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Final Remedial Action Design Submittal
for
Site 41 – Scrap Yard

Indian Head Division
Naval Surface Warfare Center
Indian Head, Maryland

Engineering Field Activity Chesapeake
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order 0805

August 2002

TETRA TECH NUS, INC.

REVISION 0
AUGUST 2002

FINAL REMEDIAL ACTION DESIGN SUBMITTAL FOR SITE 41 – SCRAP YARD

INDIAN HEAD DIVISION
NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Engineering Field Activity Chesapeake
1314 Harwood Street, S.E.
Washington Navy Yard, D.C. 20374-5018

Submitted by:
Tetra Tech NUS, Inc.
600 Clark Avenue, Suite 3
King of Prussia, Pennsylvania 19406-1433

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0805

AUGUST 2002

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Basis of Design
for
Site 41 – Scrap Yard

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ACRONYMS AND ABBREVIATIONS

µg/cm^2	micrograms/square centimeters
µg/kg	microgram per kilogram
µg/L	microgram per liter
ARARs	applicable or relevant and appropriate requirements
B&R Environmental	Brown & Root Environmental
bgs	below ground surface
CADs	cartridge activated devices
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-Term Environmental Action Navy
COCs	chemicals of concern
COMAR	Code of Maryland Regulations
COPCs	chemicals of potential concern
CTO	contract task order
cy	cubic yards
E/A&H	ENSAFE/Allen & Hoshall
EOD	explosive ordnance disposal
ESD	explanation of significant differences
FEMA	Federal Emergency Management Agency
FS	feasibility study
ft	feet
GIS	Geographical Information System
Hart	Fred C. Hart Associates, Inc.
IAS	initial assessment study
IHDIV-NSWC	Indian Head Division, Naval Surface Warfare Center
IHIRT	Indian Head Installation Restoration Team
IR	Installation Restoration
LUCAP	Land Use Controls Assurance Plan
LUCIP	Land Use Controls Implementation Plan
MCL	maximum contaminant level
MDE	Maryland Department of the Enviornment
mg/kg	milligram per kilogram
msl	mean sea level
NEESA	Naval Energy and Environment Support Activity
NPL	National Priorities List

PA	preliminary assessment
PAHs	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyl
ppb	parts per billion
ppm	parts per million
PRGs	preliminary remediation goals
RAO	remedial action objectives
RCRA	Resource Conservation and Recovery Act
RI	remedial investigation
ROD	record of decision
ROICC	Resident Officer in Charge of Construction
sf	square feet
SI	site inspection
Site 41	Site 41 – Scrap Yard
SSL	soil screening level
TBC	to be considered
TCE	trichloroethene
TCLP	toxicity characteristic leaching procedure
TSCA	Toxic Substance Control Act
TSD	treatment, storage, and disposal
TtNUS	Tetra Tech NUS, Inc.
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
UXO	unexploded ordnance
VOC	volatile organic compound
VSAP	verification sampling and analysis plan

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

The purpose of this report is to provide the basis for a remedial action design at Site 41 – Scrap Yard (Site 41) at the Indian Head Division, Naval Surface Warfare Center (IHDIV-NSWC), in Indian Head, Maryland. The remedial action design consists of the removal and off-site disposal of contaminated soils from on and around the concrete pad of Site 41, cleaning the Site 41 concrete pad, implementing land use controls to prohibit residential development and use of contaminated groundwater, and periodically monitoring the shallow groundwater. This Basis of Design Report was prepared by Tetra Tech NUS, Inc. (TtNUS) under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Program, Contract No. N62467-94-D-0888, Contract Task Order (CTO) 0805.

The IHDIV-NSWC is located in northwestern Charles County, Maryland, approximately 25 miles southwest of Washington, DC, as shown on Figure 1-1. The IHDIV-NSWC is a military facility consisting of the Main Area on Cornwallis Neck and the Annex on Stump Neck. The Main Area is bounded by the Potomac River to the northwest, west, and south, Mattawoman Creek to the south and east, and the town of Indian Head to the northeast (Figure 1-2). Stump Neck Annex is located across Mattawoman Creek. The Stump Neck Annex is not contiguous with the Main Area and is operated by a tenant. The primary mission of IHDIV-NSWC is to provide 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. The United States Environmental Protection Agency (USEPA) added IHDIV-NSWC to the National Priorities List (NPL) in September 1995, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. Site 41 is one of the 48 installation restoration (IR) sites at the Main Area currently included in the IHDIV-NSWC IR Program. This remedial action design is limited to Site 41 in the Main Area of IHDIV-NSWC.

The remedial action is the first and final remedial action for Site 41. The selected remedy is removing and disposing contaminated soil off site, cleaning the concrete pad, implementing land use controls, and monitoring. The Navy's goal is to begin remedial actions at IHDIV-NSWC as quickly as possible to protect human health and the environment and to comply with applicable or relevant and appropriate requirements (ARARs) and to be considered (TBC) criteria. The nature and extent of contamination and the associated risks at Site 41 were derived from the investigations conducted by Fred C. Hart Associates, Inc. (Hart), Naval Energy and Environmental Support Activity (NEESA), ENSAFE/Allen & Hoshall (E/A&H), and TtNUS. The reports generated from the previous studies include the following:

- Hart, May 1983. Initial Assessment Study of Naval Ordnance Station, Indian Head, Maryland (13-021). Prepared for Naval Energy and Environmental Support Activity (NEESA).

- NEESA, 1992. Supplemental Preliminary Assessment Report, Naval Ordinance Station, Indian Head, Maryland.

- E/A&H, March 1994. Final Site Inspection Report, Phase II Indian Head Division, Naval Surface Warfare Center.

- TtNUS, July 1999. Remedial Investigation Report, Site 12 - Town Gut Landfill, Site 39/41 - Organics Plant/Scrap Yard, Site 42 - Olsen Road Landfill, Site 44 - Soak Out Area, Indian Head Division, Naval Surface Warfare Center, Indian Head, Maryland. Prepared for Engineering Field Activity Chesapeake, Naval Facilities Engineering Command, Washington, D.C.

- TtNUS, January 2001. Feasibility Study Report, Site 12 - Town Gut Landfill, Site 41 - Scrap Yard, Indian Head Division, Naval Surface Warfare Center, Indian Head, Maryland. Prepared for Engineering Field Activity Chesapeake, Naval Facilities Engineering Command, Washington, D.C.

- USEPA, et al., May 2001. Draft Final Record of Decision, Site 41 - Scrap Yard, Indian Head Division, Naval Surface Warfare Center, Indian Head, Maryland.

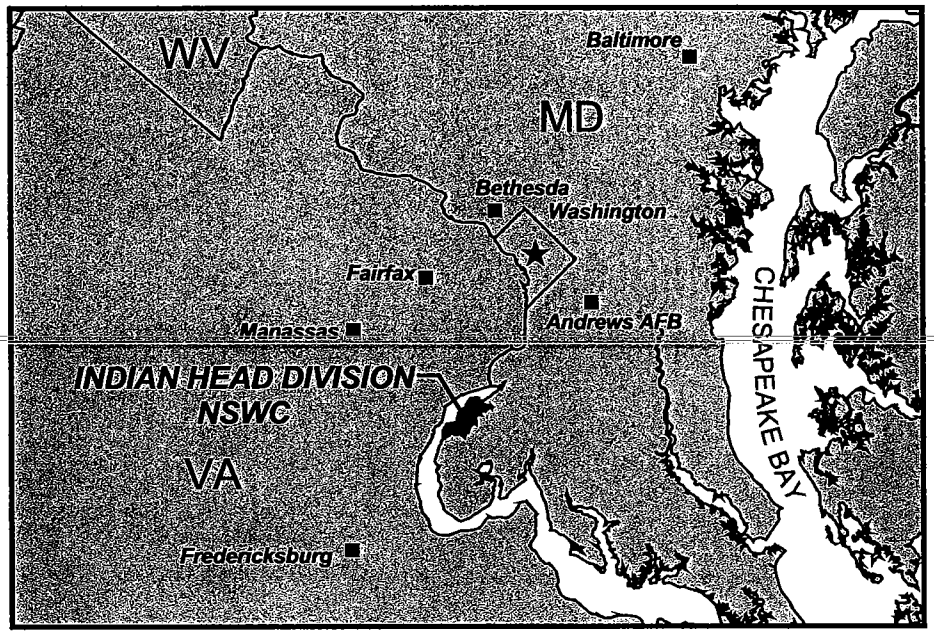
1.2 BASIS OF DESIGN AND REPORT ORGANIZATION

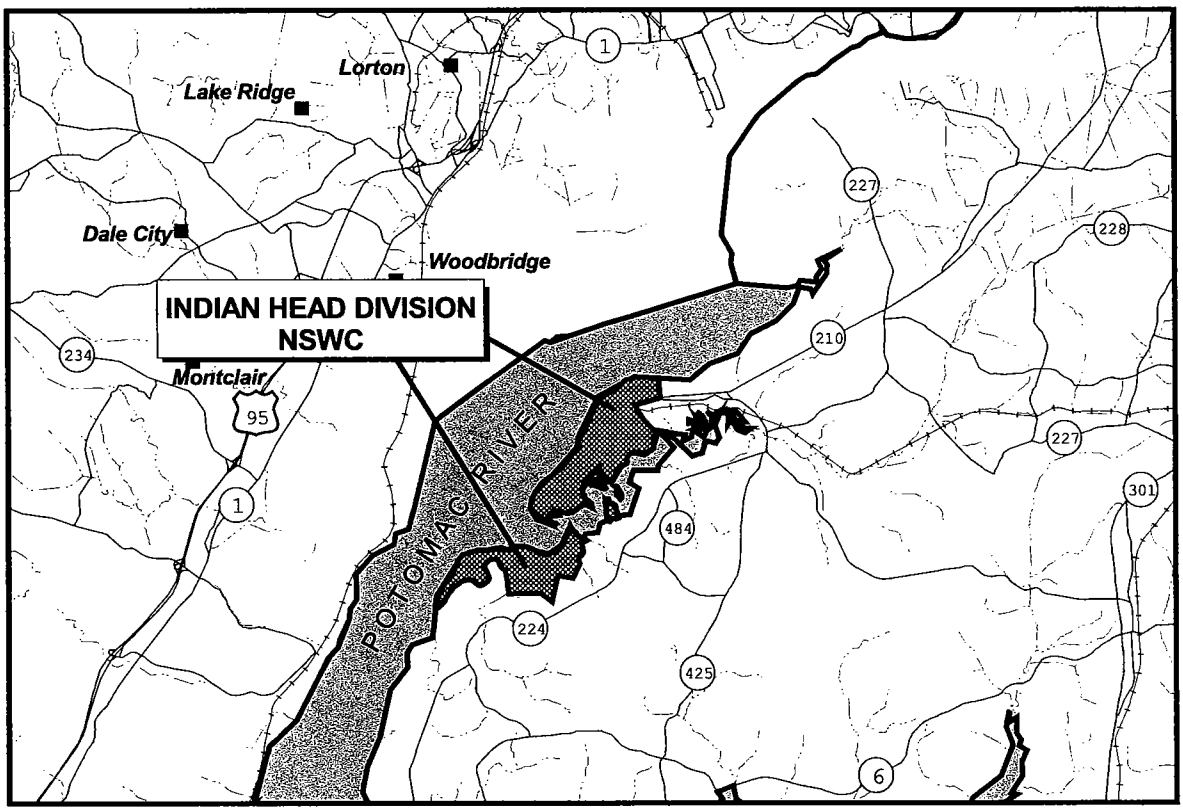
The following highlights the information contained in each section of this report.

- Section 1.0 provides an introduction to and summary of the Basis of Design.

- Section 2.0 summarizes site characteristics including site description, geology, soils, hydrogeology, surface water hydrology, historical investigations, nature and extent of contamination, and preliminary remediation goals (PRGs).

- Section 3.0 presents the PRGs, the selected remedy from the draft final Record of Decision (ROD) (USEPA et al., 2001) and discusses design requirements for the remedial action.





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K. PEILA	8/8/02		4020	0805
CHECKED BY	DATE	VICINITY MAP SITE 41 - SCRAP YARD IHDIV - NSWC, INDIAN HEAD, MARYLAND	APPROVED BY	DATE
GJL	8/8/02		GJL	8/8/02
COST/SCHEDULE-AREA			APPROVED BY	DATE
			—	—
SCALE			DRAWING NO.	REV
AS NOTED			FIGURE 1-1	0

P:\GIS\NSWC_INDIAN_HEAD\SITE_LOCATION SITE 41.APR SITE LOCATION MAP 8/8/02 KMP

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SITE KEY

1 Thorium Spill
2 Waste Crank Case Oil Applied to Torrence Road
3 Nitroglycerin Explosion, Nitration Building Area
4 Lloyd Road Oil Spill Sites
5 X-Ray Building 731
6 Building 1349, Hypo Spill
7 HMX Spill, Slurry Mix Building 682
8 Mercury Contamination From Building 766
9 Patterson Avenue Oil Spill
10 Single-base Propellant Grains Spill
11 Caffee Road Landfill
12 Town Gut Landfill
13 Paint Solvents Disposal Dumping Ground
14 Waste Acid Disposal Pit
15 Mercury Deposits in Manhole, Fluorine Lab
16 Laboratory Chemical Disposal
17 Disposed Metal Parts Along Shoreline
18 Hog Island
19 Catch Basin at Chip Collection House (1051)
20 Single-base Powder Facility
21 Bronson Road Landfill
22 NG Slums Burning Site
23 Hydraulic Oil Spill Discharges from Extrusion Plant
24 Abandoned Drain Lines
25 Hypo Discharge X-Ray Building No. 2
26 Thermal Destructor 2
27 Thermal Destructor 1
28 Original Burning Ground
29 The Valley
39 Organics Plant
40 Silver and Palladium Catalyst in Sediments
41 Scrap Yard
42 Olson Road Landfill
43 Toluene Disposal Site
44 Soak Out Area
45 Abandoned Drums
46 Cadmium Sandblast Grit
47 Mercuric Nitrate Disposal Area
48 Nitroglycerine Plant Disposal Area
49 Chemical Disposal Pit
50 Building 103, Crawl Space
51/54 Building 101, Dry Well/Building 101
52/55 Building 102, Dry Well/Building 102
53 Mercury Contamination of the Sewage System
56 IW87 - Lead Contamination
57 TCE Building 292 Area

DRAWN BY K. PEILA	DATE 7/26/02	Tetra Tech NUS, Inc.	CONTRACT NUMBER 4020 / OWNER NUMBER 0805
CHECKED BY GJL	DATE 7/26/02	SITE LOCATION MAP SITE 41 - SCRAP YARD IHDIV - NSWC, INDIAN HEAD, MARYLAND	APPROVED BY GJL / DATE 7/25/02
COST/SCHEDULE-AREA			APPROVED BY — / DATE —
SCALE AS NOTED			DRAWING NO. FIGURE 1 - 2 / REV 0

2.0 EXISTING SITE CHARACTERISTICS

2.1 SITE DESCRIPTION

Site 41 – Scrap Yard is an active fenced scrap yard located in the eastern portion of IHDIV-NSWC, adjacent to Mattawoman Creek (Figure 2-1). The scrap yard is approximately 750 feet long and varies from 75 to 100 feet wide. The area south of the scrap yard is flat and surface runoff tends to pond and infiltrate, although in some areas runoff is toward Mattawoman Creek. The area north of the scrap yard is wooded and steeply sloped. Runoff from this area flows toward the scrap yard and Mattawoman Creek. A concrete pad is present within most of the fenced area. The pad is covered with soil in some places. Around a portion of the scrap yard, the fence is above a concrete wall. The scrap yard is active and is used to store metal materials and scraps, including storage drums and furniture. The materials are eventually sold to be recycled or reused.

The site has been a scrap yard since at least the 1960s. During an inspection in 1981, 17 transformers were identified as either containing or contaminated with polychlorinated biphenyls (PCBs). These transformers were believed to have leaked and contaminated the soil in the western portion of the site. In addition, lead-acid batteries were stored in the scrap yard. The batteries may have released lead to the surface soil. No transformers or batteries are currently stored in the western portion of the site, although large stains were observed where the transformers were stored.

An abandoned railroad lies along the southern perimeter of the scrap yard. Drawings indicate that two sections branch off the main rail line south of the scrap yard. Portions of the rail lines are hidden, buried, or removed.

2.2 GEOLOGY

Subsurface soil conditions at Site 41 were investigated during the site inspection (SI) field effort, which included the installation of eight soil borings (E/A&H, 1994). The boring logs are presented in Appendix A.1. Three of the borings were converted into monitoring wells. The SI report data were used to generate cross sections. The boring locations and cross-section locations are shown on Figure 2-2. Cross-sections A-A' and B-B' are shown on Figures 2-3 and 2-4, respectively. In summary, the subsurface materials generally consist of clayey sand interlayered with clayey gravel and sand lenses underlain by green-gray clay, except in the northern portion of the site where the clayey sand is underlain by a brown sandy clay. Two- to 5-foot thick layers of slag and coal were encountered in the southernmost and northernmost portions of the study area, outside the fenced area referred to as the scrap yard.

2.3 SOILS

According to the United States Department of Agriculture (USDA) Soil Survey (USDA, 1974), the predominant soil types are Cut and Fill Land, Keyport Silt Loam, and Aura Gravelly Sandy Loam.

Cut and Fill Land consists, in part, of land areas where the soil has been cut away by grading and similar operations. It is variable in nature. Known fill soils at Site 41 are described in Section 2.2. In addition, ballast may be present along the abandoned railroad tracks.

Keyport Silt Loam is found on mild slopes and is moderately eroded. The hazard of further erosion is moderate. This soil is moderately well drained, and the surface layer consists of friable silt loam underlain by a thin layer of heavy silt loam that is friable to firm. Below this layer is a firm layer of silty clay. The soil is slowly permeable with a high moisture capacity.

Aura Gravelly Sandy Loam is found on 10 to 15 percent slopes and is moderately eroded. This soil at the surface consists of gravelly sandy loam or gravelly loam to sandy clay loam underlain by very firm to massive gravelly loam or gravelly sandy clay loam. Worked areas have a spotted or marbled to bright colored appearance. The subsoil is moderately slowly permeable to slowly permeable.

The USDA soils map is shown on Figure 2-5. Additional details for the on-site soils are provided in the Erosion and Sediment Control Plan Report.

2.4 HYDROGEOLOGY

The Patapsco and Patuxent Formations of the Potomac Group are the main groundwater aquifers used for supply purposes in the Indian Head peninsula area. The aquifers are separated by the Arundel Formation confining unit. Figure 2-6 presents a generalized cross-sectional view of the Indian Head peninsula regional area. Additional description of the regional and Indian Head peninsula hydrogeology is provided in Section 2.1.6 of the FS (TtNUS, 2001).

Hydrogeologic conditions at Site 41 have been interpreted from data obtained during the RI field activities. Physical features, such as the ground surface topography and the proximity to Mattawoman Creek, were considered in making interpretations regarding the groundwater flow pattern. Synoptic groundwater-level measurements were obtained at the site on January 30, 1998. The depth to the groundwater measured in the wells ranges from approximately 2 to 4 feet below ground surface (bgs). Groundwater elevations vary from 4.55 to 8.58 feet above mean sea level (msl). The resulting depths to groundwater and groundwater elevations are presented on Table 2-1. The groundwater elevations were

used to generate a potentiometric surface, shown on Figure 2-7. The groundwater is flowing toward and discharging into Mattawoman Creek. However, this creek is tidal and, during high tide, losing stream conditions may occur. These conditions may cause the water table to be slightly elevated near the creek (bank storage) and may change the groundwater flow pattern. The groundwater is primarily recharged by downward migration of precipitation through the unsaturated zone to the water table. The green-gray clay underlying the site at approximately 15 feet bgs probably impedes the downward migration of the groundwater to water supply aquifers (i. e., the Lower and Middle sands of the Patapsco Formation and the Patuxent Formation).

2.5 SURFACE WATER HYDROLOGY

The two principal waterways in the vicinity of Indian Head peninsula are the Potomac River and Mattawoman Creek. The Potomac River is a tidally influenced estuary and is slightly brackish. Mattawoman Creek is a tributary to the Potomac River and is also tidally influenced. Tidal marshes exist along Mattawoman Creek.

Surface water runoff from the site flows generally south to Mattawoman Creek. A portion of Site 41 lies within the 100-year flood boundary of Mattawoman Creek [Federal Emergency Management Agency (FEMA), 1985] with a base flood elevation of 8 ft (NGVD29). The base flood elevation is presented on Figure 2-8.

2.6 HISTORICAL INVESTIGATIONS

NEESA conducted an Initial Assessment Study (IAS) (Hart, 1983) to evaluate various sites at IHDIV-NSWC to determine if a potential threat to human health or the environment existed. Site 41 was not identified as a site that exhibited a potential threat. A supplemental preliminary assessment (PA) report (NEESA, 1992) was prepared to evaluate an additional 17 sites, including Site 41. The PA recommended that further investigation be conducted at Site 41. Site 41 was further investigated as a follow-up to the supplemental PA during a SI (Phase II) which was conducted at 12 sites. Site 41 was recommended for further study based on the results of the SI. In 1997, a Remedial Investigation (RI), which included human health and environment risk assessments, was performed at Site 41 (TtNUS, 1999).

Soil sample logs with surface soil descriptions from the RI are presented in Appendix A of this report. A full set of historical analytical data is included in Appendix H of the RI Report for Sites12, 39/41, 42, and 44 (TtNUS, 1999a).

In September 1999, TtNUS developed a Pre-Feasibility Study Field Investigation Work Plan that included Site 12 – Town Gut Landfill and Site 41 – Scrap Yard (TtNUS, 1999b). The overall objective of the work

plan was to assemble sufficient data regarding the horizontal extent of the areas requiring remediation to support the development of the feasibility study (FS). The field investigation took place in August and September 1999. At Site 41, 40 surface soil samples were collected from a depth of 0 to 6 inches and 30 subsurface soil samples were collected from a depth of 12 to 18 inches. Pre-FS investigation sampling locations are shown on Figure 2-9. The log sheets for monitoring well MW-04 and the soil sample logs are included in Appendix A. All soil samples were submitted to the laboratory for arsenic, cadmium, lead, and PCB analysis. The results were used to refine the extent of contamination. Appendix B of the FS contains the chemical analytical data resulting from the pre-FS field investigation.

2.7 NATURE AND EXTENT OF CONTAMINATION

Site 41 is estimated to contain approximately 1,500 cubic yards of contaminated soil. Soil, sediment and groundwater samples were collected and analyzed to determine the extent of contamination at Site 41. The chemicals of concern (COCs) for soils are polynuclear aromatic hydrocarbons (PAHs), PCBs, and inorganics. Shallow groundwater COCs are trichloroethene (TCE) and inorganics. There were no COCs for surface water or sediment based on protection of human health. Some of the ecologically-based chemicals of potential concern (COPCs) identified in Mattawoman Creek surface water and sediment may be site related. A description of surface and subsurface soil, groundwater, and surface water and sediment waste contamination, summarized from the Draft Final ROD (USEPA et al, 2001) is provided below.

2.7.1 Soil

The COCs for soil based on protection of human health are the PAHs benzo(a)pyrene and dibenzo(a,h)anthracene, Aroclor 1260 (a PCB), arsenic, and lead. The COCs for soil based on protection of ecological receptors are Aroclor 1260, arsenic, cadmium, and lead.

Surface soil samples (up to 2 feet deep) were collected in 1997 and 1999. Benzo(a)pyrene and dibenzo(a,h)anthracene were detected in at least 70 percent of the surface soil samples collected in 1997 at concentrations ranging from 49 micrograms/kilograms (µg/kg) to 2,000 µg/kg. Samples collected in 1999 were not analyzed for PAHs. Aroclor 1260 was detected in more than 80 percent of the surface soil samples collected in 1997 and 1999 at concentrations ranging from 25 µg/kg to 180,000 µg/kg. Arsenic and lead were detected in all the surface soil samples collected in 1997 and 1999. Arsenic concentrations ranged from 2 milligrams per kilograms (mg/kg) to 1,290 mg/kg, and lead concentrations ranged from 4.4 mg/kg to 6,400 mg/kg. Cadmium was detected in over 80 percent of the surface soil samples collected in 1997 and 1999 at concentrations ranging from 0.06 mg/kg to 231 mg/kg.

Most of the surface soil within the fenced boundary of the scrap yard is contaminated. Contamination is more sporadic outside the fenced area, and there is no apparent pattern to the detections.

Subsurface soil samples (more than 2 feet deep) were collected in 1992. Benzo(a)pyrene was only detected in two subsurface soil samples, at concentrations of 100 µg/kg and 190 µg/kg. Dibenzo(a,h)anthracene and Aroclor 1260 were not detected in subsurface soil. Arsenic was detected in less than 50 percent of the subsurface soil samples, at concentrations ranging from 1.3 mg/kg to 328 mg/kg. Cadmium was only detected in two subsurface soil samples, at concentrations of 1.2 mg/kg and 2 mg/kg. Lead was detected in all subsurface soil samples, at concentrations ranging from 1.7 to 47 mg/kg. In general, the concentrations of the COCs were much lower in the subsurface soil than in the surface soil. The only area of concern with respect to subsurface soil is the maximum concentration of arsenic (328 mg/kg) at soil boring 41SB02 at a depth of 8 feet (see Figure 2-2 for location). This is the only area of subsurface soil that results in unacceptable risks to human health under the anticipated future non-residential land use for the site. Subsurface soil samples were not collected in 1997 or 1999.

Maximum surface and subsurface soil concentrations were also compared to USEPA Soil Screening Levels (SSLs) for migration from soil to groundwater. The maximum detected concentrations of benzo(a)anthracene, Aroclor 1260, antimony, arsenic, cadmium, total chromium, and lead exceeded the respective SSL. Only arsenic was detected in shallow groundwater beneath the site.

2.7.2 Groundwater

The COCs for shallow groundwater are arsenic, based on a human health risk assessment, and TCE and beryllium, based on exceedances of Federal and state Maximum Contaminant Levels (MCLs) for drinking water. The MCL for arsenic is 50 micrograms per liter (µg/L). [The only exceedance of the new MCL for arsenic for 2006 compliance (10 µg/L) was at location S41MW02 (37.6 µg/L).] Detected concentrations of TCE were 8 µg/L at location S41MW01 and 32 µg/L at location S41MW03. The MCL for TCE is 5 µg/L. TCE was not detected in any soil samples collected at the site. The concentrations of beryllium barely exceeded the MCL (4 µg/L) at location S41MW02 (4.3 µg/L) and location S41MW03 (4.8 µg/L). There is no apparent pattern or plume for the detections of the COCs in shallow groundwater. The highest concentrations of TCE and beryllium were detected in the most upgradient well (S41MW03), although this well is within the fenced area. Monitoring well locations are presented on Drawing C-1. This drawing also shows the location of S41PW07, which is a drinking water well that is screened in a deeper aquifer. No organic compounds were detected, and there are no COCs associated with this drinking water well.

2.7.3 Surface Water and Sediment

No unacceptable risks or COCs were identified for protection of human health from exposure to surface water or sediment.

The following were identified as COPCs for surface water or the aquatic foodchain during the ecological risk assessment: Aroclor 1260, cadmium, chromium, copper, lead, mercury, silver, and zinc. Aroclor 1260, cadmium, chromium, copper, lead, mercury, and silver were not detected in Mattawoman Creek near Site 41 but were only detected in a sample of ponded water collected in April 1993 from within the scrap yard (41SW01). All detections of zinc in Mattawoman Creek were below the state surface water quality criteria.

The following were identified as COPCs for sediment during the ecological risk assessment: 1,1-dimethylhydrazine, nitrocellulose, N-nitrosodiphenylamine, mercury, nickel, and silver. The only organic COPC detected at Site 41 was nitrocellulose. All the metals were also detected in Site 41 soil.

2.7.4 Summary

Soil COCs are benzo(a)pyrene, dibenzo(a,h)anthracene, Aroclor 1260, arsenic, cadmium, and lead. Shallow groundwater COCs are TCE, arsenic, and beryllium. TCE, benzo(a)pyrene, dibenzo(a,h)anthracene, Aroclor 1260, and arsenic are classified as carcinogens. Volatile organic compounds (VOCs), such as TCE, are typically considered to be soluble and have a low capacity for retention by soil organic carbon. Therefore, VOCs are more likely to be detected in shallow groundwater than in soil. PAHs and PCBs are less soluble and are more likely to be retained in the soil. It appears that some migration of metals from soil to shallow groundwater has occurred at the site.

Most of the surface soil within the fenced boundary of the scrap yard is contaminated. Contamination is more sporadic outside the fenced area, and there is no apparent pattern to the detections. The concentrations and locations of the COCs detected in surface soil are shown on Figure 2-6 (0 to 6 inches deep) and Figure 2-7 (12 to 18 inches deep) of the Draft Final ROD. The locations and depths of surface soil samples outside the perimeter of the scrap yard with COCs exceeding the PRGs are shown on Figure 2-10. The PRGs are provided in Table 2-2.

The only area of concern with respect to subsurface soil is the maximum concentration of arsenic (328 mg/kg) at soil boring 41SB02 at a depth of 8 feet (see Figure 2-10 for location). This is the only area of subsurface soil that results in unacceptable risks to human health under the anticipated future non-residential land use for the site.

There were no COCs for surface water or sediment based on protection of human health. Although some of the ecologically based COPCs identified in Mattawoman Creek surface water and sediment may be site related, a study of the entire creek near IHDIV-NSWC is being conducted.

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TABLE 2-1

SUMMARY OF GROUNDWATER LEVEL MEASUREMENTS
SITE 41 - SCRAP YARD
IHDIV-NSWC, INDIAN HEAD, MARYLAND

Monitoring Well	Elevation of Measuring Point (ft above msl)	Depth to Groundwater (ft)	Groundwater Elevation (ft above msl)
41MW01	14.97	6.39	8.58
41MW02	9.33	4.78	4.55
41MW03	11.18	5.87	5.31

Notes:
1. Measurements obtained on January 30, 1998.
2. See Figure 2-2 for monitoring well locations.

msl - mean sea level (National Geodetic Vertical Datum, 1929).

TABLE 2-2

PRELIMINARY REMEDIATION GOALS
SITE 41 – SCRAP YARD
IHDIV-NSWC, INDIAN HEAD, MARYLAND

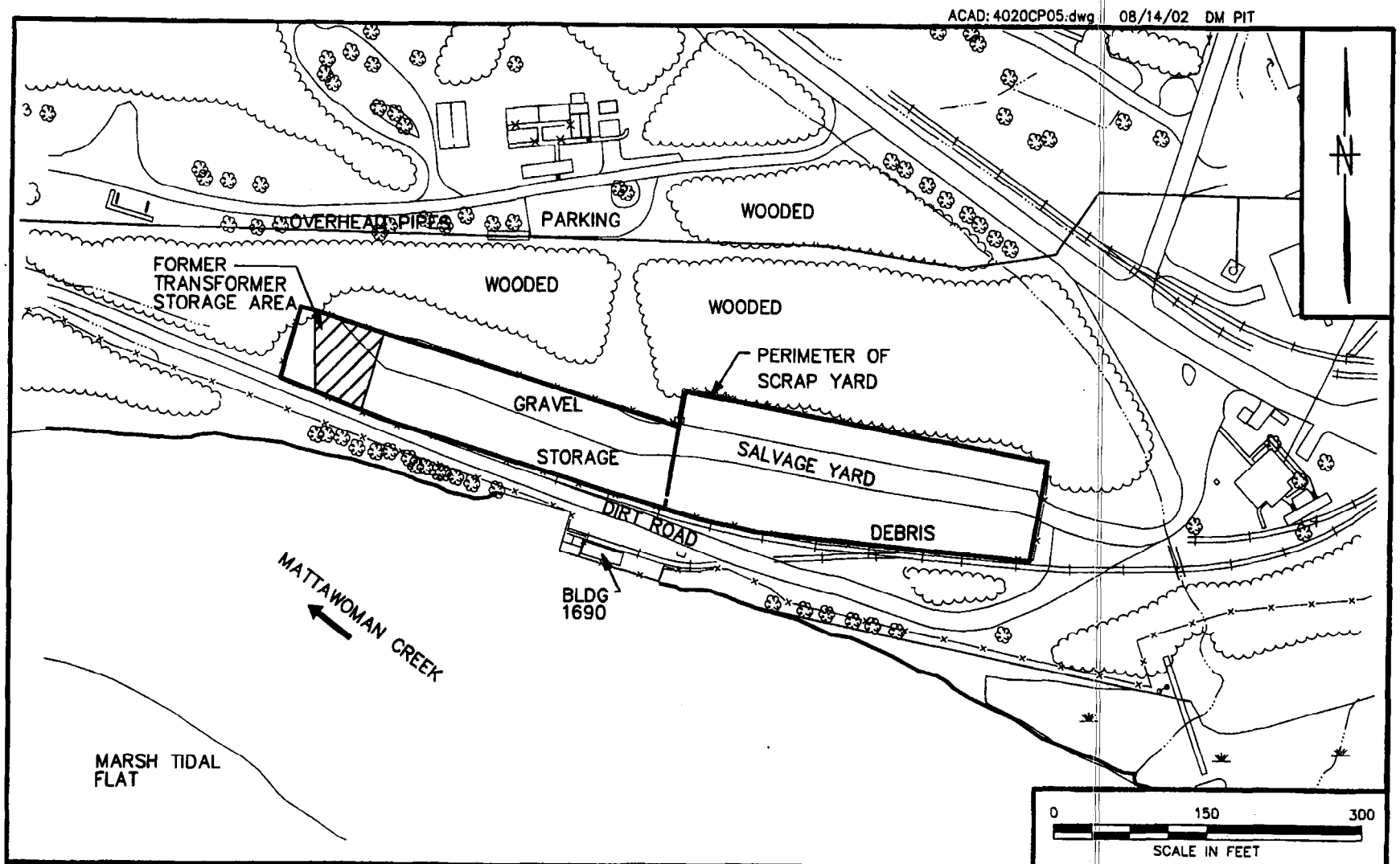
Soil (0 to 6 inches)

Chemical of Concern	Clean-up level	Basis for Clean-up Level	Risk at Clean-up Level
Benzo(a)pyrene	330 µg/kg (ppb)	HHRA	Cancer risk = 1E-06
Dibenzo(a,h)anthracene	330 µg/kg (ppb)	HHRA	Cancer risk = 1E-06
Aroclor 1260	1,000 µg/kg (ppb)	ERA	NA
Arsenic	15 mg/kg (ppm)	ERA	NA
Cadmium	5 mg/kg (ppm)	ERA	NA
Lead	480 mg/kg (ppm)	HHRA	10 µg/dL blood-lead level

Soil (deeper than 6 inches)

Chemical of Concern	Clean-up level	Basis for Clean-up Level	Risk at Clean-up Level
Benzo(a)pyrene	330 µg/kg (ppb)	HHRA	Cancer risk = 1E-06
Dibenzo(a,h)anthracene	330 µg/kg (ppb)	HHRA	Cancer risk = 1E-06
Aroclor 1260	10,000 µg/kg (ppb)	HHRA	Cancer risk = 1E-05
Arsenic	29 mg/kg (ppm)	HHRA	Cancer risk = 1E-05
Lead	480 mg/kg (ppm)	HHRA	10 µg/dL blood-lead level

HHRA – human health risk assessment
ERA – ecological risk assessment
ppm- parts per million
ppb - parts per billion



DRAWN BY DM DATE 8/9/02	Tetra Tech NUS, Inc.	CONTRACT NO. 4020	OWNER NO. 0805
CHECKED BY TWS DATE 8/12/02	SITE LAYOUT SITE 41 – SCRAP YARD IHDIV–NSWC, INDIAN HEAD, MARYLAND	APPROVED BY GJL	DATE 8/12/02
COST/SCHED–AREA		APPROVED BY	DATE
SCALE AS NOTED		DRAWING NO. FIGURE 2–1	REV. 0

FORM CADD NO. TtNUS_AH.DWG - REV 0 - 1/22/98

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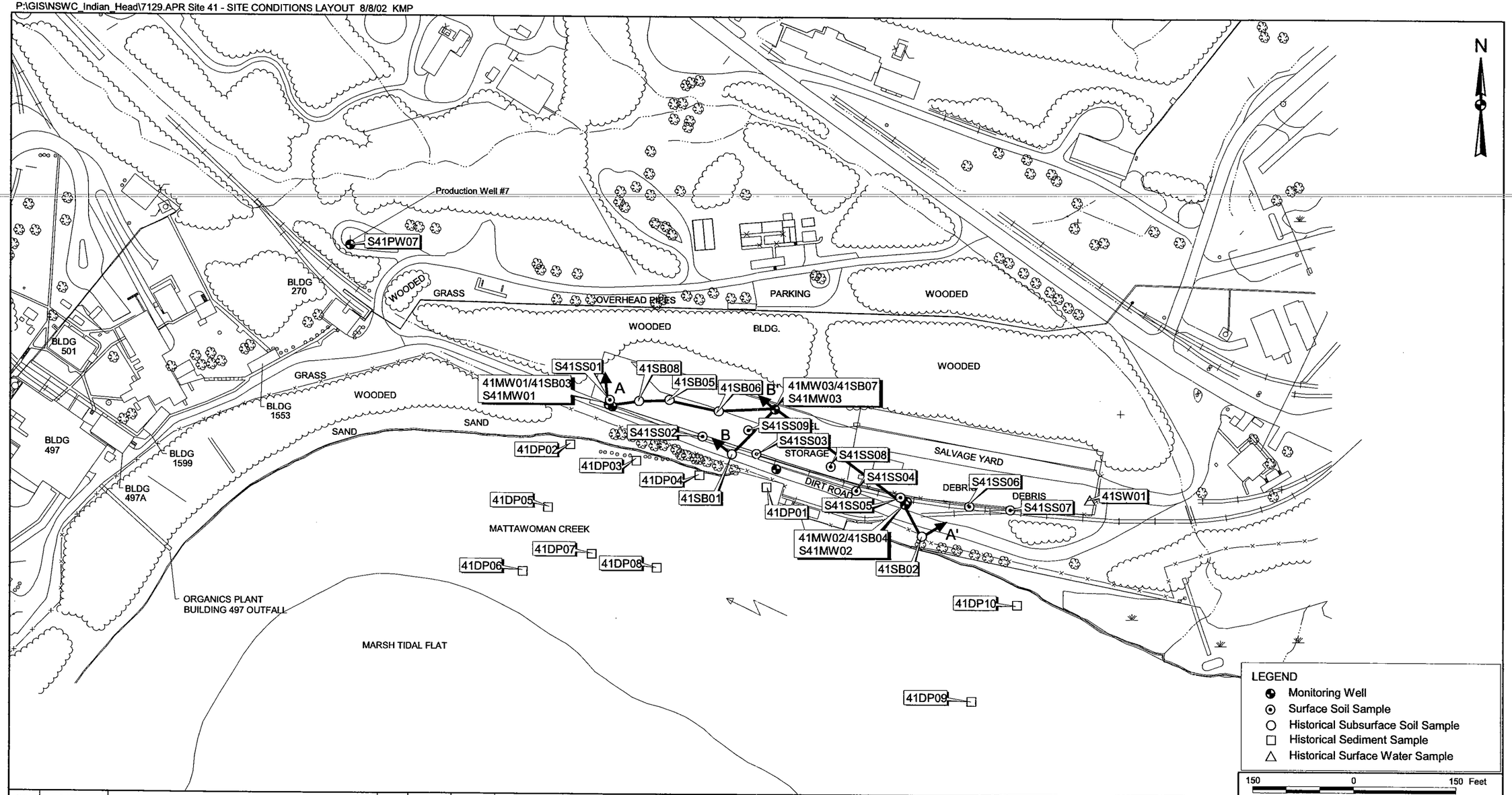

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY J. MIHALIK	DATE 9-DEC-99
CHECKED BY TWS	DATE 7/17/01
COST/SCHED-AREA	
SCALE AS NOTED	

Tetra Tech NUS, Inc.

RI AND HISTORICAL INVESTIGATION MAP
SITE 41 - SCRAP YARD
IHDIV-NSWC, INDIAN HEAD, MARYLAND

CONTRACT NO. 4020	OWNER NO. 0805
APPROVED BY	DATE 8/19/02
APPROVED BY	DATE
DRAWING NO. FIGURE 2-2	REV. 0

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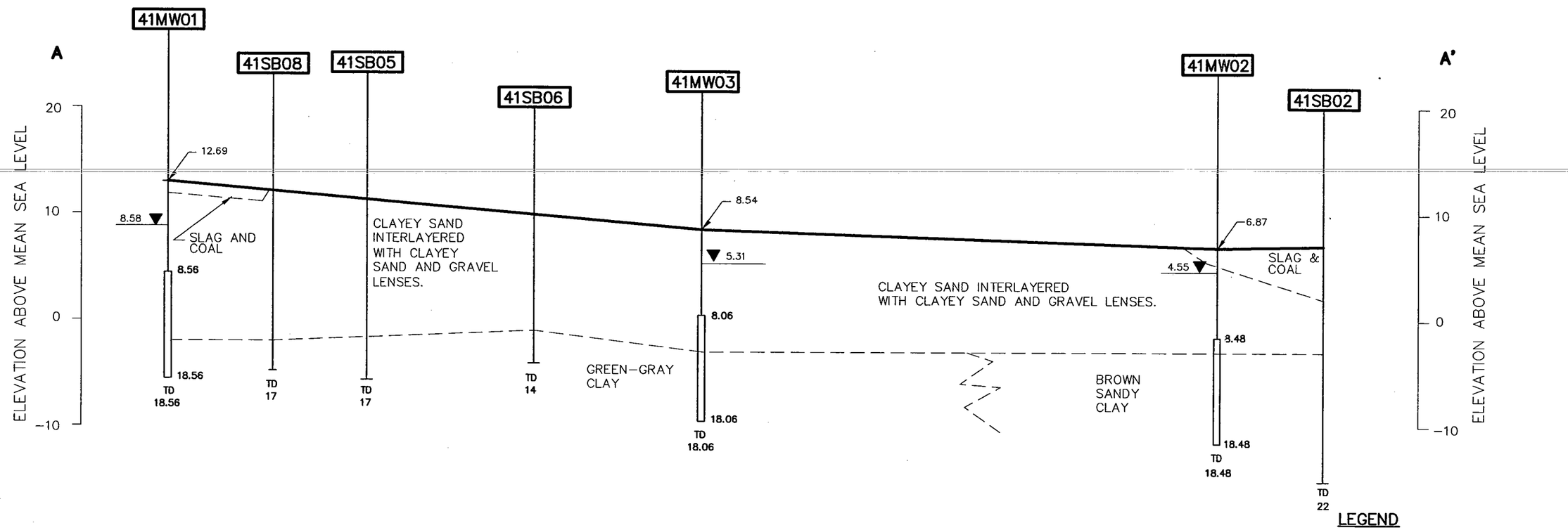

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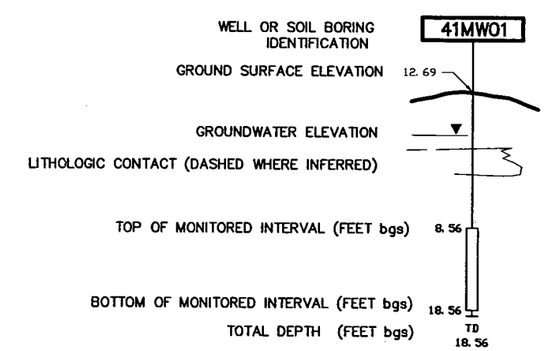

NOTES

1.) GROUND SURFACE ELEVATIONS AT THE SOIL BORING (SB) LOCATIONS ARE ESTIMATED

2.) GROUNDWATER LEVELS MEASURED 1-30-98

3.) ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL

4.) LOCATION OF SECTION PRESENTED ON FIGURE 2-2.

0 50 100
HORIZONTAL SCALE IN FEET

0 10 20
VERTICAL SCALE IN FEET

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY DM DATE 8/9/02	Tetra Tech NUS, Inc.	CONTRACT NO. 4020	OWNER NO. 0805
CHECKED BY TWS DATE 8/12/02	CROSS SECTION A-A' SITE 41 - SCRAP YARD IHDIV-NSWC INDIAN HEAD, MARYLAND	APPROVED BY GJL	DATE 8/12/02
COST/SCHED-AREA		APPROVED BY	DATE
SCALE AS NOTED		DRAWING NO. FIGURE 2-3	REV. 0

FORM CADD NO. TtNUS_BH.DGN - REV 0 - 1/20/98

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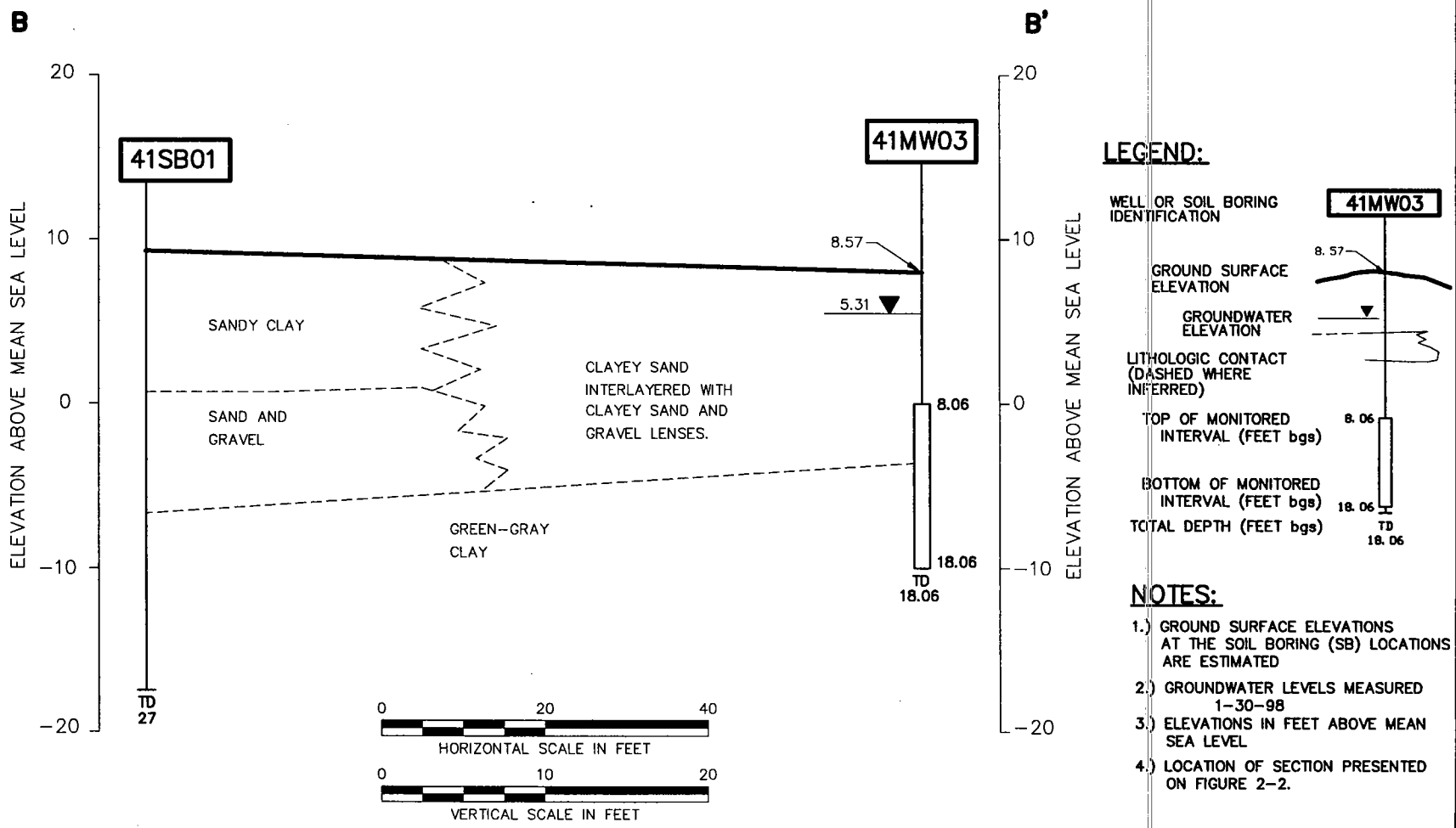

DRAWN BY DM DATE 8/9/02	Tetra Tech NUS, Inc.	CONTRACT NO. 4020	OWNER NO. 0805
CHECKED BY TWS DATE 8/12/02	CROSS SECTION B-B' SITE 41 - SCRAP YARD IHDIV-NSWC INDIAN HEAD, MARYLAND	APPROVED BY GJL	DATE 8/12/02
COST/SCHED-AREA		APPROVED BY	DATE
SCALE AS NOTED		DRAWING NO. FIGURE 2-4	REV. 0

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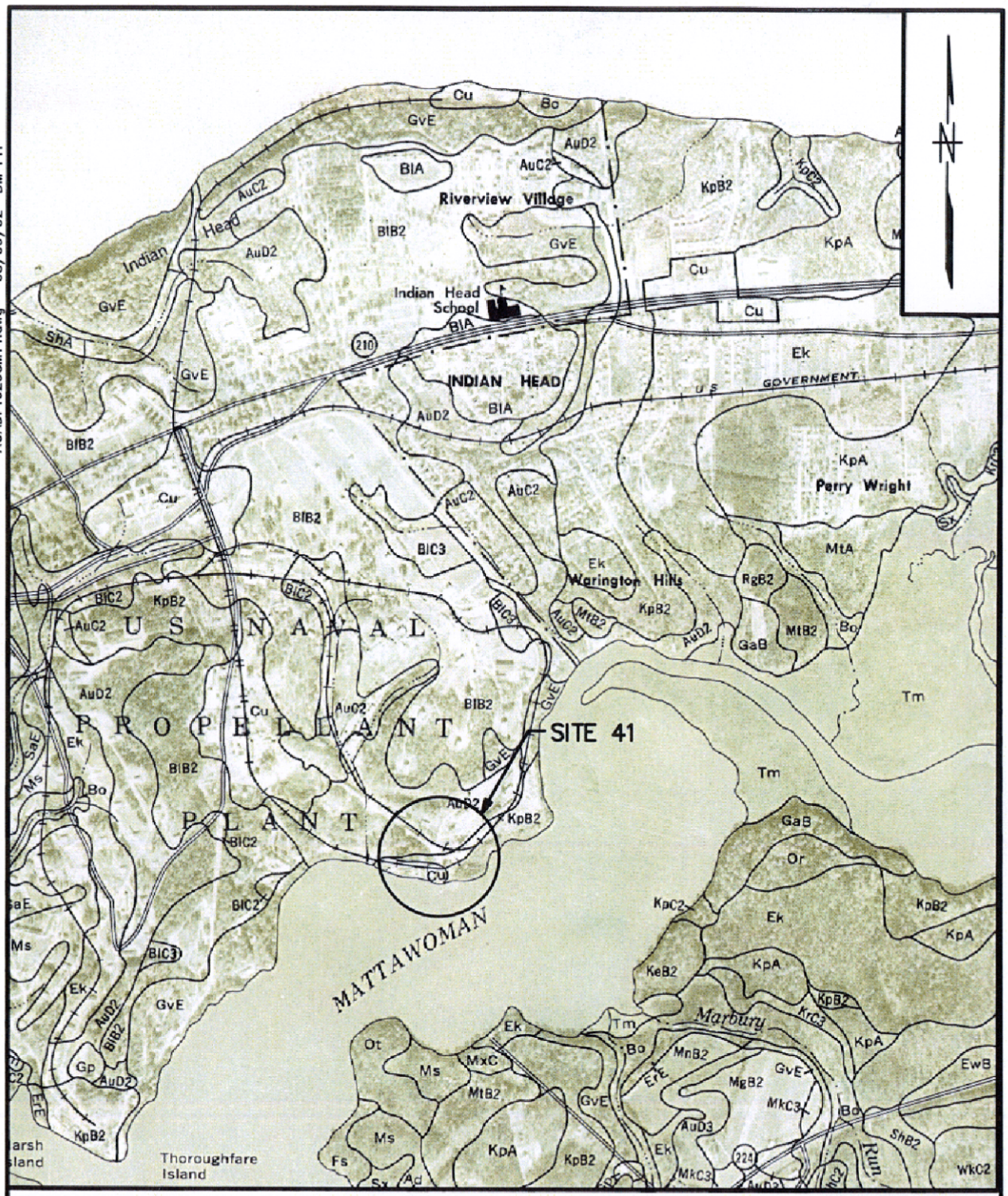

SOURCE: SOIL SURVEY OF CHARLES COUNTY, MARYLAND ISSUED JULY 1974

DRAWN BY DM DATE 8/9/02	Tetra Tech NUS, Inc.	CONTRACT NO. 4020	OWNER NO. 0805
CHECKED BY TWS DATE 8/12/02	SOILS MAP SITE 41 – SCRAP YARD INDIV–NSWC INDIAN HEAD, MARYLAND	APPROVED BY GJL	DATE 8/12/02
COST/SCHED–AREA		APPROVED BY	DATE
SCALE NOT TO SCALE		DRAWING NO. FIGURE 2–5	REV. 0

