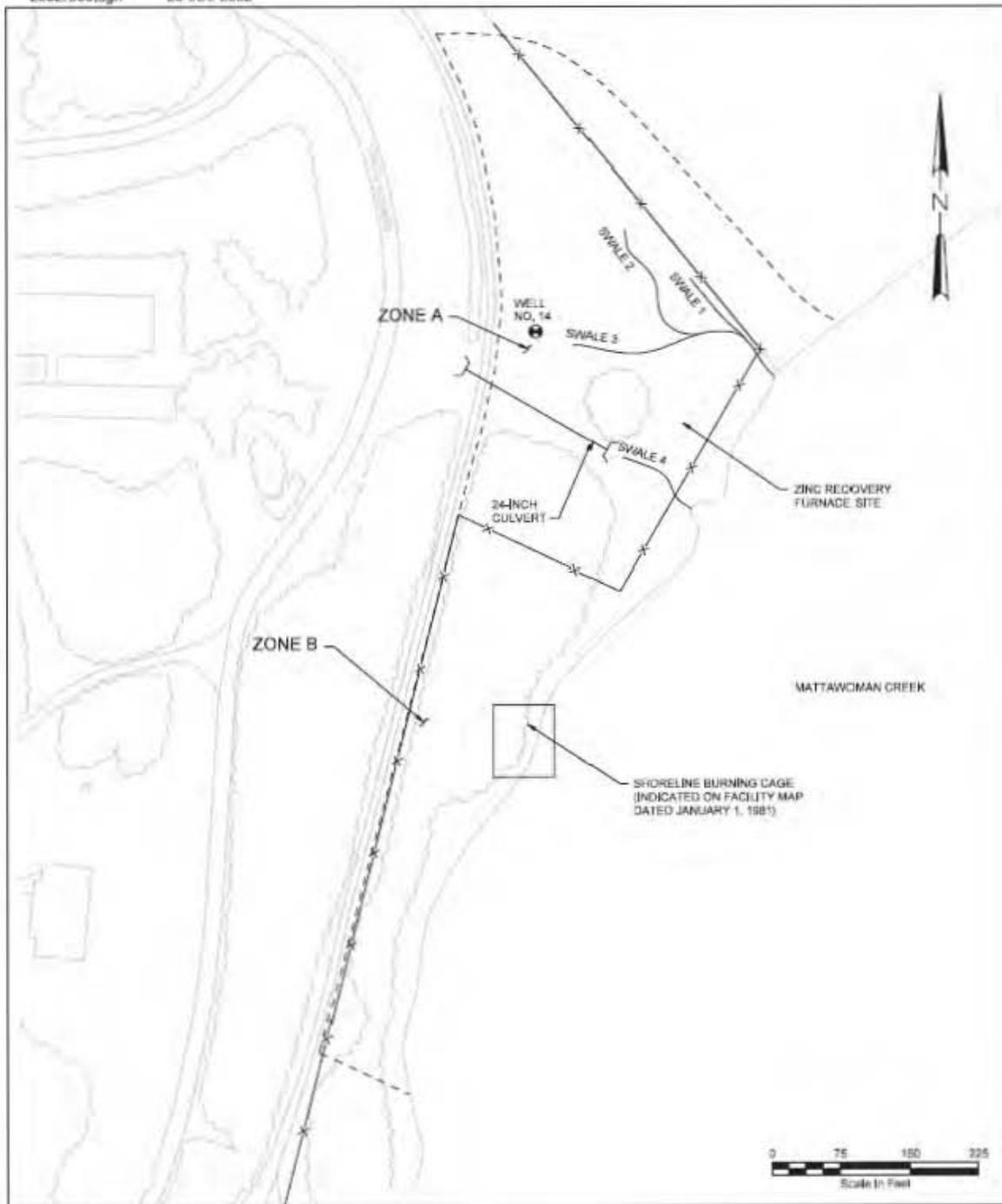
There was alleged to have been naval gun firing at Stump Neck into the marsh at grid locations F-16 and G-16 during pre-World War II years. This firing was said to have been observed from a concrete bunker. The bunker does exist and is located on the bluff at grid location H-13. The concrete appears to be old enough to have been in place prior to World War II. Other details are not available.

6.6.31 Old Demolition Range (MAP GRID ZZ-26)(SITE NO. 31)

There is said to be an old demolition training ground about 1 acre in area at grid location ZZ-26 at the end of Porter Road. It was in use in 1962 and for "many years" prior to 1962. The closure date is not known; however, Building 2107, built in the late 1970s, is also located in the immediate area. Training activities at this site are believed to be similar to those now practiced at Range #6, an explosive ordnance disposal training range.

6.6.32 Suspected Tool Burial (MAP GRID ZZ-18)(SITE NO. 32)

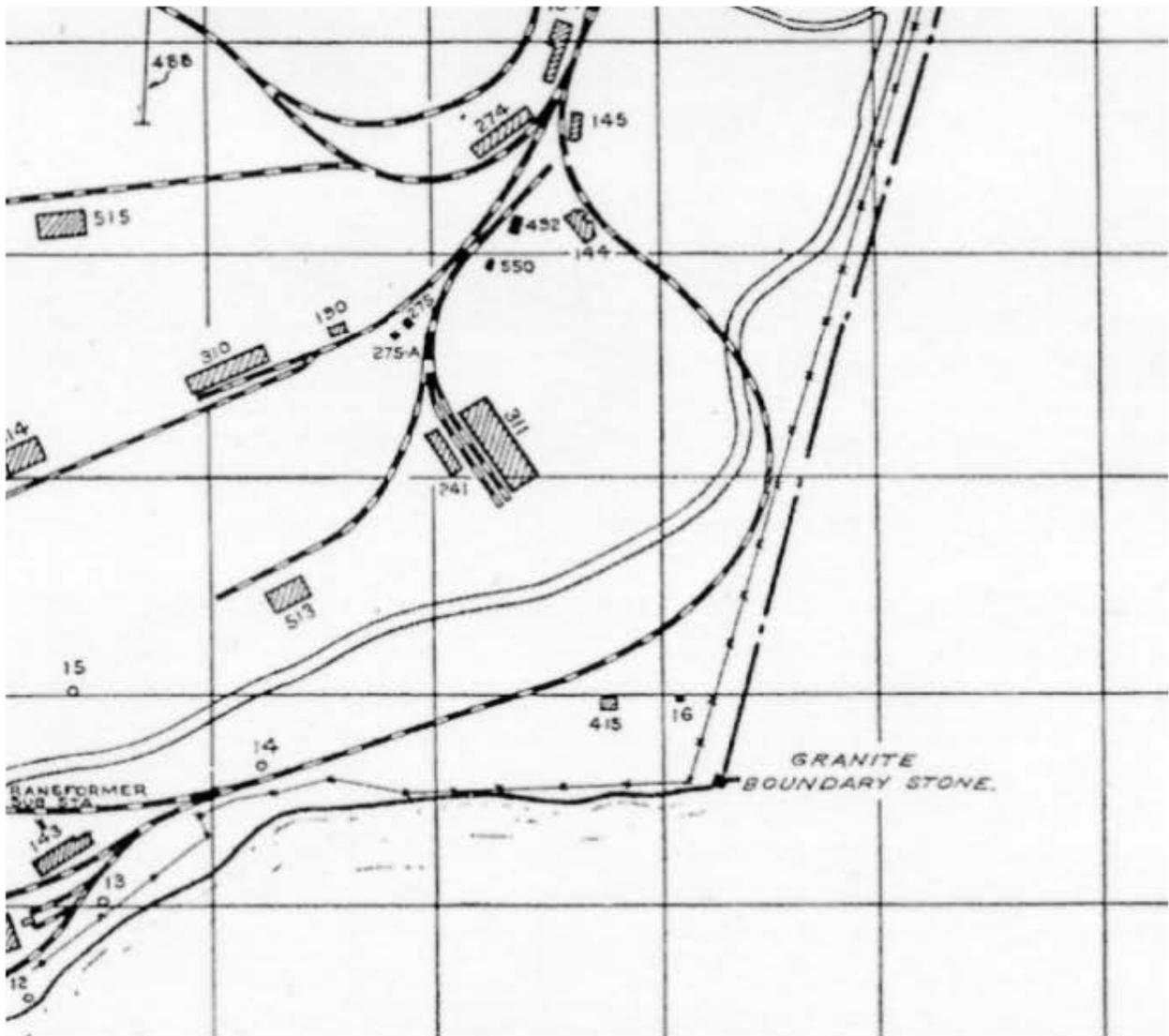
One person interviewed believed that special beryllium-copper alloy hand tools used in explosive ordnance disposal work were buried in the vicinity of Building 31SN, at grid ZZ-18. The area around the building is paved with asphalt. No other clues are available to confirm this suspicion; however, another confirmed site is reported near Building D-21C, at grid E-15.



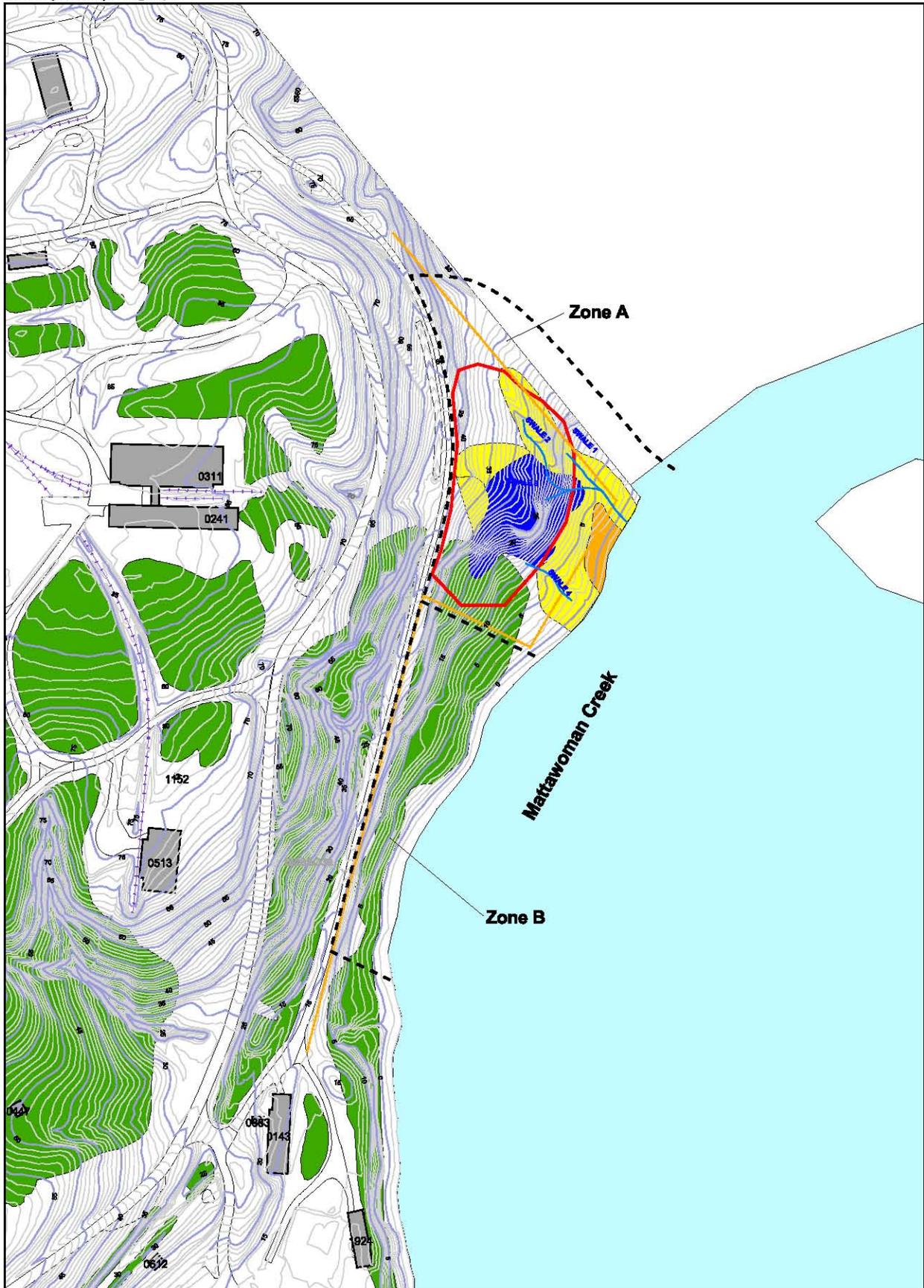
**LEGEND**

- X-X- FENCE LINE
- - - - - APPROXIMATE SITE BOUNDARY FOR RI

Figure 2-2  
Site 28 Layout  
NSF-IH Site 28 EE/CA  
Indian Head, Maryland







**LEGEND**

- Limits of excavation (Alt 2) or soil amendment (Alt 3) based on potential ecological risk
- Limits of excavation (Alt 2 and Alt 3) based on potential human health risk
- Limits of sediment/soil excavation (Alt 2) or soil amendment (Alt 3) based on potential ecological risk (BERA results)
- IR Site
- Buildings
- Roads
- Railroads
- Five foot Contours
- One Foot Contours
- Zone Boundary
- Fence Line

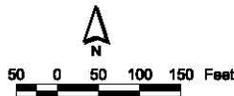


Figure 4-1  
Limits of Excavation and/or Soil Amendment  
for Alternative 2 and Alternative 3  
NSF-IH Site 28 EE/CA  
Indian Head, Maryland

## What to do if you find **Unexploded Ordnance (UXO)**

At or near Naval Support Facility, Indian Head (NSF-IH)

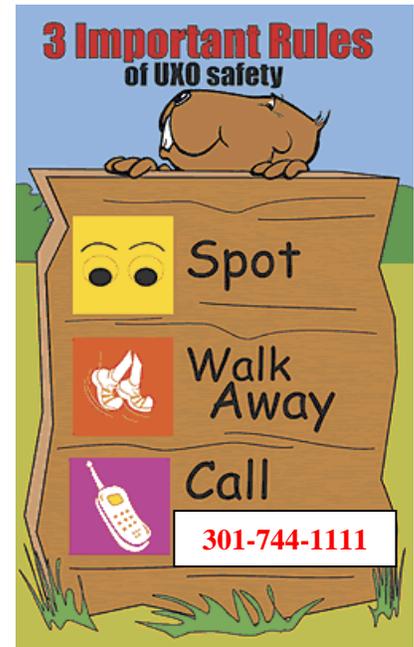
### If Ordnance is Found:

1. Do not touch, move or dig near or around suspected ordnance
2. Walk away in the direction you came
3. Identify the area on a map or by terrain feature
4. Report immediately to:

**301-744-1111**

### After Reporting UXO Discovery, the following will occur:

1. Appropriate Naval Support Activity South Potomac personnel are notified, including Police, Fire, Explosives Safety, etc.
2. Dahlgren Detachment Explosive Ordnance Disposal (EOD) is contacted for ordnance assessment and removal.
3. UXO records are documented and kept on file at NSF-IH.



## More Info...



**Mortar**

### UXO SAFETY WARNINGS

- When you see UXO, **STOP**. Do not move closer.
- Never use communication devices (walkie-talkies, citizens' band radios, cellular phones, etc.) near UXO.
- Never attempt to remove anything near a UXO.
- Never attempt to touch, move, or disturb a UXO.
- Without moving closer, clearly mark the location of the UXO, if possible.
- Avoid any area where UXO is located.



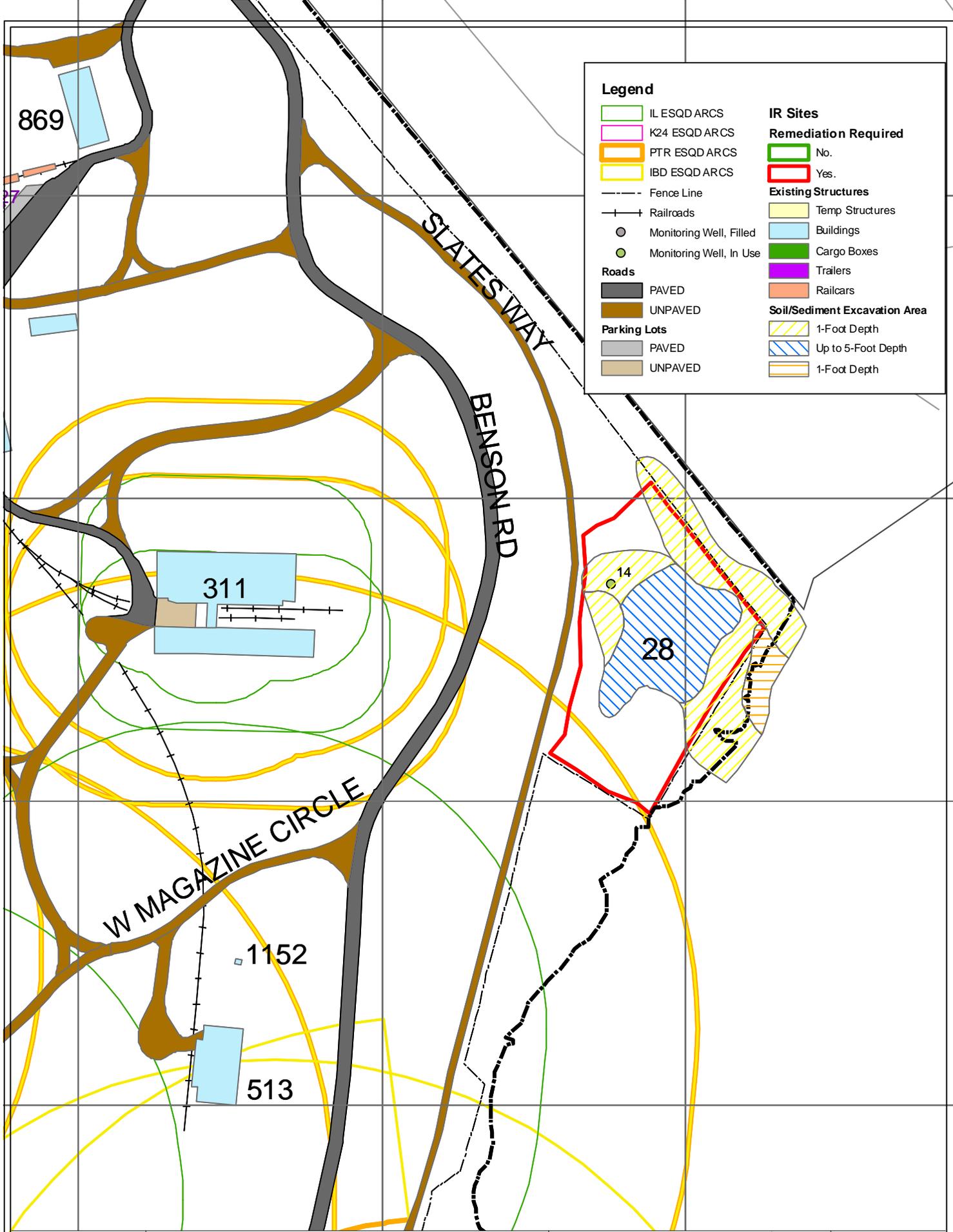
**Rocket Motor**

A person can lessen the danger of UXO hazards by being able to recognize the hazard and by adhering to the following basic safety guidelines (NAVEODTECHDIV 1994):

1. After identifying potential UXO, do not move any closer to it. Some types of ordnance have magnetic or motion-sensitive proximity fuzing that may detonate when they sense a target. Others may have self-destruct timers built in.
2. Do not transmit any radio frequencies in the vicinity of a suspected UXO hazard. Signals transmitted from items such as walkie-talkies, short-wave radios, citizens' band (CB) radios, cellular phones, or other communication and navigation devices may detonate the UXO.
3. Do not attempt to remove any object on, attached to, or near a UXO. Some fuzes are motion-sensitive, and the UXO may explode.
4. Do not move or disturb a UXO because the motion could activate the fuze, causing the UXO to explode.
5. If possible and without moving closer to the UXO, mark the location of the UXO with engineer tape, colored cloth, or colored ribbon or other suitable material by attaching the marker to an object so that it is about 3 feet off the ground and visible from all approaches. Place the marker no closer than the point where you first recognized the UXO hazard.
6. Leave the UXO hazard area the way that you entered.
7. **Report** the UXO to the proper authorities (**301-744-1111**).
8. Stay away from areas of known or suspected UXO. This is the best way to prevent accidental injury or death.

EXAMPLES OF UXO ITEMS THAT MAY BE SEEN AT  
NAVAL SUPPORT FACILITY, INDIAN HEAD





**Legend**

- IL ESQD ARCS
- K24 ESQD ARCS
- PTR ESQD ARCS
- IBD ESQD ARCS
- Fence Line
- Railroads
- Monitoring Well, Filled
- Monitoring Well, In Use
- Roads
  - PAVED
  - UNPAVED
- Parking Lots
  - PAVED
  - UNPAVED

**IR Sites**

**Remediation Required**

- No.
- Yes.

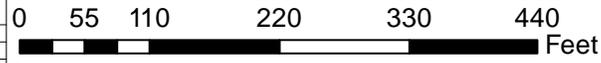
**Existing Structures**

- Temp Structures
- Buildings
- Cargo Boxes
- Trailers
- Railcars

**Soil/Sediment Excavation Area**

- 1-Foot Depth
- Up to 5-Foot Depth
- 1-Foot Depth

Date: 11 Apr 2007  
 Scale: 1:2,600  
 Created By: NSAF/C.C.C.  
 Drawing #: 311 Facility 2007



Naval Support Activity South Potomac  
 Naval Support Facility, Indian Head  
 Installation Restoration Site 28  
 Original Burning Ground



**MUNITIONS RESPONSE SITE (MRS)  
IDENTIFICATION AND NOTIFICATION REPORT**

**Instructions for use:**

Within one week of an initial encounter with MEC the responsible project manager shall complete and submit this report to NOSSA N53. A blank copy (as a Word document) may be downloaded from <https://intranet.nossa.navsea.navy.mil>.

MRS identifier:  
Activity, City and State

Installation Restoration (IR) Program Site 28 Activity: Naval Support Activity South Potomac Location: Naval Support Facility, Indian Head Indian Head, Maryland
--

Date  
submitted:

7 November 2007
--------------------

Responsible  
project manager:  
Name, activity,  
and contact  
information

Shawn Jorgensen Naval Support Facility, Indian Head (301) 744-2263 (Phone) (301) 744-4180 (Fax) shawn.a.jorgensen@navy.mil
---

EOD/UXO  
technical  
support:  
Contact  
information

EOD Mobile Unit II, Dahlgren Detachment GMC Joel Nelson (540) 653- 7425
--

Site history:  
Briefly describe  
past site use;  
discuss why MEC  
are known or  
suspected to be  
present

Site 28, also referred to as the "Original NOS (Naval Ordnance Station) Burning Ground," the "Slavins Dock Area," and the "Wildlife Area," is located along Mattawoman Creek on the northeastern side of Naval Support Facility, Indian Head (NSF-IH), Enclosure (1). The site was identified in the Initial Assessment Study (IAS) of 1983 as "The Original Burning Ground," a 1.8-acre site that only burned smokeless powder, based on the material manufactured when the site was operational (circa 1890s to 1942), Enclosure (2). The report also states that it is possible that various other contaminated wastes were open-burned there. The IAS shows the site located in Zone B, which is depicted on Enclosure (3) as the Shoreline Burning Cage.

A literature search of the site conducted by Navy Historian Jim Dolph in September 2001 revealed that the site was also the location of a zinc recovery furnace designated as Building 415, Enclosure (4). The building was constructed in 1928 and the last map showing the building is dated October 31, 1952, indicating that the building was demolished in the early 1950s. Mr. Dolph also found information showing that the burning cage was located in Zone A near the zinc recovery furnace shown in Enclosure (3). Unfortunately, the exact location of the former burning cage is unknown. The burning ground is shown outside of the existing perimeter fence on at least one historical map; however, burned debris, glass, and slag-like materials have been observed inside the fence, between the mouths of Swales 3 and 4, shown on Enclosure (3).

The Final Remedial Investigation Report for Site 28 of April 2005 identified a potential risk to human health for hypothetical residents and for future construction workers due to arsenic and zinc concentrations in soil and shallow groundwater. The Baseline Ecological Risk Assessment Report of September 2006 identified zinc as a contaminant of potential concern for ecological receptors. Explosives analyses included the full list of nitroaromatics and nitroamines published in US EPA's SW-846 method 8330, nitroglycerin, nitroguanidine, and perchlorate. Detections ranged from 57 µg/kg to 670 µg/kg and included 2,4,6-trinitrotoluene, 2,4,-dinitrotoluene, and nitrobenzene. Most of the explosives detects were in the center of the former zinc recovery furnace area, which is where the burned debris, glass, and slag-like material discussed above is located. However, based on the human health and ecological risk assessments, none of these detections pose an unacceptable risk to human health or the environment.

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Quantity,  
type/nomenclature,  
and condition

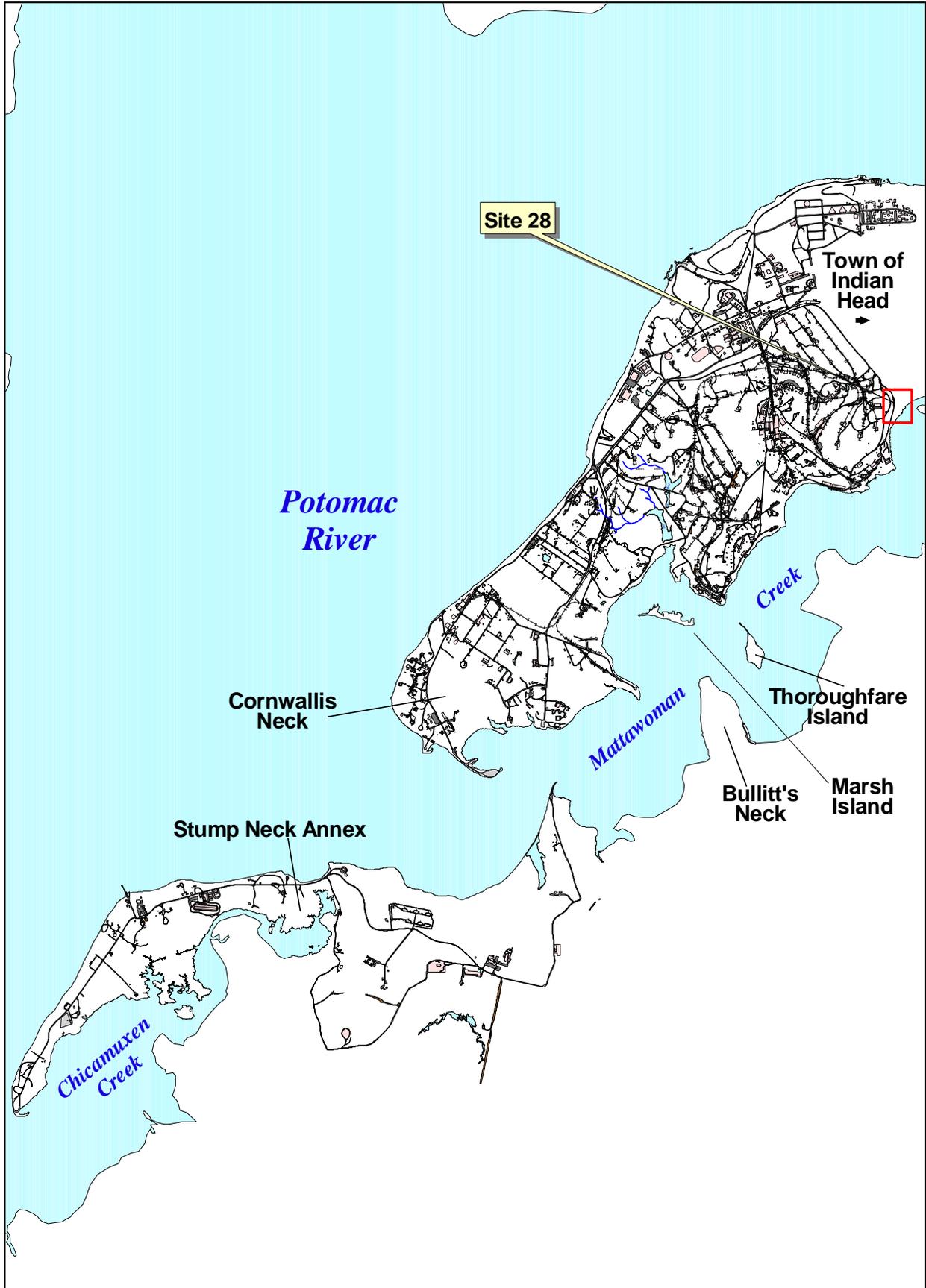
Single base propellant grains were found (3 each) on the surface at the Site 28 IR project.

Summary of actions taken to date and planned actions:

Per the ESS Determination, the site has been shut down and NOSSA is being notified to re-assess the site for further determination of what will be required to continue the work.

Enclose this report in a letter or memo, or attach it to a digitally signed e-mail, and send to:

- Mail:   COMMANDING OFFICER  
          NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY  
          ATTN:   CODE N53  
          23 STRAUSS AVE, BLDG D327  
          INDIAN HEAD, MD 20640-5555
- Fax:   301-744-6749 (DSN 354)
- E-mail: (call 301-744-4450 to obtain an e-mail address)



**LEGEND**

-  IR Site Boundary
-  Perennial Swale
-  Intermittent Swale
-  Railroads
-  Buildings
-  Asphalt Road
-  Dirt Road
-  Gravel Road



Figure 2-1  
Location of Site 28  
NSF-IH Site 28 EE/CA  
Indian Head, Maryland

6.6.28 Original Burning Ground (MAP GRID S36, 37) (SITE NO. 28)

This site is the location of the 1.8-acre original NOS burning ground. Team file searches were not able to determine what materials were burned at this site. However, based on the materials manufactured when the site was operational (circa 1890s to 1942), only smokeless powder was burned at this site. It is also possible that various other contaminated wastes were open-burned here. Team site reconnaissance did not indicate any visible signs of these materials. There is not sufficient information to characterize the potential hazard at this site. A Confirmation Study is not recommended at this time.

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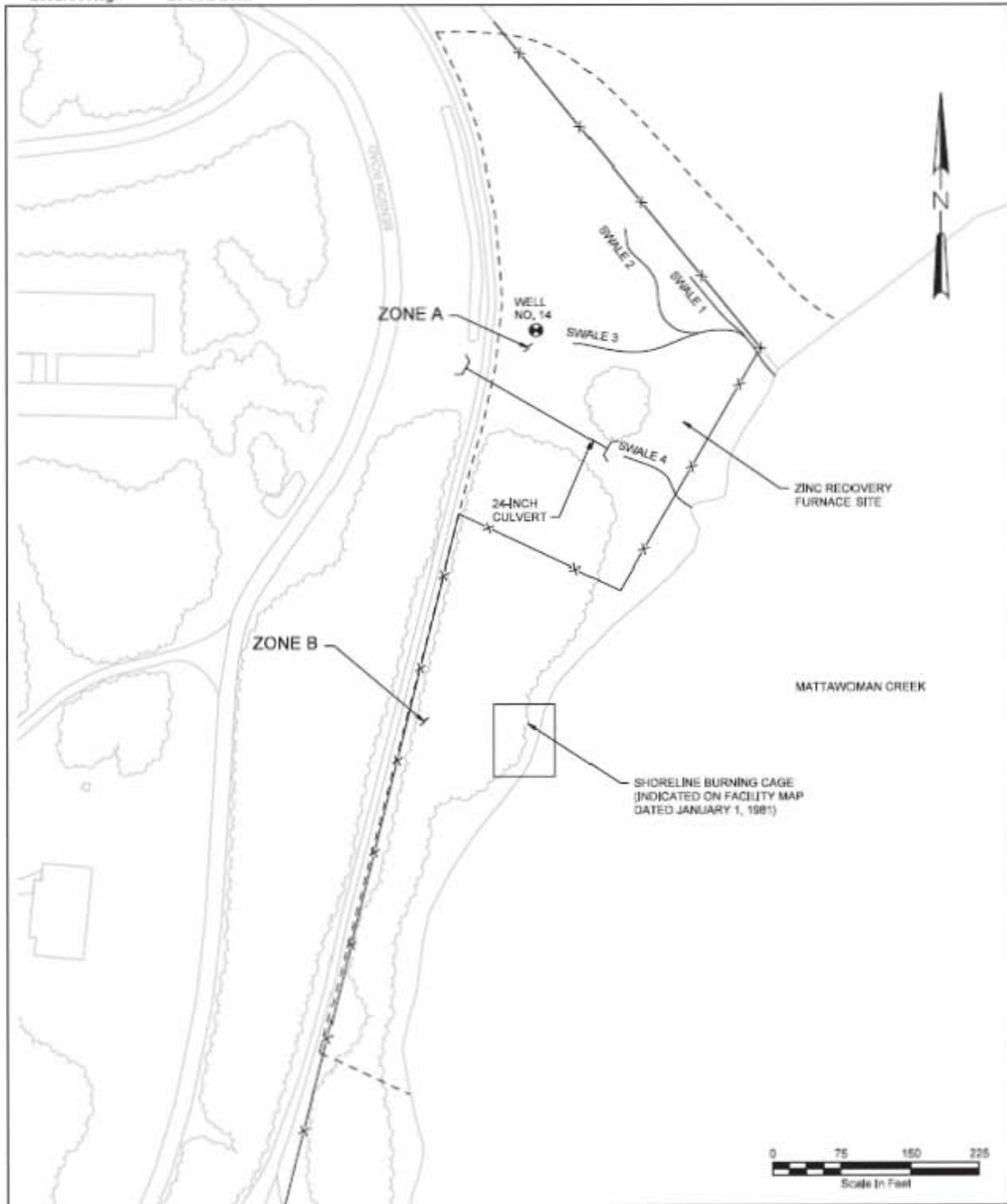
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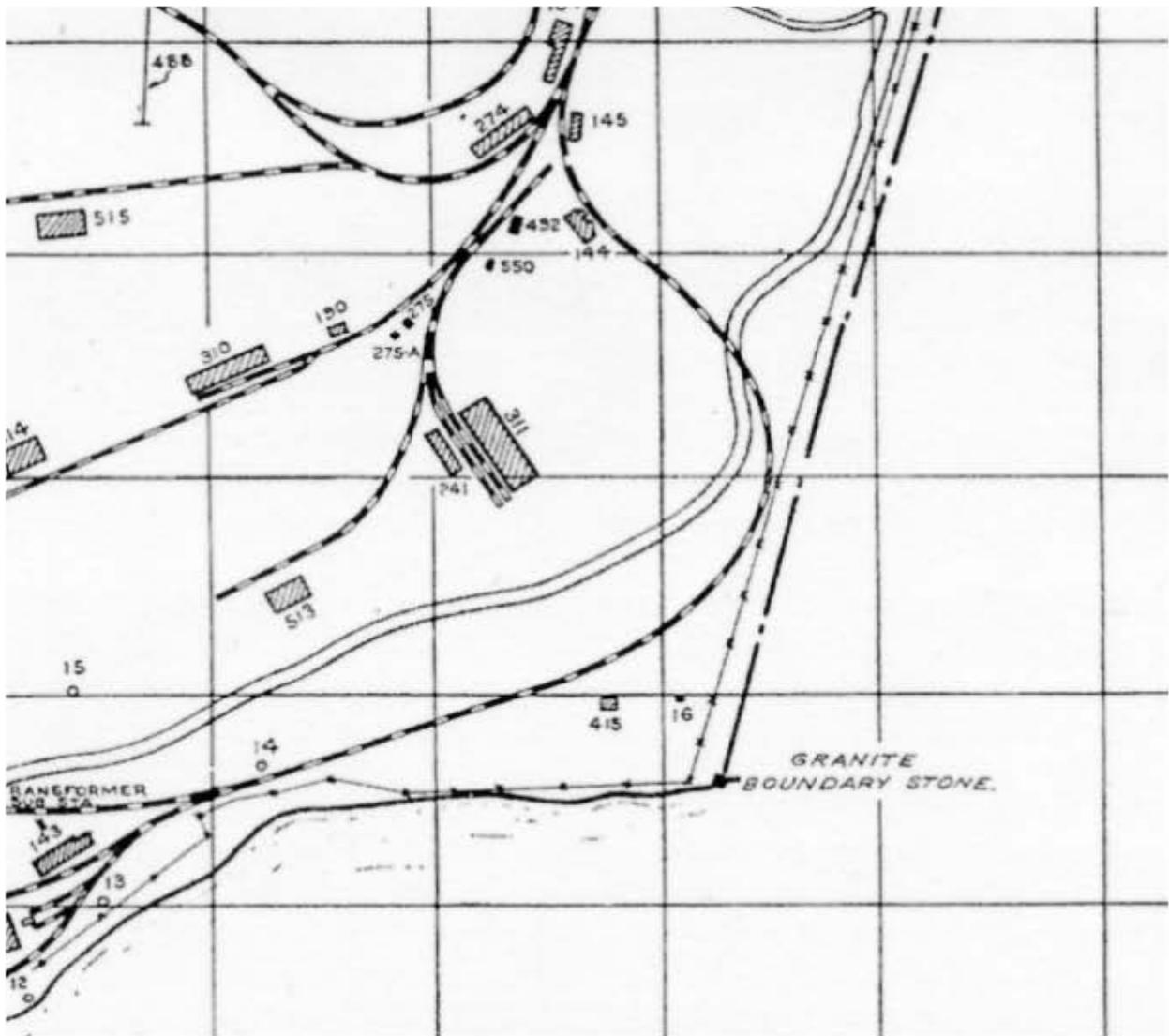
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**LEGEND**

- X-X- FENCE LINE
- - - - - APPROXIMATE SITE BOUNDARY FOR RI

Figure 2-2  
Site 28 Layout  
NSF-IH Site 28 EE/CA  
Indian Head, Maryland





**EXPLOSIVE SAFETY SUBMISSION  
REMOVAL ACTION AT SITE 28  
NAVAL SUPPORT FACILITY INDIAN HEAD  
INDIAN HEAD, MARYLAND**

CONTRACT NO. N62470-02-D-3260  
TASK ORDER NO. 093

Prepared for:  
Naval Ordnance Safety and Security Activity  
3817 Strauss Ave., Suite 108  
Indian Head, MD 20640-5151

November 2007

## 1. Background

### 1.1. Responsible Project Manager

Joseph Rail  
Naval Facilities Engineering Command Washington  
1314 Harwood Street, SE  
Washington Navy Yard, DC 20374-5018

Phone: 202-685-3105  
Fax: 202-433-6193  
Email: joseph.rail@navy.mil

### 1.2. MRS Identifier and Description

The site that is the subject of the proposed action is Site 28, which was also referred to as the “Original Naval Ordnance Station (NOS) Burning Ground”, the “Slavins Dock Area”, and the “Wildlife Area.” It is located in the northeastern portion of the Naval Support Facility, Indian Head (NSF-IH) bordering the northeastern shore of the Mattawoman Creek in Indian Head, Maryland. NSF-IH is an active installation within the Naval Support Activity South Potomac (NSASP) Command in the Naval District Washington (NDW) Region. Site 28 is comprised of two zones; Zone A and Zone B. This Explosive Safety Submission (ESS) addresses the activities which are to take place in Zone A. Currently there are no planned activities for Zone B. The overall size of the limits of disturbance for the activities to be performed at Site 28 is approximately 1.5 acres.

