

# No Action Decision Document

for

**SITE 32 – SUSPECTED TOOL BURIAL SITE**

**SITE 34 – TOOL BURIAL SITE**

**SITE 51 – BUILDING 101 DRY WELL**

**SITE 52 – BUILDING 102 DRY WELL**

Indian Head Division  
Naval Surface Warfare Center  
Indian Head, Maryland



Engineering Field Activity Chesapeake  
Naval Facilities Engineering Command



United States Environmental Protection Agency  
Region III



Maryland Department of the Environment



May 2003

## NO ACTION DECISION DOCUMENT

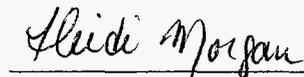
As required under the Federal Facilities Agreement (FFA), Sites 32 and 34 were evaluated based on historical information and the results of the recent Site Screening Process (SSP) Report for the Indian Head Division, Naval Surface Warfare Center, Seven Sites, Indian Head, Maryland. Additionally, Sites 51 and 52 were similarly evaluated despite being noted in the FFA as not recommended for any further action. This was done for completeness and to confirm the previous recommendation. A sites are described herein. Using all readily available information and professional judgment, it is recommended that no action be taken for these sites. In accordance with the FFA, this decision document is signed by the Navy and Environmental Protection Agency (EPA) representatives.



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6/11/03

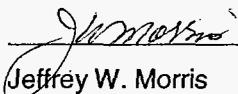
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## LIST OF ACRONYMS/ABBREVIATIONS

AR	Administrative Record
ARAR	Applicable or Relevant and Appropriate Requirements
bgs	below ground surface
COC	chain-of-custody
COPC	chemical of potential concern
CTO	Contract Task Order
DAF	Dilution and attenuation factor
DON	Department of the Navy
E/A&H	ENSAFE/Allen and Hoshall
EFACHES	United States Navy Engineering Field Activity Chesapeake
EM	electromagnetic
EOD	explosive ordnance disposal
EPA	United States Environmental Protection Agency
FFA	Federal Facility Agreement
GPR	ground-penetrating radar
IAS	Initial Assessment Study
ID	inside diameter
IHDIV-NSWC	Indian Head Division, Naval Surface Warfare Center
IHIRT	Indian Head Installation Restoration Team
IR	Installation Restoration
MCL	Maximum Contaminant Level
MDE	Maryland Department of the Environment
mg/L	milligrams per liter
msl	mean sea level
NA	No action
NEESA	Naval Energy and Environmental Support Activity
NFESC	Naval Facilities Engineering Service Center
NREA	Natural Resources and Environmental Affairs
NSWC	Naval Surface Warfare Center
PA	preliminary assessment
PID	photoionization detector
PVC	polyvinyl chloride
RBC	Risk-Based Concentration
RI	remedial investigation
SMCL	Secondary Maximum Contaminant Level

SSA	Site Screening Area
SSL	Soil Screening Level
SSP	Site Screening Process
TBC	To be considered
TCL	Target Compound List
TtNUS	Tetra Tech NUS, Inc.
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
UTL	upper tolerance limit
VOC	volatile organic compound

## **EXECUTIVE SUMMARY**

This Decision Document presents the results of four no action sites investigated and reported as part of a Site Screening Process (SSP) Report (TtNUS, 2003) prepared for seven sites at Indian Head Division, Naval Surface Warfare Center (IHDIV-NSWC), Indian Head, Maryland. The SSP Report recommended no action for the sites contained herein.

The objective of the No Action Decision Document is to present information and data for the four no action sites and to provide written documentation of the no action decision for the Administrative Record.

The four sites and their dispositions are as follows:

### **SITE 34 – TOOL BURIAL SITE**

The Site 34 SSP field activities included a geophysical investigation to locate evidence of the reported beryllium-copper alloy tools. A test pit was excavated where the geophysical investigation indicated the possible presence of buried metal. The test pit uncovered beryllium-copper alloy tools and other materials. Soil from the bottom of the test pit was sampled and groundwater was sampled from three temporary monitoring wells arrayed around the test pit. Analysis of the samples indicated the presence of beryllium and copper in soil and groundwater. However the detected concentrations were less than human health and ecological screening levels. Therefore, no action is required at Site 34.

### **SITE 32 – SUSPECTED TOOL BURIAL SITE**

As was the case for Site 34, Site 32 consisted of a location where beryllium-copper alloy hand tools used in explosive ordnance disposal work had been buried. Due to the similarity between the two sites, the results of the investigation conducted at Site 34 were viewed as representative of conditions at Site 32. Since contaminant concentrations at Site 34 were insufficient to require action at that site, it is appropriate that no action be taken at Site 32 either.

### **SITE 51 – BUILDING 101 DRY WELL**

As part of the SSP investigation, two subsurface soil samples were collected, and trace concentrations of benzene and toluene were detected. However, human health-based screening criteria were not exceeded for either of these chemicals, and there are no known ecological receptors on the site. Based on a comparison of laboratory results to human health screening criteria and an evaluation of site conditions, no action is required for Site 51.

## **SITE 52 – BUILDING 102 DRY WELL**

Contrary to the belief that two drywells existed in the area of Buildings 101 and 102, only one dry well was found during the SSP investigation. It was designated as Site 51. Since Site 52 does not exist, no action is required for Site 52.

## 1.0 INTRODUCTION

This No Action Decision Document presents the results of an evaluation of four sites at the Indian Head Division, Naval Surface Warfare Center (IHDIV-NSWC), Indian Head, Maryland. The evaluation was conducted based on historical information and the results of the Site Screening Process (SSP) Report (TtNUS, 2003) previously prepared for seven sites. The sites discussed in this document were all recommended for no action by the SSP Report.

The objectives of this document are as follows:

- To present the information and evaluations developed during the SSP along with the rationale leading to a recommendation for no action.
- To provide written record of the no action decision for each of the sites.
- To document the decisions and regulator concurrence for the Administrative Record.

The following sites are addressed in this document:

Site 32	Suspected Tool Burial Site
Site 34	Tool Burial Site
Site 51	Building 101 Drywell
Site 52	Building 102 Drywell

Past investigations of the above sites evaluated and documented the potential that former operations at the sites may have resulted in a release of hazardous substances, pollutants, contaminants, hazardous wastes, or hazardous constituents to the environment. The process for conducting those investigations involved obtaining and evaluating all accessible documentation pertaining to the identified sites, including environmental reports, facility drawings, and personnel interviews. In accordance with the Federal Facility Agreement (FFA) (EPA and DON, 2000), the SSP investigated those sites identified as SSAs (32 and 34). The scope of the SSP also included two sites (51 and 52) for which the FFA noted that the 1992 PA (NEESA 1992) did not recommend further action. These two sites were included in the SSP Report to confirm the PA recommendation for no action.

This document includes this brief introduction and a separate section for each of the sites. Each site-specific section provides a site description, an evaluation of the site data, and a decision reflecting the recommendations of the SSP Report regarding the disposition of the site. Detailed documentation concerning the field activities, sample collection and geological and hydrogeological investigations conducted for each of the discussed sites may be found in the SSP Report (TtNUS, 2003).

## 2.0 SITE 34 – TOOL BURIAL SITE

### 2.1 SITE DESCRIPTION

Site 34 is located within the Stump Neck Annex portion of IHDIV-NSWC. Beryllium-copper alloy hand tools were reportedly buried near Building D-21CSN (see Figures 2-1 and 2-2). Two burial holes, each about 5 feet by 15 feet by 12 feet deep were reported. The volume of tools in each pit was said to be about 5 feet by 8 feet by 2 feet. The tools were hand tools such as hammers, wrenches, screwdrivers, pliers, scrapers, and knives used in explosive ordnance disposal (EOD) work because they are nonmagnetic and nonsparking. According to interviewees, the tools in the pits had failed a magnetometer test and were considered unserviceable. The burial was said to have taken place in 1972 or 1973. It was noted that the magnetometer test took place in Building D-21CSN, which was built in 1973. A memorandum dated May 28, 1975 (Ser 113-45-75) contains a sketch showing the two test pits 60 feet and 70 feet southeast of the building. On-site investigations confirmed subsidence of soil at these locations (Hart, 1983).

#### 2.1.1 Topography

As illustrated on Figure 2-1, the land surface at Site 34 gently slopes toward Chicamuxen Creek to the south. The land surface elevation across the site ranges from approximately 1 to 6 feet above mean sea level (msl).

#### 2.1.2 Surface Water

Precipitation either infiltrates into the soil or runs off the ground surface. Surface water runoff from Site 34 is likely to go to Chicamuxen Creek to the south either directly or via a drainage swale to the west of the site.

#### 2.1.3 Geology/Soils

Logs from soil borings and test pits installed at the site indicate that shallow geologic conditions consist primarily of sand and gravelly sand overlying clay and silt layers. Clay and silt layers were encountered at approximately 10 feet bgs. However, the clay and silt layer is absent at temporary well location S34TW003 (see Figure 2-2). The gravels are composed of quartz and are well rounded to subrounded. Soil boring and test pit logs are provided in Appendix B of the SSP Report (TtNUS, 2003).