FORM CADD NO. T-NUS_AV.DWG - REV 0 - 1/22/98

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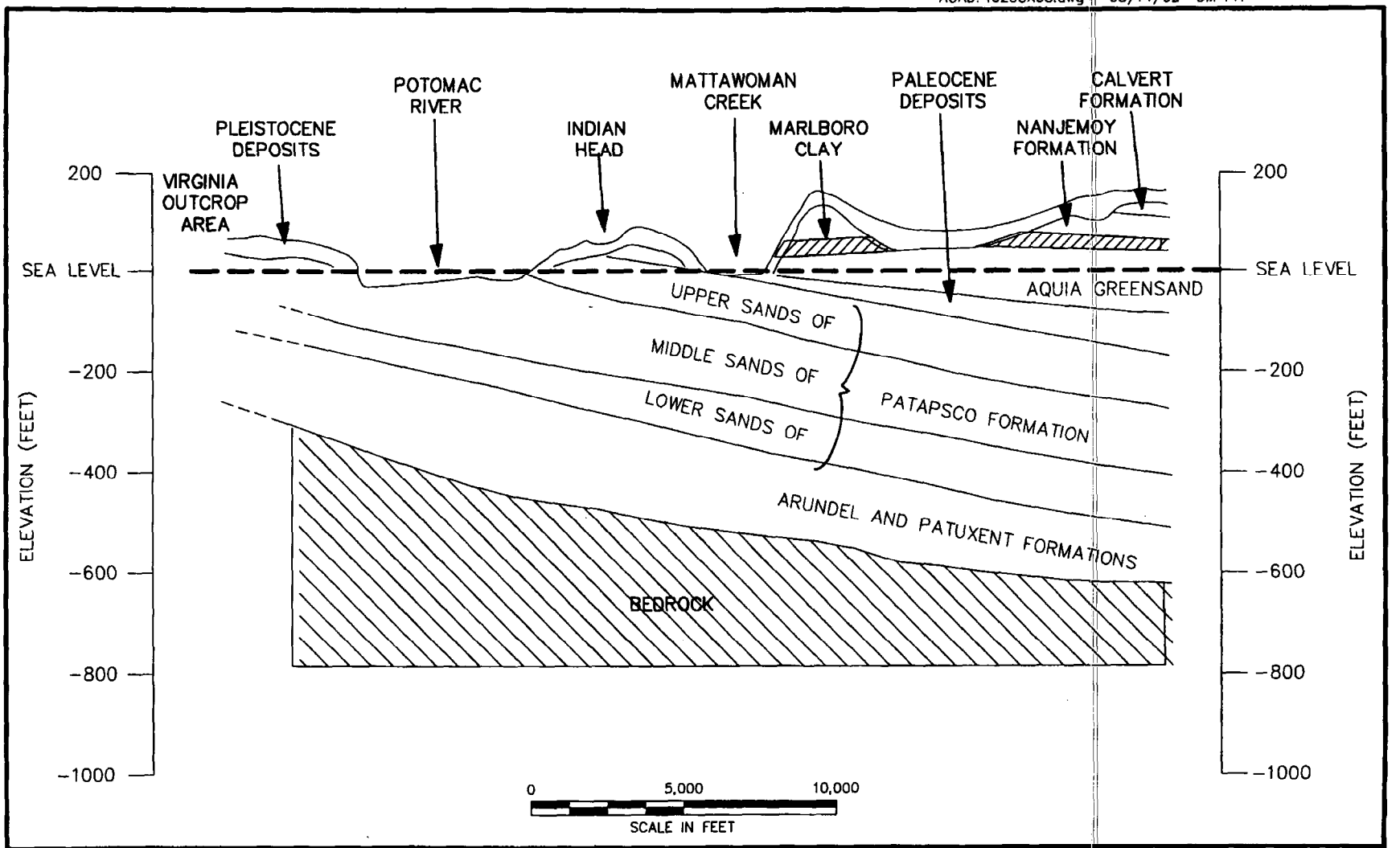

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CHECKED BY TWS DATE 8/12/02	GENERALIZED CROSS SECTION OF THE REGION SITE 41 – SCRAP YARD IHDIV–NSWC, INDIAN HEAD, MARYLAND	APPROVED BY GJL	DATE 8/12/02
COST/SCHED–AREA		APPROVED BY	DATE
SCALE AS NOTED		DRAWING NO. FIGURE 2–6	REV. 0

FORM CADD NO. TtNUS_AH.DWG - REV 0 - 1/22/98

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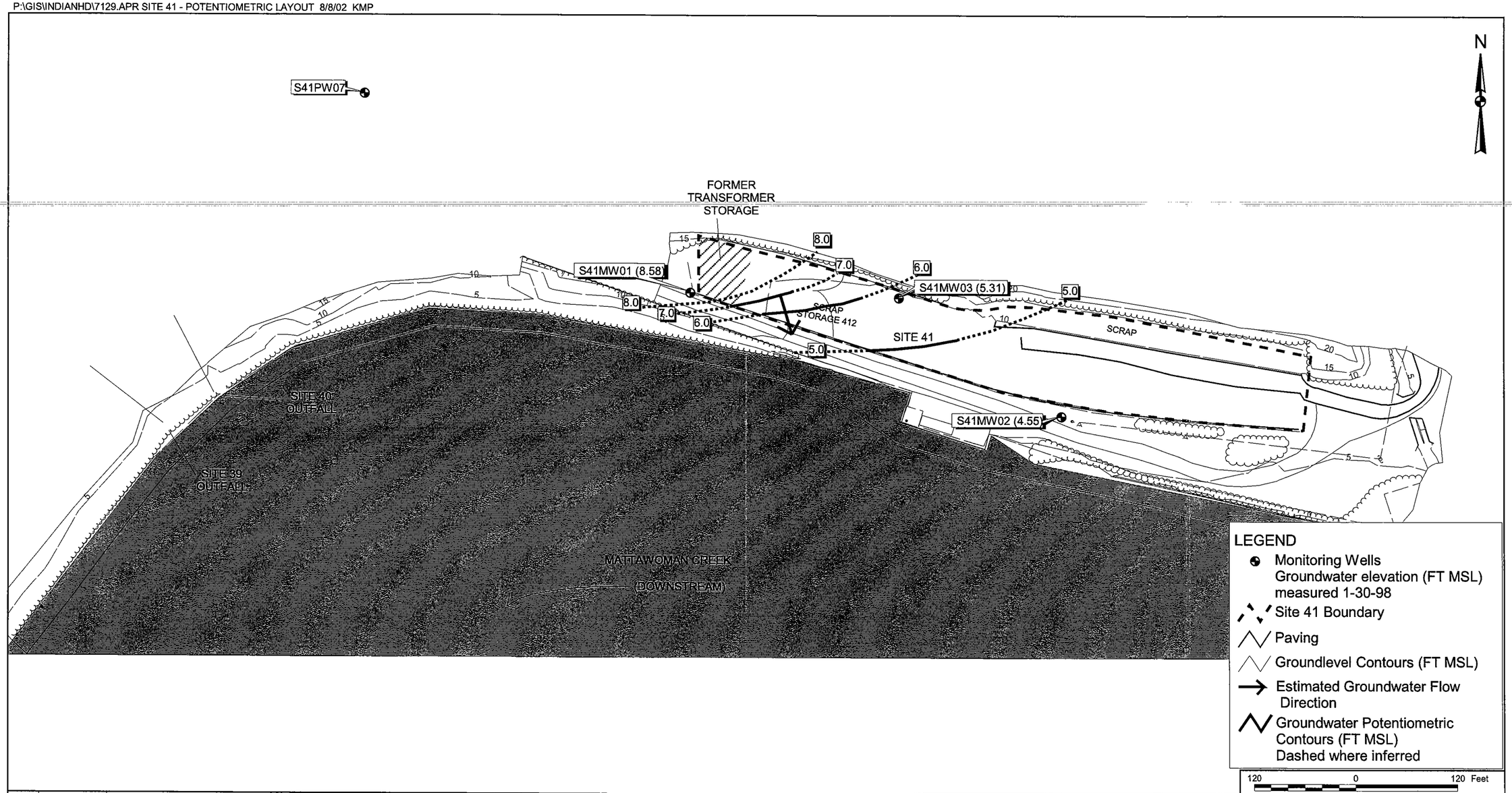
P:\GIS\INDIANHD\7129.APR SITE 41 - POTENTIOMETRIC LAYOUT 8/8/02 KMP



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

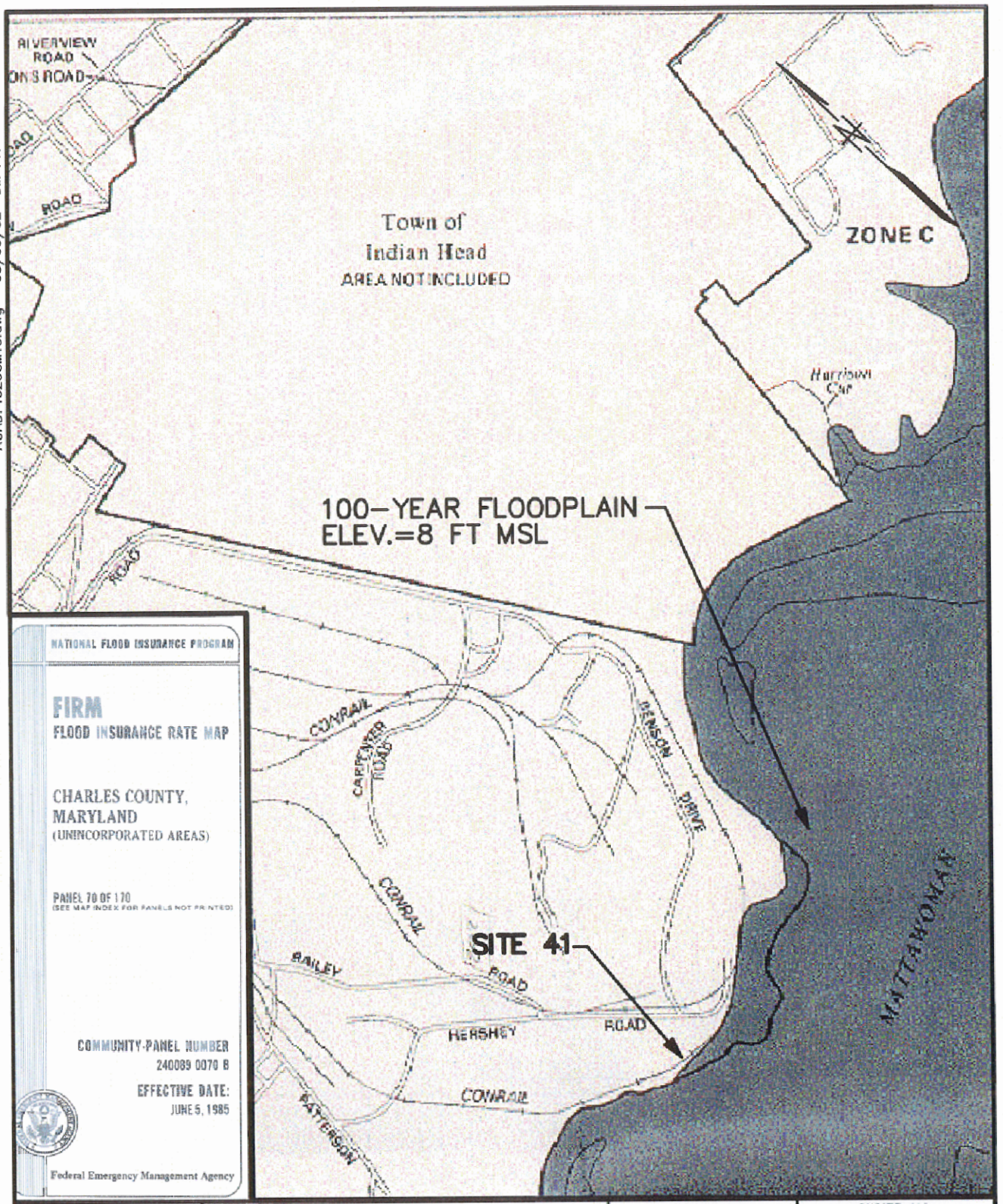
DRAWN BY J. MIHALIK	DATE 10-DEC-99
CHECKED BY TWS	DATE 7/17/01
COST/SCHED-AREA	
SCALE AS NOTED	

Tetra Tech NUS, Inc.

POTENTIOMETRIC MAP
SITE 41 SCRAP YARD
IHDIV-NSWC, INDIAN HEAD, MARYLAND

CONTRACT NO. 4020	OWNER NO. 0805
APPROVED BY	DATE 8/19/02
APPROVED BY	DATE
DRAWING NO. FIGURE 2-7	REV. 0

ACAD: 4020CM16.dwg 08/09/02 DM PIT



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CHECKED BY TWS DATE 8/12/02	FLOOD INSURANCE RATE MAP SITE 41 – SCRAP YARD IHDIV-NSWC INDIAN HEAD, MARYLAND	APPROVED BY GJL	DATE 8/12/02
COST/SCHED-AREA		APPROVED BY	DATE
SCALE NOT TO SCALE		DRAWING NO. FIGURE 2-8	REV. 0

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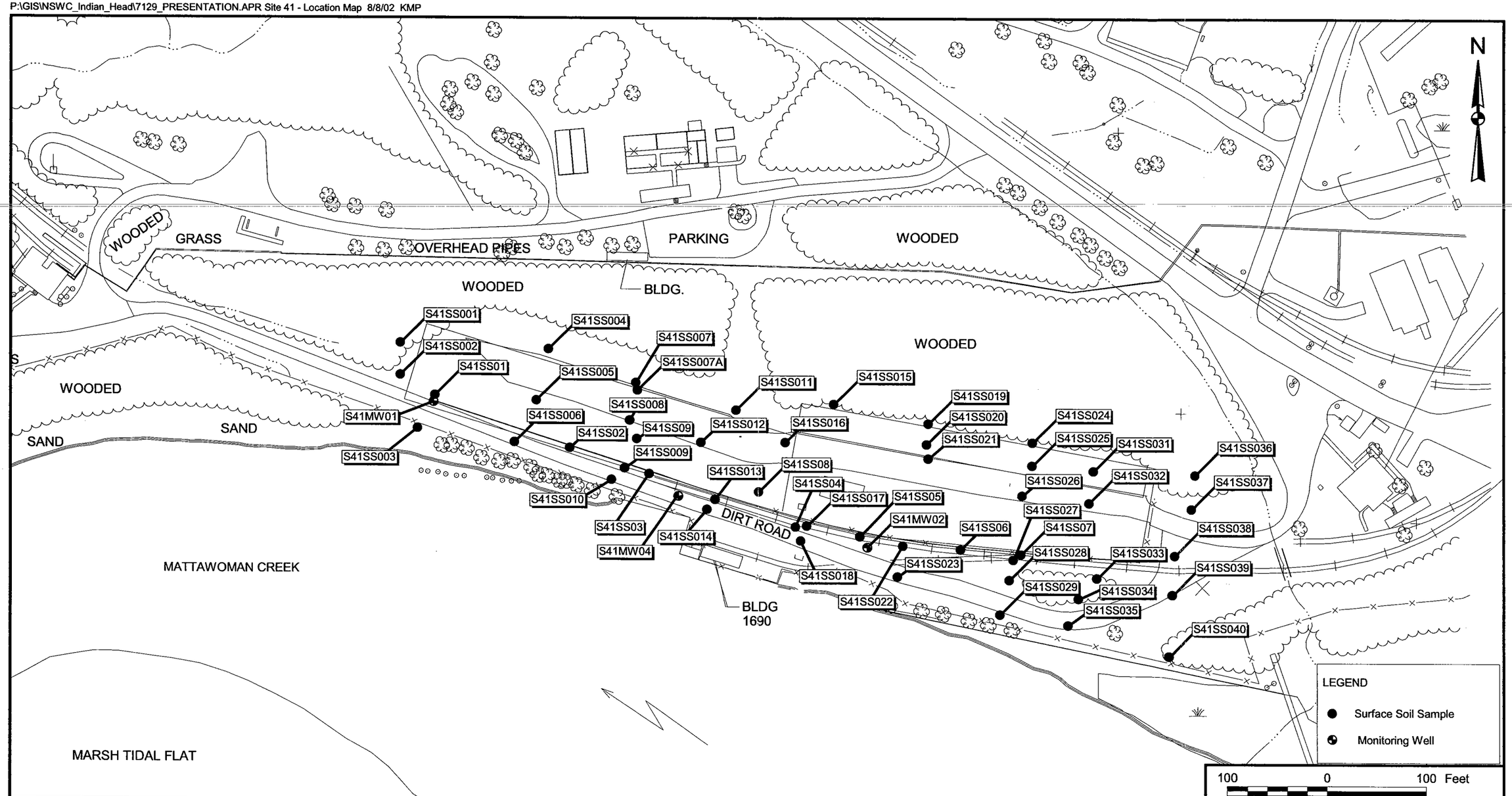
P:\GIS\NSWC_Indian_Head\7129_PRESENTATION.APR Site 41 - Location Map 8/8/02 KMP



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

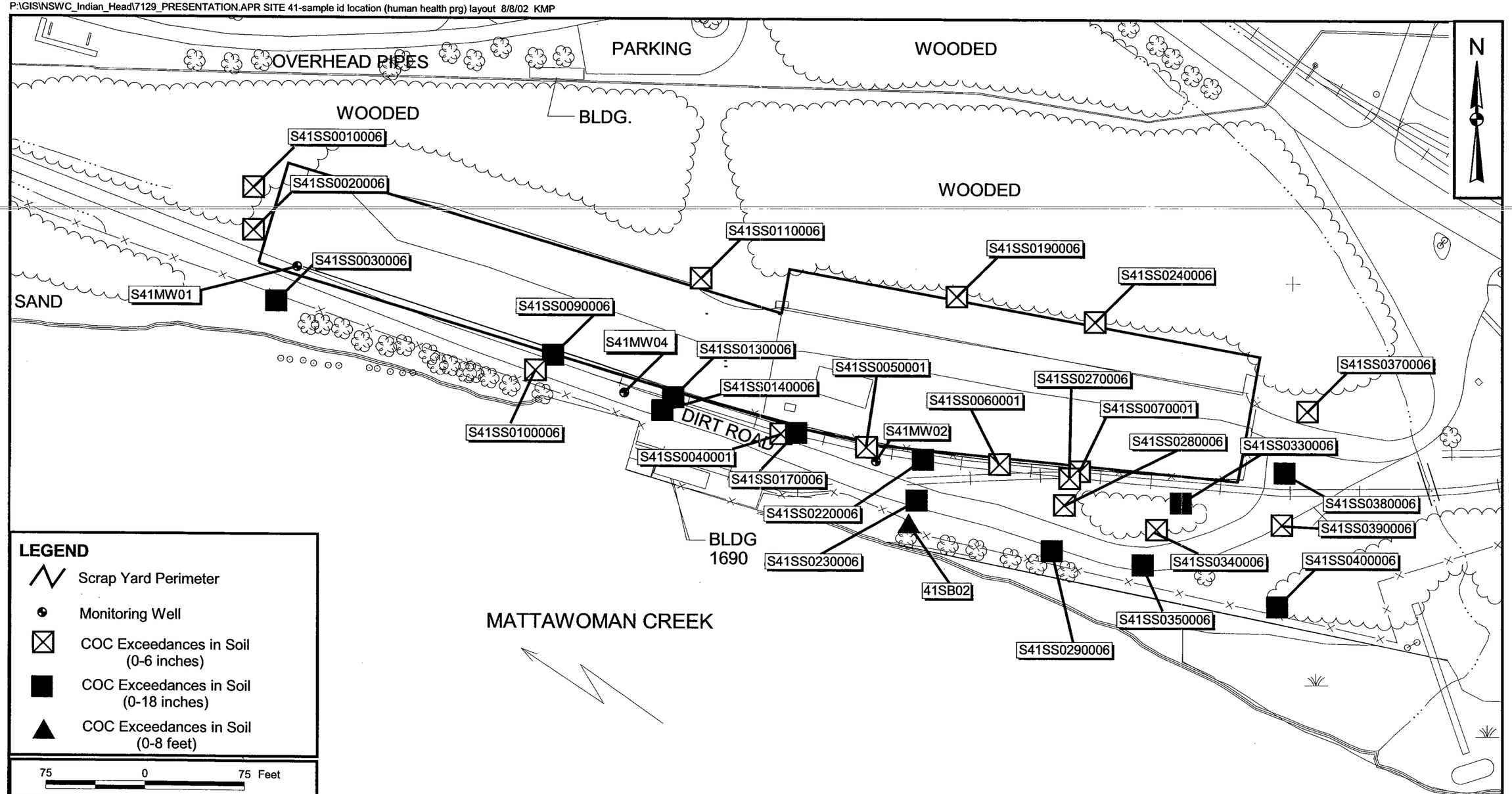
DRAWN BY J. BELLONE	DATE 11/22/99
CHECKED BY TWS	DATE 7/17/01
COST/SCHEDULE-AREA	
SCALE AS NOTED	

Tetra Tech NUS, Inc.

PRE-FEASIBILITY STUDY INVESTIGATION MAP
SITE 41 - SCRAP YARD
IHDIV-NSWC, INDIAN HEAD, MARYLAND

CONTRACT NUMBER 4020	OWNER NUMBER 0805
APPROVED BY	DATE 8/19/02
APPROVED BY	DATE
DRAWING NO. FIGURE 2-9	REV 0

P:\GIS\NSWC_Indian_Head\7129_PRESENTATION.APR SITE 41-sample id location (human health prg) layout 8/8/02 KMP



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY M. Spangenberg	DATE 10/11/00	Tetra Tech NUS, Inc.	CONTRACT NUMBER 4020 / OWNER NUMBER 0805
CHECKED BY	DATE	LOCATIONS OF COC EXCEEDANCES OUTSIDE OF SCRAP YARD PERIMETER SITE 41 - SCRAP YARD IHDIV-NSWC, INDIAN HEAD, MARYLAND	APPROVED BY / DATE 8/19/02
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2-10 / REV 0

3.0 DESIGN REQUIREMENTS

3.1 DESCRIPTION OF THE SELECTED REMEDY

The selected remedy for Site 41 as identified in the Draft Final ROD requires design and implementation of response measures that will protect human health and the environment and addresses soil contamination and shallow groundwater contamination.

The selected remedy for Site 41 is soil removal, land use controls that restrict the use of land and shallow groundwater, and periodic monitoring. The purpose of soil removal is to eliminate the possibility of exposure to human and ecological receptors. Based on the contaminated media of concern, the potential pathways and receptors of concern, and realistic current and potential future land-use scenarios, the primary remedial action objective (RAO) is to remediate soil at Site 41 to reduce concentrations of the COCs to below PRGs. A secondary RAO is to prevent residential exposure to subsurface soil and groundwater.

The RAOs for the remedial action are summarized below:

- Remove the potential for direct contact between receptors and soil contaminants.
- Prevent future residential exposure to soil and groundwater contaminants.

The PRGs for surface soil were developed in the FS report (TtNUS, 2001) and are based on protection of human health (i.e., full-time employee and construction worker), protection of ecological receptors, and Toxic Substance Control Act (TSCA) regulations for cleanup of PCBs. The PCB spill cleanup policy [40 Code of Federal Regulations (CFR) 761 Subpart G] under TSCA requires a soil cleanup level of 25 mg/kg in restricted access areas. This concentration was not used as a cleanup goal because the risk-based PRGs are below this soil cleanup level. Development of the PRGs was discussed in detail in the Draft Final ROD (USEPA et al., 2001). The human health PRGs will be applied to the soil at Site 41 except in the instances where the ecological PRGs are lower than those developed for the protection of human health. The ecological PRGs, however, will only be applied to soil in the 0- to 6-inch depth range. As a result, the PRGs based on depth are as follows:

COC	PRGs	
	Soil (0 to 6 inches) (mg/kg)	Soil (deeper than 6 inches) (mg/kg)
Arsenic	15	29
Cadmium	5	NA
Lead	480	480
Aroclor 1260	1	10
Benzo(a)pyrene	0.33	0.33
Dibenzo(a,h)anthracene	0.33	0.33

NA - Not Applicable

The selected remedy as identified in the Draft Final ROD includes the following components:

- Approximately 1,500 cubic yards (cy) of contaminated soil will be removed and transported to an off-site disposal or treatment facility, depending on the amount of contamination and requirements of the disposal facility. Abandoned railroad tracks will be removed to facilitate excavation.

- The concrete pad within the fenced area of the scrap yard will be steam cleaned to remove residual soil and PCB contamination. If residual PCB contamination is present at concentrations above allowable levels, 2 inches of bituminous concrete pavement will be placed over the concrete to eliminate exposure.

- Land use controls will be put in place to prohibit residential development and prohibit shallow groundwater use.

- Shallow groundwater will be monitored to confirm that migration of contaminants from the site has not occurred.

Other components of the selected remedy include the following:

- Removal of abandoned rail lines and fence to facilitate soil removal/excavation and concrete pad cleaning.

- Stockpiling the excavated materials for testing. The testing will determine the appropriate method of disposal of the material (i. e., Subtitle C or Subtitle D landfilling).

- Confirmatory sampling of the excavations to determine that the RAOs are achieved. Refer to the Verification Sampling and Analysis Plan (VSAP) (provided under separate cover) for sampling and chemical analytical data evaluation procedures.

- Backfilling of the excavations once all of the RAOs are achieved and site restoration. For excavation backfilling, select fill materials will be used. Site restoration will incorporate topsoil, aggregate, or paving.

Post ROD changes may arise during design and construction. Post ROD changes will be documented using a technical memorandum in the Administrative Record, an Explanation of Significant Differences (ESD), or a ROD amendment.

3.1.1 Soil Removal/Excavation and Concrete Pad Cleaning

Approximately 4,285 cy of material will be removed/excavated and transported off-site to an approved treatment, storage, and disposal (TSD) facility(includes railroad material). Figure 3-1 and Drawing C-6 indicate the limits of soil removal. The limits were determined based on sample locations where soil concentrations are higher than the PRGs based on protection of human health (non-residential exposure scenario) and ecological receptors (Figure 2-10). Volume calculations provided in Appendix B.

An abandoned railroad lies along the southern perimeter of the scrap yard. Two sections branch off the rail line south of the scrap yard. Portions of the rail lines are hidden, buried, or have been removed. To facilitate soil excavation, the abandoned railroad tracks within the limit of disturbance (see Drawing C-6) will be removed.

In addition, the fence that surrounds the scrap yard will be removed prior to soil excavation and replaced as part of site restoration activities.

Contaminated soil will be removed from within the entire fenced area of the scrap yard (i.e., the concrete pad). Following soil removal if IHDIV-NSWC Environmental Department personnel judges the concrete pad capable of retaining the wastewater, the concrete pad will be cleaned with pressurized steam to effectively remove residual soil and PCB. Wipe samples will be collected from the concrete surface to determine the amount of residual PCB contamination. Confirmatory sampling for excavations and the concrete pad will be performed in accordance with the VSAP.

Contaminated soil will also be excavated from areas outside the fenced area, as shown on Drawing C-6. Contaminated soil may include railroad ballast. One area near boring 41SB02 will be excavated to a depth of 8 feet. This will be done to remove an area of subsurface contamination that contributes most of

the risk for future construction workers. Following excavation, confirmatory soil samples will be collected and analyzed to verify that residual concentrations of COCs are below the cleanup goals. Confirmatory sampling will be performed in accordance with the VSAP. Additional excavation will be performed as necessary based on the confirmatory sampling analytical results. Disturbed areas will be backfilled with appropriate fill materials. Surface treatments for backfilled locations will be aggregate, vegetation, or pavement, as appropriate.

Excavated soil will be mechanically screened for cartridge activated devices (CADs) and any other unexploded ordnance (UXO)-related items. Excavated soil will be transported off site and disposed in accordance with the requirements of the waste TSD facility. PCB-contaminated waste will be disposed of in accordance with 40 CFR Part 761. CADs will be managed in accordance with NAVSEA Instruction 8023.11, Standard Operating Procedures for the Manufacture, Handling, and Storage of Expendable Ordnance at Navy and Marine Corps Activities (NAVSEA, 1991).

Erosion controls will be used to minimize the potential for off-site migration of contaminants during excavation activities.

3.1.2 Land Use Controls

Land use controls will include land and groundwater use restrictions to eliminate or reduce exposure pathways. Land use controls will consist of the Navy maintaining records of the existence of contamination remaining after soil removal at Site 41 in the Geographical Information System (GIS) and designating the site as a restricted use area. The information in the GIS will be used so that the Navy can take adequate measures to minimize adverse human health and environmental effects at the time of any future land development. The land use controls include the following:

- No residential use.
- No use of groundwater as a potable water supply.
- Other groundwater uses require Navy approval.

The Navy, USEPA, and Maryland Department of the Environment (MDE) are developing a facility-wide Land Use Controls Assurance Plan (LUCAP) for IHDIV-NSWC, as well as a Land Use Controls Implementation Plan (LUCIP) specific to Site 41 to implement these restrictions.

3.1.3 Long-Term Monitoring

Groundwater monitoring will be conducted to confirm that migration of contaminants from the site is not occurring and to determine the need for future actions. Samples will be collected on an annual basis and

analyzed for the contaminants of concern. The existing groundwater monitoring wells will be abandoned and new groundwater monitoring wells installed. A long-term monitoring plan will be developed as part of the LUCIP with USEPA and MDE concurrence to detail the frequency, media type, analysis, and locations for the long-term monitoring program.

3.1.4 Site Review

Within 5 years, a site review will be conducted to evaluate the site status and determine whether further action is necessary. The site review is required because the selected remedy will allow contaminants to remain at concentrations exceeding those suitable for unlimited use and unrestricted exposure.

3.1.5 Remedy Modifications

The components of the proposed remedy that will be modified as part of the remedial action design are as follows:

Following removal of soils from the concrete pad, the integrity of the pad will be visually assessed to determine if steam cleaning the concrete pad is appropriate (i.e., determine if the concrete pad is sufficiently intact to allow collection of rinsewater). If the IHDIV-NSWC Environmental Department personnel judge the concrete pad capable of retaining the rinsewater, the exposed concrete pad will be steam cleaned with high pressure, high temperature water. If the IHDIV-NSWC Environmental Department personnel judge the concrete pad is in poor condition, the Indian Head Installation Restoration Team (IHIRT) will evaluate site conditions to determine appropriate further remedial action consistent with the RAOs.

Following cleaning of the concrete pad surface (if performed) and verification sampling, the IHIRT will evaluate the verification sampling results and determine if COC concentrations have been reduced to levels below the PRGs. If the verification sampling results indicate COC concentrations in excess of the PRGs, the IHIRT will evaluate site conditions and analytical data to determine appropriate further remedial action consistent with the RAOs.

3.2 PERFORMANCE STANDARDS

The selected remedy meets the RAOs, provides adequate protection of human health and the environment, and attains the ARARs. Specific performance standards are as follows:

3.2.1 Soil Removal/Excavation

All soil removed or excavated from Site 41 will be characterized and transported to an approved off-site TSD facility. Excavation and removal of soil will be complete when data evaluation determines that confirmatory sample results are below PRGs. Soil excavation will not extend beyond the limit of remediation as shown on Figure 3-1 and Drawing C-6 as agreed upon by the IHIRT. The limit of remediation was established because IHDIV-NSWC had concerns that arsenic could be present along the railroad tracks as a result of past application of arsenic-based pesticides and not as a result of past and current activities at the scrap yard.

In addition, sediments removed from the erosion and sediment control devices during the excavation and from containment devices during concrete pad cleaning will be disposed off site, along with excavated soil.

3.2.2 Concrete Pad Cleaning

The concrete pad that lies within the fenced area will be cleaned to remove soil and residual PCB. Wipe samples will be collected from the concrete surface to determine the degree of residual PCB contamination following cleaning. If residual PCB concentrations exceed PRGs, the IHIRT will evaluate site conditions and analytical data and determine appropriate further remedial actions consistent with the RAOs. However, because the analysis of wipe samples produce results that are reported in micrograms per square centimeters ($\mu g/cm^2$), the results of the wipe samples will be compared to 10 $\mu g/100\ cm^2$. This requirements is reported in 40 CFR 761.61(a)(4)(ii) as a remedial goal for high occupancy non-porous surfaces.

3.2.3 Confirmatory Sampling

Confirmatory samples will be collected from the concrete surface following removal of soil from the concrete pad and cleaning, and from the base and sidewalls of the soil excavation areas outside of the concrete pad. Sampling and chemical analytical data evaluation procedures are provided in the VSAP.

3.2.4 Disposal

Removed or excavated materials having concentrations of COCs greater than PRGs will be stockpiled and tested using the Toxicity Characteristics Leaching Procedure (TCLP) and any other TSD facility-specified analyses before transport for off-site treatment and/or disposal.

Soils passing the TCLP, ignitability, corrosivity, and reactivity requirements will be considered non-hazardous waste and will be stockpiled elsewhere at IHDIV-NSWC or transported to an approved TSD

facility. Soils not passing these requirements will be stockpiled and then transported off site to an approved TSD facility.

PCB-contaminated waste, including but not limited to soil, sediment, rinsewater, and other concrete pad cleaning waste, will be disposed in accordance with 40 CFR Part 761.

3.2.5 Erosion and Sedimentation Control

Before excavation, erosion and sediment controls will be established to prevent impacts to downgradient areas of the site. During excavation and backfilling activities, and until vegetation is established, the erosion and sediment controls will be regularly inspected and maintained. Erosion and sediment control regulations to be complied with during remedial activities include Maryland Water Pollution Permit Regulations [Code of Maryland Regulations (COMAR) 26.08.04] and Maryland Water Management Regulations (COMAR 26.17.01 and 26.17.02).

3.2.6 Stormwater Management

Because the site will be returned to paved, grassed, or other pre-existing conditions following the remedial action, extensive stormwater management structures are not required. For stormwater management of Site 41, a Stormwater Pollution Prevention Plan is attached. The locations of stormwater management features are identified on Drawing C-2.

3.2.7 Floodplain Protection Measures

Although the 100-year floodplain extends to an elevation of 8 feet msl in and around Site 41 (see Figure 2-8, FEMA, 1985), it is not anticipated that any additional protection will be required due to the projected short duration of the remediation activities.

3.2.8 Backfilling and Site Restoration

The excavation will be backfilled to grade using common fill, select fill, aggregate, or topsoil as shown. The area will be vegetated in accordance with 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control, (MDE, 1994). Pavement replacement may be necessary along the entrance road, as designated by the Resident Officer in Charge of Construction (ROICC).

3.3 MATERIAL/SOILS MANAGEMENT

Material and soils management includes excavation of soil from the scrap yard and surrounding areas, management of material resulting from erosion control features, concrete pad cleaning, and the decontamination pad.

3.3.1 Clearing

Clearing will be performed within the limits of disturbance identified on Drawing C-2 and will consist of the removal of above-ground vegetation. Clearing will be performed in the construction laydown areas, areas for the stabilized construction entrance, materials storage and staging areas, and decontamination pad.

3.3.2 Excavation and Backfilling

Materials that will be excavated or removed and disposed off-site include the following:

- Soil from the scrap yard will be removed down to pavement. The estimated average depth of soil to be excavated from the scrap yard is 6 inches.
- Railroad tracks will be removed to facilitate removal of contaminated soil. The rails will be cleaned within contaminated areas and stockpiled for salvage by others. Ties will be disposed off-site at an approved disposal facility.
- Soil will be removed to a depth of 6 inches bgs in areas indicated.
- Soil will be removed to a depth of 18 inches bgs in areas indicated.
- Soil will be removed to a depth of 8 feet bgs in area indicated.
- Sediment will be collected from erosion and sediment control features.

Select fill material will be placed in the excavated areas as indicated on the drawings to 6 inches below final grade (unless otherwise noted). Topsoil will be placed for the final 6 inches to establish the final grades indicated on Drawing C-7.

The fill material volumes were estimated based on excavation areas and depths shown on Drawing C-6. Estimated excavation quantities do not include additional excavation that may be necessary, based on confirmatory sampling.

The estimated excavation/removal, off-site TSD values, and restoration quantities are provided in Table 3-1.

Water resulting from concrete pad cleaning and all waters generated during excavation dewatering activities will be collected in a specifically designed containment vessel, tested, and either discharged on site or transported to a permitted off-site treatment facility, as appropriate. All decontamination water will be collected in a specifically designed, lined decontamination pad area and transported to a permitted off-site treatment facility. All sediments will be removed from the wastewater prior to treatment or discharge.

3.4 OTHER DESIGN REQUIREMENTS

3.4.1 Utilities

The contractor will be obligated through specification to verify all utility locations and adequately protect the utilities before any earth-disturbing activities.

3.4.2 Groundwater Monitoring Wells

Existing groundwater monitoring wells will be impacted by remediation efforts and will therefore be abandoned. The groundwater monitoring program for Site 41 will include a network of five new groundwater monitoring wells installed during the remedial action. The new monitoring well locations are shown on Drawing C-7. Work associated with monitoring well abandonment and installation will be performed in accordance with Maryland Well Construction Regulations (COMAR 26.04.04).

3.4.3 Maintenance and Repair

Plans for periodic mowing, reseeding, and repair of sparsely vegetated areas, repair of areas, etc. will be identified in the Operation and Maintenance Plan. The Operation and Maintenance Plan is not part of the remedial action design submissions.

3.5 IMPLEMENTATION

The contractor will coordinate fieldwork through Base Environmental and Safety for specific requirements related to Site 41. Additional coordination will be required with Base Environmental and Safety and Explosive Ordnance Disposal (EOD) in the event ordnance is discovered during excavation. As with all excavation activities at IHDIV-NSWC, the possibility that UXO is present should be anticipated. Therefore, a UXO expert is required to be on site during all excavation activities, including but not limited

to removal and excavation of contaminated soil, scrap, and bulky waste. Additionally, all excavations must follow the standard operating procedure concerning UXO.

TABLE 3-1

EXCAVATION AND RESTORATION VOLUMES
SITE 41 - SCRAP YARD
IHDIV-NSWC, INDIAN HEAD, MARYLAND

Materials	Length (ft)	Earthworks Volume (cy)[1]
Excavation/Removal		
Soil Removed from Scrap Yard	NA	1350
Soil Excavated from 6-Inch Excavation Area	NA	195
Soil Excavated from 18-inch Excavation Area	NA	2639
Soil Excavated from 8-foot Excavation Area	NA	101
Railroad[2]	1540	NA
Total Off-site (TSD)		**4285**
Site Restoration		
Volume of Material for Bituminous Concrete Paved Area	NA	56
Volume of Material for Gravel Paved Area	NA	353
Volume of Select Fill required	NA	1735
Volume of Topsoil Required	NA	791
Total Volume of Materials Required for Site Restoration		**2935**

Notes:
1 Volumes presented do not include areas outside the limits of Remediation.
2 Volume included in the 18-inch excavation area volume.

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ACAD: 4020CP09.dwg 08/12/02 DM PIT

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY DM DATE 8/12/02
CHECKED BY TWS DATE 8/12/02
COST/SCHED-AREA
SCALE AS NOTED

Tetra Tech NUS, Inc.

SOIL EXCAVATION/REMOVAL LIMITS
SITE 41 – SCRAP YARD
INDIV – NSWC
INDIAN HEAD, MARYLAND

CONTRACT NO. 4020
OWNER NO. 0805
APPROVED BY GJL
DATE 8/12/02
APPROVED BY
DATE
DRAWING NO. FIGURE 3-1
REV. 0

REFERENCES

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NAVSEA, 1991. NAVSEA Instruction 8023.11, Standard Operating Procedures for the Manufacture, Handling, and Storage of Expendable Ordnance at Navy and Marine Corps Activities, Department of the Navy, Naval Sea Systems Command, NAVSEAINST 8023.11, OPR 665, March.

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TtNUS, 1999a. Remedial Investigation Report, Site 12 – Town Gut Landfill, Site 39/41 – Organics Plant/Scrap Yard, Site 42 – Olsen Road Landfill, Site 44 – Soak Out Area, Indian Head Division, Naval Surface Warfare Center, Indian Head, Maryland. King of Prussia, Pennsylvania, July.

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USDA (U.S. Department of Agriculture). 1974. Soil Survey of Charles County, Maryland. Soil Conservation Service, in cooperation with Maryland Agricultural Experiment Station, July.

APPENDIX A

SURFACE AND SUBSURFACE INVESTIGATION LOGS

A.1 BORING LOGS (PHASE II SI)

A.2 SURFACE SOIL SAMPLE LOG SHEETS (RI)

A.3 BORING LOG (MONITORING WELL 41MW04)

A.4 SURFACE SOIL SAMPLE LOG SHEETS (PRE-FS)

A.1 BORING LOGS (PHASE II SI)

DATE OF BORING: 08/31/92

SAM.	DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	TIME	VAPOR READINGS	DESCRIPTION OF SUBSURFACE MATERIALS
							BG (BACKGROUND) = 0.0 ppm
1		SS	0	22	1230	BG	(0-2 feet) No recovery.
2	5	SS	100	5	1240	BG	(5-7 feet) Stiff to medium stiff brown and gray mottled clay with some poorly sorted sand.
3	10	SS	54	14	1248	BG	(10-12 feet) Medium to coarse grain gray sand with small size gravel; moist.
4	15	SS	100	28	1300	BG	(15-17 feet) Very stiff brown to gray mottled clay, dry.
5	20	SS	100	24	1313	BG	(20-22 feet) Very stiff brown to gray clay; dry.
6	25	SS	100		1337	BG	(25-27 feet) Very stiff clay with some pockets of fine gray sand; dry.
							BORING TERMINATED AT 27'

SITE INSPECTION
IHDIVNAVSURFWARCEN
INDIAN HEAD, MARYLAND

SITE 41
BORING 41SB01

DATE: 09/29/92 | DWG NAME: 41SB01

DATE OF BORING: 08/31/92

SAMP No.	DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	TIME	VAPOR READINGS	DESCRIPTION OF SUBSURFACE MATERIALS
							BG (BACKGROUND) = 0.0 ppm
1		SS	46		1613	BG	(0-2 feet) Black clay; possibly coal (from previous stockpile) and slag fragments.
2	5	SS	29	3	1621	BG	(5-7 feet) Upper portion coal. Orange/brown to gray mottled clay with some fine grained sand with medium size gravel.
D		SS	13	3	1623	BG	(7-9 feet) Low recovery. Clay with moderate amounts of sand and some fine gravel.
3	10	SS	25	3	1627	BG	(9-11 feet) Clay with moderate amounts of fine grained sand. Low recovery.
3		SS	42	11	1632	BG	(11-13 feet) Wood and coal in upper portion. Gray medium to fine grain sandy clay; moist.
4	15	SS	21	7	1636	BG	(13-15 feet) Very low recovery.
5	20	SS	75		1650	BG	(20-22 feet) Clay with moderate amounts of fine to coarse grained sand.
	25						BORING TERMINATED AT 22'

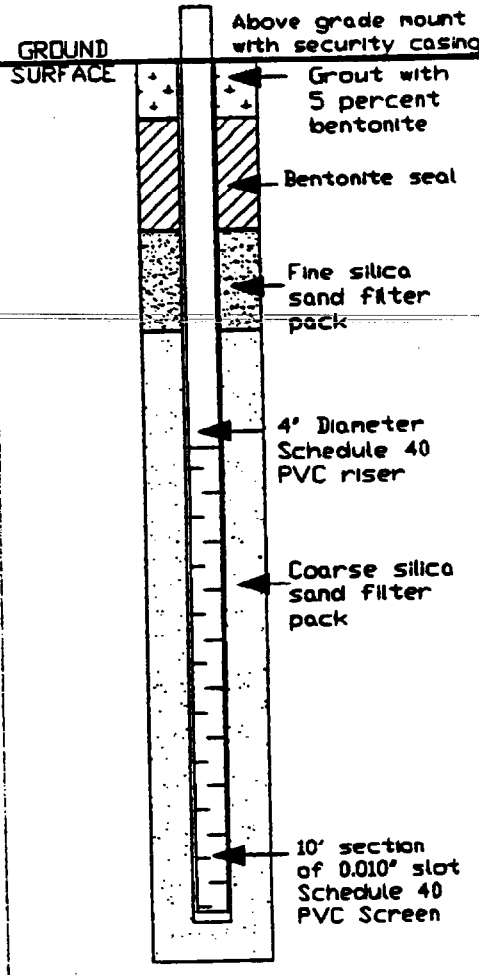
SITE INSPECTION
IHDIVNAVSURFWARCEN
INDIAN HEAD, MARYLAND

SITE 41
BORING 41SB02

DATE: 09/29/92 | DWG NAME: 41SB02

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	TIME	DESCRIPTION OF SUBSURFACE MATERIALS
					BORING DATE 09/01/92
	SS	83	36	0930	(0-2 feet) Sand and clay (0-1.6 ft.) with some fine gravel, coal and slag at 0.8-1.6 ft.
5	SS	21	15	0940	(5-7 feet) Moist clayey sand with medium size gravel; low recovery.
10	SS	88	20	0948	(10-12 feet) Medium to fine grained wet clayey sand.
15	SS	100	20	1010	(15-17 feet) Brown gray mottled stiff clay; dry.
20					
25					
30					BORING TERMINATED AT 18'

WELL CONSTRUCTION DETAILS



CASING SET @ 18.56'.

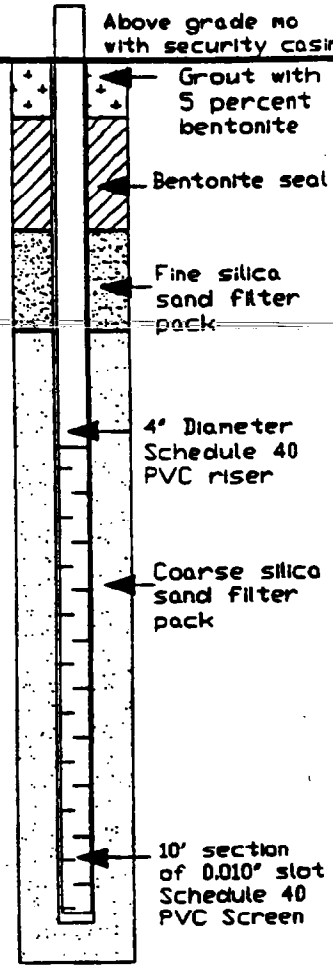
SITE INSPECTION
IHDIVNAVSURFWARCEN
INDIAN HEAD, MARYLAND

SITE 41
BORING 41SB03
MONITORING WELL 41MW01

DATE: 10/02/92 | DWG NAME: 41MW01

SAMPLE NUMBER (DEPTH (FEET))	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	TIME	DESCRIPTION OF SUBSURFACE MATERIALS
					BORING DATE 09/01/92
	SS	54	9	1459	(0-2 feet) 2 in. concrete, 8 in. coal and slag, 2 in. brown clay with coal and slag.
5	SS	25	7	1507	(5-7 feet) Brown medium to fine grained sand; moist.
10	SS	100	20	1517	(10-12 feet) Light brown sandy clay (10.0 to 10.3 feet). Medium to fine grained sand with small gravel-fining upward sequence (10.3 to 12.0 feet); moist.
15	SS	100	21	1528	(15-17 feet) Poorly sorted medium to fine grained light brown clayey sand (15.0 to 15.6 feet). Increasing amounts of clay (15.6 to 16.8 feet). Gray sand with small gravel (16.8 to 17.0 feet).
20					
25					
30					BORING TERMINATED AT 17'

WELL CONSTRUCTION DETAILS



CASING SET @ 18.48'.

SITE INSPECTION
IHDIVNAVSURFWARCEN
INDIAN HEAD, MARYLAND

SITE 41
BORING 41SB04
MONITORING WELL 41MW02

DATE: 10/02/92 | DWG NAME: 41MW02

DATE OF BORING: 09/02/92

SAMPLE	DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	TIME	VAPOR READINGS	DESCRIPTION OF SUBSURFACE MATERIALS
							BG (BACKGROUND) = 0.0 ppm
1		SS	38	8	0948	BG	(0-2 feet) Low recovery, 2 in. of concrete. 6 in. of dry, orange clayey silt.
2	5	SS	92	34	1000	BG	(5-7 feet) Brown poorly sorted medium to fine grained sand with moderate clays (5.0 to 6.2 ft). Iron staining present; moist (6.2 to 6.9 ft).
3	10	SS	100		1020	BG	(10-12 feet) Tan medium to fine grained sand; poorly sorted with moderate clays; wet.
4	15	SS	100	20	1030	BG	(15-17 feet) Very stiff clay, dark green to reddish, mottled; dry.
	20						
	25						BORING TERMINATED AT 17'

SITE INSPECTION
IHDIVNAVSURFWARCEN
INDIAN HEAD, MARYLAND

SITE 41
BORING 41SB05

DATE: 09/29/92 | DWG NAME: 41SB05

DATE OF BORING: 09/02/92

SAMP. NO.	DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	TIME	VAPOR READINGS	DESCRIPTION OF SUBSURFACE MATERIALS
							BG (BACKGROUND) = 0.0 ppm
1		SS	0			BG	(0-2 feet) No recovery.
2	5	SS	100	12	1125	BG	(5-7 feet) Wet, poorly sorted medium to fine grained sand with mottled clay. Iron staining near 7 ft.
		SS	100	12	1130	BG	(7-9 feet) Wet, poorly sorted medium to fine grained sand with mottled clay. Iron staining throughout.
3	10	SS	100	16	1238	BG	(10-12 feet) Poorly sorted fine to medium grained sand, light brown with iron staining from 10.5 to 11.2 ft. Green clay with some iron staining from 11.2-12 ft.
		SS	100	43	1241	BG	(12-14 feet) Green clay with some iron staining as above.
	15						
	20						
	25						BORING TERMINATED AT 14'

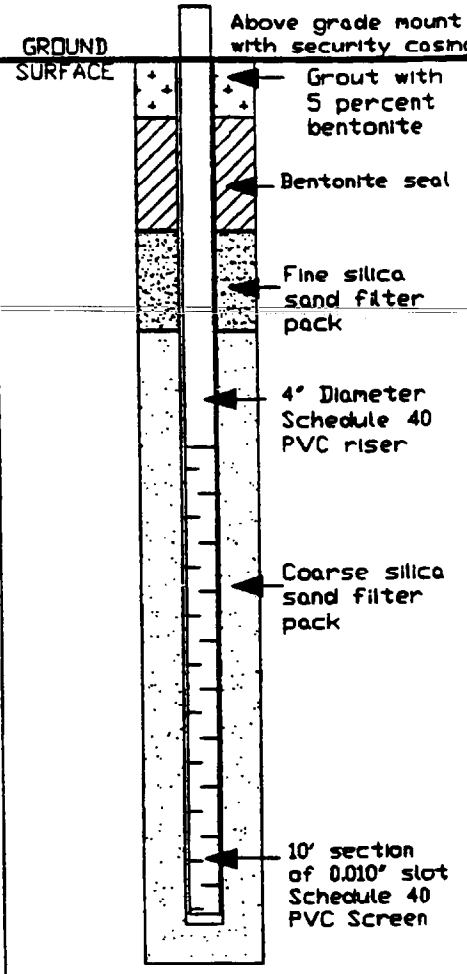
SITE INSPECTION
IHDIVNAVSURFWARCEN
INDIAN HEAD, MARYLAND

SITE 41
BORING 41SB06

DATE: 09/29/92 | DWG NAME: 41SB06

NUMBER (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	TIME	DESCRIPTION OF SUBSURFACE MATERIALS
					BORING DATE 09/02/92
	SS	0	0	1502	(0-2 feet) No recovery.
5	SS	100	17	1511	(5-7 feet) Moderately sorted medium to fine grained sand; brown with iron staining; moist with minor clays. (7-9 feet) Same as above.
10	SS	83	26	1529	(10-12 feet) Same as above but with increasing clay. Iron staining at 11.2-11.8 ft. Some clay clast present, and sand grain size increases with depth.
	SS	83	26	1536	(12-14 feet) Very stiff green clay with dark greenish bands.
15	SS	100	22	1549	(15-17 feet) Very stiff green clay.
20					
25					
30					BORING TERMINATED AT 17'

WELL CONSTRUCTION DETAILS



CASING SET @ 18.06 FEET.