### 1.3. Regional Map (s)

A general location map depicting the location of Site 28 relative to the region is provided in Figure 1 at the end of this ESS. Figure 2 is a vicinity map that shows the location of Site 28 relative to NSF-IH. Figure 3 identifies the location of the proposed activities to be performed at the site. Figures 4 and 5 show the arcs associated with the proposed activities and the arcs generated by nearby buildings.

### 1.4. Scope of Munitions Response

Munitions response activities are being performed in order to facilitate the soil remediation goals of the general scope. In accordance with the project objectives as defined by the Scope of Work (SOW), the purpose of the removal activities is to reduce potential risks to human health and ecological receptors associated with site soil contaminants to defined acceptable levels. While the removal actions are being performed at Site 28, no other construction activities will occur at the site.

Although it was not anticipated that suspect Munitions and Explosives of Concern (MEC) would be encountered during the removal activities at Site 28, three single base propellant grains of ½ -inch diameter and 1 ½ -inch length weighing approximately 8 grams each were found at the site on 7 November 2007 by UXO Technicians during clearing and grubbing operations. As discussed in Section 5.1, grains at the site are not expected to be located at a depth greater than six inches. Therefore, the scope of the

Munitions Response Action being performed at Site 28 will include the removal of the top six inches of soil in the entire excavation area, except outside the facility fence line, under constant visual monitoring by qualified UXO Technicians. The excavation will be performed with earth-moving equipment and the excavated top six inches of soil will be transported to the Bronson Road Landfill (BRL) for temporary storage. This soil will either be incorporated under an engineered cap at the BRL, or will be reassessed in the event that the soil cannot be incorporated under the cap. Since there is no reason to believe that single base propellant grains are present outside of the site boundary, which includes the zinc-contaminated soil to be excavated outside of the facility fence line, this soil will be handled with the remainder of the site soil, as described below.

The remainder of the soil at the site, including soil outside the facility fence line, will then be excavated with earth-moving equipment and will be screened with a mechanical screener (Scalper 107) using a 5-inch and a 2-inch screen. Even though there are no known Materials Potentially Presenting an Explosives Hazard (MPPEH) at the site, surface debris (concrete, bricks, metal, etc.) is present. It is NAVFACWASH policy to screen the soil to ensure that no MPPEH is inadvertently sent off-site. Therefore, qualified UXO Technicians will monitor these activities and respond appropriately using procedures established in this ESS if additional suspect MEC are encountered. This soil will be transported to a RCRA Subtitle D landfill, King Landfill and/or Queen Landfill in Virginia.

Site 28 will remain in control of the federal government (Navy) upon completion of the remediation activities. The reasonably anticipated future land use for Site 28 will likely be industrial; however, no construction activities are currently planned for the site.

#### 1.5. History of MEC Use

Site 28 is located in the northeast corner of the NSF-IH bordering the Mattawoman Creek. Also referred to as the “Original Naval Ordnance Station (NOS) Burning Ground,” Site 28 is the former location for a zinc recovery furnace (Building 415) and a shoreline burning cage. An Initial Assessment Study (IAS) concluded that, based on the material that was manufactured when the site was operational (circa 1890s to 1942), smokeless powder may have been burned at the site. The exact location of the former burning cage is unknown. Because of the burning activities which occurred at the site and the uncertainty of the burning cage location, the possibility may exist for finding single-base (nitrocellulose) propellant grains during the removal activities. It is believed that most, if not all, of the grains were destroyed during open burning or were removed during the demolition of the zinc recovery furnace. However, Site 28 is downgradient of a known MRP Site (UXO 009, Single Base Propellant Grains Spill Area) and three grains were found at the site. Therefore, UXO Technicians will be present during the removal activities for this project to ensure that any grains which might be located in the area are identified, removed, and properly addressed.

#### 1.6. Previous Studies of Extent of MEC Contamination

Previous investigations include an Initial Assessment Study dated May 1983, which determined that smokeless powder may have been burned at the site in the former burning cage, a Remedial Investigation (RI) dated April 2005 and a Baseline Ecological

Risk Assessment (BERA) dated September 2006. Although low levels of explosives were found in the soil at the site during the RI, the levels were far below those for explosive soils and do not pose an unacceptable risk to human health or the environment, as discussed in Section 3.2.4.

#### 1.7. Regulatory Statute, Phase, and Oversight

This removal action at Site 28 is operating under the Installation Restoration (IR) program which has the concurrence of the EPA, the Maryland Department of the Environment, and the Indian Head Community, as required under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

## 2. SAR

### 2.1. NAVFAC Form 11010/31, "Request for Project Site Approval"



**REQUEST FOR PROJECT SITE APPROVAL/EXPLOSIVES SAFETY CERTIFICATION NAVFAC 11010/31 (REV. 5-2001)**

**PART II DIVISION A-EXPLOSIVES SAFETY**

**INSTRUCTIONS IN NAVFACINST 11010.45**

1. NEW/Class/Division/ESQD arcs\* of project:  
 Because the concentrations and amount of single-base grains are expected to be very low, it is assumed that there will be no concentrations of bare single-base grains greater than 1 pound within the site. While single-base grains are classified as 1.3 C/D material, NAVSEA OP-5 does not provide reduced ESQD arcs for quantities of 1 lb. Therefore, since the blast affects of 1.3 C/D would be less than 1.1 C/D, the conservative assumption will be made that there will be no more than 1 lb NEW of bare 1.1 C/D material for the ESQD calculations.  
Excavation Area (using 1 lb NEW): IM = 11 feet, IL = 18 feet, PTR = 24 feet, IBD = 40 feet  
Propellant Grain Temporary Storage Area (using 1 lb NEW): IM = 11 feet, IL = 18 feet, PTR = 24 feet, IBD = 40 feet

2. CNO Waivers and Exemptions:  
 None

3. Personnel: (numbers):

Two UXO Technicians  
 Three Equipment Operators  
 Three Laborers  
 One Field Supervisor  
 One QC Manager

	Proposed	Existing
Military:	-	-
Civilian:	-	-
Other (Building Inhabitants):	-	-
Total:	10	-

4. Facility Number/Type  
 The proposed activities will not encumber any Inhabited Buildings (see Figure 4).

5. Siting Rationale:  
 PES boundary is based upon the limits of excavation and location of activities to be performed at Site 28.

\*Distance from project. Specify IB, (Inhabited Building); IL, (Intraline); IM, (Intermagazine); PTR, (Public Transportation Route); B (Barricaded); UB, (Unbarricaded)

6. Signature of Public Works/Base Civil Engineer (Name/Code) Incl E-Mail Address		9. Signature of Explosive Safety Officer/Installation Safety Officer Incl. E-Mail Address	
7. Telephone Numbers: ( ) DSN	8. Date:	10. Telephone Numbers: ( ) DSN	11. Date:

### 3. Types of MEC

#### 3.1. Types and Quantities of MEC, Including MPPEH

Since three propellant grains have been found at the site and based upon previous burning activities of smokeless powders at the site, it is assumed that additional single-base propellant grains may be found during removal activities at Site 28. It is anticipated that only very small, highly dispersed amounts of grains will be found, if any. For ESQD calculating purposes, the conservative assumption will be made that no more than 1 lb Net Explosive Weight (NEW) bare material will be uncovered/temporarily staged at the site.

#### 3.2. MGFD

##### 3.2.1. *Selecting the MGFD*

The Munition with the Greatest Fragmentation Distance (MGFD) for the removal activities is assumed to be 1 lb NEW of bare, single-base propellant grains, which equates to approximately 57 grains of the size and weight that were found at this site as described in Section 1.4. Because the concentrations and amount of single-base grains are expected to be very low, it is assumed that there will be no concentrations of bare single-base grains greater than 1 lb within the site. While single-base grains are classified as 1.3 C/D material, NAVSEA OP-5 does not provide reduced ESQD arcs for quantities of 1 lb. Therefore, since the blast affects of 1.3 C/D would be less than 1.1 C/D, the conservative assumption will be made that there will be no more than 1 lb NEW of bare 1.1 C/D material for the ESQD calculations. Using 1 lb NEW of bare 1.1 C/D explosive in the open as the basis for the ESQD arcs the results are as follows; intermagazine distance (IM) = 11 feet, intraline distance (IL) = 18 feet, public transportation route distance (PTR) = 24 feet, and an inhabited building distance (IB) of 40 feet. Figure 4 depicts the ESQD arc sizes at Site 28.

##### 3.2.2. *Encountering MEC Other than Selected MGFD*

If while executing the munitions response, UXO Technicians encounter an item that has a greater fragmentation distance than the selected MGFD, the UXO Technician will immediately stop operations and an amended ESS will be submitted to NOSSA N5 for approval.

##### 3.2.4. *Explosive Soil and Contaminated Buildings*

The Final Remedial Investigation Report for Site 28 of April 2005 identified a potential risk to human health for hypothetical residents and for future construction workers due to arsenic and zinc concentrations in soil and shallow groundwater. The Baseline Ecological Risk Assessment Report of September 2006 identified zinc as a contaminant of potential concern for ecological receptors. Explosives analyses included the full list of nitroaromatics and nitroamines published in US EPA's SW-

846 method 8330, nitroglycerin, nitroguanidine, and perchlorate. Detections ranged from 57 µg/kg to 670 µg/kg and included 2, 4, 6 – trinitrotoluene, 2, 4 – dinitrotoluene, and nitrobenzene. Most of the explosives detects were in the center of the former zinc recovery furnace area, which is where burned debris, glass, and slag-like material is located. However, based on the human health and ecological risk assessments, none of these detections pose an unacceptable risk to human health or the environment.

#### **4. Project Dates**

##### **4.1. Project Date**

The project began on 15 October 2007 under the NOSSA-approved ESS Determination and work stopped on 7 November 2007 when three single base propellant grains were found. Work on this project will resume upon approval of this ESS and excavation and soil screening activities will continue for approximately two months after the project is resumed. Afterwards, site restoration activities, which include filling and grading, will continue for an additional month. Wetland Restoration is scheduled to begin and be completed in April 2008.

#### **5. MEC Migration**

##### **5.1. MEC Migration**

It is assumed that the propellant grains that may be found were spilled during transport or left from the burning cage activities and are therefore limited to the surface or top six inches of soil. The material is not expected to have migrated to a depth where its movement is influenced by frost heave or tidal influence. The areas near the shore line will be visually inspected by the UXO Technicians for any suspect MEC that may be washed onto the shore as a result of tidal influence.

#### **6. QC/QA**

##### **6.1. Quality Document**

Quality Control will be addressed in the Quality Control Plan Addendum of the Work Plan for the Removal Action at Site 28.

##### **6.2. Personnel Qualifications**

All UXO Technicians will meet or exceed the requirements of the Department of Defense Explosives Safety Board Technical Paper (DDESB TP) 18. As a minimum, the UXO team will consist of a UXO Technician III, who will serve as a UXO Safety Officer (UXOSO) and UXO Quality Control Specialist (UXOQCS), and a UXO Technician I. Both technicians will be familiar with the appearance of single-base propellant grains and

have experience and/or certification in identification, classification, and remediation of such propellants.

### 6.3. QC Implementation

The UXOQCS and Site QC Manager will oversee all activities being performed during the removal action and will work together to resolve quality control issues. Quality control issues relating to suspect MEC will be addressed by the UXOQCS. The UXOQCS will report issues to the Site QC Manager and the Program QC Manager and will have the authority to stop non-compliant work. The UXOQCS will be qualified in accordance with DDESB TP18 as discussed in Section 6.2.

The UXOQCS will check 25% of all soils prior to stockpiling for loadout. If no propellant grains are found after four 25% checks, the checks may be reduced to 10%. If during a 10% check any propellant grains are found, those soils will be rejected and the UXO Technicians will complete a re-survey. The UXOQC will then re-check that soil. At this point the checks will be increased to 25% until four checks have been found to be propellant grain free. The UXOQCS will also confirm the proper treatment/disposal of all items and monitor the shoreline for suspect MEC and MPPEH.

### 6.4. QA Implementation

Quality Assurance activities for Site 28 will be performed by NAVEODTECHDIV who will serve as a third party check of the contractors QC activities. QA personnel will ensure that all activities being performed are in compliance with this ESS and the contract's scope of work.

## 7. **Detection Techniques**

### 7.1. Detection Equipment, Method, and Standards

#### 7.1.1. *Techniques and Equipment Types*

Visual monitoring of the activities being performed will be the primary method of detection during the removal action at Site 28. Prior to beginning any intrusive activities, the UXO Technicians will walk the site and verify that no visible propellant grains or other forms of suspect MEC are present within the limits of disturbance. If necessary, clearing and grubbing activities, including mowing, will be performed to ensure proper visual inspection prior to beginning excavation. As discussed in Section 1.4, the UXO Technician III will monitor the soil removal activities for suspect MEC and the UXO Technician I will monitor the Scalper 107 screening activities for MPPEH. Although no MPPEH is suspected at the site, if any is found, then this ESS will be amended to address the MPPEH. Once the soil has been screened, the UXOQCS will perform a final 10% visual confirmation of the screened pile prior to restaging the soil for loadout. If at any time during the operations a suspect MEC is identified, it will be addressed as specified in Section 8.

### 7.1.2. *Detection Capabilities*

Visual monitoring of the removal activities will provide the maximum detection of the single-based propellant grains.

### 7.2. Navigational Equipment, Method, and Standards

NA

### 7.3. Equipment Checkout and Calibration

All equipment will be inspected on a daily basis to ensure they are in proper condition for the day's activities. The equipment inspection will be documented on an inspection sheet. Radios and communications equipment will be approved by NSFIIH Physical Security and must have a Hazards of Electromagnetic Radiation to Ordnance (HERO) sticker issued by NSWC Indian Head Safety Office and will be tested prior to use for functionality. Radio and communication equipment operators must be trained by NSWC Indian Head Safety office personnel on HERO restrictions.

### 7.4. Data Collection and Storage

Data to be collected will include the locations and quantities of grains found. Representative photos will also be taken to demonstrate variability in grains that are found.

## **8. Response Actions**

### 8.1. Response Technique

#### 8.1.1. *Vegetation Removal*

Clearing and grubbing will be performed by field technicians in the support areas and the excavation areas to remove above ground vegetation, trees/saplings, and stump/root systems within the limits of disturbance, as needed. Clearing and grubbing activities will require the use of weed-eaters, lawn mowers, and chainsaws as necessary to remove vegetation. Prior to any clearing and grubbing activities, the area will be visually inspected by the UXO Technicians. Clearing and grubbing activities will be monitored by UXO Technicians. Field technicians performing the clearing and grubbing activities will be given site-specific training and will be provided with the proper PPE.

#### 8.1.2. *Specific Munitions Response Techniques*

Upon mobilization to the site and prior to any intrusive activities, UXO Technicians will perform a preliminary visual inspection of the surface for single-base

(nitrocellulose) propellant grains. Once the preliminary surface sweep has been completed, the UXO Technicians will visually monitor all intrusive site preparation activities, such as silt fence installation, clearing and grubbing operations, and waste characterization sampling.

***Note: If any propellant grains are found during the stages of this munitions response, they will be addressed as specified in Section 8.4.***

Next, earth-moving equipment (i.e. a backhoe or excavator) will be utilized to remove the top six inches of contaminated soils/sediment within the area to be excavated, except the soil outside the facility fence line. Grains are not anticipated to be located at a depth greater than six inches. This soil/sediment removal will be visually monitored by the UXO Technician III. Excavated soil and sediment will be transported to the Bronson Road Landfill (BRL) for temporary storage. The soil/sediment will either be incorporated under an engineered cap at the BRL, or will be reassessed in the event that the soil cannot be incorporated under the cap. Since there is no reason to believe that single base propellant grains are present in the soils outside of the site boundary, which includes the zinc-contaminated soil to be excavated outside of the facility fence line, it will be handled with the remainder of the site soil, as described below.

The remaining soil at the site to be excavated will then be excavated to an average depth of two feet in the blue area shown in Figure 3 and to one foot in the yellow area. The sediment shown in the orange area will also be excavated to a depth of one foot. These depths are based on concentrations of metals in the soil/sediment that pose a potential risk to human health and the environment. Although no grains are expected to be found in this soil and no MPPEH is expected to be found in this soil, UXO Technicians will observe the soil removal as an extra precautionary measure.

This soil will then be screened with a mechanical screener (Scalper 107) using a 5-inch and a 2-inch screen. Even though there are no known Materials Potentially Presenting an Explosives Hazard (MPPEH) at the site, surface debris (concrete, bricks, metal, etc.) is present. It is NAVFACWASH policy to screen the soil to ensure that no MPPEH is inadvertently sent off-site. Therefore, qualified UXO Technicians will monitor these activities and respond appropriately using procedures established in this ESS if additional suspect MEC are encountered. Excavated soil/sediment from below the initial 6" removal will be transported to a RCRA Subtitle D landfill, King Landfill and/or Queen Landfill in Virginia.

Finally, once the soil/sediment has been screened, the UXOQCS will perform an additional 10% visual inspection of the pile prior to stockpiling and loadout. If any MPPEH is identified during the visual inspection, work will stop and this ESS will be amended to handle the MPPEH upon NOSSA approval. Screened soils will be QC inspected on a daily basis and relocated to a staging area for final loadout to prevent excessive accumulation of soil near the screening equipment.

### 8.1.3. *Intrusive Investigation and Recovery*

Intrusive investigation and recovery activities are included in the details discussed in Section 8.1.2.

### 8.1.4. *Approved Munitions Handling Equipment*

This project will not require the use of any munitions handling equipment. UXO Technicians handling any suspect MEC will be required to wear PPE. Any grains identified during the removal activities will be placed in a Velostat™ conductive bag.

## 8.2. Operational Risk Management

The main hazard from the munitions response activities at the site is the accidental deflagration of propellant grains that could result from impact with earth-moving equipment during excavation and soil transfer operations. The controls that will be used to minimize injuries and equipment loss from this hazard will be to: 1) establish appropriate separation distance between essential and non-essential personnel, 2) have UXO Technicians visually inspect all earth-moving activities and stop operations if grains are spotted. Using the Risk Assessment Matrix, the Risk Assessment Code (RAC) for this activity is 5 (low), based on severity - III and probability - D.

## 8.3. MEC Hazard Classification, Storage, and Transportation

Single-base propellant grains will be considered 1.1 C/D. During removal activities at Site 28, any single-base propellant grains identified will be collected in a Velostat™ conductive bag, properly labeled, and temporarily held in an onsite sealable container, such as an ammo can. The grains will be given to NSWC IHDIV at the end of each work shift for placement in an approved less-than-90-day explosive hazardous waste accumulation site for treatment at the SATTP. NSWC IHDIV will provide necessary transportation of the items to the hazardous waste accumulation site and to the SATTP. A DD1348 form will be completed to document the transfer of the grains to NSWC IHDIV. The DD1348 will include the bag identification number and the approximate weight of the grains (not to exceed 1 lb). It is not anticipated that any MEC will be uncovered that will require off-site disposal.

## 8.4. MEC and MPPEH Disposition Processes

### 8.4.1. *MEC*

If at any point during the removal activities at Site 28 a single-base propellant grain is identified, the operation will be stopped and the grain will be removed. The UXO Technician observing the activity will ensure all operations are stopped, collect the grain in a Velostat™ conductive bag, and label it with a hazardous waste sticker and an identification number for tracking purposes. The identification number of the

bag of grains will be recorded by the UXOQCS and the bag will be placed in a temporary onsite sealable container. The bag of grains will be turned over to Al Brooker of Naval Surface Warfare Center (NSWC), Indian Head Division at the end of each shift for placement in an approved less-than-90-day explosive hazardous waste accumulation site until the grains can be thermally treated at the Strauss Avenue Thermal Treatment Point (SATTP), which operates under RCRA Subpart X Interim Status. George Turner, NSASP Explosive Safety Officer (ESO), will be notified if any grains are identified and will provide explosive safety technical support for the management and disposal of any single-base grains at SATTP.

#### 8.4.2. *MPPEH*

If any MEC or MPPEH items, other than the specified single-base propellant grains, are identified during the removal activities at Site 28 the activities will be stopped until a revised ESS has been submitted and approved by NOSSA, as discussed in Section 3.2.2. If an item is identified and all cavities are visually accessible it may be deemed 5X through proper certification/verification, demilitarization, and documentation in accordance with NAVSEA OP-5 Rev 7 Chg 5. This project is not anticipated to uncover any MEC or MPPEH that will require an amendment to this ESS.

#### 8.5. EZ Access

Exclusion Zones (EZs) and ESQDs, as described in Section 2 and Section 3 and shown in Figure 4 (as “Distance Arcs”), will be in place during Site 28 removal activities. While the EZs and ESQDs are in effect, access to these areas will be limited to personnel essential to the operation and authorized visitors only. Unrelated personnel and the public are prohibited from entering established EZs. Access to EZs will be determined on a case-by-case basis as specified in NAVSEA OP-5 Chg 5 Rev 7 Chapter 14 Section 7.5. All personnel entering EZs will receive site-specific safety training and authorized visitors will be escorted by a UXO Technician at all times.

#### 8.6. Mechanized MEC Processing Operations

Mechanized processes at Site 28 will include the use of a mechanical backhoe or excavator for the soil/sediment removal and the use of a mechanical screener for screening the excavated soil/sediment. Operators and UXO Technicians will be required to wear PPE, including safety glasses, hard hats, gloves, and steel-toed boots when working near mechanical equipment. In accordance with NAVSEA OP-5 Rev 7 Chg 5 Section 7-8.3, protection from 1.1 C/D bare material overpressure is provided at the intermagazine separation distance of 11 feet for the activities at Site 28. Therefore, UXO Technicians observing operations will maintain a minimal 11 foot separation distance from the process being observed.

#### 8.7. Explosive Soil

Based on previous soil sampling, the soil in the project area does not contain explosives at a reactive level (see Section 3.2.4).

## **9. Environmental, Ecological, Cultural, and/or Other Considerations Related to the Management of MEC**

### **9.1. Environmental, Ecological, Cultural, and/or Other Considerations related to the Management of MEC**

Erosion and sediment control is a concern for this project. The activities being performed will be completed under an approved erosion and sediment control plan and will comply with all Maryland Department of Environment regulations/requirements. Additionally, Site 28 is located within the Naval Powder Factory Historic district. However, no historical structures will be affected by the proposed removal action.

## **10. Technical Support**

### **10.1. EOD, UXO Contractor, or Other Munitions Response Personnel**

UXO Technicians (as described in Section 6.2) will provide support for the implementation of the field activities discussed in this ESS. The NSASP ESO, George Turner, will provide explosive safety technical support for the management and disposal of any single base grains at the Strauss Avenue Thermal Treatment Point.

### **10.2. Physical Security**

Access to the Naval Support Facility, Indian Head is controlled and monitored by Base Security. During all excavation activities, access to the site will be restricted by placing high visibility fence around the perimeter of the excavation area. A site entry and exit log will be used to monitor personnel onsite.

## **11. Residual Risk Management**

### **11.1. Land Use Controls**

There should be no need for controlling land use with respect to explosives safety within the areas of excavation, as shown on Figure 5, since excavation will be to a depth of one to five feet and the grains are not expected to be located at depths greater than one foot. However, since it is unknown whether the grains found were a result of burning activities at the site or if the grains came from the upgradient MRP Site (UXO 09), the boundary of site, as identified by the black dashed line on Figure 5, will remain in the Geographical Information System (GIS) as an area that potentially contains single base propellant grains. No excavation will be allowed in this area without a NOSSA-approved ESS. Additionally, Site 28 will remain in control of the federal government (Navy) upon completion of the remediation activities. The reasonably anticipated future land use for

Site 28 will likely be industrial; however, no construction activities are currently planned for the site.

### 11.2. Long-term Management

Potential explosives safety risks will remain at the site outside of the excavated area as described in Section 11.1 above. Therefore, this area will be addressed with the upgradient MRP Site UXO 09, Single Base Propellant Grains Spill Area. Since the soil removal action at this site was not conducted to specifically address potential explosives safety risks, no monitoring or 5-year reviews will be conducted with respect to the single base propellant grains. However, the site will be monitored for erosion until the vegetation takes hold. In addition, an After Action Report will be prepared that describes the action taken and will be submitted to NOSSA upon completion of all activities and final copy will be kept in the NSF-IH Environmental Administrative Record file.

## 12. Safety Education Program

### 12.1. Safety Education Program

Site 28 is located next to Slavin's Dock on Mattingly Avenue near the town of Indian Head. The remedial activities will be highly visible to the community near the site. A fact sheet has been prepared on the removal action to provide community members with information about the site activities. The fact sheet, including a call number (Public Affairs) for more information, has been provided to the Indian Head Town Council which describes the work being done. Copies of the fact sheet are available at the Indian Head Town Hall.

## 13. Stakeholder Involvement

### 13.1. Stakeholder Involvement

The removal action being conducted at this site has been presented to and accepted by the Restoration Advisory Board (RAB), which includes federal, state, and local officials, as well as community members. Regularly scheduled meetings with the RAB will continue to be held to keep them informed of progress of the site cleanup and to address their concerns. Additionally, the Indian Head IR Team (IHIRT), EPA, and the Maryland Department of the Environment will be kept informed of all stages of activities through preconstruction and bi-weekly quality control meetings. At these meetings response progress and any concerns regarding the explosives safety and environmental aspects of the activities being performed at Site 28 will be discussed.

## 14. Contingencies

### 14.1. Contingencies

Section 3.2 identifies the procedures for what to do if a different MGFID is identified during removal activities. In the event that a situation is encountered that prevents the primary approach discussed in this ESS from working efficiently or effectively, that activity will be suspended until a plan of action has been prepared and approved. Any amendments or corrections to the ESS will be submitted to NOSSA and DDESB as required in NOSSAINST 8020.15A.

## ***FIGURES***

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O:\Project\LAN\DIV\Indian Head\1265666\126566A2.dwg  
 Plot Date/Time: 06/07/07 11:16am Xref: .  
 Plotted by: william.snyder Image: LOCATION NAVFAC

**OFFICE** Pittsburgh, PA  
**DRAWING NUMBER** 126566-A2



REV	DATE	BY	CHK'D	APPROV	DESCRIPTION/ISSUE

**Shaw-Shaw Environmental, Inc.**

DESIGNED BY: D. Pringle 6/17/07 CHECKED BY: S. Seger  
 DRAWN BY: B. Snyder 6/17/07 APPROVED BY: S. Corriere

**NAVFAC**  
 Naval Facilities Engineering Command  
 U.S. NAVY

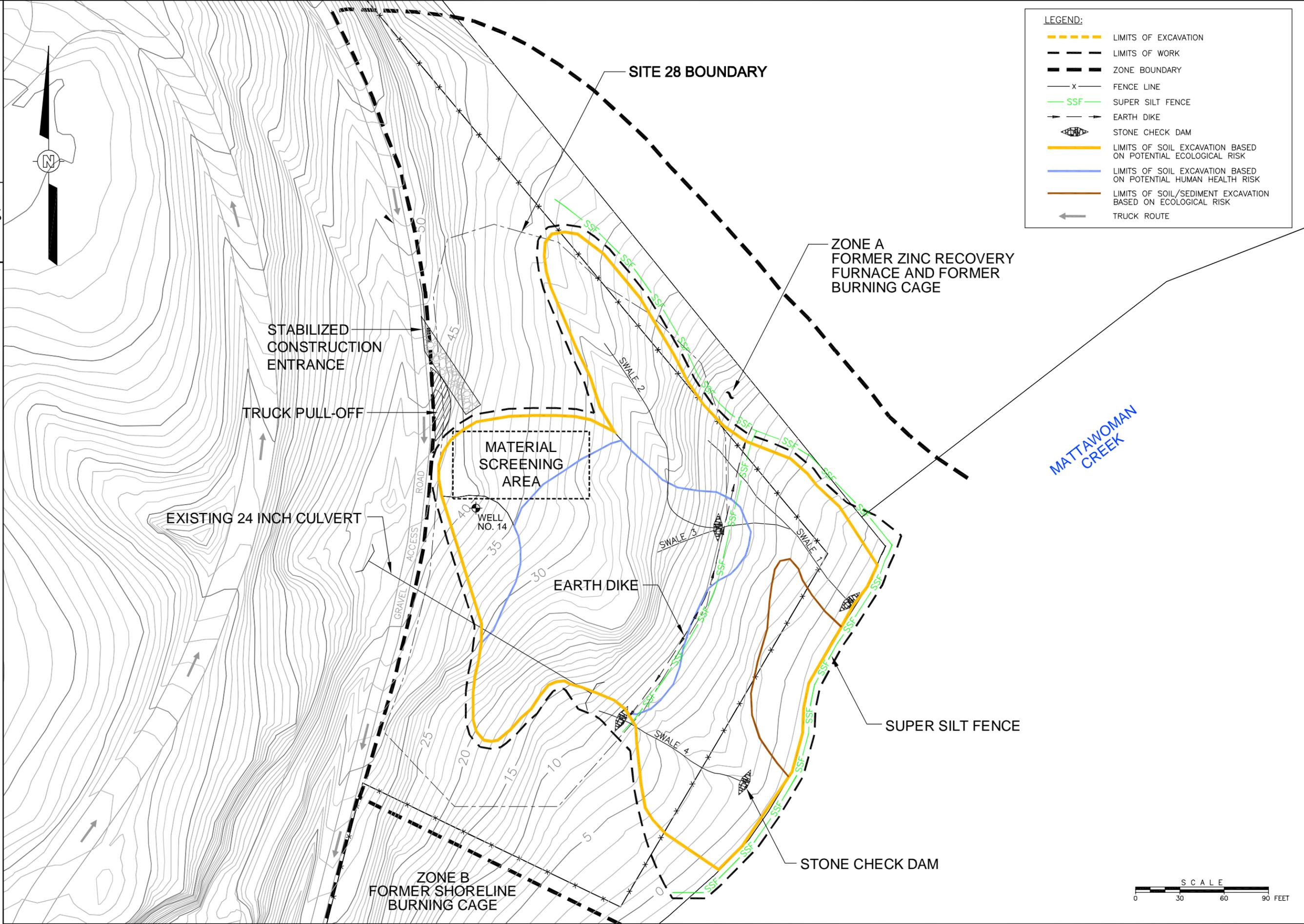
INDIAN HEAD, MARYLAND  
 NAVAL SUPPORT FACILITY, INDIAN HEAD  
 SITE 28 - REMOVAL ACTION  
 SITE VICINITY MAP

SCALE: AS SHOWN	SIZE: A
DELIVERY ORDER NO. 093	
CONSTR. CONTRACT NO. NB2470-02-D-3260	
NAVFAC DRAWING NO.	
SHEET I.D. <b>FIGURE 2</b>	

File: O:\Project\LANDM\Indian Head\126566\126566D8.dwg  
 Plot Date/Time: Nov 15, 2007 - 1:56pm  
 Plotted By: william.snyder