#### **2.1.4 Hydrogeology**

The shallow aquifer beneath the site is unconfined, and depth to water ranges from approximately 2 to 6 feet bgs. Groundwater flow is to the northwest away from Chicamuxen Creek and toward the Mattawoman Creek to the northwest (see Figure 2-2). The groundwater levels used to generate potentiometric contours were measured on February 12, 2002, and the groundwater elevation data are provided in Appendix E of the SSP Report (TtNUS, 2003).

#### **2.1.5 Field Investigation**

A geophysical survey and test pit excavations were completed at the site to locate the tool burial pit and to evaluate the potential presence of contaminants. In addition, groundwater and subsurface soil samples were collected and submitted to a fixed-base laboratory for chemical analysis. The sample depths and analyses are summarized on Table 2-1.

#### **2.1.6 Geophysical Investigation**

An EM-31 electromagnetometer was used to perform a geophysical survey at Site 34 order to locate the tool burial pit(s). The electromagnetometer measures the changes in the ground conductivity using a patented electromagnetic inductive technique that makes the measurements without electrodes or ground contact.

As shown on Figure 2-2, the survey was conducted on a reference grid that was 80 feet by 190 feet. The resulting conductivity contour map is also presented on the figure with anomalies indicated by the high-density contour lines. The major anomalies are labeled as A, B, and C. Anomaly A actually results from Building D-21CSN immediately to the north of the anomalous area. Anomaly B is a reflection of a pile of scrap metal on the ground surface. However, Anomaly C indicates the potential presence of buried metal and was considered the likely location of the tool burial area. A detailed report of the geophysical survey results is provided in Appendix D of the SSP Report.

#### **2.1.7 Test Pit Activities**

One test pit was excavated near Anomaly C, the suspected burial area, as shown on Figure 2-2. The excavation at S34TP001 uncovered numerous beryllium-copper alloy tools. Other materials were also found such as canvas material, hardware, plastics, and paper. The S34TP001 test pit was approximately 2 feet wide, and 10 feet in length and was excavated a depth of 10 feet bgs. The test pit log is provided in Appendix B of the SSP Report.

### **2.1.8 Temporary Well Installation and Groundwater Sampling**

Three temporary monitoring wells were installed at the site to determine if wastes from the tool burial pit had contaminated shallow groundwater. Based on field observation, the groundwater flow direction was believed to be south toward Chicamuxen Creek. One well (S34TW002) was installed south (presumed downgradient) of the suspected burial area, and two wells (S34TW001 and S34TW003) were installed west and north, respectively (presumed upgradient). The depth of the borings ranged from approximately 10 to 14 feet bgs and subsequent temporary wells were screened at 5 and 10 feet intervals. Water-level data suggest that the groundwater flow is to the northwest, as described in Section 2.1.4; therefore, well S34TW003 is a downgradient well. Well locations are shown on Figure 2-2. The wells were constructed with 1-inch-inside diameter (ID) polyvinyl chloride (PVC) riser and screen material, and were installed and abandoned as described in Section 3.0 of the SSP Report. State of Maryland abandonment reports and TtNUS temporary well construction diagrams are presented in Appendix A of the SSP Report.

Groundwater samples were collected from the temporary wells, as described in Section 3.2.3 of the SSP Report, and analyzed for beryllium and copper (total and dissolved). Groundwater sample log sheets are provided in Appendix C of the SSP Report.

### **2.1.9 Subsurface Soil Sampling**

One subsurface soil sample was collected from within the area of beryllium-copper alloy tools encountered at S34TP001 (the sample location designation is S34SB001) at a depth of 4 to 4.5 feet bgs. The soil sample was collected using a backhoe. The sample depth and analyses are summarized on Table 2-1. The sample location is shown on Figure 2-2.

No elevated photoionization detector (PID) readings were recorded during the subsurface investigation. Hardware used in EOD work was found in the test pit; therefore, the soil sample was submitted to a fixed-base laboratory to be analyzed for explosives including nitrocellulose, nitroguanidine, and nitroglycerine, in addition to beryllium and copper. The soil sample log sheet is provided in Appendix C of the SSP Report.

One field duplicate S34SBDUP0101 was collected at the S34SB0010101 location, and analyzed for the same parameters.

## **2.2 EVALUATION**

This section presents the data evaluation and selection of human health COPCs for subsurface soil and groundwater contamination at Site 34. The selection of ecological COPCs is discussed in Section 2.2.4. This screening evaluation is based on the following samples:

- One subsurface soil sample collected from a test pit at 4 to 4.5 feet bgs.
- Three groundwater samples collected from temporary monitoring wells screened at 4 to 9 and 4 to 14 feet bgs.

The results were evaluated as described in Section 4.3 of the SSP Report. Complete analytical results are presented in Appendix H of the SSP Report.

### **2.2.1 Data and Risk-Based Evaluation of Subsurface Soil Contamination**

Positive analytical results and summary statistics for subsurface soil samples are provided in Tables 2-2 and 2-3, respectively.

Based on the analytical results, copper concentrations exceeded background concentrations; however, neither beryllium nor copper concentrations exceeded screening levels in the subsurface soil samples. Both metals were detected in sample S34SB0010101. No explosives were detected in the subsurface soil. Therefore, there are no soil COPCs for human health risk evaluation.

No surface soil or sediment samples were collected, so ecological COPC screening was performed with groundwater data only.

### **2.2.2 Data and Risk-Based Evaluation of Groundwater Contamination**

Positive analytical results for unfiltered and filtered groundwater samples are provided in Table 2-4. Beryllium and copper were detected in unfiltered samples, and beryllium was detected in filtered samples. The summary statistics for unfiltered and filtered groundwater samples are provided in Table 2-5.

Based on the analytical results, neither beryllium nor copper concentrations exceeded the human health screening levels in the groundwater samples. Therefore, there are no groundwater COPCs for human health risk evaluation.

Surface water samples were not collected at Site 34, so the ecological COPC screening was performed with groundwater results only. Groundwater data were evaluated based on the possibility of discharge to Mattawoman Creek and potential risks to aquatic receptors. As shown in Table 2-6, unfiltered and filtered samples were evaluated in the screening. No COPCs were selected because all the data were below screening concentrations.

### **2.2.3 Human Health Risk Screening Evaluation**

There were no human health COPCs for the environmental media sampled at Site 34. No further human health risk screening is necessary.

### **2.2.4 Ecological Risk Screening Evaluation**

Ecological COPCs were not selected for the environmental media sampled at Site 34. No further ecological risk screening is necessary.

### **2.2.5 Summary and Conclusions**

Tools buried at the sites were found during the test pit investigation. Concentrations of beryllium and copper in the subsurface soil and groundwater samples were less than human health and ecological screening levels. In addition, no explosives were detected in the subsurface soil. Thus, there are no COPCs in either subsurface soil or groundwater, and no unacceptable risks to human health or ecological receptors were identified during the site screening process.

Contamination, if present, was not anticipated to be at the surface, because the site was a burial pit. No surface soil samples were collected, and risks to terrestrial ecological receptors were not evaluated.

## **2.3 DECISION**

Based on an evaluation of all available historical information and the results of the SSP, no action is required for Site 34.

Note that the site description mentions two pits that were reported at the site. Since evaluation of the analytical data from the uncovered pit did not indicate the presence of a human health or ecological risk, and the reported descriptions of the two pits were identical, it was deemed unnecessary to pursue investigation of the second pit.

TABLE 2-1

ENVIRONMENTAL SAMPLING AND ANALYSIS SUMMARY – SITE 34  
IHDIV-NSWC, INDIAN HEAD, MARYLAND

Sample Location	Sample Designation	Sample Depth (feet bgs) <sup>(1)</sup>	Sample Analysis	
			Beryllium and Copper <sup>(2)</sup>	Explosives (with nitrocellulose, nitroguanidine, and nitroglycerine)
<b>SUBSURFACE SOIL</b>				
S34SB001	S34SB0010101	From bottom of excavation 4-4.5'	•	•
Duplicate at S34SB00101	S34SBDUP0101	From bottom of excavation 4-4.5'	•	•
<b>GROUNDWATER</b>				
S34TW001	S34TW0010001	--	•	
S34TW002	S34TW0020001	--	•	
S34TW003	S34TW0030001	--	•	

Notes:

- 1 Sample depths are as collected in the field.
- 2 Groundwater samples were analyzed for total and filtered metals.  
bgs below ground surface.

TABLE 2-2

SUMMARY OF POSITIVE DETECTIONS - SUBSURFACE SOIL - SITE 34  
IHDIV-NSWC, INDIAN HEAD, MARYLAND

Parameter	S34SB001	
	Sample S34SB0010101	Duplicate S34SBDUP0101
<b>Inorganics (mg/kg)</b>		
BERYLLIUM	0.65	0.565
COPPER	110	85.55

Samples were collected on January 3, 2002 from a test pit at a depth of 4 to 4.5 feet below ground surface.