SITE INSPECTION
IHDIVNAVSURFWARCEN
INDIAN HEAD, MARYLAND

SITE 41
BORING 41SB07
MONITORING WELL 41MW03

DATE: 10/02/92 | DWG NAME: 41MW03

DATE OF BORING: 09/03/92

SAMP	DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	TIME	VAPOR READINGS	DESCRIPTION OF SUBSURFACE MATERIALS
							BG (BACKGROUND) = 0.0 ppm
1		SS	0	0	0952	BG	(0-2 feet) No recovery; concrete cover.
2	5	SS	100	8	1005	BG	(5-7 feet) Medium to coarse, poorly sorted brown to tan sand with some fines and clay clast.
3	10	SS	100	25	1015	BG	(10-12 feet) Medium to coarse grained, poorly sorted brown sand with some silts and iron staining.
4	15	SS	100	17	1025	BG	(15-17 feet) Very stiff, dry, greenish gray clay with minor amounts of brown clay.
	20						
	25						
							BORING TERMINATED AT 17'

SITE INSPECTION
IHDIVNAVSURFWARCEN
INDIAN HEAD, MARYLAND

SITE 41
BORING 41SB08

DATE: 09/29/92 | DWG NAME: 41SB08

DATE OF BORING: 09/10/92

SAMP	DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	BLOWS/FT.	TIME	VAPOR READINGS	DESCRIPTION OF SUBSURFACE MATERIALS
							BG (BACKGROUND) = 0.0 ppm
1		SS	0	0	1035	BG	(0-2 feet) No recovery; concrete cover.
2	5	SS	83	17	1040	BG	(5-7 feet) Fine to medium grained sand; moist.
3	10	SS	100		1100	BG	(10-12 feet) Fine to medium grained sand; moist.
4	15	SS	100	12	1110	BG	(15-17 feet) Green gray clay with some silts. Decreasing silt wi depth.
	20						
	25						BORING TERMINATED AT 17'

SITE INSPECTION
IHDIVNAVSURFWARCEN
INDIAN HEAD, MARYLAND

SITE 41
BORING 41SB08R

DATE: 09/29/92 | DWG NAME: 41SB08R

A.2 SURFACE SOIL SAMPLE LOG SHEETS (RI)

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Site 41
Project No.: 7129

Sample ID No.: S4155001 0001
Sample Location: Site 41
Sampled By: CF
C.O.C. No.: #12

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/22/97 Time: 1215 Method: S.S. Trowel Monitor Reading (ppm): —	6"	brown	silty sand

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N.A.	

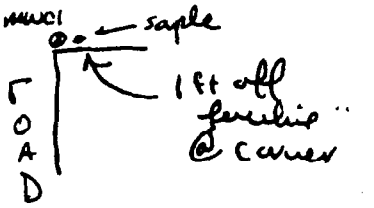
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOA	4oz	10/22	
TCL SVOC	8oz		
TAL Met / CN			
TCL Pest / PCB			
Explosives	4oz		

OBSERVATIONS / NOTES:

collected from low point, depression near 41MW01. Possible drainage off site under fence

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): CFisher

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Indian Head Site 41
Project No.: 7129

Sample ID No.: 5415S002 0001
Sample Location: Site 41
Sampled By: CF
C.O.C. No.: # 12

[1] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[1] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/22/97	6"	brown	silty sand
Time: 1223			
Method: S.S. Trowel			
Monitor Reading (ppm): —			

COMPOSITE SAMPLE DATA:

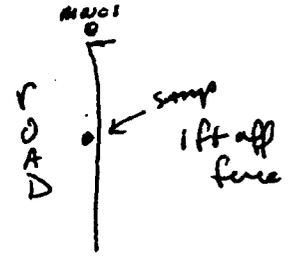
Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N.A.	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOA	4oz	10/22	
TCL SVOA	8oz		
TAL Met / CN			
Pest / PCB			
Explo	4oz		

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Indian Head - R1
Project No.: 7124

Sample ID No.: 541 SS003 0001
Sample Location: S.D. 41
Sampled By: CF
C.O.C. No.: #12

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/22/97 Time: 1240 Method: S.S. Trowel Monitor Reading (ppm): —	6"	dark brown black	silty sand

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N.A.	

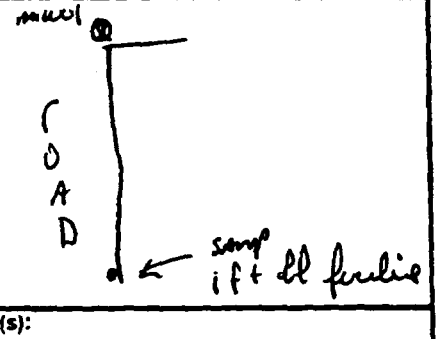
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOA	4oz	10/22	
TCL SVOA	} 8oz		
TAL Met / CN			
TCL Pest / PCB			
Explo	4oz		

OBSERVATIONS / NOTES:

Sampled in area of dead, decayed leaves — potential drainage area some dark soils may be staining

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): C Forbes

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Indian Head - 21
Project No.: 7129

Sample ID No.: S41SS004 0001
Sample Location: S.G 41
Sampled By: CF
C.O.C. No.: #12

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/22/97 Time: 1320 Method: S.S. Trowel Monitor Reading (ppm): —	6"	dark brown	silty sand w some gravel moist

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N.A.	

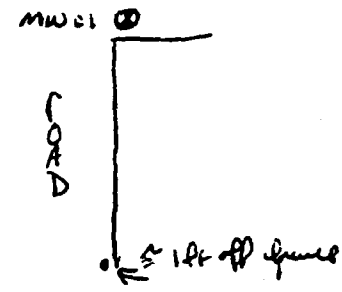
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOA	4g	10/22	
TCL SVOA	8g		
TAL met / CN			
Pest / PCB			
Explo	4g		

OBSERVATIONS / NOTES:

Taken from moist drainage area under fence line.

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): C Forbes

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Indian Head - A1
Project No.: 7129

Sample ID No.: 541 SS005000 1
Sample Location: S.641
Sampled By: CF
C.O.C. No.: #12

[] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/22/97 Time: 1405 Method: S.S. Trowel Monitor Reading (ppm): —	6"	dark brown	moist silty sand w some gravel

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):			N.A.	

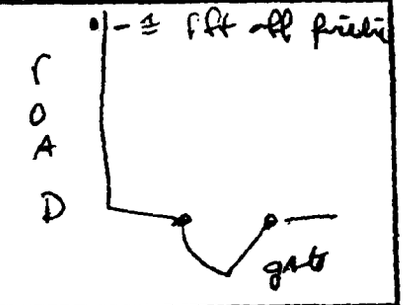
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOA	4oz	10/22	
TCL SVOA	8oz		
TAL met / CN			
Pest / PCB			
Pyro	4oz		

OBSERVATIONS / NOTES:

collected from narrow drainage line ≈ 1ft away from fenceline

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): C Parkos

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Indian Head - R1
Project No.: 7129

Sample ID No.: 541550006001
Sample Location: S.to 41
Sampled By: CF
C.O.C. No.: #12

(X) Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
(X) Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/22/97 Time: 1345 Method: S.S. Trowel Monitor Reading (ppm): –	6"	light grey	Clayey moist

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):			N.A.	

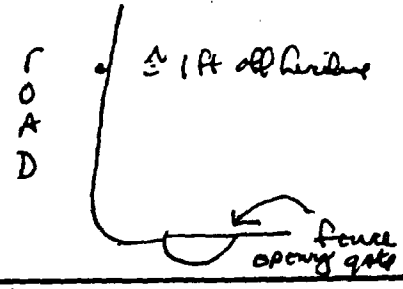
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOA	4g	10/22	
TCL SVOA	8oz		
TAL inorg / CN			
Pest / PCB			
Hydro	4g		

OBSERVATIONS / NOTES:

Collected from moist low drainage area under Pavement

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): CFarhos

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Indian Head - M1
Project No.: 7129

[x] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Sample ID No.: S4L SS007 0001
Sample Location: S.G 41
Sampled By: CF
C.O.C. No.: #12

Type of Sample:
[x] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/22/97 Time: 1420 Method: S.S. Trowel Monitor Reading (ppm): –	6"	light grey	clayey soil - moist

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N.A.	

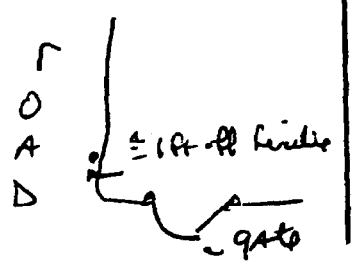
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOA	4oz	10/22	
TCL SVOA	8oz		
TAL Met / CN			
PCB / PCB			
Explo	4oz		

OBSERVATIONS / NOTES:

moist drainage area 1 ft off fenceline. Possible odors detected - organic like odors - paint.

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.: –

Signature(s): C Fraiuss

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Indian Head .21
Project No.: 7129

Sample ID No.: 54155 008 0001
Sample Location: Site 41
Sampled By: CF
C.O.C. No.: #12

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/22/97 Time: 1040 Method: S.S. Trowel Monitor Reading (ppm): —	6"	black	silty sand w/ gravel

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N.A.	

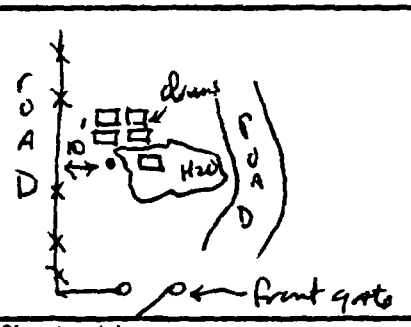
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOA	4g	10/22	
TCL SVOA	8oz		
TAL met / CN			
PCBs / PCB			
Explo	4g		

OBSERVATIONS / NOTES:

collected from moist area beside drums & just off from stagnant water. collected from area of undisturbed (unpaved) soil.

MAP:



Circle if Applicable:

MS/MSD — Duplicate ID No.: 54IDup 009

Signature(s): C Fortnos

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Indian Head-21
Project No.: 7129

Sample ID No.: 541SS0091001
Sample Location: S-41
Sampled By: CF
C.O.C. No.: H 12

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10/22/97 Time: 1025 Method: S.S. Trowel Monitor Reading (ppm): –	6"	dark brown	silty sand & gravel

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):			N.A.	

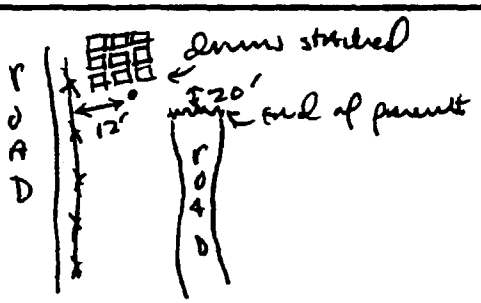
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
TCL VOA	4oz	10/22	
TCL SVOA	8oz		
TAL met / CN			
Pest / PCB			
Explo	4oz		

OBSERVATIONS / NOTES:

concrete slab ≅ 6" below soil surface. Soil collected in darker soil area in moist area where drainage & settlement may occur

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): C Farkos

A.3 BORING LOG (MONITORING WELL 41MW04)

C1 U671 (MDE USE ONLY)

WELL COMPLETION REPORT

FILL IN THIS FORM COMPLETELY
PLEASE TYPE

WELL IS COMPLETED:

COUNTY NUMBER 98-480-WM

ST/CO USE ONLY
DATE Received MM DD YY

DATE WELL COMPLETED: MM 10 DD 19 YY 98

Depth of Well: 15 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL": CH - 94 - 2307

OWNER: Naval Surface Warfare Center (7208)

STREET OR RFD: Indian Head Division TOWN: Indian Head, Maryland 20640

SUBDIVISION: SECTION: LOT:

WELL LOG

Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET FROM	FEET TO	check if water bearing
yellow gravel w/some sand & silt	0	2	
dark sand & gravel	2	8	
yellow/brown clayey sand	8	10	
yellow/brown sand & gravel	10	15'	
water @ approx 12'			

NUMBER OF UNSUCCESSFUL WELLS:

WELL HYDROFRACTURED: yes Y / no N — N/A

CIRCLE APPROPRIATE LETTER
- A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED
- E ELECTRIC LOG OBTAINED
- P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLERS LIC. NO.: M G D 046

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION): Michael W. Hyde

LIC. NO.: ___ D ___

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GROUTING RECORD

WELL HAS BEEN GROUTED (Circle Appropriate Box): yes Y / no N

TYPE OF GROUTING MATERIAL (Circle one): CEMENT CM — BENTONITE CLAY BC

NO. OF BAGS: 1 NO. OF POUNDS: 200

GALLONS OF WATER: 7

DEPTH OF GROUT SEAL (to nearest foot): from 0 TOP ft. to 2 BOTTOM ft. (enter 0 if from surface)

CASING RECORD

casing types insert appropriate code below: ST STEEL, CO CONCRETE, PL PLASTIC, OT OTHER

MAIN CASING TYPE	Nominal diameter top (main) casing (nearest inch)	Total depth of main casing (nearest foot)
PL	2	5

OTHER CASING (if used) — EACH CASING

diameter inch	depth (feet) from	to

SCREEN RECORD

screen type or open hole insert appropriate code below: ST STEEL, BR BRASS BRONZE, HO OPEN HOLE, PL PLASTIC, OT OTHER

C 2

EACH SCREEN	TYPE	DEPTH (nearest ft.) from	to
1	PL	5	15
2			
3			

SLOT SIZE: .010 2 ___ 3 ___

DIAMETER OF SCREEN: 2 (NEAREST INCH)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68: from 3 to 15

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.) W Q

TELESCOPE CASING — LOG INDICATOR — OTHER DATA

C 3

PUMPING TEST

HOURS PUMPED (nearest hour): 1

PUMPING RATE (gal. per min.): 1

METHOD USED TO MEASURE PUMPING RATE:

WATER LEVEL (distance from land surface)

BEFORE PUMPING: ft.

WHEN PUMPING: ft.

TYPE OF PUMP USED (for test): A air, P piston, T turbine, C centrifugal, R rotary, O other (desc below), J jet, S submersible

MONITORING

PUMP INSTALLED

DRILLER INSTALLED PUMP (CIRCLE) (YES or NO): YES / NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29.

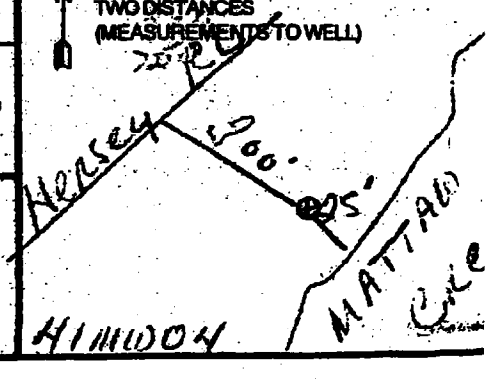
CAPACITY: GALLONS PER MINUTE (to nearest gallon)

PUMP HORSE POWER

PUMP COLUMN LENGTH (nearest ft.)

CASING HEIGHT (circle appropriate box and enter casing height): + above / − below LAND SURFACE 00 (nearest foot)

LOCATION OF WELL ON LOT
SHOW PERMANENT STRUCTURES AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)



H1MW04

B 1 — 8651 — SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND
PERMIT TO DRILL WELL
please print or type

STATE PERMIT NUMBER: CH – 94 – 2303

fill in this form completely

Date Received (APA): 10/5/98 (MM DD YY)

OWNER INFORMATION

Last Name / First Name: Navel Surface Warfare Center

Street or RFD: Indian Head Division

Town: Indian Head, MD — State: — Zip: 20640

DRILLER INFORMATION

Driller's Name: Michael W. Huber — License No.: M G D 046

Firm Name: Hardin-Huber, Inc.

Address: 6720 Ft. Smallwood Rd., Balto Md. 21226

Signature: Michael W. Huber — Date: 10/2/98

LOCATION OF WELL

B 3

COUNTY: Charles County

SUBDIVISION:

SECTION: — LOT:

NEAREST TOWN: Indian Head

MILES FROM TOWN (enter 0 if in town): 0 MI

B 4

DIRECTION OF WELL FROM TOWN (CIRCLE BOX): N, NW, NE, W, TOWN, E, SW, SE, S

NEAR WHAT ROAD: Hersey Road

ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX): NORTH, WEST, EAST, SOUTH

V 270
H 750

DISTANCE FROM ROAD: 300 FT (ENTER FT OR MI)

TAX MAP: 20 BLK: 8 PARCEL:

WELL INFORMATION

B 2

APPROX. PUMPING RATE (GAL. PER MIN.): NONE

AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY): NONE

USE FOR WATER (CIRCLE APPROPRIATE BOX)

- D — DOMESTIC POTABLE SUPPLY & RESIDENTIAL IRRIGATION
- F — FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION
- I — INDUSTRIAL, COMMERICIAL, DEWATERING
- P — PUBLIC WATER SUPPLY WELL
- T — TEST, OBSERVATION, MONITORING
- G — GEO-THERMAL

NOT TO BE FILLED IN BY DRILLER
HEALTH DEPARTMENT APPROVAL

COUNTY NAME: Charles — COUNTY NO.: 98-480-WM

STATE SIGNATURE: — INSERT 6

DATE ISSUED: 10/15/98 — CO SIGNATURE: — EXP. DATE: 10/15/99

NORTH GRID: 270 000 — EAST GRID: 750 000

APPROXIMATE DEPTH OF WELL: 30 FEET

APPROXIMATE DIAMETER OF WELL: 2 NEAREST INCH

METHOD OF DRILLING (circle one)

BORED (or Augered) — JETTED — Jetted & DRIVEN

30 AIR-ROTary — AIR-PERcussion — ROTARY (Hydraulic Rotary)

37 CABLE — REVerse-ROTary — DRive-POINT

other

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X

SOURCES OF DRILLING WATER
1. MUNICIPAL
2.
3.

WRITE THE BOX NUMBER FROM THE MAP HERE

E 750

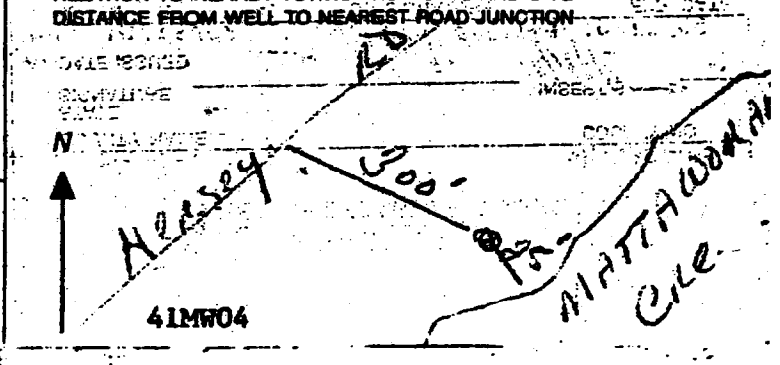
N 270

REPLACEMENT OR DEEPENED WELLS
(CIRCLE APPROPRIATE BOX)

- N — THIS WELL WILL NOT REPLACE AN EXISTING WELL
- Y — THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
- 39 S — THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY. CONTACT LOCAL APPROVING AUTHORITY FOR POLICY ON STANDBY WELLS
- D — THIS WELL WILL DEEPEN AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPENED (IF AVAILABLE)

DRAW A SKETCH BELOW SHOWING LOCATION OF WELL IN RELATION TO NEARBY TOWNS AND ROADS AND GIVE DISTANCE FROM WELL TO NEAREST ROAD JUNCTION



Not to be filled in by driller (MDE OR COUNTY USE ONLY)

APPROP. PERMIT NUMBER: GAP

DD — PERMIT No. CH – 94 – 2303

SPECIAL CONDITIONS

BORING NO.: 41MW04

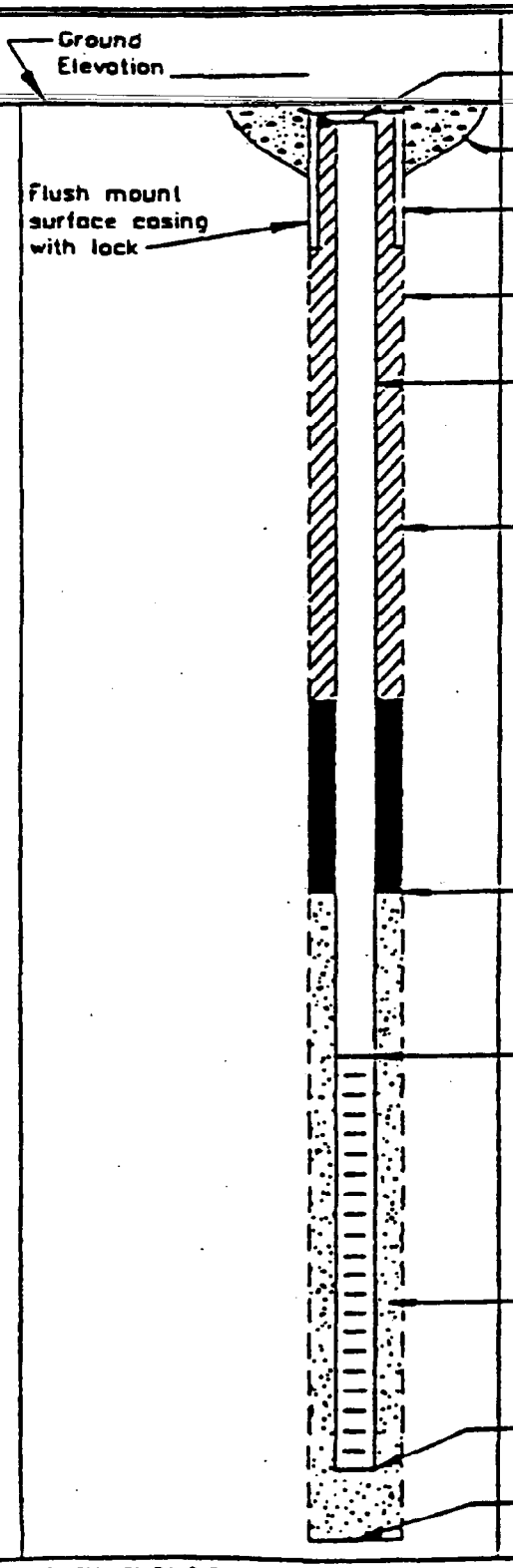
Tetra Tech NUS, Inc.

MONITORING WELL SHEET

PROJECT: INDIANHEAD SITE 41
PROJECT NO.: 7129
ELEVATION:
FIELD GEOLOGIST: FRED W RAMSER

LOCATION: SITE 41
BORING: 41MW04
DATE: 10-8-98

DRILLER: HHI
DRILLING METHOD: 4 1/4 HSA
DEVELOPMENT METHOD: 12VDC WELL PUMP



ELEVATION TOP OF RISER:

TYPE OF SURFACE SEAL: 3'x3'x6" CONCRETE

TYPE OF PROTECTIVE CASING: CAST STEEL

I.D. OF PROTECTIVE CASING: 12"

DIAMETER OF HOLE: 10"

TYPE OF RISER PIPE: SCH. 40 PVC

RISER PIPE I.D.: 2"

TYPE OF BACKFILL/SEAL: CONCRETE/ BENTONITE PELLETS

DEPTH/ELEVATION TOP OF SAND: 3'/

DEPTH/ELEVATION TOP OF SCREEN: 5'/

TYPE OF SCREEN: PVC 2" ID

SLOT SIZE x LENGTH: .010 x 10'

TYPE OF SAND PACK: #2 SILICA SAND

DIAMETER OF HOLE IN BEDROCK: NA

DEPTH/ELEVATION BOTTOM OF SCREEN: 15.0/

DEPTH/ELEVATION BOTTOM OF SAND: 15.5/

DEPTH/ELEVATION BOTTOM OF HOLE: 15.5/

BACKFILL MATERIAL BELOW SAND: NA

PROJECT NAME: INDIAN HEAD SITE 41 BORING NUMBER: 41MW04
PROJECT NUMBER: 7129 DATE: 10-8-98
DRILLING COMPANY: HHI GEOLOGIST: FRED W RAMSER
DRILLING RIG: GEOPROBE/MOBILE 5704 DRILLER: MARK

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS*	Remarks	PID/FID Reading: Sample	Sampler B.Z.	Borehole**
S-1 1315					DRY-SK		YEL BRN GRAVEL	GM				
	2		50%				W/SOME SAND & SILT					
					MED DENSE		BLK SAND + GRAVEL	GW	ROOT MATL.			
	4											
S-2 1435			1	↑			WOOD PRUG ~2.5' LONG		DRIVE ANOTHER 4'			
	6		0%	?								
									CLAYSAND PER CUTTING			
	8			↓					HSA FOR 4-8'			
S-3 1445							YEL-BRN	SC				
	10		50%				CLAYEY SAND					
	12				MED DENSE	PALE	YEL BRN SAND + GRA	GP	SATURATED			
S-4 1500							GRAVEL CONT.					
	14		100%				DEC. DOWNWARD					
	16						GREY GREEN CLAY	CL				
									PLACE SCREEN			
							-DRILLER SAYS HE		@ 5-15			
							HIT THE CLAY ~13'					

* When rock coring, enter rock toughness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated response read.

Drilling Area Background (ppm):

Remarks: DUE TO RAINY CONDITIONS USED GEOPROBE FOR LITHOLOGIC SAMPLING, AND USED HSA RIG TO INSTALL WELL.

Converted to Well: Yes X No _____ Well I.D. #: 41MW04

MONITORING WELL DEVELOPMENT RECORD

Well: 41MW04
Site: SITE 41
Date Installed: 10-8-98
Date Developed: 10-8-98
Dev. Method: PUMP + SURGE
Pump Type: 12VDC WELL PUMP

Depth to Bottom (ft.): 15'
Static Water Level Before (ft.): 5.2
Static Water Level After (ft.): 5.2
Screen Length (ft.): 10'
Specific Capacity: —
Casing ID (in.): 2"

Responsible Personnel: FRED WRAMSER
Drilling Co.: HHI
Project Name: INDIAN HEAD
Project Number: 7129

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units µS/cm)	Turbidity (NTU)	Remarks (odor, color, etc.)
1730	—	5 GAL	—	19.0	3.55	.542	>999	BROWN
1805	—	45 GALS	—	19.3	3.60	.501	5	CLEAR
1810	—	50 GALS	—	19.2	3.61	.502	5	↓
1815	—	55 GALS	—	19.2	3.62	.501	5	

A.4 SURFACE SOIL SAMPLE LOG SHEETS (PRE-FS)

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0010006
Sample Location: S41SS01
Sampled By: PLR
C.O.C. No.: 63751

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-29-99 Time: 1140 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	YEL BRN	SILT + SAND TR CLAY

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	S41SSDUP001

Signature(s): Fred W Ramser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0010106
Sample Location: S41SS001
Sampled By: PUR
C.O.C. No.: 637751

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-29-99 Time: 1145 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	DK BRN	SILT + SAND DRY

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX. TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Ramos

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS0030006
Sample Location: $41SS003
Sampled By: PJR
C.O.C. No.: 63751

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-29-99 Time: 1205 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	BRN	SAND + GRA MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.:

Signature(s): Fred W Ramser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41S50020006
Sample Location: S41S8002
Sampled By: PJR
C.O.C. No.: 63751

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-24-99 Time: 1200 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	YEL BRN	SAND & GRA MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, ND, NG			

OBSERVATIONS / NOTES:

COLLECTED OF SURFACE COVER OVER CONCRETE 3"-4" THICK

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred W Ramser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS0040006
Sample Location: $41SS004
Sampled By: PLR
C.O.C. No.: 63751

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-29-99 Time: 1215 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	DK BRN	SAND + SILT + CLAY

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred W Ramser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0030106
Sample Location: S41SS003
Sampled By: FUR
C.O.C. No.: 63751

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-24-99 Time: 1210 Method: SS TROWEL/AUGER Monitor Reading (ppm):	12"-18"	BLK DK BRN	SAND + GRA + SILT WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Rauser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS005S0006
Sample Location: S41SS005
Sampled By: PLR
C.O.C. No.: 64015

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-29-99 Time: ~~1220~~ 1230 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6" 3"	BLF DK. BRN	SAND + GRA.

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

COLLECTED FROM
3"-4" SURFACE COVER OVER
CONCRETE

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred M Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS004Q06
Sample Location: S41SS004
Sampled By: PUR
C.O.C. No.: 64015

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-29-99 Time: 1220 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12"-18"	BLK	SAND (FLY ASH) MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle If Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred M Rainer

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS006010G
Sample Location: S41SS006
Sampled By: PUR
C.O.C. No.: 64015

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

Date: 9-29-99	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1240	12" - 18"	DK BRN + BLK	SAND + GRA + SILT MOIST
Method: SS, TROWEL/AUGER			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred M Ramos

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS0060006
Sample Location: $41SS006
Sampled By: PLR
C.O.C. No.: 67015

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-29-99 Time: 1235 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	DK BRN YEL BRN	SAND + GRA. MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred W Ramser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0070106
Sample Location: S41SS007
Sampled By: PUR
C.O.C. No.: 64015

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-29-99 Time: 1249 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	DK BRN + BLK	SAND (FLYASH) & SILT WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle If Applicable:

MS/MSD ___ Duplicate ID No.: ___

Signature(s): Fred M Ramos

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0090006
Sample Location: S41SS009
Sampled By: PLR
C.O.C. No.: 64015

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-29-94 Time: 1515 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	DK BRN	SAND + SILT TR GRA

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS0080006
Sample Location: $41$$008
Sampled By: PGR
C.O.C. No.: 64015

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-29-99			
Time: 1500	0"-~~6"~~ 3" PR	BLK BRN	SAND + GRA MOIST TO WET
Method: S.S. TROWEL			
Monitor Reading (ppm): —			

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

COLLECTED FROM SURFACE
COVER OVER CONCRETE ~3'-4" THICK

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	$41$$DUP002

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0100006
Sample Location: S41SS010
Sampled By: PJR
C.O.C. No.: 64015

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-29-99 Time: 1535 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	YEL BRN	SAND+SILT +GRA. MOIST

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S415S0070006
Sample Location: S415S0
Sampled By: PJR
C.O.C. No.: 64015

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-29-99 Time: 1245 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	DK BRN	SAND+SILT MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred W Ramer

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0090106
Sample Location: S41SS009
Sampled By: FUR
C.O.C. No.: 64015

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-29-99 Time: 1520 Method: S.S. TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	DK BRN	SILT + SAND MOIST TO WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD –

Duplicate ID No.: –

Signature(s): Fred U Ranser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS011 0006
Sample Location: $41SS011
Sampled By: PLR
C.O.C. No.: 63752

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 0930 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	YEL BRN	SAND + SILT + GRA. MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: $41SSDUP003
~~$41SS011000~~

Signature(s): Fred Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS010010C
Sample Location: S41SS010
Sampled By: PUR
C.O.C. No.: 64015

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-29-99 Time: 1545 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12"-18"	DK BRN BLK	SAND + GRAVEL

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Ranser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS012 0006
Sample Location: S41SS012
Sampled By: PLR
C.O.C. No.: 63752

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 0950 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	BLK	SAND + GRAVEL

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

COLLECTED AT AREA W/ SURFACE COVER ~15"-16" THICK.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0110106
Sample Location: S41SS011
Sampled By: PUR
C.O.C. No.: 63752

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 0939 Method: S.S, TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	BRN, DK BRN, TO BLK	SAND + GRAVEL

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred M Ranson

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0120106
Sample Location: S41SS012
Sampled By: PUR
C.O.C. No.: 63752

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 0959 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12" - ~~18"~~ 15"	BLK + DK BRN	SAND + GRAVEL

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

FROM COVER 15" THICK OVER CONCRETE

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred M Ranser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S415S013 0006
Sample Location: S415S013
Sampled By: PGK
C.O.C. No.: 63752

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1005 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	DK BRN BRK	SILT + GRA.

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle If Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0140006
Sample Location: S41SS014
Sampled By: PLR
C.O.C. No.: 63752

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1120 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	DK BRN YEL BRN	SAND + GRA, MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle If Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0130106
Sample Location: S41SS013
Sampled By: PWR
C.O.C. No.: 63752

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1010 Method: S.S. TROWEL/AUGER Monitor Reading (ppm):	12"-18"	DK BRN	SAND & GRA. WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Ramos

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0140106
Sample Location: S41SS014
Sampled By: PUR
C.O.C. No.: 63752

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1130 Method: S.S. TROWEL/AUGER Monitor Reading (ppm):	12"-18"	BLK	GRAVEL + SAND WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred M Ramos

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS0150006
Sample Location: $41SS0
Sampled By: PLR
C.O.C. No.: 63752

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1140 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	YEL BRN DK BRN	SAND+SILT+GRA.

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX. TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle If Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0150106
Sample Location: S41SS015
Sampled By: PWR
C.O.C. No.: 63752

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1148 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	DK BRN	SAND + SILT MOIST TO WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred M Rauser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS0160006
Sample Location: $41SS016
Sampled By: PK
C.O.C. No.: 63752

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1330 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6" 3"	DK BRN BLK	SILT, SAND + GRA MOIST

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

COLLECTED FROM SURFACE COVER 3"-4" THICK OVER CONCRETE

MAP:

Circle If Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS019 0006
Sample Location: $41SS019
Sampled By: PLR
C.O.C. No.: 63752

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1337 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	YEL BRN	SAND + SILT MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: $41SSDUP004

Signature(s): Fred M Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0190106
Sample Location: S41SS019
Sampled By: PUR
C.O.C. No.: 63752

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1345 Method: S.S. TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	DK BRN TO BLK	SAND + SILT WET + CRA.

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Ranser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS0200006
Sample Location: $41SS020
Sampled By: PLR
C.O.C. No.: 64014

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1347 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	BLK	SAND + GRA W/METALLIC DEBRIS

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS017 0006
Sample Location: S41SS017
Sampled By: PLK
C.O.C. No.: 64014

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1400 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	YEL BRN TO BLK	SAND + GRAVEL MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle If Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS017010G
Sample Location: S41SS017
Sampled By: PUR
C.O.C. No.: 64014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1407 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	DK BRN TO BLK	SAND+GRAVEL WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Ramos

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS0180006
Sample Location: $41SS018
Sampled By: PLR
C.O.C. No.: 64014

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-94 Time: 1415 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	DK BRN	SAND + GRA MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0180106
Sample Location: S41SS01B
Sampled By: PUR
C.O.C. No.: 64014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1425 Method: S.S, TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	BLK	GRAVEL + SAND WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX. TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Ramos

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0210006
Sample Location: S41SS021
Sampled By: PUR
C.O.C. No.: 64014

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1440 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-~~6"~~ 3"	YEL BRN TO BRN	SAND + GRA DRY - MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

COLLECTED FROM SURFACE COVER 3"-4" THICK OVER CONCRETE

MAP:

Circle If Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41S50240006
Sample Location: S41S8024
Sampled By: PLR
C.O.C. No.: 64014

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1450 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	DK BRN TO BLK	SAND + SILT

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 2	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 2	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD ✓

Duplicate ID No.: —

Signature(s): Fred M Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0240106
Sample Location: S41SS024
Sampled By: FWR
C.O.C. No.: 64014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1455 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	DK BRN TO BLK	SAND+SILT WET

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred W Ramer

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41S50250006
Sample Location: S41S8025
Sampled By: PLR
C.O.C. No.: 64014

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-94 Time: 1505 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-~~6"~~ 3"	BRN + BLK	SAND + GRA. W/ METALLIC DEBRIS

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

COVER ~3" THICK OVER CONCRETE

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s):

Fred M Ramer

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS023000G
Sample Location: $41SS023
Sampled By: PJL
C.O.C. No.: 64014

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1530 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	YEL BRN TO BLK	SAND + GRAVEL MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 2	✓	
LEAD, IRON			
TCL PCBs	4oz x 2	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle If Applicable:

MS/MSD ✓

Duplicate ID No.: —

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0230106
Sample Location: S41SS023
Sampled By: PUR
C.O.C. No.: 64014

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1537 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	DK BRN	SILT, SAND + GRA. WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred M Ranson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS022010G
Sample Location: S41SS022
Sampled By: FWK
C.O.C. No.: 64014

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1555 Method: S.S TROWEL + AUGER Monitor Reading (ppm): –	12"-18"	BLK	SAND + GRA. + SILT WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x1		
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x1		

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred W Ramsor

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS022 0006
Sample Location: S41SS022
Sampled By: PLR
C.O.C. No.: 64014

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 9-30-99 Time: 1545 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	DK BRN	SAND+SILT + GRAVEL MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS026 0006
Sample Location: $41SS026
Sampled By: PLK
C.O.C. No.: 63812

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 0805 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-3"	BLK + DKBRN	SAND + GRA MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX. TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

COLLECTED FROM COVER ~3-4" OVER CONCRETE.

MAP:

Circle If Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS0320006
Sample Location: $41SS032
Sampled By: PJL
C.O.C. No.: 63812

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-94 Time: 0810 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-0" 3"	BLK + BRN	GRAVEL + SAND

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

COLLECTED FROM COVER 3" THICK OVER CONCRETE

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred W Ramier

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS031000
Sample Location: S41SS031
Sampled By: PK
C.O.C. No.: 63812

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 0812 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-~~6"~~ 3"	BLK + BRN	SAND+GRAVEL W/METALIC DEBRIS MOIST TO WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

COLLECTED FROM COVER ~3" THICK OVER CONCRETE

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0300006
Sample Location: S41SS030
Sampled By: PUR
C.O.C. No.: 63812

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 0815 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	BRN	SAND+SILT MOIST TO WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0300106
Sample Location: S41SS030
Sampled By: FMR
C.O.C. No.: 63812

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 0820 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	YEL BRN DK BRN	SAND + SILT MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred M Ramer

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS0270006
Sample Location: $41SS027
Sampled By: PLR
C.O.C. No.: 63812

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 0840 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	BRN + BLK	SAND + GRA. WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS027010G
Sample Location: S41SS027
Sampled By: FUR
C.O.C. No.: 63812

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other: _____
[ ] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 0845 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	DK BRN	SAND & GRA. + SILT WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

COLLECTED UNDER STANDING WATER

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Ramer

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS0280006
Sample Location: $41SS028
Sampled By: PLK
C.O.C. No.: 63812

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 0900 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	BRN TO BLK	WET SAND+SILT TR GRA.

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	$41SSDUP005

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0280106
Sample Location: S41SS028
Sampled By: FMR
C.O.C. No.: 63812

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 0910 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12"-18"	YEL BRN	SAND+SILT WET

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred M Rainer

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS02 90006
Sample Location: S41SS029
Sampled By: PLR
C.O.C. No.: 63812

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 0915 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	YEL BRN	SAND + GRA. WET

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred W Ramser

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0290106
Sample Location: S41SS029
Sampled By: PMR
C.O.C. No.:

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 0925 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	BRN	SILT, SAND + GRA. WET

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred M Ramsr

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0330006
Sample Location: S41SS033
Sampled By: PLR
C.O.C. No.:

- [x] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1000 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	DK BRN BLK	SAND + GRA. WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred W Ramser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS033010G
Sample Location: S41SS033
Sampled By: PUR
C.O.C. No.: 63812

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1010 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	DK BRN BLK	SAND+SILT +GRA. WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: ___

Signature(s): Fred M Ramos

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41S50340006
Sample Location: S41S8034
Sampled By: PUL
C.O.C. No.: 63812

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1020 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	YEL BRN	SAND + GRA + SILT

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	S41SSDUP006

Signature(s): Fred Ramser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS034010G
Sample Location: S41SS034
Sampled By: FUR
C.O.C. No.: 63813

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1030 Method: SS TROWEL/AUGER Monitor Reading (ppm):	12"-18"	DK BRN TO YEL BRN	SILT + SAND MOIST

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred U Ramer

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS0350006
Sample Location: $41SS035
Sampled By: PLR
C.O.C. No.: 63813

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1035 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	DK BRN	SAND + GRA. WET

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	8oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	8oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD ✓

Duplicate ID No.: —

Signature(s): Fred W Ramer

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0350106
Sample Location: S41SS0
Sampled By: PMR
C.O.C. No.: 63813

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1045 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12"-18"	DK BRN TO BLK	SAND+SILT TR GRA. WET.

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Ramos

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $4155036 0006
Sample Location: $4155036
Sampled By: PJR
C.O.C. No.: 63818

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1100 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	BRN YELLOW BRN	SILT + SAND DRY

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.: —

Signature(s): Fred W Ramser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS036010C
Sample Location: S41SS036
Sampled By: PWR
C.O.C. No.: 63813

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1110 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	YEL GRAY BRN	SAND + SILT + CLAY DRY

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle If Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Ramos

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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS0370006
Sample Location: $41SS037
Sampled By: PUL
C.O.C. No.: 63813

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1115 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	BRN TO BLK	SAND + GRA + SILT WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Fred W Ramser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0370106
Sample Location: S41SS037
Sampled By: PUR
C.O.C. No.: 63813

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1120 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12"-18"	DK BRN	SILT, SAND + GRA. WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle If Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Ramos

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS0380006
Sample Location: $41SS038
Sampled By: PLR
C.O.C. No.: 63813

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1125 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	YEL BRN	SAND + GRA. MOIST

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD: —

Duplicate ID No.: $41SSDUP007

Signature(s): Fred M Ramser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0380106
Sample Location: S41SS038
Sampled By: PUR
C.O.C. No.: 63813

- [ ] Surface Soil
- [x] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1130 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12" - 18"	DK BRN	SAND + GRA. MOIST

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBS	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Ranson

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0390006
Sample Location: S41SS039
Sampled By: PWR
C.O.C. No.: 63813

- [X] Surface Soil
- [ ] Subsurface Soil
- [ ] Sediment
- [ ] Other:
- [ ] QA Sample Type:

Type of Sample:
- [X] Low Concentration
- [ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1135 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	YEL BRN	GRAVEL + SAND + SILT WET

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			✓
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD — Duplicate ID No.: —

Signature(s): Fred W Ramser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS0390106
Sample Location: S41SS039
Sampled By: PUR
C.O.C. No.: 63813

[ ] Surface Soil
[X] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1137 Method: SS, TROWEL/AUGER Monitor Reading (ppm):	12"-18"	DK BRN	SAND + GRA. WET

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Rauser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: $41SS040006
Sample Location: $41SS040
Sampled By: PLR
C.O.C. No.: 63813

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1145 Method: S.S. TROWEL Monitor Reading (ppm): —	0"-6"	DK BRN TO BLK	SAND & SILT TR GRA. MOIST TO WET

COMPOSITE SAMPLE DATA:

	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC			
CADMIUM	4oz x 1	✓	
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS / NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Ramser

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: SITES 12, 41, 42 PRE-FS
Project No.: 7129, INDIAN HEAD NSWC

Sample ID No.: S41SS040010C
Sample Location: S41SS040
Sampled By: FWR
C.O.C. No.: 63813

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-1-99 Time: 1150 Method: S.S. TROWEL/AUGER Monitor Reading (ppm):	12"-18"	DK BRN TO BLK	SAND + SILT WET

COMPOSITE SAMPLE DATA:

Date:	Time	Depth	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
ARSENIC	4oz x 1	✓	
CADMIUM			
LEAD, IRON			
TCL PCBs	4oz x 1	✓	
SILVER			
TOX TEST			
TAL METALS			
TOC			
GRAIN SIZE			
EXPLOSIVES, NC, NU, NG			

OBSERVATIONS/NOTES:

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s): Fred M Ramer

APPENDIX B

VOLUME CALCULATIONS

CLIENT:	IHDIV-NSWC SITE 41	JOB NUMBER:	4020-1405
SUBJECT:	Volume Calculations		
BASED ON:	Design Drawing C-6	DRAWING NUMBER:	
BY: T.W.S. Date: 09-Aug-02	CHECKED BY: gmd Date: 8/9/02	APPROVED BY:	DATE:

PURPOSE:

The purpose of this calculation is to determine the volume of soil to be excavated/removed and to determine the amount of fill material required (common fill and topsoil) for site restoration.

DISCUSSION AND ASSUMPTIONS

1) Measurements were taken from Design Drawings C-6, C-7, and C-8 which are provided as part of this design package.
2) Rail material is included in the 18-inch excavation volume.
3) Areas and volumes calculated within the limits of remediation only.

CALCULATION

Excavation / Off-site Management:

Area Where Soil is to be excavated to a depth of 6-inches =	10,504 sf	C-6
Area Where Soil is to be excavated to a depth of 18-inches =	47,508 sf	C-6
Area Where Soil is to be excavated to a depth of 8-feet =	100 sf	C-6
Volume excavated (6-inch area) =	195 cy	
Volume excavated (18-inch area) =	2,639 cy	
Volume excavated (8-feet area) =	101 cy*	
Total Volume Excavated =	**2,935 cy**	

* Geometry used to calculate 8-foot excavation volume: 100 sf base

+ Bottom of excavation is 10 feet by 10 feet or 100 square feet
+ Site slopes are 1H:1V
+ Depth of Excavation is 8 feet
+ Area of excavation at surface equals 26 feet by 26 feet or 676 square feet

Volume excavated (8-feet area) =	3,104 cf	
Area of 8-foot excavation occupied by 18-inch excavation =	260 sf	C-6
Volume included in 18-inch excavation area =	390 cf	
Volume associated with 8-foot excavation =	2,714 cf	
Volume associated with 8-foot excavation =	101 cy	
Estimated volume of soil to be removed from Concrete Pad =	**1,350 cy****	

** Estimate from Site 41 Feasibility Study and Draft Final Record of Decision

Total Volume of Material for Off-site Management = 4,285 cy

CLIENT:	IHDIV-NSWC SITE 41	JOB NUMBER:	4020-1405
SUBJECT:	Volume Calculations		
BASED ON:	Design Drawing C-6	DRAWING NUMBER:	
BY: T.W.S. Date: 09-Aug-02	CHECKED BY: gmt 8/9/02 Date:	APPROVED BY:	DATE:

Backfill / Site Restoration:

Volume of Material Excavated From Site 41 =	2,935 cy	
~~Volume of Material Required for Site Restoration =~~	~~2,935 cy~~	
Area to be Gravel Paved =	14,298 sf	C-7
Depth of Gravel Paved Section =	8 in	C-8
Volume of Gravel Pavement =	**353 cy**	
Area to be Bituminous Concrete Paved =	1,395 sf	C-7
Depth of Bituminous Concrete Paved Section =	13 in	C-8
Volume of Bituminous Concrete Pavement =	**56 cy**	
Volume of Soil Material Required for Site Restoration =	2,526 cy	
Area of Remediation (Outside Concrete Pad) =	58,428 sf	***
Area to be Gravel Paved =	14,298 sf	C-7
Area to be Bituminous Concrete Paved =	1,395 sf	C-7
Area of Remediation to Receive Topsoil =	42,735 sf	
Depth of Topsoil =	6 in	C-8
Volume of Topsoil Required =	**791 cy**	
Volume of Select Fill Required =	**1,735 cy**	

*** This area equals the area of 6-inch excavation (10,504 sf), plus the area of 18-inch excavation (47,508 sf), plus the area of 8-foot excavation (676 sf), minus the area of 8-foot excavation within 18-inch excavation (260).

Environmental Permits Report
for
Site 41 - Scrap Yard

Indian Head Division
Naval Surface Warfare Center
Indian Head, Maryland

Engineering Field Activity Chesapeake
Naval Facilities Engineering Command

Contract Number N62467-94-D-0888
Contract Task Order 0805

August 2002

REVISION 0
AUGUST 2002

ENVIRONMENTAL PERMITS REPORT
FOR
SITE 41 - SCRAP YARD

INDIAN HEAD DIVISION
NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Engineering Field Activity Chesapeake
1314 Harwood Street, SE
Washington Navy Yard, D.C. 20374-5018

Submitted by:
Tetra Tech NUS, Inc.
600 Clark Avenue, Suite 3
King of Prussia, Pennsylvania 19406-1433

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0805

AUGUST 2002

PREPARED UNDER DIRECTION OF:

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TETRA TECH NUS, INC.
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ACRONYMS AND ABBREVIATIONS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-Term Environmental Action Navy
COMAR	Code of Maryland Regulations
CTO	Contract Task Order
cy	cubic yards
DOD	Department of Defense
IHDIV-NSWC	Indian Head Division, Naval Surface Warfare Center
IHIRT	Indian Head Installation Restoration Team
MDE	Maryland Department of the Environment
mg/kg	milligrams/kilogram
NPDES	National Pollutant Discharge Elimination System
PCB	polychlorinated biphenyl
POTW	publicly owned treatment works
RAOs	remedial action objectives
Site 41	Site 41 - Scrap Yard
TSCA	Toxic Substances Control Act
TSD	Treatment, storage and disposal
TtNUS	Tetra Tech NUS, Inc.
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

This Environmental Permits Report was prepared by Tetra Tech NUS, Inc. (TtNUS) under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62467-94-D-0888, Contract Task Order (CTO) 0805. Under CTO 0805, TtNUS is performing engineering, design, and construction-phase services for the remedial action at Site 41 – Scrap Yard (Site 41) at the Indian Head Division, Naval Surface Warfare Center (IHDIV-NSWC) in Indian Head, Maryland. Site 41 is located in the Main Area of IHDIV-NSWC on the Cornwallis Neck Peninsula. Vicinity and location maps showing the approximate location of IHDIV-NSWC and Site 41 are presented in Figures 1-1 and 1-2, respectively.

1.1 BACKGROUND INFORMATION

Site 41 covers an area of approximately 750 feet long and varies from 75 to 100 feet wide. Site features are shown on Figure 1-3. The scrap yard is enclosed with a 10-foot-high chain-link fence. A concrete pad is present within most of the fenced area; however, the pad is covered with soil in some locations. A dirt and gravel access road and abandoned railroad tracks are located between the southern portion of the site and Mattawoman Creek. The area north of the site is wooded. The site is currently an active scrap yard that is used to store metal materials and scraps, including storage drums and furniture. The materials are eventually recycled or reused.

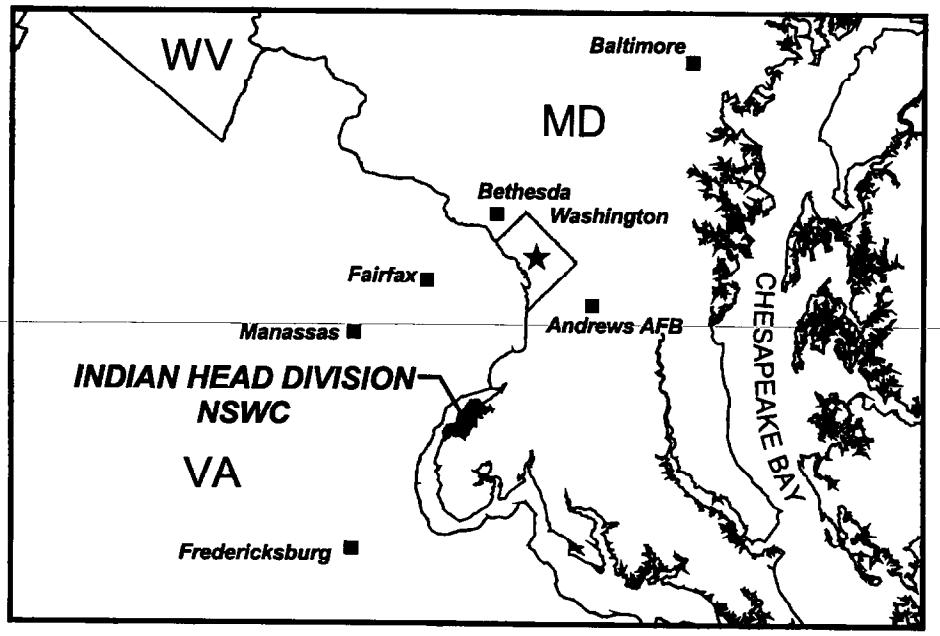
The site area is flat, and surface runoff tends to pond and infiltrate. In some areas, runoff flows toward Mattawoman Creek. A portion of the site is within the 100-year floodplain of Mattawoman Creek.