Xref:  
 Image: NAVFAC Logo.jpg

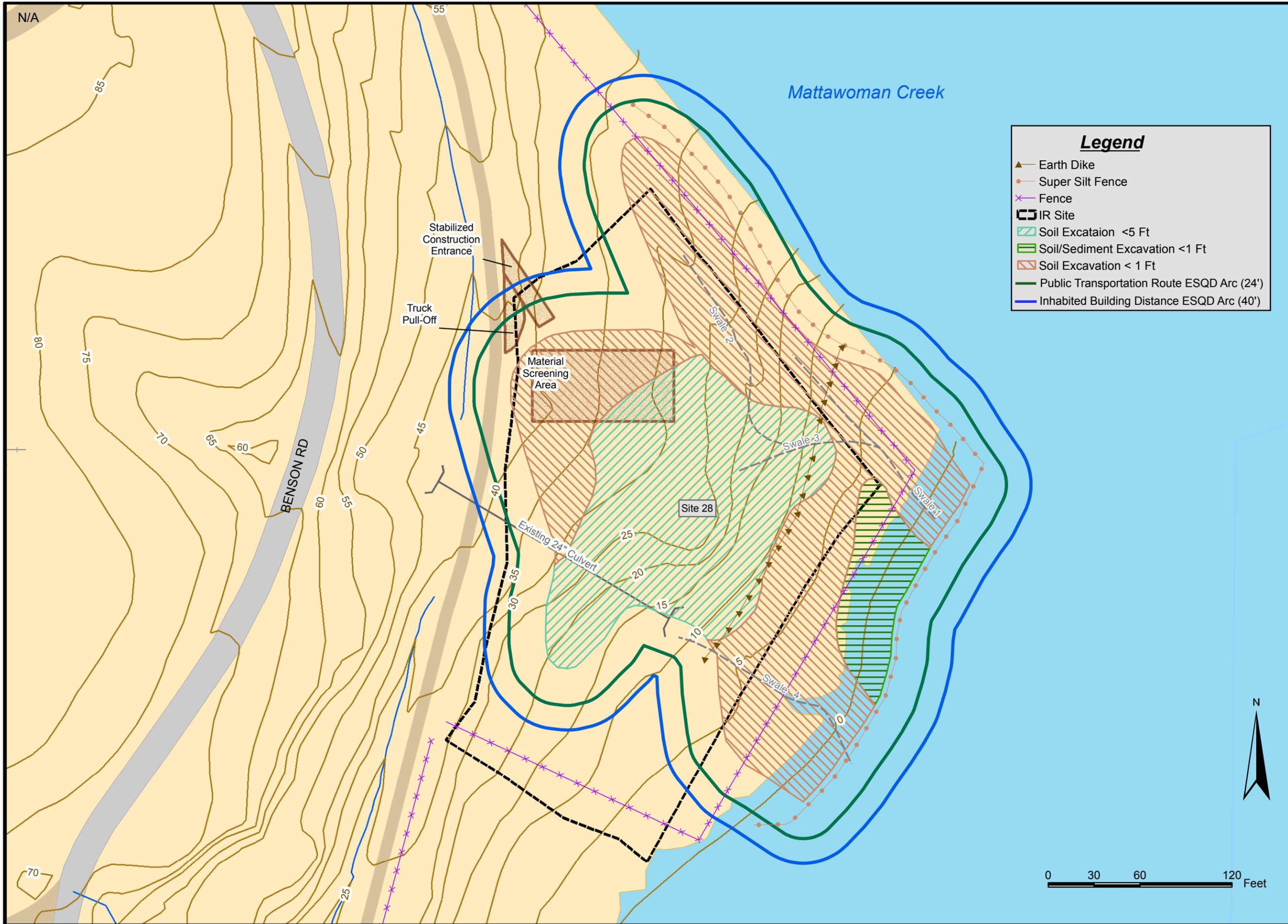
OFFICE DRAWING NUMBER  
 Pittsburgh, PA 126566-D8



**LEGEND:**

- LIMITS OF EXCAVATION
- LIMITS OF WORK
- ZONE BOUNDARY
- x FENCE LINE
- SUPER SILT FENCE
- EARTH DIKE
- STONE CHECK DAM
- LIMITS OF SOIL EXCAVATION BASED ON POTENTIAL ECOLOGICAL RISK
- LIMITS OF SOIL EXCAVATION BASED ON POTENTIAL HUMAN HEALTH RISK
- LIMITS OF SOIL/SEDIMENT EXCAVATION BASED ON ECOLOGICAL RISK
- TRUCK ROUTE

NAVFAC Naval Facilities Engineering Command INDIAN HEAD, MARYLAND		Shaw Environmental, Inc.	
SITE 28 - REMOVAL ACTION OPERATIONAL LAYOUT		DESIGNED BY D. Pringle	CHECKED BY S. Seger
		DRAWN BY B. Snyder	APPROVED BY S. Carriere
SCALE: AS SHOWN	SIZE: D	REV	DATE
TASK ORDER NO. 093	CONSTR. CONTRACT NO. N62470-02-D-3260	BY	CHK'D APR/YR
NAVFAC DRAWING NO.			DESCRIPTION/ISSUE
<b>FIGURE 3</b>			

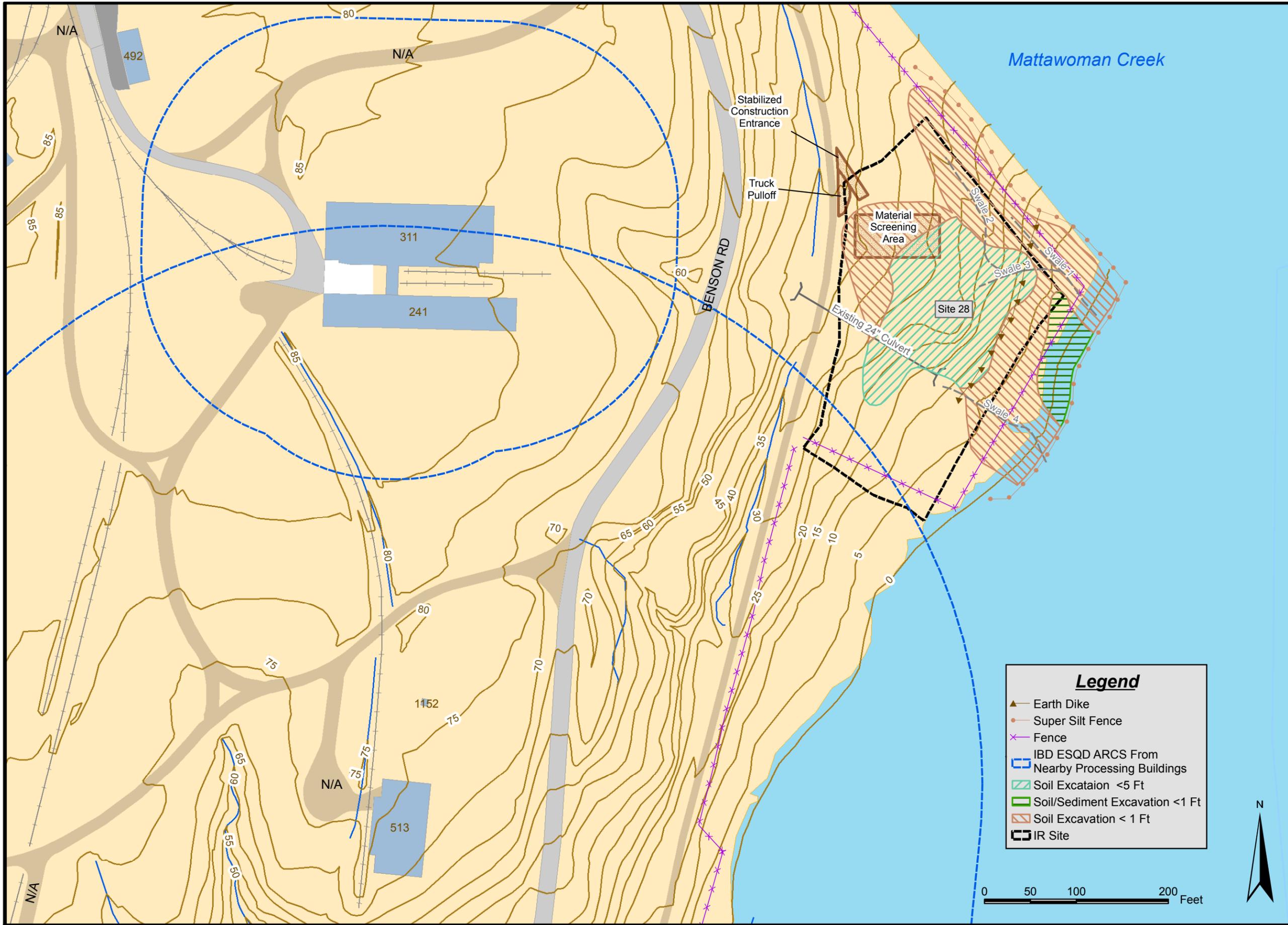


 Naval Facilities Engineering Command NAVFAC WASHINGTON		Shaw Environmental & Infrastructure, Inc.	
NAVAL SUPPORT FACILITY, INDIANHEAD, MD SITE 28 - ORIGINAL BURING GROUND		DESIGNED BY: KLM 07/07/07	CHECKED BY: KLM 07/07/07
PROJECT LOCATION AS POTENTIAL EXPLOSION SITE		DRAWN BY: KLM 07/07/07	APPROVED BY: KLM 07/07/07
SCALE <b>AS SHOWN</b>	SIZE <b>11X17</b>	TASK ORDER NO. <b>093</b>	
CONSTR. CONTRACT NO. <b>N62470-02-0-3260</b>			
NAVFAC Drawing No <b>IH_011</b>			
<b>FIGURE 4</b>			



REV	DATE	BY	CHKD	APRVD

REVISIONS



**Legend**

- ▲ Earth Dike
- Super Silt Fence
- ✕ Fence
- ▭ IBDESQD ARCS From Nearby Processing Buildings
- ▨ Soil Excavation <5 Ft
- ▨ Soil/Sediment Excavation <1 Ft
- ▨ Soil Excavation < 1 Ft
- ▭ IR Site



NAVAL SUPPORT FACILITY, INDIANHEAD, MD  
 SITE 28 - ORIGINAL BURING GROUND

PROJECT LOCATION AS  
 EXPOSED SITE

SCALE: **AS SHOWN** SIZE: **11X17**  
 TASK ORDER NO. **093**  
 CONSTR. CONTRACT NO. **N62470-02-0-3260**  
 NAVFAC Drawing No **IH\_012**

**FIGURE 5**

**Shaw**  
 Shaw Environmental & Infrastructure, Inc.

DESIGNED BY:	KLM	07/07/07	CHECKED BY:	KLM	07/07/07
DRAWN BY:	KLM	07/07/07	APPROVED BY:	KLM	07/07/07

REV	DATE	BY	CHKD	APRVD

REVISIONS

**EXPLOSIVE SAFETY SUBMISSION  
REMOVAL ACTION AT SITE 28  
NAVAL SUPPORT FACILITY INDIAN HEAD  
INDIAN HEAD, MARYLAND**

**CORRECTION 1**

CONTRACT NO. N62470-02-D-3260  
TASK ORDER NO. 093

Prepared for:  
Naval Ordnance Safety and Security Activity  
3817 Strauss Ave., Suite 108  
Indian Head, MD 20640-5151

April 2008

## 1. Background

### 1.1. Responsible Project Manager

Joseph Rail  
Naval Facilities Engineering Command Washington  
1314 Harwood Street, SE  
Washington Navy Yard, DC 20374-5018

Phone: 202-685-3105  
Fax: 202-433-6193  
Email: joseph.rail@navy.mil

### 1.2. MRS Identifier and Description

The site that is the subject of the proposed action is Site 28, which was also referred to as the “Original Naval Ordnance Station (NOS) Burning Ground”, the “Slavins Dock Area”, and the “Wildlife Area.” It is located in the northeastern portion of the Naval Support Facility, Indian Head (NSF-IH) bordering the northeastern shore of the Mattawoman Creek in Indian Head, Maryland. NSF-IH is an active installation within the Naval Support Activity South Potomac (NSASP) Command in the Naval District Washington (NDW) Region. Site 28 is comprised of two zones; Zone A and Zone B. This Explosive Safety Submission (ESS) addresses the activities which are to take place in Zone A. Currently there are no planned activities for Zone B. The overall size of the limits of disturbance for the activities to be performed at Site 28 is approximately 1.5 acres.

### 1.3. Regional Map (s)

A general location map depicting the location of Site 28 relative to the region is provided in Figure 1 at the end of this ESS. Figure 2 is a vicinity map that shows the location of Site 28 relative to NSF-IH. Figure 3 identifies the location of the proposed activities to be performed at the site. Figures 4 and 5 show the arcs associated with the proposed activities and the arcs generated by nearby buildings.

### 1.4. Scope of Munitions Response

Munitions response activities are being performed in order to facilitate the soil remediation goals of the general scope. In accordance with the project objectives as defined by the Scope of Work (SOW), the purpose of the removal activities is to reduce potential risks to human health and ecological receptors associated with site soil contaminants to defined acceptable levels. While the removal actions are being performed at Site 28, no other construction activities will occur at the site.

Since single-base propellant grains as large as ½-inch diameter, 1 ½-inch length and each weighing approximately 8 grams (0.0176 lbs) were found by UXO Technicians at the site, Munitions and Explosives of Concern (MEC) in the form of propellant is expected to be encountered during the removal activities at Site 28. As discussed in Section 5.1 of the original ESS, propellant grains at the site were not expected to be located at a depth greater than six inches. However, during excavation activities propellant grains were

encountered sporadically throughout the site. Additionally, unexpected MPPEH items such as propellant cans, propellant can lids, and propellant can rings were also encountered throughout the site and are contained in the approximately 1,500 cubic yards (cy) of soil removed from Site 28 and stockpiled at Indian Head IR Site 11 (Caffee Road Landfill). The discovery of MPPEH in Site 11 and Site 28 soils resulted in a shutdown of operations and the correcting of this ESS. Therefore, the scope of the Munitions Response Action has been expanded to include the excavation and mechanical screening of all remaining contaminated soil at Site 28 and the mechanical screening of the stockpiled soil at Site 11 that originated from Site 28. Both excavation and screening will be done under constant visual monitoring of qualified UXO Technicians. Once screened, the top six inches of Site 28 soil that was stockpiled at Site 11 will be incorporated under an engineered cap at the CRL or will be reassessed. In the event the soil cannot be incorporated under the cap it will be transported to a RCRA Subtitle D landfill, King Landfill and/or Queen Landfill in Virginia.

As MPPEH items are mechanically screened at Sites 11 and 28, each item will be 100% inspected by two qualified UXO technicians, demilitarized, and disposed of, as discussed in Section 8.4.2. Propellant grains will be addressed as discussed in Section 8.4.1. If MEC larger than the identified propellant grains are encountered this ESS will be amended. Excavated and screened soil that has been UXOQC checked and certified to be free of MEC and MPPEH will be transported to a RCRA Subtitle D landfill, King Landfill and/or Queen Landfill in Virginia.

Site 28 will remain in control of the federal government (Navy) upon completion of the remediation activities. The reasonably anticipated future land use for Site 28 will likely be industrial; however, no construction activities are currently planned for the site.

#### 1.5. History of MEC Use

Site 28 is located in the northeast corner of the NSF-IH bordering the Mattawoman Creek. Also referred to as the “Original Naval Ordnance Station (NOS) Burning Ground,” Site 28 is the former location for a zinc recovery furnace (Building 415) and a shoreline burning cage. An Initial Assessment Study (IAS) concluded that, based on the material that was manufactured when the site was operational (circa 1890s to 1942), smokeless powder may have been burned at the site. The exact location of the former burning cage is unknown. Because of the burning activities which occurred at the site and the uncertainty of the burning cage location, the possibility may exist for finding single-base (nitrocellulose) propellant grains during the removal activities. It is believed that most, if not all, of the grains were destroyed during open burning or were removed during the demolition of the zinc recovery furnace. However, Site 28 is downgradient of a know MRP Site (UXO 009, Single Base Propellant Grains Spill Area) and three grains were found at the site. Therefore, UXO Technicians will be present during the removal activities for this project to ensure that any grains which might be located in the area are identified, removed, and properly addressed.

#### 1.6. Previous Studies of Extent of MEC Contamination

Previous investigations include an Initial Assessment Study dated May 1983, which determined that smokeless powder may have been burned at the site in the former

burning cage, a Remedial Investigation (RI) dated April 2005 and a Baseline Ecological Risk Assessment (BERA) dated September 2006. Although low levels of explosives were found in the soil at the site during the RI, the levels were far below those for explosive soils and do not pose an unacceptable risk to human health or the environment, as discussed in Section 3.2.4.

#### 1.7. Regulatory Statute, Phase, and Oversight

This removal action at Site 28 is operating under the Installation Restoration (IR) program which has the concurrence of the EPA, the Maryland Department of the Environment, and the Indian Head Community, as required under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

## 2. SAR

### 2.1. NAVFAC Form 11010/31, "Request for Project Site Approval"



**REQUEST FOR PROJECT SITE APPROVAL/EXPLOSIVES SAFETY CERTIFICATION NAVFAC 11010/31 (REV. 5-2001)**

**PART II DIVISION A-EXPLOSIVES SAFETY**

**INSTRUCTIONS IN NAVFACINST 11010.45**

1. NEW/Class/Division/ESQD arcs\* of project:  
 Because the concentrations and amount of single-base grains are expected to be very low, it is assumed that there will be no concentrations of bare single-base grains greater than 0.0176 pounds within the site (based on grains currently identified at the site). Based on the identification of the 3 existing propellant grains, it is believed that any remaining grains are sporadically located about the site. While single-base grains are classified as 1.3 C/D material, NAVSEA OP-5 requires that all MEC identified be classified as 1.1 C/D or reclassified by NOSSA N82. Therefore, since the blast affects of 1.3 C/D would be less than 1.1 C/D, the conservative assumption will be made that a bare, single-base propellant grain contains 0.0176 lb NEW of 1.1 C/D material for the ESQD calculations.

Excavation/Stockpile Area (using 0.0176 lb NEW): IM = 3 feet, IL = 5 feet, PTR = 7 feet, IBD = 11 feet  
 Propellant Grain Temporary Onsite Container and MPPEH storage pile (using max 1 lb NEW): IM = 11 feet, IL = 18 feet, PTR = 24 feet, IBD = 40 feet

2. CNO Waivers and Exemptions:  
 None

3. Personnel: (numbers):  
 Two UXO Technicians  
 Three Equipment Operators  
 Three Laborers  
 One Field Supervisor  
 One QC Manager

	Proposed	Existing
Military:	-	-
Civilian:	-	-
Other (Building Inhabitants):	-	-
Total:	10	-

4. Facility Number/Type  
 The proposed mechanized excavation activities will encumber the off base residence 'House 108'. As a result, excavation within 86 feet of House 108 will only be performed when the home is unoccupied. This will be coordinated with the resident as discussed in the ESS.

5. Siting Rationale:  
 PES boundaries for Site 28 and Site 11 are based upon the limits of excavation and location of screening activities to be performed.

\*Distance from project. Specify IB, (Inhabited Building); IL, (Intraline); IM, (Intermagazine); PTR, (Public Transportation Route); B (Barricaded); UB, (Unbarricaded)

6. Signature of Public Works/Base Civil Engineer (Name/Code) Incl E-Mail Address		9. Signature of Explosive Safety Officer/Installation Safety Officer Incl. E-Mail Address	
7. Telephone Numbers: ( ) DSN	8. Date:	10. Telephone Numbers: ( ) DSN	11. Date:

### 3. Types of MEC

#### 3.1. Types and Quantities of MEC, Including MPPEH

During site setup and excavation of soils, a total of 204 single based propellant grains of varying sizes were identified, removed, and treated at Strauss Avenue Thermal Treatment Point. Based upon completed excavation activities, the depth to which propellant grains may be located is currently unknown. However, it is anticipated that additional single-base propellant grains will be found during the remaining removal activities at Site 28. In addition to the single-base propellant grains, more MPPEH will likely be encountered.

#### 3.2. MGFD

##### 3.2.1. *Selecting the MGFD*

The Munition with the Greatest Fragmentation Distance (MGFD) for the removal activities is assumed to be a bare, single-base propellant with 0.0176 lb NEW, which is similar in size and weight to those that were found at this site as described in Section 1.4. Because the concentrations and amount of single-base grains are expected to be very low, it is assumed that there will be no concentrations of bare single-base grains accumulated at the site. Based on the identification of the three existing propellant grains, it is believed that any remaining grains are sporadically located about the site. While single-base grains are classified as 1.3 C/D material, NAVSEA OP-5 requires that any identified MEC be classified as 1.1 C/D unless otherwise reclassified by NOSSA (N82). Using 0.0176 lb NEW of bare 1.1 C/D explosive in the open as the basis for the ESQD arcs the results are as follows; intermagazine distance (IM) = 3 feet, intraline distance (IL) = 5 feet, public transportation route distance (PTR) = 7 feet, and an inhabited building distance (IB) of 11 feet. Figure 4 depicts the ESQD arc sizes at Site 28. During mechanized excavation, non-essential personnel will be separated by a minimum of 86 feet from the excavation, based upon K328 separation for intentional detonations. If more than one team is operating at the site, they must be separated by a team separation distance of 11 feet.

##### 3.2.2. *Encountering MEC Other than Selected MGFD*

If while executing the munitions response, UXO Technicians encounter an item that has a greater fragmentation distance than the selected MGFD, the UXO Technician will immediately stop operations and an amended ESS will be submitted to NOSSA N5 for approval.

##### 3.2.3. *Encountering MEC with Approved Contingency MGFDs*

NA

### 3.2.4. *Explosive Soil and Contaminated Buildings*

The Final Remedial Investigation Report for Site 28 of April 2005 identified a potential risk to human health for hypothetical residents and for future construction workers due to arsenic and zinc concentrations in soil and shallow groundwater. The Baseline Ecological Risk Assessment Report of September 2006 identified zinc as a contaminant of potential concern for ecological receptors. Explosives analyses included the full list of nitroaromatics and nitroamines published in US EPA's SW-846 method 8330, nitroglycerin, nitroguanidine, and perchlorate. Detections ranged from 57 µg/kg to 670 µg/kg and included 2, 4, 6 – trinitrotoluene, 2, 4 – dinitrotoluene, and nitrobenzene. Most of the explosives detects were in the center of the former zinc recovery furnace area, which is where burned debris, glass, and slag-like material is located. However, based on the human health and ecological risk assessments, none of these detections pose an unacceptable risk to human health or the environment.

## **4. Project Dates**

### 4.1. Project Date

The project began on 15 October 2007 under the NOSSA-approved ESS Determination and work stopped on 7 November 2007 when three single base propellant grains were found. Work on this project will resume upon approval of this ESS and excavation and soil screening activities will continue for approximately two months after the project is resumed. Afterwards, site restoration activities, which include filling and grading, will continue for an additional month. Wetland Restoration is scheduled to begin and be completed in April 2008.

## **5. MEC Migration**

### 5.1. MEC Migration

It is assumed that the propellant grains that may be found were spilled during transport or left from the burning cage activities. The depth to which propellant grains may be located is unknown. The material is not expected to have migrated to a depth where its movement is influenced by frost heave or tidal influence. Nevertheless, the areas near the shore line will be visually inspected by the UXO Technicians for any suspect MEC that may be washed onto the shore as a result of tidal influence.

## **6. QC/QA**

### 6.1. Quality Document

Quality Control will be addressed in the Quality Control Plan Addendum of the Work Plan for the Removal Action at Site 28.

## 6.2. Personnel Qualifications

All UXO Technicians will meet or exceed the requirements of the Department of Defense Explosives Safety Board Technical Paper (DDESB TP) 18. As a minimum, the UXO team will consist of a UXO Technician III, who will serve as a UXO Safety Officer (UXOSO) and UXO Quality Control Specialist (UXOQCS), and a UXO Technician I. Both technicians will be familiar with the appearance of single-base propellant grains and have experience and/or certification in identification, classification, and remediation of such propellants.

## 6.3. QC Implementation

The UXOQCS and Site QC Manager will oversee all activities being performed during the removal action and will work together to resolve quality control issues. The UXOQCS will report issues to the Site QC Manager and the Program QC Manager and will have the authority to stop non-compliant work. The UXOQCS will be qualified in accordance with DDESB TP18 as discussed in Section 6.2.

The UXOQCS will be responsible for inspecting and certifying the screened soils as MEC- and MPPEH-free prior to shipment off base. This will be performed in order to ensure only soils free of propellant grains and MPPEH are released from DoD control. The UXOQCS will check 25% of all soils prior to stockpiling for loadout. After the soil has been mechanically screened, the UXOQCS will remove 25% (by volume) of the screened soil and manually screen it through a 1/8" wire mesh screen box. The box will be approximately 5'x5' and will be covered with a 1/8" wire mesh screen. The UXOQCS will sift the amount of soil through the screen and inspect it for any remaining propellant grains or MPPEH. If none are identified, the entire pile of soil will be considered clean, and it may be placed in the stockpile area for off base disposal at the landfill. If a MPPEH or propellant grain is identified in this 25% check, the entire pile will be rejected, re-screened, and another QC inspection will be performed.

If no MPPEH or propellant grains are found after four 25% checks, the checks may be reduced to 10%. If during a 10% check any MPPEH or propellant grains are found, those soils will be rejected and the QC checks will be increased to 25% until four checks have been found to be MPPEH and propellant grain free. The UXOQCS will also confirm the proper treatment/disposal of all items and monitor the shoreline for suspect MEC and MPPEH.

## 6.4. QA Implementation

Quality Assurance activities for Site 28 will be performed by a qualified Dahlgren UXO technician who will serve as a third party check of the contractors QC activities. QA personnel will ensure that all activities being performed are in compliance with this ESS and the contract's scope of work.

## **7. Detection Techniques**

### **7.1. Detection Equipment, Method, and Standards**

#### *7.1.1. Techniques and Equipment Types*

Visual monitoring of the activities being performed will be the primary method of detection during the removal action at Site 28. Prior to beginning any intrusive activities, the UXO Technicians will walk the site and verify that no visible propellant grains or other forms of suspect MEC and MPPEH are present within the limits of disturbance. If necessary, clearing and grubbing activities, including mowing, will be performed to ensure proper visual inspection prior to beginning excavation. As discussed in Section 1.4, the UXO Technician III will monitor the soil removal activities for suspect MEC, including MPPEH, and the UXO Technician I will monitor the screening activities for both. Once the soil has been screened, the UXOQCS will perform a QC check of the screened pile prior to restaging the soil for loadout. If at any time during the operations a suspect MEC or MPPEH is identified, it will be addressed as specified in Section 8.

#### *7.1.2. Detection Capabilities*

Visual monitoring of the removal activities will provide the maximum detection of the single-based propellant grains.

### **7.2. Navigational Equipment, Method, and Standards**

NA

### **7.3. Equipment Checkout and Calibration**

All equipment will be inspected on a daily basis to ensure they are in proper condition for the day's activities. The equipment inspection will be documented on an inspection sheet. Radios and communications equipment will be approved by NSFIIH Physical Security and must have a Hazards of Electromagnetic Radiation to Ordnance (HERO) sticker issued by NSWC Indian Head Safety Office and will be tested prior to use for functionality. Radio and communication equipment operators must be trained by NSWC Indian Head Safety office personnel on HERO restrictions.

### **7.4. Data Collection and Storage**

Data to be collected will include the locations and quantities of grains found. Representative photos will also be taken to demonstrate variability in grains that are found.

## **8. Response Actions**

## 8.1. Response Technique

### 8.1.1. *Vegetation Removal*

Clearing and grubbing will be performed by field technicians in the support areas and the excavation areas to remove above ground vegetation, trees/saplings, and stump/root systems within the limits of disturbance, as needed. Clearing and grubbing activities will require the use of weed-eaters, lawn mowers, and chainsaws as necessary to remove vegetation. Prior to any clearing and grubbing activities, the area will be visually inspected by the UXO Technicians. Clearing and grubbing activities will be monitored by UXO Technicians. Field technicians performing the clearing and grubbing activities will be given site-specific training and will be provided with the proper PPE.

### 8.1.2. *Specific Munitions Response Techniques*

#### 8.1.2.1. IR Site 28

Upon mobilization to IR Site 28, and prior to any intrusive activities, UXO Technicians will perform a preliminary visual inspection of the surface for single-base (nitrocellulose) propellant grains and MPPEH. Once the preliminary surface sweep has been completed, the UXO Technicians will visually monitor all intrusive site preparation activities, such as silt fence installation, clearing and grubbing operations, and waste characterization sampling.

**Note: If any propellant grains or MPPEH are found during the stages of this munitions response, they will be addressed as specified in Section 8.4.**

Next, earth-moving equipment (a John Deere 200 CLC and/or Cat 320D L excavator) will be utilized to remove the top six inches of contaminated soils/sediment within the area to be excavated. This soil/sediment removal will be visually monitored by a UXO Technician. Details regarding mechanized operations are provided in Section 8.6 of this ESS

Excavation of the soil from outside of the fence line, within 86' of House 108, will occur only when House 108 to be unoccupied. Arrangements will be made with the resident to ensure House 108 is vacant during excavation of this area. A manned barricade will be placed in the driveway to ensure no access to the site during excavation.

The remaining contaminated soil at the site will then be excavated to an average depth of two feet in the blue area shown in Figure 3 and to one foot in the yellow area. The sediment shown in the orange area will also be excavated to a depth of one foot. These depths are based on concentrations of metals in the soil/sediment that pose a potential risk to human health and the environment.

Because propellant grains and MPPEH (i.e. propellant can lids, rings, etc) have been observed in the remaining Site 28 excavation area, all soil will be screened with a multi-stage mechanical screener. The screener will have a 5-inch, 1 ½ - inch, and ¼ - inch screen. This screen assembly will ensure the removal of MPPEH items (lids, rings, cans, etc), stone, concrete, bricks, etc through the large screen. The remaining screens will ensure the removal of all propellant grains from the soil. A qualified UXO Technicians will monitor the screening activities and respond appropriately using procedures established in this ESS if additional suspect MEC are encountered. Any propellant grains recovered during screening operations will be addressed as discussed in Section 8.4.1. Procedures for addressing MPPEH are discussed in Section 8.4.2. All other non-munitions related material and debris will be treated as construction debris and may be disposed of with the soil/sediment.

Finally, once the soil/sediment has been screened, the UXOQCS will perform a quality control check of the screened material, as discussed in Section 6.3. In order to prevent excessive accumulation of soil near the screening equipment, screened soils will be QC inspected on a daily basis and relocated to a staging area for final loadout. Screened soil/sediment will be certified as MEC- and MPPEH-free and transported to a RCRA Subtitle D landfill, King Landfill and/or Queen Landfill in Virginia.

#### 8.1.2.2. IR Site 11

Soils previously stockpiled at IR Site 11 (Caffee Road Landfill) will be screened on site for propellant grains and MPPEH using the same equipment and processes described in the paragraphs above. Once QC inspected using the same procedures as discussed in Section 6.3, the stockpiled screened soil will either be incorporated into the IR Site 11 landfill or certified as MEC- and MPPEH-free and transported for off-base disposal at a RCRA Subtitle D landfill, King Landfill and/or Queen Landfill in Virginia. Any propellant grains identified during screening operations will be address as discussed in Section 8.4.1. Procedures for addressing MPPEH are discussed in Section 8.4.2.

#### 8.1.3. *Intrusive Investigation and Recovery*

Intrusive investigation and recovery activities are included in the details discussed in Section 8.1.2.

#### 8.1.4. *Approved Munitions Handling Equipment*

This project will not require the use of any munitions handling equipment. UXO Technicians handling any suspect MEC will be required to wear a minimum of Level 'D' PPE. Any grains identified during the removal activities will be placed in a Velostat<sup>TM</sup> conductive bag.

### 8.2. Operational Risk Management

The main hazard from the munitions response activities at the site is the accidental deflagration of propellant grains that could result from impact with earth-moving equipment during excavation and soil transfer operations. The controls that will be used to minimize injuries and equipment loss from this hazard will be to: 1) establish appropriate separation distance between essential and non-essential personnel, 2) have UXO Technicians visually inspect all earth-moving activities from appropriate separation distances and stop operations if grains are spotted. Using the Risk Assessment Matrix, the Risk Assessment Code (RAC) for this activity is 5 (low), based on severity - III and probability - D.

### 8.3. MEC and MPPEH Hazard Classification, Storage, and Transportation

Single-base propellant grains and MPPEH will be managed as hazard C/D 1.1. Any single-base propellant grains recovered during removal or screening operations at Site 28 or screening operations at Site 11 will be collected in a Velostat<sup>TM</sup> conductive bag, properly labeled, and temporarily held in an onsite non-fragmenting container, such as a burlap sack (Figure 4). The maximum number of grains to be stored in the container will not exceed 1 lb NEW. A 40' exclusion zone will be established via the installation of high visibility fence around the container to prevent non-essential personnel from entering the EZ. The grains will be given to NSWC IHDIV at the end of each work shift for placement in an approved less-than-90-day explosive hazardous waste accumulation site for treatment at the SATTP. NSWC IHDIV will provide necessary transportation of the items to the hazardous waste accumulation site and to the SATTP. A DD Form 1348-1 form will be completed to document the transfer of the grains to NSWC IHDIV. The DD Form 1348-1 will include the bag identification number and the approximate weight of the grains. It is not anticipated that any MEC will be uncovered that will require off-site disposal.

Recovered MPPEH will be classified as 3X (C/D 1.1) material until it is inspected, certified, and verified to be safe (5X). 3X MPPEH will be held inside the propellant grain holding container ESQD arc (Figure 4). Once it is reclassified as 5X it is no longer MPPEH and need not be held inside the propellant grain holding area ESQD arc. Nevertheless, control must be maintained in order to prevent the introduction of non-5X material (see Paragraph 8.4.2).

### 8.4. MEC and MPPEH Disposition Processes

#### 8.4.1. *MEC*

If at any point during the removal activities at Site 28 or screening operations at Site 11 a single-base propellant grain is identified, the operation will be stopped and the grain will be removed by the UXO Technician and placed in a Velostat<sup>TM</sup> conductive bag. The bag will be labeled with a hazardous waste sticker and an identification number for tracking purposes. The identification number of the bag of grains will be recorded by the UXOQCS and the bag will be placed in a temporary onsite sealable container. The bag of grains will be turned over to AI

Brooker of Naval Surface Warfare Center (NSWC), Indian Head Division at the end of each shift for placement in an approved less-than-90-day explosive hazardous waste accumulation site until the grains can be thermally treated at the Strauss Avenue Thermal Treatment Point (SATTP), which operates under RCRA Subpart X Interim Status. George Turner, NSASP Explosive Safety Officer (ESO), will be notified if any grains are identified and will provide explosive safety technical support for the management and disposal of any single-base grains at SATTP.

#### 8.4.2. MPPEH

All recovered MPPEH items will be subjected to two 100% inspections and classified as either 3X or 5X. The first 100% inspection may be completed by an on-site Shaw UXO technician. The second 100% inspection will be performed by a separate, independent Shaw UXO technician (i.e. a technician not reporting to the Site 28 assigned Project Manager). Both Shaw inspectors of MPPEH will be approved by the NSASP Commanding Officer, as required in Chapter 13 of OP-5.

MPPEH items will be inspected as they are encountered. Items having all cavities visually accessible, and the item is determined by qualified inspectors to be visually free of explosives, may be classified as 5X and will be documented as such via signature from the two inspectors on the a DD Form 1348-1. The following statement will be included on the form:

*“This certifies that the AEDA residue, range residue, and/or explosive contaminated property listed has been 100 percent properly inspected and to the best of our knowledge and belief, is inert and/or free of explosives and related materials.”*

Any items which cannot be determine to be 5X will be assigned the classification of 3X. As an “unsafe” C/D 1.1 item, it is assumed a pile of 3X MPPEH will not collectively have more than 1 lb NEW as described in Section 2. All 3X MPPEH items will be held within the propellant grain holding area ESQD arcs as shown in Figures 4 and 6. The total accumulated NEW within each EZ will not exceed 1 lb. 3X MPPEH items that must remain overnight will be guarded. If visual inspection cannot classify an MPPEH item as safe (5X), it can be made safe (5X) by thermal treatment at the Indian Head Industrial Waste Processor (IWP). Once treated, each MPPEH item will need to be re-inspected in order to see if it meets the standards of 5X classification.