TABLE 2-3

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SUBSURFACE SOIL - SITE 34  
 INDIV-NSWC, INDIAN HEAD, MARYLAND

Scenario Timeframe: Current/Future  
 Medium: Subsurface Soil  
 Exposure Medium: Subsurface Soil  
 Exposure Point: Site 34

CAS Number	Chemical	Minimum Concentration <sup>(1)</sup>	Maximum Concentration <sup>(1)</sup>	Location of Maximum Concentration	Detection Frequency	Average Concentration	Concentration Used for Screening <sup>(2)</sup>	Background Value <sup>(3)</sup>	U.S. EPA Region 3 RBC-Residential <sup>(4)</sup>	EPA SSLs Soil to Air <sup>(5)</sup>	U.S. EPA Region 3 SSLs Soil to Groundwater <sup>(6)</sup>	Retain as a COPC?	Rationale for Contaminant Deletion or Selection <sup>(7)</sup>
<b>Inorganics (mg/kg)</b>													
7440-41-7	Beryllium	0.48	0.65	S34SB00101	1/1	0.565	0.65	1.5	16 N	1300	1200	No	BSL, BKG
7440-50-8	Copper	61.1	110	S34SB00101	1/1	85.6	110	47.6	310 N	NA	11000	No	BSL

Notes:

- 1 - Sample and duplicate are counted as two separate samples when determining the minimum and maximum detected concentrations but counted as one sample when determining frequency of detection.
- 2 - The maximum detected concentration is used for screening purposes.
- 3 - 95% Upper Tolerance Limit (UTL) for non-clayey soils from Background Soil Investigation Report for Indian Head Stump Neck Annex, Indian Head and Stump Neck Annex, TINUS, February 2002 (Draft).
- 4 - EPA Region 3 Risk-Based Concentration (RBC) Table, April 2, 2002. (RBCs for noncarcinogenic compounds are divided by 10).
- 5 - Soil Screening Levels (SSL) for Inhalation EPA, May 1996. Soil Screening Guidance.
- 6 - EPA Region 3 Risk-Based Concentration Table, April 2, 2002. DAF (dilution attenuation factor) of 20.
- 7 - Rationale Codes  
 Selection Above Screening Levels (ASL)  
 Deletion Essential Nutrient (NUT)  
 Below Screening Level (BSL)  
 Below Background Value (BKG)

Definitions: NA = Not Applicable.

- SQL = Sample Quantitation Limit.  
 COPC = Chemical of Potential Concern.  
 J = Estimated Value.  
 C = Carcinogenic.  
 N = Noncarcinogenic.

TABLE 2-4

SUMMARY OF POSITIVE DETECTIONS - GROUNDWATER - SITE 34  
IHDIV-NSWC, INDIAN HEAD, MARYLAND

Parameter	S34TW001		S34TW002		S34TW003	
	S34TW0010001 Unfiltered 02/08/02	S34TW0010001-F Filtered 02/08/02	S34TW0020001 Unfiltered 02/04/02	S34TW0020001-F Filtered 02/04/02	S34TW0030001 Unfiltered 02/04/02	S34TW0030001-F Filtered 02/04/02
<b>Inorganics (ug/L)</b>						
BERYLLIUM	1.6 K	1.7 K	0.2 U	0.2 U	1.2 K	1.1 K
COPPER	1 U	1 U	1 U	1 U	3 K	1 U

Notes:

U - Not detected at detection limit shown.

K - Estimated value, biased high.

TABLE 2-5

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH GROUNDWATER - SITE 34  
IHDIV-NSWC, INDIAN HEAD, MARYLAND

Scenario Timeframe: Current/Future  
Medium: Groundwater  
Exposure Medium: Groundwater  
Exposure Point: Site 34

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Location of Maximum Concentration	Detection Frequency (1)	Range of Nondetects(2)	Average Concentration	Concentration Used for Screening(3)	Background Value(4)	U.S. EPA Region 3 RBC-Tap Water (6)	Potential ARAR/TBC Value(4)	Potential ARAR/TBC Source(4)	Retain as a COPC?	Rationale for Contaminant Deletion or Selection(7)
<b>Inorganics, Total (ug/L)</b>																
7440-41-7	Beryllium	1.2	K	1.6	K	S34TW001	2/3	0.2	0.967	1.6	NA	7.3 N	4	MCL	No	BSL
7440-50-8	Copper	3	K	3	K	S34TW003	1/3	1	1.33	3	22.4	150 N	1300 (8)	MCL	No	BSL, BKG
<b>Inorganics, Filtered (ug/L)</b>																
7440-41-7	Beryllium	1.1	K	1.7	K	S34TW001	2/3	0.2	0.967	1.7	NA	73 N	4	MCL	No	BSL

Notes:

- 1 - Sample and duplicate are counted as two separate samples when determining the minimum and maximum detected concentrations but counted as one sample when determining frequency of detection.
- 2 - Values presented are sample-specific quantitation limits.
- 3 - The maximum detected concentration is used for screening purposes.
- 4 - 95% UTL from Background Soil Investigation Report for Indian Head and Stump Neck Annex, TINUS, February 2002 (Draft).
- 5 - EPA Region 3 Risk-Based Concentration (RBC) Table, April 2, 2002. (RBCs for noncarcinogenic compounds are divided by 10).
- 6 - Drinking Water Standards and Health Advisories, EPA 2000.
- 7 - Rationale Codes
  - Selection Reason: Above Screening Levels (ASL)
  - No Toxicity Information (NTX)
  - Deletion Reason: Essential Nutrient (NUT)
  - Below Screening Level (BSL)
  - Below Background Value (BKG)
- 8 - Action Level for copper in tap water.

Definitions:

- NA = Not applicable.
- SQL = Sample quantitation limit.
- COPC = Chemical of potential concern.
- ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered.
- J = Estimated value.
- K = Estimated value, biased high.
- N = Noncarcinogenic.
- MCL = Maximum Contaminant Level.
- SMCL = Secondary Maximum Contaminant Level.

TABLE 2-6

**SELECTION OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN - GROUNDWATER - SITE 34  
IHDIV-NSWC, INDIAN HEAD, MARYLAND**

Parameter	Frequency of Detection	Minimum Concentration	Maximum Concentration <sup>(1)</sup>	Location of Maximum Concentration	Average of Positive Results	Average of All Results	Groundwater COPC Screening Level <sup>(2)</sup>	Ecological Effects Quotient <sup>(3)</sup>	Retain as a COPC?	Rationale for Contaminant Deletion or Selection <sup>(4)</sup>
<b>Inorganics, Total (ug/L)</b>										
Beryllium	2/3	1.2 K	1.6 K	S34TW001	1.4	0.97	5.3	0.30	No	BSL
Copper	1/3	3 K	3 K	S34TW003	3	1.33	6.5	0.46	No	BSL
<b>Inorganics, Filtered (ug/L)</b>										
Beryllium	2/3	1.1 K	1.7 K	S34TW001	1.4	0.97	5.3	0.32	No	BSL

## Footnotes:

COPC = Chemical of potential concern

K = Estimated value, biased high.

The sample and duplicate were counted as two separate samples when determining the minimum and maximum detected concentrations but were only counted as one sample when determining the frequency of detection. One-half of the detection limit was used when averaging non-detected data.