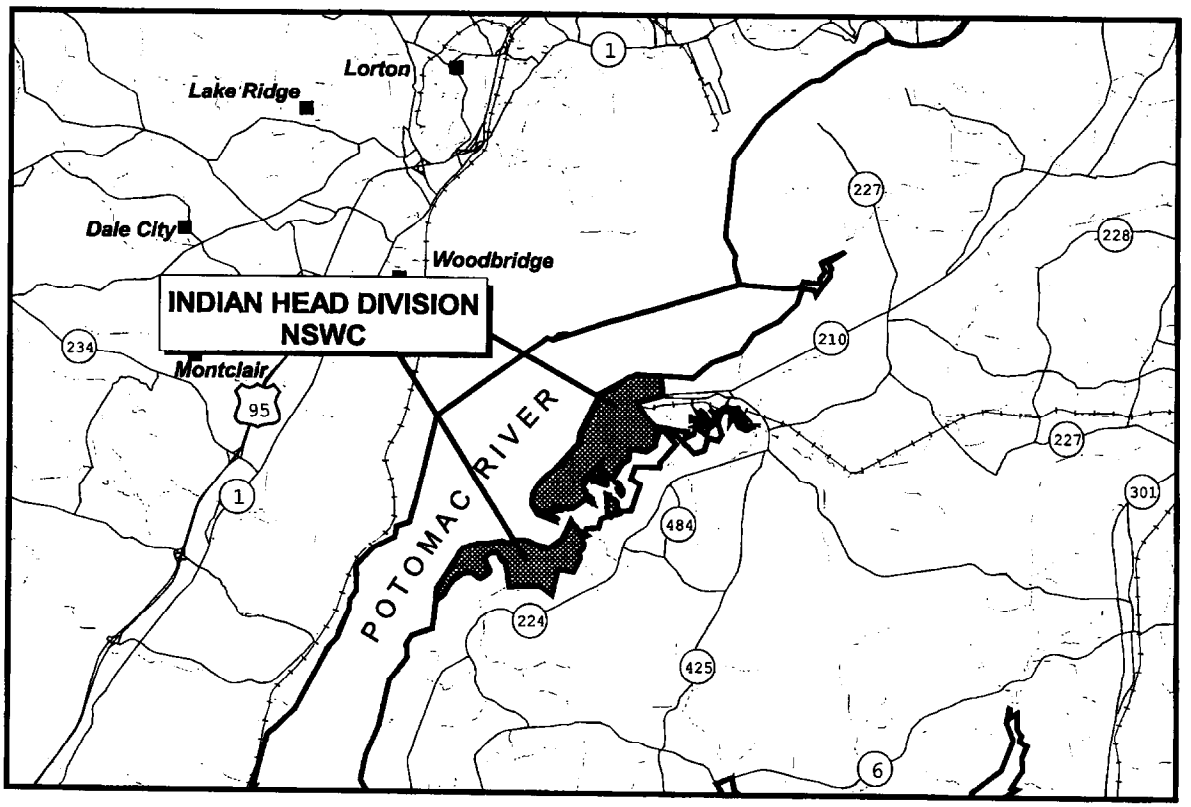
It was reported that electrical transformers that contained polychlorinated biphenyls (PCBs) were stored at the northwestern end of the scrap yard from the 1960s until 1988. During a 1981 site inspection, 17 transformers were identified as either containing or contaminated with PCBs. These transformers were believed to have leaked and contaminated the soil in the western portion of the site. In addition, lead-acid batteries were stored at the scrap yard. The batteries may have released lead to the surface soil. Although large stains were observed where the transformers were stored, no transformers or batteries are currently stored in the western portion of the site.

Subsurface materials generally consist of clayey sand interlayered with clayey gravel and sand lenses underlain by green-gray clay or brown sandy clay. The clay was encountered at a depth of approximately 15 feet. Layers of slag and coal that were 2 to 5 feet thick were encountered at the ground surface at some locations outside the fenced area. Slag and coal were not encountered within the fenced area.

1.2 PURPOSE

The purpose of an Environmental Permits Report is to identify applicable permits, filing procedures, and filing costs required to complete the remedial action outlined in Section 2.0. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121(e) exempts any response action conducted entirely on site from Federal, state, and local permit application procedures. On-site actions need only comply with the substantive aspects of environmental regulations, not with the corresponding administrative requirements. Permit application and other administrative procedures, such as administrative reviews, reporting, and recordkeeping requirements, are not considered for actions taken entirely on site. For on-site actions, the substantive aspects of permit regulations are also identified in this report. Off-site actions must comply with all legally applicable requirements, both substantive and administrative. According to 40 Code of Federal Regulations (CFR) 300.400(e), the term "on site" means the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the remedial action.





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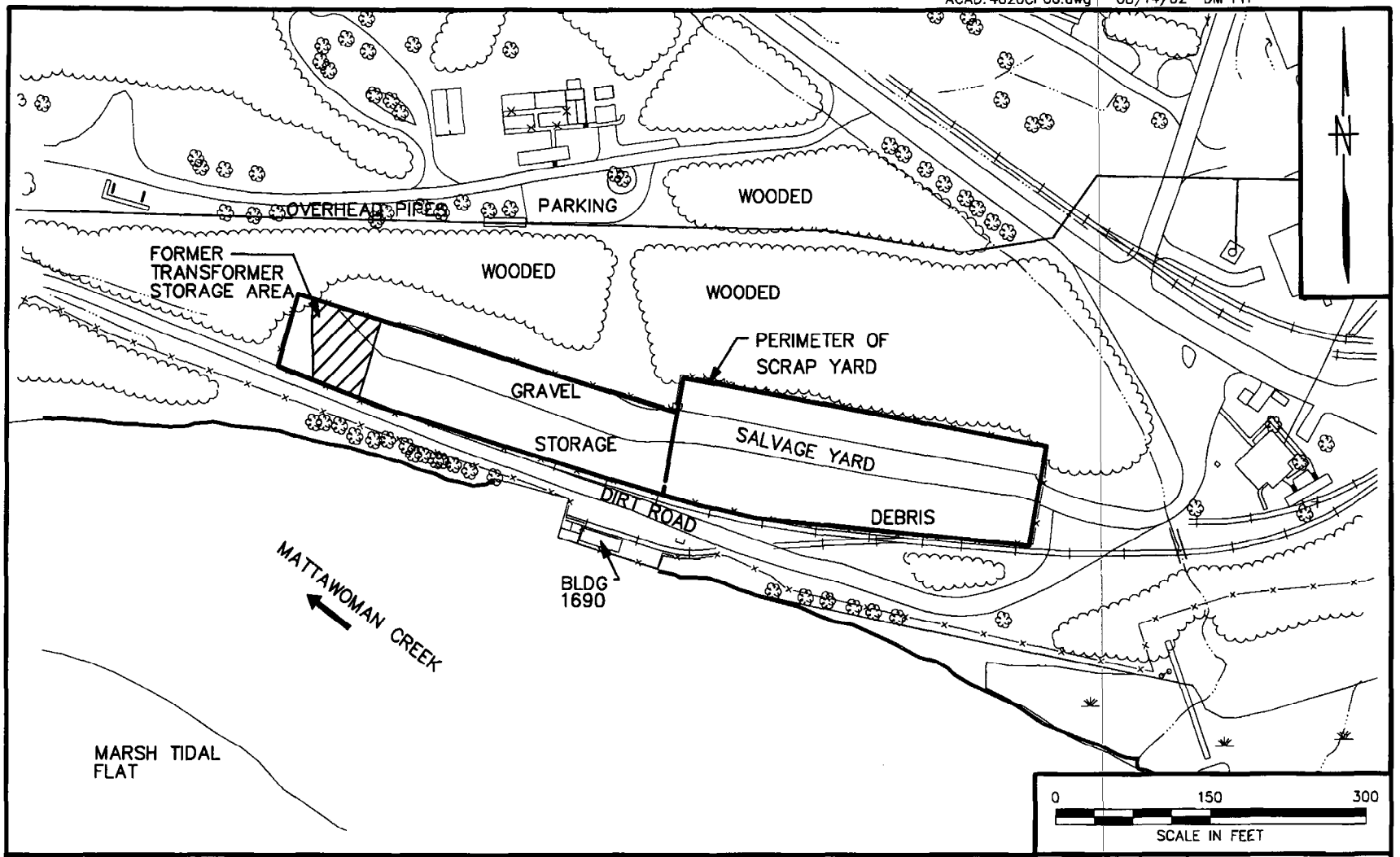

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2.0 PROPOSED REMEDIAL ACTION

2.1 REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are based on the contaminated media, potential human health and environmental threats, and regulatory standards, requirements, and guidance. The medium of interest at Site 41 is surface soil. Although chemical concentrations in groundwater were above federal and state drinking water standards, groundwater beneath the site is not a current or potential source of drinking water under the anticipated non-residential future land use.

There could be unacceptable risks to current and future full-time employees and future construction workers from exposure to surface soil. In addition, potential ecological risks are present from exposure to chemicals in surface soil. However, there is one area of subsurface soil (location 41SB02) where the maximum detected concentration of arsenic [328 milligrams/kilogram (mg/kg)] could pose unacceptable risks to future construction workers. The RAO for surface soil and one subsurface soil location is to eliminate receptor exposure pathways by removing the potential for direct contact between human and ecological receptors and contaminants.

Hypothetical future residents could face unacceptable risks from exposure to soil and groundwater. Although residential land uses are not anticipated at Site 41 in the future, one of the RAOs is to prevent future residential exposure to contaminants.

The RAOs for Site 41 are summarized below:

- Remove the potential for direct contact between receptors and soil contaminants.
- Prevent future residential exposure to soil and groundwater contaminants.

2.2 REMEDIAL ACTION DESCRIPTION

As described in Section 3 of the Basis of Design, the remedial action for Site 41 will consist of general site preparation work, excavating contaminated soil, hauling excavated soil off-site to an approved treatment, storage, and disposal facility (TSD), backfilling excavated areas, and restoring the site. Institutional controls will be imposed, and the site will be monitored.

General Site Preparation: The areas in which construction activities will be cleared. To facilitate the removal of soil, the abandoned railroad tracks south of the scrap yard will be removed. The existing fence around the scrap yard will be removed to allow excavation and will be replaced following site

restoration. In addition, appropriate erosion and sediment control measures will be implemented to minimize the potential for off-site migration of contaminants.

Soil Removal and Off-Site Disposal: This component includes the following activities:

- The approximately 6-inch average depth of contaminated soil within the fenced area [approximately 1,350 cubic yards (cy)] will be removed and hauled off-site for TSD.

- The concrete pad that underlies soil within the fenced area will be steam cleaned and pressure washed to remove residual soil. Wipe samples will be collected from the concrete surface to determine the degree of residual PCB contamination. If residual PCB concentrations exceed allowable levels (see Section 3.2.2 of the Basis of Design), the Indian Head Installation Restoration Team (IHIRT) will evaluate site conditions and analytical data and determine appropriate further remedial actions.

- Six or 18 inches of soil will be excavated from areas outside the fence. One area near boring 41SB02 will be excavated to a depth of 8 feet. As a result, an additional 2,935 cy of material will be hauled off site for TSD (including railroad related materials). Confirmation soil samples will be collected and analyzed to verify that residual concentrations of contaminants are below cleanup levels. Additional excavation will be performed as necessary. Disturbed areas will be backfilled to original grade and restored as indicated on Design Drawing C-7.

- Excavated soil will be transported off-site and disposed at a solid waste landfill, hazardous waste landfill, or an incinerator permitted under the Toxic Substances Control Act (TSCA), depending on the PCB concentration and requirements of the approved TSD facility.

Land Use Controls and Monitoring: Land use controls will be implemented to further reduce the potential for exposure. Residential development and groundwater use will not be permitted. Periodic monitoring of groundwater will be conducted after the soil has been removed. The results of the monitoring will be used to evaluate the effectiveness of the remedial action and to determine whether additional actions are necessary.

3.0 REQUIRED PERMITS

Table 3-1 presents a Project Permits Checklist to assess what permit requirements (if any) will be applicable for specific projects for regulatory compliance. This table lists the type of permit, license, or certification that may be required by governmental agencies for specific types of projects. Based on a review of the permit checklist and federal and state laws and regulations, no permits are required for remedial actions at Site 41. On-site remedial actions at CERCLA sites are exempt from obtaining permits and from compliance with administrative requirements of Federal, state, or local environmental laws and regulations. However, on-site remedial actions must comply with substantive requirements. The substantive requirements are summarized below and described in Section 4.0.

3.1 FEDERAL PERMITS AND REQUIREMENTS

No United States Environmental Protection Agency (USEPA) or United States Army Corps of Engineers (USACE) permits are required for this project.

3.2 STATE PERMITS AND REQUIREMENTS

No Maryland Department of the Environment (MDE) permits are required for this project. However, substantive requirements for construction in a floodplain, erosion and sediment control, and potentially for hazardous waste generation and transport must be met.

3.3 LOCAL PERMITS AND REQUIREMENTS

IHDIV-NSWC is a federal facility that is located on land owned by the government; therefore, it is not subject to the local codes, permits, or inspection requirements typically required.

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TABLE 3-1

PROJECT PERMITS CHECKLIST
SITE 41 – SCRAP YARD
IHDIV-NSWC, INDIAN HEAD, MARYLAND
PAGE 1 OF 2

Type of Project	Type of Permit, License, Certification	Issuing Agency	Applicability	Reason
Stationary Air Emission Source	- Permit to Construct - Permit to Operate	-State -State	-Not applicable -Not applicable	Construction of an air emission source will not occur.
Construction in Floodplain, Waterway, or Wetland	- Nontidal Wetlands and Waterways Permit -Section 404 Dredge/Fill Permit	-State -Army Corp of Engineers	-Applicable -Not applicable	Construction will occur in a floodplain. Construction in waterway and wetland will not occur.
Wastewater Discharge to "Waters of the U.S."	-Surface Water Discharge Permit (NPDES)	-State and USEPA	-Not applicable	Discharge of wastewater to surface water will not occur.
Wastewater Discharge to Sewer	-Pretreatment Permit (if to municipal POTW)	-State or local	-Not applicable	Discharge of wastewater to a sewer will not occur.
Dredging/Fill and Filling Wetlands	-Section 404 Dredge/Fill Permit -Nontidal Wetlands and Waterways Permit -Ocean Disposal Permit	-Army Corps of Engineers -State -State or USEPA	-Not applicable -Not applicable -Not applicable	Excavation, filling, and restoration will not occur in wetlands or waterway. Ocean disposal will not be performed.
Structure in Navigable Waters	-Section 10 Permit -Nontidal Wetlands and Waterways Permit	-Army Corps of Engineers -State	-Not applicable -Not applicable	No structures are being built (placed) in navigable waters.
Stormwater Discharge to "Waters of the U.S."	-Stormwater General Discharge Permit -General Permit for Construction Activity	-State -State	-Applicable -Not applicable	Stormwater discharge from scrap yard is "associated with industrial activity." Construction activity covers less than 5 acres.

TABLE 3-1

PROJECT PERMITS CHECKLIST
SITE 41 – SCRAP YARD
IHDIV-NSWC, INDIAN HEAD, MARYLAND
PAGE 2 OF 2

Type of Project	Type of Permit, License, Certification	Issuing Agency	Applicability	Reason
Earth-Moving Operations	-Erosion and Sediment Control Plan -Stormwater Management Plan	-State -State	-Applicable -Applicable	No permit required. Plan approval is required for construction activities and development that cover more than 5,000 square feet.
Solid Waste Landfills	-Permit-to-Operate	-State	-Not applicable	No on-site disposal of excavated soil.
Hazardous Waste Generation	-USEPA Identification Number	-State	-Potentially applicable	Off-site shipment of hazardous waste may occur.
Hazardous Waste Transporting	-State Waste Hauler License/Permit	-State	-Potentially applicable	Off-site shipment of hazardous waste may occur.
Hazardous Waste Treatment, Storage, Disposal	-Permit-to-Construct -Permit-to-Operate (Part B Permit)	-State or USEPA -State or USEPA	-Not applicable -Not applicable	Hazardous waste will not be treated, stored, or disposed on site.
Underground Storage Tanks	-Permit-to-Construct -Permit-to-Operate -Registration	-State or USEPA -State or USEPA -State or USEPA	-Not applicable -Not applicable -Not applicable	No underground storage tanks are associated with this project.
Pesticide Application	-Applicator Certification	-DOD	-Applicable	Herbicides may be used.

DOD Department of Defense
NPDES National Pollutant Discharge Elimination System
POTW Publicly Owned Treatment Works
USEPA United States Environmental Protection Agency

4.0 PERMIT APPLICATIONS AND REQUIREMENTS

No permits are required for remedial activities at Site 41. On-site remedial actions at CERCLA sites are exempt from obtaining permits and other administrative requirements. However, there are administrative requirements associated with off-site transport of contaminated soil if it is characterized as a hazardous waste. Note that MDE classifies waste that contains more than 50 mg/kg PCBs as a hazardous waste. Such waste is also subject to TSCA requirements.

4.1 CONSTRUCTION IN FLOODPLAIN

Construction activities will occur in and adjacent to the 100-year floodplain. Excavation, filling, and construction activities are regulated in a nontidal stream or body of water, including the 100-year floodplain. There will be no permanent impacts to public safety and welfare, natural resources, the floodplain, wildlife, or endangered species and their critical habitat. Construction will be temporary in nature. As per Code of Maryland Regulations (COMAR) 26.17.04 (Construction on Nontidal Waters and Floodplains), temporary sediment trapping devices will conform to the technical requirements in the latest edition of Maryland Standards and Specifications for Soil Erosion and Sediment Control.

4.2 STORMWATER DISCHARGES

State general permits cover certain point source stormwater discharges. This includes the discharge of stormwater associated with industrial activity (COMAR 26.08.02 through 26.08.04). Facilities involved in recycling of materials, including metal scrap yards, battery reclaimers, salvage, and automobile junk yards, are considered to be engaging in industrial activity [40 CFR 122.26(b)]. There are no substantive requirements for effluent limitations or monitoring; however, a Stormwater Pollution Prevention Plan would be required. The elements of this plan are similar to those for earth-moving operations (Section 4.3) and would only need to be considered during construction. Substantive elements of the Stormwater Pollution Prevention Plan can be incorporated into the Erosion and Sediment Control Plan Report, both of these plans have been prepared for this project. Following the completion of the remedial action, the scrap yard will be remediated and stormwater will not be in contact with pollutants.

4.3 EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT PLANS

Requirements for earth-moving operations are found in the Maryland erosion and sediment control regulations (COMAR 26.17.01). An erosion and sediment control plan is required for clearing and grading activities that disturb more than 5,000 square feet of land and more than 100 cubic yards of earth. According to COMAR 26.17.01.06, a trained and certified "responsible person" must be on site during construction. The purpose of the "responsible person" is to train field personnel on techniques and

standards that assist with the field implementation of erosion and sediment controls. Erosion and sediment control plans must meet the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control and adhere to the Erosion and Sediment Control Guidelines issued by MDE in January 1990.

Requirements for stormwater control are found in the Maryland stormwater management regulations (COMAR 26.17.02). A stormwater management plan is required for any development project that disturbs more than 5,000 square feet of land. The intent of the plan and regulations is to prevent stream bank erosion by controlling the rate of stormwater runoff from newly developed areas. Structural and nonstructural stormwater management measures will be designed according to the 2000 Maryland Stormwater Design Manual.

Although approval of these plans is an administrative requirement, preparation of an erosion and sediment control plan is part of the scope of work for this project, and stormwater management controls will be incorporated into the design as necessary.

4.4 GENERATION AND OFF-SITE DISPOSAL OF HAZARDOUS WASTE

Based on the relatively low concentrations of the other COCs, it is expected that hazardous or non-hazardous determination will be based on PCB levels. Excavated soil will be tested before it is hauled off-site to determine the PCB concentration and whether it must be handled and disposed as a hazardous waste and/or TSCA-regulated waste. Excavated soil with a PCB concentration greater than 50 mg/kg is regulated under TSCA (40 CFR 761) and is a listed hazardous waste in Maryland (COMAR 26.13.02). Other waste characterization testing may be performed based on disposal facility requirements.

A generator may not offer hazardous waste for transportation without having an USEPA identification number (COMAR 26.13.03.03). IHDIV-NSWC already has an USEPA identification number.

Manifests are required for the off-site transport of hazardous waste (COMAR 26.14.03.04) and TSCA-regulated PCB waste (40 CFR 761.207).

Transporters of hazardous waste and TSCA-regulated PCB waste must also have an USEPA identification number and must be certified by MDE (COMAR 26.14.04 and 40 CFR 761.202).

Erosion and Sediment Control Plan Report
for
Site 41 – Scrap Yard

Indian Head Division
Naval Surface Warfare Center
Indian Head, Maryland

Engineering Field Activity Chesapeake
Naval Facilities Engineering Command

Contract Number N62467-94-D-0888
Contract Task Order 0805

August 2002

REVISION 0
AUGUST 2002

EROSION AND SEDIMENT CONTROL PLAN REPORT FOR SITE 41 – SCRAP YARD

INDIAN HEAD DIVISION
NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Engineering Field Activity Chesapeake
1314 Harwood Street, S.E.
Washington Navy Yard, D.C. 20374-5018

Submitted by:
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CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0805

AUGUST 2002

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
CADs	cartridge activated devices
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
COCs	contaminants of concern
COMAR	Code of Maryland Regulations
CTO	Contract Task Order
cy	cubic yards
DC	District of Columbia
FS	Feasibility Study
HSG	hydrologic soil group
IHDIV-NSWC	Indian Head Division, Naval Surface Warfare Center
IHIRT	Indian Head Installation Restoration Team
IR	Installation Restoration
MDE	Maryland Department of the Enviornment
NPL	National Priorities List
PCBs	polychlorinated biphenyls
ppm	parts per million
RAC	remedial action contractor
RI	remedial investigation
ROICC	Resident Officer in Charge of Construction
SCS	Soil Conservation Service
sf	square feet
SI	site inspection
Site 41	Site 41 - Scrap Yard
TSD	treatment, storage, and disposal
TtNUS	Tetra Tech NUS, Inc.
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
UXO	unexploded ordnance
VSAP	Verification Sampling and Analysis Plan

1.0 INTRODUCTION

This Erosion and Sediment Control Plan Report was prepared under Contract Task Order (CTO) No. 0805 under Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888. Under this CTO, Tetra Tech NUS, Inc. (TtNUS) is performing engineering, design, and post-construction award services for the remedial action design at Site 41 - Scrap Yard (Site 41) at the Indian Head Division, Naval Surface Warfare Center (IHDIV-NSWC), in Indian Head, Maryland. The remedial action design consists of the removal and off-site disposal of contaminated soils from on and around the concrete pad of Site 41, cleaning the concrete pad, implementing land use controls to prohibit residential development or use of contaminated groundwater, and periodic monitoring of the shallow groundwater.

The IHDIV-NSWC is located in northwestern Charles County, Maryland, approximately 25 miles southwest of Washington, DC, as shown on Figure 1-1. The IHDIV-NSWC is a military facility consisting of the Main Area on the Cornwallis Neck Peninsula and the Annex on Stump Neck. The Main Area is bounded by the Potomac River to the northwest, west, and south, Mattawoman Creek to the south and east, and the town of Indian Head to the northeast (Figure 1-2). Stump Neck Annex is located across Mattawoman Creek. The Stump Neck Annex is not contiguous with the Main Area and is operated by a tenant. The primary mission of IHDIV-NSWC is to provide 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. IHDIV-NSWC was added to the National Priorities List (NPL) by the United States Environmental Protection Agency (USEPA) in September 1995, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. Site 41 is one of the 48 Installation Restoration (IR) sites at the Main Area currently included in the IHDIV-NSWC IR Program. This remedial action design is limited to Site 41, located in the Main Area of IHDIV-NSWC.

1.1 SITE HISTORY

Site 41 is an active fenced scrap yard. During an inspection in 1981, 17 transformers were identified as either containing or contaminated with polychlorinated biphenyls (PCBs). These transformers were believed to have leaked and contaminated the soil in the western portion of the site. In addition, lead-acid batteries were stored in the scrap yard. The batteries may have released lead to the surface soil. Although large stains were observed where the transformers were stored, no transformers or batteries are currently stored in the western portion of the site (TtNUS, 2001).

Site 41 was investigated during a site inspection (SI) in 1992 and 1993 to determine whether solvents, PCBs, or lead had contaminated surface soil, creek sediment, or shallow groundwater [ENSAFE/Allen Hoshall (E/A&H), 1994].

A remedial investigation (RI) was performed at Site 41 in 1997. The investigation included collection and analysis of soil, shallow groundwater, surface water, and sediment samples (TtNUS, 1999).

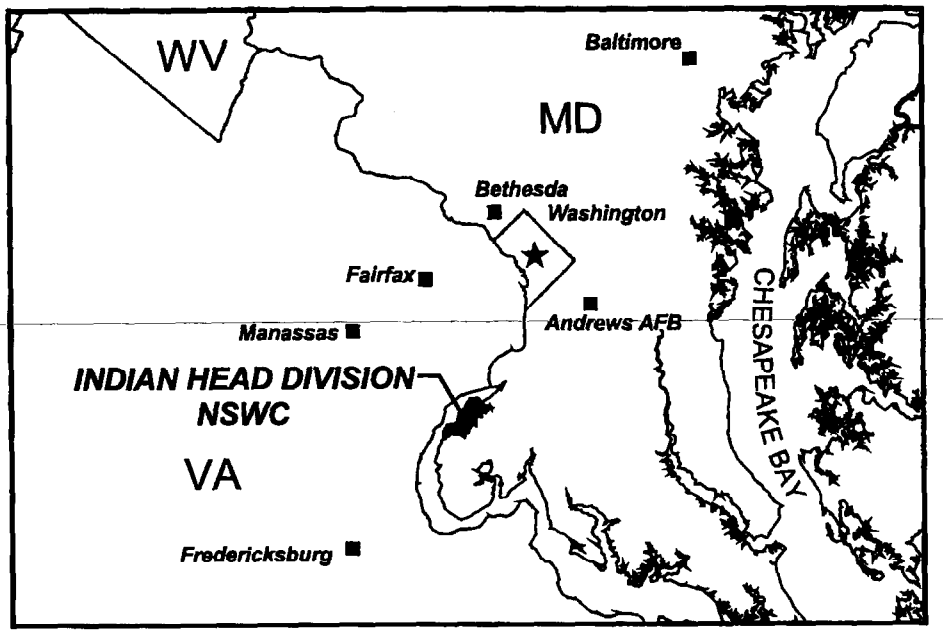
Additional activities were performed in 1999 to fill data gaps as part of the feasibility study (FS) preparation process. Surface soil and subsurface soil samples were collected and analyzed. The results were used to refine the extent of contamination (TtNUS, 2001).

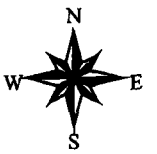
1.2 REPORT OBJECTIVE

The objective of this report is to describe the project and present the erosion and sediment control measures that will be used during implementation of the remedial action at Site 41.

1.3 REPORT FORMAT

Section 2.0 presents a narrative on the requirements for Erosion and Sediment Control Plans. Section 3.0 presents a generalized sequence of construction. Section 4.0 presents conclusions. Construction drawings, including Design Drawing C-2 "Erosion and Sediment Control Plan," and technical specifications are provided under separate cover.





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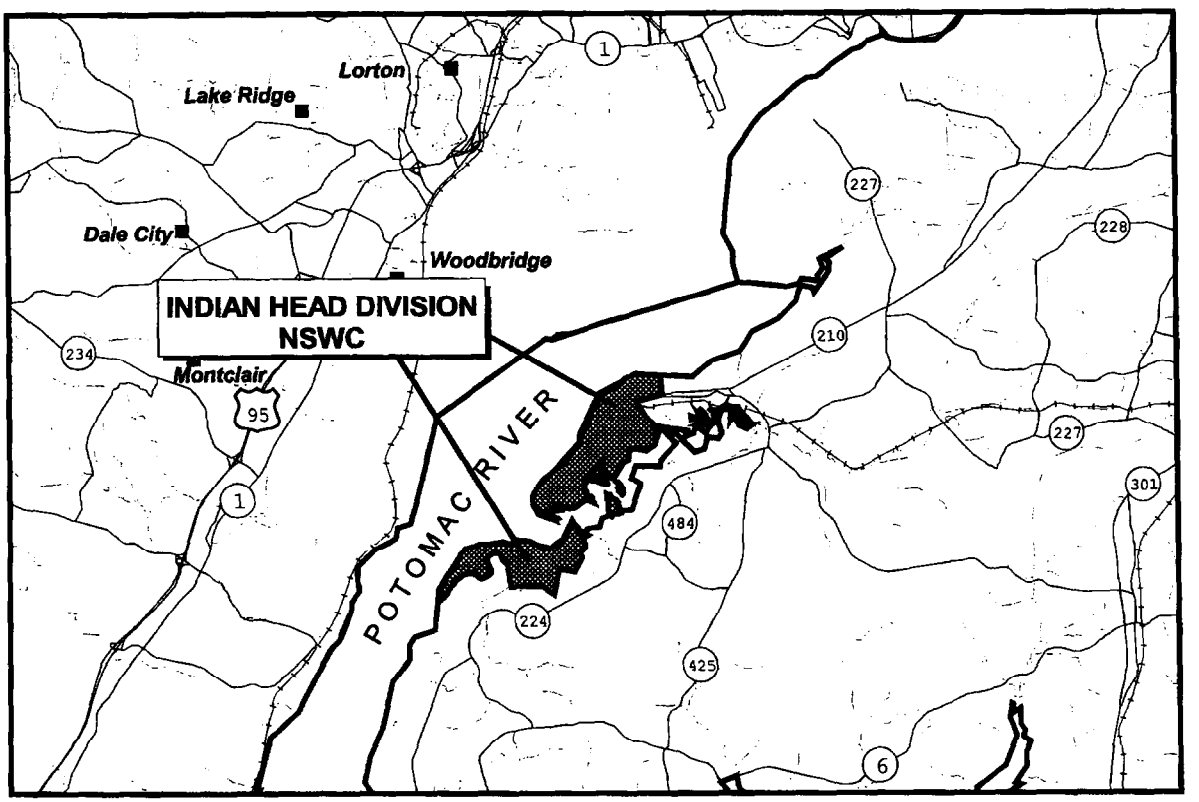
- Highway
- Railroad
- River



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COST/SCHEDULE-AREA		APPROVED BY —	DATE —
SCALE AS NOTED		DRAWING NO. FIGURE 1 - 2	REV 0

2.0 NARRATIVE REQUIREMENTS

Site 41 is an active scrap yard comprising approximately 1.5 acres of IHDIV-NSWC. The location is illustrated on Figure 1-2 and the site layout is illustrated on Figure 2-1.

2.1 PROJECT DESCRIPTION

The selected remedy for Site 41 is soil removal with land use controls that restrict the use of land and shallow groundwater and monitoring. The selected remedy is the first and final remedial action for Site 41. The purpose of soil removal is to eliminate the possibility of exposure to human and ecological receptors. The selected remedy as described in Section 3.0 of the Basis of Design includes the following components:

- Approximately 4,285 cubic yards (cy) of contaminated soil will be removed and transported to an off-site treatment, storage, and disposal (TSD) facility, depending on the amount of contamination and requirements of the TSD facility. Abandoned railroad tracks will be removed to facilitate excavation.

- The concrete pad within the fenced area of the scrap yard will be steam cleaned to remove soil and residual PCB contamination. If residual PCB contamination remains on the concrete pad after cleaning at concentrations above allowable levels (see Section 3.2.2 of the Basis of Design), the Indian Head Installation Restoration Team (IHIRT) will evaluate site conditions and analytical data and determine appropriate further remedial actions.

- Land use controls will be put in place to prohibit residential development and prohibit shallow groundwater use.

- Shallow groundwater will be monitored to confirm that migration of contaminants from the site has not occurred.

2.2 EXISTING SITE CONDITIONS

Site 41 occupies an area of that is approximately 750 feet long and varies from 75 to 100 feet wide (1.5 acres) within a watershed that is approximately 6.14 acres in size. The site features are shown on Figure 2-1 and the Site 41 watershed, is illustrated in Figure 2-2. The scrap yard is enclosed with a 10-foot-high chain-link fence. A concrete pad is present within most of the fenced area; however, the pad is covered with soil in some places. A dirt and gravel access road and abandoned railroad tracks are located between the southern portion of the site and Mattawoman Creek. The area north of the site is

steeply sloped and wooded. Runoff from this area flows toward the scrap yard and Mattawoman Creek. The area south of the scrap yard is flat, and surface runoff tends to pond and infiltrate. In some areas, runoff flows toward Mattawoman Creek. The site is currently an active scrap yard that is used to store materials that will be recycled or reused.

Subsurface soil conditions at the site were investigated during the installation of soil borings and monitoring wells during the SI. The subsurface materials generally consist of clayey sand interlayered with clayey gravel and sand lenses underlain by green-gray clay or brown sandy clay. The clay was encountered at a depth of approximately 15 feet below ground surface (bgs) and extended to the depths of the borings. Layers of slag and coal that were 2 to 5 feet thick were encountered at the ground surface outside the fenced area at locations 41MW01, 41MW02, and 41SB02. The slag and coal did not extend into the fenced portion of the site.

The shallow groundwater beneath the site occurs under unconfined (water-table) conditions. Shallow groundwater flows toward and discharges into Mattawoman Creek. However, this creek is tidal and, during high tide, losing stream conditions may occur. These conditions may cause the water table to be slightly elevated near the creek and may change the groundwater flow pattern. The groundwater is primarily recharged by downward migration of precipitation through the unsaturated zone to the water table. The depth to the water table ranges from 2 to 4 feet bgs. Groundwater from the shallow aquifer is not used as a potable water supply. Drinking water is obtained from a deeper aquifer (190 to 240 feet deep). There is no known hydrogeological connection or communication between the shallow water-table aquifer and the deeper aquifer used for drinking water. The clay underlying the site at a depth of approximately 15 feet bgs would act to impede the downward migration of the shallow groundwater to deeper aquifers. The closest supply well (Production Well S41PW07) is located approximately 400 feet northwest and upgradient of Site 41 (Figure 2-2).

There are no areas of archaeological or historical importance at Site 41 (USEPA et al., 2001).

2.3 OFF-SITE AREAS

Areas not within the limits of Site 41 include the wooded areas to the north of Site 41, Mattawoman Creek to the south of Site 41, and the borrow area(s) where soils for site restoration may be obtained. Each of these areas, with the exception of the borrow area(s), is located within, or adjacent to, the limits of disturbance for this remedial design. Therefore, the erosion and sediment control devices required to protect these areas are presented on the Erosion and Sediment Control Plan (Design Drawing C-2) and are described in this report.

The borrow area(s) are selected by the Remedial Action Contractor (RAC) and will not be located within the limits of disturbance of this remedial action design. Therefore, the RAC will submit a supplemental erosion and sediment control plan to the Navy addressing any and all off-site source(s) if an approved erosion and sediment control plan for the off-site source(s) does not exist.

2.4 SOILS

A soils map of the site from the United States Department of Agriculture (USDA), 1974, Soil Survey (USDA, 1974), is provided as Figure 2-3. The approximate location of the site is indicated on the figure. The soil types present at Site 41 include:

Cu	Cut and Fill Land
KpB2	Keyport Silt Loam
AuD2	Aura Gravelly Sandy Loam

Cut and Fill Land: Cut and Fill Land consists, in part, of land areas where the soil has been cut away by grading and similar operations. Most of the remaining areas are filled with soil and other materials to a depth of many feet, but others are filled only to a depth of 1 or 2 feet. Cut and fill land is never farmed. Where used, it is chiefly for commercial or residential purposes. It is so variable in nature that the suitability of any area for a specific use must be determined by on-site investigation. According to boring logs, the Cut and Fill Land soils of Site 41 consist of layers of slag and coal 2- to 5-feet thick at the surface, with subsurface soil consisting of clayey sand interlayered with clayey gravel and sand lenses, which in turn is underlain by green-gray clay or brown sandy clay. The clay was encountered at a depth of approximately 15 feet bgs. According to Soil Conservation Service (SCS) Urban Hydrology for Small Watersheds (USDA, 1986), the hydrologic soil group (HSG) Cut and Fill Land is undefined. Using the soil investigation described in the RI and considering surrounding soils, the HSG for the Cut and Fill Land at Site 41 is assumed to be C.

Keyport Silt Loam: This soil is found on 2 to 5 percent slopes and is moderately eroded. The soil is representative of the Keyport series except that the remaining silt loam surface layer is thinner. The soil is suited to cultivated crops, pasture, and trees. The hazard of further erosion is moderate. This soil is moderately well drained with a surface layer consisting of friable silt loam underlain by a thin layer of heavy silt loam that is friable to firm. Below this layer is a firm layer of silty clay. The soil is slowly permeable with a high moisture capacity and is strongly acid to very strongly acid. According to SCS Urban Hydrology for Small Watersheds (USDA, 1986), the HSG for Keyport Silt Loam is C.

Aura Gravelly Sandy Loam: This soil is found on 10 to 15 percent slopes and is moderately eroded. Most of this soil was formerly cultivated but now a large majority is in woodlands. The soil is suited to

most farm uses, but, if cultivated, the hazard of further erosion is severe. This soil at the surface consists of gravelly sandy loam or gravelly loam to sandy clay loam underlain by very firm to massive gravelly loam or gravelly sandy clay loam. Worked areas have a spotted or marbled to bright colored appearance. The subsoil is moderately slowly permeable to slowly permeable. The soil has low to moderate available moisture capacity and is very strongly acid or extremely acid. According to the SCS Urban Hydrology for Small Watersheds (USDA, 1986), the HSG for Aura Gravelly Sandy Loam (10 to 15 percent slopes, moderately eroded) is B.

2.5 CRITICAL AREAS

Critical areas are those that have potentially serious erosion problems due to the presence of steep slopes, poor vegetative cover, runoff channels, or areas identified as wetlands. The critical areas associated with Site 41 include the slopes approaching the site and Mattawoman Creek. The slopes of Site 41, where disturbed, will be replaced and stabilized with vegetation, and Mattawoman Creek will be protected using silt fence where appropriate.

No other critical areas have been identified on or adjacent to Site 41. However, during construction, areas may require temporary protection while portions of the site are unvegetated. The RAC will be responsible for identifying these areas in their work plan and for protecting these areas during construction. The protection devices required to protect the critical areas discussed here and other erosion and sediment control devices are described further in Section 2.6.

2.6 EROSION AND SEDIMENT CONTROL MEASURES

Erosion and sediment control measures will be implemented, installed, and maintained according to the standards and specifications of the Maryland Erosion and Sediment Control Handbook unless otherwise noted in this plan and the construction documents. Design specifications for erosion and sediment control structures have been obtained from the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control [Maryland Department of the Environment (MDE), 1994].

Erosion and sediment control measures are shown on Figure 2-4 and Design Drawing C-2 and are as follows.

- A stabilized construction entrance will be provided on the eastern site limit. Construction vehicles will be cleaned before leaving the site.

- Silt fence will be placed along the southern extent of excavation to protect the shoreline of Mattawoman Creek during excavation activities.

- A temporary containment berm will be placed where required on the concrete pad to aid in the collection of surface run-off resulting from precipitation and from steam cleaning and pressure washing activities. These temporary containment berms will be placed so that runoff will be directed to portable sediment tanks and storage tanks.

- Portable sediment tanks will be used to remove the sediment from decontamination water, and water generated during excavation dewatering, material dewatering, and rinsing activities.

- Straw bales will be placed on both sides of the access road east of the site, where the access road crosses the drainage channel.

2.6.1 Structural Practices

The following structural practices will be used during and/or following construction activities at Site 41 to control erosion and sedimentation. The number listed, if any, references the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control (MDE, 1994).

Stabilized Construction Entrance - F17.0. A temporary stabilized construction entrance will be installed to provide access to Site 41 via the road east of Site 41. The road provides access to the site from Hersey Road, located north of Site 41.

Silt Fence - E15.0. Silt fence will be installed along the southern side of the dirt road, south of Site 41 at the crest of the hill (or as close to the crest as possible) that slopes to Mattawomman Creek. Silt fencing will also be placed along the downslope sides of the stabilized construction entrance, material laydown pads, decontamination pads, and materials handling pads/stockpiles.

Surface Roughening - NA. The surface of re-established areas will be roughened to reduce runoff velocity and to aid in the establishment of vegetative cover.

Temporary Seeding - G20.0. All re-established areas that will be left dormant for extended periods of time will be seeded with fast-germinating temporary vegetation immediately following re-establishment. Seeding will be performed with annual rye grass.

Permanent Seeding - G20.0. All re-established areas will be permanently seeded with a seed mixture that will minimize erosion and provide suitable cover for wildlife.

Mulching - G20.0. All areas receiving permanent seeding will be mulched with an organic material to prevent erosion by protecting the soil surface from raindrop impact and reduce the velocity of overland flow.

Sediment Tank - D14.0. Portable sediment tanks will be used to remove sediment from the decontamination water and water generated during remedial activities or dewatering activities. The sediment collected in the sediment tanks will be stockpiled with the waste/soil materials to be disposed off site. Water from the decontamination pad and excavations will be stored in temporary holding tanks for characterization and proper disposal at an approved off-site facility. In the event that a determination is made that water collected from dewatering activities can be discharged to the ground surface on site, the water will be cleaned of sediment and broadcast over an approved vegetated area.

Straw Bales - H25.0. Straw bales will be placed on both sides of the access road east of the site where the access road crosses the drainage channel.

Temporary Containment Berm - NA Temporary containment berm(s) will be placed in such a manner to direct water from the concrete pad of Site 41 to the desired locations where the water can be collected and characterized. The berm(s) will be placed along the outside of the concrete pad where possible.

2.6.2 Management Strategies

- Unstabilized, disturbed areas will be minimized and construction activities will be staged.
- Seeding or other stabilization measures will follow immediately after grading.
- Areas that are not to be disturbed will be clearly marked by flags, signs, etc.
- The construction superintendent will be responsible for the correct installation and maintenance of all erosion and sediment control features.
- Erosion and sediment control features will be installed and/or constructed before the start of any earth disturbance activities.
- Erosion and sediment control features will remain in place until permanent vegetation is established over disturbed surfaces, as described in the revegetation notes on Design Drawing C-4.

2.7 PERMANENT STABILIZATION

All areas disturbed by remedial action activities, with the exception of the concrete pad, will be stabilized with the permanent seed mixture as soon as possible following final grading, but no later than 7 to 14 days (as noted on the Design Drawings). The permanent seed mixture will include tall fescue applied at 125 lbs/acre, perennial ryegrass applied at 15 lbs/acre, and Kentucky bluegrass applied at 10 lbs/acre.

2.8 STORMWATER RUNOFF CONSIDERATIONS

Following completion of the remedial action, the site will be returned to pre-construction conditions with the exception of the dirt road that runs east to west along the southern side of the Site 41 concrete pad. This dirt road will be upgraded to a gravel paved road. Therefore, because upgrading the dirt road does not result in a significant increase in runoff from the area of construction, permanent stormwater management controls are not required for this site. Including the removal of soil from the Site 41 concrete pad, the remedial action disturbs approximately 137,100 square feet (sf). Because the earth disturbance portion of the project exceeds 5,000 sf, and 100 cy of soil, the project is required to conform to the general performance standards for stormwater management set forth in the 2000 Maryland Stormwater Design Manual (MDE, 2000). Therefore a Stormwater Pollution Prevention Plan has been included with the design package.

Due to the intent of the remedial design to excavate discrete areas and return them to pre-construction conditions, and the fact that the overall disturbance area is less than 5 acres, runoff calculations were not performed for this remedial design.

2.9 MAINTENANCE

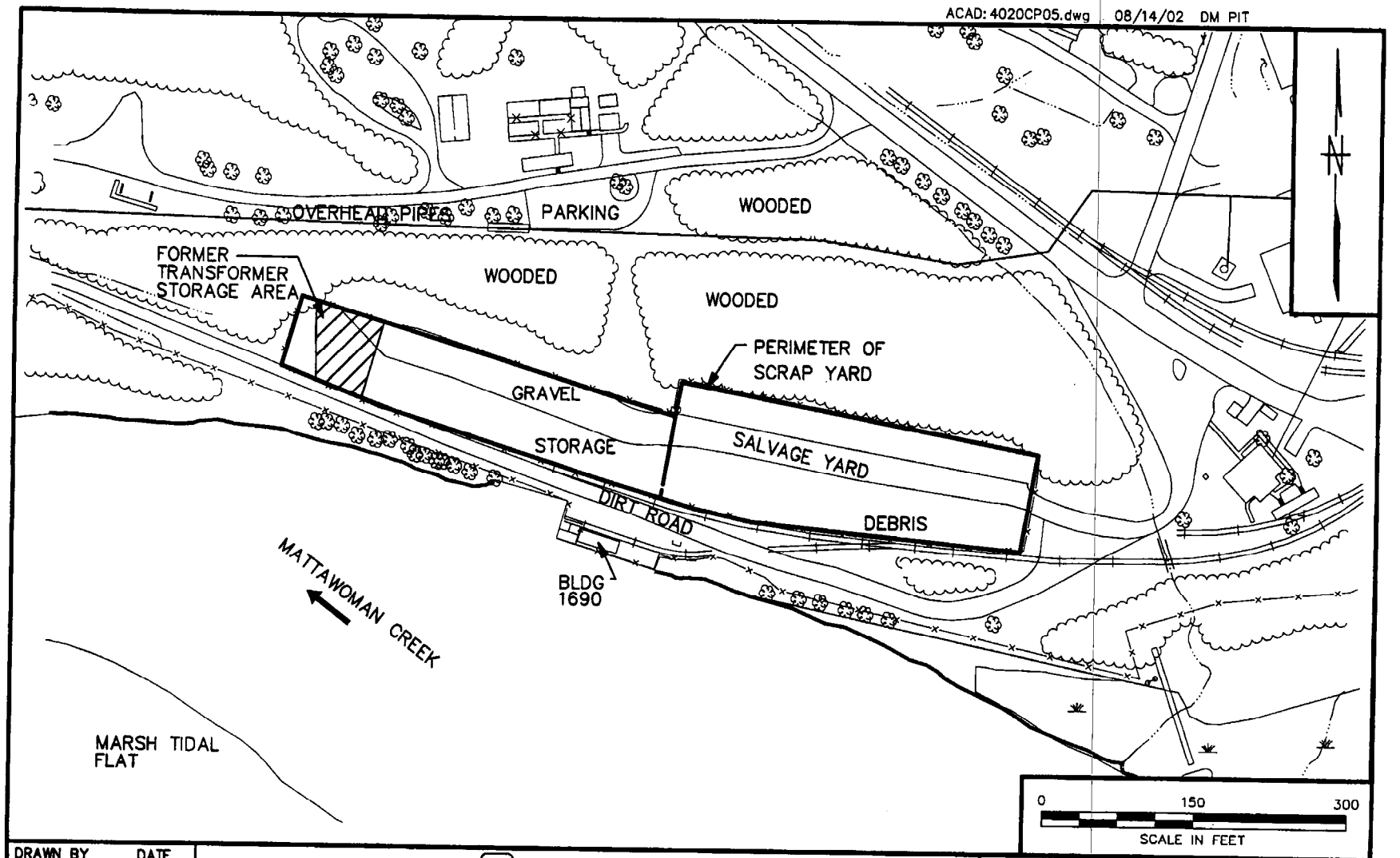
In general, all erosion and sediment control facilities will be checked weekly and after each runoff producing rainfall event to assure that all erosion and sediment controls remain in effective operating condition. Any required repairs will be made immediately. The following items will be checked:

- The stabilized construction entrance will be maintained in a condition that will minimize tracking sediment onto roads, including the addition of stone or other repairs.

- The silt fence will be checked regularly for undermining or deterioration of the fabric. Sediment will be removed when the level of sediment deposition causes "bulging" or reaches half of the fabric height.

- The seeded areas will be checked regularly to ensure that a good stand of vegetation is maintained. Areas will be fertilized and re-seeded as needed. The RAC is responsible for maintenance until formal acceptance by the Contracting Officer.

- The temporary containment berm(s) will be inspected for areas of breakthrough or accumulation of sediment that could cause water to pond behind or flow over top of the berms.



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COST/SCHED–AREA		APPROVED BY	DATE
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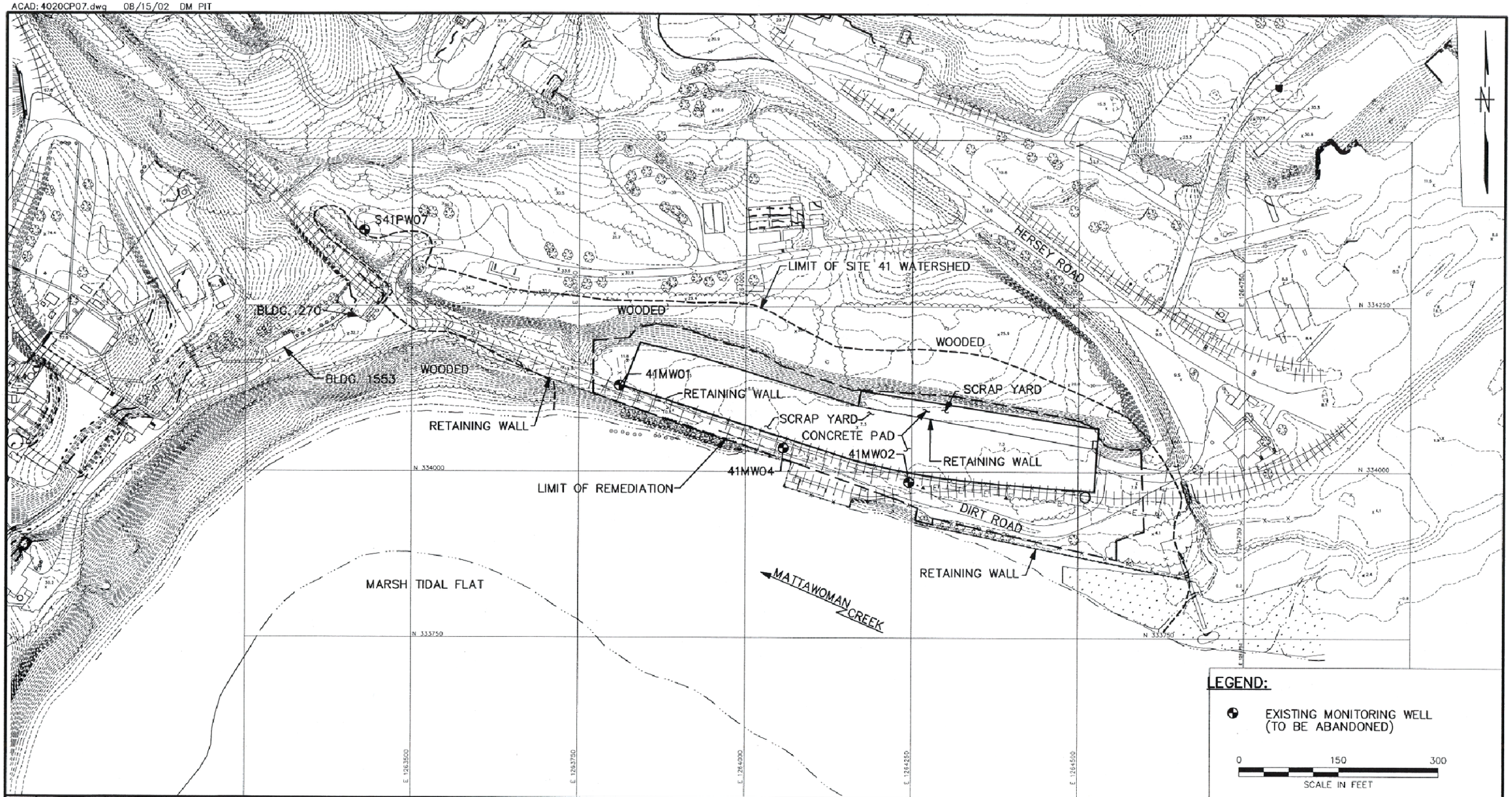

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Tetra Tech NUS, Inc.