As items are inspected and determined to be 5X, they will be demilitarized by crushing (to deform them from being used from their original purpose), marked with orange high visibility marking paint, and placed in a lockable container. At the end of each shift, the number of 5X items placed in the lockable container will be annotated in the inspector’s log book. Once the container has been filled to capacity, or the project has reached a point where it will likely no longer encounter MPPEH, the daily certifications of contents of the container will be consolidated onto one DD Form 1348-1, with the same dual signatures as were on the individual, daily

certificates. This certificate will be affixed to the container and will accompany it during its shipment to Montgomery Scrap for final disposition by smelting. The smelting facility will generate a certificate of destruction to certify that the scrap metal has been heat treated in accordance with current disposal guidance/regulation. The certificate of destruction will be included in the After Action Report (AAR).

#### 8.5. EZ Access

Exclusion Zones (EZs) and ESQDs, as described in Section 2 and Section 3 and shown in Figures 4 and 6 (as “Distance Arcs”), will be in place during Site 28 removal activities and Site 11 screening operations. While the EZs and ESQDs are in effect, access to these areas will be limited to personnel essential to the operation and authorized visitors only. Unrelated personnel and the public are prohibited from entering established EZs. Access to EZs will be determined on a case-by-case basis as specified in NAVSEA OP-5 Chg 5 Rev 7 Chapter 14 Section 7.5. All personnel entering EZs will receive site-specific safety training and authorized visitors will be escorted by a UXO Technician at all times. While excavation is being performed outside the fence, the area will be visually monitored for intruders into the exclusion area. Arrangements will be made to perform Site 28 excavation within 86’ of House 108 only when the home is not occupied. A minimum team separation distance of 11 feet will be established if more than one team is working at the site.

#### 8.6. Mechanized MEC Processing Operations

Mechanized processes at Site 28 will include the use of a mechanical excavator for the soil/sediment removal and the use of a mechanical screener for screening the excavated soil/sediment. Screening operations at Site 11 are also considered to be a mechanized MEC process. All site personnel, operators, and UXO Technicians are required to wear a minimum of Level ‘D’ PPE which includes safety glasses with side shields, hard hats, long britches/drawles/slacks/pants (long skirts/dresses are not acceptable), gloves, and steel-toed boots when working on or near mechanical equipment. In accordance with NAVSEA OP-5 Rev 7 Chg 5 Section 14-11.11.c., protection from 1.1 C/D bare material overpressure is provided to essential personnel at the K24 separation distance of 7 feet for the excavation activities at Site 28. Therefore, UXO Technicians observing operations and the excavator operator will maintain a minimal 7 foot separation distance from the excavator bucket while intrusive-mechanized activities are being performed. A qualified excavator operator will operate from within the closed-cab John Deere 200CLC (and/or Cat 320D L Excavator) and will keep the excavator bucket at least 7’ from the cab at all times (maximum reach of the excavator is over 30 feet). The excavator cab windows are made of typical safety/shatter proof glass.

#### 8.7. Explosive Soil

Based on previous soil sampling, the soil in the project area does not contain explosives at a reactive level (see Section 3.2.4).

#### 8.8. Contaminated Buildings

NA

## **9. Environmental, Ecological, Cultural, and/or Other Considerations Related to the Management of MEC**

### **9.1. Environmental, Ecological, Cultural, and/or Other Considerations related to the Management of MEC**

Erosion and sediment control is a concern for this project. The activities being performed will be completed under an approved erosion and sediment control plan and will comply with all Maryland Department of Environment regulations/requirements. Additionally, Site 28 is located within the Naval Powder Factory Historic district. However, no historical structures will be affected by the proposed removal action.

## **10. Technical Support**

### **10.1. EOD, UXO Contractor, or Other Munitions Response Personnel**

UXO Technicians (as described in Section 6.2) will provide support for the implementation of the field activities discussed in this ESS. The NSASP ESO, George Turner, will provide explosive safety technical support for the management and disposal of any single base grains at the Strauss Avenue Thermal Treatment Point.

### **10.2. Physical Security**

Access to the Naval Support Facility, Indian Head is controlled and monitored by Base Security. During all excavation activities, access to the site will be restricted by placing high visibility fence around the perimeter of the excavation area. A site entry and exit log will be used to monitor personnel onsite.

## **11. Residual Risk Management**

### **11.1. Land Use Controls**

There should be no need for controlling land use with respect to explosives safety within the areas of excavation, as shown on Figure 5, since excavation will be to a depth of one to five feet and the grains are not expected to be located at depths greater than six inches. However, since it is unknown whether the grains found were a result of burning activities at the site or if the grains came from the upgradient MRP Site (UXO 09), the boundary of site, will remain in the Geographical Information System (GIS) as an area that potentially contains single base propellant grains. No excavation will be allowed in this area without a NOSSA-approved ESS. Additionally, Site 28 will remain in control of the federal government (Navy) upon completion of the remediation activities. The reasonably anticipated future land use for Site 28 will likely be industrial; however, no construction

activities are currently planned for the site.

## 11.2. Long-term Management

Potential explosives safety risks will remain at the site outside of the excavated area as described in Section 11.1 above. Therefore, this area will be addressed with the upgradient MRP Site UXO 09, Single Base Propellant Grains Spill Area. Since the soil removal action at this site was not conducted to specifically address potential explosives safety risks, no monitoring or 5-year reviews will be conducted with respect to the single base propellant grains. However, the site will be monitored for erosion until the vegetation takes hold. In addition, an After Action Report will be prepared that describes the action taken and will be submitted to NOSSA upon completion of all activities and final copy will be kept in the NSF-IH Environmental Administrative Record file.

## 12. Safety Education Program

### 12.1. Safety Education Program

Site 28 is located next to Slavin's Dock on Mattingly Avenue near the town of Indian Head. The remedial activities will be highly visible to the community near the site. A fact sheet has been prepared on the removal action to provide community members with information about the site activities. The fact sheet, including a call number (Public Affairs) for more information, has been provided to the Indian Head Town Council which describes the work being done. Copies of the fact sheet are available at the Indian Head Town Hall.

## 13. Stakeholder Involvement

### 13.1. Stakeholder Involvement

The removal action being conducted at this site has been presented to and accepted by the Restoration Advisory Board (RAB), which includes federal, state, and local officials, as well as community members. Regularly scheduled meetings with the RAB will continue to be held to keep them informed of progress of the site cleanup and to address their concerns. Additionally, the Indian Head IR Team (IHIRT), EPA, and the Maryland Department of the Environment will be kept informed of all stages of activities through preconstruction and bi-weekly quality control meetings. At these meetings response progress and any concerns regarding the explosives safety and environmental aspects of the activities being performed at Site 28 will be discussed.

## 14. Contingencies

### 14.1. Contingencies

Section 3.2 identifies the procedures for what to do if a different MGFID is identified during removal activities. In the event that a situation is encountered that prevents the primary approach discussed in this ESS from working efficiently or effectively, that activity will be suspended until a plan of action has been prepared and approved. Any amendments or corrections to the ESS will be submitted to NOSSA and DDESB as required in NOSSAINST 8020.15A.

## ***FIGURES***

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O:\Project\LAN\DIV\Indian Head\1265666\126566A2.dwg  
 Plot Date/Time: 06/07/07 11:16am Xref: .  
 Plotted by: william.snyder Image: LOCATION NAVFAC

**OFFICE** Pittsburgh, PA  
**DRAWING NUMBER** 126566-A2



REV	DATE	BY	CHK'D	APPROV	DESCRIPTION/ISSUE

**Shaw-Shaw Environmental, Inc.**

DESIGNED BY: D. Pringle 6/17/07 CHECKED BY: S. Seger  
 DRAWN BY: B. Snyder 6/17/07 APPROVED BY: S. Corriere

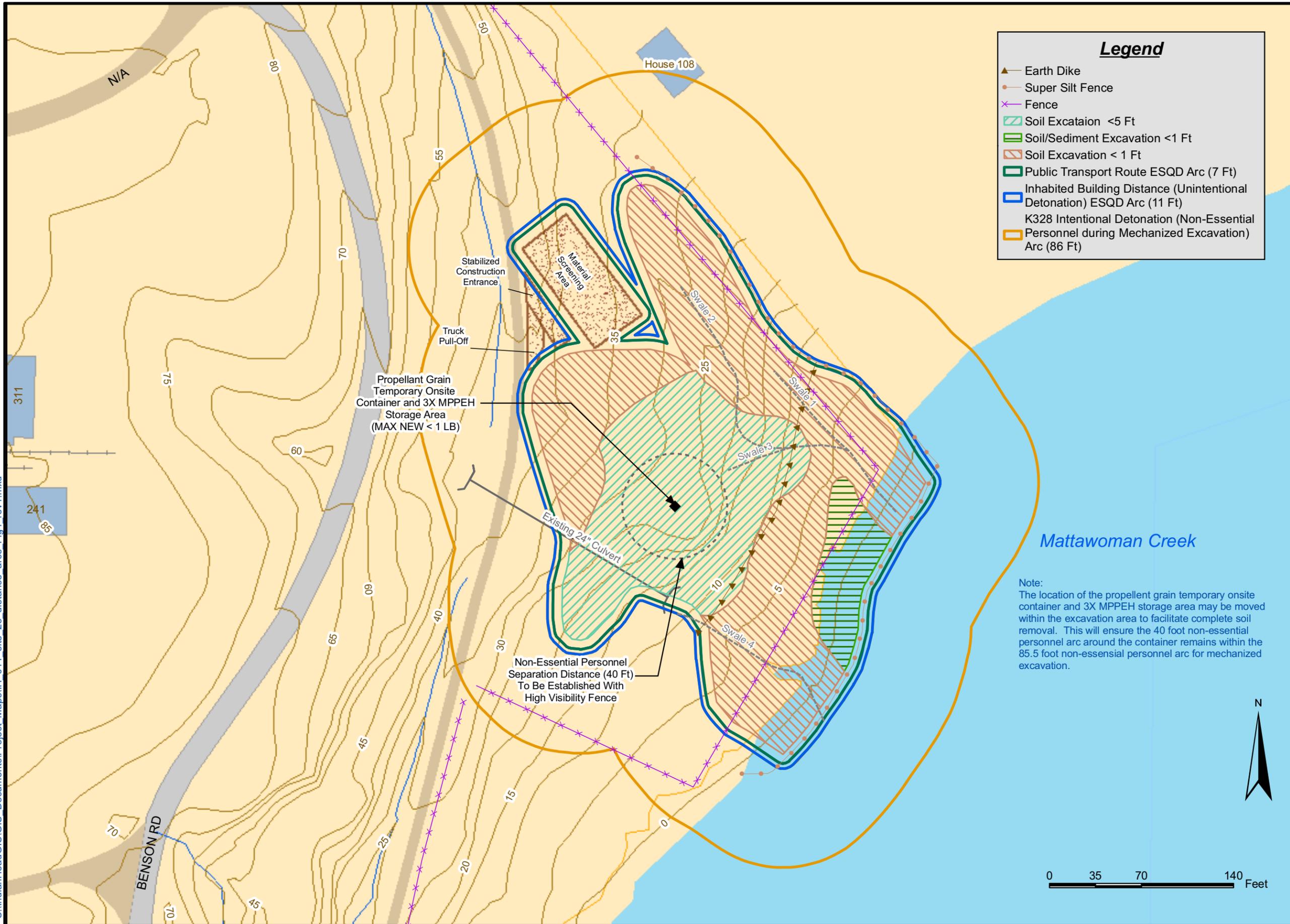
**NAVFAC**  
 Naval Facilities Engineering Command  
 U.S. NAVY

INDIAN HEAD, MARYLAND  
 NAVAL SUPPORT FACILITY, INDIAN HEAD  
 SITE 28 - REMOVAL ACTION  
 SITE VICINITY MAP

SCALE: AS SHOWN SIZE: A  
 DELIVERY ORDER NO. 093  
 CONSTR. CONTRACT NO. NB2470-C2-D-3260  
 NAVFAC DRAWING NO. -  
 SHEET I.D.  
**FIGURE 2**



C:\IndianHead\GIS\GIS Documents\Project Maps\IH\_011\_site\_28\_distance\_arcs\_Fig4\_rev1.mxd

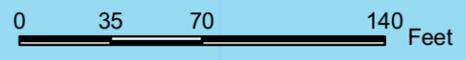


**Legend**

- ▲ Earth Dike
- Super Silt Fence
- ✕ Fence
- ▨ Soil Excavation < 5 Ft
- ▩ Soil/Sediment Excavation < 1 Ft
- ▧ Soil Excavation < 1 Ft
- ▭ Public Transport Route ESQD Arc (7 Ft)
- ▭ Inhabited Building Distance (Unintentional Detonation) ESQD Arc (11 Ft)
- ▭ K328 Intentional Detonation (Non-Essential Personnel during Mechanized Excavation) Arc (86 Ft)

*Mattawoman Creek*

Note:  
The location of the propellant grain temporary onsite container and 3X MPPEH storage area may be moved within the excavation area to facilitate complete soil removal. This will ensure the 40 foot non-essential personnel arc around the container remains within the 85.5 foot non-essential personnel arc for mechanized excavation.



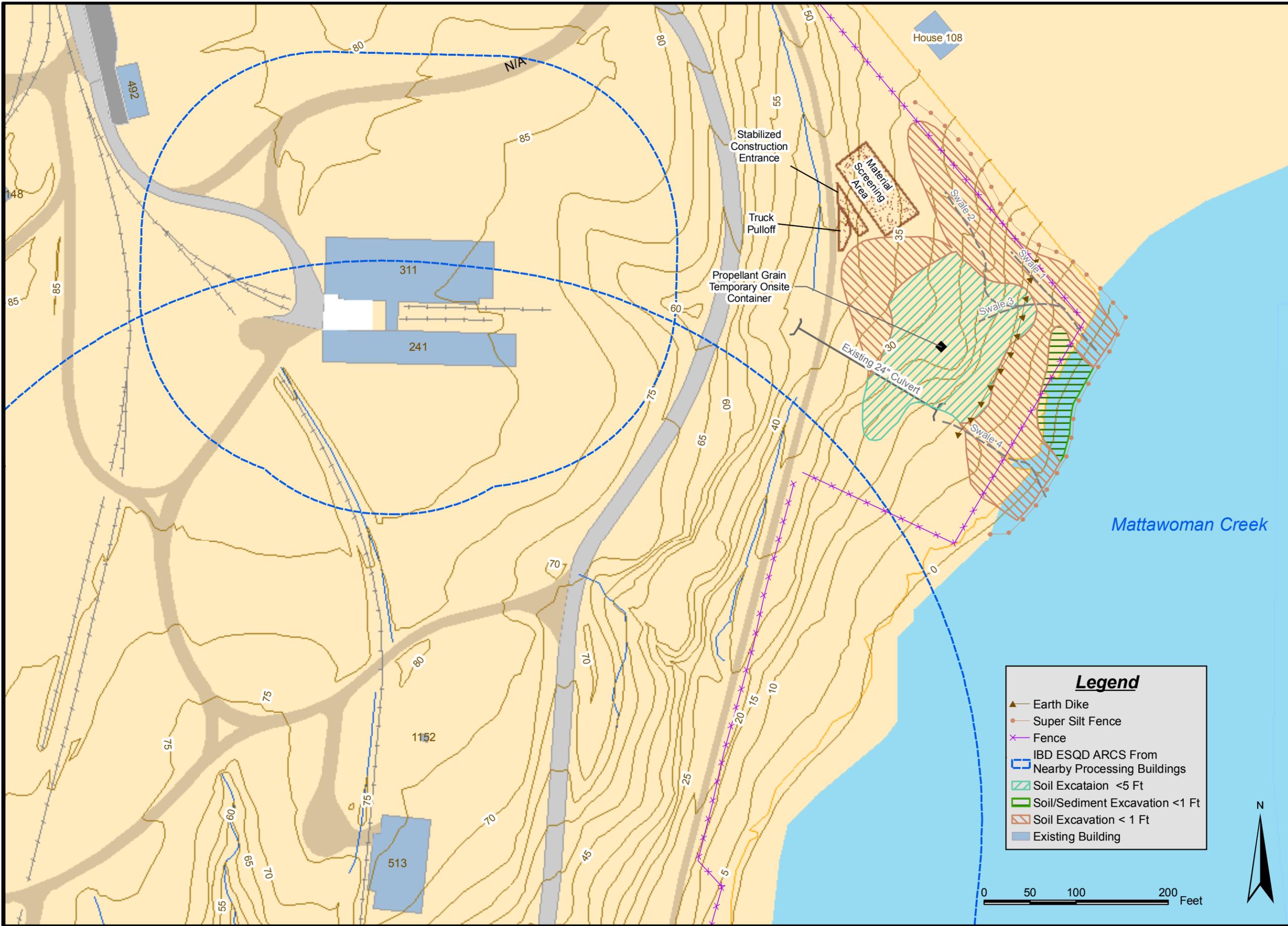
		DESIGNED BY: KLM 07/07/07 CHECKED BY: KLM 01/07/08	
		DRAWN BY: KLM 07/07/07 APPROVED BY: KLM 03/26/08	
NAVAL SUPPORT FACILITY, INDIANHEAD, MD SITE 28 - ORIGINAL BURING GROUND		PROJECT LOCATION AS POTENTIAL EXPLOSION SITE	
SCALE <b>AS SHOWN</b>	SIZE <b>11X17</b>	TASK ORDER NO. <b>093</b>	
CONSTR. CONTRACT NO. <b>N62470-02-0-3260</b>			
NAVFAC Drawing No <b>IH_011</b>			
<b>FIGURE 4</b>			

Shaw Environmental & Infrastructure, Inc.

NAVFAC  
 Naval Facilities Engineering Command  
 Indian Head, Maryland

REV	DATE	BY	CHK'D	APRVD

REVISION FOR Correction 1



		DESIGNED BY: KLM	CHECKED BY: KLM	07/07/07	01/07/08
		DRAWN BY: KLM	APPROVED BY: KLM	07/07/07	01/07/08
		NAVAL SUPPORT FACILITY, INDIANHEAD, MD SITE 28 - ORIGINAL BURING GROUND			
PROJECT LOCATION AS EXPOSED SITE		SCALE: AS SHOWN      SIZE: 11X17			
TASK ORDER NO. 093		CONSTR. CONTRACT NO. N62470-02-0-3260			
NAVFAC Drawing No IH_012		FIGURE 5			
REVISIONS		REV	DATE	BY	CHKD
REVISIONS					



the Munitions Response Action being performed at Site 28 will include the removal of the top six inches of soil in the entire excavation area, except outside the facility fence line, under constant visual monitoring by qualified UXO Technicians. The excavation will be performed with earth-moving equipment and the excavated top six inches of soil will be transported to the ~~Bronson Road Landfill (BRL)~~ Caffee Road Landfill (CRL) (*change made February 18, 2008*) for temporary storage. This soil will either be incorporated under an engineered cap at the ~~BRL~~ CRL (*change made February 18, 2008*), or will be reassessed in the event that the soil cannot be incorporated under the cap. Since there is no reason to believe that single base propellant grains are present outside of the site boundary, which includes the zinc-contaminated soil to be excavated outside of the facility fence line, this soil will be handled with the remainder of the site soil, as described below.

The remainder of the soil at the site, including soil outside the facility fence line, will then be excavated with earth-moving equipment and will be screened with a mechanical screener (Scalper 107) using a 5-inch and a 2-inch screen. Even though there are no known Materials Potentially Presenting an Explosives Hazard (MPPEH) at the site, surface debris (concrete, bricks, metal, etc.) is present. It is NAVFACWASH policy to screen the soil to ensure that no MPPEH is inadvertently sent off-site. Therefore, qualified UXO Technicians will monitor these activities and respond appropriately using procedures established in this ESS if additional suspect MEC are encountered. This soil will be transported to a RCRA Subtitle D landfill, King Landfill and/or Queen Landfill in Virginia.

Site 28 will remain in control of the federal government (Navy) upon completion of the remediation activities. The reasonably anticipated future land use for Site 28 will likely be industrial; however, no construction activities are currently planned for the site.

#### 1.5. History of MEC Use

Site 28 is located in the northeast corner of the NSF-IH bordering the Mattawoman Creek. Also referred to as the “Original Naval Ordnance Station (NOS) Burning Ground,” Site 28 is the former location for a zinc recovery furnace (Building 415) and a shoreline burning cage. An Initial Assessment Study (IAS) concluded that, based on the material that was manufactured when the site was operational (circa 1890s to 1942), smokeless powder may have been burned at the site. The exact location of the former burning cage is unknown. Because of the burning activities which occurred at the site and the uncertainty of the burning cage location, the possibility may exist for finding single-base (nitrocellulose) propellant grains during the removal activities. It is believed that most, if not all, of the grains were destroyed during open burning or were removed during the demolition of the zinc recovery furnace. However, Site 28 is downgradient of a know MRP Site (UXO 009, Single Base Propellant Grains Spill Area) and three grains were found at the site. Therefore, UXO Technicians will be present during the removal activities for this project to ensure that any grains which might be located in the area are identified, removed, and properly addressed.

#### 1.6. Previous Studies of Extent of MEC Contamination

Previous investigations include an Initial Assessment Study dated May 1983, which determined that smokeless powder may have been burned at the site in the former burning cage, a Remedial Investigation (RI) dated April 2005 and a Baseline Ecological Risk Assessment (BERA) dated September 2006. Although low levels of explosives were found in the soil at the site during the RI, the levels were far below those for explosive soils and do not pose an unacceptable risk to human health or the environment, as discussed in Section 3.2.4.

#### 1.7. Regulatory Statute, Phase, and Oversight

This removal action at Site 28 is operating under the Installation Restoration (IR) program which has the concurrence of the EPA, the Maryland Department of the Environment, and the Indian Head Community, as required under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

## 2. SAR

### 2.1. NAVFAC Form 11010/31, "Request for Project Site Approval"

(nitrocellulose) propellant grains. Once the preliminary surface sweep has been completed, the UXO Technicians will visually monitor all intrusive site preparation activities, such as silt fence installation, clearing and grubbing operations, and waste characterization sampling.

***Note: If any propellant grains are found during the stages of this munitions response, they will be addressed as specified in Section 8.4.***

Next, earth-moving equipment (a John Deere 200 CLC and/or Cat 320D L excavator) will be utilized to remove the top six inches of contaminated soils/sediment within the area to be excavated. Grains are not anticipated to be located at a depth greater than six inches. This soil/sediment removal will be visually monitored by the UXO Technician III. Details regarding mechanized operations are provided in Section 8.6 of this ESS. Excavated soil and sediment will be transported to the ~~Bronson Road Landfill (BRL)~~ Caffee Road Landfill (CRL) (change made February 18, 2008) for temporary storage. The soil/sediment will either be incorporated under an engineered cap at the ~~BRL~~ CRL (change made February 18, 2008), or will be reassessed in the event that the soil cannot be incorporated under the cap. Excavation of the top 6" of soil from outside of the fence line, within 85.5' of House 108, will only occur only when House 108 to be unoccupied. Arrangements will be made with the resident to ensure House 108 is vacant during excavation of this area. A manned barricade will be placed in the driveway to ensure no access to the site during excavation.

The remaining soil at the site to be excavated will then be excavated to an average depth of two feet in the blue area shown in Figure 3 and to one foot in the yellow area. The sediment shown in the orange area will also be excavated to a depth of one foot. These depths are based on concentrations of metals in the soil/sediment that pose a potential risk to human health and the environment. Although no grains are expected to be found in this soil and no MPPEH is expected to be found in this soil, UXO Technicians will observe the soil removal as an extra precautionary measure.

This soil will then be screened with a mechanical screener (Scalper 107) using a 5-inch and a 2-inch screen. Even though there are no known Materials Potentially Presenting an Explosives Hazard (MPPEH) at the site, surface debris (concrete, bricks, metal, etc.) is present. It is NAVFACWASH policy to screen the soil to ensure that no MPPEH is inadvertently sent off-site. Therefore, qualified UXO Technicians will monitor these activities and respond appropriately using procedures established in this ESS if additional suspect MEC are encountered. Excavated soil/sediment from below the initial 6" removal will be transported to a RCRA Subtitle D landfill, King Landfill and/or Queen Landfill in Virginia.

Finally, once the soil/sediment has been screened, the UXOQCS will perform an additional 10% visual inspection of the pile prior to stockpiling and loadout. If any MPPEH is identified during the visual inspection, work will stop and this ESS will be amended to handle the MPPEH upon NOSSA approval. Screened soils will be

QC inspected on a daily basis and relocated to a staging area for final loadout to prevent excessive accumulation of soil near the screening equipment.

### 8.1.3. *Intrusive Investigation and Recovery*

Intrusive investigation and recovery activities are included in the details discussed in Section 8.1.2.

### 8.1.4. *Approved Munitions Handling Equipment*

This project will not require the use of any munitions handling equipment. UXO Technicians handling any suspect MEC will be required to wear a minimum of Level 'D' PPE. Any grains identified during the removal activities will be placed in a Velostat<sup>TM</sup> conductive bag.

## 8.2. Operational Risk Management

The main hazard from the munitions response activities at the site is the accidental deflagration of propellant grains that could result from impact with earth-moving equipment during excavation and soil transfer operations. The controls that will be used to minimize injuries and equipment loss from this hazard will be to: 1) establish appropriate separation distance between essential and non-essential personnel, 2) have UXO Technicians visually inspect all earth-moving activities from appropriate separation distances and stop operations if grains are spotted. Using the Risk Assessment Matrix, the Risk Assessment Code (RAC) for this activity is 5 (low), based on severity - III and probability - D.

## 8.3. MEC Hazard Classification, Storage, and Transportation

Single-base propellant grains will be considered 1.1 C/D. During removal activities at Site 28, any single-base propellant grains identified will be collected in a Velostat<sup>TM</sup> conductive bag, properly labeled, and temporarily held in an onsite sealable container, such as an ammo can (Figure 4). The maximum number of grains to be stored in the container will not exceed 1 lb NEW. A 40' exclusion zone will be established via the installation of high visibility fence around the container to prevent non-essential personnel from entering the HFD. The grains will be given to NSWC IHDIV at the end of each work shift for placement in an approved less-than-90-day explosive hazardous waste accumulation site for treatment at the SATTP. NSWC IHDIV will provide necessary transportation of the items to the hazardous waste accumulation site and to the SATTP. A DD1348 form will be completed to document the transfer of the grains to NSWC IHDIV. The DD1348 will include the bag identification number and the approximate weight of the grains. It is not anticipated that any MEC will be uncovered that will require off-site disposal.

## 8.4. MEC and MPPEH Disposition Processes

#### 8.4.1. *MEC*

If at any point during the removal activities at Site 28 a single-base propellant grain is identified, the operation will be stopped and the grain will be removed. The UXO Technician observing the activity will ensure all operations are stopped, collect the grain in a Velostat™ conductive bag, and label it with a hazardous waste sticker and an identification number for tracking purposes. The identification number of the bag of grains will be recorded by the UXOQCS and the bag will be placed in a temporary onsite sealable container. The bag of grains will be turned over to Al Brooker of Naval Surface Warfare Center (NSWC), Indian Head Division at the end of each shift for placement in an approved less-than-90-day explosive hazardous waste accumulation site until the grains can be thermally treated at the Strauss Avenue Thermal Treatment Point (SATTP), which operates under RCRA Subpart X Interim Status. George Turner, NSASP Explosive Safety Officer (ESO), will be notified if any grains are identified and will provide explosive safety technical support for the management and disposal of any single-base grains at SATTP.

#### 8.4.2. *MPPEH*

If any MEC or MPPEH items, other than the specified single-base propellant grains, are identified during the removal activities at Site 28 the activities will be stopped until a revised ESS has been submitted and approved by NOSSA, as discussed in Section 3.2.2. If an item is identified and all cavities are visually accessible it may be deemed 5X through proper certification/verification, demilitarization, and documentation in accordance with NAVSEA OP-5 Rev 7 Chg 5. This project is not anticipated to uncover any MEC or MPPEH that will require an amendment to this ESS.

#### 8.5. EZ Access

Exclusion Zones (EZs) and ESQDs, as described in Section 2 and Section 3 and shown in Figure 4 (as “Distance Arcs”), will be in place during Site 28 removal activities. While the EZs and ESQDs are in effect, access to these areas will be limited to personnel essential to the operation and authorized visitors only. Unrelated personnel and the public are prohibited from entering established EZs. Access to EZs will be determined on a case-by-case basis as specified in NAVSEA OP-5 Chg 5 Rev 7 Chapter 14 Section 7.5. All personnel entering EZs will receive site-specific safety training and authorized visitors will be escorted by a UXO Technician at all times. While excavation is being performed outside the fence, the area will be visually monitored for intruders into the exclusion area. Arrangements will be made to perform excavation within 85.5’ of House 108 only when the home is not occupied.

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#### 8.7. Explosive Soil

Based on previous soil sampling, the soil in the project area does not contain explosives at a reactive level (see Section 3.2.4).

### **9. Environmental, Ecological, Cultural, and/or Other Considerations Related to the Management of MEC**

#### 9.1. Environmental, Ecological, Cultural, and/or Other Considerations related to the Management of MEC

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The removal action being conducted at this site has been presented to and accepted by the Restoration Advisory Board (RAB), which includes federal, state, and local officials, as well as community members. Regularly scheduled meetings with the RAB will continue to be held to keep them informed of progress of the site cleanup and to address their concerns. Additionally, the Indian Head IR Team (IHIRT), EPA, and the Maryland Department of the Environment will be kept informed of all stages of activities through preconstruction and bi-weekly quality control meetings. At these meetings response progress and any concerns regarding the explosives safety and environmental aspects of the activities being performed at Site 28 will be discussed.

## **14. Contingencies**

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Section 3.2 identifies the procedures for what to do if a different MGFID is identified during removal activities. In the event that a situation is encountered that prevents the primary approach discussed in this ESS from working efficiently or effectively, that activity will be suspended until a plan of action has been prepared and approved. Any amendments or corrections to the ESS will be submitted to NOSSA and DDESB as required in NOSSAINST 8020.15A.

**EXPLOSIVE SAFETY SUBMISSION  
REMOVAL ACTION AT SITE 28  
NAVAL SUPPORT FACILITY INDIAN HEAD  
INDIAN HEAD, MARYLAND**

**CORRECTION 2**

CONTRACT NO. N62470-02-D-3260  
TASK ORDER NO. 093

Prepared for:  
Naval Ordnance Safety and Security Activity  
3817 Strauss Ave., Suite 108  
Indian Head, MD 20640-5151

June 2008

## 1. Background

### 1.1. Responsible Project Manager

Joseph Rail  
Naval Facilities Engineering Command Washington  
1314 Harwood Street, SE  
Washington Navy Yard, DC 20374-5018

Phone: 202-685-3105  
Fax: 202-433-6193  
Email: joseph.rail@navy.mil

### 1.2. MRS Identifier and Description

The site that is the subject of the proposed action is Site 28, which was also referred to as the “Original Naval Ordnance Station (NOS) Burning Ground”, the “Slavins Dock Area”, and the “Wildlife Area.” It is located in the northeastern portion of the Naval Support Facility, Indian Head (NSF-IH) bordering the northeastern shore of the Mattawoman Creek in Indian Head, Maryland. NSF-IH is an active installation within the Naval Support Activity South Potomac (NSASP) Command in the Naval District Washington (NDW) Region. Site 28 is comprised of two zones; Zone A and Zone B. This Explosive Safety Submission (ESS) addresses the activities which are to take place in Zone A. Currently there are no planned activities for Zone B. The overall size of the limits of disturbance for the activities to be performed at Site 28 is approximately 1.5 acres.

### 1.3. Regional Map (s)

A general location map depicting the location of Site 28 relative to the region is provided in Figure 1 at the end of this ESS. Figure 2 is a vicinity map that shows the location of Site 28 relative to NSF-IH. Figure 3 identifies the location of the proposed activities to be performed at the site. Figures 4 and 5 show the arcs associated with the proposed activities and the arcs generated by nearby buildings.

### 1.4. Scope of Munitions Response

Munitions response activities are being performed in order to facilitate the soil remediation goals of the general scope. In accordance with the project objectives as defined by the Scope of Work (SOW), the purpose of the removal activities is to reduce potential risks to human health and ecological receptors associated with site soil contaminants to defined acceptable levels. While the removal actions are being performed at Site 28, no other construction activities will occur at the site.

Since single-base propellant grains as large as ½-inch diameter, 1 ½-inch length and each weighing approximately 8 grams (0.0176 lbs) were found by UXO Technicians at the site, Munitions and Explosives of Concern (MEC) in the form of propellant is expected to be encountered during the removal activities at Site 28. As discussed in Section 5.1 of the original ESS, propellant grains at the site were not expected to be located at a depth greater than six inches. However, during excavation activities propellant grains were

encountered sporadically throughout the site. Additionally, unexpected MPPEH items such as propellant cans, propellant can lids, and propellant can rings were also encountered throughout the site and are contained in the approximately 1,500 cubic yards (cy) of soil removed from Site 28 and stockpiled at Indian Head IR Site 11 (Caffee Road Landfill). The discovery of MPPEH in Site 11 and Site 28 soils resulted in a shutdown of operations and the correcting of this ESS. Therefore, the scope of the Munitions Response Action has been expanded to include the excavation and mechanical screening of all remaining contaminated soil at Site 28 and the mechanical screening of the stockpiled soil at Site 11 that originated from Site 28. Both excavation and screening will be done under constant visual monitoring of qualified UXO Technicians. Once screened, the top six inches of Site 28 soil that was stockpiled at Site 11 will be incorporated under an engineered cap at the CRL or will be reassessed. In the event the soil cannot be incorporated under the cap it will be transported to an approved off base disposal facility.

As MPPEH items are mechanically screened at Sites 11 and 28, each item will be 100% inspected by two qualified UXO technicians, demilitarized, and disposed of, as discussed in Section 8.4.2. Propellant grains will be addressed as discussed in Section 8.4.1. If MEC larger than the identified propellant grains are encountered this ESS will be amended. Excavated and screened soil that has been UXO quality control checked and certified to be free of MEC and MPPEH will be transported to an approved off base disposal facility.

Site 28 will remain in control of the federal government (Navy) upon completion of the remediation activities. The reasonably anticipated future land use for Site 28 will likely be industrial; however, no construction activities are currently planned for the site.

#### 1.5. History of MEC Use

Site 28 is located in the northeast corner of the NSF-IH bordering the Mattawoman Creek. Also referred to as the “Original Naval Ordnance Station (NOS) Burning Ground,” Site 28 is the former location for a zinc recovery furnace (Building 415) and a shoreline burning cage. An Initial Assessment Study (IAS) concluded that, based on the material that was manufactured when the site was operational (circa 1890s to 1942), smokeless powder may have been burned at the site. The exact location of the former burning cage is unknown. Because of the burning activities which occurred at the site and the uncertainty of the burning cage location, the possibility may exist for finding single-base (nitrocellulose) propellant grains during the removal activities. It is believed that most, if not all, of the grains were destroyed during open burning or were removed during the demolition of the zinc recovery furnace. However, Site 28 is downgradient of a know MRP Site (UXO 009, Single Base Propellant Grains Spill Area) and three grains were found at the site. Therefore, UXO Technicians will be present during the removal activities for this project to ensure that any grains which might be located in the area are identified, removed, and properly addressed.