1 The maximum detected concentration was used to calculate the ecological effects quotient.

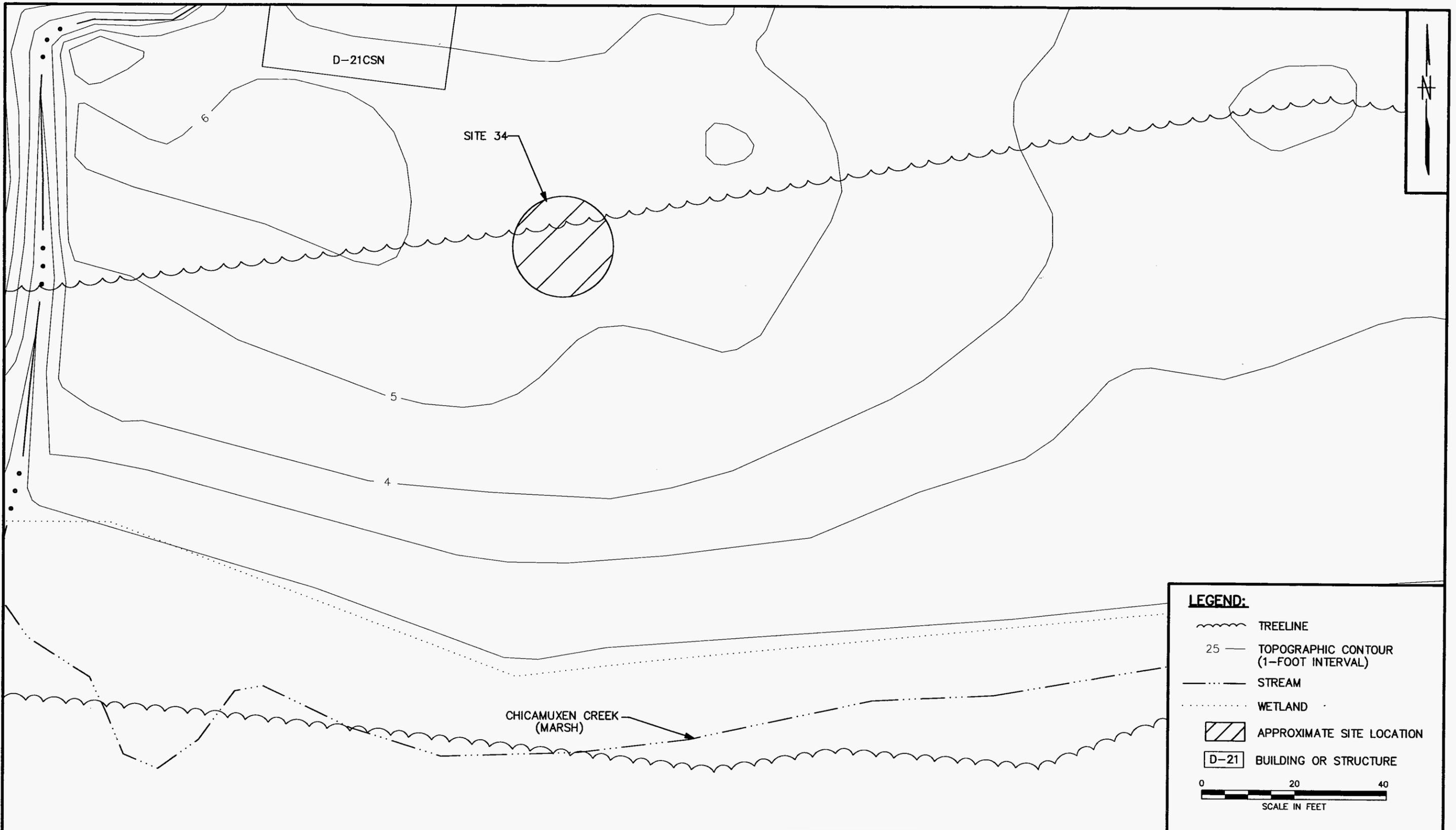
2 Refer to Table 4-5 of the SSP Report for sources of groundwater screening criteria

3 Refer to Section 4.4.4 of the SSP Report for ecological effects quotient calculation.

4 Rationale Code:

For Elimination as a COPC:

BSL = Below COPC Screening Level



**LEGEND:**

- TREELINE
- 25 TOPOGRAPHIC CONTOUR (1-FOOT INTERVAL)
- STREAM
- WETLAND
- APPROXIMATE SITE LOCATION
- D-21 BUILDING OR STRUCTURE

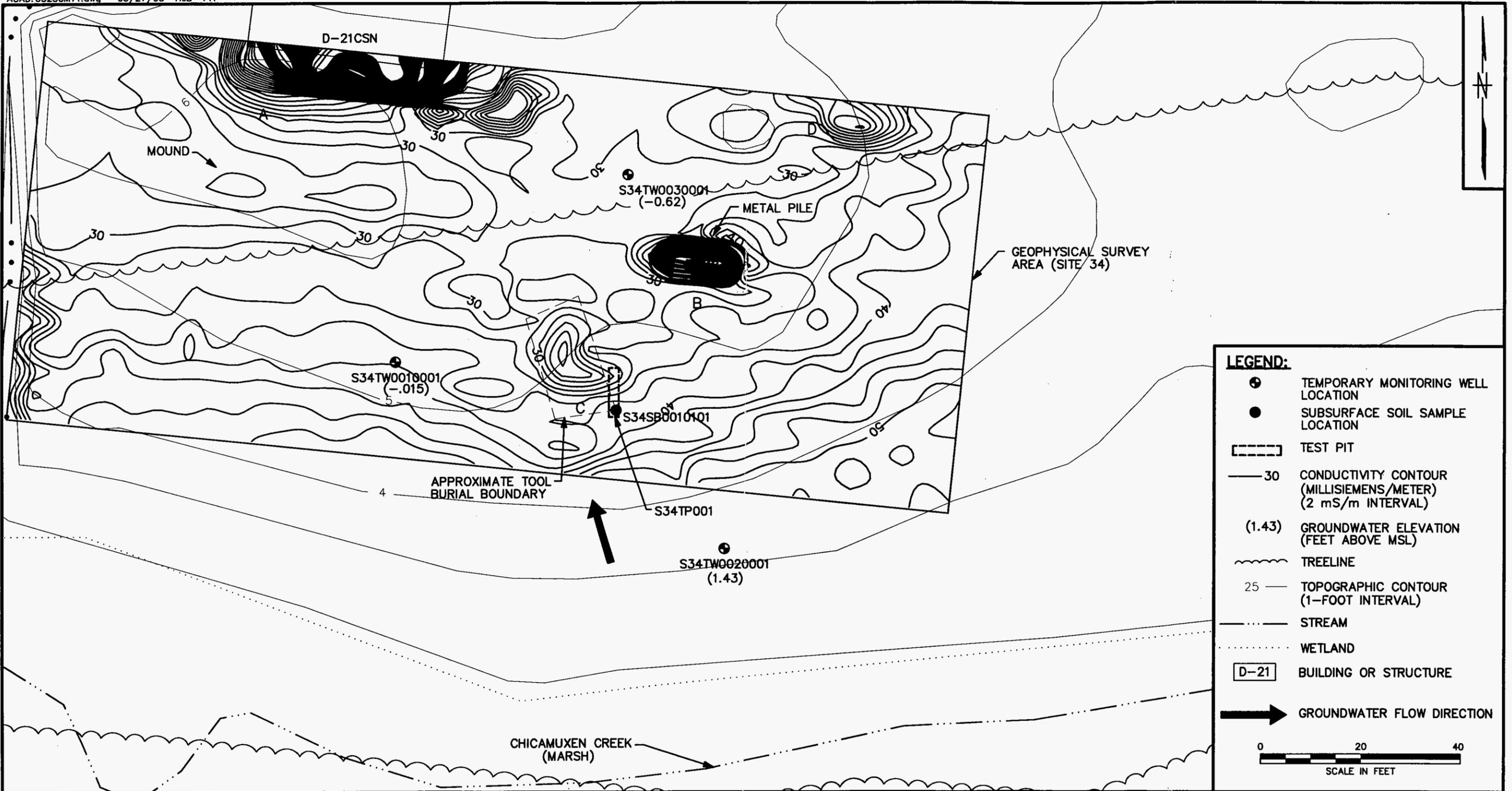
0 20 40  
SCALE IN FEET

DRAWN BY DM	DATE 3/31/03
CHECKED BY <i>[Signature]</i>	DATE 5/22/03
REVISED BY	DATE
SCALE AS NOTED	



**SITE LAYOUT**  
**SITE 34 - TOOL BURIAL SITE**  
 IHDIV-NSWC, INDIAN HEAD, MARYLAND

CONTRACT NO. 0525	
OWNER NO. 0325	
APPROVED BY <i>[Signature]</i>	DATE 5/23/03
DRAWING NO. FIGURE 2-1	REV. 0



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES	DRAWN BY	DATE	CONTRACT NO.	OWNER NO.
							DM	3/31/03	0525	0325
							CHECKED BY	DATE	APPROVED BY	DATE
								5/20/03		5/20/03
							COST/SCHED-AREA		APPROVED BY	DATE
							SCALE		DRAWING NO.	REV.
							AS NOTED		FIGURE 2-2	0

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**SAMPLE LOCATION MAP**  
**SITE 34 - TOOL BURIAL SITE**  
**IHDIV-NSWC, INDIAN HEAD, MARYLAND**

## 3.0 SITE 32 – SUSPECTED TOOL BURIAL SITE

### 3.1 SITE DESCRIPTION

Site 32 is located within the Stump Annex portion of IHDIV-NSWC. During the Initial Assessment Study (IAS) (Hart, 1983), one person who was interviewed believed that special beryllium-copper alloy hand tools used in explosive ordnance disposal work had been buried in the vicinity of Building 31SN (see Figure 3-1). The area around the building is paved with asphalt. Based on aerial photographs, the suspected burial area may also have included an area currently occupied by Building 2127. No other information was available at that time to confirm this suspicion; however, another beryllium-copper alloy tool burial site (Site 34) was reportedly near Building D-21C (see Section 2.0).

#### 3.1.1 Topography

As illustrated on Figure 3-1, the land surface at Site 32 gently slopes to the south.

#### 3.1.2 Surface Water

During a rain event, precipitation either infiltrates into the soil or runs off into the surrounding drainage swales that direct the runoff to the south into Chicamuxen Creek.

#### 3.1.3 Geology/Soils

No subsurface investigation was conducted at Site 32. As a result of the findings of the site screening investigation at Site 34 (See Section 2.0), it was determined that further investigation at Site 32 was not necessary.

#### 3.1.4 Hydrogeology

No groundwater monitoring wells were installed at Site 32.

#### 3.1.5 Field Investigation

No samples were collected at Site 32. Site 32 is similar to Site 34 with respect to the potential source of contamination, and based on the results of the investigation at Site 34 (Section 2.0), no sampling was determined to be necessary at Site 32.