SITE 41 WATERSHED
SITE 41 – SCRAP YARD
IHDIV-NSWC
INDIAN HEAD, MARYLAND

CONTRACT NO. 4020
OWNER NO. 0805
APPROVED BY GJL
DATE 8/12/02
APPROVED BY
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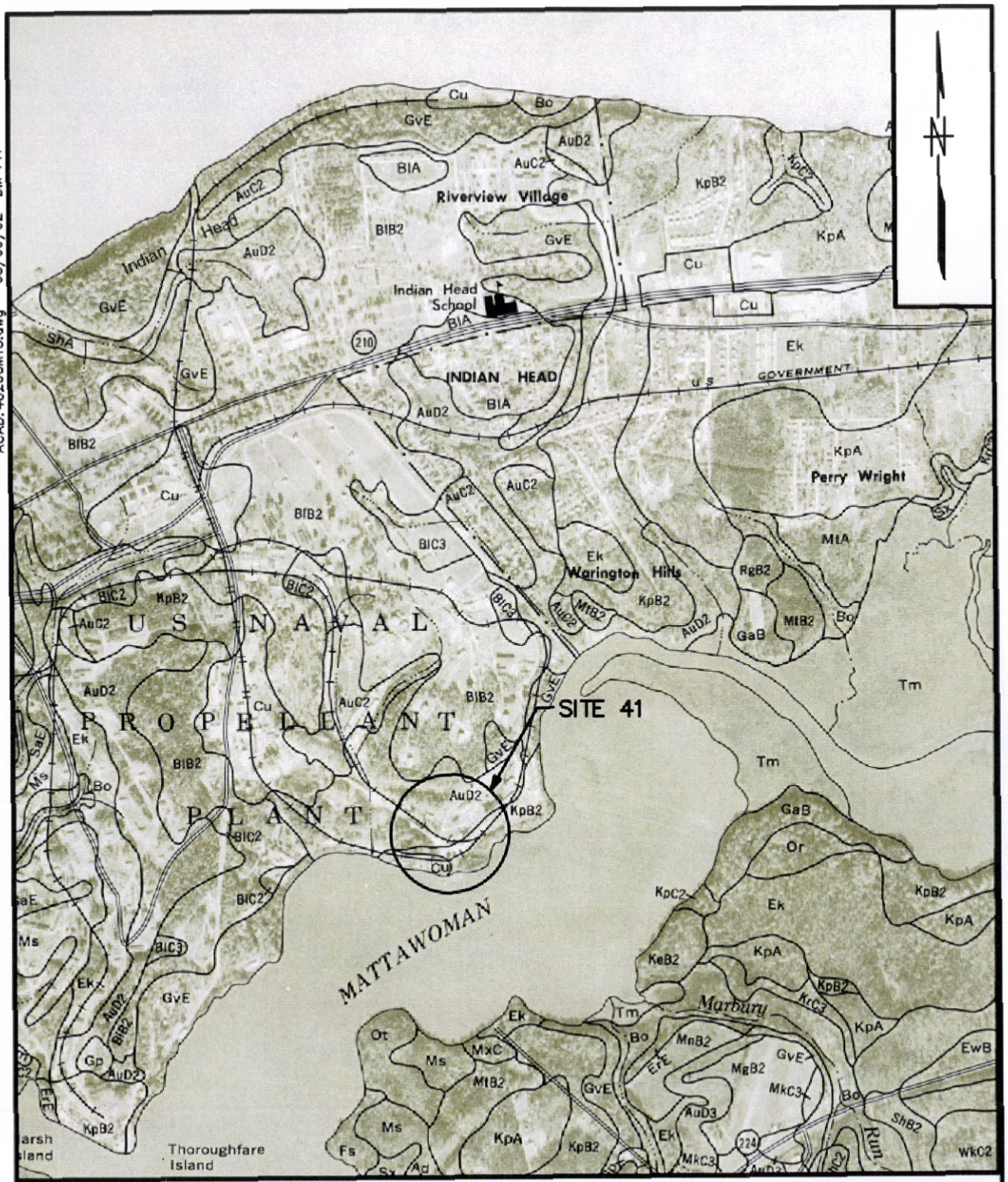

SOURCE: SOIL SURVEY OF CHARLES COUNTY, MARYLAND ISSUED JULY 1974

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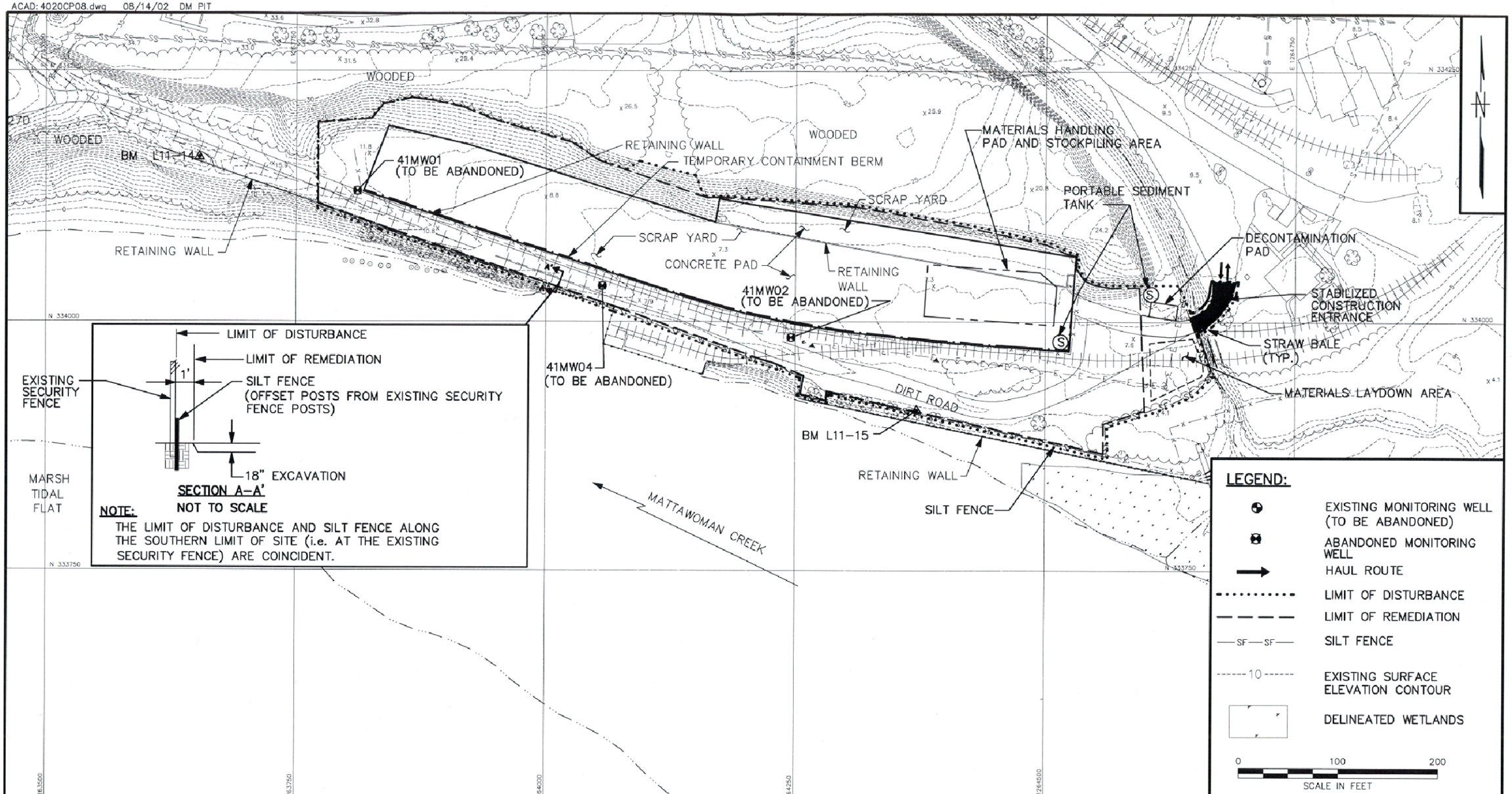

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DRAWN BY DM DATE 8/9/02
CHECKED BY TWS DATE 8/12/02
COST/SCHED-AREA
SCALE AS NOTED

Tetra Tech NUS, Inc.

EROSION AND SEDIMENT CONTROL PLAN
SITE 41 – SCRAP YARD
IHDIV-NSWC
INDIAN HEAD, MARYLAND

CONTRACT NO. 4020
OWNER NO. 0805
APPROVED BY GJL
DATE 8/12/02
APPROVED BY
DATE
DRAWING NO. FIGURE 2-4
REV. 0

FORM CADD NO. TtNUS_BH.DGN - REV 0 - 1/20/98

3.0 SEQUENCE OF CONSTRUCTION

The time to perform the required construction activities is estimated to be approximately 60 days. The generalized sequence of construction activities is as follows:

1. Hold pre-construction meeting with the Contracting Officer and the MDE Inspector.

2. Inspect site prior to construction to verify existing site conditions and underground utility locations. Verify removal by others of all recyclable and bulky waste from the scrap yard.

3. Establish horizontal and vertical control for construction. Stake the locations of all areas to be excavated or disturbed prior to actual work.

4. Install all perimeter controls for stabilized construction entrance. Install the stabilized construction entrance. Install all perimeter controls for decontamination pad, and materials storage and staging areas as indicated on Figure 2-4. Perimeter control locations are subject to approval by the Resident Officer in Charge of Construction (ROICC) and MDE and must be approved prior to any earth disturbance activities. All perimeter controls will conform to standards and specifications identified in the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control Manual. [The sequence of construction that follows assumes that the Site 41 concrete pad will be used as the materials handling pad(s). If the RAC elects not to use the concrete pad as the materials handling pad(s), a materials handling pad(s) should be added to Sequence of Construction items 5, 6, and 17. In addition, perimeter controls for the materials handling pad would be required.] The perimeter controls to be installed include, but are not limited to, the following:

   - Silt fence located south of Site 41 as indicated.

   - Silt fence on the downslope sides of the materials storage and staging areas, decontamination pad, and stabilized construction entrance.

   - Temporary containment berm located on downslope sides of the concrete pad to direct runoff to the temporary sediment and wastewater storage tanks.

   - Additional controls as may be required by the Contracting Officer and/or warranted by site conditions and best construction practices.

5. Clear and grub construction laydown areas and areas for materials storage and staging areas, and decontamination pad.

6. Construct decontamination pad, construction laydown areas, and materials storage and staging areas. Erect safety/security fencing (if required).

7. Clear but do not grub within the limits indicated.

8. Abandon existing groundwater monitoring wells 41MW01, 41MW02, and 41MW04 in accordance with Code of Maryland Regulations (COMAR) 26.04.04. Verify abandonment of groundwater monitoring well 41MW03 in accordance with COMAR 26.04.04.

9. Perform a sweep of the concrete pad for unexploded ordnance (UXO). Following the UXO sweep, remove soil from the surface of the concrete pad and mechanically screen soil to remove cartridge-activated devices (CADs). Stockpile screened soil within the concrete pad at a designated location, based on the requirements of the selected TSD facility, subject to approval by the ROICC. Manage stockpiled soils off-site at an approved TSD facility. Manage CADs in accordance with NAVSEA Instruction 8023.11, Standard Operating Procedures for the Processing of Expendable Ordnance at Navy and Marine Corps Activities (NAVSEA, 1991). Manage materials remaining from treatment of CADs off-site at an approved TSD facility.

10. Following removal of soils from the concrete pad, visually assess the integrity of the concrete pad to determine if steam cleaning the concrete pad is appropriate (i.e., determine if the concrete pad is sufficiently intact to allow collection of rinsewater). If the IHDIV-NSWC Environmental Department personnel judge the concrete pad capable of retaining the rinsewater, install containment berms on the concrete pad to collect all rinsewater and steam clean the exposed concrete pad with high pressure, high temperature water. If the IHDIV-NSWC Environmental Department personnel judge the concrete pad is in poor condition, the IHIRT will evaluate site conditions to determine appropriate further remedial action.

11. Following cleaning of the concrete pad surface, perform verification sampling for the concrete pad in accordance with the Verification Sampling and Analysis Plan (VSAP). If the results of the verification sampling indicate contaminant of concern (COC) concentrations have been reduced to levels below the PRGs, remove temporary containment berms, manage berm material off-site at an approved TSD facility. If the results of verification sampling indicate COC concentrations in excess of the PRGs, the IHIRT will evaluate site conditions and analytical data to determine appropriate further remedial action.

12. Remove railroad rail and ties within limits indicated. Clean rails within contaminated areas, and stockpile cleaned rails for salvage by others. Stockpile ties for off-site disposal.

13. Perform a sweep of the area outside of the concrete pad for UXO. Following the UXO sweep, excavate and mechanically screen the soils to remove CADs. Stockpile screened soil within the limits of disturbance at a designated location, based on the requirements of the selected TSD facility, subject to approval by the ROICC. Manage stockpiled soils off-site at an approved TSD facility. Manage CADs in accordance with Sequence of Construction item 9. Perform verification sampling for the area outside the concrete pad in accordance with the VSAP. Excavate additional soil as required pending results of post-removal verification sampling and analysis.

14. Following verification that all COCs have been removed or reduced to levels below the PRGs, backfill excavations to pre-excavation contours and restore the site as indicated on Drawing C-7 using select fill, topsoil, and granular material, as indicated. Vegetate immediately after topsoil is placed.

15. Install new groundwater monitoring wells (41MW05 through 41MW10) as indicated.

16. Construct access road and replace fencing where required.

17. Remove all temporary facilities (i.e., decontamination pad, sediment tanks, wastewater storage tanks, etc.). Restore and revegetate as needed. When all upstream areas have been stabilized and have been accepted by the ROICC and with the approval of the MDE Inspector, remove all remaining perimeter controls and immediately stabilize all areas disturbed by the remedial action.

4.0 CONCLUSIONS

This remedial action will result in the improvement of the site over the long term. COCs will be excavated and disposed off-site to reduce the risks to human health and environment associated with exposure to soils and sediments currently found on the concrete pad and within the surface and subsurface soils surrounding the concrete pad of Site 41. Appropriate steps will be implemented during construction to control runoff from the site and reduce the impacts of erosion and sedimentation.

Runoff quality during the remedial action will be addressed via temporary erosion and sediment control devices around the downslope perimeter of the disturbed areas.

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Stormwater Pollution Prevention Plan for Site 41 – Scrap Yard

Indian Head Division
Naval Surface Warfare Center
Indian Head, Maryland

Engineering Field Activity Chesapeake
Naval Facilities Engineering Command

Contract Number N62467-94-D-0888
Contract Task Order 0805

August 2002

REVISION 0
AUGUST 2002

STORMWATER POLLUTION PREVENTION PLAN FOR SITE 41 – SCRAP YARD

INDIAN HEAD DIVISION
NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Engineering Field Activity Chesapeake
1314 Harwood Street, SE
Washington Navy Yard, D.C. 20374-5018

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CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0805

AUGUST 2002

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APPENDIX

A.1 USEPA CONSTRUCTION GENERAL PERMIT REQUIREMENTS, PRECONSTRUCTION CHECKLIST

A.2 USEPA CONSTRUCTION GENERAL PERMIT CHECKLIST

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ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
CADs	cartridge activated devices
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
COCs	contaminants of concern
COMAR	Code of Maryland Regulations
CTO	Contract Task Order
cy	cubic yards
FS	feasibility study
IHDIV-NSWC	Indian Head Division, Naval Surface Warfare Center
IHIRT	Indian Head Installation Restoration Team
IR	Installation Restoration
MDE	Maryland Department of the Enviornment
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
PCBs	polychlorinated byphenyls
RAC	Remedial Action Contractor
RI	remedial investigation
ROICC	Resident Officer in Charge of Construction
sf	square feet
SI	site inspection
Site 41	Site 41 - Scrap Yard
TSD	treatment, storage, and/or disposal
TtNUS	Tetra Tech NUS, Inc.
USEPA	United States Environmental Protection Agency
UXO	unexploded ordnance
VSAP	Verification Sampling and Analysis Plan

1.0 INTRODUCTION

This Stormwater Pollution Prevention Plan was prepared under Contract Task Order (CTO) No. 0805 under Comprehensive Long-term Environmental Action Navy (CLEAN) Contract Number N62467-94-D-0888. Under this CTO, Tetra Tech NUS, Inc. (TtNUS) is performing engineering, design, and post-construction award services for the remedial action design at the Site 41 - Scrap Yard (Site 41), at the Indian Head Division, Naval Surface Warfare Center (IHDIV-NSWC), in Indian Head, Maryland. This plan was prepared in accordance with the United States Environmental Protection Agency (USEPA) Storm Water Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practice, Summary Guidance, October 1992 (USEPA, 1992a).

The IHDIV-NSWC is located in northwestern Charles County, Maryland, approximately 25 miles southwest of Washington, DC, as shown on Figure 1-1. The IHDIV-NSWC is a military facility consisting of the Main Area on the Cornwallis Neck Peninsula and the Annex on Stump Neck. The Main Area is bounded by the Potomac River to the northwest, west, and south, Mattawoman Creek to the south and east, and the town of Indian Head to the northeast (Figure 1-2). Stump Neck Annex is located across Mattawoman Creek. The Stump Neck Annex is not contiguous with the Main Area and is operated by a tenant. The primary mission of IHDIV-NSWC is to provide 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. IHDIV-NSWC was added to the National Priorities List (NPL) by USEPA in September 1995, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. Site 41 is one of the 48 Installation Restoration (IR) sites at the Main Area currently included in the IHDIV-NSWC IR Program. This remedial action design is limited to Site 41, located in the northeastern portion of the Main Area of IHDIV-NSWC.

1.1 SITE HISTORY

Site 41 is an active scrap yard. During an inspection in 1981, 17 transformers were identified as either containing or contaminated with polychlorinated biphenyls (PCBs). These transformers were believed to have leaked and contaminated the soil in the western portion of the site. In addition, lead-acid batteries were stored in the scrap yard. The batteries may have released lead to the surface soil. Although large stains were observed where the transformers were stored, no transformers or batteries are currently stored in the western portion of the site (TtNUS, 2001).

Site 41 was investigated during a site inspection (SI) in 1992 and 1993 to determine whether solvents, PCBs, or lead had contaminated surface soil, creek sediment, or shallow groundwater [ENSAFE/Allen & Hoshall (E/A&H), 1994].

A remedial investigation (RI) was performed at Site 41 in 1997. The investigation included collection and analysis of soil, shallow groundwater, surface water, and sediment samples (TtNUS, 1999).

Additional activities were performed in 1999 to fill data gaps as part of the feasibility study (FS) preparation process. Surface soil and subsurface soil samples were collected and analyzed. The results were used to refine the extent of contamination (TtNUS, 2001).

1.2 PROJECT DESCRIPTION

The selected remedy for Site 41 is soil removal with land use controls that restrict the use of land and shallow groundwater and monitoring. The selected remedy is the first and final remedial action for Site 41. The purpose of soil removal is to eliminate the possibility of exposure to human and ecological receptors. The selected remedy as described in Section 3 of the Basis of Design, includes the following components:

- Approximately 4,285 cubic yards (cy) of material will be removed and transported to an off-site treatment, storage, and/or disposal (TSD) facility, depending on the amount of contamination and requirements of the TSD facility. Abandoned railroad tracks will be removed to facilitate excavation.

- The concrete pad within the fenced area of the scrap yard will be steam cleaned to remove soil and residual PCB contamination. If residual PCB contamination is present at concentrations above allowable levels (see Section 3.2.2 of the Basis of Design). The Indian Head Installation Restoration Team (IHIRT) will evaluate site conditions and analytical data and determine appropriate further remedial actions.

- Land use controls will be put in place to prohibit residential development and prohibit shallow groundwater use.

- Shallow groundwater will be monitored to confirm that migration of contaminants from the site has not occurred.

1.3 REPORT OBJECTIVE AND CONTENT

The objective of this report is to describe the project and present the stormwater pollution prevention measures that will be utilized during implementation of the remedial action at Site 41.

Section 2.0 presents a description of control measures to be implemented during the remedial action and the sequence of proposed construction activities. Section 3.0 presents a generalized summary of state and local requirements for stormwater management. Section 4.0 presents the inspection and maintenance program proposed for the remedial action. Section 5.0 presents a summary of non-stormwater discharges and pollution prevention measures to be employed during the remedial action. Sections 6.0 and 7.0 present the required plan certifications. Copies of the USEPA checklists for Stormwater Pollution Prevention Plans are presented in Appendix A. Design drawings and technical specifications are provided under separate cover.

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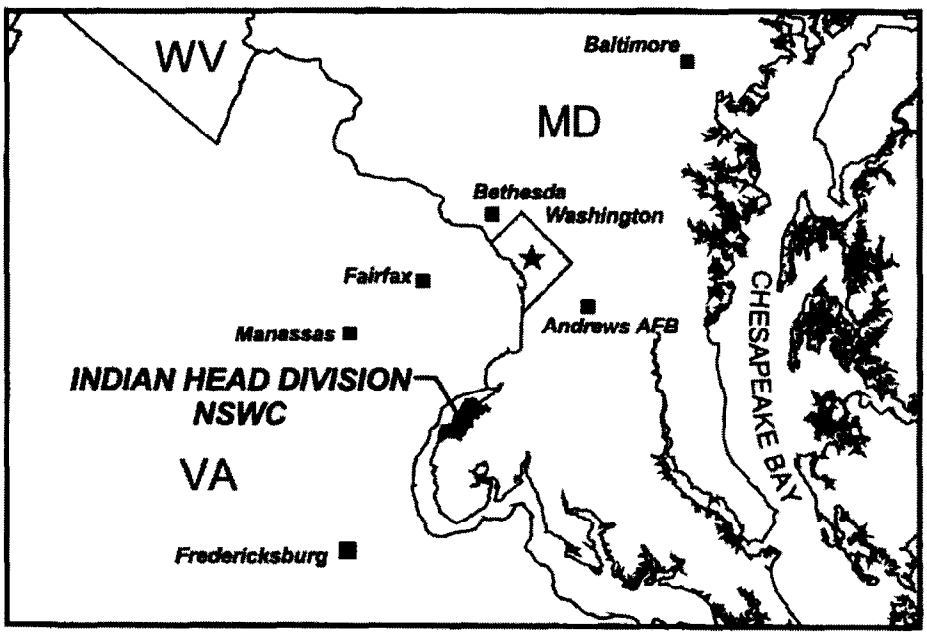
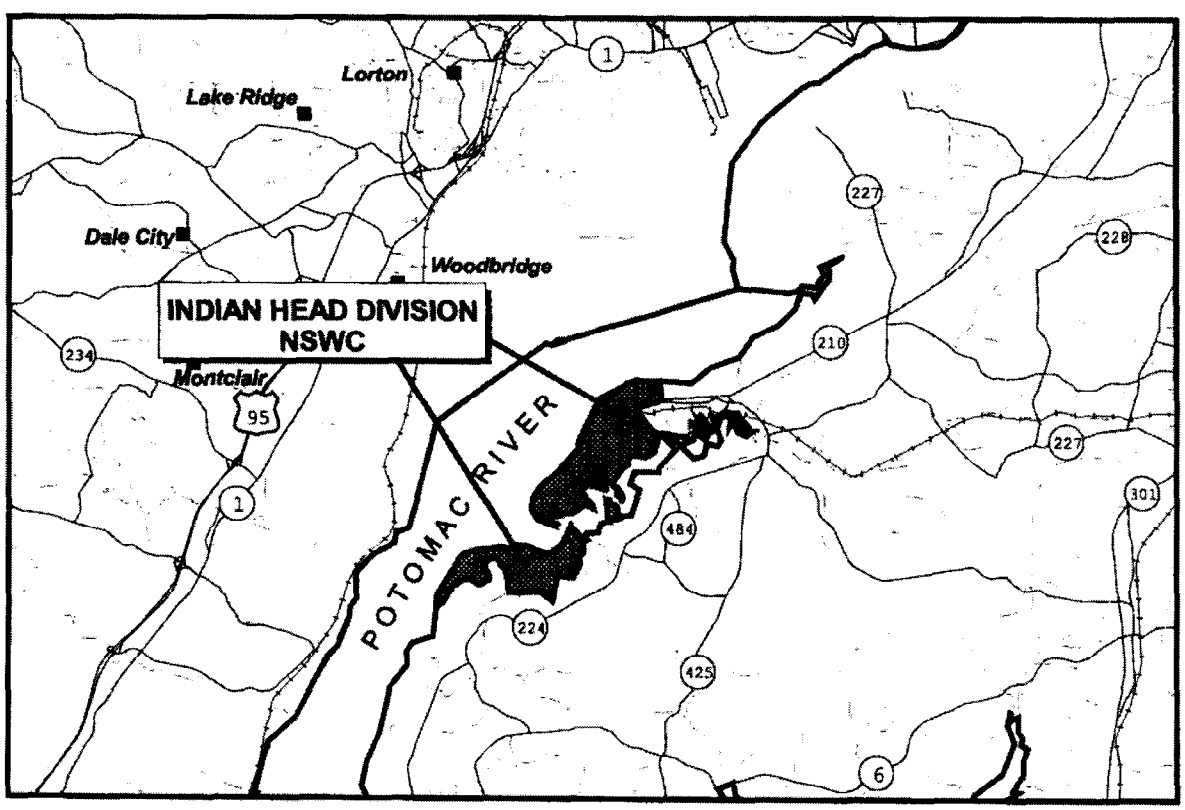


LEGEND

- City
- Highway
- Railroad
- River



DRAWN BY K. PEILA — DATE 8/6/02	Tetra Tech NUS, Inc.	CONTRACT NUMBER 4020	OWNER NO. 0805
CHECKED BY GJL — DATE 8/8/02	VICINITY MAP SITE 41 - SCRAP YARD IHDIV - NSWC, INDIAN HEAD, MARYLAND	APPROVED BY GJL — DATE 8/8/02	
COST/SCHEDULE-AREA		APPROVED BY —	DATE —
SCALE AS NOTED		DRAWING NO. FIGURE 1-1	REV 0

P:\GIS\NSWC_INDIAN_HEAD\SITE_LOCATION SITE 41.APR SITE LOCATION MAP 8/8/02 KMP

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P:\GIS\INDIANHEAD_NSWC\APR\COMMUNITYRELATIONSPLAN.APR 41 - SCRAP YARD 8/8/02 KMP

DRAWN BY K. PEILA — DATE 7/26/02	Tetra Tech NUS, Inc.	CONTRACT NUMBER 4020	OWNER NUMBER 0805
CHECKED BY GJL — DATE 7/26/02	SITE LOCATION MAP SITE 41 - SCRAP YARD IHDIV - NSWC, INDIAN HEAD, MARYLAND	APPROVED BY GJL	DATE 7/25/02
COST/SCHEDULE-AREA		APPROVED BY —	DATE —
SCALE AS NOTED		DRAWING NO. FIGURE 1 - 2	REV 0

2.0 DESCRIPTION OF CONTROLS

This section presents a description of stormwater controls, including erosion and sedimentation controls proposed for the remedial action. A copy of the complete USEPA Pre-Construction Checklist is provided in Appendix A. The Construction/General Permit Checklist is provided in Appendix A. These checklists were obtained from the USEPA Storm Water Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practice, Summary Guidance (USEPA, 1992b). Requirements specified in these checklists and documents are incorporated into this Stormwater Pollution Prevention Plan.

2.1 EXISTING SITE CONDITIONS

Site 41 occupies an area that is approximately 750 feet long and varies from 75 to 100 feet wide (1.5 acres) within a watershed that is approximately 6.14 acres in size. The site features are shown on Figure 2-1 and the Site 41 watershed is illustrated in Figure 2-2. The scrap yard is enclosed with a 10-foot-high chain-link fence. A concrete pad is present within most of the fenced area; however, the pad is covered with soil in some places. A dirt and gravel access road and abandoned railroad tracks are located between the southern portion of the site and Mattawoman Creek. The area north of the site is steeply sloped and wooded. Runoff from this area flows toward the scrap yard and Mattawoman Creek. The area south of the scrap yard is flat, and surface runoff tends to pond and infiltrate. In some areas, runoff flows toward Mattawoman Creek. The site is currently an active scrap yard that is used to store materials that will be recycled or reused.

Subsurface soil conditions at the site were investigated during the installation of soil borings and monitoring wells during the SI. The subsurface materials generally consist of clayey sand interlayered with clayey gravel and sand lenses underlain by green-gray clay or brown sandy clay. The clay was encountered at a depth of approximately 15 feet below ground surface (bgs) and extended to the depths of the borings. Layers of slag and coal that were 2 to 5 feet thick were encountered at the ground surface outside the fenced area at locations 41MW01, 41MW02, and 41SB02. The slag and coal did not extend into the fenced portion of the site.

The shallow groundwater beneath the site occurs under unconfined (water-table) conditions. Shallow groundwater flows toward and discharges into Mattawoman Creek. However, this creek is tidal and, during high tide, losing stream conditions may occur. These conditions may cause the water table to be slightly elevated near the creek and may change the groundwater flow pattern. The groundwater is primarily recharged by downward migration of precipitation through the unsaturated zone to the water table. The depth to the water table ranges from 2 to 4 feet bgs. Groundwater from the shallow aquifer is

not used as a potable water supply. Drinking water is obtained from a deeper aquifer (190 to 240 feet deep). There is no known hydrogeological connection or communication between the shallow water-table aquifer and the deeper aquifer used for drinking water. The clay underlying the site at a depth of approximately 15 feet bgs would act to impede the downward migration of the shallow groundwater to deeper aquifers. The closest supply well (Production Well S41PW07) is located approximately 400 feet northwest and upgradient of Site 41 (Figure 2-2).

There are no areas of archeological or historical importance at Site 41 (USEPA et al., 2001).

2.2 EROSION AND SEDIMENT CONTROL MEASURES

Erosion and sediment control measures will be implemented, installed, and maintained according to the standards and specifications of the Maryland Erosion and Sediment Control Handbook unless otherwise noted in this plan and the construction documents. Design specifications for erosion and sediment control structures have been obtained from the Maryland Standards and Specifications for Soil Erosion and Sediment Control [Maryland Department of the Environment (MDE), 1994].

The required erosion and sediment control measures are shown on Figure 2-3 and Design Drawing C-2 and are as follows.

- A stabilized construction entrance will be provided on the eastern site limit. Construction vehicles will be cleaned before leaving the site.

- Silt fence will be placed along the southern extent of excavation to protect the shoreline of Mattawoman Creek during excavation activities.

- A temporary containment berm will be placed where required on the concrete pad to aid in the collection of surface runoff resulting from precipitation and from steam cleaning and pressure washing activities. The temporary containment berm(s) will be placed so that runoff will be directed to portable sediment tanks and storage tanks.

- Portable sediment tanks will be used to remove the sediment from decontamination water and water generated during excavation dewatering, material dewatering, and rinsing activities.

- Straw bales will be placed on both sides of the access road east of the site, where the access road crosses the drainage channel.

2.2.1 Structural Practices

The following structural practices will be used during and/or following construction activities at Site 41 to control erosion and sedimentation. The number listed, if any, references the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control, (MDE, 1994).

Stabilized Construction Entrance - F17.0. A temporary stabilized construction entrance will be installed to provide access to Site 41 via the road east of Site 41. The road provides access to the site from Hersey Road, located north of Site 41.

Silt Fence - E15.0. Silt fence will be installed along the southern side of the dirt road, south of Site 41 at the crest of the hill (or as close to the crest as possible) that slopes to Mattawomman Creek. Silt fencing will also be placed along the downslope sides of the stabilized construction entrance, material laydown pads, decontamination pads, and materials handling pads/stockpiles.

Surface Roughening - NA. The surface of re-established areas will be roughened to reduce runoff velocity and to aid in the establishment of vegetative cover.

Temporary Seeding - G20.0. All re-established areas that will be left dormant for extended periods of time will be seeded with fast germinating temporary vegetation immediately following re-establishment. Seeding will be performed with annual rye grass.

Permanent Seeding - G20.0. All re-established areas will be permanently seeded with a seed mixture that will minimize erosion and provide suitable cover for wildlife.

Mulching - G20.0. All areas receiving permanent seeding will be mulched with an organic material to prevent erosion by protecting the soil surface from raindrop impact and reduce the velocity of overland flow.

Sediment Tank - D14.0. Portable sediment tanks will be used to remove sediment from the decontamination water and water generated during remedial activities or dewatering activities. The sediment collected in the sediment tanks will be stockpiled with the waste/soil materials to be disposed off-site. Water from the decontamination pad and excavations will be stored in temporary holding tanks for characterization and proper disposal at an approved off-site facility. In the event that a determination is made that water collected from dewatering activities can be discharged to the ground surface on site, the water will be cleaned of sediment and broadcast over an approved vegetated area.

Straw Bales - H25.0. Straw bales will be placed on both sides of the access road east of the site where the access road crosses the drainage channel.

Temporary Containment Berm - NA Temporary containment berm(s) will be placed in such a manner to direct water from the concrete pad of Site 41 to the desired locations where the water can be collected and characterized. The berm(s) will be placed along the outside of the concrete pad where possible.

2.2.2 Management Strategies

- Unstabilized, disturbed areas will be minimized and construction activities will be staged.
- Seeding or other stabilization measures will follow immediately after grading.
- Areas that are not to be disturbed will be clearly marked by flags, signs, etc.
- The construction superintendent will be responsible for the correct installation and maintenance of all erosion and sediment control features.
- Erosion and sediment control features will be installed and/or constructed before the start of any earth disturbance activities.
- Erosion and sediment control features will remain in place until permanent vegetation is established over disturbed surfaces, as described in the revegetation notes on Design Drawing C-4.

2.3 SEQUENCE OF CONSTRUCTION

The time to perform the required construction activities is estimated to be approximately 60 days. The generalized sequence of construction activities is as follows:

1. Hold pre-construction meeting with the Contracting Officer and the MDE Inspector.
2. Inspect site prior to construction to verify existing site conditions and underground utility locations. Verify removal by others of all recyclable and bulky waste from the scrap yard.
3. Establish horizontal and vertical control for construction. Stake the locations of all areas to be excavated or disturbed prior to actual work.

4. Install all perimeter controls for stabilized construction entrance. Install the stabilized construction entrance. Install all perimeter controls for decontamination pad, and materials storage and staging areas as indicated on Figure 2-3. Perimeter control locations are subject to approval by the Resident Officer in Charge of Construction (ROICC) and MDE and must be approved prior to any earth disturbance activities. All perimeter controls will conform to standards and specifications identified in the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control Manual. [The sequence of construction that follows assumes that the Site 41 concrete pad will be used as the materials handling pad(s). If the Remedial Action Conbtractor (RAC) elects not to use the concrete pad as the materials handling pad(s), a materials handling pad(s) should be added to Sequence of Construction items 5, 6, and 17. In addition, perimeter controls for the materials handling pad would be required.] The perimeter controls to be installed include, but are not limited to, the following:

   - Silt fence located south of Site 41 as indicated.

   - Silt fence on the downslope sides of the materials storage and staging areas, decontamination pad, and stabilized construction entrance.

   - Temporary containment berm located on downslope sides of the concrete pad to direct runoff to the temporary sediment and wastewater storage tanks.

   - Additional controls as may be required by the Contracting Officer and/or warranted by site conditions and best construction practices.

5. Clear and grub construction laydown areas and areas for materials storage and staging areas, and decontamination pad.

6. Construct decontamination pad, construction laydown areas, and materials storage and staging areas. Erect safety/security fencing (if required).

7. Clear but do not grub within the limits indicated.

8. Abandon existing groundwater monitoring wells 41MW01, 41MW02, and 41MW04 in accordance with Code of Maryland Regulations (COMAR) 26.04.04. Verify abandonment of groundwater monitoring well 41MW03 in accordance with COMAR 26.04.04.

9. Perform a sweep of the concrete pad for unexploded ordnance (UXO). Following the UXO sweep, remove soil from the surface of the concrete pad and mechanically screen soil to remove cartridge-activated devices (CADs). Stockpile screened soil within the concrete pad at a designated location, based on the requirements of the selected TSD facility, subject to approval by the ROICC. Manage stockpiled soils off-site at an approved TSD facility. Manage CADs in accordance with NAVSEA Instruction 8023.11, Standard Operating Procedures for the Processing of Expendable Ordnance at Navy and Marine Corps Activities (NAVSEA, 1991). Manage materials remaining from treatment of CADs offsite at an approved TSD facility.

10. Following removal of soils from the concrete pad, visually assess the integrity of the concrete pad to determine if steam cleaning the concrete pad is appropriate (i.e., determine if the concrete pad is sufficiently intact to allow collection of rinsewater). If the IHDIV-NSWC Environmental Department personnel judge the concrete pad capable of retaining the rinsewater, install containment berms on the concrete pad to collect all rinsewater and steam clean the exposed concrete pad with high pressure, high temperature water. If the IHDIV-NSWC Environmental Department personnel judge the concrete pad is in poor condition, the IHIRT will evaluate site conditions to determine appropriate further remedial action.

11. Following cleaning of the concrete pad surface, perform verification sampling for the concrete pad in accordance with the Verification Sampling and Analysis Plan (VSAP). If the results of the verification sampling indicate contaminant of concern (COC) concentrations have been reduced to levels below the PRGs, remove temporary containment berms, manage berm material off-site at an approved TSD facility. If the results of verification sampling indicate COC concentrations in excess of the PRGs, the IHIRT will evaluate site conditions and analytical data to determine appropriate further remedial action.

12. Remove railroad rail and ties within limits indicated. Clean rails within contaminated areas, and stockpile cleaned rails for salvage by others. Stockpile ties for off-site disposal.

13. Perform a sweep of the area outside of the concrete pad for UXO. Following the UXO sweep, excavate and mechanically screen the soils to remove CADs. Stockpile screened soil within the limits of disturbance at a designated location, based on the requirements of the selected TSD facility, subject to approval by the ROICC. Manage stockpiled soils off-site at an approved TSD facility. Manage CADs in accordance with Sequence of Construction item 9. Perform verification sampling for the area outside the concrete pad in accordance with the VSAP. Excavate additional soil as required pending results of post-removal verification sampling and analysis.

14. Following verification that all COCs have been removed or reduced to levels below the PRGs, backfill excavations to pre-excavation contours and restore the site as indicated on Drawing C-7 using select fill, topsoil, and granular material, as indicated. Vegetate immediately after topsoil is placed.

15. Install new groundwater monitoring wells (41MW05 through 41MW10) as indicated.

16. Construct access road and replace fencing where required.

17. Remove all temporary facilities (i.e., decontamination pad, sediment tanks, wastewater storage tanks, etc.). Restore and revegetate as needed. When all upstream areas have been stabilized and have been accepted by the ROICC and with the approval of the MDE Inspector, remove all remaining perimeter controls and immediately stabilize all areas disturbed by the remedial action.

2.4 PERMANENT STABILIZATION

All areas disturbed by remedial action activities, with the exception of the concrete pad, will be stabilized with the permanent seed mixture as soon as possible following final grading, but no later than 7 to 14 days (as noted on the Design Drawings). The permanent seed mixture will include tall fescue applied at 125 lbs/acre, perennial ryegrass applied at 15 lbs/acre, and Kentucky bluegrass applied at 10 lbs/acre.

2.5 STORMWATER RUNOFF CONSIDERATIONS

Following completion of the remedial action, the site will be returned to pre-construction conditions with the exception of the dirt road that runs east to west on the southern side of the Site 41 concrete pad. This dirt road will be upgraded to a gravel paved road. Therefore, because the upgrade to the dirt road does not result in a significant increase in runoff from the area of construction permanent stormwater management controls are not required for this site. Including the removal of soil from the Site 41 concrete pad, the remedial action only disturbs approximately 137,100 square feet (sf) (3.16 acres). Because this area will be returned to pre-construction conditions, and the overall disturbance area is less than 5 acres, runoff calculations were not performed for this remedial action.

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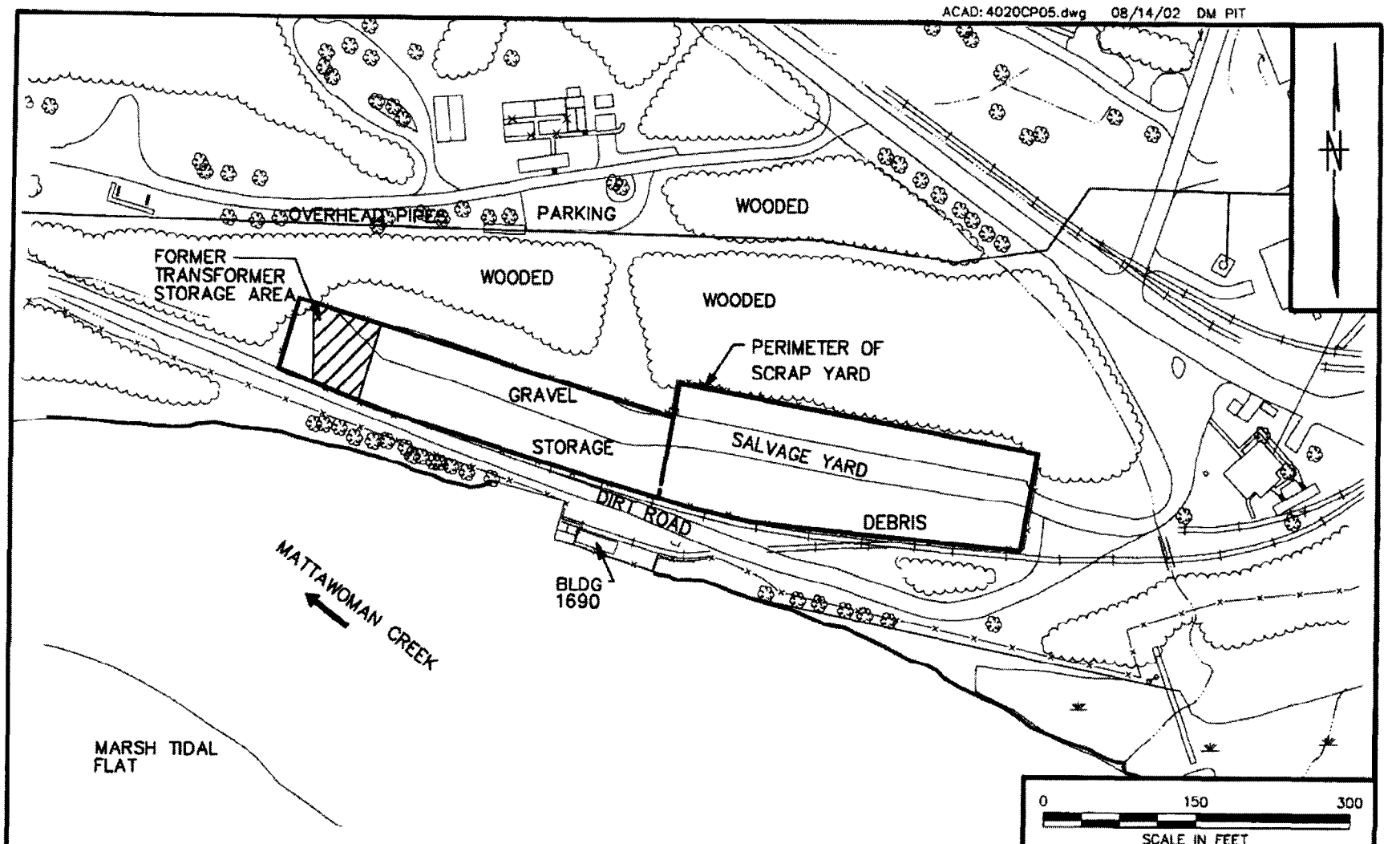

DRAWN BY DM DATE 8/9/02	Tetra Tech NUS, Inc.	CONTRACT NO. 4020	OWNER NO. 0805
CHECKED BY TWS DATE 8/12/02	SITE LAYOUT SITE 41 – SCRAP YARD IHDIV–NSWC, INDIAN HEAD, MARYLAND	APPROVED BY GJL	DATE 8/12/02
COST/SCHED–AREA		APPROVED BY	DATE
SCALE AS NOTED		DRAWING NO. FIGURE 2–1	REV. 0

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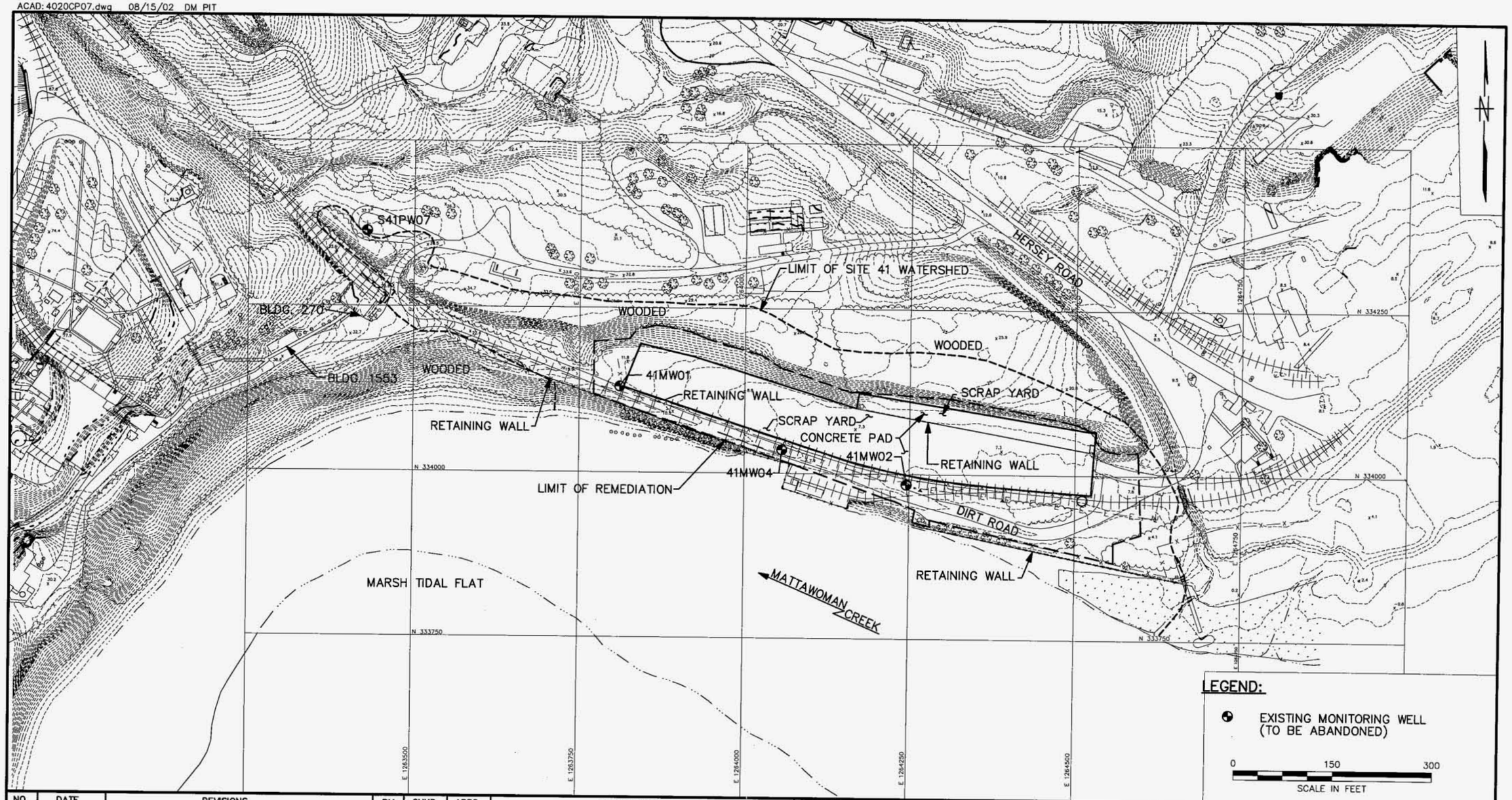

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DRAWN BY DM DATE 8/9/02
CHECKED BY TWS DATE 8/12/02
COST/SCHED-AREA
SCALE AS NOTED

Tetra Tech NUS, Inc.

SITE 41 WATERSHED
SITE 41 – SCRAP YARD
IHDIV–NSWC
INDIAN HEAD, MARYLAND

CONTRACT NO. 4020
OWNER NO. 0805
APPROVED BY GJL
DATE 8/12/02
APPROVED BY
DATE
DRAWING NO. FIGURE 2–2
REV. 0

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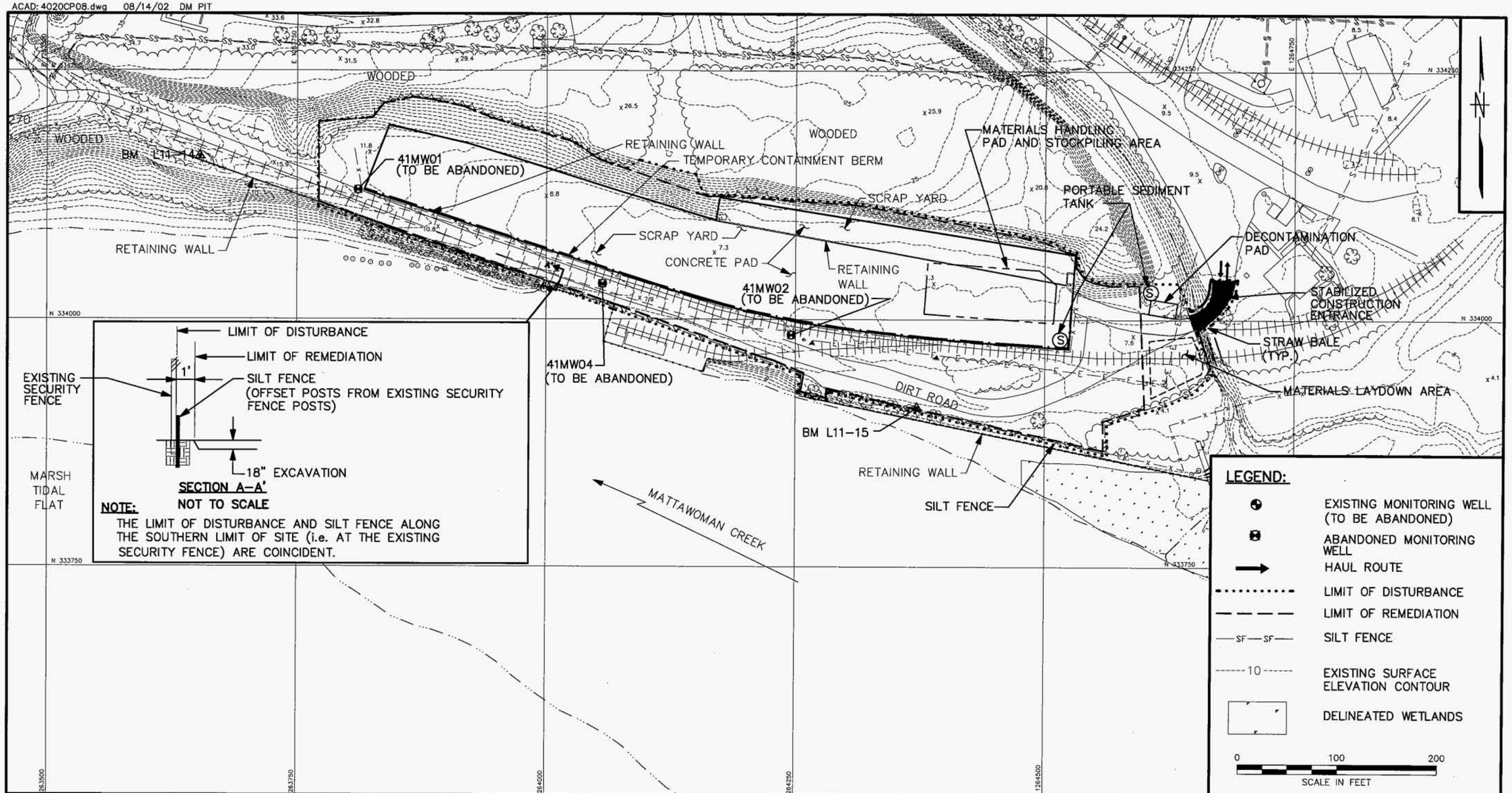

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY DM DATE 8/9/02
CHECKED BY TWS DATE 8/12/02
COST/SCHED-AREA
SCALE AS NOTED

Tetra Tech NUS, Inc.

EROSION AND SEDIMENT CONTROL PLAN
SITE 41 - SCRAP YARD
IHDIV-NSWC
INDIAN HEAD, MARYLAND

CONTRACT NO. 4020
OWNER NO. 0805
APPROVED BY GJL
DATE 8/12/02
APPROVED BY
DATE
DRAWING NO. FIGURE 2-3
REV. 0

FORM CADD NO. T+NUS_BH.DGN - REV 0 - 1/20/98

3.0 STATE AND LOCAL REQUIREMENTS

This plan was prepared in accordance with the USEPA Storm Water Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practice, Summary Guidance (USEPA, 1992b) and, in part, the Maryland Stormwater Design Manual, Volumes I and II (MDE, 2000).

According to Maryland Environmental Regulations (COMAR 26.17.01.06), a trained and certified "responsible person" must be on site during construction. The purpose of the "responsible person" is to train field personnel on techniques and standards that assist with the field implementation of erosion and sediment controls.

4.0 INSPECTION AND MAINTENANCE PROCEDURES

In general, all erosion and sediment control facilities will be checked weekly and after each runoff-producing rainfall event so that all erosion and sediment controls remain in effective operating conditions. Any required repairs will be made immediately. The following items will be checked:

- The stabilized construction entrance will be maintained in a condition that will minimize tracking sediment onto roads, including the addition of stone or other repairs.

- The silt fence will be checked regularly for undermining or deterioration of the fabric. Sediment will be removed when the level of sediment deposition causes "bulging" or reaches half of the fabric height.

- The seeded areas will be checked regularly so that a good stand of vegetation is maintained. Areas will be fertilized and re-seeded as needed. The RAC is responsible for maintenance until formal acceptance by the Contracting Officer.

- The temporary containment berm(s) will be inspected for areas of breakthrough or accumulation of sediment that could cause water to pond behind or flow over top of the berms.

- The hazardous materials storage area and hazardous materials containers will be inspected regularly for leakage. Any leakage will be addressed immediately.

5.0 NON-STORMWATER DISCHARGES AND POLLUTION PREVENTION

This section presents a description of non-stormwater discharges and pollution prevention measures that will be employed during the proposed remedial action.

5.1 NON-STORMWATER DISCHARGES

The non-stormwater discharges anticipated during construction activities will be decontamination water, water resulting from the draining of excavated soils, dewatering of excavations, and steam cleaning and pressure washing activities. These generated waters will be pumped to a portable sediment tank. After the sediment is removed, the water will be pumped to a temporary storage tank where it will be characterized for proper management. The sediments will also be characterized for proper management.

5.2 POLLUTION PREVENTION MEASURES

The following is a list of materials or substances that are anticipated to be stored on site during the proposed remedial action.