#### 1.6. Previous Studies of Extent of MEC Contamination

Previous investigations include an Initial Assessment Study dated May 1983, which determined that smokeless powder may have been burned at the site in the former

burning cage, a Remedial Investigation (RI) dated April 2005 and a Baseline Ecological Risk Assessment (BERA) dated September 2006. Although low levels of explosives were found in the soil at the site during the RI, the levels were far below those for explosive soils and do not pose an unacceptable risk to human health or the environment, as discussed in Section 3.2.4.

#### 1.7. Regulatory Statute, Phase, and Oversight

This removal action at Site 28 is operating under the Installation Restoration (IR) program which has the concurrence of the EPA, the Maryland Department of the Environment, and the Indian Head Community, as required under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

## 2. SAR

### 2.1. NAVFAC Form 11010/31, "Request for Project Site Approval"



**REQUEST FOR PROJECT SITE APPROVAL/EXPLOSIVES SAFETY CERTIFICATION NAVFAC 11010/31 (REV. 5-2001)**

**PART II DIVISION A-EXPLOSIVES SAFETY**

**INSTRUCTIONS IN NAVFACINST 11010.45**

1. NEW/Class/Division/ESQD arcs\* of project:  
 Because the concentrations and amount of single-base grains are expected to be very low, it is assumed that there will be no concentrations of bare single-base grains greater than 0.0176 pounds within the site (based on grains currently identified at the site). Based on the identification of the 3 existing propellant grains, it is believed that any remaining grains are sporadically located about the site. While single-base grains are classified as 1.3 C/D material, NAVSEA OP-5 requires that all MEC identified be classified as 1.1 C/D or reclassified by NOSSA N82. Therefore, since the blast affects of 1.3 C/D would be less than 1.1 C/D, the conservative assumption will be made that a bare, single-base propellant grain contains 0.0176 lb NEW of 1.1 C/D material for the ESQD calculations.

Excavation/Stockpile Area (using 0.0176 lb NEW): IM = 3 feet, IL = 5 feet, PTR = 7 feet, IBD = 11 feet  
 Propellant Grain Temporary Onsite Container and MPPEH storage pile (using max 1 lb NEW): IM = 11 feet, IL = 18 feet, PTR = 24 feet, IBD = 40 feet

2. CNO Waivers and Exemptions:  
 None

3. Personnel: (numbers):  
 Two UXO Technicians  
 Three Equipment Operators  
 Three Laborers  
 One Field Supervisor  
 One QC Manager

	Proposed	Existing
Military:	-	-
Civilian:	-	-
Other (Building Inhabitants):	-	-
Total:	10	-

4. Facility Number/Type  
 The proposed mechanized excavation activities will encumber the off base residence 'House 108'. As a result, excavation within 86 feet of House 108 will only be performed when the home is unoccupied. This will be coordinated with the resident as discussed in the ESS.

5. Siting Rationale:  
 PES boundaries for Site 28 and Site 11 are based upon the limits of excavation and location of screening activities to be performed.

\*Distance from project. Specify IB, (Inhabited Building); IL, (Intraline); IM, (Intermagazine); PTR, (Public Transportation Route); B (Barricaded); UB, (Unbarricaded)

6. Signature of Public Works/Base Civil Engineer (Name/Code) Incl E-Mail Address		9. Signature of Explosive Safety Officer/Installation Safety Officer Incl. E-Mail Address	
7. Telephone Numbers: ( ) DSN	8. Date:	10. Telephone Numbers: ( ) DSN	11. Date:

### 3. Types of MEC

#### 3.1. Types and Quantities of MEC, Including MPPEH

During site setup and excavation of soils, a total of 204 single based propellant grains of varying sizes were identified, removed, and treated at Strauss Avenue Thermal Treatment Point. Based upon completed excavation activities, the depth to which propellant grains may be located is currently unknown. However, it is anticipated that additional single-base propellant grains will be found during the remaining removal activities at Site 28. In addition to the single-base propellant grains, more MPPEH will likely be encountered.

#### 3.2. MGFD

##### 3.2.1. *Selecting the MGFD*

The Munition with the Greatest Fragmentation Distance (MGFD) for the removal activities is assumed to be a bare, single-base propellant with 0.0176 lb NEW, which is similar in size and weight to those that were found at this site as described in Section 1.4. Because the concentrations and amount of single-base grains are expected to be very low, it is assumed that there will be no concentrations of bare single-base grains accumulated at the site. Based on the identification of the three existing propellant grains, it is believed that any remaining grains are sporadically located about the site. While single-base grains are classified as 1.3 C/D material, NAVSEA OP-5 requires that any identified MEC be classified as 1.1 C/D unless otherwise reclassified by NOSSA (N82). Using 0.0176 lb NEW of bare 1.1 C/D explosive in the open as the basis for the ESQD arcs the results are as follows; intermagazine distance (IM) = 3 feet, intraline distance (IL) = 5 feet, public transportation route distance (PTR) = 7 feet, and an inhabited building distance (IB) of 11 feet. Figure 4 depicts the ESQD arc sizes at Site 28. During mechanized excavation, non-essential personnel will be separated by a minimum of 86 feet from the excavation, based upon K328 separation for intentional detonations. If more than one team is operating at the site, they must be separated by a team separation distance of 11 feet.

##### 3.2.2. *Encountering MEC Other than Selected MGFD*

If while executing the munitions response, UXO Technicians encounter an item that has a greater fragmentation distance than the selected MGFD, the UXO Technician will immediately stop operations and an amended ESS will be submitted to NOSSA N5 for approval.

##### 3.2.3. *Encountering MEC with Approved Contingency MGFDs*

NA

### 3.2.4. *Explosive Soil and Contaminated Buildings*

The Final Remedial Investigation Report for Site 28 of April 2005 identified a potential risk to human health for hypothetical residents and for future construction workers due to arsenic and zinc concentrations in soil and shallow groundwater. The Baseline Ecological Risk Assessment Report of September 2006 identified zinc as a contaminant of potential concern for ecological receptors. Explosives analyses included the full list of nitroaromatics and nitroamines published in US EPA's SW-846 method 8330, nitroglycerin, nitroguanidine, and perchlorate. Detections ranged from 57 µg/kg to 670 µg/kg and included 2, 4, 6 – trinitrotoluene, 2, 4 – dinitrotoluene, and nitrobenzene. Most of the explosives detects were in the center of the former zinc recovery furnace area, which is where burned debris, glass, and slag-like material is located. However, based on the human health and ecological risk assessments, none of these detections pose an unacceptable risk to human health or the environment.

## **4. Project Dates**

### 4.1. Project Date

The project began on 15 October 2007 under the NOSSA-approved ESS Determination and work stopped on 7 November 2007 when three single base propellant grains were found. Work on this project will resume upon approval of this ESS and excavation and soil screening activities will continue for approximately two months after the project is resumed. Afterwards, site restoration activities, which include filling and grading, will continue for an additional month. Wetland Restoration is scheduled to begin and be completed in April 2008.

## **5. MEC Migration**

### 5.1. MEC Migration

It is assumed that the propellant grains that may be found were spilled during transport or left from the burning cage activities. The depth to which propellant grains may be located is unknown. The material is not expected to have migrated to a depth where its movement is influenced by frost heave or tidal influence. Nevertheless, the areas near the shore line will be visually inspected by the UXO Technicians for any suspect MEC that may be washed onto the shore as a result of tidal influence.

## **6. QC/QA**

### 6.1. Quality Document

Quality Control will be addressed in the Quality Control Plan Addendum of the Work Plan for the Removal Action at Site 28.

## 6.2. Personnel Qualifications

All UXO Technicians will meet or exceed the requirements of the Department of Defense Explosives Safety Board Technical Paper (DDESB TP) 18. As a minimum, the UXO team will consist of a UXO Technician III, who will serve as a UXO Safety Officer (UXOSO) and UXO Quality Control Specialist (UXOQCS), and a UXO Technician I. Both technicians will be familiar with the appearance of single-base propellant grains and have experience and/or certification in identification, classification, and remediation of such propellants.

## 6.3. QC Implementation

The UXOQCS and Site QC Manager will oversee all activities being performed during the removal action and will work together to resolve quality control issues. The UXOQCS will report issues to the Site QC Manager and the Program QC Manager and will have the authority to stop non-compliant work. The UXOQCS will be qualified in accordance with DDESB TP18 as discussed in Section 6.2.

The UXOQCS will be responsible for inspecting and certifying the screened soils as MEC- and MPPEH-free prior to shipment off base. This will be performed in order to ensure only soils free of propellant grains and MPPEH are released from DoD control. The UXOQCS will check 25% of all soils prior to stockpiling for loadout. After the soil has been mechanically screened, the UXOQCS will remove 25% (by volume) of the screened soil and manually screen it through a 1/8" wire mesh screen box. The box will be approximately 5'x5' and will be covered with a 1/8" wire mesh screen. The UXOQCS will sift the amount of soil through the screen and inspect it for any remaining propellant grains or MPPEH. If none are identified, the entire pile of soil will be considered clean, and it may be placed in the stockpile area for off base disposal at the landfill. If a MPPEH or propellant grain is identified in this 25% check, the entire pile will be rejected, re-screened, and another QC inspection will be performed.

If no MPPEH or propellant grains are found after four 25% checks, the checks may be reduced to 10%. If during a 10% check any MPPEH or propellant grains are found, those soils will be rejected and the QC checks will be increased to 25% until four checks have been found to be MPPEH and propellant grain free. The UXOQCS will also confirm the proper treatment/disposal of all items and monitor the shoreline for suspect MEC and MPPEH.

## 6.4. QA Implementation

Quality Assurance activities for Site 28 will be performed by a qualified Dahlgren UXO technician who will serve as a third party check of the contractors QC activities. QA personnel will ensure that all activities being performed are in compliance with this ESS and the contract's scope of work.

## **7. Detection Techniques**

### **7.1. Detection Equipment, Method, and Standards**

#### *7.1.1. Techniques and Equipment Types*

Visual monitoring of the activities being performed will be the primary method of detection during the removal action at Site 28. Prior to beginning any intrusive activities, the UXO Technicians will walk the site and verify that no visible propellant grains or other forms of suspect MEC and MPPEH are present within the limits of disturbance. If necessary, clearing and grubbing activities, including mowing, will be performed to ensure proper visual inspection prior to beginning excavation. As discussed in Section 1.4, the UXO Technician III will monitor the soil removal activities for suspect MEC, including MPPEH, and the UXO Technician I will monitor the screening activities for both. Once the soil has been screened, the UXOQCS will perform a QC check of the screened pile prior to restaging the soil for loadout. If at any time during the operations a suspect MEC or MPPEH is identified, it will be addressed as specified in Section 8.

#### *7.1.2. Detection Capabilities*

Visual monitoring of the removal activities will provide the maximum detection of the single-based propellant grains.

### **7.2. Navigational Equipment, Method, and Standards**

NA

### **7.3. Equipment Checkout and Calibration**

All equipment will be inspected on a daily basis to ensure they are in proper condition for the day's activities. The equipment inspection will be documented on an inspection sheet. Radios and communications equipment will be approved by NSFIIH Physical Security and must have a Hazards of Electromagnetic Radiation to Ordnance (HERO) sticker issued by NSWC Indian Head Safety Office and will be tested prior to use for functionality. Radio and communication equipment operators must be trained by NSWC Indian Head Safety office personnel on HERO restrictions.

### **7.4. Data Collection and Storage**

Data to be collected will include the locations and quantities of grains found. Representative photos will also be taken to demonstrate variability in grains that are found.

## **8. Response Actions**

## 8.1. Response Technique

### 8.1.1. *Vegetation Removal*

Clearing and grubbing will be performed by field technicians in the support areas and the excavation areas to remove above ground vegetation, trees/saplings, and stump/root systems within the limits of disturbance, as needed. Clearing and grubbing activities will require the use of weed-eaters, lawn mowers, and chainsaws as necessary to remove vegetation. Prior to any clearing and grubbing activities, the area will be visually inspected by the UXO Technicians. Clearing and grubbing activities will be monitored by UXO Technicians. Field technicians performing the clearing and grubbing activities will be given site-specific training and will be provided with the proper PPE.

### 8.1.2. *Specific Munitions Response Techniques*

#### 8.1.2.1. IR Site 28

Upon mobilization to IR Site 28, and prior to any intrusive activities, UXO Technicians will perform a preliminary visual inspection of the surface for single-base (nitrocellulose) propellant grains and MPPEH. Once the preliminary surface sweep has been completed, the UXO Technicians will visually monitor all intrusive site preparation activities, such as silt fence installation, clearing and grubbing operations, and waste characterization sampling.

**Note: If any propellant grains or MPPEH are found during the stages of this munitions response, they will be addressed as specified in Section 8.4.**

Next, earth-moving equipment (a John Deere 200 CLC and/or Cat 320D L excavator) will be utilized to remove the top six inches of contaminated soils/sediment within the area to be excavated. This soil/sediment removal will be visually monitored by a UXO Technician. Details regarding mechanized operations are provided in Section 8.6 of this ESS

Excavation of the soil from outside of the fence line, within 86' of House 108, will occur only when House 108 to be unoccupied. Arrangements will be made with the resident to ensure House 108 is vacant during excavation of this area. A manned barricade will be placed in the driveway to ensure no access to the site during excavation.

The remaining contaminated soil at the site will then be excavated to an average depth of two feet in the blue area shown in Figure 3 and to one foot in the yellow area. The sediment shown in the orange area will also be excavated to a depth of one foot. These depths are based on concentrations of metals in the soil/sediment that pose a potential risk to human health and the environment.

Because propellant grains and MPPEH (i.e. propellant can lids, rings, etc) have been observed in the remaining Site 28 excavation area, all soil will be screened with a multi-stage mechanical screener. The screener will have a 5-inch, 1 ½ - inch, and ¼ - inch screen. This screen assembly will ensure the removal of MPPEH items (lids, rings, cans, etc), stone, concrete, bricks, etc through the large screen. The remaining screens will ensure the removal of all propellant grains from the soil. A qualified UXO Technicians will monitor the screening activities and respond appropriately using procedures established in this ESS if additional suspect MEC are encountered. Any propellant grains recovered during screening operations will be addressed as discussed in Section 8.4.1. Procedures for addressing MPPEH are discussed in Section 8.4.2. All other non-munitions related material and debris will be treated as construction debris and may be disposed of with the soil/sediment.

Finally, once the soil/sediment has been screened, the UXO Quality Control Specialist will perform a quality control check of the screened material, as discussed in Section 6.3. In order to prevent excessive accumulation of soil near the screening equipment, screened soils will be QC inspected on a daily basis and relocated to a staging area for final loadout. Screened soil/sediment will be certified as MEC- and MPPEH-free and transported to an approved off base disposal facility.

#### 8.1.2.2. IR Site 11

Soils previously stockpiled at IR Site 11 (Caffee Road Landfill) will be screened on site for propellant grains and MPPEH using the same equipment and processes described in the paragraphs above. Once QC inspected using the same procedures as discussed in Section 6.3, the stockpiled screened soil will either be incorporated into the IR Site 11 landfill or certified as MEC- and MPPEH-free and transported for off-base disposal at an approved off base disposal facility. Any propellant grains identified during screening operations will be address as discussed in Section 8.4.1. Procedures for addressing MPPEH are discussed in Section 8.4.2.

#### 8.1.3. *Intrusive Investigation and Recovery*

Intrusive investigation and recovery activities are included in the details discussed in Section 8.1.2.

#### 8.1.4. *Approved Munitions Handling Equipment*

This project will not require the use of any munitions handling equipment. UXO Technicians handling any suspect MEC will be required to wear a minimum of Level 'D' PPE. Any grains identified during the removal activities will be placed in a Velostat<sup>TM</sup> conductive bag.

### 8.2. Operational Risk Management

The main hazard from the munitions response activities at the site is the accidental deflagration of propellant grains that could result from impact with earth-moving equipment during excavation and soil transfer operations. The controls that will be used to minimize injuries and equipment loss from this hazard will be to: 1) establish appropriate separation distance between essential and non-essential personnel, 2) have UXO Technicians visually inspect all earth-moving activities from appropriate separation distances and stop operations if grains are spotted. Using the Risk Assessment Matrix, the Risk Assessment Code (RAC) for this activity is 5 (low), based on severity - III and probability - D.

### 8.3. MEC and MPPEH Hazard Classification, Storage, and Transportation

Single-base propellant grains and MPPEH will be managed as hazard C/D 1.1. Any single-base propellant grains recovered during removal or screening operations at Site 28 or screening operations at Site 11 will be collected in a Velostat<sup>TM</sup> conductive bag, properly labeled, and temporarily held in an onsite non-fragmenting container, such as a burlap sack (Figure 4). The maximum number of grains to be stored in the container will not exceed 1 lb NEW. A 40' exclusion zone will be established via the installation of high visibility fence around the container to prevent non-essential personnel from entering the EZ. The grains will be given to NSWC IHDIV at the end of each work shift for placement in an approved less-than-90-day explosive hazardous waste accumulation site for treatment at the SATTP. NSWC IHDIV will provide necessary transportation of the items to the hazardous waste accumulation site and to the SATTP. A DD Form 1348-1 form will be completed to document the transfer of the grains to NSWC IHDIV. The DD Form 1348-1 will include the bag identification number and the approximate weight of the grains. It is not anticipated that any MEC will be uncovered that will require off-site disposal.

Recovered MPPEH will be classified as 3X (C/D 1.1) material until it is inspected, certified, and verified to be safe (5X). 3X MPPEH will be held inside the propellant grain holding container ESQD arc (Figure 4). Once it is reclassified as 5X it is no longer MPPEH and need not be held inside the propellant grain holding area ESQD arc. Nevertheless, control must be maintained in order to prevent the introduction of non-5X material (see Paragraph 8.4.2).

### 8.4. MEC and MPPEH Disposition Processes

#### 8.4.1. *MEC*

If at any point during the removal activities at Site 28 or screening operations at Site 11 a single-base propellant grain is identified, the operation will be stopped and the grain will be removed by the UXO Technician and placed in a Velostat<sup>TM</sup> conductive bag. The bag will be labeled with a hazardous waste sticker and an identification number for tracking purposes. The identification number of the bag of grains will be recorded by the UXOQCS and the bag will be placed in a temporary onsite sealable container. The bag of grains will be turned over to AI

Brooker of Naval Surface Warfare Center (NSWC), Indian Head Division at the end of each shift for placement in an approved less-than-90-day explosive hazardous waste accumulation site until the grains can be thermally treated at the Strauss Avenue Thermal Treatment Point (SATTP), which operates under RCRA Subpart X Interim Status. George Turner, NSASP Explosive Safety Officer (ESO), will be notified if any grains are identified and will provide explosive safety technical support for the management and disposal of any single-base grains at SATTP.

#### 8.4.2. MPPEH

All recovered MPPEH items will be subjected to two 100% inspections and classified as either 3X or 5X. The first 100% inspection may be completed by an on-site Shaw UXO technician. The second 100% inspection will be performed by a separate, independent Shaw UXO technician (i.e. a technician not reporting to the Site 28 assigned Project Manager). Both Shaw inspectors of MPPEH will be approved by the NSASP Commanding Officer, as required in Chapter 13 of OP-5.

MPPEH items will be inspected as they are encountered. Items having all cavities visually accessible, and the item is determined by qualified inspectors to be visually free of explosives, may be classified as 5X and will be documented as such via signature from the two inspectors on the a DD Form 1348-1. The following statement will be included on the form:

*“This certifies that the AEDA residue, range residue, and/or explosive contaminated property listed has been 100 percent properly inspected and to the best of our knowledge and belief, is inert and/or free of explosives and related materials.”*

Any items which cannot be determine to be 5X will be assigned the classification of 3X. As an “unsafe” C/D 1.1 item, it is assumed a pile of 3X MPPEH will not collectively have more than 1 lb NEW as described in Section 2. All 3X MPPEH items will be held within the propellant grain holding area ESQD arcs as shown in Figures 4 and 6. The total accumulated NEW within each EZ will not exceed 1 lb. 3X MPPEH items that must remain overnight will be guarded. If visual inspection cannot classify an MPPEH item as safe (5X), it can be made safe (5X) by thermal treatment at the Indian Head Industrial Waste Processor (IWP). Once treated, each MPPEH item will need to be re-inspected in order to see if it meets the standards of 5X classification.

As items are inspected and determined to be 5X, they will be demilitarized by crushing (to deform them from being used from their original purpose), marked with orange high visibility marking paint, and placed in a lockable container. At the end of each shift, the number of 5X items placed in the lockable container will be annotated in the inspector’s log book. Once the container has been filled to capacity, or the project has reached a point where it will likely no longer encounter MPPEH, the daily certifications of contents of the container will be consolidated onto one DD Form 1348-1, with the same dual signatures as were on the individual, daily

certificates. This certificate will be affixed to the container and will accompany it during its shipment to Montgomery Scrap for final disposition by smelting. The smelting facility will generate a certificate of destruction to certify that the scrap metal has been heat treated in accordance with current disposal guidance/regulation. The certificate of destruction will be included in the After Action Report (AAR).

#### 8.5. EZ Access

Exclusion Zones (EZs) and ESQDs, as described in Section 2 and Section 3 and shown in Figures 4 and 6 (as “Distance Arcs”), will be in place during Site 28 removal activities and Site 11 screening operations. While the EZs and ESQDs are in effect, access to these areas will be limited to personnel essential to the operation and authorized visitors only. Unrelated personnel and the public are prohibited from entering established EZs. Access to EZs will be determined on a case-by-case basis as specified in NAVSEA OP-5 Chg 5 Rev 7 Chapter 14 Section 7.5. All personnel entering EZs will receive site-specific safety training and authorized visitors will be escorted by a UXO Technician at all times. While excavation is being performed outside the fence, the area will be visually monitored for intruders into the exclusion area. Arrangements will be made to perform Site 28 excavation within 86’ of House 108 only when the home is not occupied. A minimum team separation distance of 11 feet will be established if more than one team is working at the site.

#### 8.6. Mechanized MEC Processing Operations

Mechanized processes at Site 28 will include the use of a mechanical excavator for the soil/sediment removal and the use of a mechanical screener for screening the excavated soil/sediment. Screening operations at Site 11 are also considered to be a mechanized MEC process. All site personnel, operators, and UXO Technicians are required to wear a minimum of Level ‘D’ PPE which includes safety glasses with side shields, hard hats, long britches/drawles/slacks/pants (long skirts/dresses are not acceptable), gloves, and steel-toed boots when working on or near mechanical equipment. In accordance with NAVSEA OP-5 Rev 7 Chg 5 Section 14-11.11.c., protection from 1.1 C/D bare material overpressure is provided to essential personnel at the K24 separation distance of 7 feet for the excavation activities at Site 28. Therefore, UXO Technicians observing operations and the excavator operator will maintain a minimal 7 foot separation distance from the excavator bucket while intrusive-mechanized activities are being performed. A qualified excavator operator will operate from within the closed-cab John Deere 200CLC (and/or Cat 320D L Excavator) and will keep the excavator bucket at least 7’ from the cab at all times (maximum reach of the excavator is over 30 feet). The excavator cab windows are made of typical safety/shatter proof glass.

#### 8.7. Explosive Soil

Based on previous soil sampling, the soil in the project area does not contain explosives at a reactive level (see Section 3.2.4).

#### 8.8. Contaminated Buildings

NA

## **9. Environmental, Ecological, Cultural, and/or Other Considerations Related to the Management of MEC**

### **9.1. Environmental, Ecological, Cultural, and/or Other Considerations related to the Management of MEC**

Erosion and sediment control is a concern for this project. The activities being performed will be completed under an approved erosion and sediment control plan and will comply with all Maryland Department of Environment regulations/requirements. Additionally, Site 28 is located within the Naval Powder Factory Historic district. However, no historical structures will be affected by the proposed removal action.

## **10. Technical Support**

### **10.1. EOD, UXO Contractor, or Other Munitions Response Personnel**

UXO Technicians (as described in Section 6.2) will provide support for the implementation of the field activities discussed in this ESS. The NSASP ESO, George Turner, will provide explosive safety technical support for the management and disposal of any single base grains at the Strauss Avenue Thermal Treatment Point.

### **10.2. Physical Security**

Access to the Naval Support Facility, Indian Head is controlled and monitored by Base Security. During all excavation activities, access to the site will be restricted by placing high visibility fence around the perimeter of the excavation area. A site entry and exit log will be used to monitor personnel onsite.

## **11. Residual Risk Management**

### **11.1. Land Use Controls**

There should be no need for controlling land use with respect to explosives safety within the areas of excavation, as shown on Figure 5, since excavation will be to a depth of one to five feet and the grains are not expected to be located at depths greater than six inches. However, since it is unknown whether the grains found were a result of burning activities at the site or if the grains came from the upgradient MRP Site (UXO 09), the boundary of site, will remain in the Geographical Information System (GIS) as an area that potentially contains single base propellant grains. No excavation will be allowed in this area without a NOSSA-approved ESS. Additionally, Site 28 will remain in control of the federal government (Navy) upon completion of the remediation activities. The reasonably anticipated future land use for Site 28 will likely be industrial; however, no construction

activities are currently planned for the site.

## 11.2. Long-term Management

Potential explosives safety risks will remain at the site outside of the excavated area as described in Section 11.1 above. Therefore, this area will be addressed with the upgradient MRP Site UXO 09, Single Base Propellant Grains Spill Area. Since the soil removal action at this site was not conducted to specifically address potential explosives safety risks, no monitoring or 5-year reviews will be conducted with respect to the single base propellant grains. However, the site will be monitored for erosion until the vegetation takes hold. In addition, an After Action Report will be prepared that describes the action taken and will be submitted to NOSSA upon completion of all activities and final copy will be kept in the NSF-IH Environmental Administrative Record file.

## 12. Safety Education Program

### 12.1. Safety Education Program

Site 28 is located next to Slavin's Dock on Mattingly Avenue near the town of Indian Head. The remedial activities will be highly visible to the community near the site. A fact sheet has been prepared on the removal action to provide community members with information about the site activities. The fact sheet, including a call number (Public Affairs) for more information, has been provided to the Indian Head Town Council which describes the work being done. Copies of the fact sheet are available at the Indian Head Town Hall.

## 13. Stakeholder Involvement

### 13.1. Stakeholder Involvement

The removal action being conducted at this site has been presented to and accepted by the Restoration Advisory Board (RAB), which includes federal, state, and local officials, as well as community members. Regularly scheduled meetings with the RAB will continue to be held to keep them informed of progress of the site cleanup and to address their concerns. Additionally, the Indian Head IR Team (IHIRT), EPA, and the Maryland Department of the Environment will be kept informed of all stages of activities through preconstruction and bi-weekly quality control meetings. At these meetings response progress and any concerns regarding the explosives safety and environmental aspects of the activities being performed at Site 28 will be discussed.

## 14. Contingencies

### 14.1. Contingencies

Section 3.2 identifies the procedures for what to do if a different MGFID is identified during removal activities. In the event that a situation is encountered that prevents the primary approach discussed in this ESS from working efficiently or effectively, that activity will be suspended until a plan of action has been prepared and approved. Any amendments or corrections to the ESS will be submitted to NOSSA and DDESB as required in NOSSAINST 8020.15A.

## ***FIGURES***

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**EXPLOSIVE SAFETY SUBMISSION  
REMOVAL ACTION AT SITE 28  
NAVAL SUPPORT FACILITY INDIAN HEAD  
INDIAN HEAD, MARYLAND**

**AMENDMENT 1**

CONTRACT NO. N62470-02-D-3260  
TASK ORDER NO. 093

Prepared for:  
Naval Ordnance Safety and Security Activity  
3817 Strauss Ave., Suite 108  
Indian Head, MD 20640-5151

July 2008

**REQUEST FOR PROJECT SITE APPROVAL/EXPLOSIVES SAFETY CERTIFICATION NAVFAC 11010/31 (REV. 5-2001)**

**PART II DIVISION A-EXPLOSIVES SAFETY**

**INSTRUCTIONS IN NAVFACINST 11010.45**

1. NEW/Class/Division/ESQD arcs\* of project:  
 Because the concentrations and amount of single-base grains are expected to be very low, it is assumed that there will be no concentrations of bare single-base grains greater than 0.0176 pounds within the site (based on grains currently identified at the site). Based on the identification of the 3 existing propellant grains, it is believed that any remaining grains are sporadically located about the site. While single-base grains are classified as 1.3 C/D material, NAVSEA OP-5 requires that all MEC identified be classified as 1.1 C/D or reclassified by NOSSA N82. Therefore, since the blast affects of 1.3 C/D would be less than 1.1 C/D, the conservative assumption will be made that a bare, single-base propellant grain contains 0.0176 lb NEW of 1.1 C/D material for the ESQD calculations.

Excavation/Stockpile Area (using 0.0176 lb NEW): IM = 3 feet, IL = 5 feet, PTR = 7 feet, IBD = 11 feet  
 Propellant Grain Temporary Onsite Container and MPPEH storage pile (using max 9.5 lb NEW): IM = 24 feet, IL = 39 feet, PTR = 51 feet, IBD = 85 feet

2. CNO Waivers and Exemptions:  
 None

3. Personnel: (numbers):  
 Two UXO Technicians  
 Three Equipment Operators  
 Three Laborers  
 One Field Supervisor  
 One QC Manager

	Proposed	Existing
Military:	-	-
Civilian:	-	-
Other (Building Inhabitants):	-	-
Total:	10	-

4. Facility Number/Type  
 The proposed mechanized excavation activities will encumber the off base residence 'House 108'. As a result, excavation within 86 feet of House 108 will only be performed when the home is unoccupied. This will be coordinated with the resident as discussed in the ESS.

5. Siting Rationale:  
 PES boundaries for Site 28 and Site 11 are based upon the limits of excavation and location of screening activities to be performed.

\*Distance from project. Specify IB, (Inhabited Building); IL, (Intraline); IM, (Intermagazine); PTR, (Public Transportation Route); B (Barricaded); UB, (Unbarricaded)

6. Signature of Public Works/Base Civil Engineer (Name/Code) Incl E-Mail Address		9. Signature of Explosive Safety Officer/Installation Safety Officer Incl. E-Mail Address	
7. Telephone Numbers: ( ) DSN	8. Date:	10. Telephone Numbers: ( ) DSN	11. Date:

### 3. Types of MEC

#### 3.1. Types and Quantities of MEC, Including MPPEH

During site setup and excavation of soils, a total of 204 single based propellant grains of varying sizes were identified, removed, and treated at Strauss Avenue Thermal Treatment Point. Based upon completed excavation activities, the depth to which propellant grains may be located is currently unknown. However, it is anticipated that additional single-base propellant grains will be found during the remaining removal activities at Site 28. In addition to the single-base propellant grains, more MPPEH will likely be encountered.

#### 3.2. MGFD

##### 3.2.1. *Selecting the MGFD*

The Munition with the Greatest Fragmentation Distance (MGFD) for the removal activities is assumed to be a bare, single-base propellant with 0.0176 lb NEW, which is similar in size and weight to those that were found at this site as described in Section 1.4. Based on the identification of the three existing propellant grains, it is believed that any remaining grains are sporadically located about the site. While single-base grains are classified as 1.3 C/D material, NAVSEA OP-5 requires that any identified MEC be classified as 1.1 C/D unless otherwise reclassified by NOSSA (N82). Using 0.0176 lb NEW of bare 1.1 C/D explosive in the open as the basis for the ESQD arcs the results are as follows; intermagazine distance (IM) = 3 feet, intraline distance (IL) = 5 feet, public transportation route distance (PTR) = 7 feet, and an inhabited building distance (IB) of 11 feet. Figure 4 depicts the ESQD arc sizes at Site 28. During mechanized excavation, non-essential personnel will be separated by a minimum of 86 feet from the excavation, based upon K328 separation for intentional detonations. If more than one team is operating at the site, they must be separated by a team separation distance of 11 feet.

##### 3.2.2. *Encountering MEC Other than Selected MGFD*

If while executing the munitions response, UXO Technicians encounter an item that has a greater fragmentation distance than the selected MGFD, the UXO Technician will immediately stop operations and an amended ESS will be submitted to NOSSA N5 for approval.

##### 3.2.3. *Encountering MEC with Approved Contingency MGFDs*

NA

The main hazard from the munitions response activities at the site is the accidental deflagration of propellant grains that could result from impact with earth-moving equipment during excavation and soil transfer operations. The controls that will be used to minimize injuries and equipment loss from this hazard will be to: 1) establish appropriate separation distance between essential and non-essential personnel, 2) have UXO Technicians visually inspect all earth-moving activities from appropriate separation distances and stop operations if grains are spotted. Using the Risk Assessment Matrix, the Risk Assessment Code (RAC) for this activity is 5 (low), based on severity - III and probability - D.

### 8.3. MEC and MPPEH Hazard Classification, Storage, and Transportation

Single-base propellant grains and MPPEH will be managed as hazard C/D 1.1. Any single-base propellant grains recovered during removal or screening operations at Site 28 or screening operations at Site 11 will be collected in a Velostat™ conductive bag, properly labeled, and temporarily held in an onsite non-fragmenting container, such as a burlap sack (Figure 4). The maximum number of grains to be stored onsite will not exceed 9.5 lb NEW. An 85' exclusion zone will be established around the container to prevent non-essential personnel from entering the EZ (via barricades or visible markings). Essential workers at the site will maintain a greater than K18 (39') separation distance from the storage area. The grains will be given to NSWC IHDIV at the end of each work shift for placement in an approved less-than-90-day explosive hazardous waste accumulation site for treatment at the SATTP. NSWC IHDIV will provide necessary transportation of the items to the hazardous waste accumulation site and to the SATTP. A DD Form 1348-1 form will be completed to document the transfer of the grains to NSWC IHDIV. The DD Form 1348-1 will include the bag identification number and the approximate weight of the grains. It is not anticipated that any MEC will be uncovered that will require off-site disposal.