### **3.1.6 Analytical Results**

Site 32 and Site 34 are similar with respect to the potential source of contamination, so the investigation of Site 32 was to be based on the results of sampling at Site 34. Because no contamination was detected at Site 34, as described in Section 2.0, no samples were collected at Site 32.

### **3.1.7 Human Health Risk Screening Evaluation**

There is no reason to expect COPCs at Site 32 because no Chemicals of Potential Concern (COPCs) were identified at Site 34. The human health risk evaluation of the results from Site 34 are included in Section 2.0, and no unacceptable risk to human health was identified.

### **3.1.8 Ecological Risk Screening Evaluation**

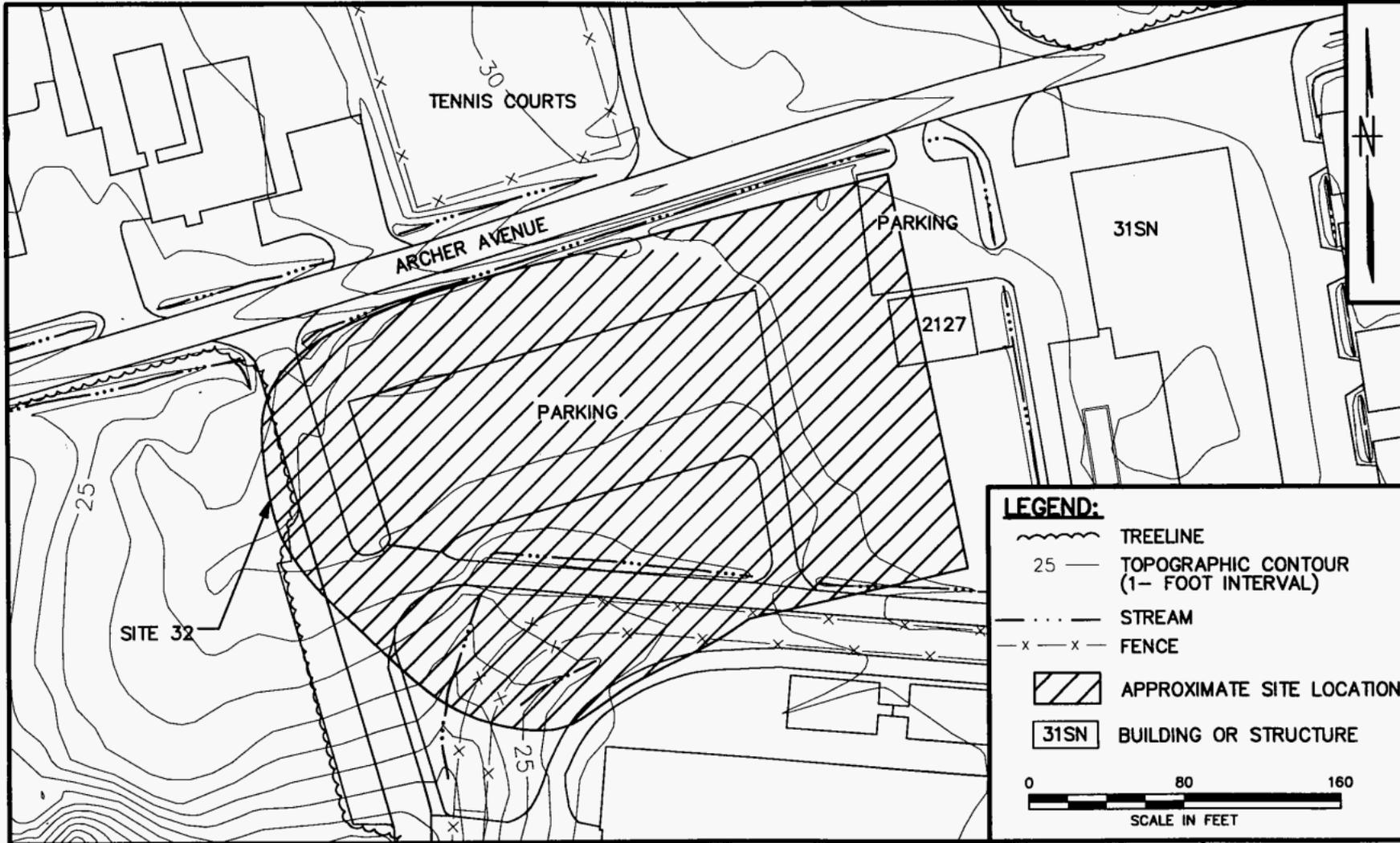
There is no reason to expect COPCs at Site 32 because no COPCs were identified at Site 34. The ecological risk evaluation of the results for Site 34 is included in Section 2.0, and that evaluation determined that there is no risk to ecological receptors.

## **3.2 EVALUATION**

The evaluation of Site 34 in Section 2.0 shows that there are no risks to human health and ecological receptors from Site 34. Site 32 is similar to Site 34, therefore, no unacceptable risks to human health and ecological receptors are expected from Site 32.

## **3.3 DECISION**

Based on an evaluation of all available historical information and the results of the SSP, no action is required for Site 32.



DRAWN BY DM	DATE 3/31/03
CHECKED BY <i>[Signature]</i>	DATE 5/28/05
COST/SCHED-AREA	
SCALE AS NOTED	

**Tetra Tech NUS, Inc.**

**SITE LAYOUT  
SITE 32 - SUSPECTED TOOL BURIAL SITE  
IHDIV-NSWC, INDIAN HEAD, MARYLAND**

CONTRACT NO. 0525	OWNER NO. 0325
APPROVED BY <i>[Signature]</i>	DATE 5/28/05
APPROVED BY	DATE
DRAWING NO. FIGURE 3-1	REV. 0

## 4.0 SITE 51 - BUILDING 101 DRY WELL

### 4.1 SITE DESCRIPTION

Building 101 is located in the restricted area of the Base, near Thames and Evans Roads next to Building 102, as shown on Figure 4-1. Site 51 is located between Buildings 101 and 102.

Also shown on Figure 4-1 is a drywell (Site 52) located along with Site 51 that was believed to service Building 102. Drawings from the 1992 PA showed a drywell associated with Building 102; therefore, the drywell was identified as Site 52 and investigated as part of the 2002 SSP Report (TtNUS, 2003). The details of Site 52 are discussed in Section 5.0.

As noted in the 1992 PA, Department of the Navy, Bureau of Yards and Docks Drawings 1028836, 1028837, and 1028839 show a dry well at Building 101 (NEESA, 1992). This dry well had been arbitrarily designated as Site 51. The flash tank detail, dry well detail, and the utilities site plan show a 1-inch steam condensate line leading to the dry well. No wastewater lines on the drawings lead to the dry well. Furthermore, the crushed stone of the dry well was 2 feet below grade, making it difficult to locate and access. It was therefore determined unlikely that any surface disposal took place at the well location (NEESA, 1992). The flash tank/steam condensate system no longer exists (NEESA, 1992).

Based on the drawings reviewed, the 1992 PA concluded that there is a lack of evidence to indicate the dry well was used for laboratory waste and that no hazardous waste disposal was suspected in the dry well. Therefore, the PA recommended no further work under the Navy Installation Restoration program (NEESA, 1992). This was noted in the FFA and the site was not on any lists for further attention, however, it was included in the SSP by the Navy to confirm the PA recommendation.

#### 4.1.1 Topography

The land surface at Site 51 is relatively flat, with a very slight slope to the south. The land surface elevation across the site is approximately 102 feet above msl.

#### 4.1.2 Surface Water

Precipitation most likely infiltrates the soil and possibly runs off across the ground surface into a drainage swale approximately 75 feet south of Building 101. The top of the dry well is an open grate, and some surface runoff may enter the dry well via the grate.

#### **4.1.3 Geology/Soils**

The soil boring installed at the site indicated that shallow geologic conditions consist primarily of silt and clay overlying gravel (at 2 to 2.5 feet bgs) near the dry well. Soil boring logs are provided in Appendix B of the SSP Report.

#### **4.1.4 Field Investigation**

A geophysical survey was completed at the site to locate the steam lines feeding into the dry well. Subsurface soil samples were collected and submitted to a fixed-base laboratory for chemical analysis to evaluate the potential presence or absence of contaminants.

Observations made during the field investigation showed that there was only one dry well serving both Building 101 and Building 102.

Three pipes feed into the identified dry well. One of the three pipes was still being used to discharge steam condensate from Building 101. This line was set approximately 0.5 foot bgs and was indicated at the ground surface by sparse vegetation. The other two lines were approximately 1.5 to 2 feet bgs and appeared to be inactive. These two lines are suspected to be the lines from the abandoned flash tanks at Buildings 101 and 102. The dry well was constructed with a 2-foot by 2-foot by 2-foot pit covered as a steel grate at the ground surface. Gravel was encountered below the well at approximately 2 to 2.5 feet bgs and extended to at least 3 feet from the edges of the well sidewalls.