- Detergents for decontamination efforts and concrete pad cleaning
- Diesel fuel and other vehicle maintenance substances
- Fertilizer as a soil amendment to promote vegetative growth
- Solvent for the decontamination of CADs
- Small quantities of laboratory chemicals, paints, and other flammable substances

Detergents and small containers or drums of oil, grease, antifreeze, hydraulic fluids, etc., if any, will be stored within an enclosed, lined, and diked area, along with any diesel fuel stored in tanks. The storage area will be bermed and lined with a 60-mil polyethylene geomembrane. It will be designed to contain at least 10 percent of the total contents of all materials stored in the area plus an allowance for precipitation. A small sump or low point will be designed to serve as a monitoring point for any leaks or spills from the containers. Inspection of the area and management of substances collected in this area were addressed previously in Section 4.0.

Small quantities of laboratory chemicals, paints, and other flammable substances, along with solvents, may be stored on site during the remedial action. These materials, when not in use, will be stored in a flammable storage cabinet located in the decontamination trailer. Practices that will be followed to reduce risks associated with these materials include the following:

- Products will be kept in original containers unless they are not resealable.
- Original labels and Material Safety Data Sheets will be retained.
- If surplus product must be disposed, manufacturers' or local and state recommended methods for proper disposal will be followed.

The following paragraphs describe specific spill prevention and material management practices that will be employed during the proposed remedial action.

Good Housekeeping

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

- An effort will be made to store only enough product to accomplish the task.
- All materials stored on site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used before the container is disposed.
- Manufacturers' recommendations for proper use and disposal will be followed.
- The assigned individuals will inspect areas daily for proper use and disposal of materials on site.

Spill Control Practices

In addition to the good housekeeping and material management practices discussed above, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.

- Materials and equipment necessary for spill cleanup will be kept in the material storage area on-site. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, absorbent material, and plastic and metal containers specifically for this purpose.

- All spills will be cleaned up immediately after discovery.

- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.

- Spills of toxic or hazardous material will be reported to the appropriate state or local government agency, as necessary, in accordance with state and local ordinances.

- This Stormwater Pollution Prevention Plan will be modified to include measures to prevent this type of spill from re-occurring and measures for cleaning up the spill if there is a recurrence. A description of the spill, the cause, and the cleanup measures will also be included.

- The on-site construction superintendent responsible for the day-to-day site operations will be the spill prevention and cleanup coordinator. The coordinator will designate at least three other site personnel who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the material storage areas and in the decontamination and office trailers located on site.

6.0 POLLUTION PREVENTION PLAN CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the submitted information. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed:_____

Date:_____

7.0 CONTRACTOR'S CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit, if any, that authorizes the stormwater discharges associated with construction activity at the site identified as part of this certification.

Signature	For	Responsible for
_____ Contractor Date:_____	Company Name and Address	Contractor
_____ Contractor Date:_____	Company Name and Address	Contractor
_____ Subcontractor Date:_____	Company Name and Address	Subcontractor

REFERENCES

E/A&H, 1994. Final Site Inspection Report, Phase II Indian Head Division, Naval Surface Warfare Center, March 4.

Maryland Department of the Environment (MDE), 1994. Maryland Standards and Specifications for Soil Erosion and Sediment Control, Water Management Administration.

MDE, 2000. 2000 Maryland Stormwater Design Manual Volumes I & II. Water Management Administration.

NAVSEA, 1991. NAVSEA Instruction 8023.11, Standard Operating Procedure for the Manufacture, Handling, and Storage of Expendable Ordnance at Navy and Marine Corps Activities, Department of the Navy, Naval Sea Systems Command, NAVSEAINST 8023.11, OPR 665, March.

Tetra Tech NUS, Inc. (TtNUS), 1999. Remedial Investigation Report, Site 12 - Town Gut Landfill, Site 39/41 - Organics Plant/Scrap Yard, Site 42 - Olsen Road Landfill, site 44 - Soak Out Area, Indian Head Division, Naval Surface Warfare Center, Indian Head, Maryland, July.

TtNUS, 2001. Feasibility Study Report, Site 12 – Town Gut Landfill and Site 41 – Scrap Yard, Naval Surface Warfare Center Indian Head, Maryland, January.

United States Environmental Protection Agency (USEPA), 1992a. Storm Water Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices. EPA 832-R-92-005, September.

USEPA, 1992b. Storm Water Management for Construction Activities Summary Guidance for Developing Pollution Prevention Plans and Best Management Practice. EPA 833-R-92-001, October.

USEPA et al., 2001. Draft Final Record of Decision Site 41 - Scrap Yard, Indian Head Division, Naval Surface Warfare Center, Indian Head, Maryland, U.S. Environmental Protection Agency, Maryland Department of the Environment, and Naval Surface Warfare Center, Indian Head Division, May.

APPENDIX A

A.1 USEPA CONSTRUCTION GENERAL PERMIT REQUIREMENTS AND PRECONSTRUCTION CHECKLIST

A.2 EPA CONSTRUCTION GENERAL PERMIT CHECKLIST

A.1 USEPA CONSTRUCTION GENERAL PERMIT REQUIREMENTS AND PRECONSTRUCTION CHECKLIST

USEPA CONSTRUCTION GENERAL PERMIT REQUIREMENTS PRECONSTRUCTION CHECKLIST

Stormwater Pollution Prevention Plan

1. A site description, including:

   ☒ The nature of the activity.

   Refer to Section 1.2 of the Stormwater Pollution Prevention Plan.

   ☒ Intended sequence of major construction activities.

   Refer to Section 2.3 of the Stormwater Pollution Prevention Plan.

   ☒ The total area of the site.

   Refer to Section 2.1 of the Stormwater Pollution Prevention Plan.

   ☒ The area of the site that is expected to undergo excavation.

   Refer to Section 1.2 of the Stormwater Pollution Prevention Plan.

   ☒ The runoff coefficient of the site after construction is complete.

   Refer to Section 2.5 of the Stormwater Pollution Prevention Plan.

   ☒ Existing soil or storm water data.

   Refer to Section 2.5 of the Stormwater Pollution Prevention Plan.

A site map with:

   ☒ Drainage patterns.

   Refer to Figure 2-2 of the Stormwater Pollution Prevention Plan.

   ☒ Approximate slopes after major grading.

   NA.

   ☒ Area of soil disturbance.

   Refer to Figure 2-2 of the Stormwater Pollution Prevention Plan.

   ☒ Outline of areas which will not be disturbed.

   Refer to Figure 2-2 of the Stormwater Pollution Prevention Plan.

   ☒ Location of major structural and non-structural controls.

   Refer to Figure 2-2 of the Stormwater Pollution Prevention Plan.

   ☒ Areas where stabilization practices are expected to occur.

Refer to Figure 2-2 of the Stormwater Pollution Prevention Plan.

☒ Surface waters.

Refer to Figures 2-1 of the Stormwater Pollution Prevention Plan.

☒ Storm water discharge locations.

Refer to Figure 2-1 and Section 2.2 of the Stormwater Pollution Prevention Plan.

☒ The name of the receiving water(s).

Refer to Figure 2-1 of the Stormwater Pollution Prevention Plan.

2. A description of controls:

2.1 Erosion and sediment controls, including:

☒ Stabilization practices for all areas disturbed by construction.

Refer to Section 2.2, Section 2.2.1, and Section 2.4 of the Stormwater Pollution Prevention Plan.

☒ Structural practices for all drainage/discharge locations.

Refer to Section 2.2 and Section 2.2.1 of the Stormwater Pollution Prevention Plan.

2.2 Storm water management controls, including:

☒ Measures used to control pollutants occurring in stormwater discharges after construction activities are complete.

Refer to Section 2.2 and 4.0 of the Stormwater Pollution Prevention Plan.

☒ Velocity dissipation devices to provide nonerosive flow conditions from the discharge point along the length of any outfall channel.

NA

2.3 Other controls including:

☒ Waste disposal practices which prevent discharge of solid materials to waters of the U.S.

Refer to Section 2.2.1 of the Stormwater Pollution Prevention Plan.

☒ Measures to minimize offsite tracking of sediments by construction vehicles.

Refer to Section 2.2.1 of the Stormwater Pollution Prevention Plan.

☒ Measures to ensure compliance with State or local waste disposal, sanitary sewer, or septic system regulations.

N/A.

2.4 ☒ Description of the timing during the construction when measures will be implemented.

Refer to Section 2.3 of the Stormwater Pollution Prevention Plan.

3. ☒ State or local requirements incorporated into the plans.

Refer to Sections 2.0, 2.2.1 and 3.0 of the Stormwater Pollution Prevention Plan.

4. ☒ Inspection and maintenance procedures for control measures identified in the plan.

Refer to Section 4.0 of the Stormwater Pollution Prevention Plan.

5. ☒ Identification of allowable non-stormwater discharges and pollution prevention measures.

Refer to Section 5 of the Stormwater Pollution Prevention Plan.

6. ☒ Contractor certification.

Refer to Section 7 of the Stormwater Pollution Prevention Plan.

7. ☒ Plan certification.

Refer to Section 6 of the Stormwater Pollution Prevention Plan.

A.2 EPA CONSTRUCTION GENERAL PERMIT CHECKLIST

EPA CONSTRUCTION GENERAL PERMIT CHECKLIST

Storm Water Pollution Prevention Plan
Construction/Implementation Checklist

1. Maintain Records of Construction Activities, including:

   - ☐ Dates when major grading activities occur
   - ☐ Dates when construction activities temporarily cease on a portion of the site
   - ☐ Dates when construction activities permanently cease on a portion of the site
   - ☐ Dates when stabilization measures are initiated on the site

2. Prepare Inspection Reports summarizing:

   - ☐ Name of inspector
   - ☐ Qualifications of inspector
   - ☐ Measures/areas inspected
   - ☐ Observed conditions
   - ☐ Changes necessary to the SWPPP

3. Report Release of Reportable Quantities of Oil or Hazardous Materials (if they occur);

   - ☐ Notify National Response Center 800/424-8802 immediately
   - ☐ Notify permitting authority in writing within 14 days
   - ☐ Modify the pollution prevention plan to include:
     - The date of release
     - Circumstances leading to the release
     - Steps taken to prevent reoccurrence of the release

4. Modify Pollution Prevention Plan as necessary to:

   - ☐ Comply with minimum permit requirements when notified by EPA that the plan does not comply.
   - ☐ Address a change in design, construction, operation, or maintenance which has an effect on the potential for discharge of pollutants
   - ☐ Prevent reoccurrence of reportable quantity releases of a hazardous material or oil.

DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY - CHESAPEAKE
NAVAL FACILITIES ENGINEERING COMMAND
BUILDING 212, WASHINGTON NAVY YARD
WASHINGTON, D.C. 20374

SPECIFICATION NO:
21-97-5000-0077

CONTRACT NO:
N62470-97-D-5000-0077

SITE 41

SCRAP YARD
REMEDIAL ACTION DESIGN

at the

NAVAL SURFACE WARFARE CENTER, INDIAN HEAD

INDIAN HEAD, MARYLAND

DESIGN BY:

TETRA TECH NUS, INC.
600 CLARK AVENUE, SUITE 3
KING OF PRUSSIA, PENNSYLVANIA 19406-1433

SPECIFICATION PREPARED BY:

STATE OF MARYLAND
GEORGE W. CATALUPPE
No. 11079
REGISTERED
PROFESSIONAL ENGINEER

Architectural: N/A

Structural: N/A

Electrical: N/A

Mechanical: N/A

Submitted by:

AUGUST 2002

SPECIFICATION APPROVED BY: _____ DATE: _____

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DIVISION 01 - GENERAL REQUIREMENTS

01115N GENERAL PARAGRAPHS (REMEDIAL ACTION CONTRACTS)
01140N WORK RESTRICTIONS
01450N QUALITY CONTROL
01525 SAFETY REQUIREMENTS
01575N TEMPORARY ENVIRONMENTAL CONTROLS

DIVISION 02 - SITE WORK

02220N SITE DEMOLITION
02223 TRANSPORTATION AND DISPOSAL OF CONTAMINATED MATERIAL
02224 GEOGRAPHIC INFORMATION SYSTEM (GIS) GRADE-B POST-CONSTRUCTION LOCATION
02315N EXCAVATION AND FILL
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-- End of Project Table of Contents --

SECTION 01115N

GENERAL PARAGRAPHS (REMEDIAL ACTION CONTRACTS)

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926-SUBPART V	Power Transmission and Distribution

STATE OF MARYLAND CODE OF MARYLAND REGULATIONS (COMAR)

COMAR 26.17	Department of the Environment, Waste Management

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE EP 75-1-2	(2000) Unexploded Ordnance (UXO) Support During Hazardous, Toxic, and Radioactive Waste (HTRW) and Construction Activities
COE EP 1110-1-8	(1997) Construction Equipment Ownership and Operating Expense Schedule
COE EM 385-1-1	(1996) Safety and Health Requirements Manual

U.S. ENVIRONMENTAL PROTECTON AGENCY (EPA)

EPA 833/R-92-001	(1992) Storm Water Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practices, Summary Guidance

FEDERAL STANDARDS (FED-STD)

FED-STD-595	(Rev. B) Colors Used in Government Procurement

MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE)

MDE SESC	(1994) Standards and Specifications for Soil Erosion and Sediment Control

U.S. DEPARTMENT OF DEFENSE (DOD)

MIL-STD-461	(Rev. D) Control of Electromagnetic Interference Emissions and Susceptibility
MIL-STD-462	(Rev. D) Measurement of Electromagnetic Interference Characteristics

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 241	(1996) Safeguarding Construction, Alteration, and Demolition Operations

1.2 SUBMITTALS

Submit the following in accordance with Section C, Part 7.0, of the basic contract.

SD-01 Preconstruction Submittals

Work Plan

UXO HTRW Support Work Plan

SD-11 Closeout Submittals

As-Built records

Environmental Conditions Report

Status reports

QC meeting minutes

Test Results Summary Report

Contractor Production Report

QC Report

Rework Items List

Permits

Stormwater Pollution Prevention Plan

Notice of Intent

Notice of Termination

Contractor's Closeout Report

1.3 WORK PLAN

Submit a Work Plan consisting of the following elements:

a. Narrative: Provide a description of the project objectives, scheduling, sampling and analysis requirements, decontamination procedures; removal, excavation and cleaning procedures; compaction procedures; storage, transportation, and treatment requirements; wastewater treatment plan (water resulting from

decontamination, concrete pad rinsewater, excavation dewatering, excavated soil dewatering); and a detailed sequence of events for the construction, and treatment methods.

b. Technical Specifications: Provide, in an amendment format, any additional specifications and any modifications to the contract specifications required to accurately describe the materials and work procedures envisioned to satisfy the requirements of the delivery order. Contact Design Navy Technical Representative (NTR), for availability of guide specification sections for those sections required, but not included in the contract documents.

c. Shop drawings: Shop drawings shall detail and describe components of the project not currently indicated on the contract drawings such that the shop drawings and the contract drawings, when taken together, provide a complete representation of the project requirements. Shop drawings shall be prepared and sealed by a registered professional engineer.

d. Environmental Protection Plan: At the preconstruction conference, meet with the Resident Officer in Charge of Construction's (ROICC's) Navy Technical Representative (NTR) to discuss environmental protection requirements for the project. Prepare and submit an Environmental Protection Plan in accordance with Section C, Part 4.0, of the basic contract, and as specified herein.

(1) Hazardous materials (HM) to be brought onto the station: Any hazardous materials planned for use on the station shall be included in the station Hazardous Material Tracking Program maintained by the safety department. To assist in this effort, the Contractor shall submit a list (including quantities) of HM to be brought to the station and copies of the corresponding material safety data sheets (MSDS). This list shall be submitted to the ROICC NTR. At project completion, any hazardous material brought onto the station shall be removed from the site by the Contractor. The Contractor shall account for the quantity of HM brought to the station, the quantity used or expended during the job, and the leftover quantity which (1) may have additional useful life as a HM and shall be removed by the Contractor, or (2) may be a hazardous waste, which shall then be removed as specified herein.

(2) Hazardous waste (HW) generated: The Environmental Protection Plan shall list and quantify any HW to be generated during the project.

(3) Storage of hazardous waste: In accordance with station regulations, HW shall be stored near the point of generation up to a total quantity of one quart of acutely HW or 55 gallons of HW. Any volume exceeding these quantities shall be moved to an HW permitted area within 1 day. Prior to generation of HW, contact the ROICC NTR and IHDIV-NSWC Environmental Office for HW management requirements.

(4) Minimization of hazardous waste: In accordance with station regulations, the Contractor should substitute materials as necessary to reduce the generation of HW and include a statement to that effect in the Environmental Protection Plan.

(5) Environmental conditions likely to be encountered during this project: Contact the ROICC NTR for conditions in the area of the project which may be subject to special environmental procedures. Include this information in the Preconstruction Survey. Describe in the Environmental Protection Plan any permits required prior to working the area, and contingency plans in case an unexpected environmental condition is discovered.

(6) Permitting plans for any transportation and disposal, excavation, or construction of hazardous waste that will require an environmental permit from an issuing agency: The Contractor is responsible for generating the permits and delivering the completed documents to the ROICC NTR. The ROICC NTR will review the permits and the Contractor shall file the documents with the appropriate agency and complete disposal with the approval of the ROICC NTR. Correspondence with the State concerning the environmental permits and completed permits shall be delivered to the ROICC NTR.

(7) Environmental Protection Plan format

ENVIRONMENTAL PROTECTION PLAN

Contracting Organization
Address and Telephone Numbers

1. Hazardous materials to be brought onto the station
2. MSDS package
3. Employee training documentation
4. HW storage plan
5. HW to be generated
6. Preconstruction Survey results
7. Permitting requirements identified

e. Health and Safety Plan: Provide a site specific Health and Safety Plan (HASP) in accordance with Section C, Part 3.0, of the basic contract. The HASP shall include, but is not limited to, the following:

(1) Names of the health and safety officer and names of alternates responsible for health and safety.

(2) 29 CFR 1910.

(3) 29 CFR 1926.

(4) 29 CFR 1926-SUBPART V, tagout and lockout procedures.

(5) Contract Clause "FAR 52.236-13, Accident Prevention."

(6) Contract Clause "FAR 52.223-3, Hazardous Material Identification and Material Safety Data."

(7) NFPA 241.

f. QC Plan: Provide a QC Plan in accordance with Section C, Part 6.0, of the basic contract, and as specified herein.

(1) Table of Contents

I. QC ORGANIZATION
II. NAMES AND QUALIFICATIONS
III. DUTIES, RESPONSIBILITY, AND AUTHORITY OF QC PERSONNEL
IV. OUTSIDE ORGANIZATIONS
V. APPOINTMENT LETTERS
VI. SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER
VII. TESTING LABORATORY INFORMATION
VIII. TESTING PLAN AND LOG
IX. PROCEDURES TO COMPLETE REWORK ITEMS
X. DOCUMENTATION PROCEDURES

(2) Submittal Register: As part of the QC Plan, submit a completed Submittal Register to document quality control for materials, inspection, and testing in accordance with Section C, Part 7.0 of the basic contract. A copy of the Submittal Register is provided at the end of this section.

(3) Testing laboratory qualifications: As part of the QC Plan, submit qualifications for each laboratory which shall be used in accordance with Section C, Part 6.0, of the basic contract. Laboratories engaged in hazardous materials testing shall meet the requirements of Section C, Part 6.0 of the basic contract.

1.3.1 Forwarding Preconstruction Submittals

Within 30 calendar days of issuance of the delivery order, and before procurement, fabrication, or mobilization, submit to the ROICC NTR, and to distribution as directed by the ROICC NTR, the Work Plan, complete as specified. The Architect-Engineer shall review the Work Plan for the ROICC NTR to determine compliance of the Contractor's Work Plan with the requirements of the contract documents for this delivery order.

1.3.2 Review Comments

The Contractor's Work Plan shall be reviewed. The ROICC NTR shall compile and coordinate Government review comments, and forward consolidated review comments to the Contractor. Review comments on the Work Plan shall be resolved, and Work Plan modified as required. After the correction of the Work Plan, submit one corrected final copy to the ROICC NTR for final review. The Work Plan shall be approved prior to commencement of any other work associated with this delivery order.

1.4 UXO HTRW SUPPORT WORK PLAN

Provide a site specific Unexploded Ordnance (UXO) Hazardous, Toxic, and Radioactive Waste (HTRW) Support Work Plan (UXO HTRW Support Work Plan) in accordance with Section C of the basic contract and NAVSEA OP 5 Volume 1, "Ammunition and Explosives Ashore Safety Regulations for Handling, Storing, Production, Renovation, and Shipping" (Sixth Edition). The UXO HTRW Support Work Plan shall be submitted to the Naval Ordnance Safety and Security Activity (NOSSA) for approval. Site work shall not commence until the UXO HTRW Support Work Plan is approved. The UXO HTRW Support Work Plan shall be prepared in accordance with NAVSEA Instruction 8023.11, "Standard Operating Procedures for Manufacture, Handling, and Storage of Expendable Ordnance at Navy and Marine Corps Activities" and COE EP 75-1-2.

1.5 RECORDS

1.5.1 As-Built Records

Maintain two sets of full size contract drawings and two sets of full size approved shop drawings marked to show any deviations which have occurred, including buried or concealed construction and utility features revealed during the course of construction. Record horizontal and vertical locations of buried utilities that differ from the contract drawings. These drawings shall be available for review by the ROICC NTR at any time. At the completion of the work, deliver marked sets of the contract drawings to the ROICC NTR. As-built conditions shall be incorporated onto the drawings electronically. Provide a post-construction survey for final topography, structures, and utilities, and other requirements of Section 02224, "Geographic Information System (GIS) Grade-B Post-Construction Location." The A/E will supply the CADD files to be used.

1.5.2 Environmental Conditions Report

Prior to starting work, perform a preconstruction survey with the ROICC NTR. Take photographs showing existing environmental conditions on and adjacent to the site. Prior to starting work, submit the results of the survey in an Environmental Conditions Report to the ROICC NTR.

1.5.3 Contract Management System (CMS)

The CMS shall be a system able to provide, as a minimum, the activities in sorts or groups as specified in the basic contract and any subsequent delivery orders.

a. Status reports: Status reports shall comply with the basic contract and any subsequent delivery orders. Submit a Technical Progress Report, Cost Performance Report, modification log, time-scaled logic diagram, and Waste Materials Report. Submit the first delivery order status report approximately 15 days after the end of the month in which the Contractor's Work Plan was approved. Thereafter, submit status reports every 30 days. Status report periods shall be consistent with the invoice reporting periods.

1.5.4 QC Meeting Minutes

The QC representative shall document QC meetings by delivering copies of the minutes to the ROICC NTR within 3 calendar days after each QC meeting. The submittals shall comply with Section C, Part 6.0 of the basic contract.

1.5.5 Test Results Summary Report

A summary report of field tests, geotechnical laboratory, and laboratory analytical results shall be submitted to the ROICC NTR within 30 days after laboratory receipt of samples and in accordance with Section C, Part 6.0 of the basic contract. A separate report shall be required for each set of analytical data.

1.5.6 Contractor Production Report (CPR)

The CPR shall be prepared and submitted daily to the ROICC NTR in accordance with Section C, Part 6.0, of the basic contract.

1.5.7 QC Report

The QC Report shall be submitted by the QC representative to the ROICC NTR

every day work is performed, material is delivered, direction is pending, or a labor force is present in accordance with Section C, Part 6.0, of the basic contract.

1.5.8 Rework Items List

The QC representative shall deliver a copy of the Rework Items List to the ROICC NTR on a monthly basis in accordance with Section C, Part 6.0, of the basic contract.

1.5.9 Permits

Fifteen days prior to beginning on site work, submit draft copies of the following permits required for on site activities:

a. Hot Works Permit; from the Public Works Officer, Utilities Division.

b. Dig Permit; from the Public Works Officer, Utilities Division.

c. Outage Permit; from the Public Works Officer, Utilities Division.

1.5.10 Contractor's Closeout Report

Submit upon completion of the project. This report shall include: introduction, summary of action, final Health and Safety Report, summary of record documents, field changes and contract modifications, final documents, complete set of geotechnical laboratory results, complete set of field test and laboratory analytical results, documentation of off-site transportation and treatment of materials, QC Summary Report, surveyed as-builts, color photographs documenting each major task of the project,and final cost data. Report shall also include an evaluation of the temporary on-site treatment and off-site treatment systems, including quantities of contaminated soil and wastewater treated, contaminants removed, quality of effluent, problems encountered, and solutions implemented.

1.6 FORWARDING SUBMITTALS

After approval of the work plan, and before procurement or fabrication, submit, except as specified otherwise, to the ROICC NTR, the shop drawings and technical data required in the technical sections of this specification. As requested by the ROICC NTR, the Architect-Engineer for this project may review and provide surveillance for the ROICC NTR to determine if Contractor-approved submittals comply with the contract requirements, and shall review and approve for the ROICC NTR those submittals not permitted to be Contractor approved to determine if submittals comply with the contract requirements. At each "Submittal" paragraph in the individual specification sections, a notation "G," following a submittal item, indicates the Architect-Engineer, acting as the agent for the ROICC NTR, is the approving authority for that submittal item. One copy of the transmittal form for submittals shall be forwarded to the ROICC NTR.

1.7 PROJECT DESCRIPTION

This work includes the preparation of a work plan as previously described, and the provision of earthworks, site restoration, and other related work.

The remedial action consists of general site preparation work, groundwater monitoring well abandonment, and removal/excavation and off-site treatment

and disposal of waste-contaminated soil in order to protect potential human and ecological receptors, and site restoration. Specifically, the selected remedy is to remove the soil from within the concrete pad area and excavate contaminated soil from outside the concrete pad area as indicated. The removed and excavated soil would be managed off-site at an approved treatment, storage, and disposal (TSD) facility. The disturbed areas will be revegetated, new concrete pad perimeter fencing installed, and replacement monitoring wells installed. A bituminous concrete layer will be placed on the concrete pad if the concrete pad cannot be cleaned of Chemicals of Concern (COCs) to less than the Remedial Action Objectives (RAOs).

1.8 LOCATION

The work shall be located at the Indian Head Division Naval Surface Warfare Center, Indian Head, Maryland, Site 41.

1.9 DESCRIPTION OF CONTAMINANTS PRESENT

Site 41 - Scrap yard is one of several Installation Restoration (IR) sites located at the IHDIV-NSWC facility. From the 1960s to 1988 electrical transformers were reportedly stored at the northwestern end of the site prior to off-site disposal (TtNUS, 2001). A 1981 inspection identified 17 electrical transformers as either PCB contaminated or PCB containing (Hart, 1983). These transformers were believed to have leaked and contaminated the soil in this portion of the site. Additionally, lead batteries were stored at the site and may have released lead to the surface soils (E/A&H, 1994).

1.9.1 Previous Investigations

An Initial Assessment Study (IAS) (Hart, 1983) was performed to evaluate various sites at IHDIV-NSWC to determine if a potential threat to human health or the environmental existed. Site 41 was not identified as a site that exhibited a potential threat. A supplemental preliminary assessment (PA) report (NEESA, 1992) was prepared to evaluate an additional 17 sites, including Site 41. The PA recommended that further investigation be conducted at Site 41. Site 41 was further investigated as a follow-up to the supplemental PA during a site inspection (SI) (Phase II) which was conducted at 12 sites. Site 41 was recommended for further study based on the results of the SI. In 1997, a Remedial Investigation (RI), which included human health and environment risk assessments, was performed at Site 41 (TtNUS, 1999).

1.9.2 Sources of Contamination

The scrap yard is active and is used to store metal materials and scraps, including storage drums and furniture. Electrical transformers containing or contaminated with PCBs and lead-acid batteries were previously stored in the scrap yard.

1.9.3 Description of Contamination

Site 41 is estimated to contain approximately 1,510 cubic yards of contaminated soil. Soil, sediment and groundwater samples were collected and analyzed to determine the extent of contamination at Site 41. Soil COCs are polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCB), and inorganics. Shallow groundwater COCs are trichloroethene (TCE) and inorganics. There were no COCs for surface water

or sediment based on protection of human health. Some of the ecologically-based Chemicals of Potential Concern (COPCs) identified in Mattawoman Creek surface water and sediment may be site related. A description of surface and subsurface soil, groundwater, and surface water and sediment waste contamination, summarized from the Record of Decision (ROD)(USEPA et al., 2001) is provided below.

1.9.3.1 Surface and Subsurface Soil

The COCs for soil based on protection of human health are the PAHs, benzo(a)pyrene and dibenzo(a,h)anthracene, PCB (Aroclor 1260), and inorganics (arsenic and lead). The COCs for soil based on protection of ecological receptors are PCB (Aroclor 1260), and inorganics (arsenic, cadmium and lead).

Surface soil samples (up to 2 feet deep) were collected in 1997 and 1999. Benzo(a)pyrene and dibenzo(a,h)anthracene were detected in at least 70 percent of the surface soil samples collected in 1997 at concentrations ranging from 49 ug/kg to 2,000 ug/kg. Samples collected in 1999 were not analyzed for PAHs. Aroclor 1260 was detected in more than 80 percent of the surface soil samples collected in 1997 and 1999 at concentrations ranging from 25 ug/kg to 180,000 ug/kg. Arsenic and lead were detected in all the surface soil samples collected in 1997 and 1999. Arsenic concentrations ranged from 2 mg/kg to 1,290 mg/kg, and lead concentrations ranged from 4.4 mg/kg to 6,400 mg/kg. Cadmium was detected in over 80 percent of the surface soil samples collected in 1997 and 1999 at concentrations ranging from 0.06 mg/kg to 231 mg/kg. Most of the surface soil on the concrete pad is contaminated. Contamination is more sporadic outside of the concrete pad, and there is no pattern to the detections. The concentrations and locations of the COCs detected in surface soil are shown on Figures 2-6 (0 to 6 inches deep) and 2-7 (12 to 18 inches deep) of the ROD.

Subsurface soil samples (more than 2 feet deep) were collected in 1992. Benzo(a)pyrene was only detected in two subsurface soil samples, at concentrations of 100 ug/kg and 190 ug/kg. Subsurface soil samples were not collected in 1997 or 1999. Dibenzo(a,h)anthracene and Aroclor 1260 were not detected in subsurface soil. Arsenic was detected in less than 50 percent of the subsurface soil samples, at concentrations ranging from 1.3 mg/kg to 328 mg/kg. Cadmium was only detected in two subsurface soil samples, at concentrations of 1.2 mg/kg and 2 mg/kg. Lead was detected in all subsurface soil samples, at concentrations ranging from 1.7 to 47 mg/kg. In general, the concentrations of the COCs were much lower in the subsurface soil than in the surface soil. The only area of concern with respect to subsurface soil is the maximum concentration of arsenic (328 mg/kg) at soil boring 41SB02 at a depth of 8 feet. This is the only area of subsurface soil that results in unacceptable risks to human health under the anticipated future non-residential land use for the site.

Maximum surface and subsurface soil concentrations were also compared to USEPA Soil Screening Levels (SSLs) for migration from soil to groundwater. The maximum detected concentrations of benzo(a)anthracene, Aroclor 1260, antimony, arsenic, cadmium, total chromium, and lead exceeded the respective SSL. Only arsenic was detected in shallow groundwater beneath the site.

1.9.3.2 Groundwater

The only COC for shallow groundwater based on protection of human health is

arsenic. Additional COCs for shallow groundwater, based on exceedances of federal and state Maximum Contaminant Levels (MCLs) for drinking water, are TCE and beryllium. The only exceedance of the proposed MCL for arsenic (5 ug/L) was at location S41MW02 (37.6 ug/L). Detected concentrations of TCE were 8 ug/L at location S41MW01 and 32 ug/L at location S41MW03. The MCL for TCE is 5 ug/L. TCE was not detected in any soil samples collected at the site. The concentrations of beryllium barely exceeded the MCL (4 ug/L) at location S41MW02 (4.3 ug/L) and location S41MW03 (4.8 ug/L). There is no apparent pattern or plume for the detections of the COCs in shallow groundwater. The highest concentrations of TCE and beryllium were detected in the most upgradient well (S41MW03), although this well is within the concrete pad area. The concentrations and locations of the detections of COCs and other chemicals detected in groundwater are shown on Figure 2-8 of the ROD.

1.9.3.3 Surface Water and Sediment

There were no unacceptable risks or COCs identified for protection of human health from exposure to surface water or sediment.

The following were identified as chemicals of potential concern (COPCs) for surface water or the aquatic food chain during the ecological risk assessment: Aroclor 1260, cadmium, chromium, copper, lead, mercury, silver, and zinc. Aroclor 1260, cadmium, chromium, copper, lead, mercury, and silver were not detected in Mattawoman Creek near the site but were only detected in a sample of ponded water collected in April 1993 from within the concrete pad area (41SW01). All detections of zinc in Mattawoman Creek were below the state surface water quality criteria.

The following were identified as COPCs for sediment during the ecological risk assessment: 1,1-dimethylhydrazine, nitrocellulose, N-nitrosodiphenylamine, mercury, nickel, and silver. The only organic COPC detected at Site 41 was nitrocellulose. All the metals were also detected in site soil.

1.10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK

Time for completion includes both the time for construction and the time to obtain an approved Work Plan. The Contractor shall be required to (a) commence work on the Work Plan within 5 calendar days after receiving the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than 105 calendar days (45 calendar days to obtain an approved Work Plan and 60 calendar days for time of construction) after receiving the notice to proceed. The time stated for completion shall include final cleanup of the premises and the restoration of the site.

1.11 PROJECT INFORMATION

1.11.1 Contract Drawings

Contract drawings are as follows:

DWG No.	NAVFAC DWG No.	Title
T-1	3456975	Title Sheet
T-2	3456976	General Notes and Legend
C-1	3456977	Existing Conditions Plan
C-2	3456978	Erosion and Sediment Control Plan

DWG No.	NAVFAC DWG No.	Title
C-3	3456979	Erosion and Sediment Control Notes
C-4	3456980	Revegetation Notes
C-5	3456981	Erosion and Sediment Control Details
C-6	3456982	Excavation and Fill Plan
C-7	3456983	Restoration Plan
C-8	3456984	Miscellaneous Details

1.11.2 Reference Reports

The following reference reports are available for examination in the office of the ROICC NTR and are intended only to show the existing conditions. The reports and drawings are the property of the Government and shall not be used for any purpose other than that intended by the specification.

Reports

a. Initial Assessment Study of Naval Ordnance Station, Indian Head, Maryland, (13-021), Naval Energy and Environmental Support Activity(NEESA), Fred C. Hart Associates, Inc., May 1983.

b. Remedial Investigation (RI) Report, Site 12 - Town Gut Landfill, Site 41 - Scrap Yard, Site 42 - Olsen Road Landfill, Indian Head Division, Naval Surface Warfare Center, Indian Head, Maryland, Tetra Tech NUS, Inc., July 1999.

c. Feasibility Study Report, Site 12 - Town Gut Landfill, Site 41 - Scrap Yard, Indian Head Division, Naval Surface Warfare Center, Indian Head, Maryland, Tetra Tech NUS, Inc., January 2001.

d. Draft Final Record of Decision, Site 41 - Scrap Yard, Indian Head Division, Naval Surface Warfare Center, Indian Head, Maryland, U.S. Environmental Protection Agency, Maryland Department of the Environment, and Naval Surface Warfare Center, Indian Head Division, May 2001.

1.12 SCHEDULING

The IHDIV-NSWC will remain in operation during the entire construction period. The Contractor shall schedule the work as to cause the least amount of interference with station operations. Work schedules shall be subject to the approval of the ROICC NTR. Permission to interrupt station roads shall be requested in writing a minimum of 15 calendar days prior to the desired date of interruption. Notify the ROICC NTR 48 hours prior to starting excavation.

1.12.1 Regular Work Hours

Regular working hours shall consist of an 8 1/2 hour daily period established by the ROICC NTR, Monday through Friday, excluding Government holidays.

1.12.2 Work Outside Regular Hours

Work outside regular hours requires ROICC NTR approval. Contractor shall submit an application to the ROICC NTR, two regular working days prior to the scheduled working date, to allow ample time to enable satisfactory arrangements to be made by the Government for inspecting the work in

progress. At night, the Contractor shall light the different parts of the work in an approved manner.

1.13 SECURITY REQUIREMENTS

The Contractor shall comply with the general security requirements as stipulated in Section C, Part 2.0, of the basic contract.

1.14 STORAGE AND TEMPORARY BUILDINGS

1.14.1 Storage in Existing Buildings

Storage in existing buildings shall not be allowed.

1.14.2 Open Site Storage Size and Location

The open site available for storage, laydown, materials handling, and decontamination shall be confined to the areas indicated by the ROICC NTR.

1.14.3 Trailers, Storage, and Temporary Buildings

Locate trailers, storage, and temporary buildings where directed and within the indicated operations area. Trailers or storage buildings shall be permitted where space is available subject to the approval of the ROICC NTR. The trailers or storage buildings shall be suitably painted and kept in a good state of repair. Failure of the Contractor to maintain the trailers or storage buildings in good condition shall be considered sufficient reason to require their removal. Trailers shall be anchored to resist high winds and shall meet applicable State or local standards for anchoring mobile trailers. A sign that conforms to the following requirements and shows the company name, telephone number, and emergency telephone number, shall be mounted on the trailer or building.

Graphic panel: Aluminum, painted blue; FED-STD-595 25053

Copy: Screen painted or vinyl die-cut, white, Universe 65 u/lc typeface.

1.14.4 Contractor Quality Control Field Office

Provide a trailer of sufficient size for an office trailer work area and floor area for the exclusive use of the quality control (QC) representative. Also provide room in the same trailer for the QC records. Provide the QC representative with a 4 by 8 foot plan table, a standard size office desk and chair, and telephone service. QC records shall be filed in the office and available at all times to the Government. QC field office trailer shall comply with the requirements specified above for other Contractor trailers.

1.15 LOCATION OF UNDERGROUND UTILITIES

Contractor shall comply with the requirements specified in Section C, Part 2.0 of the basic contract, and with requirements specified herein. Obtain station digging permits prior to the start of excavation activities. Verify elevations of existing underground utilities and obstructions before installing new work closer than the nearest manhole or other structure at which an adjustment can be made.

1.16 UTILITY SERVICES

1.16.1 Temporary Utilities

Contractor shall provide his own utilities.

1.16.2 Utility Cutovers and Interruptions

Make utility cutovers and interruptions outside regular working hours. Conform to procedures specified herein for work outside regular working hours. Ensure that new utilities are complete, except for the connection, before interrupting the existing service.

1.17 RESTRICTIONS ON EQUIPMENT

1.17.1 Radio Transmitter Restrictions

The Contractor shall conform to the restrictions and procedures for the use of radio transmitting equipment, as directed by the ROICC NTR. Do not use transmitters without prior approval.

1.17.2 Electromagnetic Interference Suppression

Electric motors shall comply with MIL-STD-461 relative to radiated and conducted electromagnetic interference. A test for electromagnetic interference will not be required for motors that are identical physically and electrically to those that have previously met the requirements of MIL-STD-461. An electromagnetic interference suppression test will not be required for electric motors without commutation or slip rings having no more than one starting contact and operated at 3600 revolutions per minute or less.

Devices other than electric motors used by the Contractor shall comply with MIL-STD-461 for devices capable of producing radiated or conducted interference.

Conduct tests on electric motors and the Contractor's construction equipment in accordance with MIL-STD-461 and MIL-STD-462. The test location shall be reasonably free from radiated and conducted interference. Furnish the testing equipment, instruments, and personnel for making the tests; a test location; and other necessary facilities.

1.18 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE

In conjunction with the Contract Clause "DFARS 252.236-7000, Modification Proposals-Price Breakdown," and where actual ownership and operating costs of construction equipment cannot be determined from Contractor accounting records, equipment use rates shall be based upon the applicable provisions of COE EP 1110-1-8.

1.19 PUBLIC RELEASE OF INFORMATION

Contractor shall comply with requirements stated in Section C, Part 2.0, of the basic contract.

1.20 STORM PROTECTION

Contractor shall conduct storm protection measures in accordance with the requirements of Section C, Part 2.0, of the basic contract, and as specified herein.

1.20.1 Hurricane Condition of Readiness

Unless directed otherwise, comply with:

a. Condition ONE (sustained winds of 50 knots or greater expected within 12 hours): Secure the jobsite, and leave Government premises.

b. Condition TWO (sustained winds of 50 knots or greater expected within 24 hours): Curtail or cease routine activities until securing operation is complete. Reinforce or remove form work and scaffolding. Secure machinery, tools, equipment, materials, or remove from the jobsite. Expend every effort to clear missile hazards and loose equipment from general base areas. Contact ROICC NTR for weather and condition of readiness (COR) updates and completion of required actions.

c. Condition THREE (sustained winds of 50 knots or greater expected within 48 hours): Maintain Condition FOUR requirements and commence securing operations necessary for Condition ONE which cannot be completed within 18 hours. Cease routine activities which might interfere with securing operations. Commence securing and stow gear and portable equipment. Make preparations for securing buildings. Review requirements pertaining to Condition TWO and continue action as necessary to attain Condition THREE readiness. Contact ROICC NTR for weather and COR updates and completion of required actions.

d. Condition FOUR (sustained winds of 50 knots or greater expected within 72 hours): Normal daily jobsite cleanup and good housekeeping practices. Collect and store in piles or containers scrap lumber, waste material, and rubbish for removal and disposal at the close of each work day. Maintain the construction site including storage areas, free of accumulation of debris. Stack form lumber in neat piles less than 4 feet high. Remove debris, trash, or objects that could become missile hazards. Contact ROICC NTR for COR updates and completion of required actions.

1.21 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the delivery order, environmental protection as defined in Section C, Part 4.0, of the basic contract, and as specified herein.

1.21.1 Stormwater Pollution Prevention Plan

Prepare a Stormwater Pollution Prevention Plan (SWPPP), a completed Notice of Intent (NOI) form, and a completed Notice of Termination (NOT) form in accordance with the requirements of the State's general permit for storm water discharges from construction sites. The SWPPP shall be prepared in accordance with EPA 833/R-92-001. Submit SWPPP, NOI, and the appropriate permit fee to the ROICC NTR a minimum of 14 days prior to ground-disturbing activities. No work will be allowed on site until an approved permit is received from the State. Implement and maintain the measures specified in the SWPPP and periodically review and update the SWPPP.

Within 14 days after substantial completion and acceptance by the ROICC NTR, complete and submit NOT to the EPA. Submit a duplicate copy of the NOT to the Contracting Officer.

The Contractor shall keep a copy of the SWPPP and the approved permit on site at the Contractor's trailer at all times. The SWPPP shall be continually updated as necessary to reflect current and changing conditions on site.

1.21.2 Fire Protection

Comply with COE EM 385-1-1, NFPA 241, and activity fire regulations. Post the activity fire poster in conspicuous locations and at telephones in construction trailers.

1.21.3 Responsible Person

In accordance with COMAR 26.17.01.06, a trained and certified "responsible person" must be on site during construction. The purpose of the "responsible person" is to train field personnel on techniques and standards that assist with the field implementation of erosion and sediment controls.

1.22 PRECONSTRUCTION CONFERENCE

After approval of the Work Plan, but prior to commencement of any work at the site, Contractor shall meet with the ROICC NTR to discuss and develop a mutual understanding relative to the administration of the HASP, preparation and submission of submittals, scheduling, programming, and prosecution of the work. Major subcontractors who will be engaged in the work shall also attend.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 CLEANING UP

During the progress of the remediation, the work area and adjacent areas shall be kept clean and free of rubbish, surplus materials, and unneeded construction equipment. No material or debris shall be allowed to flow or wash into watercourses, ditches, gutters, drains, or pipes. Upon completion of the work, sweep paved areas and rake clean landscaped areas. Remove waste and surplus materials, rubbish, and construction facilities from the site.

3.2 EROSION AND SEDIMENT CONTROL

Implement and maintain the approved erosion and sediment control measures shown on the approved Erosion and Sediment Control Plan and in the Stormwater Pollution Prevention Plan. For any Contractor proposed changes to the approved plan, it shall be the sole and complete responsibility of the Contractor to obtain approval of the revised plan by the appropriate reviewing authority with no delay to the Government. Any Erosion and Sediment Control Plan revisions shall be completed in accordance with MDE SESC. Erosion and sediment control measures are only to be removed when all upstream areas are stabilized as determined by the Contracting Officer unless noted otherwise.

-- End of Section --

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
SITE 41, SCRAP YARD, RAD, IHDIV-NSWC, MD

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY					
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01115N	SD-01 Preconstruction Submittals															
			Work Plan	1.3														
			UXO HTRW Support Work Plan	1.4														
			SD-11 Closeout Submittals															
			As-Built records	1.5.1														
			Environmental Conditions Report	1.5.2														
			Status reports	1.5.3														
			QC meeting minutes	1.5.4														
			Test Results Summary Report	1.5.5														
			Contractor Production Report	1.5.6														
			QC Report	1.5.7														
			Rework Items List	1.5.8														
			Permits	1.5.9														
			Stormwater Pollution Prevention	1.21.1														
			Plan															
			Notice of Intent	1.21.1														
			Notice of Termination	1.21.1														
			Contractor's Closeout Report	1.5.10														
		01450N	SD-01 Preconstruction Submittals															
			(QC) Plan	1.6														
		01525	SD-07 Certificates															
			Accident Prevention Plan	1.4.1														
			Activity Hazard Analysis	1.4.2														
			Health and Safety Plan	1.4.3														
			SD-11 Closeout Submittals															

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		01525	Daily Confined Space Entry	3.3.7														
			Permit															
			Reports	1.17														
		01575N	SD-01 Preconstruction Submittals															
			Environmental Protection Plan	1.9														
			Sediment and Erosion Control	1.4														
			Plan															
			SD-06 Test Reports															
			Laboratory analysis	1.5														
			Laboratory analysis	1.6.2														
			SD-11 Closeout Submittals															
			Solid waste disposal permit	1.6.1														
			Waste determination	1.6.2														
			documentation															
			Waste determination	3.5.1														
			documentation															
			Disposal documentation for	1.6.3														
			hazardous and regulated waste															
			Contractor 40 CFR employee	1.6.4														
			training records															
			Regulatory notification	1.6.5														
			Erosion and sediment control	1.6.6														
			inspection reports															
			Solid waste disposal report	1.6.7														
			Contractor Hazardous Material	1.11														
			Inventory Log															

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		02220N	SD-06 Test Reports															
			Toxic Characteristic Leaching	1.9.2														
			Procedure (TCLP)															
			SD-07 Certificates															
			Demolition plan	1.9.1														
			Notifications	1.4.1														
		02223	SD-07 Certificates															
			Treatment facility permits	1.2.1.1														
			SD-11 Closeout Submittals															
			Shipment manifests	1.2.2.1														
			Delivery certificates	1.2.2.2														
			Disposal Site Decontamination	1.2.2.3														
			Certificates															
			Work Site Decontamination	1.2.2.4														
			Certificates															
			Treatment and Disposal	1.2.2.5														
			Certificates															
		02224	SD-11 Closeout Submittals															
			Buried Utility Location Plan	2.1														
			Survey Report	2.2														
			GIS CADD file(s)	2.3														
			F-Size plot	2.4														
		02315N	SD-06 Test Reports															
			Borrow Site Testing	1.5														
			Common fill	3.11.2.1														
			Select fill	3.11.2.2														

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		02315N	Topsoil	2.1.2														
			Density tests	3.11.2.3														
			SD-07 Certificates															
			Excavation and handling work	1.3.1														
			plan															
			Dewatering work plan	3.2.1														
		02525N	SD-02 Shop Drawings															
			Well construction	1.6.1														
			SD-03 Product Data															
			Well riser	2.1														
			Well screen	2.2														
			Filter pack	2.3														
			Cement/bentonite grout	2.4.2														
			Bentonite pellet seal	2.4.1														
			SD-07 Certificates															
			Well Drilling/Development	1.6.2														
			Material Handling Plan															
			Field Sampling and Laboratory	1.6.4														
			Testing Plan															
			Treatment facility permit	1.6.5														
			Installation Survey Report	3.7														
			Well Development Report	1.6.6														
			Well Abandonment Report	1.6.7														
			Borehole Analysis Report	3.2.2														
			SD-11 Closeout Submittals															
			Well Construction Permit	1.6.8														

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		02742N	SD-06 Test Reports															
			Subbase material density	3.2														
			Subbase and aggregate base course	3.7.1														
			Bituminous Concrete Courses Test	3.7.2														
			SD-07 Certificates															
			Aggregate base	2.2														
			Subbase materials	2.1														
			Tack coat	2.6														
			Bituminous concrete	2.3														
		02821N	SD-02 Shop Drawings															
			Gates	2.1.2														
			Post spacing	3.2.1														
			Location of gate, corner, end, and pull posts	3.2.1														
			SD-03 Product Data															
			Chain-link fencing	2.1														
			Accessories	2.1.4														
			SD-06 Test Reports															
			Weight in ounces for zinc coating	1.4.1														
			Chemical composition and thickness of aluminum alloy coating	1.4.1														
			SD-07 Certificates															
			Fabric	2.1.1														
			Posts	2.1.3														

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		02821N	Braces	2.1.3														
			Framing	2.1.2														
			Tension wires	3.2.4														
			Gates	2.1.2														
			Padlocks	2.1.7														
			SD-08 Manufacturer's Instructions															
			Fence	3.2														

SECTION 01140N

WORK RESTRICTIONS

PART 1 GENERAL

1.1 REFERENCES

The publication listed below forms a part of this specification to the extent referenced. The publication is referred to within the text by the basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE EM 385-1-1	(1996) Safety and Health Requirements Manual

1.2 SPECIAL SCHEDULING REQUIREMENTS

a. Hersey Road will remain in operation during the entire construction period. The Contractor shall conduct his operations so as to not cause any interference with normal operations of the activity.

1.3 CONTRACTOR ACCESS AND USE OF PREMISES

1.3.1 Station Regulations

Ensure that Contractor personnel employed on the Station become familiar with and obey Station regulations. Keep within the limits of the work and avenues of ingress and egress as directed. Do not enter any restricted areas unless required to do so and until cleared for such entry. Permission to interrupt any station roads, railroads, or utility services shall be requested in writing a minimum of 15 calendar days prior to the desired date of interruption. The Contractor's equipment shall be conspicuously marked for identification.

1.3.1.1 Additional Station Regulations

Specific routes to the job sites will be designated for Contractor personnel. No Contractor's employee will be permitted to deviate from these routes, nor will Contractor's employees leave the job site to enter other areas of the Station without permission of the Commanding Officer as granted via the Contracting Officer. Contractor employees shall not bring matches and/or lighters into the restricted area of the Station. All matches and lighters shall be given to the Security Personnel at Building 1665 (Post No. 2) prior to entering this area. Any Contractor's employee who violates the provisions of this paragraph may, at the discretion of the Commanding Officer via the Contracting Officer, be escorted from the Station forthwith and barred from further entry.

1.3.2 Working Hours

In accordance with Section 01115N "General Paragraphs (Remedial Action Contracts)."

1.3.3 Work Outside Regular Hours

In accordance with Section 01115N "General Paragraphs (Remedial Action Contracts)."

1.3.4 Utility Cutovers and Interruptions

In accordance with Section 01115N "General Paragraphs (Remedial Action Contracts)."

1.4 SECURITY AND SAFETY REQUIREMENTS

Contract Clause "FAR 52.204-2, Security Requirements, Alternate II," "FAC 5252.236-9301, Special Working Conditions and Entry to Work Area."

1.4.1 IHDIV-NSWC Access

No employee or representative of the Contractor will be admitted to the work site unless he furnishes satisfactory proof that he is a citizen of the United States or is specifically authorized admittance by the Contracting Officer.

1.4.2 IHDIV-NSWC Access Information

The station is a secured facility. Furnish to the Contracting Officer a list showing the names and social security numbers of all employees and representatives to be engaged at the site. Update the list with each addition or deletion to such engagement.

1.4.3 Restrictions to Ensure Safety

When the work at IHDIV-NSWC is within a restricted area the work is potentially hazardous due to danger from explosives. Pursuant to the clause of the basic contract entitled "Accident Prevention" and the paragraph entitled "Station Regulations," safety shall be given particular emphasis. Paragraph (f) of the clause of the basic contract entitled "Accident Prevention" is applicable. It is the Contractor's responsibility to comply with COE EM 385-1-1, additional safety requirements into daily working procedures that will provide safe working conditions for contract duration. Any Contractor's employee who violates these regulations may, at the discretion of the Commanding Officer, be escorted from the Station and barred from further entry.

1.4.4 Restricted Area Safety Regulations

Extraordinary safety regulations for the restricted area include the following:

1. Prior to starting any maintenance, repair, or construction, contract job superintendent must meet with an IHDIV-NSWC Safety Department representative to become familiar with IHDIV-NSWC safety regulations.