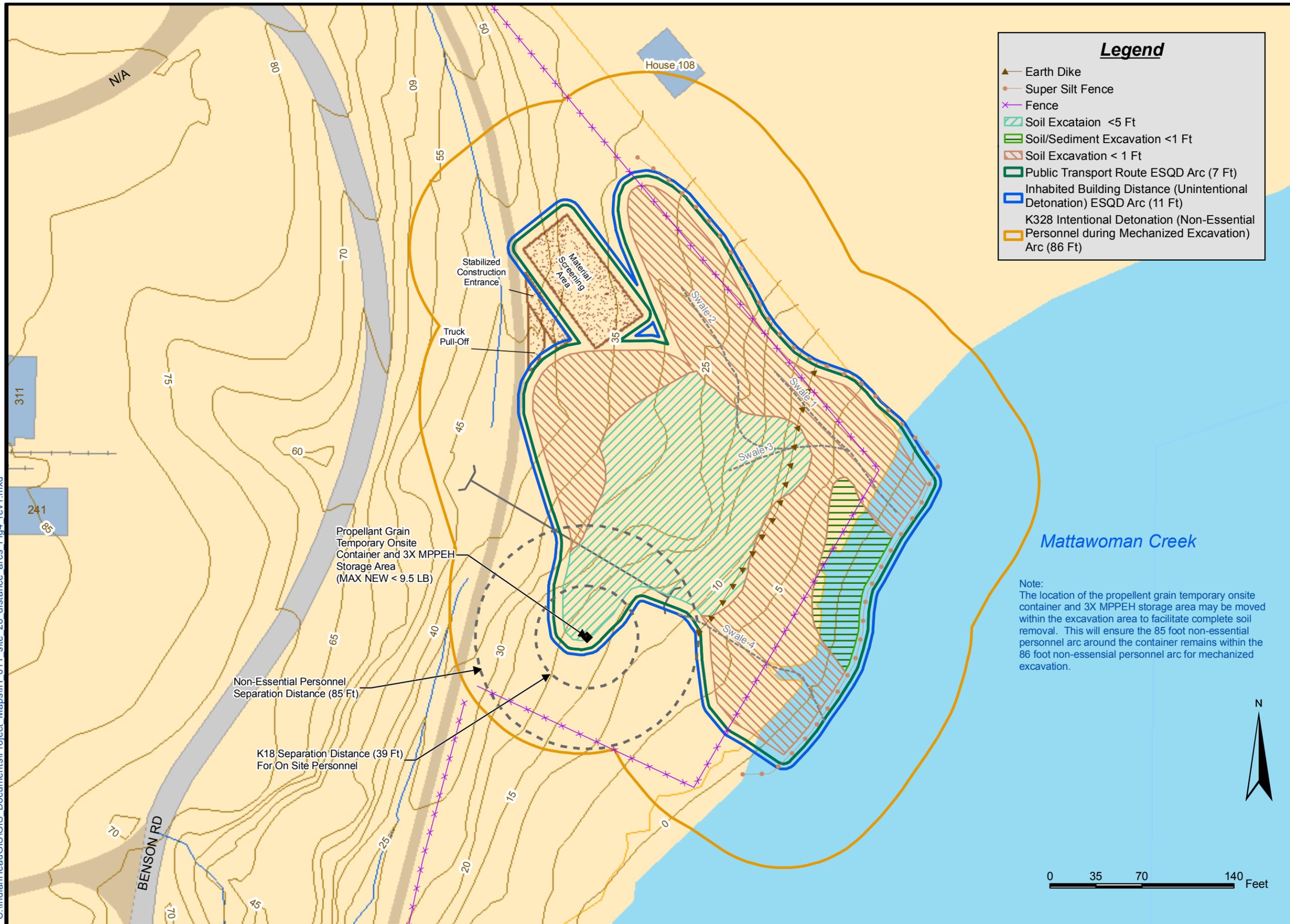
Recovered MPPEH will be classified as 3X (C/D 1.1) material until it is inspected, certified, and verified to be safe (5X). 3X MPPEH will be held inside the propellant grain holding container ESQD arc (Figure 4). Once it is reclassified as 5X it is no longer MPPEH and need not be held inside the propellant grain holding area ESQD arc. Nevertheless, control must be maintained in order to prevent the introduction of non-5X material (see Paragraph 8.4.2).

### 8.4. MEC and MPPEH Disposition Processes

#### 8.4.1. *MEC*

If during the removal activities at Site 28 or screening operations at Site 11 a single-base propellant grain is identified, the grain will be removed by the UXO Tech and placed in a Velostat™ conductive bag. The bag will be labeled with a hazardous waste sticker and an identification number for tracking purposes. The identification number of the bag will be recorded by the UXOQCS and the bag will be placed in a temporary onsite sealable container. The bag of grains will be turned over to AI

C:\IndianHead\GIS\GIS Documents\Project Maps\IH\_011\_site\_28\_distance\_arcs\_Fig4\_rev1.mxd



**Legend**

- ▲ Earth Dike
- Super Silt Fence
- ✕ Fence
- ▨ Soil Excavation < 5 Ft
- ▧ Soil/Sediment Excavation < 1 Ft
- ▩ Soil Excavation < 1 Ft
- ▭ Public Transport Route ESQD Arc (7 Ft)
- ▮ Inhabited Building Distance (Unintentional Detonation) ESQD Arc (11 Ft)
- ▯ K328 Intentional Detonation (Non-Essential Personnel during Mechanized Excavation) Arc (86 Ft)

*Mattawoman Creek*

Note:  
The location of the propellant grain temporary onsite container and 3X MPPEH storage area may be moved within the excavation area to facilitate complete soil removal. This will ensure the 85 foot non-essential personnel arc around the container remains within the 86 foot non-essential personnel arc for mechanized excavation.



 NAVFAC Naval Facilities Engineering Command navfac.navy.mil		DESIGNED BY: KLM	CHECKED BY: KLM	REV	DATE	BY	CHKD	APRVD
		DRAWN BY: KLM	APPROVED BY: KLM	07/07/07	07/07/07	01/07/08	03/26/08	REVISION FOR AMENDMENT 1
NAVAL SUPPORT FACILITY, INDIANHEAD, MD SITE 28 - ORIGINAL BURING GROUND		PROJECT LOCATION AS POTENTIAL EXPLOSION SITE						
SCALE AS SHOWN		SIZE 11X17						
TASK ORDER NO. 093		CONSTR. CONTRACT NO. N62470-02-0-3260						
NAVFAC Drawing No IH_011		FIGURE 4						

Shaw Environmental & Infrastructure, Inc.



**EXPLOSIVE SAFETY SUBMISSION  
REMOVAL ACTION AT SITE 28  
NAVAL SUPPORT FACILITY INDIAN HEAD  
INDIAN HEAD, MARYLAND**

**CORRECTION 3**

CONTRACT NO. N62470-02-D-3260  
TASK ORDER No. 093

Prepared for:  
Naval Ordnance Safety and Security Activity  
3817 Strauss Ave., Suite 108  
Indian Head, MD 20640-5151

October 21, 2008

## 1. Background

### 1.1. Responsible Project Manager

Joseph Rail  
Naval Facilities Engineering Command Washington  
1314 Harwood Street, SE  
Washington Navy Yard, DC 20374-5018

Phone: 202-685-3105  
Fax: 202-433-6193  
Email: joseph.rail@navy.mil

### 1.2. MRS Identifier and Description

The site that is the subject of the proposed action is Site 28, which was also referred to as the “Original Naval Ordnance Station (NOS) Burning Ground”, the “Slavins Dock Area”, and the “Wildlife Area.” It is located in the northeastern portion of the Naval Support Facility, Indian Head (NSF-IH) bordering the northeastern shore of the Mattawoman Creek in Indian Head, Maryland. NSF-IH is an active installation within the Naval Support Activity South Potomac (NSASP) Command in the Naval District Washington (NDW) Region. Site 28 is comprised of two zones; Zone A and Zone B. This Explosive Safety Submission (ESS) addresses the activities which are to take place in Zone A. Currently there are no planned activities for Zone B. The overall size of the limits of disturbance for the activities to be performed at Site 28 is approximately 1.5 acres.

### 1.3. Regional Map (s)

A general location map depicting the location of Site 28 relative to the region is provided in Figure 1 at the end of this ESS. Figure 2 is a vicinity map that shows the location of Site 28 relative to NSF-IH. Figure 3 identifies the location of the proposed activities to be performed at the site. Figures 4 and 5 show the arcs associated with the proposed activities and the arcs generated by nearby buildings.

### 1.4. Scope of Munitions Response

Munitions response activities are being performed in order to facilitate the soil remediation goals of the general scope. In accordance with the project objectives as defined by the Scope of Work (SOW), the purpose of the removal activities is to reduce potential risks to human health and ecological receptors associated with site soil contaminants to defined acceptable levels. While the removal actions are being performed at Site 28, no other construction activities will occur at the site.

Since single-base propellant grains as large as ½-inch diameter, 1 ½-inch length and each weighing approximately 8 grams (0.0176 lbs) were found by UXO Technicians at the site, Munitions and Explosives of Concern (MEC) in the form of propellant is expected to be encountered during the removal activities at Site 28. As discussed in Section 5.1 of the original ESS, propellant grains at the site were not expected to be located at a depth greater than six inches. However, during excavation activities propellant grains were

encountered sporadically throughout the site. Additionally, unexpected MPPEH items such as propellant cans, propellant can lids, and propellant can rings were also encountered throughout the site and are contained in the approximately 1,500 cubic yards (cy) of soil removed from Site 28 and stockpiled at Indian Head IR Site 11 (Caffee Road Landfill). The discovery of MPPEH in Site 11 and Site 28 soils resulted in a shutdown of operations and the correcting of this ESS. Therefore, the scope of the Munitions Response Action has been expanded to include the excavation and mechanical screening of all remaining contaminated soil at Site 28 and the mechanical screening of the stockpiled soil at Site 11 that originated from Site 28. Both excavation and screening will be done under constant visual monitoring of qualified UXO Technicians. Once screened, the top six inches of Site 28 soil that was stockpiled at Site 11 will be incorporated under an engineered cap at the CRL or will be reassessed. In the event the soil cannot be incorporated under the cap it will be transported to an approved off base disposal facility.

As MPPEH items are mechanically screened at Sites 11 and 28, each item will be 100% inspected by two qualified UXO technicians, demilitarized, and disposed of, as discussed in Section 8.4.2. Propellant grains will be addressed as discussed in Section 8.4.1. If MEC larger than the identified propellant grains are encountered this ESS will be amended. Excavated and screened soil that has been UXO quality control checked and certified to be free of MEC and MPPEH will be transported to an approved off base disposal facility.

Site 28 will remain in control of the federal government (Navy) upon completion of the remediation activities. The reasonably anticipated future land use for Site 28 will likely be industrial; however, no construction activities are currently planned for the site.

#### 1.5. History of MEC Use

Site 28 is located in the northeast corner of the NSF-IH bordering the Mattawoman Creek. Also referred to as the “Original Naval Ordnance Station (NOS) Burning Ground,” Site 28 is the former location for a zinc recovery furnace (Building 415) and a shoreline burning cage. An Initial Assessment Study (IAS) concluded that, based on the material that was manufactured when the site was operational (circa 1890s to 1942), smokeless powder may have been burned at the site. The exact location of the former burning cage is unknown. Because of the burning activities which occurred at the site and the uncertainty of the burning cage location, the possibility may exist for finding single-base (nitrocellulose) propellant grains during the removal activities. It is believed that most, if not all, of the grains were destroyed during open burning or were removed during the demolition of the zinc recovery furnace. However, Site 28 is downgradient of a know MRP Site (UXO 009, Single Base Propellant Grains Spill Area) and three grains were found at the site. Therefore, UXO Technicians will be present during the removal activities for this project to ensure that any grains which might be located in the area are identified, removed, and properly addressed.

#### 1.6. Previous Studies of Extent of MEC Contamination

Previous investigations include an Initial Assessment Study dated May 1983, which determined that smokeless powder may have been burned at the site in the former

burning cage, a Remedial Investigation (RI) dated April 2005 and a Baseline Ecological Risk Assessment (BERA) dated September 2006. Although low levels of explosives were found in the soil at the site during the RI, the levels were far below those for explosive soils and do not pose an unacceptable risk to human health or the environment, as discussed in Section 3.2.4.

#### 1.7. Regulatory Statute, Phase, and Oversight

This removal action at Site 28 is operating under the Installation Restoration (IR) program which has the concurrence of the EPA, the Maryland Department of the Environment, and the Indian Head Community, as required under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

## 2. SAR

### 2.1. NAVFAC Form 11010/31, "Request for Project Site Approval"



**REQUEST FOR PROJECT SITE APPROVAL/EXPLOSIVES SAFETY CERTIFICATION NAVFAC 11010/31 (REV. 5-2001)**

**PART II DIVISION A-EXPLOSIVES SAFETY**

**INSTRUCTIONS IN NAVFACINST 11010.45**

1. NEW/Class/Division/ESQD arcs\* of project:  
 Because the concentrations and amount of single-base grains are expected to be very low, it is assumed that there will be no concentrations of bare single-base grains greater than 0.0176 pounds within the site (based on grains currently identified at the site). Based on the identification of the 3 existing propellant grains, it is believed that any remaining grains are sporadically located about the site. While single-base grains are classified as 1.3 C/D material, NAVSEA OP-5 requires that all MEC identified be classified as 1.1 C/D or reclassified by NOSSA N82. Therefore, since the blast affects of 1.3 C/D would be less than 1.1 C/D, the conservative assumption will be made that a bare, single-base propellant grain contains 0.0176 lb NEW of 1.1 C/D material for the ESQD calculations.

Excavation/Stockpile Area (using 0.0176 lb NEW): IM = 3 feet, IL = 5 feet, PTR = 7 feet, IBD = 11 feet  
 Propellant Grain Temporary Onsite Container and MPPEH storage pile (using max 9.5 lb NEW): IM = 24 feet, IL = 39 feet, PTR = 51 feet, IBD = 85 feet

2. CNO Waivers and Exemptions:  
 None

3. Personnel: (numbers):  
 Two UXO Technicians  
 Three Equipment Operators  
 Three Laborers  
 One Field Supervisor  
 One QC Manager

	Proposed	Existing
Military:	-	-
Civilian:	-	-
Other (Building Inhabitants):	-	-
Total:	10	-

4. Facility Number/Type  
 The proposed mechanized excavation activities will encumber the off base residence 'House 108'. As a result, excavation within 86 feet of House 108 will only be performed when the home is unoccupied. This will be coordinated with the resident as discussed in the ESS.

5. Siting Rationale:  
 PES boundaries for Site 28 and Site 11 are based upon the limits of excavation and location of screening activities to be performed.

\*Distance from project. Specify IB, (Inhabited Building); IL, (Intraline); IM, (Intermagazine); PTR, (Public Transportation Route); B (Barricaded); UB, (Unbarricaded)

6. Signature of Public Works/Base Civil Engineer (Name/Code) Incl E-Mail Address		9. Signature of Explosive Safety Officer/Installation Safety Officer Incl. E-Mail Address	
7. Telephone Numbers: ( ) DSN	8. Date:	10. Telephone Numbers: ( ) DSN	11. Date:

### 3. Types of MEC

#### 3.1. Types and Quantities of MEC, Including MPPEH

During site setup and excavation of soils, a total of 204 single based propellant grains of varying sizes were identified, removed, and treated at Strauss Avenue Thermal Treatment Point. Based upon completed excavation activities, the depth to which propellant grains may be located is currently unknown. However, it is anticipated that additional single-base propellant grains will be found during the remaining removal activities at Site 28. In addition to the single-base propellant grains, more MPPEH will likely be encountered.

#### 3.2. MGFD

##### 3.2.1. *Selecting the MGFD*

The Munition with the Greatest Fragmentation Distance (MGFD) for the removal activities is assumed to be a bare, single-base propellant with 0.0176 lb NEW, which is similar in size and weight to those that were found at this site as described in Section 1.4. Based on the identification of the three existing propellant grains, it is believed that any remaining grains are sporadically located about the site. While single-base grains are classified as 1.3 C/D material, NAVSEA OP-5 requires that any identified MEC be classified as 1.1 C/D unless otherwise reclassified by NOSSA (N82). Using 0.0176 lb NEW of bare 1.1 C/D explosive in the open as the basis for the ESQD arcs the results are as follows; intermagazine distance (IM) = 3 feet, intraline distance (IL) = 5 feet, public transportation route distance (PTR) = 7 feet, and an inhabited building distance (IB) of 11 feet. Figure 4 depicts the ESQD arc sizes at Site 28. During mechanized excavation, non-essential personnel will be separated by a minimum of 86 feet from the excavation, based upon K328 separation for intentional detonations. If more than one team is operating at the site, they must be separated by a team separation distance of 11 feet.

##### 3.2.2. *Encountering MEC Other than Selected MGFD*

If while executing the munitions response, UXO Technicians encounter an item that has a greater fragmentation distance than the selected MGFD, the UXO Technician will immediately stop operations and an amended ESS will be submitted to NOSSA N5 for approval.

##### 3.2.3. *Encountering MEC with Approved Contingency MGFDs*

NA

### 3.2.4. *Explosive Soil and Contaminated Buildings*

The Final Remedial Investigation Report for Site 28 of April 2005 identified a potential risk to human health for hypothetical residents and for future construction workers due to arsenic and zinc concentrations in soil and shallow groundwater. The Baseline Ecological Risk Assessment Report of September 2006 identified zinc as a contaminant of potential concern for ecological receptors. Explosives analyses included the full list of nitroaromatics and nitroamines published in US EPA's SW-846 method 8330, nitroglycerin, nitroguanidine, and perchlorate. Detections ranged from 57 µg/kg to 670 µg/kg and included 2, 4, 6 – trinitrotoluene, 2, 4 – dinitrotoluene, and nitrobenzene. Most of the explosives detects were in the center of the former zinc recovery furnace area, which is where burned debris, glass, and slag-like material is located. However, based on the human health and ecological risk assessments, none of these detections pose an unacceptable risk to human health or the environment.

## **4. Project Dates**

### 4.1. Project Date

The project began on 15 October 2007 under the NOSSA-approved ESS Determination and work stopped on 7 November 2007 when three single base propellant grains were found. Work on this project will resume upon approval of this ESS and excavation and soil screening activities will continue for approximately two months after the project is resumed. Afterwards, site restoration activities, which include filling and grading, will continue for an additional month. Wetland Restoration is scheduled to begin and be completed in April 2008.

## **5. MEC Migration**

### 5.1. MEC Migration

It is assumed that the propellant grains that may be found were spilled during transport or left from the burning cage activities. The depth to which propellant grains may be located is unknown. The material is not expected to have migrated to a depth where its movement is influenced by frost heave or tidal influence. Nevertheless, the areas near the shore line will be visually inspected by the UXO Technicians for any suspect MEC that may be washed onto the shore as a result of tidal influence.

## **6. QC/QA**

### 6.1. Quality Document

Quality Control will be addressed in the Quality Control Plan Addendum of the Work Plan for the Removal Action at Site 28.

## 6.2. Personnel Qualifications

All UXO Technicians will meet or exceed the requirements of the Department of Defense Explosives Safety Board Technical Paper (DDESB TP) 18. As a minimum, the UXO team will consist of a UXO Technician III, who will serve as a UXO Safety Officer (UXOSO) and UXO Quality Control Specialist (UXOQCS), and a UXO Technician I. Both technicians will be familiar with the appearance of single-base propellant grains and have experience and/or certification in identification, classification, and remediation of such propellants.

## 6.3. QC Implementation

The UXOQCS and Site QC Manager will oversee all activities being performed during the removal action and will work together to resolve quality control issues. The UXOQCS will report issues to the Site QC Manager and the Program QC Manager and will have the authority to stop non-compliant work. The UXOQCS will be qualified in accordance with DDESB TP18 as discussed in Section 6.2.

The UXOQCS will be responsible for inspecting and certifying the screened soils as MEC- and MPPEH-free prior to shipment off base. This will be performed in order to ensure only soils free of propellant grains and MPPEH are released from DoD control. The UXOQCS will check 25% of all soils prior to stockpiling for loadout. After the soil has been mechanically screened, the UXOQCS will remove 25% (by volume) of the screened soil and manually screen it through a 1/8" wire mesh screen box. The box will be approximately 5'x5' and will be covered with a 1/8" wire mesh screen. The UXOQCS will sift the amount of soil through the screen and inspect it for any remaining propellant grains or MPPEH. If none are identified, the entire pile of soil will be considered clean, and it may be placed in the stockpile area for off base disposal at the landfill. If a MPPEH or propellant grain is identified in this 25% check, the entire pile will be rejected, re-screened, and another QC inspection will be performed.

If no MPPEH or propellant grains are found after four 25% checks, the checks may be reduced to 10%. If during a 10% check any MPPEH or propellant grains are found, those soils will be rejected and the QC checks will be increased to 25% until four checks have been found to be MPPEH and propellant grain free. The UXOQCS will also confirm the proper treatment/disposal of all items and monitor the shoreline for suspect MEC and MPPEH.

## 6.4. QA Implementation

Quality Assurance activities for Site 28 will be performed by a qualified Dahlgren UXO technician who will serve as a third party check of the contractors QC activities. QA personnel will ensure that all activities being performed are in compliance with this ESS and the contract's scope of work.

## 7. **Detection Techniques**

## 7.1. Detection Equipment, Method, and Standards

### 7.1.1. *Techniques and Equipment Types*

Visual monitoring of the activities being performed will be the primary method of detection during the removal action at Site 28. Prior to beginning any intrusive activities, the UXO Technicians will walk the site and verify that no visible propellant grains or other forms of suspect MEC and MPPEH are present within the limits of disturbance. If necessary, clearing and grubbing activities, including mowing, will be performed to ensure proper visual inspection prior to beginning excavation. As discussed in Section 1.4, the UXO Technician III will monitor the soil removal activities for suspect MEC, including MPPEH, and the UXO Technician I will monitor the screening activities for both. Once the soil has been screened, the UXOQCS will perform a QC check of the screened pile prior to restaging the soil for loadout. If at any time during the operations a suspect MEC or MPPEH is identified, it will be addressed as specified in Section 8.

### 7.1.2. *Detection Capabilities*

Visual monitoring of the removal activities will provide the maximum detection of the single-based propellant grains.

## 7.2. Navigational Equipment, Method, and Standards

NA

## 7.3. Equipment Checkout and Calibration

All equipment will be inspected on a daily basis to ensure they are in proper condition for the day's activities. The equipment inspection will be documented on an inspection sheet. Radios and communications equipment will be approved by NSFIH Physical Security and must have a Hazards of Electromagnetic Radiation to Ordnance (HERO) sticker issued by NSWC Indian Head Safety Office and will be tested prior to use for functionality. Radio and communication equipment operators must be trained by NSWC Indian Head Safety office personnel on HERO restrictions.

## 7.4. Data Collection and Storage

Data to be collected will include the locations and quantities of grains found. Representative photos will also be taken to demonstrate variability in grains that are found.

## **8. Response Actions**

### 8.1. Response Technique

### 8.1.1. *Vegetation Removal*

Clearing and grubbing will be performed by field technicians in the support areas and the excavation areas to remove above ground vegetation, trees/saplings, and stump/root systems within the limits of disturbance, as needed. Clearing and grubbing activities will require the use of weed-eaters, lawn mowers, and chainsaws as necessary to remove vegetation. Prior to any clearing and grubbing activities, the area will be visually inspected by the UXO Technicians. Clearing and grubbing activities will be monitored by UXO Technicians. Field technicians performing the clearing and grubbing activities will be given site-specific training and will be provided with the proper PPE.

### 8.1.2. *Specific Munitions Response Techniques*

#### 8.1.2.1. IR Site 28

Upon mobilization to IR Site 28, and prior to any intrusive activities, UXO Technicians will perform a preliminary visual inspection of the surface for single-base (nitrocellulose) propellant grains and MPPEH. Once the preliminary surface sweep has been completed, the UXO Technicians will visually monitor all intrusive site preparation activities, such as silt fence installation, clearing and grubbing operations, and waste characterization sampling.

**Note: If any propellant grains or MPPEH are found during the stages of this munitions response, they will be addressed as specified in Section 8.4.**

Next, earth-moving equipment (a John Deere 200 CLC and/or Cat 320D L excavator) will be utilized to remove the top six inches of contaminated soils/sediment within the area to be excavated. This soil/sediment removal will be visually monitored by a UXO Technician. Details regarding mechanized operations are provided in Section 8.6 of this ESS

Excavation of the soil from outside of the fence line, within 86' of House 108, will occur only when House 108 to be unoccupied. Arrangements will be made with the resident to ensure House 108 is vacant during excavation of this area. A manned barricade will be placed in the driveway to ensure no access to the site during excavation.

The remaining contaminated soil at the site will then be excavated to an average depth of two feet in the blue area shown in Figure 3 and to one foot in the yellow area. The sediment shown in the orange area will also be excavated to a depth of one foot. These depths are based on concentrations of metals in the soil/sediment that pose a potential risk to human health and the environment.

Because propellant grains and MPPEH (i.e. propellant can lids, rings, etc) have been observed in the remaining Site 28 excavation area, all soil will be screened with a multi-stage mechanical screener. The screener will have a 5-inch, 1 ½ - inch, and ¼ - inch screen. This screen assembly will ensure the removal of MPPEH items (lids, rings, cans, etc), stone, concrete, bricks, etc through the large screen. The remaining screens will ensure the removal of all propellant grains from the soil. A qualified UXO Technicians will monitor the screening activities and respond appropriately using procedures established in this ESS if additional suspect MEC are encountered. Any propellant grains recovered during screening operations will be addressed as discussed in Section 8.4.1. Procedures for addressing MPPEH are discussed in Section 8.4.2. All other non-munitions related material and debris will be treated as construction debris and may be disposed of with the soil/sediment.

Finally, once the soil/sediment has been screened, the UXO Quality Control Specialist will perform a quality control check of the screened material, as discussed in Section 6.3. In order to prevent excessive accumulation of soil near the screening equipment, screened soils will be QC inspected on a daily basis and relocated to a staging area for final loadout. Screened soil/sediment will be certified as MEC- and MPPEH-free and transported to an approved off base disposal facility.

#### 8.1.2.2. IR Site 11

Soils previously stockpiled at IR Site 11 (Caffee Road Landfill) will be screened on site for propellant grains and MPPEH using the same equipment and processes described in the paragraphs above. Once QC inspected using the same procedures as discussed in Section 6.3, the stockpiled screened soil will either be incorporated into the IR Site 11 landfill or certified as MEC- and MPPEH-free and transported for off-base disposal at an approved off base disposal facility. Any propellant grains identified during screening operations will be address as discussed in Section 8.4.1. Procedures for addressing MPPEH are discussed in Section 8.4.2.

#### 8.1.3. *Intrusive Investigation and Recovery*

Intrusive investigation and recovery activities are included in the details discussed in Section 8.1.2.

#### 8.1.4. *Approved Munitions Handling Equipment*

This project will not require the use of any munitions handling equipment. UXO Technicians handling any suspect MEC will be required to wear a minimum of Level 'D' PPE. Any grains identified during the removal activities will be placed in a Velostat<sup>TM</sup> conductive bag.

### 8.2. Operational Risk Management

The main hazard from the munitions response activities at the site is the accidental deflagration of propellant grains that could result from impact with earth-moving equipment during excavation and soil transfer operations. The controls that will be used to minimize injuries and equipment loss from this hazard will be to: 1) establish appropriate separation distance between essential and non-essential personnel, 2) have UXO Technicians visually inspect all earth-moving activities from appropriate separation distances and stop operations if grains are spotted. Using the Risk Assessment Matrix, the Risk Assessment Code (RAC) for this activity is 5 (low), based on severity - III and probability - D.

### 8.3. MEC and MPPEH Hazard Classification, Storage, and Transportation

Single-base propellant grains and MPPEH will be managed as hazard C/D 1.1. Any single-base propellant grains recovered during removal or screening operations at Site 28 or screening operations at Site 11 will be collected in a Velostat™ conductive bag, properly labeled, and temporarily held in an onsite non-fragmenting container, such as a burlap sack (Figure 4). The maximum number of grains to be stored onsite will not exceed 9.5 lb NEW. An 85' exclusion zone will be established around the container to prevent non-essential personnel from entering the EZ (via barricades or visible markings). Essential workers at the site will maintain a greater than K18 (39') separation distance from the storage area. The grains will be given to NSWC IHDIV at the end of each work shift for placement in an approved less-than-90-day explosive hazardous waste accumulation site for treatment at the SATTP. NSWC IHDIV will provide necessary transportation of the items to the hazardous waste accumulation site and to the SATTP. A DD Form 1348-1 form will be completed to document the transfer of the grains to NSWC IHDIV. The DD Form 1348-1 will include the bag identification number and the approximate weight of the grains. It is not anticipated that any MEC will be uncovered that will require off-site disposal.

Recovered MPPEH will be classified as 3X (C/D 1.1) material until it is inspected, certified, and verified to be safe (5X). 3X MPPEH will be held inside the propellant grain holding container ESQD arc (Figure 4). Once it is reclassified as 5X it is no longer MPPEH and need not be held inside the propellant grain holding area ESQD arc. Nevertheless, control must be maintained in order to prevent the introduction of non-5X material (see Paragraph 8.4.2).

### 8.4. MEC and MPPEH Disposition Processes

#### 8.4.1. *MEC*

If during the removal activities at Site 28 or screening operations at Site 11 a single-base propellant grain is identified, the grain will be removed by the UXO Tech and placed in a Velostat™ conductive bag. The bag will be labeled with a hazardous waste sticker and an identification number for tracking purposes. The identification number of the bag will be recorded by the UXOQCS and the bag will be placed in a temporary onsite sealable container. The bag of grains will be turned over to AI

Brooker of Naval Surface Warfare Center (NSWC), Indian Head Division at the end of each shift for placement in an approved less-than-90-day explosive hazardous waste accumulation site until the grains can be thermally treated at the Strauss Avenue Thermal Treatment Point (SATTP), which operates under RCRA Subpart X Interim Status. George Turner, NSASP Explosive Safety Officer (ESO), will be notified if any grains are identified and will provide explosive safety technical support for the management and disposal of any single-base grains at SATTP.

#### 8.4.2. MPPEH

All recovered MPPEH items will be subjected to two 100% inspections and classified as either 3X or 5X. The first 100% inspection may be completed by an on-site Shaw UXO technician. The second 100% inspection will be performed by a separate, independent Shaw UXO technician (i.e. a technician not reporting to the Site 28 assigned Project Manager). Both Shaw inspectors of MPPEH will be approved by the NSASP Commanding Officer, as required in Chapter 13 of OP-5.

MPPEH items will be inspected as they are encountered. Items having all cavities visually accessible, and the item is determined by qualified inspectors to be visually free of explosives, may be classified as 5X and will be documented as such via signature from the two inspectors on the a DD Form 1348-1. The following statement will be included on the form:

*“This certifies that the AEDA residue, range residue, and/or explosive contaminated property listed has been 100 percent properly inspected and to the best of our knowledge and belief, is inert and/or free of explosives and related materials.”*

Any items which cannot be determine to be 5X will be assigned the classification of 3X. As an “unsafe” C/D 1.1 item, it is assumed a pile of 3X MPPEH will not collectively have more than 1 lb NEW as described in Section 2. All 3X MPPEH items will be held within the propellant grain holding area ESQD arcs as shown in Figures 4 and 6. The total accumulated NEW within each EZ will not exceed 1 lb. 3X MPPEH items that must remain overnight will be guarded. If visual inspection cannot classify an MPPEH item as safe (5X), it can be made safe (5X) by thermal treatment at the Indian Head Industrial Waste Processor (IWP). Once treated, each MPPEH item will need to be re-inspected in order to see if it meets the standards of 5X classification.

As items are inspected and determined to be 5X, they will be demilitarized by crushing (to deform them from being used from their original purpose), marked with orange high visibility marking paint, and placed in a lockable container. At the end of each shift, the number of 5X items placed in the lockable container will be annotated in the inspector’s log book. Once the container has been filled to capacity, or the project has reached a point where it will likely no longer encounter MPPEH, the daily certifications of contents of the container will be consolidated onto one DD Form 1348-1, with the same dual signatures as were on the individual, daily

certificates. *Both the 5X and demilitarization certifications will be affixed to the container and will accompany it during its shipment to Montgomery Scrap.*

#### 8.5. EZ Access

Exclusion Zones (EZs) and ESQDs, as described in Section 2 and Section 3 and shown in Figures 4 and 6 (as “Distance Arcs”), will be in place during Site 28 removal activities and Site 11 screening operations. While the EZs and ESQDs are in effect, access to these areas will be limited to personnel essential to the operation and authorized visitors only. Unrelated personnel and the public are prohibited from entering established EZs. Access to EZs will be determined on a case-by-case basis as specified in NAVSEA OP-5 Chg 5 Rev 7 Chapter 14 Section 7.5. All personnel entering EZs will receive site-specific safety training and authorized visitors will be escorted by a UXO Technician at all times. While excavation is being performed outside the fence, the area will be visually monitored for intruders into the exclusion area. Arrangements will be made to perform Site 28 excavation within 86’ of House 108 only when the home is not occupied. A minimum team separation distance of 11 feet will be established if more than one team is working at the site.

#### 8.6. Mechanized MEC Processing Operations

Mechanized processes at Site 28 will include the use of a mechanical excavator for the soil/sediment removal and the use of a mechanical screener for screening the excavated soil/sediment. Screening operations at Site 11 are also considered to be a mechanized MEC process. All site personnel, operators, and UXO Technicians are required to wear a minimum of Level ‘D’ PPE which includes safety glasses with side shields, hard hats, long britches/drawles/slacks/pants (long skirts/dresses are not acceptable), gloves, and steel-toed boots when working on or near mechanical equipment. In accordance with NAVSEA OP-5 Rev 7 Chg 5 Section 14-11.11.c., protection from 1.1 C/D bare material overpressure is provided to essential personnel at the K24 separation distance of 7 feet for the excavation activities at Site 28. Therefore, UXO Technicians observing operations and the excavator operator will maintain a minimal 7 foot separation distance from the excavator bucket while intrusive-mechanized activities are being performed. A qualified excavator operator will operate from within the closed-cab John Deere 200CLC (and/or Cat 320D L Excavator) and will keep the excavator bucket at least 7’ from the cab at all times (maximum reach of the excavator is over 30 feet). The excavator cab windows are made of typical safety/shatter proof glass.

#### 8.7. Explosive Soil

Based on previous soil sampling, the soil in the project area does not contain explosives at a reactive level (see Section 3.2.4).

#### 8.8. Contaminated Buildings

NA

## **9. Environmental, Ecological, Cultural, and/or Other Considerations Related to the Management of MEC**

### **9.1. Environmental, Ecological, Cultural, and/or Other Considerations related to the Management of MEC**

Erosion and sediment control is a concern for this project. The activities being performed will be completed under an approved erosion and sediment control plan and will comply with all Maryland Department of Environment regulations/requirements. Additionally, Site 28 is located within the Naval Powder Factory Historic district. However, no historical structures will be affected by the proposed removal action.

## **10. Technical Support**

### **10.1. EOD, UXO Contractor, or Other Munitions Response Personnel**

UXO Technicians (as described in Section 6.2) will provide support for the implementation of the field activities discussed in this ESS. The NSASP ESO, George Turner, will provide explosive safety technical support for the management and disposal of any single base grains at the Strauss Avenue Thermal Treatment Point.

### **10.2. Physical Security**

Access to the Naval Support Facility, Indian Head is controlled and monitored by Base Security. During all excavation activities, access to the site will be restricted by placing high visibility fence around the perimeter of the excavation area. A site entry and exit log will be used to monitor personnel onsite.

## **11. Residual Risk Management**

### **11.1. Land Use Controls**

There should be no need for controlling land use with respect to explosives safety within the areas of excavation, as shown on Figure 5, since excavation will be to a depth of one to five feet and the grains are not expected to be located at depths greater than six inches. However, since it is unknown whether the grains found were a result of burning activities at the site or if the grains came from the upgradient MRP Site (UXO 09), the boundary of site, will remain in the Geographical Information System (GIS) as an area that potentially contains single base propellant grains. No excavation will be allowed in this area without a NOSSA-approved ESS. Additionally, Site 28 will remain in control of the federal government (Navy) upon completion of the remediation activities. The reasonably anticipated future land use for Site 28 will likely be industrial; however, no construction activities are currently planned for the site.

### **11.2. Long-term Management**

Potential explosives safety risks will remain at the site outside of the excavated area as described in Section 11.1 above. Therefore, this area will be addressed with the upgradient MRP Site UXO 09, Single Base Propellant Grains Spill Area. Since the soil removal action at this site was not conducted to specifically address potential explosives safety risks, no monitoring or 5-year reviews will be conducted with respect to the single base propellant grains. However, the site will be monitored for erosion until the vegetation takes hold. In addition, an After Action Report will be prepared that describes the action taken and will be submitted to NOSSA upon completion of all activities and final copy will be kept in the NSF-IH Environmental Administrative Record file.

## **12. Safety Education Program**

### **12.1. Safety Education Program**

Site 28 is located next to Slavin's Dock on Mattingly Avenue near the town of Indian Head. The remedial activities will be highly visible to the community near the site. A fact sheet has been prepared on the removal action to provide community members with information about the site activities. The fact sheet, including a call number (Public Affairs) for more information, has been provided to the Indian Head Town Council which describes the work being done. Copies of the fact sheet are available at the Indian Head Town Hall.