#### **4.1.5 Geophysical Investigation**

A ground penetrating radar (GPR) system was used to perform a geophysical survey at Sites 51 and 52. The GPR transmits a 450 MHz electromagnetic signal into the ground and receives and measures the speed and amplitude of the reflected signal from the subsurface. The survey was conducted along 8 north-south lines and 10 east-west lines. The effective exploration depth of the instrument is approximately 10 feet. Figure 4-2 shows the locations of buried pipes and other items identified by the GPR survey. A detailed report of the geophysical survey results is provided in Appendix D of the SSP Report.

#### **4.1.6 Subsurface Soil Sampling**

Two subsurface soil samples were collected from a soil boring (S51SB001) installed adjacent to the dry well. The sample location is shown on Figure 4-2. The soil samples were collected using a hand auger.

The sample depths were selected based on field conditions (i.e., the presence of the gravel layer) in combination with the depths proposed in the work plan (i.e., sample below the dry well). No elevated PID readings or wastes were encountered during the subsurface investigation. The soil consisted primarily of silt and clay overlying gravel that was encountered at 2 to 2.5 feet bgs. The samples were submitted to a fixed-base laboratory to be analyzed for Target Compound List (TCL) Volatile Organic Compounds (VOCs). The samples and analyses are summarized on Table 4-1. Soil sample log sheets are provided in Appendix C of the SSP Report.

One field duplicate S51SBDUP0101 was collected at the S51SB001 location and analyzed for TCL VOCs.

## **4.2 EVALUATION**

This section provides the data evaluation and human health COPC selection of subsurface soil at Site 51. This screening evaluation is based on two subsurface soil samples collected from a soil boring at 1.5 to 2 feet bgs and 2 to 3 feet bgs.

The results were evaluated as described below. Complete analytical results are presented in Appendix H of the SSP Report.

### **4.2.1 Data and Risk-Based Evaluation of Subsurface Soil Contamination**

Positive analytical results and summary statistics for subsurface soil samples are provided in Tables 4-2 and 4-3, respectively.

Based on the laboratory results, concentrations of VOCs were less than the direct contact screening criteria consisting of Environmental Protection Agency (EPA) Region 3 Risk Based Concentrations (RBCs) and EPA Soil Screening Levels (SSLs) for soil to air. The maximum detected concentration of benzene in the 2 to 3 foot sample exceeded the EPA Region 3 SSL for migration from soil to groundwater. Potential risks from direct exposure to this COPC in soil are expected to be minimal, because the reported concentration of this chemical was less than the direct contact screening criteria. However, an exceedance of the EPA Region 3 migration to groundwater SSL may indicate the potential for benzene to leach from soil and impact groundwater quality.

Toluene was also detected in sample S51SB0010201, but at a concentration less than the screening levels. No other VOCs were detected in the subsurface soil. The concentration of benzene, the COPC for Site 51, is shown on Figure 4-3.

#### **4.2.2 Human Health Risk Screening Evaluation**

Although Benzene was selected as a COPC for migration from soil to groundwater, no COPCs were identified for direct exposure at Site 51. Therefore, no further human health risk screening is necessary.

One subsurface sample, collected at a depth of 2 to 3 feet bgs, had a benzene concentration greater than the EPA Region 3 SSL for migration to groundwater. However, the depth to groundwater is over 30 feet, and the silty, clayey soil is expected to limit downward migration. Further, there is another very low permeability unit above the water table that is expected to further limit downward contaminant migration (E/A&H, 1994). Therefore, the depth to the water table, the presence of the lower permeability units, and the low benzene concentration lead to the conclusion that there is no significant risk to human health.

#### **4.2.3 Ecological Risk Screening Evaluation**

Any contamination which may have been discharged into the dry well was discharged below the ground surface via subsurface piping and would not have contaminated surface soil, sediment, or surface water. Additionally, groundwater was reported to be over 30 feet below ground surface and is overlain by dense clay/silt material of low permeability (E/A&H, 1994), thus inhibiting migration of potential contamination to groundwater. Based on these conditions, it was determined that no terrestrial ecological receptors would be affected if contamination has been discharged into the dry well. For that reason, surface soil, surface water, sediment, and groundwater were not sampled. The analytical results for the subsurface samples further suggest that there are no COPCs. Therefore, there is no risk to ecological receptors.

#### **4.2.4 Summary and Conclusions**

The dry well identified in the vicinity of Buildings 101 and 102 has been designated as Site 51. There were no COPCs identified for human or ecological receptors, so no risks to human health and the environment were identified for this site.

Benzene exceeded the SSL for migration from soil to groundwater. However, based on the results of the evaluation, it was determined that benzene did not pose a significant threat to groundwater quality.

### **4.3 DECISION**

Based on an evaluation of all available historical information and the results of the SSP, no action is required for Site 51.

TABLE 4-1

ENVIRONMENTAL SAMPLING AND ANALYSIS SUMMARY – SITE 51  
IHDIV-NSWC, INDIAN HEAD, MARYLAND

Sample Location	Sample Designation	Sample Depth (feet bgs) <sup>(1)</sup>	Sample Analysis
			TCL VOCs
<b>SUBSURFACE SOIL</b>			
S51SB001	S51SB0010101	1.5 to 2	•
S51SB001	S51SB0010201	2 to 3	•
Duplicate of S51SB001	SS51SBDUP0101	1.5 to 2	•

Notes:

1 Sample depths are as collected in the field.  
bgs below ground surface.

TABLE 4-2

SUMMARY OF POSITIVE DETECTIONS - SUBSURFACE SOIL - SITE 51  
IHDIV-NSWC, INDIAN HEAD, MARYLAND

Parameter	S51SB001		
	Sample S51SB0010101 <sup>(1)</sup>	Duplicate S51SBDUP0101 <sup>(1)</sup>	S51SB0010201 <sup>(2)</sup>
<b>Volatile Organics (ug/kg)</b>			
BENZENE	11 U	11 U	3 J
TOLUENE	11 U	11 U	2 J

Notes:

U - Not detected at detection limit value shown.

J - Estimated value.

bgs - below ground surface.

1 Collected at 1.5 to 2 feet bgs.

2 Collected at 2 to 3 feet bgs.

TABLE 4-3

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SUBSURFACE SOIL - SITE 51  
IHDIV-NSWC, INDIAN HEAD, MARYLAND

Scenario Timeframe: Current/Future Medium: Subsurface Soil Exposure Medium: Subsurface Soil Exposure Point: Site 51
--

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Location of Maximum Concentration	Detection Frequency	Range of Nondetects (2)	Average Concentration	Concentration Used for Screening (3)	Background Value (4)	U.S. EPA Region 3 RBC-Residential (5)	EPA SSLs Soil to Air (6)	U.S. EPA Region 3 SSLs Soil to Groundwater (7)	Retain as COPC?	Rationale for Contaminant Deletion or Selection (8)
<b>Volatile Organic Compounds</b>																
108-88-3	Toluene	2	J	2	J	S51SB001	1/2	11	3.75	2	NA	16000000 N	650000	8800	No	BSL
71-43-2	Benzene	3	J	3	J	S51SB001	1/2	11	4.25	3	NA	12000 C	800	1.8	Yes	ASL