2. Authorization (Work Permits) to commence scope of contract will be obtained from the IHDIV-NSWC Safety Department via Contracting Officer.

3. Smoking, carrying matches, lighters, or other flame or spark-producing items on person, in vehicles, or other carriers, is prohibited in the Restricted Area of IHDIV-NSWC. Smoking areas

will be designated by the IHDIV-NSWC Safety Department, upon request, via the Contracting Officer. Approval will be based on the specific operational safety concerns within the area requested.

4. The use of welding equipment, tar pots, gas burners, etc., is prohibited unless authorized by the IHDIV-NSWC Safety Department. Once approved these instruments that may be lighted by use of striker must be done so. If matches are required, they will be provided by the IHDIV-NSWC Safety Department - for use only as authorized - to the contract superintendent. Note: LPG is not allowed within the explosives areas of IHDIV-NSWC.

5. All hot (open-flame) work will be secured 30 minutes prior to leaving work area unless a watchman is on duty for at least 30 minutes after end of work period. At no time will open-flame burning for debris disposal or other purposes be authorized.

6. Prior to any maintenance or repair to explosives-contaminated equipment, such equipment must be inspected by the IHDIV-NSWC Safety Department and by IHDIV-NSWC area supervisor. All explosives-contaminated materials must be decontaminated by IHDIV-NSWC methods and supervision prior to removal from the Restricted Area.

7. All traffic rules, regulations, and control devices must be adhered to. Speed limits as posted prevail, intra-plant area roadways require 15 mph unless posted otherwise, and 10 mph must be maintained on Nobel Road. All other roads 25 mph unless otherwise posted.

8. Only necessary, approved, Contractor vehicles will be allowed in the Restricted Area. These must be equipped with adequate exhaust systems and maintained in good mechanical and physical condition at all times. Spark arrestor devices, where designated, must be provided by Contractor and subjected to inspection by the IHDIV-NSWC Safety Department prior to entering posted hazards. For all vehicles entering into the explosive areas of IHDIV-NSWC, Safety Inspections will be required prior to receiving a vehicle pass from the IHDIV-NSWC Safety Department.

9. Blocking of roadways with equipment will not be allowed at any time. Securing roadways with barricades will be accomplished only upon approval of the IHDIV-NSWC Safety Department and notification of IHDIV-NSWC Security and Fire Departments. Where possible, an adequate fire lane must be provided around approved obstruction(s) for emergency equipment.

10. Securing of plant utilities (air, steam, water, etc.) will be accomplished only upon approval of IHDIV-NSWC Utilities Division, only when written outage has been obtained via contracting office.

11. Securing of Fire Protection devices will be accomplished only on the approval of the Fire Chief, or his designated acting Chief, through the Contracting Officer.

12. All roadways and walkways will be kept clear of debris at all times. Cleaning of same will be accomplished by the Contractor at least daily, or as frequently as conditions necessitate.

13. No power actuated tools or devices may be used.

14. Contractor employees are restricted from buildings not included in contract with exception of lunchrooms, change houses, etc., agreed to be area Division Head and Contracting Officer.

15. Fuels, oils, and lubricants

a. Refueling of equipment and vehicles with flammable liquids will be done in areas designated by the IHDIV-NSWC Safety Department. All equipment used in flammables handling or operations must be of an approved type, per Underwriters' Laboratory or Factory Mutual certifications. Adequate fire protection devices must be on the scene during refueling operations.

b. Used oil, oil filters, and empty oil cans will be removed from IHDIV-NSWC by the Contractor.

c. The Contractor must inform the IHDIV-NSWC Safety and Public Works Department representatives of all Contractor-owned Hazardous Material that will be used, stored, or handled at IHDIV-NSWC. If IHDIV-NSWC employees are exposed to these materials, or potential for exposure exists, IHDIV-NSWC employees shall:

(1) Be informed and trained as required by IHDIV-NSWC NAVSURFWARCEN 5100.22G.

(2) Have a Material Safety Data Sheet accessible at the workplace for each material used for their review.

d. The Contractor shall ensure that Contractor employees have been informed/trained about the identification and hazards of the hazardous materials used for this project at IHDIV-NSWC.

16. The IHDIV-NSWC routinely works with electro-explosive devices (EEDs) such as igniters, squibs, detonators, and blasting caps. Radio frequency transmissions can, under certain circumstances, provide enough energy to initiate or degrade performance of these devices. Inadvertent initiation of EEDs can result in injury or death of personnel and damage or destruction of property. Degradation of the EED can result in injury or death of personnel and damage or destruction of property. Degradation of the EED can result in failure of the item to function properly when needed.

BECAUSE OF THESE HAZARDS, USE OF CB RADIOS, CAR TELEPHONES, AND CELLULAR TELEPHONES ARE PROHIBITED IN THE RESTRICTED AREA (AREA BEYOND POST 2).

17. Vehicle and construction equipment inspections include the appropriate factors listed below for safe use and conditions.

a. Steering mechanism; must be free of defects or excessive plan.

b. Horns and warning devices must be operative.

c. Windshield wipers must be provided and operative.

d. Windshield and other window glass must be free of defects. Windshield must be free of defects. Windshield must be provided

on standard equipped vehicle.

e. Rearview mirrors; must be provided and free of defects.

f. Lights; all standard lights must be provided, operative, and free of defects - including lens coverings.

g. Exhaust systems must be provided, free of defects, and properly supported.

h. Fuel systems must not indicate evidence of defects.

i. Brakes; operative without drag, including serviceable emergency brakes.

j. Tires; must have ample tread and be free of defects.

k. Electrical wiring must not have exposed surfaces or be loosely supported.

l. Body conditions; must be well maintained, no loose or jagged edges, excessive grease or oil on engine, and all standard features provided and operable.

m. Where applicable, inspection will include other such items as gauges, thermometers, controls, relief valves, piping, mechanical locks, limit switches, connectors, and other safety related devices associated to vehicles and equipment admitted to the Activity.

18. Contract trailers will be equipped with plexiglass windows when spotted within the quantity distance arcs of explosive-operating areas.

19. Additional requirements may be designated on the Work Permit based upon contract scope and IHDIV-NSWC area involved.

Manager, OSH & Explosives Safety Inspection Branch	Date

Firm Principal	Contract #	Date

1.5 RESTRICTIONS ON OPERATIONS

1.5.1 Restrictions Upon Interrupting Utility Services

The clause of the Basic Contract entitled "Schedules for Construction Contract"; the paragraph entitled "Order of Work"; and the following apply:

a. Ensure that new utility lines are complete, except for the connections, before interrupting existing service.

b. Interruption to Water, Sanitary Sewer, Storm Sewer, Telephone Service, Electrical Service, Air Conditioning, Heating, Fire Alarm, and Compressed Air: These shall be considered utility cutovers pursuant to paragraph entitled "Work Outside Regular Hours." This limit includes time for deactivation and

reactivation.

c. All requests for utility outages shall be made in writing to the Contracting Officer.

1.5.2 Restrictions Upon Interrupting Station Operations

Reference is made to the paragraph entitled "Order of Work." The work under this contract requires special attention to the scheduling and conduct of the work in connection with existing operating systems. Identify on the project schedule each factor which constitutes a potential interruption of operations.

Notify the Contracting Officer in writing 15 calendar days prior to a necessary shut-down or interruption.

1.5.3 Outages

Outages of utilities shall be obtained during other than normal working hours, except such outages which are more advantageous to the Government shall be obtained during normal working hours.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01450N

QUALITY CONTROL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 1077	(1998) Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
ASTM D 3666	(2000) Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
ASTM D 3740	(1999; Rev C.) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(2000; Rev. A) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

U.S. DEPARTMENT OF DEFENSE (DOD)

DOD QSMEL	(2000) Quality Systems Manual for Environmental Laboratories

1.2 SUBMITTALS

Submit the following in accordance with Section C of the basic contract.

SD-01 Preconstruction Submittals

Quality Control (QC) Plan

Submit a QC Plan within 30 calendar days prior to mobilization.

1.3 INFORMATION FOR THE CONTRACTING OFFICER

Deliver the following to the Contracting Officer:

a. Combined Contractor Production Report/Contractor Quality Control Report (1 sheet): Original and 1 copy, by 10:00 AM the next working day after each day that work is performed.

b. Testing Plan and Log, 1 copy, at the end of each month.

c. Monthly Summary Report of Field Tests: Original and 1 copy attached to the Contractor Quality Control Report at the end of each month.

d. Rework Items List: 1 copy, by the last working day of the month.

e. QC Certifications: As required by the paragraph entitled "QC Certifications."

1.4 QC PROGRAM REQUIREMENTS

Establish and maintain a QC program as described in this section. The QC program consists of a QC Manager, a QC Plan, QC meetings, three phases of control, submittal review, submittal approval except for submittals designed for Contracting Officer approval, testing, and QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations which comply with the requirements of this contract. The QC program shall cover construction operations on-site and off-site and shall be keyed to the proposed construction sequence.

1.5 QC ORGANIZATION

1.5.1 QC Manager

1.5.1.1 Duties

Provide a QC Manager at the work site to implement and manage the QC program. The QC Manager is required to conduct the QC meetings, perform the three phases of control, perform submittal review, perform submittal approval except for submittals designed for Contracting Officer approval, ensure testing is performed and QC certifications and documentation required in this contract. In addition to managing and implementing the QC program, the QC Manager may perform the duties of project superintendent.

1.5.1.2 Qualifications

An individual with a minimum of 3 years experience as a foreman, superintendent, inspector, QC Manager, project manager or construction manager on similar size and type construction contracts which included the major trades that are part of this contract.

1.6 QUALITY CONTROL (QC) PLAN

1.6.1 Requirements

Provide, for approval by the Contracting Officer, a QC Plan that covers both on-site and off-site work and includes the following:

a. A table of contents listing the major sections identified with tabs in the following order:

I. QC ORGANIZATION
II. NAMES AND QUALIFICATIONS
III. DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONNEL
IV. OUTSIDE ORGANIZATIONS
V. APPOINTMENT LETTERS
VI. SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER
VII. TESTING LABORATORY INFORMATION

VIII. TESTING PLAN AND LOG
IX. PROCEDURES TO COMPLETE REWORK ITEMS
X. DOCUMENTATION PROCEDURES
XI. LIST OF DEFINABLE FEATURES
XII. PROCEDURES FOR PERFORMING THE THREE PHASES OF CONTROL
XIII. PERSONNEL MATRIX
XIV. PROCEDURES FOR COMPLETION INSPECTION

b. A chart showing the QC organizational structure.

c. Names and qualifications, in resume format, for each person in the QC organization.

d. Duties, responsibilities and authorities of each person in the QC organization.

e. A listing of outside organizations such as, testing laboratories, architectural and consulting engineering firms that will be employed by the Contractor and a description of the services these firms will provide.

f. A letter signed by an officer of the firm appointing the QC Manager and stating that he/she is responsible for implementing the QC program as described in this contract. Include in this letter the responsibility of the QC Manager to implement and manage the three phases of quality control, and their authority to stop work which is not in compliance with the contract, and their authority to direct the removal and replacement of non-conforming work.

g. Procedures for reviewing, approving and managing submittals. Provide the names of the persons authorized to review and certify submittals prior to approval. Provide the initial submittal of the Submittal Register as specified in Section C of the basic contract.

h. Testing laboratory information required by the paragraphs entitled "Accreditation Requirements" or "Construction Materials Testing Laboratory Requirements", as applicable.

i. A Testing Plan and Log that includes the tests required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test.

j. Procedures to identify, record, track and complete rework items.

k. Documentation procedures, including proposed report formats.

l. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks and requires separate control requirements. As a minimum, if approved by the Contracting Officer, consider each division of the specifications as a definable feature of work. However, at times, there may be more than one definable feature of work in each division of the specifications.

m. Procedures for performing the Three Phases of Control. The Preparatory and Initial Phases and meetings shall be conducted with a view towards obtaining quality construction by planning

ahead and identifying potential problems for each definable feature of work.

n. A personnel matrix showing for each section of the specification who will review and approve submittals, who will perform and document the three phases of control, and who will perform and document the testing.

1.6.2 Preliminary Work Authorized Prior to Approval

The only work that is authorized to proceed prior to the approval of the QC Plan is mobilization and surveying.

1.6.3 Approval

Approval of the QC Plan is required prior to the start of construction. The Contracting Officer reserves the right to require changes in the QC Plan and operations as necessary to ensure the specified quality of work. The Contracting Officer reserves the right to interview the QC Manager at any time in order to verify his/her submitted qualifications.

1.6.4 Notification of Changes

Notify the Contracting Officer, in writing, of any proposed change, a minimum of seven calendar days prior to a proposed change. Proposed changes must be approved by the Contracting Officer.

1.7 QC MEETINGS

After the start of construction, the QC Manager shall conduct QC meetings once every two weeks at the work site with the project superintendent and foreman responsible for the upcoming work. The QC Manager shall prepare the minutes of the meeting and provide a copy to the Contracting Officer within 2 working days after the meeting. The Contracting Officer may attend these meetings. The QC Manager shall notify the Contracting Officer at least 48 hours in advance of each meeting. As a minimum, the following shall be accomplished at each meeting:

a. Review the minutes of the previous meeting;

b. Review the schedule and the status of work:

(1) Work or testing accomplished since last meeting

(2) Rework items identified since last meeting

(3) Rework items completed since last meeting;

c. Review the status of submittals:

(1) Submittals reviewed and approved since last meeting

(2) Submittals required in the near future;

d. Review the work to be accomplished in the next 2 weeks and documentation required. Schedule the three phases of control and testing:

(1) Establish completion dates for rework items

(2) Preparatory phases required

(3) Initial phases required

(4) Follow-up phases required

(5) Testing required

(6) Status of off-site work or testing

(7) Documentation required

e. Resolve QC and production problems;

f. Address items that may require revising the QC plan:

(1) Changes in procedures.

1.8 THREE PHASES OF CONTROL

The QC Manager shall perform the three phases of control to ensure that work complies with Contract requirements. The three phases of control shall adequately cover both on-site and off-site work and shall include the following for each definable feature of work: A definable feature of work is a task which is separate and distinct from other tasks and requiring separate control requirements.

1.8.1 Preparatory Phase

Notify the Contracting Officer at least 2 work days in advance of each preparatory phase. Conduct the preparatory phase with the superintendent, and the foreman responsible for the definable feature of work. Document the results of the preparatory phase actions in the daily Contractor Quality Control Report. Perform the following prior to beginning work on each definable feature of work:

a. Review each paragraph of the applicable specification sections;

b. Review the contract drawings;

c. Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required;

d. Review the testing plan and ensure that provisions have been made to provide the required QC testing;

e. Examine the work area to ensure that the required preliminary work has been completed;

f. Examine the required materials, equipment and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data;

g. Discuss construction methods;

h. Review the Health and Safety Plan and appropriate activity hazard analysis to ensure that applicable safety requirements are met,

and that required Material Safety Data Sheets (MSDS) are submitted.

1.8.2 Initial Phase

Notify the Contracting Officer at least 2 work days in advance of each initial phase. When construction crews are ready to start work on a definable feature of work, conduct the initial phase with the foreman responsible for that definable feature of work. Observe the initial segment of the definable feature of work to ensure that the work complies with Contract requirements. Document the results of the initial phase in the daily Contractor Quality Control Report. Repeat the initial phase for each new crew to work on-site, or when acceptable levels of specified quality are not being met. Perform the following for each definable feature of work:

a. Establish the quality of workmanship required;

b. Resolve conflicts;

c. Ensure that testing is performed; and,

d. Review the Health and Safety Plan and the appropriate activity hazard analysis to ensure that applicable safety requirements are met.

1.8.3 Follow-Up Phase

Perform the following for on-going work daily, or more frequently as necessary until the completion of each definable feature of work and document in the daily Contractor Quality Control Report:

a. Ensure the work is in compliance with Contract requirements;

b. Maintain the quality of workmanship required;

c. Ensure that testing is performed; and,

d. Ensure that rework items are being corrected.

1.8.4 Notification of Three Phases of Control for Off-Site Work

Notify the Contracting Officer at least two weeks prior to the start of the preparatory and initial phases.

1.9 SUBMITTAL REVIEW AND APPROVAL

Procedures for submission, review and approval of submittals are described in Section C of the basic contract.

1.10 TESTING

Except as stated otherwise in the specification sections, perform sampling and testing required under this Contract.

1.10.1 Accreditation Requirements

Construction materials and environmental testing laboratories performing work for Navy construction contracts will be required to submit the following:

a. A copy of the Certificate of Accreditation and Scope of Accreditation by an acceptable laboratory accreditation authority.

Construction materials and environmental testing laboratories performing work for Navy construction contracts must be accredited by one of the laboratory accreditation authorities. The construction materials testing laboratory's scope of accreditation must include the ASTM standards listed in the paragraph titled "Construction Materials Testing Laboratory Requirements" as appropriate to the testing field. The policy applies to the specific laboratory performing the actual testing, not just the "Corporate Office".

1.10.2 Construction Materials and Environmental Testing Laboratory Requirements

Provide independent construction materials and environmental testing laboratories accredited by an acceptable laboratory accreditation authority to perform sampling and tests required by this Contract. Testing laboratories that have obtained accreditation by an acceptable laboratory accreditation authority listed in the paragraph entitled "Laboratory Accreditation Authorities" submit to the Contracting Officer, a copy of the Certificate of Accreditation and Scope of Accreditation. The scope of the laboratory's accreditation shall include the test methods required by the contract. For testing laboratories that have not yet obtained accreditation by an acceptable laboratory accreditation authority listed in the paragraph entitled "Laboratory Accreditation Authorities" submit an acknowledgment letter from one of the laboratory accreditation authorities indicating that the application for accreditation has been received and the accreditation process has started, and submit to the Contracting Officer for approval, certified statements, signed by an official of the testing laboratory attesting that the proposed laboratory, meets or conforms to the ASTM standards listed below as appropriate to the testing field.

a. Laboratories engaged in testing of construction materials shall meet the requirements of ASTM E 329.

b. Laboratories engaged in testing of concrete and concrete aggregates shall meet the requirements of ASTM C 1077.

c. Laboratories engaged in testing of bituminous paving materials shall meet the requirements of ASTM D 3666.

d. Laboratories engaged in testing of soil and rock, as used in engineering design and construction, shall meet the requirements of ASTM D 3740.

e. Laboratories engaged in environmental and Hazardous Materials Testing shall meet the requirements of OSHA and EPA.

f. Construction materials sampling and testing shall be under the technical direction of a Registered Professional Engineer (P.E.) with at least 5 years of experience in construction materials handling.

1.10.3 Laboratory Accreditation Authorities

Construction materials laboratory accreditation authorities are the National Voluntary Laboratory Accreditation Program (NVLAP) administered by

the National Institute of Standards and Technology, the American Association of State Highway and Transportation Officials (AASHTO) program, ICBO Evaluation Service, Inc. (ICBO ES), and the American Association for Laboratory Accreditation (A2LA) program, and the Washington Area Council of Engineering Laboratories (WACEL) (approval authority by WACEL is limited to projects within the Chesapeake Division and Public Works Center Washington geographical area).

Environmental testing laboratory accreditation authorities are the Department of Defense (DOD) National Environmental Laboratory Accreditation Program (NELAP), EPA's National Environmental Laboratory Accreditation Conference (NELAC), and the State of Maryland. The environmental testing laboratory accreditation authorities are subject to the approval of the Contracting Officer. The environmental testing laboratory's quality systems program shall be prepared and implemented in accordance with DOD QSMEL.

Furnish to the Contracting Officer, a copy of the Certificate of Accreditation and Scope of Accreditation. The scope of the laboratory's accreditation shall include the test methods required by the Contract.

1.10.4 Capability Check

The Contracting Officer retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician's testing procedures, techniques, and other items pertinent to testing, for compliance with the standards set forth in this Contract.

1.10.5 Test Results

Cite applicable Contract requirements, tests or analytical procedures used. Provide actual results and include a statement that the item tested or analyzed conforms or fails to conform to specified requirements. If the item fails to conform, notify Contracting Officer immediately. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable. Test results shall be signed by a testing laboratory representative authorized to sign certified test reports. Furnish the signed reports, certifications, and other documentation to the Contracting Officer via the QC Manager. Furnish a summary report of field tests at the end of each month. Attach a copy of the summary report to the last daily Contractor Quality Control Report of each month.

1.11 QC CERTIFICATIONS

1.11.1 Contractor Quality Control Report Certification

Each Contractor Quality Control Report shall contain the following statement: "On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge, except as noted in this report."

1.11.2 Invoice Certification

Furnish a certificate to the Contracting Officer with each payment request, signed by the QC Manager, attesting that as-built drawings are current and attesting that the work for which payment is requested, including stored

material, is in compliance with contract requirements.

1.11.3 Completion Certification

Upon completion of work under this Contract, the QC Manager shall furnish a certificate to the Contracting Officer attesting that "the work has been completed, inspected, tested and is in compliance with the contract."

1.12 DOCUMENTATION

Maintain current and complete records of on-site and off-site QC program operations and activities.

1.12.1 Contractor Production Report

Reports are required for each day that work is performed and shall be attached to the Contractor Quality Control Report prepared for the same day. Account for each calendar day throughout the life of the Contract. The reporting of work shall be identified by terminology consistent with the construction schedule. Contractor Production Reports are to be prepared, signed and dated by the project superintendent and shall contain the following information:

a. Date of report, report number, name of contractor, Contract number, title and location of Contract and superintendent present.

b. Weather conditions in the morning and in the afternoon including maximum and minimum temperatures.

c. Identify work performed by corresponding Schedule Activity No., PC No., Modification No., etc.

d. A list of Contractor and subcontractor personnel on the work site, their trades, employer, work location, description of work performed, hours worked by trade, daily total work hours on work site this date (including hours on continuation sheets), and total work hours from start of construction.

e. A list of job safety actions taken and safety inspections conducted. Indicate that safety requirements have been met including the results on the following:

(1) Was a job safety meeting held this date? (If YES, attach a copy of the meeting minutes.)

(2) Were there any lost time accidents this date? (If YES, attach a copy of the completed OSHA report.)

(3) Was crane/manlift/trenching/scaffold/hv electrical/high work/hazmat work done? (If YES, attach a statement or checklist showing inspection performed.)

(4) Was hazardous material/waste released into the environment? (If YES, attach a description of incident and proposed action.)

f. Identify Schedule Activity No. related to safety action and list safety actions taken today and safety inspections conducted.

g. Identify Schedule Activity No., Submittal No. and list

equipment/material received each day that is incorporated into the job.

h. Identify Schedule Activity No., Owner and list construction and plant equipment on the work site including the number of hours used.

i. Include a "remarks" section in this report which will contain pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered and a record of visitors to the work site. For each remark given, identify the Schedule Activity No. that is associated with the remark.

1.12.2 Contractor Quality Control Report

Reports are required for each day that work is performed and for every seven consecutive calendar days of no-work and on the last day of a no-work period. Account for each calendar day throughout the life of the Contract. The reporting of work shall be identified by terminology consistent with the construction schedule. Contractor Quality Control Reports are to be prepared, signed and dated by the QC Manager and shall contain the following information:

a. Date of report, report number, Contract Number, and Contract Title.

b. Indicate if Preparatory Phase work was performed today (Yes/No checkboxes).

c. If Preparatory Phase work was performed today (including on-site and off-site work), identify its Schedule Activity No. and Definable Feature of Work. The Index No. is a cross reference to the Preparatory Phase Checklist. An example of the Index No. is: 0025-P01, where "0025" is the Contractor Quality Control Report Number, "P" indicates Preparatory Phase, and "01" is the Preparatory Phase Checklist number(s) for this date. Each entry in this section must be accompanied with a corresponding Preparatory Phase Checklist.

d. Indicate if Initial Phase work was performed today (Yes/No checkboxes).

e. If Initial Phase work was performed today (including on-site and off-site work), identify its Schedule Activity No. and Definable Feature of Work. The Index No. is a cross reference to the Initial Phase Checklist. An example of the Index No. is: 0025-I01, where "0025" is the Contractor Quality Control Report Number, "I" indicates Initial Phase, and "01" is the Initial Phase Checklist number(s) for this date. Each entry in this section must be accompanied with a corresponding Initial Phase Checklist.

f. Results of the Follow-up Phase inspections held today (including on-site and off-site work), including Schedule Activity No., the location of the definable feature of work, Specification Sections, etc. Indicate in the report for this definable feature of work that the work complies with the Contract as approved in the Initial Phase, work complies with safety requirements, and that

required testing has been performed and include a list of who performed the tests.

g. List the rework items identified, but not corrected by close of business; along with its associated Schedule Activity Number.

h. List the rework items corrected from the rework items list along with the corrective action taken and its associated Schedule Activity Number.

i. Include a "remarks" section in this report which will contain pertinent information including directions received, quality control problem areas, deviations from the QC plan, construction deficiencies encountered, QC meetings held, acknowledgement that as-built drawings have been updated, corrective direction given by the QC Organization and corrective action taken by the Contractor. For each remark given, identify the Schedule Activity No. that is associated with the remark.

j. Contractor Quality Control Report certification, signature and date.

1.12.3 Testing Plan and Log

As tests are performed, the QC Manager shall record on the "Testing Plan and Log" the date the test was conducted, the date the test results were forwarded to the Contracting Officer, remarks and acknowledgement that an accredited or Contracting Officer approved testing laboratory was used. Attach a copy of the updated "Testing Plan and Log" to the last daily Contractor Quality Control Report of each month.

1.12.4 Rework Items List

The QC Manager shall maintain a list of work that does not comply with the Contract, identifying what items need to be reworked, the date the item was originally discovered, the date the item will be corrected by, and the date the item was corrected. There is no requirement to report a rework item that is corrected the same day it is discovered. Attach a copy of the "Rework Items List" to the last daily Contractor Quality Control Report of each month. The Contractor shall be responsible for including on this list items needing rework including those identified by the Contracting Officer.

1.12.5 As-Built Drawings

The QC Manager is required to ensure the as-built drawings, required by the Basic Contract, are kept current on a daily basis and marked to show deviations which have been made from the Contract drawings. Ensure each deviation has been identified with the appropriate modifying documentation (e.g. PC No., Modification No., Request for Information No., etc.). The QC Manager shall initial each deviation and each revision. Upon completion of work, the QC Manager shall furnish a certificate attesting to the accuracy of the as-built drawings prior to submission to the Contracting Officer.

1.12.6 Report Forms

The following forms, are acceptable for providing the information required by the paragraph entitled "Documentation." While use of these specific formats are not required, any other format used shall contain the same information:

a. Combined Contractor Production Report and Contractor Quality Control Report (1 sheet) w/ separate continuation sheet(s).

b. Testing Plan and Log.

c. Rework Items List.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

RESPONSIBILITIES/AUTHORITY OF THE QC MANAGER

1. Appointing letter to the QC manager shall detail his/her authority and responsibility to act for the contractor and outline his/her duties, responsibilities and authority. He/she shall have no job-related responsibilities other than QC unless specifically permitted in the specification.

2. He/she shall be on the site at all times during progress of the work, with complete authority to take any action necessary to ensure conformance with the contract requirements. In the event of his/her absence, approved backup shall be on the site.

3. Authority to immediately stop any segment of work which does not comply with the contract plans and specifications and direct the removal and replacement of any defective work.

4. Conduct daily inspection of work performed for compliance with plans and specifications.

5. Certify daily that all materials and equipment delivered/installed in the work comply with contract plans and specifications. Certify daily that all work performed on the construction site and off the construction site conforms to plans and specifications. Report any deficiencies and remedial action planned and taken.

6. Supervise and coordinate the inspection and tests made by the members of the Quality Control Organization, including subcontractors.

7. Assure QC staff is adequate to meet its responsibilities.

8. Maintain a copy of the ROICC approved QC Plan on file at the jobsite complete with up-to-date approved revisions/filled-in log of submittals. Maintain at the jobsite an up-to-date QC Submittal Register (provided in the specification) showing the status of all submittals required by the contract.

9. Maintain at the jobsite a testing plan showing status of all tests required by the contracts. Ensure that all tests required are performed and report the results of same. Indicate whether test results show the item tested conforms to contract requirements or not.

10. Authority to remove any individual from the site who fails to perform his/her work in a skillful and workmanlike manner or his/her work does not comply with the contract plans and specifications.

11. QC manager does not have authority to deviate from plans and specifications without prior approval, in writing, from the ROICC.

12. Ensure that the contractor's Quality Control Organization is adequately staffed with qualified personnel to perform all the detailed inspections and testing specified in the plans and specifications.

13. Maintain at the jobsite the up-to-date QC Rework Items List.

ATTACHMENT A

PREPARATORY PHASE CHECKLIST

(CONTINUED ON SECOND PAGE)

SPEC SECTION	DATE
Enter Spec Section # Here	Enter Date (DD/MMM/YY)

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.	INDEX #
Enter Cnt# Here	Enter DFOW Here	Enter Sched Act ID Here	Enter Index# Here

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED ____ HOURS IN ADVANCE: YES ☐ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☐ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? _____

ARE ALL MATERIALS ON HAND? YES ☐ NO ☐

IF NO, WHAT ITEMS ARE MISSING? _____

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL. (THIS SHOULD BE DONE AS MATERIAL ARRIVES.)

COMMENTS: _____

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☐ NO ☐

IF NO, WHAT ACTION IS TAKEN? _____

SPECIFICATIONS

REVIEW EACH PARAGRAPH OF SPECIFICATIONS. _____

DISCUSS PROCEDURE FOR ACCOMPLISHING THE WORK. _____

CLARIFY ANY DIFFERENCES. _____

PRELIMINARY WORK & PERMITS

ENSURE PRELIMINARY WORK IS CORRECT AND PERMITS ARE ON FILE.

IF NOT, WHAT ACTION IS TAKEN? _____

TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. WHEN REQUIRED? WHERE REQUIRED? REVIEW TESTING PLAN. HAS TEST FACILITIES BEEN APPROVED?
SAFETY	ACTIVITY HAZARD ANALYSIS APPROVED? YES ☐ NO ☐ REVIEW APPLICABLE PORTION OF EM 385-1-1.
MEETING COMMENTS	NAVY/ROICC COMMENTS DURING MEETING.
OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS:

QC MANAGER DATE

INITIAL PHASE CHECKLIST

SPEC SECTION	DATE
Enter Spec Section # Here	Enter Date (DD/MMM/YY)

CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.	INDEX #
Enter Cnt# Here	Enter DFOW Here	Enter Sched Act ID Here	Enter Index# Here

PERSONNEL PRESENT

GOVERNMENT REP NOTIFIED ____ HOURS IN ADVANCE: YES ☐ NO ☐

NAME	POSITION	COMPANY/GOVERNMENT

PROCEDURE COMPLIANCE

IDENTIFY FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY. COORDINATE PLANS, SPECIFICATIONS, AND SUBMITTALS.

COMMENTS:

PRELIMINARY WORK

ENSURE PRELIMINARY WORK IS COMPLETE AND CORRECT. IF NOT, WHAT ACTION IS TAKEN?

WORKMANSHIP

ESTABLISH LEVEL OF WORKMANSHIP.

WHERE IS WORK LOCATED?

IS SAMPLE PANEL REQUIRED? YES ☐ NO ☐

WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE? YES ☐ NO ☐

(IF YES, MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE AND DESCRIBE LOCATION OF SAMPLE)

RESOLUTION

RESOLVE ANY DIFFERENCES.

COMMENTS:

CHECK SAFETY

REVIEW JOB CONDITIONS USING EM 385-1-1 AND JOB HAZARD ANALYSIS

COMMENTS:

OTHER

OTHER ITEMS OR REMARKS

QC MANAGER DATE

GOVERNMENT QUALITY ASSURANCE (QA) REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE	Enter Date (DD/MMM/YY)
REPORT NO	Enter Report # Here

CONTRACT NO.	TITLE AND LOCATION
Enter Cnt# Here	Enter Title and Location of Construction Contract Here

Status

WORKING?	YES	NO	IF NO, WHY NOT:
	☐	☐	

WEATHER CONDITIONS:

Check Points

	YES	NO	REMARKS:
SUPERINTENDENT ON SITE	☐	☐	
QC MANAGER ON SITE	☐	☐	
QC REPORTS CURRENT	☐	☐	
AS-BUILTS CURRENT	☐	☐	
SUBMITTALS APPROVED FOR FOR ONGOING WORK	☐	☐	
DEFICIENCY LIST REVIEWED	☐	☐	

WORK OBSERVED/DEFICIENCIES NOTED/SAFETY ISSUES DISCUSSED/QA TESTS AND RESULTS:

Schedule Activity No	DESCRIBE OBSERVATIONS

MEETING/CONFERENCE NOTES (INCLUDING PARTICIPANTS):

Schedule Activity No.	NOTES

INSTRUCTIONS GIVEN OR RECEIVED/CONTROVERSIES PENDING:

Schedule Activity No.	INSTRUCTIONS/CONTROVERSIES

QA REPRESENTATIVE _____ DATE _____ SUPV INITIALS _____ DATE _____

CONTRACTOR QUALITY CONTROL REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE Enter (DD/MMM/YY)
REPORT NO Enter Rpt # Here

PHASE | CONTRACT NO Enter Cnt# Here | CONTRACT TITLE Enter Title and Location of Construction Contract Here

PREPARATORY

WAS PREPARATORY PHASE WORK PREFORMED TODAY? YES ☐ NO ☐

IF YES, FILL OUT AND ATTACH SUPPLEMENTAL PREPARATORY PHASE CHECKLIST.

Schedule Activity No.	Definable Feature of Work	Index #

INITIAL

WAS INITIAL PHASE WORK PREFORMED TODAY? YES ☐ NO ☐

IF YES, FILL OUT AND ATTACH SUPPLEMENTAL INITIAL PHASE CHECKLIST.

Schedule Activity No.	Definable Feature of Work	Index #

FOLLOW-UP

WORK COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE? YES ☐ NO ☐

WORK COMPLIES WITH SAFETY REQUIREMENTS? YES ☐ NO ☐

Schedule Activity No.	Description of Work, Testing Performed & By Whom, Definable Feature of Work, Specification Section, Location and List of Personnel Present

REWORK ITEMS IDENTIFIED TODAY (NOT CORRECTED BY CLOSE OF BUSINESS)

Schedule Activity No.	Description

REWORK ITEMS CORRECTED TODAY (FROM REWORK ITEMS LIST)

Schedule Activity No.	Description

REMARKS (Also Explain Any Follow-Up Phase Checklist Item From Above That Was Answered "NO"), Manuf. Rep On-Site, etc.

Schedule Activity No.	Description

On behalf of the contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report.

AUTHORIZED QC MANAGER AT SITE DATE

GOVERNMENT QUALITY ASSURANCE REPORT

DATE

QUALITY ASSURANCE REPRESENTATIVE'S REMARKS AND/OR EXCEPTIONS TO THE REPORT

Schedule Activity No.	Description

GOVERNMENT QUALITY ASSURANCE MANAGER DATE

CONTRACTOR PRODUCTION REPORT

(ATTACH ADDITIONAL SHEETS IF NECESSARY)

DATE	Enter Date (DD/MMM/YY)	
CONTRACT NO: Enter Cnt# Here	TITLE AND LOCATION: Enter Title and Location of Construction Contract Here	REPORT NO: Enter Report # Here
CONTRACTOR: Enter The Contractor's Company Name Here	SUPERINTENDENT: Enter Superintendent's Name Here	
AM WEATHER: Enter AM Weather Data Here	PM WEATHER: Enter PM Weather Data Here	MAX TEMP (F): Enter Max Temp Here / MIN TEMP (F): Enter Min Temp Here

WORK PERFORMED TODAY

Schedule Activity No.	WORK LOCATION AND DESCRIPTION	EMPLOYER	NUMBER	TRADE	HRS

JOB SAFETY					
	WAS A JOB SAFETY MEETING HELD THIS DATE? (If YES attach copy of the meeting minutes)	☐ YES	☐ NO	TOTAL WORK HOURS ON JOB SITE, THIS DATE, INCL CON'T SHEETS	
	WERE THERE ANY LOST TIME ACCIDENTS THIS DATE? (If YES attach copy of completed OSHA report)	☐ YES	☐ NO	CUMULATIVE TOTAL OF WORK HOURS FROM PREVIOUS REPORT	
	WAS CRANE/MANLIFT/TRENCHING/SCAFFOLD/HV ELEC/HIGH WORK/ HAZMAT WORK DONE? (If YES attach statement or checklist showing inspection performed.)	☐ YES	☐ NO	TOTAL WORK HOURS FROM START OF CONSTRUCTION	
	WAS HAZARDOUS MATERIAL/WASTE RELEASED INTO THE ENVIRONMENT? (If YES attach description of incident and proposed action.)	☐ YES	☐ NO		

Schedule Activity No.	LIST SAFETY ACTIONS TAKEN TODAY/SAFETY INSPECTIONS CONDUCTED	☐ SAFETY REQUIREMENTS HAVE BEEN MET.

EQUIPMENT/MATERIAL RECEIVED TODAY TO BE INCORPORATED IN JOB (INDICATE SCHEDULE ACTIVITY NUMBER)

Schedule Activity No.	Submittal #	Description of Equipment/Material Received

CONSTRUCTION AND PLANT EQUIPMENT ON JOB SITE TODAY. INDICATE HOURS USED AND SCHEDULE ACTIVITY NUMBER.

Schedule Activity No.	Owner	Description of Construction Equipment Used Today (incl Make and Model)	Hours Used

Schedule Activity No.	REMARKS

CONTRACTOR/SUPERINTENDENT _____ DATE _____

REWORK ITEMS LIST

Contract No. and Title: Enter Contract # and Title Here

Contractor: Enter Contractor's Company Name Here

NUMBER	DATE IDENTIFIED	DESCRIPTION	CONTRACT REQUIREMENT (Spec. Section and Par. No., Drawing No. and Detail No., etc.)	ACTION TAKEN BY QC MANAGER	RESOLUTION	DATE COMPLETED

TESTING PLAN AND LOG

CONTRACT NUMBER Enter Contract # Here			PROJECT TITLE AND LOCATION Enter Contract Title and Location Here							CONTRACTOR Enter Contractor's Company Name Here	
SPECIFICATION SECTION AND PARAGRAPH NUMBER	ITEM OF WORK	TEST REQUIRED	ACCREDITED/ APPROVED LAB		SAMPLED BY	TESTED BY	LOCATION OF TEST		DATE COMPLETED	DATE FORWARDED TO CONTR. OFF.	REMARKS
			YES	NO			ON SITE	OFF SITE			

SECTION 01525

SAFETY REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

1.1.1 Related Sections

a. Section 01115N, "General Paragraphs (Remedial Action Contracts)"

b. Section 01140N, "Work Restrictions"

c. Section 01575N, "Temporary Environmental Controls"

d. Section 02223, "Transportation and Disposal of Contaminated Material"

e. Section 02315N, "Excavation and Fill"

f. Section 02525N, "Monitoring Wells"

1.1.2 Basic Contract

Provide safety requirements in accordance with Section C of the basic contract.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A10.14	(1991) Construction and Demolition Operations - Requirements for Safety Belts, Harnesses, Lanyards and Lifelines for Construction and Demolition Use
ANSI Z359.1	(1992) Safety Requirements for Personal Fall Arrest Systems

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.94	Ventilation
29 CFR 1910.120	Hazardous Waste Operations and Emergency Response
29 CFR 1926.65	Hazardous Waste Operations and Emergency Response

U.S. ARMY CORPS OF ENGINEERS (USACE)

COE EM 385-1-1	(1996) Safety and Health Requirements Manual

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(1999) National Electric Code
NFPA 241	(1996) Safeguarding Construction, Alteration, and Demolition Operations

1.3 DEFINITIONS

a. Certified Industrial Hygienist. An industrial hygienist is an individual who is certified by the American Board of Industrial Hygiene.

b. Certified Safety Professional. A safety manager, safety specialist, or safety engineer that has passed the CSP exam administered by the Board of Certified Safety Professionals.

c. Confined Space. A space which by design has limited openings for entry and exit, unfavorable natural ventilation which could contain or produce dangerous air contaminants, and which is not intended for continuous employee occupancy, engulfment or any other recognized safety or health hazard. Confined spaces include, but are not limited to storage tanks, process vessels, pits, silos, vats, degreasers, reaction vessels, boilers, ventilation and exhaust ducts, sewers, tunnels, underground utility vaults, and pipelines.

d. Multi-employer work site (MEWS). The Contractor is the "controlling authority" for all work site safety and health of the subcontractors.

e. Recordable Occupational Injuries or Illness. An occupational injury or illnesses which result in serious injuries, lost workday cases, non-fatal cases or significant mishaps.

f. Serious Injuries and Fatalities. Regardless of the time between the injury and death or the length of the illness; hospitalization of three or more employees; or property damage in excess of $200,000.

g. Lost Workday Cases. Injuries, other than fatalities, that results in lost workdays.

h. Non-Fatal Cases. Cases without lost workdays which result in transfer to another job or termination of employment, or require medical treatment (other than first aid) or involve property damage in excess of $10,000 but less than $200,000 or involve: loss of consciousness or restriction of work or motion. This category also includes any diagnosed occupational illnesses which are reported to the employer but are not classified as facilities or lost workday cases.

i. Health and Safety Plan (HASP). The HASP is the Navy equivalent Army term of SHP or SSHP used in COE EM 385-1-1. "USACE" property and equipment specified in COE EM 385-1-1 should be interpreted as Government property and equipment.

j. Safety Officer. The superintendent or other qualified or competent person who is responsible for the on-site safety required for the project. The Contractor quality control person cannot be the safety

officer, even though the QC person has safety inspection responsibilities as part of the QC duties.

k. Significant Contractor Mishap. A Contractor mishap which involves falls of 4 feet or more, electrical mishaps, confined space mishaps, diving mishaps, equipment mishaps, and fire mishaps which results in a lost time injury, or property damage of $10,000 or more, but less than $200,000; or when fire department or emergency medical treatment (EMT) assistance is required.

l. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment provided by a physician or registered personnel.

m. First Aid. A one-time treatment, and follow-up visit for the purpose of observation, of minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care, even though provided by a physician or registered professional personnel.

n. Lost Workdays. The number of days (consecutive or not) after, but not including, the day of injury or illness during which the employee would have worked but could not do so that is, could not perform all or part of his normal assignment during all or any part of the workday or shift; because of the occupational injury or illness.

1.4 SUBMITTALS

Submit the following in accordance with Section C of the basic contract. Submittals shall be part of the Work Plan.

SD-07 Certificates

Accident Prevention Plan (APP)

Activity Hazard Analysis (AHA)

Health and Safety Plan (HASP)

1.4.1 Accident Prevention Plan (APP)

Submit at least 15 calendar days prior to start of work at the job site, follow Appendix A of COE EM 385-1-1, make APP site specific, Notice To Proceed will be given after Government finds the APP acceptable.

1.4.2 Activity Hazard Analysis (AHA)

Submit the AHA for the preparatory phase as a part of the APP. Submit subsequent AHA for each major phase of work at least 15 calendar days prior to the start of that phase. Format subsequent AHA as amendments to the APP.

1.4.3 Health and Safety Plan (HASP)

Allow 30 calendar days for review by Naval Environmental Health Center for health hazard review and Naval Facilities Engineering Command, Engineering Field Division (EFD) or Engineering Field Activity (EFA) construction safety manager. The Contracting Officer will act on the HASP only after 30 day NEHC and EFD/EFA safety manager reviews.

SD-11 Closeout Submittals

Daily Confined Space Entry Permit

Submit one copy of each permit attached to each Daily Production Report.

Reports

Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."

1.5 QUALITY ASSURANCE

1.5.1 Qualifications

a. Qualifications of Safety Officer:

(1) Ability to manage the on-site contractor safety program through appropriate management controls,

(2) Ability to identify hazards and have the capability to expend resources necessary to abate the hazards.

(3) Must have worked on similar types of projects that are equal to or exceed the scope of the project assigned with the same responsibilities.

b. Qualifications of Qualified Person, Confined Space Entry. The qualified person shall be capable (by education and specialized training) of anticipating, recognizing, and evaluating employee exposure to hazardous substances or other unsafe conditions in a confined space. This person shall be capable of specifying necessary control and protective action to ensure worker safety.

1.5.2 Qualifications of Qualified Person, Confined Space Entry

The qualified person shall be capable (by education and specialized training) of anticipating, recognizing, and evaluating employee exposure to hazardous substances or other unsafe conditions in a confined space. This person shall be capable of specifying necessary control and protective action to ensure worker safety.

1.5.3 Meetings

1.5.3.1 Preconstruction Conference

The Safety Officer shall attend the preconstruction conference required by Section 01115N, "General Paragraphs (Remedial Action Contracts)" and the basic contract.

1.5.3.2 Meeting on Work Procedures

Meet with Contracting Officer to discuss work procedures and safety precautions required by the HASP. Ensure the participation of the Contractor's superintendent, the Contractor Quality Control person, and the CSP or CIM.

1.5.3.3 Weekly Safety Meetings

Hold weekly. Attach minutes showing contract title, signatures of attendees and a list of topics discussed to the QC Contractor Quality Control daily report.

1.5.4 IHDIV-NSWC Special Safety Requirements

The work at IHDIV-NSWC is within a restricted area and is potentially hazardous due to danger from explosives. Safety shall be given particular emphasis. Contract Clause "FAR 52.236-13, Accident Prevention, Alternate I" is applicable.

Extraordinary safety regulations for the restricted area include the following:

a. Liquid petroleum gas and explosives are prohibited.

b. Specific routes to the jobsites will be designated. Do not deviate from these routes or leave the jobsite area to enter other areas of the station without permission from the Contracting Officer.

c. Matches and lighters are prohibited in the restricted area. Give matches and lighters to the security personnel at the gate prior to entering the area.

d. Obey all roadblocks, signs, and gates at entrances to the restricted area. Obtain a clearance in Building 307 to enter the restricted area.

e. Do not operate mobile or fixed transmitters of radio frequency in the restricted area identified by road signs.

f. Do not smoke in the restricted area, except at locations designated by the Contracting Officer. Existing road signs identify "No Smoking" areas.

1.5.5 Station Permits

In accordance with Section 01115N, "General Paragraphs (Remedial Action Contracts)."

1.5.6 Burning Permit

A burning permit is required for every project that requires the use of open flames or welding to complete the work. Burning Permits are required for the housing and non-restricted areas of the station.

1.5.7 Forms

Submit OSHA Form 101 or 200 or other forms that contain the same information for each recordable occupational injury or illness (first aid cases not recordable), lost time accident or property damage $1,000 or more resulting from jobsite accidents within 6 days of an accident. Notify Contracting Officer immediately by telephone of fatalities, major accidents resulting in five or more disabling injuries, or property damage/material losses over $100,000 for each accident.

1.6 ACCIDENT PREVENTION PLAN (APP)

Prepare the APP in accordance with the required and advisory provisions of COE EM 385-1-1 including Appendix A, "Minimum Basic Outline for Preparation of Accident Prevention Plan," and as modified herein. Include the associated AHA and other specific plans, programs and procedures listed on pages A-3 and A-4 of COE EM 385-1-1, some of which are called out below.

1.6.1 Contents of the Accident Prevention Plan

a. Name and safety related qualifications of safety officer (including training and any certifications).

b. Qualifications of competent and of qualified persons.

c. Identify of the individual who will complete exposure data (hours worked); accident investigations, reports and logs; and immediate notification of accidents to include subcontractors.

d. Emergency response plan. Conform to COE EM 385-1-1, paragraph 01.E and include a map denoting the route to the nearest emergency care facility with emergency telephone numbers. Contractor may be required to demonstrate emergency response.

e. Confined Space Entry Plan. Identify the qualified person's name and qualifications, training, and experience. Delineate the qualified person's authority to direct work stoppage in the event of hazardous conditions. Include procedure for rescue by Contractor personnel and the coordination with emergency responders. (If there is no confined space work, include a statement that no confined space work exists and none will be created.)

f. Hazardous Material Use. Provisions to deal with hazardous materials, pursuant to the Contract Clause "FAR 52.223-3, Hazardous Material Identification and Material Safety Data." and the following:

(1) Inventory of hazardous materials to be introduced to the site with estimated quantities.

(2) Plan for protecting personnel and property during the transport, storage and use of the materials.

(3) Emergency procedures for spill response and disposal, including a site map with approximate quantities on site at any given time. The site map shall be attached to the inventory, showing where the hazardous substances are stored.

(4) Material Safety Data Sheets for inventoried materials not required in other section of this specification.

(5) Labeling system to identify contents on all containers on-site.

(6) Plan for communicating high health hazards to employees and adjacent occupants.

g. Hazardous Energy Control Plan. For hazardous energy sources, comply with COE EM 385-1-1, paragraph 12.A.07.

h. Alcohol and Drug Abuse Plan

(1) Describe plan for random checks and testing with pre-employment screening in accordance with Contract Clause DFARS 252.223-7004, "Drug-Free Work Force."

(2) Description of the on-site prevention program.

i. Fall Protection Plan. The plan shall be site specific and protect all workers above 6 feet.

j. Excavation Plan. The safety and health aspects prepared in accordance with Section 02315N, "Excavation and Fill."

1.7 ACTIVITY HAZARD ANALYSIS (AHA)

Prepare for each phase of the work. As a minimum, define activity being performed, sequence of work, specific hazards anticipated, control measures to eliminate or reduce each hazard to acceptable levels, training requirements for all involved, and the competent person in charge of that phase of work. For work with fall hazards, identify the appropriate fall arrest systems. For work with materials handling equipment, address safeguarding measures related to materials handling equipment. For work requiring excavations, include excavation safeguarding requirements. The appropriate AHA shall be reviewed and attendance documented by Contractor at the preparatory, initial, and follow-up phases of Quality Control inspection.

1.8 HEALTH AND SAFETY PLAN (HASP)

Prepare in accordance with Section 01115N, "General Paragraphs (Remedial Action Contracts)." Also prepare as required by 29 CFR 1910.120 and COE EM 385-1-1.

1.8.1 Qualified Personnel

Retain a Certified Industrial Hygienist (CIH) or a Certified Safety Professional (CSP) to prepare the HASP, conduct activity hazard analyses, and prepare detailed plan for demolition, removal, and disposal of materials. Retain the CIH or CSP for duration of contract.

1.8.2 Contents

In addition to the requirements of COE EM 385-1-1, Table 28-1, the HASP must include:

a. Location, size, and details of control areas.

b. Location and details of decontamination systems.

c. Interface of trades involved in the construction.

d. Sequencing of work.

e. Disposal plan.

f. Sampling protocols.

g. Testing labs.

h. Protective equipment.

i. Pollution control.

j. Evidence of compliance with 29 CFR 1910.120 and 29 CFR 1926.65.

k. Training and certifications of CIH, CSP or other competent persons.

1.9 DRUG AND ALCOHOL PREVENTION PROGRAM

Conduct a proactive drug and alcohol use prevention program for all workers, prime and subcontractor, on the site. Ensure that no employees either use illegal drugs or consume alcohol during work hours. Ensure no employees are under the influence of drugs or alcohol during work hours. After accidents, collect blood, urine or saliva specimens and test the injured employee for potential drug or alcohol influence. A copy of the test shall be made available to the Contracting Officer upon request.

1.10 FALL HAZARD PREVENTION PROGRAM

1.10.1 Training

Institute a fall protection program. As part of the Fall Protection Program, Contractor shall provide training for each employee who might be exposed to fall hazards.

1.11 DUTIES OF THE SAFETY OFFICER

a. Ensure construction hazards are identified and corrected.

b. Maintain applicable safety reference material on the job site.

c. Maintain a log of safety inspections performed.

d. Attend the pre-construction conference required by Section 01115N, "General Paragraphs (Remedial Action Contracts)."

1.12 DISPLAY OF SAFETY INFORMATION

Display the following information in clear view of the on-site construction personnel:

a. Map denoting the route to the nearest emergency care facility with emergency telephone numbers.

b. AHA

c. Confined space entry permit.

d. Sign with number of hours worked since last lost workday accident.

1.13 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturers' manuals.

1.14 HIGH HAZARD WORK AND LONG DURATION

Work under this contract is potentially hazardous. Pursuant to Contract Clause "FAR 52.236-13, Accident Prevention, Alternate I," submit in writing additional proposals for effecting accident prevention under hazardous conditions. Meet in conference with Contracting Officer to discuss and develop mutual understanding relative to the administration of the overall safety program.

1.15 EMERGENCY MEDICAL TREATMENT

Contractor shall arrange for their own emergency medical treatment. Government has no responsibility to provide. However, if emergency medical care is rendered by Navy medical services, charges may be billed to Contractor at prevailing rates established in BUMED Instruction 6320.4 series. Reimbursement shall be made by Contractor to Naval Regional Medical Center Collection Agency upon receipt of monthly statement.

1.16 SITE CONDITIONS

1.16.1 Noise

Provide continual noise monitoring during all site activities. Notify the Contracting Officer immediately of noises that are above OSHA standards. Provide hearing protection to all Contractor's site personnel and to all Government site visitors.