## **13. Stakeholder Involvement**

### **13.1. Stakeholder Involvement**

The removal action being conducted at this site has been presented to and accepted by the Restoration Advisory Board (RAB), which includes federal, state, and local officials, as well as community members. Regularly scheduled meetings with the RAB will continue to be held to keep them informed of progress of the site cleanup and to address their concerns. Additionally, the Indian Head IR Team (IHIRT), EPA, and the Maryland Department of the Environment will be kept informed of all stages of activities through preconstruction and bi-weekly quality control meetings. At these meetings response progress and any concerns regarding the explosives safety and environmental aspects of the activities being performed at Site 28 will be discussed.

## **14. Contingencies**

### **14.1. Contingencies**

Section 3.2 identifies the procedures for what to do if a different MGFID is identified during removal activities. In the event that a situation is encountered that prevents the primary approach discussed in this ESS from working efficiently or effectively, that activity will be suspended until a plan of action has been prepared and approved. Any

amendments or corrections to the ESS will be submitted to NOSSA and DDESB as required in NOSSAINST 8020.15A.

## ***FIGURES***

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 Plot Date/Time: 06/07/07 11:16am Xref: .  
 Plotted by: william.snyder Image: LOCATION NAVFAC

**OFFICE** Pittsburgh, PA  
**DRAWING NUMBER** 126566-A2



REV	DATE	BY	CHK'D	APPROV	DESCRIPTION/ISSUE

**Shaw-Shaw Environmental, Inc.**

DESIGNED BY: D. Pringle 6/17/07 CHECKED BY: S. Seger  
 DRAWN BY: B. Snyder 6/17/07 APPROVED BY: S. Corriere

**NAVFAC**  
 Naval Facilities Engineering Command  
 U.S. NAVY

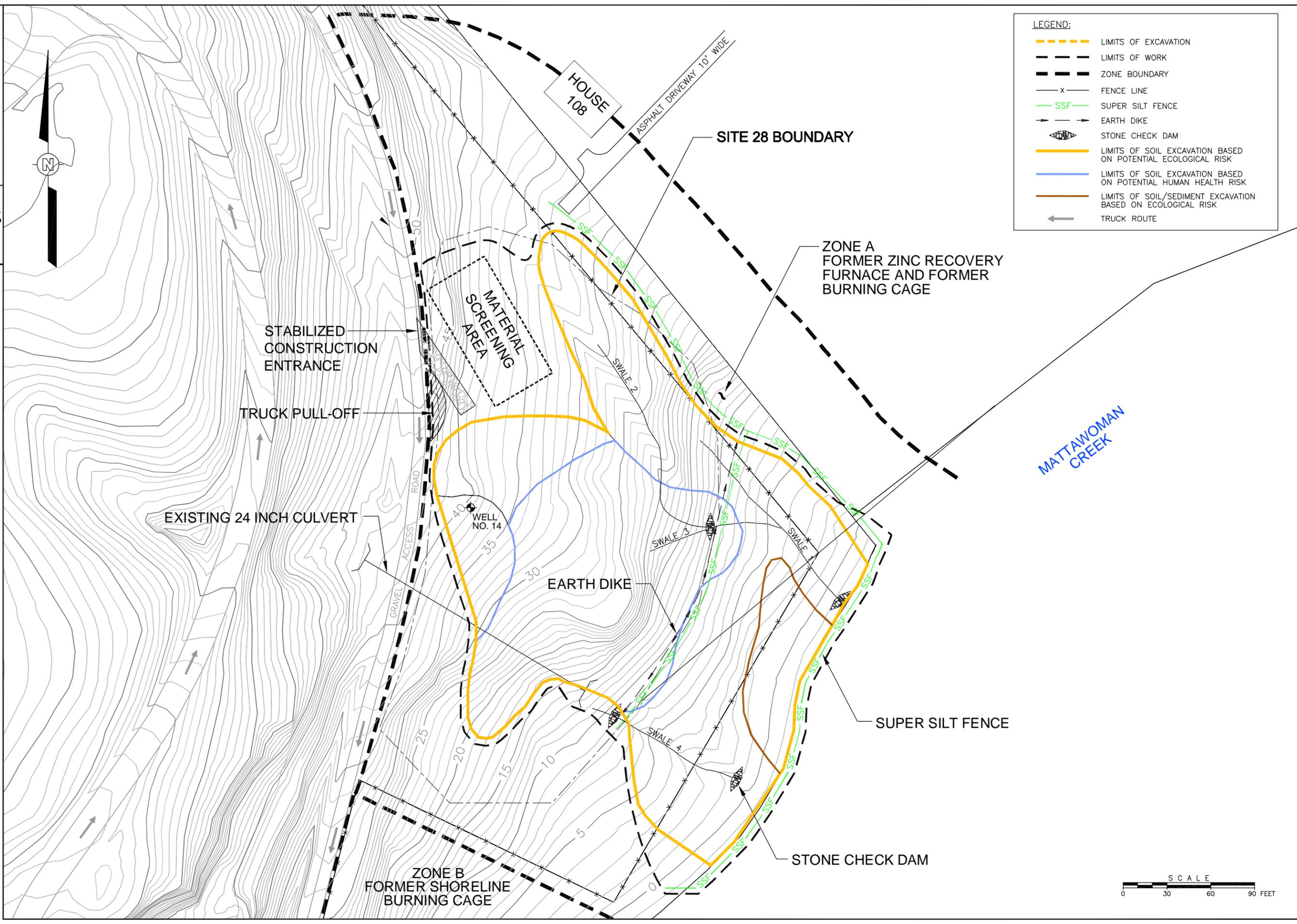
INDIAN HEAD, MARYLAND  
 NAVAL SUPPORT FACILITY, INDIAN HEAD  
 SITE 28 - REMOVAL ACTION  
 SITE VICINITY MAP

SCALE: AS SHOWN SIZE: A  
 DELIVERY ORDER NO. 093  
 CONSTR. CONTRACT NO. NB2470-C2-D-3260  
 NAVFAC DRAWING NO. -  
 SHEET I.D.  
**FIGURE 2**

OFFICE DRAWING NUMBER  
Pittsburgh, PA 126566-D8



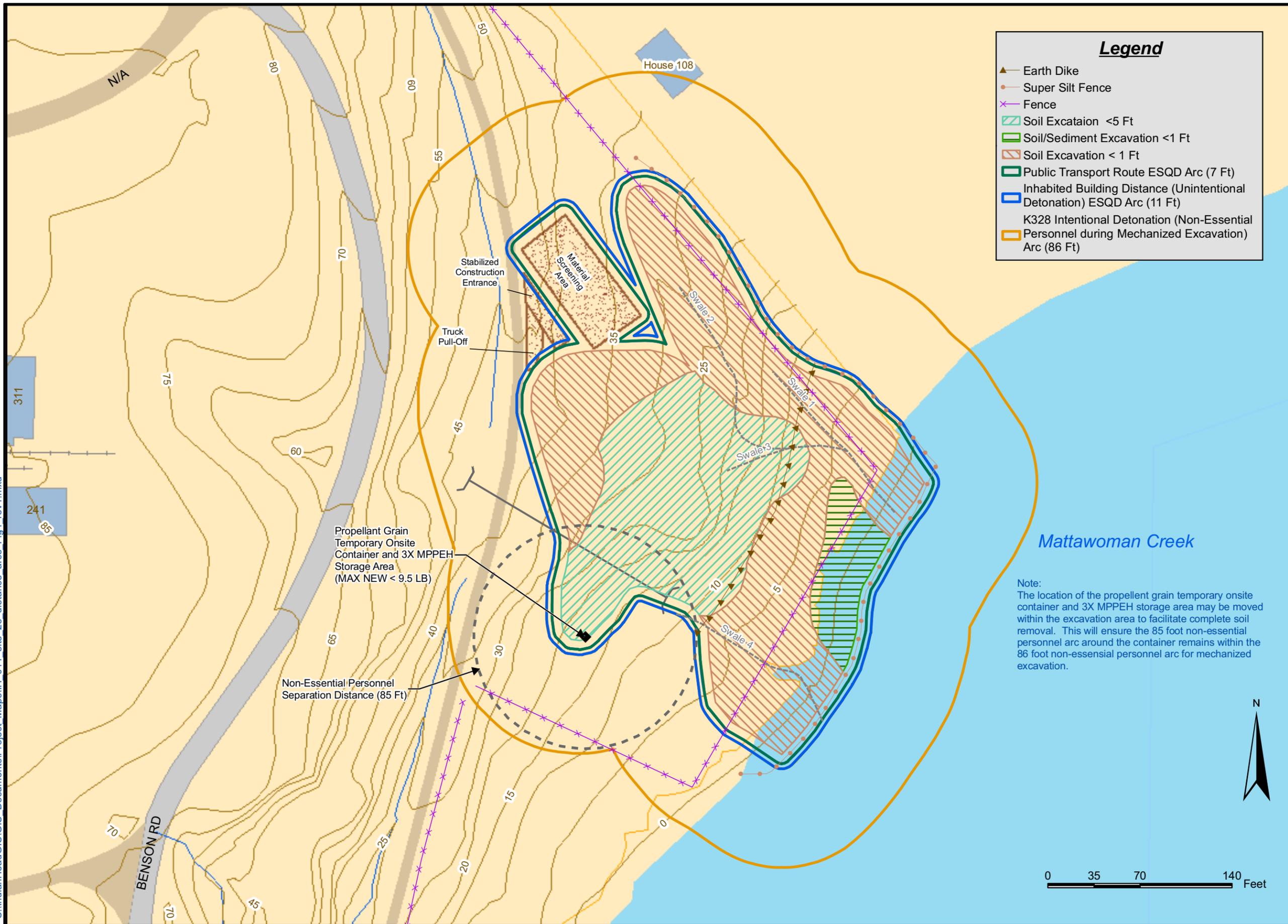
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Image: NAVFAC Logo.jpg  
File: O:\Project\LANDDIV\Indian Head\126566\126566D8.dwg  
Plot Date/Time: Jan 14, 2008 - 3:13pm  
Plotted By: william.snyder



NAVAL SUPPORT FACILITY, INDIAN HEAD, MARYLAND <b>SITE 28 - REMOVAL ACTION</b> OPERATIONAL LAYOUT		DESIGNED BY: D. Pringle 5/18/07 CHECKED BY: S. Seger DRAWN BY: B. Snyder 5/18/07 APPROVED BY: S. Carriere	
SCALE:	AS SHOWN	SIZE:	D
TASK ORDER NO.	093	REV	DATE
CONSTR. CONTRACT NO.	N62470-02-D-3260	BY	CHK'D APR/YR
NAVFAC DRAWING NO.		DESCRIPTION/ISSUE	

FIGURE 3

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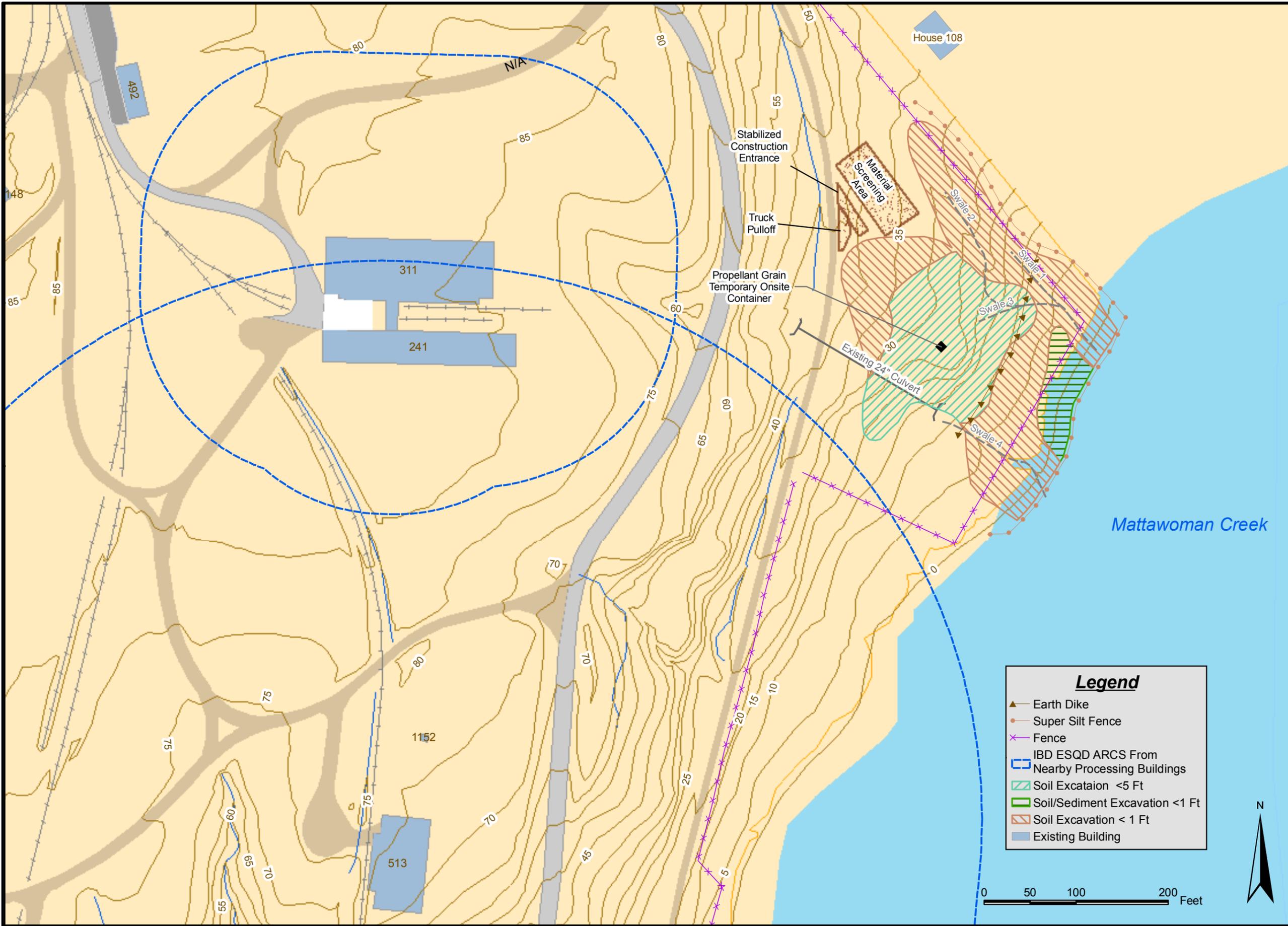
**Legend**

- ▲ Earth Dike
- Super Silt Fence
- ✕ Fence
- ▨ Soil Excavation < 5 Ft
- ▨ Soil/Sediment Excavation < 1 Ft
- ▨ Soil Excavation < 1 Ft
- ▭ Public Transport Route ESQD Arc (7 Ft)
- ▭ Inhabited Building Distance (Unintentional Detonation) ESQD Arc (11 Ft)
- ▭ K328 Intentional Detonation (Non-Essential Personnel during Mechanized Excavation) Arc (86 Ft)

**Mattawoman Creek**

Note:  
The location of the propellant grain temporary onsite container and 3X MPPEH storage area may be moved within the excavation area to facilitate complete soil removal. This will ensure the 85 foot non-essential personnel arc around the container remains within the 86 foot non-essential personnel arc for mechanized excavation.

		DESIGNED BY: KLM	CHECKED BY: KLM	REV	DATE	BY	CHK'D	APRVD	
		DRAWN BY: KLM	APPROVED BY: KLM	07/07/07	07/07/07	01/07/08	03/26/08	REVISION FOR AMENDMENT 1	
		NAVAL SUPPORT FACILITY, INDIANHEAD, MD SITE 28 - ORIGINAL BURING GROUND			PROJECT LOCATION AS POTENTIAL EXPLOSION SITE				
		SCALE <b>AS SHOWN</b>	SIZE <b>11X17</b>	TASK ORDER NO. <b>093</b>			CONSTR. CONTRACT NO. <b>N62470-02-0-3260</b>		
NAVFAC Drawing No <b>IH_011</b>		<b>FIGURE 4</b>							



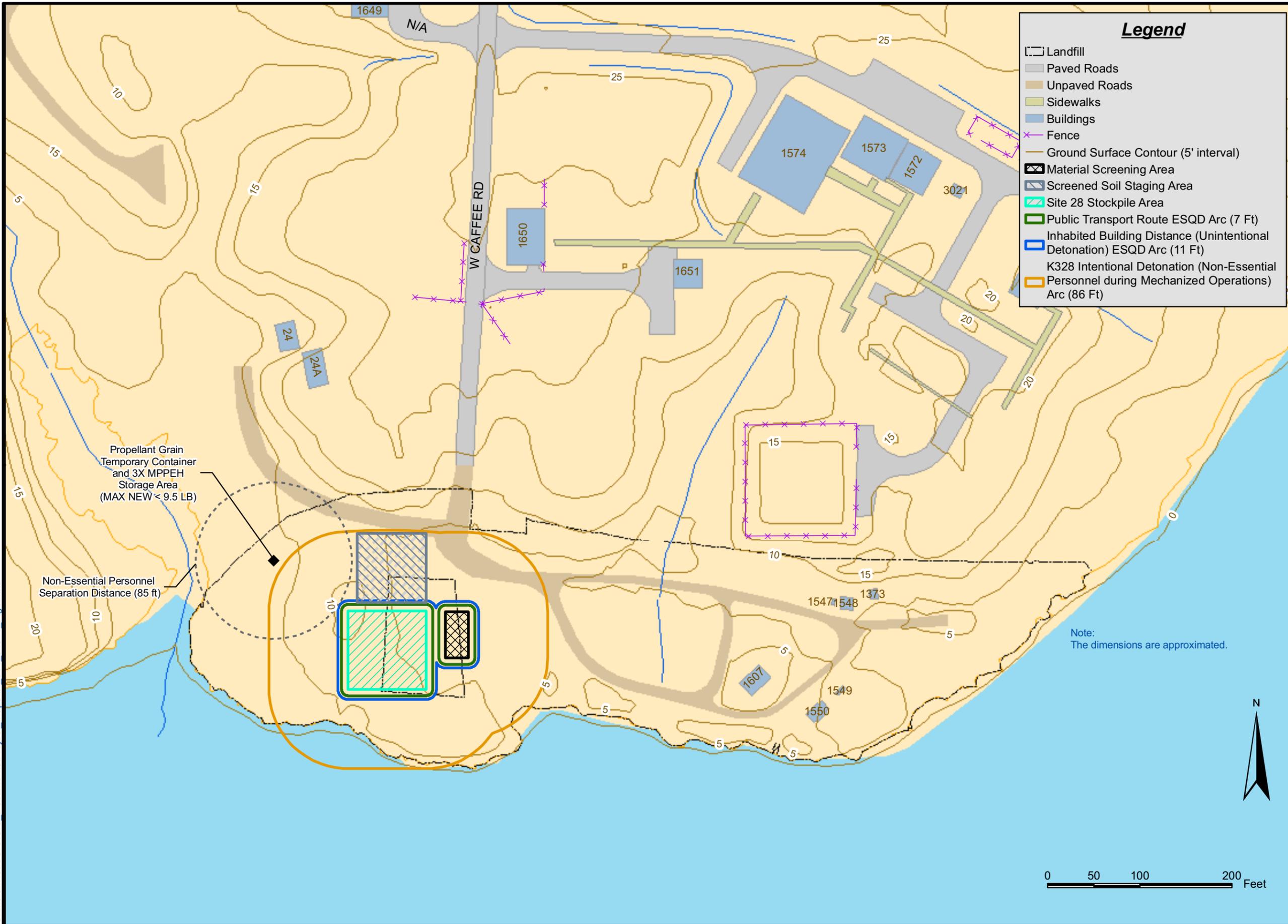
**Legend**

- ▲ Earth Dike
- Super Silt Fence
- ✕ Fence
- IBD ESQD ARCS From Nearby Processing Buildings
- ▨ Soil Excataion <5 Ft
- ▨ Soil/Sediment Excavation <1 Ft
- ▨ Soil Excavation < 1 Ft
- Existing Building



 NAVAL SUPPORT FACILITY, INDIANHEAD, MD SITE 28 - ORIGINAL BURING GROUND		DESIGNED BY: KLM 07/07/07		CHECKED BY: KLM 07/07/07		APPROVED BY: KLM 07/07/07	
		DRAWN BY: KLM 07/07/07		APPROVED BY: KLM 07/07/07		REVISIONS	
SCALE <b>AS SHOWN</b>		SIZE <b>11X17</b>		TASK ORDER NO. <b>093</b>		CONSTR. CONTRACT NO. <b>N62470-02-0-3260</b>	
NAVFAC Drawing No <b>IH_012</b>		<b>FIGURE 5</b>		SHAW Environmental & Infrastructure, Inc.		REVISIONS	

C:\IndianHead\GIS\Documents\Project Maps\IH\_011\_site11\_Fig6.mxd



		DESIGNED BY: AF	CHECKED BY: 03/27/08	REV	DATE	BY	CHK'D	APRVD
		DRAWN BY: KL	APPROVED BY: 03/27/08	REVISION FOR AMENDMENT 1				
<b>NAVFAC</b> Naval Facilities Engineering Command NAVAL SUPPORT FACILITY, INDIANHEAD, MD SITE 28 - ORIGINAL BURING GROUND		SITE 11 - CAFFEE ROAD AS PES						
SCALE AS SHOWN		SIZE 11X17						
TASK ORDER NO. 093		CONSTR. CONTRACT NO. N62470-02-0-3260						
NAVFAC Drawing No IH_011		FIGURE 6						



DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD  
2461 EISENHOWER AVENUE  
ALEXANDRIA, VIRGINIA 22331-0600

MAR 04 2008

DDESB-PE

MEMORANDUM FOR COMMANDING OFFICER, NAVAL ORDNANCE SAFETY AND  
SECURITY ACTIVITY (ATTENTION: CODE N54)

SUBJECT: DDESB Approval of Request Site Approval for Remediation of Installation  
Restoration Site 28, Naval Support Facility, Indian Head, Maryland [N00174/126566  
TO-093/WEBSAR 1034/WW-042]

References: (a) Naval Ordnance Safety and Security Activity (NOSSA) ltr 8020 Ser N54-  
NC/9126 of 12 February 2008, Second Endorsement on NAVSUPACT South  
Potomac ltr 11010 Ser PRSP /71 of 27 November 2007, Subject: Request Site  
Approval for Remediation of Installation Restoration Site 28, Naval Support  
Facility, Indian Head, Maryland [N00174/126566 TO-093/WEBSAR 1034/WW-  
042]

(b) DoD 6055.9-STD, DoD Ammunition and Explosives Safety Standards,  
5 October 2004

The Department of Defense Explosives Safety Board (DDESB) Staff has reviewed the  
subject explosives safety submission (ESS) forwarded by reference (a), against the requirements  
of reference (b). Based on the information provided, approval is granted for the ESS to remove  
munitions and explosives of concern (MEC) at Installation Restoration (IR) Site 28, Naval  
Support Facility, Indian Head, MD. This approval is based on the following:

a. The efforts addressed in this ESS involve manual and mechanized excavation  
and removal of MEC at IR Site 28.

b. The site will remain under Navy control for undetermined military usage.

c. The maximum credible event (MCE) is a net explosives weight of (NEW)  
0.0176 pounds of hazard division (HD) 1.1 based on the weight of one HD 1.3 bare single base  
propellant grain. The team separation distance (TSD) will be 11 feet (ft) based on K40 of the  
MCE; the minimum separation distance (MSD) for unintentional detonations for nonessential  
personnel from manual operations will be 11 ft based K40 of the MCE; and the MSD for  
nonessential personnel from mechanized operations will be 86 ft based K328 of the MCE.

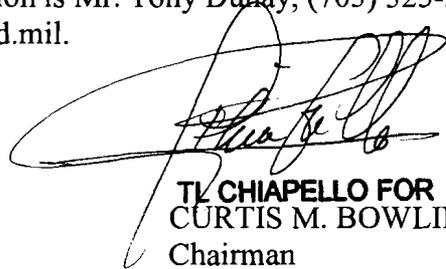
d. Personnel performing mechanized operations will be provided blast  
overpressure protection of 7 ft based on K24 of the MCE.

e. Prior to initiation and through completion of on-site intrusive MEC operations, all nonessential personnel will be evacuated and prevented from entering any area/facility encumbered by the MSD required for the operation being conducted.

f. Recovered items will be inspected and certified free of explosives hazards prior to release off-base.

If changes occur during or after completion of this effort that could increase explosive hazards to site workers or the public due to the presence of military munitions at the site, an amendment to this ESS must be submitted to DDESB for review and approval.

The point of contact for this action is Mr. Tony Dunay, (703) 325-3513, DSN 221-3513, E-mail address: [tony.dunay@ddesb.osd.mil](mailto:tony.dunay@ddesb.osd.mil).

A handwritten signature in black ink, appearing to read 'TL Chiapello', is written over a horizontal line. The signature is stylized and somewhat illegible.

**TL CHIAPELLO FOR**  
**CURTIS M. BOWLING**  
Chairman  
DDESB



**DEPARTMENT OF THE NAVY**  
**NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY**  
**FARRAGUT HALL**  
**3817 STRAUSS AVENUE, SUITE 108**  
**INDIAN HEAD, MD 20640-5151**

8020  
Ser N53/465  
2 Apr 08

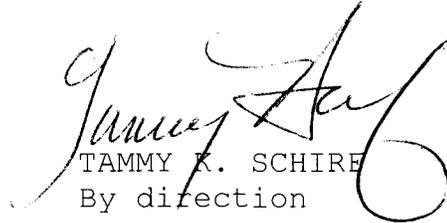
From: Commanding Officer, Naval Ordnance Safety and Security Activity  
To: Commanding Officer, Naval Facilities Engineering Command, Washington  
Subj: AUDIT REPORT OF NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY AUDIT OF INSTALLATION RESTORATION SITE 28, NAVAL SUPPORT FACILITY INDIAN HEAD, INDIAN HEAD, MARYLAND  
Ref: (a) OPNAVINST 8020.15A  
(b) NOSSAINST 8020.15A  
(c) NOSSA ltr 8020 Ser N53/351 of 5 Mar 08  
Encl: (1) Audit Report

1. In accordance with references (a) and (b), and as announced by reference (c), the Naval Ordnance Safety and Security Activity (NOSSA) conducted an audit of the subject munitions response project on 18 March 2008. The purpose of the audit was to assess compliance with applicable explosives safety, environmental, and related requirements. The NOSSA auditors reviewed the project documentation and observed field activities identified in enclosure (1).

2. The audit made several findings (see enclosure (1) for details), each of which is of concern to NOSSA and requires that you take immediate action. Within 30 days of receipt of this audit you shall provide NOSSA a written response that addresses each finding. Analyze the root causes, describe all corrective actions, and steps taken to preclude recurrence. Accompany any refuted finding with justification and substantiation. In accordance with references (a) and (b), NOSSA requires satisfactory responses to audit discrepancies before it can provide final verification that the munitions response actions were adequately completed per the approved Explosive Safety Submission (ESS).

Subj: AUDIT REPORT OF NAVAL ORDNANCE SAFETY AND SECURITY  
ACTIVITY AUDIT OF INSTALLATION RESTORATION SITE 28, NAVAL  
SUPPORT FACILITY INDIAN HEAD, INDIAN HEAD, MARYLAND

3. The NOSSA point of contact for this audit is Mr. Douglas  
Murray, who can be reached at DSN 354-4450 or commercial (301)  
744-4450.



TAMMY K. SCHIRE  
By direction

Copy to:  
NAVFAC HQ (ENV)  
NAVFAC WASHINGTON (OPB1E)  
COMNAVDIST WASH (N2)  
NSF INDIAN HEAD (HN2WSJ)  
NOSSA ESSOLANT (N5L)  
NAVEODTECHDIV (Code 5013L)

## AUDIT REPORT

- Ref: (a) OPNAVINST 8020.15A  
(b) NOSSAINST 8020.15A  
(c) OP5  
(d) Explosives Safety Submission (ESS) for Removal Action at Installation Restoration (IR) Site 28, Naval Support Facility Indian Head, Indian Head, Maryland  
(e) Final Work Plan and Work Plan Addendum, Removal Action at Site 28, Naval Support Facility Indian Head, Indian Head, Maryland  
(f) Code of Maryland Regulations

1. Munitions Response Project: Removal Action at IR Site 28, Naval Support Facility Indian Head, Indian Head, Maryland.

2. Audit Purpose: As part of its oversight authority delegated by reference (a), NOSSA audits munitions response projects in accordance with references (b) and (c) to assess the extent to which the projects comply with applicable explosives safety, environmental, and other requirements related to the management of Munitions and Explosives of Concern (MEC) and Material Potentially Presenting an Explosive Hazard (MPPEH). NOSSA auditors also assess the contractor quality control (QC) and third-party quality assurance (QA) programs.

3. Audit date: 18 March 2008.

4. Audit team:

Name	Title	Agency/Activity
Douglas Murray	Lead Auditor	NOSSA (N53)
Sherry McCahill	Auditor	NOSSA (N535)

5. Key audit components:

a. Personnel contacted:

Name	Title	Agency/Activity
Joseph Rail	Remedial Project Manager	NAVFAC Washington
Steve Carrier	Project Manager	Shaw Environmental, Inc. (Shaw)
Bruce McLaughlin	Site Manager	Shaw
Adam Forshey	Site QC Manager	Shaw

Name	Title	Agency/Activity
Bruce Tincknell	Senior Unexploded Ordnance (UXO) Supervisor, UXO Safety Officer, and UXO QC Specialist	Shaw
Steve Hutchings	Site Health & Safety Manager	Shaw
George Turner	Explosives Safety Officer	Naval Support Activity, South Potomac

b. Documents reviewed: References (d) and (e).

c. Areas observed:

- (1) Manual MEC removal operations;
- (2) Data management;
- (3) Environmental protection;
- (4) Explosives safety practices;
- (5) Explosives storage;
- (6) Explosives transportation;
- (7) Occupational health and safety;
- (8) Worker qualifications;
- (9) Worker training; and
- (10) Contractor QC program.

d. Areas not observed:

- (1) Mechanized screening operations;
- (2) Inspection, certification and verification of MPPEH; and
- (3) Third-party QA program.

6. Audit plan and checklist: The audit followed the NOSSA Audit Plan and Checklist (see enclosure (6) of reference (a)).

7. Methodology: The audit used processes similar to NOSSA Audits which follow procedures outlined in "Guidelines for Auditing Quality Systems" and "Guidelines for Environmental Auditing--General Principles," both published by the American Society for Quality, and the "Guidance on Technical Audits and Related Assessments for Environmental Data Operations" published by the U.S. Environmental Protection Agency.

8. Findings:

a. Although an abundant quantity of MPPEH had been encountered during the removal activities at IR Site 28, the activities were not stopped and the ESS had not been amended as required by both the ESS and the Work Plan. Paragraph 8.4.2 of reference (d) and Paragraphs 2.5.1 and 2.6.4 of reference (e) pertain.

b. Third-party QA activities had not been carried out at IR Site 28 in order to validate the contractor QC program and ensure that all activities being performed are in compliance with references (d) and (e). Paragraph 6.4 of reference (d) pertains.

c. Soil removed from IR Site 28 and stockpiled at Indian Head IR Site 11 is known to contain MPPEH, but the stockpile is not sited. Paragraph 14-11 of reference (c) pertain.

d. Hazardous Waste labels were not being applied to any Velostat® bag containing recovered propellant grains. Paragraph 8.4.1 of reference (d) and Section 26.13.03.05E(1)(e) of reference (f) pertain.

e. Soil screened at IR Site 28 is not being relocated to a staging area in order to prevent excessive accumulation of soil near the screening equipment. Paragraph 8.1.2 of reference (d) pertain.

9. Conclusions: This project is out of compliance with the approved ESS in several critical areas and immediate actions must be taken to correct these deficiencies.



DEPARTMENT OF THE NAVY  
NAVAL ORDNANCE SAFETY & SECURITY ACTIVITY  
FARRAGUT HALL BLDG D-323  
23 STRAUSS AVENUE  
INDIAN HEAD MD 20640-5555

8020  
Ser N539/12  
4 Jan 08

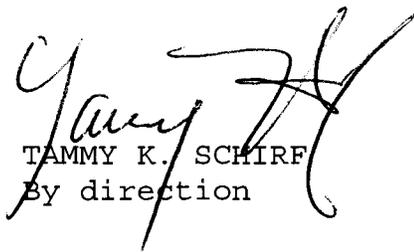
From: Commanding Officer, Naval Ordnance Safety and Security Activity  
To: Commanding Officer, Naval Facilities Engineering Command Washington  
Subj: EXPLOSIVES SAFETY SUBMISSION DETERMINATION FOR SOIL SAMPLING ACTIVITIES AT INSTALLATION RESTORATION PROGRAM SITE 28, NAVAL SUPPORT FACILITY INDIAN HEAD, INDIAN HEAD, MARYLAND  
Ref: (a) E-mail NAVFAC WASH Mr. J. Rail/NOSSA (N539) Mr. D. Murray of 3 Jan 08 (w/encl)  
(b) NOSSAINST 8020.15A, Explosives Safety Review, Oversight, and Verification of Munitions Responses, of 2 Feb 07  
(c) NAVSEA OP 5, Revision 7

1. The Naval Ordnance Safety and Security Activity (NOSSA) reviewed the reference (a) e-mail and its enclosed request for a NOSSA determination that an Explosives Safety Submission (ESS) not be required for soil sampling activities at Installation Restoration Program Site 28 at the Naval Support Facility Indian Head, Indian Head, Maryland. Based on your reference (a) plan to employ anomaly avoidance techniques during soil sampling work, your assessment of the risk as negligible, and on the ESS criteria in references (b) and (c), NOSSA determines that an ESS is not required.

2. Should any munitions and explosives of concern (MEC) be encountered during field work the project personnel are to stop their activities and inform you of their findings, flag, and record the MEC item location for removal during the upcoming field work.

Subj: EXPLOSIVES SAFETY SUBMISSION DETERMINATION FOR SOIL  
SAMPLING ACTIVITIES AT INSTALLATION RESTORATION PROGRAM  
SITE 28, NAVAL SUPPORT FACILITY INDIAN HEAD, INDIAN HEAD,  
MARYLAND

3. The NOSSA point of contact for this ESS determination is Mr.  
Douglas Murray, who can be contacted at DSN 354-4450 or  
commercial at 301-744-4450.