## Notes:

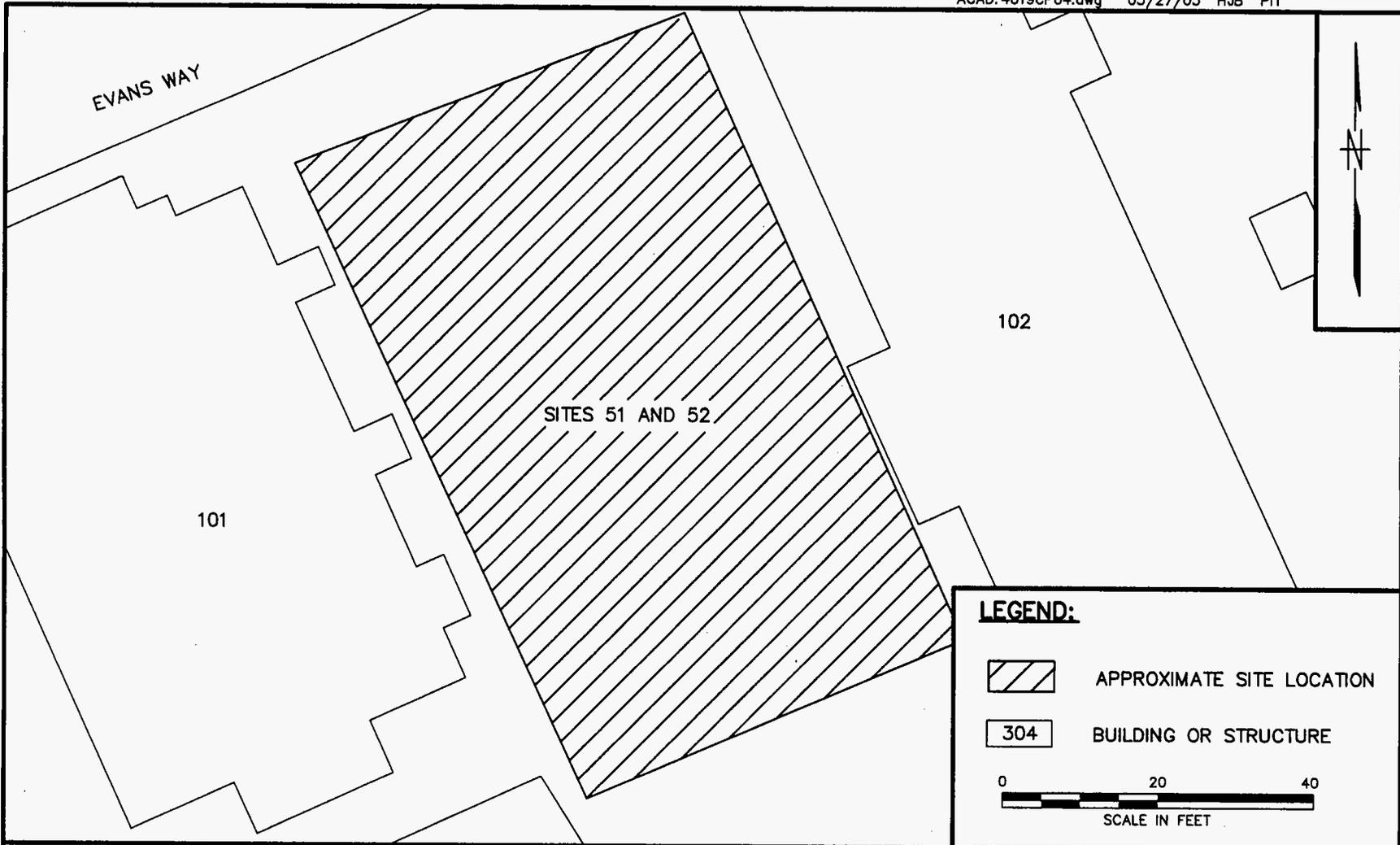
- 1 - Sample and duplicate are counted as two separate samples when determining the minimum and maximum detected concentrations but counted as one sample when determining frequency of detection.
- 2 - Values presented are sample-specific quantitation limits.
- 3 - The maximum detected concentration is used for screening purposes.
- 4 - Background Soil Investigation Report for Indian Head and Stump Neck Annex, TINUS, February 2002 (Draft).
- 5 - EPA Region 3 Risk-Based Concentration (RBC) Table, April 2, 2002. (RBCs for noncarcinogenic compounds are divided by 10).
- 6 - Soil Screening Levels (SSLs) for Inhalation U.S. EPA, May 1998. Soil Screening Guidance.
- 7 - EPA Region 3 Risk-Based Concentration Table, April 2, 2002. DAF (dilution attenuation factor) of 20.
- 8 - Rationale Codes

Selection: Above Screening Levels (ASL)  
Deletion Reason: Essential Nutrient (NUT)  
Below Screening Level (BSL)  
Below Background Value (BKG)

Shaded cells indicate that the specified criterion has been exceeded or that the chemical has been selected as a COPC.

## Definitions:

NA = Not applicable.  
COPC = Chemical of potential concern.  
J = Estimated value.  
C = Carcinogenic.  
N = Noncarcinogenic.



**LEGEND:**

 APPROXIMATE SITE LOCATION

 BUILDING OR STRUCTURE

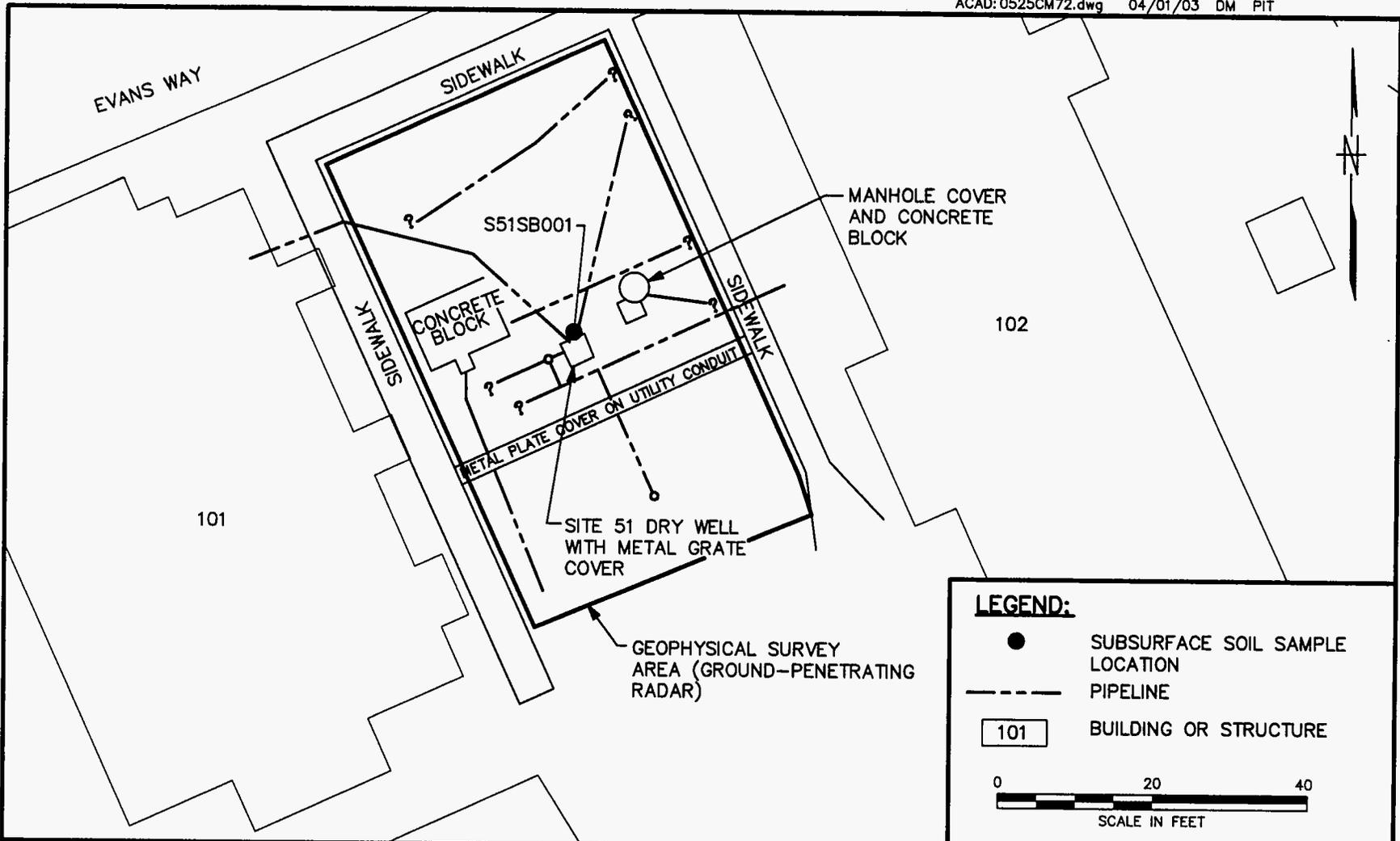
0 20 40  
SCALE IN FEET

DRAWN BY HJB	DATE 5/15/02
CHECKED BY <i>[Signature]</i>	DATE 5/29/03
COST/SCHED-AREA	
SCALE AS NOTED	

 Tetra Tech NUS, Inc.

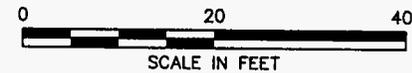
**SITE LAYOUT**  
SITES 51 AND 52 - DRY WELLS  
IHDIV-NSWC, INDIAN HEAD, MARYLAND

CONTRACT NO. 4019	OWNER NO. 0803
APPROVED BY <i>[Signature]</i>	DATE 5/29/03
APPROVED BY	DATE
DRAWING NO. FIGURE 4-1	REV. 0



**LEGEND:**

- SUBSURFACE SOIL SAMPLE LOCATION
- PIPELINE
- 101 BUILDING OR STRUCTURE

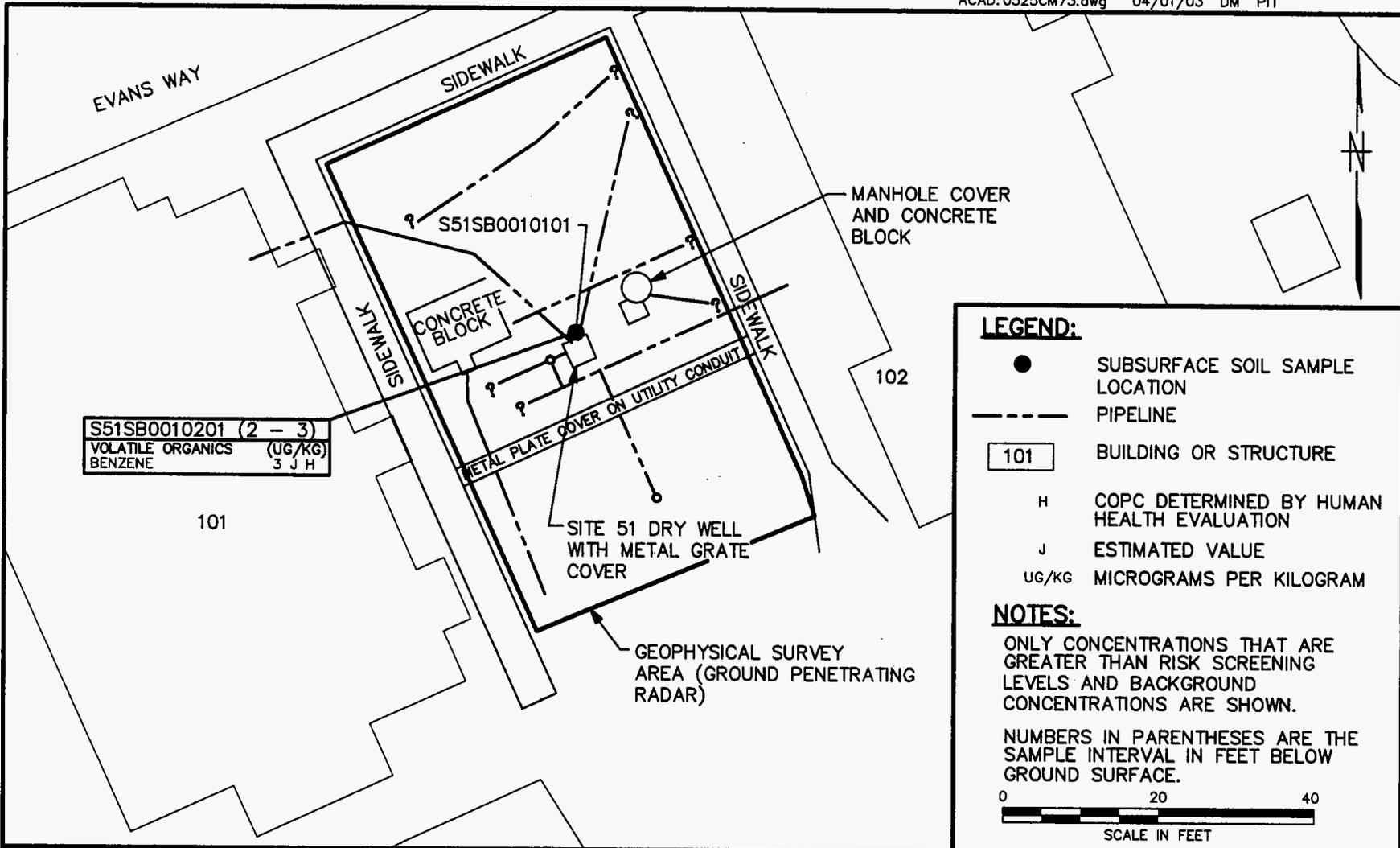


DRAWN BY	DATE
HJB	3/7/03
CHECKED BY	DATE
<i>[Signature]</i>	5/29/03
COST/SCHED-AREA	
SCALE AS NOTED	

**Tetra Tech NUS, Inc.**

**GEOPHYSICAL SURVEY RESULTS AND SAMPLE LOCATION  
SITES 51 AND 52 - DRY WELLS  
IHDIV-NSWC, INDIAN HEAD, MARYLAND**

CONTRACT NO. 4019	OWNER NO. 0803
APPROVED BY <i>[Signature]</i>	DATE 5/29/03
APPROVED BY	DATE
DRAWING NO. FIGURE 4-2	REV. 0



S51SB0010201 (2 - 3)	
VOLATILE ORGANICS	(UG/KG)
BENZENE	3 J H

DRAWN BY	DATE
HJB	3/7/03
CHECKED BY	DATE
<i>[Signature]</i>	5/29/03
POST/SCHED-AREA	
SCALE AS NOTED	

**Tetra Tech NUS, Inc.**

**SUBSURFACE SOIL COPC CONCENTRATIONS  
SITES 51 AND 52 - DRY WELLS  
IHDIV-NSWC, INDIAN HEAD, MARYLAND**

CONTRACT NO. 4019	OWNER NO. 0803
APPROVED BY <i>[Signature]</i>	DATE 5/29/03
APPROVED BY <i>[Signature]</i>	DATE
DRAWING NO. <b>FIGURE 4-3</b>	REV. 0

## 5.0 SITE 52 - BUILDING 102 DRY WELL

### 5.1 SITE DESCRIPTION

Building 102 is located in the restricted area of the Base, near Thames and Evans Roads next to Building 101, as shown on Figure 4-1. Based on the results of the 1992 PA (NEESA, 1992) it was believed that a drywell (Site 52) specifically servicing Building 102 was located along with Site 51 in the area between Buildings 101 and 102. Consequently, Site 52 was included for investigation as part of the 2002 SSP Report (TtNUS, 2003). This site was not listed as an SSA in the FFA but was investigated to determine the existence of the Building 102 drywell and confirm the results of previous investigations.

IHDIV-NSWC personnel who were interviewed about the laboratory area buildings spoke of a flash tank room and a dry well near Building 102. There was some speculation as to whether the flash tank was used to vaporize volatile components of a laboratory waste stream and whether the dry well had received the remaining liquid phase of the waste (NEESA, 1992).

As noted in the 1992 PA, Department of the Navy, Bureau of Yards and Docks drawings 1028836, 1028837, and 1028839 show a dry well at Building 102. The flash tank detail, dry well detail, and the utilities site plan show a 1-inch steam condensate line leading to the dry well. No wastewater lines on the drawings lead to the dry well. Furthermore, the crushed stone of the dry well was 2 feet below grade, making it difficult to locate and access. It was therefore determined unlikely that any surface disposal took place at the well location (NEESA, 1992). The flash tank/steam condensate system no longer exists (NEESA, 1992).

Based on the drawings, the 1992 PA concluded that there is a lack of evidence to indicate the dry well was used for laboratory waste and that no hazardous waste disposal was suspected in the dry well. Therefore, the PA recommended no further work under the Navy Installation Restoration program (NEESA, 1992). This was noted in the FFA and the site was not on any lists for further attention, however it was included in the SSP by the Navy to confirm the PA recommendation.

#### 5.1.1 Site Characteristics

As noted above, only one dry well was identified between Buildings 101 and 102 and the area around this well was designated as Site 51. The site characteristics of this area are described in Section 4.1.

### **5.1.2 Field Investigation**

Observations made during SSP field investigations showed that there was only one dry well serving both Building 101 and Building 102. No other field activities such as soil and groundwater sampling were conducted specifically for Site 52; however, the details of the field investigation conducted for Site 51 are presented in Section 4.1.3.

## **5.2 EVALUATION**

Only one dry well exists in the area of Buildings 101 and 102, and that dry well was designated as Site 51. The results of samples collected in the area of the Building 101 dry well are discussed in Section 4.2. The results of the human health and ecological screening evaluations are discussed in Sections 4.2.2 and 4.2.3, respectively.

### **5.2.1 Summary and Conclusions**

Field observations from the SSP field investigation indicate that there is only one dry well serving both Buildings 101 and 102 and this dry well was designated as Site 51.

## **5.3 DECISION**

Since there is no dry well specifically associated with Building 102, Site 52 does not exist. Therefore, no action is required for Site 52.

## REFERENCES

E/A&H (ENSAFE/Allen & Hoshall), 1994. Final Site Inspection Report, Phase II, Indian Head Division, Naval Surface Warfare Center. Prepared for Department of the Navy, Chesapeake Division, Naval Facilities Engineering Command, Washington, DC, March 4, 1994.

EPA (United States Environmental Protection Agency), 1996. Soil Screening Level Guidance: Technical Background Document. Office of Emergency and Remedial Response, Washington, D.C., May.

EPA (United States Environmental Protection Agency), 2000. Drinking Water Standards and Health Advisories. EPA 822-B-00-001, Office of Water, Summer.

EPA (United States Environmental Protection Agency), 2002. Region III Risk-Based Concentrations. Hazardous Waste Management Division, Philadelphia, Pennsylvania, April.

EPA and DON (United States Environmental Protection Agency and U.S. Department of the Navy), 2000. Federal Facility Agreement. U.S. Department of the Navy, Naval Surface Warfare Center, Indian Head Division, Indian Head Maryland. Docket Number: III-FCA-CERC-018. December.

Hart (Fred C. Hart Associates, Inc.), 1983. Initial Assessment Study of Naval Ordnance Station, Indian Head, Maryland.

NEESA (Naval Energy and Environmental Support Activity), 1992. Preliminary Assessment Report for Naval Ordnance Station Indian Head, Maryland. Port Hueneme, California, January.

TtNUS (Tetra Tech NUS, Inc.), 2002. Draft - Background Soil Investigation Report for Indian Head and Stump Neck Annex, Indian Head Naval Surface Warfare Center, Indian Head, Maryland, February.

TtNUS (Tetra Tech NUS, Inc.), 2003. Site Screening Process Report for Site 32 – Suspected Tool Burial, Site 33 – Scrap Metal Pit, Site 34 – Tool Burial, Site 36 – Closed Landfill, Site 37 – Causeway, Site 51 – Building 101 Drywell, Site 52 – Building 102 Drywell, Indian Head Division, Naval Surface Warfare Center, Indian Head Maryland. Prepared for the United States Navy by TtNUS. March.