  
TAMMY K. SCHIRF  
By direction

Copy to:  
CNO (N411; N453)  
NAVFAC HQ (ENV)  
NAVFAC WASHINGTON (OPB1E)  
NAVSUPPACT SOUTH POTOMAC WASHINGTON (ESO)  
NOSSA ESSOLANT (N5L)



**DEPARTMENT OF THE NAVY**  
NAVAL ORDNANCE SAFETY & SECURITY ACTIVITY  
FARRAGUT HALL BLDG D-323  
23 STRAUSS AVENUE  
INDIAN HEAD MD 20640-5555

8020  
Ser N54-NC/9126  
12 Feb 08

SECOND ENDORSEMENT on NAVSUPPACT South Potomac ltr 11010  
Ser PRSP/71 of 27 Nov 07

From: Commanding Officer, Naval Ordnance Safety and Security  
Activity  
To: Chairman, Department of Defense Explosives Safety Board  
(DDESB-PE)  
Subj: REQUEST SITE APPROVAL FOR REMEDIATION OF INSTALLATION  
RESTORATION SITE 28, NAVAL SUPPORT FACILITY, INDIAN HEAD,  
MARYLAND [N00174/126566 TO-093/WEBSAR 1034/WW-042]

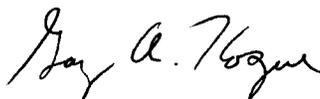
1. Readdressed and forwarded for continuing review.
2. This project, the Explosives Safety Submission and Site Approval Request (ESS/SAR) for Munitions Response Site (MRS) Installation Restoration (IR) Site 28, at Naval Support Facility (NAVSUPPFAC), Indian Head, Maryland, has been reviewed with respect to, and meets, the criteria of references (b) and (c).
3. Planned future use of property and remediation goals are detailed in enclosure (4), paragraph 1.4., and the location and site is depicted in Figures 1 through 5.
4. The following pertain to this Munitions Response Site.
  - a. The suspected munition and explosives of concern (MEC) is a bare, single-based propellant grain of 1/2-inch-diameter and 1-1/2-inch-length, weighing approximately 0.0176 pounds net explosives weight (NEW) of Class/Division (C/D) 1.3. However, in accordance with reference (b), this recovered MEC will be managed as C/D 1.1. The MEC has no casing and is not containerized, so no primary or secondary fragments are anticipated.
  - b. As remediation involves mechanized MEC processing, the separation distance for non-essential personnel is K328 or 85.5 feet, based on overpressure. Because the intentional detonation exclusion zone (EZ) of 85.5 feet encumbers a private residence, House 108, the site remediation contractor will ensure the residents of House 108 are evacuated, before mechanized excavation occurs within K328 or 85.5 feet of House 108.

Subj: REQUEST SITE APPROVAL FOR REMEDIATION OF INSTALLATION RESTORATION SITE 28, NAVAL SUPPORT FACILITY, INDIAN HEAD, MARYLAND [N00174/126566 TO-093/WEBSAR 1034/WW-042]

c. For mechanized operations, essential personnel shall be separated from the operation at K24 or 6.4 feet, based on overpressure. For this MRS, the physical dimensions and range-of-motion of the mechanized equipment (hydraulic excavator) do not allow the hydraulic excavator operator to be within K24 or 6.4 feet of any contacted MEC. Unexploded Ordnance (UXO) Technician observers will maintain 6.4-foot separation from the mechanical excavator bucket. Additionally, the Naval Ordnance Safety and Security Activity (NOSSA) has determined that these bare propellant grains present no secondary fragment hazard.

d. Storage, transportation, and disposition of recovered MEC shall be in accordance with enclosure (4), paragraph 8.3., with the additional requirement that, per reference (b), Table 7-16., the on-site storage location shall be chosen such that it maintains 200 feet distance from non-essential personnel.

5. ESS/SAR approvals are requested for MRS IR Site 28, at NAVSUPPFAC Indian Head. The NOSSA point-of-contact for questions relating to the explosives safety aspects of this project is Mr. Nestor Camerino, NOSSA N542, at DSN: 354-1904; Commercial: (301) 744-1904; or E-mail: [nestor.h.camerino@navy.mil](mailto:nestor.h.camerino@navy.mil); and for questions relating to the environmental aspects of this project is Mr. Douglas Murray, NOSSA N539, at DSN: 354-5630; Commercial: (301) 744-5630; or E-mail: [douglas.murray@navy.mil](mailto:douglas.murray@navy.mil).



GARY A. HOGUE  
By direction

Copy to:

CNO (N411; N411C; N411C1; N411C2; N411C4; N453)  
COMNAVFACENGCOM (ENV3)  
NAVFAC Washington DC (PRSPI12JW)  
NAVSUPPFAC Indian Head (ESO/SA1RG)  
COMNAVDIST Washington DC (ES/N53)  
NOSSA (N539)  
NOSSA ESSOLANT (N5L; N5L8)



**DEPARTMENT OF THE NAVY**  
**NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY**  
**FARRAGUT HALL**  
**3817 STRAUSS AVENUE, SUITE 108**  
**INDIAN HEAD, MD 20640-5151**

8020  
Ser N539/541  
8 Apr 08

From: Commanding Officer, Naval Ordnance Safety and Security Activity

To: Commander, Naval Facilities Engineering Command, Washington

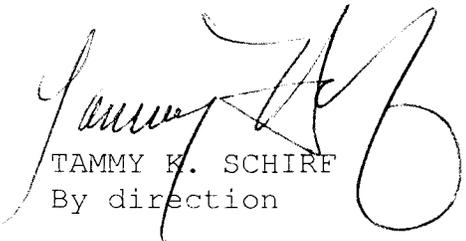
Subj: EXPLOSIVES SAFETY SUBMISSION CORRECTION FOR REMOVAL ACTION AT SITE 28, INDIAN HEAD, MARYLAND

Ref: (a) Explosives Safety Submission Correction 1, Removal Action at Site 28, Naval Support Facility Indian Head, Indian Head, Maryland, of Apr 08  
(b) NOSSA ltr 8020 Ser N53/465 of 2 Apr 08  
(c) NOSSAINST 8020.15A, Explosives Safety Review, Oversight, and Verification of Munitions Responses, of 2 Feb 07

1. The Naval Ordnance Safety and Security Activity (NOSSA) reviewed the corrected Explosives Safety Submission (ESS) reference (a), submitted in response to a reference (b) finding. The finding faulted project managers for not stopping operations and amending the ESS when Material Potentially Presenting an Explosive Hazard was discovered to be present on the site. During the NOSSA review of document drafts it was decided that the required changes to the ESS did not increase the explosive safety hazards/risks and that in accordance with reference (c), the document should be characterized as a correction and not an amendment.

2. NOSSA accepts the corrected ESS and authorizes NAVFAC Washington to restart the project.

3. The NOSSA point of contact for this ESS determination is Mr. Douglas Murray, who can be contacted at DSN 354-4450 or commercial at 301-744-4450.

  
TAMMY K. SCHIRE  
By direction

Copy to: (See next page)

Subj: EXPLOSIVES SAFETY SUBMISSION CORRECTION FOR REMOVAL  
ACTION AT SITE 28, INDIAN HEAD, MARYLAND

Copy to:

NAVFAC HQ (ENV)

NAVFAC WASHINGTON (OPB1E)

COMNAVDIST WASH (Code N2)

NSF INDIAN HEAD (Code HN2WSJ)

NOSSA ESSOLANT (N5L)

NAVEODTECHDIV (Code 5013L)



**DEPARTMENT OF THE NAVY**  
**NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY**  
**FARRAGUT HALL**  
**3817 STRAUSS AVENUE, SUITE 108**  
**INDIAN HEAD, MD 20640-5151**

8020  
Ser N539/864  
6 Jun 08

From: Commanding Officer, Naval Ordnance Safety and Security Activity  
To: Commander, Naval Facilities Engineering Command, Washington

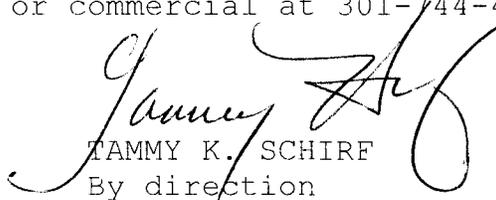
Subj: EXPLOSIVES SAFETY SUBMISSION CORRECTION 2 FOR REMOVAL ACTION AT SITE 28, INDIAN HEAD, MARYLAND

Ref: (a) Explosives Safety Submission Correction 2, Removal Action at Site 28, Naval Support Facility Indian Head, Indian Head, Maryland, of June 2008  
(b) NOSSAINST 8020.15A, Explosives Safety Review, Oversight, and Verification of Munitions Responses, of 2 Feb 07  
(c) DDESB Approval of Request Site Approval for Remediation of Installation Restoration Site 28, Naval Support Facility, Indian Head, Maryland, of 4 Mar 08  
(d) NOSSAS itr 8020 Ser N539/541 of 8 Apr 08

1. The Naval Ordnance Safety and Security Activity (NOSSA) reviewed reference (a) Explosives Safety Submission (ESS) Correction 2 against the requirements of reference (b) and finds it acceptable. This correction changed information regarding the landfill that will be receiving Site 28 soil that has been screened, properly inspected, and found to be free of explosives or related materials.

2. The Department of Defense Explosives Safety Board approved the basic ESS with reference (c) and NOSSA approved Correction 1 to the basic ESS with reference (d).

3. The NOSSA point of contact is Mr. Douglas Murray, who can be contacted at DSN 354-4450 or commercial at 301-744-4450.

  
TAMMY K. SCHIRF  
By direction

Copy to: (See next page)

Subj: EXPLOSIVES SAFETY SUBMISSION CORRECTION 2 FOR REMOVAL  
ACTION AT SITE 28, INDIAN HEAD, MARYLAND

Copy to:

NAVFAC HQ (ENV)

NAVFAC WASHINGTON (OPB1E)

COMNAVDIST WASH (N2)

NSF INDIAN HEAD (HN2WSJ)

NOSSA ESSOLANT (N5L)

NAVEODTECHDIV (Code 5013L)

---

# APPENDIX H

## *TASK ORDER MODIFICATIONS*

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE	PAGE OF PAGES	
				R	1   6	
2. AMENDMENT/MODIFICATION NO. <b>01</b>	3. EFFECTIVE DATE 10-May-2007	4. REQUISITION/PURCHASE REQ. NO. ACQR7893	5. PROJECT NO. (If applicable)			
6. ISSUED BY COMMANDER NAVFAC ATLANTIC 6909 HAMPTON BLVD NORFOLK VA 23508-1278	CODE N62470	7. ADMINISTERED BY (If other than Item 6) <b>See Item 6</b>				
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code) SHAW ENVIRONMENTAL INC. 500 E. MAIN STREET SUITE 1630 NORFOLK VA 23510-2206				9A. AMENDMENT OF SOLICITATION NO.		
				9B. DATED (SEE ITEM 11)		
				X	10A. MOD. OF CONTRACT/ORDER NO. N62470-02-D-3260-0093	
				X	10B. DATED (SEE ITEM 13) 02-Apr-2007	
CODE 1YV78	FACILITY CODE					
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS						
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.						
12. ACCOUNTING AND APPROPRIATION DATA (If required) <b>See Schedule</b>						
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT ORDERS IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.						
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.						
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).						
X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: FAR 52.243-2 CHANGES COST - REIMBURSEMENT (ALTERNATE III (AUG 1987))						
D. OTHER (Specify type of modification and authority)						
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input checked="" type="checkbox"/> is required to sign this document and return <u>1</u> copies to the issuing office.						
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) Modification Control Number: bsmth072839 Removal Action at Site 28, Indian Head, NSF, Indian Head, Maryland  This modification to Task Order 0093 is issued for the contractor to furnish all labor, material, equipment, supervision, travel and subsistence for the Removal Action at Site 28, Indian Head NSF, Indian Head, Maryland as shown in the scope of work dated May 10, 2007, attached hereto and made a part hereof, all, as directed by the Contracting Officer. This is a construction type project and subject to Davis Bacon General Decision No. MD070047 dated 02/09/2007.  Contract Completion Date October 26, 2007  Contracting Officer's e-mail address:: Brenda.W.Smith@navy.mil Telephone 757-322-4594  Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.						
15A. NAME AND TITLE OF SIGNER (Type or print) <b>JAMES A. DUVAUDE PROGRAM MANAGER</b>			16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)			
15B. CONTRACTOR/OFFEROR <i>(Signature)</i> (Signature of person authorized to sign)			15C. DATE SIGNED 10 MAY 2007		16B. UNITED STATES OF AMERICA BY <i>(Signature)</i> (Signature of Contracting Officer)	
					16C. DATE SIGNED 5/10/07	

EXCEPTION TO SF 30  
APPROVED BY OIRM 11/84

30-105-04

STANDARD FORM 30 (Rev. 10-83)  
Prescribed by GSA  
FAR (48 CFR) 53.243

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

**SUMMARY OF CHANGES**

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by \$1,061,164.00 from \$17,115.00 (EST) to \$1,078,279.00 (EST).

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 0005

The estimated/max cost has increased by \$1,007,174.00 from \$16,197.00 to \$1,023,371.00.

The award fee has increased by \$53,990.00 from \$918.00 to \$54,908.00.

The total cost of this line item has increased by \$1,061,164.00 from \$17,115.00 (EST) to \$1,078,279.00 (EST).

Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

SUBMIT INVOICES FOR PAYMENT TO COMMANDER NAVFAC ATLANTIC (CODE AQ118), 6506 HAMPTON BLVD, NORFOLK, VA 23508-1278. PAYMENT WILL BE MADE BY DFAS CLEVELAND, NORFOLK ACCOUNTS PAYABLE, P. O. BOX 998022, CLEVELAND, OH 44199

May 10, 2007

## SECTION C - DESCRIPTIONS AND SPECIFICATIONS

MODIFICATION 01

**NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON**  
**STATEMENT OF WORK**  
*for*  
**REMOVAL ACTIONS**  
*at*  
**NAVAL SUPPORT FACILITY, INDIAN HEAD**  
**JEFFREY MORRIS**  
**Remedial Project Manager**

---

- A. INTRODUCTION**
- B. SPECIFIC TASKS**
- C. GOVERNMENT-FURNISHED INFORMATION**
- D. SCHEDULE AND SUBMITTAL DISTRIBUTION**
- E. POINTS OF CONTACT**

**A. INTRODUCTION**

The primary purpose of this scope of work is to accomplish removal actions at the Naval Support Facility, Indian Head (NSF-IH).

**B. SPECIFIC TASKS****B.1. Work Plans/Explosives Safety Submission Waiver Request**

- This task includes the preparation of work plans for accomplishment of removal actions at designated IR sites.
- This task includes the preparation of Explosives Safety Submission (ESS) Waiver Requests for accomplishment of removal actions at designated IR sites.

**B.1.2. Draft Work Plans**

This subtask covers the preparation of draft work plans using as a basis the Government-furnished information. The documents will include the project organization, description of activities, a site-specific health and safety plan, an excavation and material handling plan, environmental protection/pollution prevention plan, quality control plan, and any necessary design drawings and specifications.

This task includes consideration for time required to resolve comments received on the draft submissions. Formal comment response submission is required.

**B.1.3. Final Work Plans**

This task includes the preparation of the final versions of the work plans. The documents will be prepared by incorporating comments received as a result of the draft submission reviews and the views defined during the resolution of comments.

#### **B.1.4. Explosives Safety Submission Waiver Request**

This task includes the preparation of the Explosives Safety Submission Waiver Requests in accordance with NOSSAINST 8020.15. The NAVFAC Washington RPM will forward the requests to NOSSA. No distribution copies are required.

#### **B.2. Investigation Derived Material**

In connection with the work to be conducted under this task, it is assumed that investigation derived material generated during the field verification sampling by the CLEAN contractor will be appropriately disposed by the remediation contractor.

#### **B.3. Removal Actions**

This subtask includes the accomplishment of removal actions in accordance with the approved work plans. It is assumed that construction will take approximately two weeks for each site.

#### **B.4. Post-Construction Report**

This subtask includes the preparation of draft and final Post-Construction Reports following completion of each removal action.

### **C. GOVERNMENT-FURNISHED INFORMATION**

- Engineering Estimate/Cost Analysis (EE/CA)

### **D. SCHEDULE AND SUBMITTAL DISTRIBUTION**

The draft and final versions of the documents will be bound in 3-ring binders or plastic combs, as appropriate, and will be submitted in the following quantities. In addition, certain documents shall be provided in .pdf on a CD, as noted in the Distribution table. Responses to Comments will be provided by e-mail.

#### **D.1. Schedule**

Draft Work Plan/ESS Waiver	60 days after site-specific NTP
Responses to comments	30 days after receipt of comments
Final Work Plan	60 days after receipt of comments on draft
Start construction	30 days after final work plan completion and ESS or waiver approval
Complete construction	2 weeks after start
Draft Post-Construction Report	30 days after construction completion
Responses to comments	30 days after receipt of comments
Final Post-Construction Report	60 days after receipt of comments on draft

**D.2. Submittal Distribution**

<u>DOCUMENT</u>	<u>NAVFACWASH</u>	<u>NSF-IH</u>	<u>EPA</u>	<u>MDE</u>	<u>FEAD</u>	<u>TTNUS</u>
Responses to Comments	1 (e-mail)	1 (e-mail)	1 (e-mail)	1 (e-mail)	1 (e-mail)	
Draft Versions	2	12 (3 hard copies, 9 CDs)	3 (2 hard copies, 1 CD)	2 (1 hard copy, 1 CD)	1	
Final Versions	2 (1 hard copy, 1 CD)	6 (2 hard copies, 4 CDs)	2 (1 hard copy, 1 CD)	2 (1 hard copy, 1 CD)	2 (1 hard copy, 1 CD)	1 CD

\*Each final deliverable shall also be submitted on CD as a single file in searchable PDF format.

**E. POINTS OF CONTACT****Commander  
Atlantic Division**

Naval Facilities Engineering Command  
Attn: Zane Perry, Code EV31ZP  
6506 Hampton Blvd  
Norfolk VA 23508-1278  
757-322-4777  
Email: [zane.d.perry@navy.mil](mailto:zane.d.perry@navy.mil)

**Naval Facilities Engineering Command Washington**

Attn: Jeff Morris, Code OPB1E  
1314 Harwood Street, SE  
Washington Navy Yard DC 20374-5018  
202-685-3279  
202-433-6193 (fax)  
Email: [jeffrey.w.morris@navy.mil](mailto:jeffrey.w.morris@navy.mil)

**Naval District Washington, Indian Head**

Attn: Shawn A. Jorgensen Code HN2WSJ  
101 Strauss Avenue, Bldg. 289  
Indian Head, MD 20640-5035  
301-744-2263  
301-744-4180 (fax)  
Email: [jorgensensa@ih.navy.mil](mailto:jorgensensa@ih.navy.mil)

**Maryland Department of the Environment**

Attn: Curtis DeTore  
Maryland Department of the Environment  
Federal/NPL Superfund Division  
1800 Washington Boulevard, Suite 645  
Baltimore, MD 21230-1719  
410-537-3791  
410-537-3472 (fax)  
Email: [cdetore@mde.state.md.us](mailto:cdetore@mde.state.md.us)

**U.S Environmental Protection Agency****Region III**

Attn: Dennis Orenshaw  
1650 Arch St  
Philadelphia PA 19103-2029  
215-814-3361  
215-814-3051 (fax)  
Email: [orenshaw.dennis@epamail.epa.gov](mailto:orenshaw.dennis@epamail.epa.gov)

**NAVFACWASH FEAD**

Attn: Cathy Gardner  
101 Strauss Ave, Bldg 377  
Indian Head, MD 20640-5035  
301-744-2181  
Email: [cathy.gardner@navy.mil](mailto:cathy.gardner@navy.mil)

**Tetra Tech NUS (TtNUS)**

George Latulippe  
Tetra Tech NUS  
661 Anderson Drive  
Pittsburgh, PA 15220-2745  
412-921-8684  
Email: [George.Latulippe@ttnus.com](mailto:George.Latulippe@ttnus.com)

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by \$1,061,164.00 from \$17,115.00 to \$1,078,279.00.

SUBCLIN 000501:

AA: 17 07071804 KU2E 0252 62470 P 068732 2D 023260 AA00C0005441 (CIN 00000000000000000000000000000000) was increased by \$1,061,164.00 from \$17,115.00 to \$1,078,279.00

(End of Summary of Changes)

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE R	PAGE OF PAGES 1   2
2. AMENDMENT/MODIFICATION NO. <b>02</b>		3. EFFECTIVE DATE 07-Aug-2007	4. REQUISITION/PURCHASE REQ. NO. ACCR78943		5. PROJECT NO. (if applicable)
6. ISSUED BY CODE COMMANTER NAVFAC ATLANTIC 6508 HAMPTON BLVD NORFOLK VA 23508-1278		7. ADMINISTERED BY (if other than Item 6) CODE <b>See Item 6</b>			
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code) SHAW ENVIRONMENTAL INC. 500 E. MAIN STREET SUITE 1810 NORFOLK VA 23510-2205				9A. AMENDMENT OF SOLICITATION NO.	
				9B. DATED (SEE ITEM 11)	
				X 10A. MOD. OF CONTRACT/ORDER NO. N62470-02-D-3260-0083	
				X 10B. DATED (SEE ITEM 13) 02-Apr-2007	
CODE 1YV78		FACILITY CODE			
<b>11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS</b>					
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of offer <input type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.					
12. ACCOUNTING AND APPROPRIATION DATA (if required) <b>See Schedule</b>					
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.					
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.					
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).					
X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: FAR 52.243-2 CHANGES COST REIMBURSEMENT (ALTERNATE III AUG 1987)					
D. OTHER (Specify type of modification and authority)					
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input checked="" type="checkbox"/> is required to sign this document and return <u>1</u> copies to the issuing office.					
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) Modification Control Number: bsmth073863 Explosive Safety Submission and Site approval Request at Site 28, NSF, Indian Head, Md  This scope growth modification to Task Order 93 is issued for the contractor to furnish all labor, materials, equipment, supervision, travel and subsistence for the development of an explosive safety submission and site approval request under the NOSSA guidelines for Site 28, Soil Remove Action, Naval Surface Facility, Indian Head, Maryland, all, as directed by the Contracting Officer. This is a construction type project and subject to Davis Bacon General Decision No. MD070047 dated 02/09/2007. Your proposal dated July 6, 2007 is accepted.  Contract Completion Date - January 31, 2008					
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.					
15A. NAME AND TITLE OF SIGNER (Type or print) <b>JAMES A. [Signature] Program Manager</b>			16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) TEL: _____ EMAIL: _____		
15B. CONTRACTOR/OFFEROR <b>[Signature]</b> (Signature of person authorized to sign)		15C. DATE SIGNED <b>14-Aug-2007</b>	16B. UNITED STATES OF AMERICA <b>[Signature]</b> (Signature of Contracting Officer)		16C. DATE SIGNED <b>8/14/07</b>

EXCEPTION TO SF 30  
PROVIDED BY OIRM 11-84

30-105-04

STANDARD FORM 30 (Rev. 10-83)  
Prescribed by GSA  
FAR (48 CFR) 53.243

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

**SUMMARY OF CHANGES**

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by \$18,971.00 from \$1,078,279.00 (EST) to \$1,097,250.00 (EST).

CLIN 0005

The estimated/max cost has increased by \$17,901.00 from \$1,023,371.00 to \$1,041,272.00.

The award fee has increased by \$1,070.00 from \$54,908.00 to \$55,978.00.

The total cost of this line item has increased by \$18,971.00 from \$1,078,279.00 (EST) to \$1,097,250.00 (EST).

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by \$18,971.00 from \$1,078,279.00 to \$1,097,250.00.

SUBCLIN 000502:

Funding on SUBCLIN 000502 is initiated as follows:

ACRN: AB

Acctng Data: 17 07071804 KU2E 0252 62470 P 068732 2D 023260

Increase: \$18,971.00

Total: \$18,971.00

Cost Code: AB00C0005441

(End of Summary of Changes)

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE	PAGE OF PAGES	
			R	1	3
2. AMENDMENT/MODIFICATION NO. 03	3. EFFECTIVE DATE 27-Mar-2008	4. REQUISITION/PURCHASE REQ. NO. ACQR79343	5. PROJECT NO. (If applicable)		
6. ISSUED BY CODE COMMANDER NAVFAC ATLANTIC 6606 HAMPTON BLVD NORFOLK VA 23508-1278	N62470	7. ADMINISTERED BY (If other than item 6) CODE		See Item 6	
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code) SHAW ENVIRONMENTAL INC. 5700 THURSTON AVENUE SUITE 116 VIRGINIA BEACH VA 23455-3302			9A. AMENDMENT OF SOLICITATION NO.		
			9B. DATED (SEE ITEM 11)		
			X	10A. MOD. OF CONTRACT/ORDER NO. N62470-02-D-3260-0093	
			X	10B. DATED (SEE ITEM 13) 02-Apr-2007	
CODE 1YV78	FACILITY CODE				
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS					
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.					
12. ACCOUNTING AND APPROPRIATION DATA (If required) See Schedule					
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.					
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.					
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).					
X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: FAR 52.243-2 CHANGES COST REIMBURSEMENT					
D. OTHER (Specify type of modification and authority)					
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input checked="" type="checkbox"/> is required to sign this document and return <u>1</u> copies to the issuing office.					
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) Modification Control Number: bsrith082013 Scope Growth Modification  This modification to Task Order 0093 is issued for the contractor to provide all labor, materials, supervision, travel and subsistence necessary for Two Phase Excavation and an Explosive Safety Submission amendment for Site 28 Soil Removal Action at Naval Support Facility, Indian Head, Maryland, all, as directed by the Contracting Officer. Your proposal dated March 6, 2008 is hereby accepted.  Period of performance is December 31, 2008					
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.					
15A. NAME AND TITLE OF SIGNER (Type or print) James A. Duran Jr. Program Manager			16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) TEL: EMAIL:		
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)		15C. DATE SIGNED 27 Mar 2008	16B. UNITED STATES OF AMERICA BY (Signature of Contracting Officer)		16C. DATE SIGNED

EXCEPTION TO SF 30  
APPROVED BY OIRM 1-84

30-105-04

STANDARD FORM 30 (Rev. 10-83)  
Prescribed by GSA  
FAR (48 CFR) 53.243

## SECTION SF 30 BLOCK 14 CONTINUATION PAGE

## SUMMARY OF CHANGES

## SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by \$177,515.00 from \$1,097,250.00 (EST) to \$1,274,765.00 (EST).

## SECTION B - SUPPLIES OR SERVICES AND PRICES

Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

SUBMIT INVOICES FOR PAYMENT TO COMMANDER NAVFAC ATLANTIC (CODE AQ118), 6506 HAMPTON BLVD, NORFOLK, VA 23508-1278. PAYMENT WILL BE MADE BY DFAS CLEVELAND, NORFOLK ACCOUNTS PAYABLE, P. O. BOX 998022, CLEVELAND, OH 44199

## Global Changes

## CLIN 0005 -- SUBCLIN 000502

The FSC code Z300 has been added.

The PROG code C20 has been added.

The MDAP/MAIS Code 000 has been added.

## CLIN 0005

The estimated/max cost has increased by \$168,521.00 from \$1,041,272.00 to \$1,209,793.00.

The award fee has increased by \$8,994.00 from \$55,978.00 to \$64,972.00.

The total cost of this line item has increased by \$177,515.00 from \$1,097,250.00 (EST) to \$1,274,765.00 (EST).

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by \$177,514.00 from \$1,097,250.00 to \$1,274,764.00.

SUBCLIN 000503:

Funding on SUBCLIN 000503 is initiated as follows:

ACRN: AC

CIN: 00000000000000000000000000000000

Acctng Data: 17 08081804 KU2E 0252 62470 P 068732 2D 023260

Increase: \$177,514.00

Total: \$177,514.00

Cost Code: AC00C0005441

(End of Summary of Changes)

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE	PAGE OF PAGES		
				R	1	2	
2. AMENDMENT/MODIFICATION NO. <i>04</i>	3. EFFECTIVE DATE 18-Jun-2008	4. REQUISITION/PURCHASE REQ. NO. ACQR78343		5. PROJECT NO. (If applicable)			
6. ISSUED BY COMMANDER NAVFAC ATLANTIC 6506 HAMPTON BLVD NORFOLK VA 23506-1278	CODE N62470	7. ADMINISTERED BY (If other than item 6) <b>See Item 6</b>		CODE			
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code) SHAW ENVIRONMENTAL INC. 500 E MAIN STREET SUITE 1630 NORFOLK VA 23510-2208				9A. AMENDMENT OF SOLICITATION NO.			
				9B. DATED (SEE ITEM 11)			
				X	10A. MOD. OF CONTRACT/ORDER NO. N62470-02-D-3260-0093		
				X	10B. DATED (SEE ITEM 13) 02-Apr-2007		
CODE 1YV78				FACILITY CODE			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS							
<input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.							
12. ACCOUNTING AND APPROPRIATION DATA (If required) <b>See Schedule</b>							
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.							
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.							
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).							
X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: FAR 52.243 CHANGES							
D. OTHER (Specify type of modification and authority)							
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input checked="" type="checkbox"/> is required to sign this document and return <u>1</u> copies to the issuing office.							
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) Modification Control Number: bsmith083152 Soil Removal Action for Site 28, Naval Support Facilities, Indian Head, Indian Head, Maryland  This modification to Task Order 0093 is issued to furnish all labor, material, equipment, supervision, travel and subsistence necessary to process and dispose of an additional 1200 cubic yards of material that was encountered at Site 28, Naval Support Facilities, Indian Head, Indian Head, Maryland, all, as directed by the Contracting Officer.  Your proposal dated June 9, 2008 is hereby accepted.  Period of Performance is December 31, 2008  Contracting Officer's email address: Brenda.W.Smith@navy.mil Telephone 757-322-4594  Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.							
15A. NAME AND TITLE OF SIGNER (Type or print) <i>Willard S. Durham</i> <i>Deputy Program Manager</i>				16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) TEL: _____ EMAIL: _____			
15B. CONTRACTOR/OFFEROR <i>[Signature]</i> (Signature of person authorized to sign)		15C. DATE SIGNED <i>6/18/08</i>		16B. UNITED STATES OF AMERICA BY <i>Brenda W. Smith</i> (Signature of Contracting Officer)		16C. DATE SIGNED <i>6/18/08</i>	

EXCEPTION TO SF 30  
APPROVED BY OIRM 11-84

30-105-04

STANDARD FORM 30 (Rev. 10-83)  
Prescribed by GSA  
FAR (48 CFR) 53.243

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by \$508,455.00 from \$1,274,764.00 (EST) to \$1,783,219.00 (EST).

CLIN 0005

The estimated/max cost has increased by \$482,941.00 from \$1,209,793.00 to \$1,692,734.00.

The award fee has increased by \$25,514.00 from \$64,971.00 to \$90,485.00.

The total cost of this line item has increased by \$508,455.00 from \$1,274,764.00 (EST) to \$1,783,219.00 (EST).

Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

SUBMIT INVOICES FOR PAYMENT TO COMMANDER NAVFAC ATLANTIC (CODE AQ118), 6506 HAMPTON BLVD, NORFOLK, VA 23508-1278. PAYMENT WILL BE MADE BY DFAS CLEVELAND, NORFOLK ACCOUNTS PAYABLE, P. O. BOX 998022, CLEVELAND, OH 44199

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by \$508,455.00 from \$1,274,764.00 to \$1,783,219.00.

ACRN: AD

Acctng Data: 17 08081804 KU2E 0252 62470 P 068732 2D 023260

Increase: \$508,455.00

Total: \$508,455.00

Cost Code: AD00C0005441

(End of Summary of Changes)

**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

1. CONTRACT ID CODE: **R** PAGE OF PAGES: **1 | 2**

2. AMENDMENT/MODIFICATION NO.: **05** 3. EFFECTIVE DATE: **09-Sep-2008** 4. REQUISITION/PURCHASE REQ. NO.: **ACQR79343** 5. PROJECT NO. (if applicable):

6. ISSUED BY: **COMMANDER NAVFAC ATLANTIC  
6506 HAMPTON BLVD  
NORFOLK VA 23508-1278** CODE: **N62470** 7. ADMINISTERED BY (if other than item 6): **See Item 6** CODE:

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code): **SHAW ENVIRONMENTAL INC.  
500 E. MAIN STREET  
SUITE 1630  
NORFOLK VA 23510-2206** 9A. AMENDMENT OF SOLICITATION NO.: 9B. DATED (SEE ITEM 11): X 10A. MOD. OF CONTRACT/ORDER NO.: **N62470-02-D-3260-0093** 10B. DATED (SEE ITEM 13): X **02-Apr-2007**

CODE: **1YV78** FACILITY CODE:

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer  is extended,  is not extended.  
Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:  
(a) By completing Items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (if required): **See Schedule**

**13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.  
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).  
X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: **FAR 52.243-2 CHANGES COST REIMBURSEMENT ALTERNATE III (APRIL 1987)**  
D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor  is not,  is required to sign this document and return **1** copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)  
Modification Control Number: **bsmith084281**  
**ADDITIONAL SCREENING AND MPPEH STORAGE AT SITE 28, NSF INDIAN HEAD**  
  
This modification (05) to Task order 0093 is issued to provide all labor, materials supervision, travel and substance necessary for the additional screening effort and MPPEH storage and disposal for Site 28 Soil Removal Action at Naval Support Facility, Indian Head, Md., all as directed by the Contracting Officer.  
  
Your proposal dated August 18, 2008 is hereby accepted.  
  
Contracting Officer's email address: **Brenda.W.Smith@navy.mil** Telephone **757-322-4594**  
  
Period of Performance - **July 31, 2009**  
  
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print): **James A. Dumas, Joz Program Mgr** 16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print):  
Signature: *[Signature]* TEL: EMAIL:  
15B. CONTRACTOR/OFFEROR: **Shaw Environmental Inc.** 15C. DATE SIGNED: **10 SEP 2008** 16B. UNITED STATES OF AMERICA: BY: *[Signature]* 16C. DATE SIGNED: **9/10/08**  
Signature of person authorized to sign (Signature of Contracting Officer)

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

**SUMMARY OF CHANGES**

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by \$445,886.00 from \$1,783,219.00 (EST) to \$2,229,105.00 (EST).

CLIN 0005

The estimated/max cost has increased by \$424,723.00 from \$1,592,734.00 to \$2,117,457.00.

The award fee has increased by \$21,163.00 from \$90,485.00 to \$111,648.00.

The total cost of this line item has increased by \$445,886.00 from \$1,783,219.00 (EST) to \$2,229,105.00 (EST).

Acceptance of this modification by the contractor constitutes an accord and satisfaction and represents payment in full for both time and money and for any and all costs, impact effect, and for delays and disruptions arising out of, or incidental to, the work as herein revised.

SUBMIT INVOICES FOR PAYMENT TO COMMANDER NAVFAC ATLANTIC (CODE AQ118), 6506 HAMPTON BLVD, NORFOLK, VA 23508-1278. PAYMENT WILL BE MADE BY DFAS CLEVELAND, NORFOLK ACCOUNTS PAYABLE, P. O. BOX 998022, CLEVELAND, OH 44199

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by \$445,886.00 from \$1,783,219.00 to \$2,229,105.00.

SUBCLIN 000505:

Funding on SUBCLIN 000505 is initiated as follows:

ACRN: AE

CIN: 00000000000000000000000000000000

Acctng Data: 17 08081804 KU2E 0252 62470 P 068732 2D 023260

Increase: \$445,886.00

Total: \$445,886.00

Cost Code: AE00C0005441

(End of Summary of Changes)





DEERE

MIG  
818 804 1185





































Hertz

PC  
160

246-02-8014

Deere





















SITE 28

4/29/08

PROPELLANT, SINGLE  
BASE

496 gm. 22EA















































DEERE

Hertz

200C LC

246 11-4133

3165L



























































































































SITE #28  
SINGLE BASED PROPELLANT  
28-062  
425 GRAMS  
27 EA





EXPLOSIVES

1.3

1



28-0001









ARROW  
10-20-20

555

50 LBS. NET WT.

**ARROW**  
**10-20-20**

GUARANTEED ANALYSIS

TOTAL NITROGEN (N)	10%
TOTAL PHOS. ACID (P <sub>2</sub> O <sub>5</sub> )	20%
SOLUBLE POTASH (K <sub>2</sub> O)	20%

10%  
20%  
20%

DOCTOR'S  
PelleTTIZED  
**LAWNLIME**  
Granulada



PelleTTIZED  
**LAWNLIME**  
Granulada

Essential for Healthy  
Lawn

40 LBS. (18.







































28-0001