1.17 REPORTS

1.17.1 Reporting Reports

For OSHA recordable accidents, the Contractor shall conduct a suitable investigation, complete the Navy Contractor Significant Incident Report (CSIR) form and provide to the Contracting Officer within 5 calendar days of the accident.

1.17.2 Notification

Notify Contracting Officer, within 4 hours, of any accident meeting the definition of OSHA recordable occupational injury or illness. Information shall include Contractor name; contract title; type of contract; name of activity, installation or location where mishap occurred; date and time of mishap; names of personnel injured; extent of property damage, if any; and brief description of mishap (to include type of construction equipment used, PPE used, etc.). In addition to OSHA reporting requirements, initial notification shall be made of any accident involving significant mishaps.

1.17.3 Monthly Exposure Report

Monthly exposure reporting, to the Contracting Officer is required to be attached to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor.

1.17.4 OSHA Citations and Violations

Provide the Contracting Officer with a copy of each OSHA citation, OSHA report and Contractor response. Correct violations and citations promptly and provide written corrective actions to the Contracting Officer.

PART 2 PRODUCTS

2.1 FALL PROTECTION ANCHORAGE

Fall protection anchorages, used by contractors to protect their people, shall be left in place and so identified for continued customer use.

2.2 CONFINED SPACE SIGNANGE

Provide permanent signs integral to or securely attached to access covers for new confined spaces. Signs wording: "DANGER--PERMIT REQUIRED CONFINED SPACE - DO NOT ENTER -" on bold letters a minimum of one inch in height and constructed to be clearly legible with all paint removed. The signal word "DANGER" and shall be red and readable from 5 feet.

PART 3 EXECUTION

3.1 CONSTRUCTION

Comply with COE EM 385-1-1, NFPA 241, the APP, the AHA and other related submittals and activity fire and safety regulations.

3.1.1 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocynates, lead-based paint are prohibited. Exceptions to the use of any of the above excluded materials may be considered by Contracting Officer upon written request by Contractor.

3.1.2 Unforeseen Hazardous Material

If hazardous material, not indicated, that may be hazardous to human health upon disturbance during construction operations is encountered, stop that portion of work and notify the Contracting Officer immediately. Within 14 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to Contract Clauses "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions."

3.2 PRE-OUTAGE COORDINATION MEETING

Contractors are required to apply for utility outages a minimum of 15 days in advance. As a minimum, the request should include the location of the outage, utilities being affected, duration of outage and any necessary sketches. Once approved and prior to beginning work on the utility system requiring shut down, the Contractor shall attend a pre-outage coordination meeting with the ROICC and the Station Utilities Department to review the scope of work and the lock out/tag out procedures for worker protection.

3.3 PERSONNEL PROTECTION

3.3.1 Hazardous Noise

Provide hazardous noise signs, and hearing protection, wherever equipment and work procedures produce sound-pressure levels greater than 85 dBA steady state of 140 dBA impulse, regardless of the duration of the exposure.

3.3.2 Fall Protection

Enforce use of the fall protection device named for each activity in the AHA all times when an employee is on a surface 6 feet or more above lower levels. Personal fall arrest systems are required when working from an articulating or extendible boom, scissor lifts, swing stages, or suspended platform. Fall protection must comply with ANSI A10.14.

3.3.2.1 Personal Fall Arrest Device

Equipment, subsystems, and components shall meet ANSI Z359.1, Personal Fall Arrest Systems. Only a full-body harness with a shock absorbing lanyard is an acceptable personal fall arrest divide. Body belts may only be used as positioning devices only such as for steel reinforcing assembly. Body belts are not authorized as a personal fall arrest device. Harnesses must have upper middle back "D" rings for proper body suspension during a fall. Lanyard must be fitted with a double locking snap hook attachment. Webbing, straps, and ropes must be of synthetic fiber or wire rope.

3.3.2.2 Safety Nets

Safety nets shall be provided in unguarded workplaces over water, machinery, dangerous operations, or more than 25 feet above surface.

3.3.3 Use of Material Handling Equipment

a. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions. Crane supported work platforms shall only be used in extreme conditions if the Contractor proves that using any other access to the work location would provide a greater hazard to the workers.

b. Christmas-tree lifting (multiple rigged materials) is not allowed.

3.3.4 Excavations

The competent person for excavation shall be on site when work is being performed in excavations, and shall inspect excavations prior to entry by workers. Individual must evaluate for all hazards, including atmospheric, that may be associated with the work, and shall have the resources necessary to correct hazards promptly.

3.3.5 Conduct of Electrical Work

Underground electrical spaces must be certified safe for entry before entering to conduct work. Cable intended to be cut must be positively identified and de-energized prior to performing each cut. Perform all high voltage cutting remotely. When racking in or live switching of circuit breakers, no additional person other than the switch operator shall be allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method. When working in energized substations, only qualified

electrical workers shall be permitted to enter. When work requires Contractor to work near energized circuits as defined by the NFPA 70, high voltage personnel must use personnel protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves with leather protective sleeves, fire retarding shirts, coveralls, face shields, and safety glasses. Insulating blankets, hearing protection, and switching suits may be required, depending on the specific job and as delineated in the Contractor AHA.

3.3.6 Work in Manholes

Contractor shall provide mechanical ventilation for all work accomplished in manholes, unless other hazards are present like friable asbestos.

3.3.7 Work in Confined Spaces

Comply with the requirements in Section 06.I of COE EM 385-1-1. Any potential for a hazard in the confined space requires a permit system to be used.

a. Entry Procedures. Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. (See Section 06.I.05 of COE EM 385-1-1 for entry procedures.) All hazards pertaining to the space shall be reviewed with each employee during review of the AHA.

b. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained.

c. Ensure the use of rescue and retrieval devices in confined spaces greater than 5 feet in depth. Conform to Sections 06.I.09, 06.I.10 and 06.I.11 of COE EM 385-1-1.

d. Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.

e. Include training information for employees who will be involved as entrant attendants for the work. Conform to Section 06.I.06 of COE EM 385-1-1.

f. Entry Permit. Use ENGFORM 5044-R or other form with the same minimum information for the Daily Confined Space Entry Permit, completed by the qualified person. Post the permit in a conspicuous place close to the confined space entrance.

3.3.8 Crystalline Silica

Grinding, abrasive blasting, and foundry operations of construction materials containing crystalline silica, shall comply with OSHA regulations, such as 29 CFR 1910.94, and COE EM 385-1-1, (Appendix C). The Contractor shall develop and implement effective exposure control and elimination procedures to include dust control systems, engineering controls, and establishment of work area boundaries, as well as medical surveillance, training, air monitoring, and personal protective equipment.

3.4 ACCIDENT SCENE PRESERVATION

For serious accidents, ensure the accident site is secured and evidence is protected remaining undisturbed until released by the Contracting Officer.

3.5 FIELD QUALITY CONTROL

3.5.1 Inspections

Include safety inspection as a part of the daily Quality Control Inspections required by Section 01450N, "Quality Control."

-- End of Section --

SECTION 01575N

TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.1200	Hazard Communication
40 CFR 112	Oil Pollution Prevention
40 CFR 173	Procedures Governing the Rescission of State Primary Enforcement Responsibility for Pesticide Use Violations
40 CFR 243	Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste
40 CFR 258	Subtitle D Landfill Requirements
40 CFR 260	Hazardous Waste Management Systems: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Generators of Hazardous Waste
40 CFR 263	Transporters of Hazardous Waste
40 CFR 264	Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standard for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 266	Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 270	EPA Administrated Permit Programs: The Hazardous Waste Permit Program
40 CFR 271	Requirements for Authorization of State Hazardous Waste Programs

40 CFR 272	Approved State Hazardous Waste Management Programs
40 CFR 273	Universal Waste Management
40 CFR 279	Used Oil Regulations
40 CFR 280	Owners and Operators of Underground Storage Tanks
40 CFR 300	National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR 355	Emergency Planning and Notification
40 CFR 372-SUBPART D	EPA Toxic Chemical Release Reporting Regulations
40 CFR 716	Health and Safety Data Reporting
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
49 CFR 173	Shipments and Packagings
49 CFR 178	Packagings

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA SW-846	(1986) Evaluating Solid Waste (Physical/Chemical Methods)

STATE OF MARYLAND CODE OF MARYLAND REGULATIONS (COMAR)

COMAR 26.13	Department of the Environment, Disposal of Controlled Hazardous Substances

INDIAN HEAD DIVISION, NAVAL SURFACE WARFARE CENTER (IHDIV-NSWC)

IHDIV-NSWC 5090.2D	Hazardous Waste Management Plan

1.2 DEFINITIONS

1.2.1 Sediment

Soil and other debris that have eroded and have been transported by runoff water or wind.

1.2.2 Solid Waste

Garbage, refuse, debris, sludge, or other discharged material (except hazardous waste as defined in paragraph entitled "Hazardous Waste" or hazardous debris as defined in paragraph entitled "Hazardous Debris"), including solid, liquid, semisolid, or contained gaseous materials resulting from domestic, industrial, commercial, mining, or agricultural operations. Material not regulated as solid waste are: nuclear source or byproduct materials regulated under the Federal Atomic Energy Act of 1954 as amended; suspended or dissolved materials in domestic sewage effluent or

irrigation return flows, or other regulated point source discharges; regulated air emissions; and fluids or wastes associated with natural gas or crude oil exploration or production.

a. Green waste: The vegetative matter from landscaping, land clearing and grubbing, including, but not limited to, grass, bushes, shrubs, small trees and saplings, tree stumps and plant roots. Marketable trees, grasses and plants that are indicated to remain, be re-located, or be re-used are not included.

b. Surplus soil: Existing soil that is in excess of what is required for this work, including aggregates intended, but not used, for on-site mixing of concrete, mortars and paving. Contaminated soil meeting the definition of hazardous material or hazardous waste is not included.

c. Inert construction and demolition debris: Broken or removed concrete, masonry, and rock asphalt paving; ceramics; roofing paper and shingles. Inert materials may be reinforced with or contain ferrous wire, rods, accessories and weldments.

d. Wood: Dimension and non-dimension lumber, plywood, chipboard, hardboard. Treated and/or painted wood that meets the definition of lead contaminated or lead based contaminated paint is not included.

e. Scrap metal: Scrap and excess ferrous and non-ferrous metals such as reinforcing steel, structural shapes, pipe and wire that are recovered or collected and disposed as scrap. Scrap metal meeting the definition of hazardous material or hazardous waste is not included.

f. Paint cans: Metal cans that are empty of paints, solvents, thinners and adhesives. If permitted by the paint can label, a thin dry film may remain in the can.

g. Recyclables: Materials, equipment and assemblies such as doors, windows, door and window frames, plumbing fixtures, glazing and mirrors that are recovered and sold as recyclable. Metal meeting the definition of lead contaminated or lead based paint contaminated may not be included as recyclable if sold to a scrap metal company. Paint cans may not be included as recyclable if sold to a scrap metal company.

1.2.3 Debris

Non-hazardous solid material generated during the construction, demolition, or renovation of a structure which exceeds 2.5 inch particle size that is: a manufactured object; plant or animal matter; or natural geologic material (e.g. cobbles and boulders). A mixture of debris and other material such as soil or sludge is also subject to regulation as debris if the mixture is comprised primarily of debris by volume, based on visual inspection.

1.2.4 Hazardous Debris

As defined in paragraph entitled "Debris" of this section, debris that contains listed hazardous waste (either on the debris surface, or in its interstices, such as pore structure) per 40 CFR 261 or COMAR 26.13; or debris that exhibits a characteristic of hazardous waste per 40 CFR 261 or

COMAR 26.13.

1.2.5 Chemical Wastes

This includes salts, acids, alkalies, herbicides, pesticides, and organic chemicals.

1.2.6 Garbage

Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.

1.2.7 Hazardous Waste

Hazardous waste (HW) as defined in 40 CFR 261, COMAR 26.13 or as defined by applicable State and local regulations.

1.2.8 Oily Waste

Petroleum products and bituminous materials.

1.2.9 Regulated Waste

Those solid waste that have specific additional Federal, state, or local controls for handling, storage, or disposal.

1.2.10 Class I Ozone Depleting Substance (ODS)

Class I ODS is defined in Section 602(a) of the Clean Air Act and includes the following chemicals:

chlorofluorocarbon-11 (CFC-11)	chlorofluorocarbon-213 (CFC-213)
chlorofluorocarbon-12 (CFC-12)	chlorofluorocarbon-214 (CFC-214)
chlorofluorocarbon-13 (CFC-13)	chlorofluorocarbon-215 (CFC-215)
chlorofluorocarbon-111 (CFC-111)	chlorofluorocarbon-216 (CFC-216)
chlorofluorocarbon-112 (CFC-112)	chlorofluorocarbon-217 (CFC-217)
chlorofluorocarbon-113 (CFC-113)	halon-1211
chlorofluorocarbon-114 (CFC-114)	halon-1301
chlorofluorocarbon-115 (CFC-115)	halon-2402
chlorofluorocarbon-211 (CFC-211)	carbon tetrachloride
chlorofluorocarbon-212 (CFC-212)	methyl chloroform

1.2.11 Hazardous Materials

Any material that is regulated as a hazardous material (HM) in accordance with 49 CFR 173, or COMAR 26.13, requires a Material Safety Data Sheet (MSDS) in accordance with 29 CFR 1910.1200, or which during end use, treatment, handling, storage, transportation or disposal meets or has components which meet or have the potential to meet the definition of a Hazardous Waste in accordance with 40 CFR 261 or COMAR 26.13. Throughout this specification, hazardous material includes hazardous chemicals.

1.3 SUBMITTALS

Submit the following in accordance with Section C of the Basic Contract.

SD-01 Preconstruction Submittals

Environmental Protection Plan

Sediment and Erosion Control Plan

SD-06 Test Reports

Laboratory analysis

SD-11 Closeout Submittals

Some of the records listed below are also required as part of other submittals. For the "Records" submittal, maintain on-site a separate three-ring Environmental Records binder and submit at the completion of the project. Make separate parts to the binder corresponding to each of the applicable subitems listed below.

Solid waste disposal permit

Waste determination documentation

Disposal documentation for hazardous and regulated waste

Contractor 40 CFR employee training records

Regulatory notification

Erosion and sediment control inspection reports

Solid waste disposal report

Contractor Hazardous Material Inventory Log

1.4 CONTRACTOR PREPARED SEDIMENT AND EROSION CONTROL PLAN

The Contractor shall prepare a sediment and erosion control plan for this project. The plan shall include as a minimum:

(1) An F size graphic plan of the construction site with the location and description of all sediment and erosion control measures proposed.

(2) The sequence of construction to be followed.

(3) Graphic details of all sediment and erosion control measures to be used in this project.

(4) An approval sign-off block.

The approval sign-off block shall contain the following:

Contractors Sediment and Erosion Control Point of Contact:

_____	_____	_____
Date	Printed Name	Signature

IHDIV-NSWC Sediment and Erosion Control Point of Contact:

Signatures below indicates plan approval:

_____	_____	_____
Date	Printed Name	Signature

1.4.1 Contractor Prepared Sediment and Erosion Control Plan

Submit one copy of the proposed Sediment and Erosion Control Plan for approval by the Contracting Officer prior to performing any earth disturbing activities.

1.4.2 Approved Sediment and Erosion Control Plan

Submit three copies of the approved Sediment and Erosion Control Plan to the Contracting Officer prior to performing any earth disturbing activities.

The Contractor shall strictly follow the Sediment and Erosion Control Plan and maintain all measures used during construction.

1.4.3 Modification to Approved Sediment and Erosion Control Plan

The Contractor may propose modifications to the Sediment and Erosion Control Plan at any time. The Contractor shall submit all modifications to the ROICC and to MDE for approval. No modification to the Sediment and Erosion Control Plan will be allowed until these changes have been approved by the ROICC and MDE and three copies of the approved modifications have been submitted to the Contracting Officer. The Contractor shall also submit one copy of the proposed modification when the modification is submitted to MDE.

1.5 LABORATORY ANALYSIS

Submit a copy of a laboratory analysis of solid waste and debris with the potential of becoming classified as a hazardous waste (i.e., abrasive/sand blasting debris, etc.). Waste stream determinations are required at the point of generation and must sufficiently document whether the waste will be a solid waste, hazardous waste, or Resource Conservation and Recovery Act (RCRA) exempt waste. Determinations must use EPA approved methods and provide written rational for whether the waste is classified as hazardous or non-hazardous. The Contractor shall bear the cost of the waste stream determinations, and the Contracting Officer reserves the right to request waste stream determinations on questionable waste streams.

1.6 REPORTS

1.6.1 Solid Waste Disposal Permit

Submit one copy of a State and local permit or license showing such agencies' approval of the disposal plan before transporting wastes off Government property.

1.6.2 Waste Determination Documentation

The Contractor shall complete a Waste Determination form (provided at the pre-construction conference) for all Contractor derived wastes to be generated. The waste determination must be based upon either a constituent listing from the manufacturer used in conjunction with consideration of the process by which the waste was generated, EPA approved analytical data, or laboratory analysis (MSDS by themselves are not adequate). All support documentation must be attached to the Waste Determination form. As a minimum, a Waste Determination form must be provided for the following wastes (this listing is not all inclusive): oil and latex based painting and caulking products, solvents, adhesives, aerosols, petroleum products, and all containers of the original materials.

1.6.3 Disposal Documentation for Hazardous and Regulated Waste

Submit a copy of the applicable EPA and State permit(s), manifest(s), or license(s) for transportation, treatment, storage, and disposal of hazardous and regulated waste by permitted facilities.

1.6.4 Contractor 40 CFR Employee Training Records

Prepare and maintain employee training records throughout the term of the contract meeting applicable 40 CFR requirements. The Contractor shall ensure every employee completes a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures compliance with Federal, State and local regulatory requirements for RCRA Large Quantity Generator. The Contractor shall provide a Position Description for each employee, by subcontractor, based on the Davis-Bacon Wage Rate designation or other equivalent method, evaluating the employee's association with hazardous and regulated wastes. This Position Description shall include training requirements as defined in 40 CFR 265 for a Large Quantity Generator facility. Submit these training records to the Contracting Officer at the conclusion of the project, unless otherwise directed.

1.6.5 Regulatory Notification

The Contractor is responsible for all regulatory notification requirements in accordance with Federal, State and local regulations. The Contractor shall forward copies to the Contracting Officer prior to commencement of work activities. Typically, regulatory notifications must be provided for the following (this listing is not all inclusive): demolition, renovation, NPDES defined site work, remediation of controlled substances (asbestos, hazardous waste, lead paint).

1.6.6 Erosion and Sediment Control Inspection Reports

Submit "Erosion and Sediment Control Inspection Reports" (form provided at the pre-construction conference) to the Contracting Officer once every seven calendar days and within 24 hours of a storm event that produces 0.5 inch or more of rain.

1.6.7 Solid Waste Disposal Report

Monthly the Contractor shall submit a solid waste disposal report to the Contracting Officer. For each waste, the report shall state the classification (using the definitions provided in this section), amount,

location, and name of the business receiving the solid waste. The Contractor shall include copies of the waste handling facilities' weight tickets, receipts, bills of sale, and other sales documentation. In lieu of sales documentation, the Contractor may submit a statement indicating the disposal location for the solid waste which is signed by an officer of the Contractor firm authorized to legally obligate or bind the firm. The sales documentation or Contractor certification shall include the receiver's tax identification number and business, EPA or State registration number, along with the receiver's delivery and business addresses and telephone numbers. For each solid waste retained by the Contractor for his own use, the Contractor shall submit on the solid waste disposal report the information previously described in this paragraph. Prices paid or received shall not be reported to the Contracting Officer unless required by other provisions or specifications of this Contract or public law.

1.7 CLASS I ODS PROHIBITION

Class I ODS as defined and identified herein shall not be used in the performance of this contract, nor be provided as part of the equipment. This prohibition shall be considered to prevail over any other provision, specification, drawing, or referenced documents.

1.8 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection as defined. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Comply with Federal, State, and local regulations pertaining to the environment, including water, air, solid waste, hazardous waste and substances, oily substances, and noise pollution.

Environmental Brief: Attend an environmental brief to be included in the preconstruction meeting. Provide the following information: types, quantities, and use of hazardous materials that will be brought onto the activity; types and quantities of wastes/wastewater that may be generated during the contract.

1.8.1 Facility Hazardous Waste Generator Status

IHDIV-NSWC is designated as a Large Quantity Generator. All work conducted within the boundaries of IHDIV-NSWC must meet the regulatory requirements of this generator designation. The Contractor shall comply with all provisions of Federal, State and local regulatory requirements applicable to this generator status regarding training and storage, handling, and disposal of all construction derived wastes.

1.8.2 Licenses and Permits

Obtain licenses and permits pursuant to the "Permits and Responsibilities" FAR Clause.

For permits obtained by the Contracting Officer, whether or not required by the permit, the Contractor is responsible to perform quality control inspections of the work in progress, and to submit notifications and certifications to the applicable regulatory agency, via the Contracting

Officer, that the work conforms to the contract and permit requirements. The inspections and certifications shall be provided through the services of a Professional Engineer, registered in the State where the work is being performed. As a part of the Quality Control Plan, which is required to be submitted for approval in accordance with Section 01450N, "Quality Control", provide a subitem containing the name, P.E. registration number, address, and telephone number of the professional engineer(s) who will be performing the inspections and certifications for each permit listed above.

1.8.3 Contractor Liabilities for Environmental Protection

The Contractor is advised that this project and IHDIV-NSWC are subject to Federal, State, and local regulatory agency inspections to review compliance with environmental laws and regulations. The Contractor shall fully cooperate with any representative from any Federal, State or local regulatory agency who may visit the job site and shall provide immediate notification to the Contracting Officer, who shall accompany them on any subsequent site inspections. The Contractor shall complete, maintain, and make available to the Contracting Officer, station, or regulatory agency personnel all documentation relating to environmental compliance under applicable Federal, State and local laws and regulations. The Contractor shall immediately notify the Contracting Officer if a Notice of Violation (NOV), Notice of Deficiency (NOD), or similar regulatory notice is issued to the Contractor.

The Contractor shall be responsible for all damages to persons or property resulting from Contractor fault or negligence as well as for the payment of any civil fines or penalties which may be assessed by any Federal, State or local regulatory agency as a result of the Contractor's or any subcontractor's violation of any applicable Federal, State or local environmental law or regulation. Should a NOV, Notice of Noncompliance (NON), NOD, or similar regulatory agency notice be issued to the Government as facility owner/operator on account of the actions or inactions of the Contractor or one of its subcontractors in the performance of work under this contract, the Contractor shall fully cooperate with the Government in defending against regulatory assessment of any civil fines or penalties arising out of such actions or inactions.

1.9 ENVIRONMENTAL PROTECTION PLAN

Five days after the award of contract, the Contractor shall meet with the Contracting Officer to discuss the proposed Environmental Protection Plan and develop a mutual understanding relative to the details of environmental protection, including measures for protecting natural resources, required reports, and other measures to be taken. The Environmental Protection Plan shall be submitted in the following format and shall, at a minimum, address the following elements (also refer to paragraph entitled "Protection of Natural Resources" in this section):

a. Description of the Environmental Protection Plan

(1) General overview and purpose

(2) General site information

b. Protection of Natural Resources

(1) Land resources

(2) Tree protection

(3) Replacement of damaged landscape features

(4) Temporary construction

(5) Stream crossings

(6) Fish and wildlife resources

(7) Wetland areas

c. Protection of Historical and Archaeological Resources

(1) Objectives

(2) Methods

d. Stormwater Management and Control

(1) Ground cover

(2) Erodible soils

(3) Temporary measures

(a) Mechanical retardation and control of runoff

(b) Vegetation and mulch

(4) Stormwater Pollution Prevention Plan, Section 01115N, "General Paragraphs (Remedial Action Contracts)."

e. Prevention of Releases to the Environment

(1) Procedures to prevent releases to the environment

(2) Notifications in the event of a release to the environment

f. Protection of the Environment from Waste Derived from Contractor Operations

(1) Control and disposal of solid and sanitary waste

(2) Control and disposal of hazardous waste (Hazardous Waste Management Section)

This item shall consist of the management procedures for all hazardous waste to be generated. The elements of those procedures shall coincide with the Activity Hazardous Waste Management Plan. A copy of the Activity Hazardous Waste Management Plan will be provided by the Contracting Officer. As a minimum, include the following:

(a) Procedures to be employed to ensure a written waste determination is made for appropriate wastes which are to be generated;

(b) Sampling/analysis plan;

(c) Methods of hazardous waste accumulation/storage (i.e., in tanks and/or containers);

(d) Management procedures for storage, labeling, transportation, and disposal of waste (treatment of waste is not allowed unless specifically noted);

(e) Management procedures and regulatory documentation ensuring disposal of hazardous waste complies with Land Disposal Restrictions (40 CFR 268) and COMAR 26.13;

(f) Management procedures for recyclable hazardous materials such as lead-acid batteries, used oil, and the like;

(g) Used oil management procedures in accordance with 40 CFR 279 and COMAR 26.13;

(h) Pollution prevention\hazardous waste minimization procedures;

(i) Plans for the disposal of hazardous waste by permitted facilities;

(j) Procedures to be employed to ensure all required employee training records are maintained.

1.9.1 Environmental Protection Plan Review

Fourteen days after the environmental protection meeting, submit the proposed Environmental Protection Plan for further discussion, review, and approval. Commencement of work shall not begin until the Environmental Protection Plan has been approved.

1.10 UNFORESEEN HAZARDOUS OR REGULATED MATERIAL

All known hazardous or regulated materials are indicated in the contract documents. If material that is not indicated in the contract documents is encountered that may be dangerous to human health upon disturbance during construction operations, stop that portion of work and notify the Contracting Officer immediately. Intent is to identify materials such as PCB, lead paint, mercury, petroleum products, and friable and nonfriable asbestos. Within 14 calendar days the Contractor shall determine if the material is hazardous. If the material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If the material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to Contract Clauses "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions."

1.11 CONTRACTOR HAZARDOUS MATERIAL INVENTORY LOG

Submit the "Contractor Hazardous Material Inventory Log", which provides information required by (EPCRA Sections 312 and 313) along with corresponding MSDS to the Contracting Officer at the start and at the end of construction (30 days from final acceptance), and update no later than January 31 of each calendar year during the life of the contract. Documentation for any spills/releases, environmental reports or off-site transfers may be requested by the Contracting Officer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 PROTECTION OF NATURAL RESOURCES

Preserve the natural resources within the project boundaries and outside the limits of permanent work. Restore to an equivalent or improved condition upon completion of work. Confine construction activities to within the limits of the work indicated or specified. Conform to the national permitting requirements of the Clean Water Act.

3.1.1 Land Resources

Except in areas to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without the Contracting Officer's permission. Do not fasten or attach ropes, cables, or guys to existing nearby trees for anchorages unless authorized by the Contracting Officer. Where such use of attached ropes, cables, or guys is authorized, the Contractor shall be responsible for any resultant damage.

3.1.1.1 Protection of Trees

Protect existing trees which are to remain and which may be injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. By approved excavation, remove trees with 30 percent or more of their root systems destroyed.

3.1.1.2 Replacement

Remove trees and other landscape features scarred or damaged by equipment operations, and replace with equivalent, undamaged trees and landscape features. Obtain Contracting Officer's approval before replacement.

3.1.2 Water Resources

3.1.2.1 Stream Crossings

The Contracting Officer's approval is required before any equipment will be permitted to ford live streams. In areas where frequent crossings are required, install temporary culverts or bridges. Obtain Contracting Officer's approval prior to installation. Remove temporary culverts or bridges upon completion of work, and repair the area to its original condition as indicated or as specified.

3.1.2.2 Oily and Hazardous Substances

Prevent oil or hazardous substances from entering the ground, drainage areas, or navigable waters. In accordance with 40 CFR 112, surround all temporary fuel oil or petroleum storage tanks with a temporary berm or containment of sufficient size and strength to contain the contents of the tanks, plus 10 percent freeboard for precipitation. The berm shall be impervious to oil for 72 hours and be constructed so that any discharge will not permeate, drain, infiltrate, or otherwise escape before cleanup occurs.

3.1.3 Fish and Wildlife Resources

Do not disturb fish and wildlife. Do not alter water flows or otherwise significantly disturb the native habitat adjacent to the project and critical to the survival of fish and wildlife, except as indicated or specified.

3.1.4 Temporary Construction

Remove traces of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles or excess or waste materials, and other signs of construction. Grade temporary roads, parking areas, and similar temporarily used areas to conform with surrounding contours.

3.2 HISTORICAL AND ARCHAEOLOGICAL RESOURCES

Carefully protect in-place and report immediately to the Contracting Officer historical and archaeological items or human skeletal remains discovered in the course of work. Upon discovery, notify the Contracting Officer. Stop work in the immediate area of the discovery until directed by the Contracting Officer to resume work. The Government retains ownership and control over historical and archaeological resources.

3.3 EROSION AND SEDIMENT CONTROL MEASURES

3.3.1 Burnoff

Burnoff of the ground cover is not permitted.

3.3.2 Borrow Pit Areas

Manage and control borrow pit areas to prevent sediment from entering nearby streams or lakes. Restore areas, including those outside the borrow pit, disturbed by borrow and haul operations. Restoration includes grading, replacement of topsoil, and establishment of a permanent vegetative cover. Uniformly grade side slopes of borrow pit to not more than a slope of 1 vertical to 2 horizontal. Uniformly grade the bottom of the borrow pits to provide a flat bottom and drain by outfall ditches or other suitable means. Stockpile topsoil remove during the borrow pit operation, and use as part of restoring the borrow pit area.

3.3.3 Protection of Erodible Soils

Immediately finish the earthwork brought to a final grade, as indicated or specified. Immediately protect the side slopes and back slopes upon completion of rough grading. Plan and conduct earthwork to minimize the duration of exposure of unprotected soils.

3.3.4 Temporary Protection of Erodible Soils

Use the following methods to prevent erosion and control sedimentation:

3.3.4.1 Mechanical Retardation and Control of Runoff

Mechanically retard and control the rate of runoff from the construction site. This includes construction of diversion ditches, benches, berms, and use of silt fences and straw bales to retard and divert runoff to protected drainage courses.

3.3.4.2 Vegetation and Mulch

Provide temporary protection on sides and back slopes as soon as rough grading is completed or sufficient soil is exposed to require erosion protection. Protect slopes by accelerated growth of permanent vegetation, temporary vegetation, mulching, or netting. Stabilize slopes by hydroseeding, anchoring mulch in place, covering with anchored netting, sodding, or such combination of these and other methods necessary for effective erosion control.

a. Seeding: The seeding operation shall be as specified in Section 02315N, "Excavation and Fill."

3.4 CONTROL AND DISPOSAL OF SOLID WASTES

Pick up solid wastes, and place in covered containers which are regularly emptied. Do not prepare or cook food on the project site. Prevent contamination of the site or other areas when handling and disposing of wastes. At project completion, leave the areas clean. Recycling is encouraged and can be coordinated with the Contracting Officer and the activity recycling coordinator. Remove all solid waste (including non-hazardous debris) from Government property and dispose off-site at an approved landfill. Solid waste disposal off-site must comply with most stringent local, State, and Federal requirements including 40 CFR 243, 40 CFR 258, and COMAR 26.13.

3.5 CONTROL AND DISPOSAL OF HAZARDOUS WASTES

3.5.1 Hazardous Waste/Debris Management

The Contractor shall identify all construction activities which will generate hazardous waste/debris. The Contractor must provide a documented waste determination for all resultant waste streams. Hazardous waste/debris shall be identified, labeled, handled, stored, and disposed in accordance with all Federal, State, and local regulations including 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, 40 CFR 268, COMAR 26.13, and IHDIV-NSWC 5090.2D. Hazardous waste shall also be managed in accordance with the approved Hazardous Waste Management Section of the Environmental Protection Plan. Store hazardous wastes in approved containers in accordance with 49 CFR 173, 49 CFR 178, and COMAR 26.13. Hazardous waste generated within the confines of Government facilities shall be identified as being generated by the Government. The Contractor shall dispose of all hazardous waste unless the Contractor cannot accommodate disposal. If the Contractor cannot accommodate disposal the Government may dispose of hazardous waste subject to ROICC approval. Prior to removal of any hazardous waste from Government property, all hazardous waste manifests must be signed by the Property Disposal Office. No hazardous waste shall be brought onto Government property. Provide to the Contracting Officer a copy of waste determination documentation for any solid waste streams that have any potential to be hazardous waste or contain any chemical constituents listed in 40 CFR 372-SUBPART D or COMAR 26.13. For hazardous wastes spills, verbally notify the Contracting Officer immediately.

3.5.1.1 Hazardous Waste Storage/Satellite Accumulation/90 Day Storage Areas

If the work requires the temporary storage/collection of hazardous wastes, the Contractor shall request the establishment of a less than 90 Day Hazardous Waste Storage Area or a Satellite Accumulation Area at the point

of generation. The Contractor must submit a request in writing to the Contracting Officer providing the following information in advance of generating the hazardous waste:

Contract Number	_____	Contractor	_____
Haz/Waste POC	_____	Telephone Number	_____
Type of Waste	_____	Source of Waste	_____
Emergency POC	_____	Telephone Number	_____

Location of the Site: _____
(Attach Site Plan to the Request)

Attach a waste determination form. Allow ten working days for processing this request.

3.5.1.2 Sampling and Analysis of HW

a. Sampling

The Contractor shall sample waste in accordance with EPA SW-846. Each sampled drum or container shall be clearly marked with the Contractor's identification number and cross referenced to the chemical analysis performed.

b. Analysis

The Contractor shall follow the analytical procedure and methods in accordance with 40 CFR 261 and COMAR 26.13. The Contractor shall provide all analytical results and reports performed to the Contracting Officer

c. Analysis Type

Identification of waste hazardous material/hazardous waste shall be accomplished by analyzing for the following properties as a minimum: ignitability, corrosivity, reactivity, total chlorides, BTU value, PCBs, TCLP for heavy metals, and cyanide.

3.5.1.3 Hazardous Waste Disposal

Control of stored waste, packaging, sampling, analysis, and disposal shall be determined by the details in the basic contract. The requirements for jobs in the following paragraphs shall be used as the guidelines for disposal of any hazardous waste generated.

(a) Responsibilities for Contractor's Disposal

Any generation of WHM/HW requiring Contractor disposal of solid waste or liquid.

a. The Contractor agrees to provide all service necessary for the final treatment/disposal of the hazardous material/waste in accordance with all local, State and Federal laws and regulations, and the terms and conditions of the basic contract within sixty (60) days after the materials have been generated. These services

shall include all necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal, and/or transportation, including manifesting or completing waste profile sheets, equipment, and the compilation of all documentation is required).

b. Contain all waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, 40 CFR 268, 40 CFR 270, 40 CFR 272, 40 CFR 273, 40 CFR 279, 40 CFR 280, 40 CFR 761, and COMAR 26.13.

c. Control and turn in all hazardous waste requiring disposal in accordance with paragraph entitled "Contractor Disposal Turn-In Requirements" and as follows:

1. On-Site Disposal

All hazardous waste must be turned into the Government (Property Disposal Office, Code 112) by 1530 hours each day. If the hazardous waste cannot be turned into the Government at the end of each shift (by 1530) then the Contractor must establish accumulation sites, assign site managers, and notify Code 044 of the type 1 location of the sites and the name of site manager. Prior to turning in hazardous waste to the Government Property Disposal Office, Code 112 the Contractor/Contracting Officer must:

(a) Provide a DD 1348-1 Form, 3 copies of a profile sheet, and three copies of a laboratory analysis to the Government (Property Disposal Office, Code 112) prior to the initial turn in of hazardous wastes.

(b) Provide a DD 1348-1 Form for each additional lot of hazardous waste turned into the Government (Property Disposal Office, Code 112).

2. Off-Site Disposal

(a) All Contractor credentials (i.e., disposal company's permit to operate, hazardous waste transporter certificate, etc.) must be reviewed by Codes 112 and 044.

(b) The Contractor must also establish hazardous waste accumulation sites, assign site managers, and notify Code 044 of the type/location of the sites and the name of site managers.

(c) All off-site shipments of hazardous wastes must be coordinated through the Property Disposal Office, Code 112. All manifests shall be signed by the Property Disposal Office.

(d) Contract requirements for off-site disposal of wastes must include the following:

1) The amount of time that the Contractor has to dispose of the waste should not be longer than six months; all hazardous waste stored in less than 90 Day Hazardous Waste Storage Areas must be removed in less than 90 days of generation.

2) Payment must be withheld until the Contractor provides a disposal certification to the Government as proof that the waste

was properly disposed.

d. Obtaining a representative sample of the material generated for each job done to provide waste stream determination.

e. Analyzing for each sample taken and providing analytical results to the Contracting Officer. Provide two copies of the results.

f. Determine the DOT proper shipping names for all waste (each container requiring disposal) and shall demonstrate how this determination is developed and supported by the sampling and analysis requirements contained herein to the Contracting Officer for Code 044 review.

Government Responsibilities

To review all documentation submitted by the Contractor for accuracy. Provide guidance to the Contractor in reference to environmental compliance.

Interim Waste Generation Site for Contractor Disposal of WHM/HW

The Contractor shall request approval of the Government for an area suitable for packaging WHM/HW requiring disposal. The Contractor shall comply with the requirements of the Maryland Department of Waste Management Regulations. The area will be barricaded and a sign identifying as follows:

Signage- "DANGER - UNAUTHORIZED PERSONNEL KEEP OUT"

With additional custody sign indicating:

(1) Site #41
(2) Controlled by ROICC
(3) Call Ms. Cathy Gardner at (301)744-4112

Barricade Type: Yellow and black three (3) inch plastic tape. Corner barricades shall be provided by the Government.

Contractor Disposal Turn-In Requirements

For any waste hazardous materials or hazardous waste generated which requires the Contractor to dispose of, the following conditions must be complied with:

a. Notify Code 112 dispatcher, at (301)744-4343 and provide the following information:

(1) Your name and company

(2) Service/contract number

(3) ROICC/Code 09C1 number

(4) Telephone number where you can be reached

(5) Material requiring disposal

(6) Location of material

(7) Volume of material in each container

b. All material must meet the following conditions in order to be acceptable for disposal

(1) Drums compatible with waste contents and drums meet DOT requirements for 49 CFR 173 and COMAR 26.13 for transportation of materials or as specified by the Property Disposal Office, Code 112.

(2) Drums banded to wooden pallets. No more than three (3) 55 gallon drums to a pallet, or two (2) 85 gallon over packs.

(3) Band using 1-1/4 inch minimum band on upper third of drum.

(4) Recovery materials label (provided by Code 044) located in middle of drum, filled out to indicate actual volume of material, name of material manufacturer, other vendor information as available.

(5) Always have three (3) to five (5) inches of empty space above volume of material. This space is called 'outage'.

(b) Responsibilities for Government's Disposal

Any generation of WHM/HW requiring Government disposal of solid waste or liquid.

Contractor's Representative

a. Contain all waste in accordance with 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, 40 CFR 268, 40 CFR 270, 40 CFR 271, 40 CFR 272, 40 CFR 273, 40 CFR 279, 40 CFR 280, 40 CFR 716, and COMAR 26.13.

b. Control and turn-in all hazardous waste requiring disposal in accordance with IHDIV-NSWC Recovery Material Instruction contained in the paragraph entitled "Government Disposal Turn-In Requirements".

c. Providing identification of material requiring disposal to permit safe opening, storage and handling by the Government.

Government Responsibilities

a. Sample material requiring disposal.

b. Analyzing each sample taken.

c. Determine the DOT proper shipping names for all waste (each container requiring disposal) and shall demonstrate how this determination is developed and supported by the sampling and analysis requirements.

d. Accepting and disposing of all WHM/HW properly turned in by the Contractor for disposal.

Acceptance of WHM/HW for Disposal

Upon completion of all above applicable requirements (i.e. sample, analysis, identification, packaging, etc.), the Contractor shall notify the

Contracting Officer three (3) working days in advance for review and acceptance by the Environmental Programs Division, Code 112. The Contractor shall correct all discrepancies not conforming to this contract at his expense. Upon acceptance by the Environmental Programs Division, the waste will be removed from the Contractor's work site within three (3) days.

Interim Waste Generation Site for Government Disposal of WHM/HW

The Contractor shall request approval of the Government for an area suitable for packaging WHM/HW requiring disposal. The area will be barricaded and a sign identifying as follows:

Signage- "DANGER - UNAUTHORIZED PERSONNEL KEEP OUT"

With additional custody sign indicating:

(1) Site # 41
(2) Controlled by ROICC
(3) Call Ms. Cathy Gardner at (301)744-4112

Barricade Type: Yellow and black three (3) inch plastic tape. Corner barricades shall be provided by the Government.

Government Disposal Turn-In Requirements

a. Notify Code 112 dispatcher, at (301)744-4343 and provide the following information:

(1) Your name and company

(2) Service/contract number

(3) ROICC/Code 09C1 contact number

(4) Telephone number where you can be reached

(5) Material requiring disposal

(6) Location of material

(7) Volume of material in each container

b. All material must meet the following conditions in order to be acceptable for disposal:

(1) Drums compatable with waste contents and drums meet DOT requirements for 40 CFR 173 and COMAR 26.13 for transportation of materials.

(2) Drums banded to wooden pallets. No more than three (3) 55 gallon drums to pallet, or two (2) 85 gallon over packs.

(3) Band using 1-1/4 inch minimum band on upper third of drum.

(4) Recovery materials label (provided by Code 112) located in middle of drum, filled out to indicate actual volume of material, name of material manufacturer, other vendor information as available.

(5) Always have three (3) to five (5) inches of empty space above volume of material. This space is called 'outage'.

(6) Code 112 must be notified within 24 hours of filling any drum of material requiring disposal. Date on recovery material label shall be Code 112 notification date.

3.5.2 Pollution Prevention/Hazardous Waste Minimization

The Contractor shall actively pursue minimizing the use of hazardous materials and the generation of hazardous waste while on-base. The Hazardous Waste Management Section of the Environmental Protection Plan shall include the Contractor's procedures for pollution prevention/ hazardous waste minimization. For preparing this part of the plan, the Contractor may consult the activity Environmental Office for suggestions and to obtain a copy of the installation's pollution prevention/hazardous waste minimization plan for reference material. If no written plan exists, the Contractor may obtain information by contacting the Contracting Officer. The Contractor shall describe the types of the hazardous materials expected to be used in the construction when requesting information.

3.5.3 Hazardous Material Control

The Contractor shall include hazardous material control procedures in the Health and Safety Plan. The procedures shall address and ensure the proper handling of hazardous materials, including the appropriate transportation requirements. The Contractor shall submit a MSDS and estimated quantities to be used for each hazardous material to the Contracting Officer prior to bringing the material on base. Typical materials requiring MSDS and quantity reporting include, but are not limited to, oil and latex based painting and caulking products, solvents, adhesives, aerosol, and petroleum products. At the end of the project, the Contractor shall provide the Contracting Officer with the maximum quantity of each material that was present at the site at any one time, the dates the material was present, the amount of each material that was used during the project, and how the material was used. The Contractor shall also ensure that hazardous materials are utilized in a manner that will minimize the amount of hazardous waste that is generated. The Contractor shall ensure that all containers of hazardous materials have NFPA labels or their equivalent. Copies of the MSDS for hazardous materials shall be kept on site at all times and provided to the Contracting Officer at the end of the project. The Contractor shall certify that all hazardous materials removed from the site are hazardous materials and do not meet the definition of hazardous waste per 40 CFR 261 or COMAR 26.13.

3.5.4 Petroleum Products

Conduct the fueling and lubricating of equipment and motor vehicles in a manner that protects against spills and evaporation. All used oil generated on site shall be managed in accordance with 40 CFR 279 and COMAR 26.13. The Contractor shall determine if any used oil generated while on-site exhibits a characteristic of hazardous waste. In addition, used oil containing 1000 parts per million or greater of solvents will be considered a hazardous waste and disposed of at Contractor's expense. Used oil mixed with a hazardous waste will also be considered a hazardous waste. All hazardous waste will be managed in accordance with the paragraph entitled "Hazardous Waste/Debris Management" and shall be managed in

accordance with the approved Environmental Protection Plan.

3.5.5 Releases/Spills of Oil and Hazardous Substances

Take precautions to prevent releases/spills of oil and hazardous substances. In the event of any releases of oil and hazardous substances, chemicals, or gases; immediately (within 15 minutes) notify the IHDIV-NSWC Fire Department (301)744-4333, the activity's Command Duty Officer, and the Contracting Officer. The Contractor is responsible for verbal and written notifications as required by the 40 CFR 355 and COMAR 26.13, State, local regulations and Navy Instructions. A written follow-up report shall be sent to the Contracting Officer within four hours specifying type and amount of material spilled, cleanup action planned or taken to prevent reoccurrence. After initial investigation by its representatives, the government may require that the spill reporting required by state and federal regulations be done by the Contractor. Spill response shall be in accordance with 40 CFR 300, COMAR 26.13 and applicable State and local regulations. Contain and clean up these spills without cost to the Government. If Government assistance is requested or required, the Contractor shall reimburse the Government for such assistance. Provide copies of the written notification and documentation that a verbal notification was made within 20 days.

The Contractor shall be responsible for all supplemental written reports and corrective actions required by the MDE for spills resulting from Contractor operations of vehicles. Written reports are required by MDE within 10 calendar days of spill clean up.

3.6 DUST CONTROL

Keep dust down at all times, including during nonworking periods. Sprinkle or treat, with dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing will be permitted only for cleaning nonparticulate debris such as steel reinforcing bars. Only wet cutting will be permitted for cutting concrete blocks, concrete, and bituminous concrete. Do not unnecessarily shake bags of cement, concrete mortar, or plaster.

3.7 NOISE

Make the maximum use of low-noise emission products, as certified by the EPA. Blasting or use of explosives will not be permitted without written permission from the Contracting Officer, and then only during the designated times.

-- End of Section --

SECTION 02220N

SITE DEMOLITION

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A10.6	(1990) Demolition Operations

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 261	Identification and Listing of Hazardous Waste

1.2 GENERAL REQUIREMENTS

Do not begin demolition until authorization is received from the Contracting Officer. Remove rubbish and debris from the project site; do not allow accumulations. Store materials that cannot be removed daily in areas specified by the Contracting Officer.

1.3 SUBMITTALS

Submit the following in accordance with Section C of the basic contract.

SD-06 Test Reports

Toxic Characteristic Leaching Procedure (TCLP)

SD-07 Certificates

Demolition plan

Submit proposed salvage, demolition and removal procedures to the ROICC NTR for approval before work is started.

Notifications

1.4 REGULATORY AND SAFETY REQUIREMENTS

Comply with federal, state, station, and local hauling and disposal regulations. In addition to the requirements of the "Contract Clauses," safety requirements shall conform with ANSI A10.6.

1.4.1 Notifications

Furnish timely notification of demolition projects to Federal, State, regional, and local authorities in accordance with 40 CFR 261. Notify the Contracting Officer in writing 10 days prior to the commencement of work.

1.5 DUST AND DEBRIS CONTROL

Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution. Sweep pavements as often as necessary to control the spread of debris.

1.6 PROTECTION

1.6.1 Traffic Control Signs

Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Notify the Contracting Officer prior to beginning such work.

1.6.2 Existing Work

Protect existing work which is to remain in place, be reused, or remain the property of the Government. Repair items which are to remain, which are to be salvaged, and which are damaged during performance of the work to their original condition, or replace with new. Do not overload pavements to remain. Provide new supports and reinforcement for existing construction weakened by demolition or removal work. Repairs, reinforcement, or structural replacement must have Contracting Officer approval.

1.6.3 Facilities

Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities.

1.7 BURNING

Burning will not be permitted.

1.8 RELOCATIONS

Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Repair items to be relocated which are damaged or replace damaged items with new undamaged items as approved by the Contracting Officer.

1.9 QUALITY ASSURANCE

1.9.1 Required Data for Demolition Plan

The Demolition Plan shall include procedures for removal and disposition of materials specified to be salvaged, coordination with other work in progress, a disconnection schedule of utility services, a detailed description of methods and equipment to be used for each operation and of the sequence of operations. Provide as part of paragraph "Work Plan" of Section 01115N, "General Paragraphs (Remedial Action Contracts)."

1.9.2 Required Data

Submit reports from Toxic Characteristic Leaching Procedure (TCLP) tests of

composite debris.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 EXISTING FACILITIES TO BE REMOVED

3.1.1 Structures

Remove indicated existing structures as indicated.

3.1.2 Utilities and Related Equipment

Remove existing utilities, as indicated and uncovered by work and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Contracting Officer. Remove meters and related equipment and deliver to a location in accordance with instructions of the Contracting Officer. If utility lines are encountered that are not shown on drawings, contact the Contracting Officer for further instructions.

3.1.3 Railroad

Remove rail, ties and ballast as indicated. Clean rails within contaminated areas and stockpile cleaned rails at ROICC designated location for salvage by others. Dispose ties and ballast at an approved disposal facility in accordance with Section 02223, "Transportation and Disposal of Contaminated Material."

3.1.4 Patching

Where removals leave holes and damaged surfaces exposed in the finished work, patch and repair these holes and damaged surfaces to match adjacent finished surfaces. Where new work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new work. Finished surfaces of patched area shall be flush with the adjacent existing surface and shall match the existing adjacent surface as closely as possible as to texture and finish. Patching shall be as specified and indicated, and shall include:

a. Holes and depressions caused by previous physical damage or left as a result of removals in existing masonry walls to remain shall be completely filled with an approved masonry patching material, applied in accordance with the manufacturer's printed instructions.

3.2 EARTHWORK

Excavation and backfilling shall be in accordance with Section 02315N, "Excavation and Fill."

3.3 DISPOSITION OF MATERIAL

3.3.1 Testing of Debris

Perform TCLP tests, in accordance with 40 CFR 261, and any other characterization sampling and analysis required by the treatment, storage,

and disposal (TSD) facility. Dispose of the debris in accordance with the TSD facilities requirements.

3.3.2 Reuse of Materials and Equipment

Remove and store materials and equipment to be reused or relocated to prevent damage, and reinstall as the work progresses.

3.3.3 Salvaged Materials and Equipment

Remove materials and equipment that are indicated to be removed by the Contractor and that are to remain the property of the Government, and deliver to a storage site(s) as directed by the ROICC.

3.4 CLEANUP

3.4.1 Debris and Rubbish

Remove and transport debris and rubbish in a manner that will prevent spillage on pavements, streets or adjacent areas. Clean up spillage from pavements, streets and adjacent areas.

-- End of Section --

SECTION 02223

TRANSPORTATION AND DISPOSAL OF CONTAMINATED MATERIAL

PART 1 GENERAL

1.1 SUBMITTALS

Submit the following in accordance with Section C of the basic contract.

SD-07, Certificates

Treatment facility permits

SD-11, Closeout Submittals

Shipment manifests

Delivery certificates

Disposal Site Decontamination Certificates

Work Site Decontamination Certificates

Treatment and Disposal Certificates

1.2 QUALITY ASSURANCE

1.2.1 Certificates

1.2.1.1 Treatment Facility Permits

Verification that the proposed treatment facilities are permitted to accept the contaminated materials specified, prior to the start of excavation.

1.2.2 Closeout Submittals

1.2.2.1 Shipment Manifests

Copies of manifests and other documentation required for shipment of waste materials within 24 hours after removal of waste from the site. All shipment manifests, except for hazardous waste manifests, shall be signed by the ROICC NTR. Hazardous waste manifests shall be signed by the Property Disposal Office. The Contractor shall coordinate with the ROICC NTR to obtain these signatures.

1.2.2.2 Delivery Certificates

Verification that the wastes were actually delivered to the approved treatment facility, within 7 days of shipment.

1.2.2.3 Disposal Site Decontamination Certificates

Verification that all vehicles and containers were decontaminated prior to leaving the disposal site, within 7 days of disposal.

1.2.2.4 Work Site Decontamination Certificates

Verification that all vehicles, equipment, and containers were decontaminated prior to leaving the work site shall be submitted within 24 hours of vehicles, equipment, or containers leaving the work site. Verification that all trucks transporting contaminated materials were properly operating, and were covered, shall be submitted within 24 hours after removal of waste from the site.

1.2.2.5 Treatment and Disposal Certificates

Verification that the wastes were successfully treated and remediated to the levels specified herein.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 MATERIALS AND EQUIPMENT

The Contractor shall furnish all labor, materials, and equipment necessary to transport and dispose of Government and Contractor generated wastes in accordance with applicable federal, state, and local requirements.

3.2 SAMPLING

3.2.1 Sampling of Stored Material

Samples of stored material shall be collected at a frequency as required by the treatment, storage, and disposal (TSD) facility. Analyses for contaminated material to be taken to an off-site TSD facility shall conform to local, state, and federal criteria as well as to the requirements of the TSD facility. Documentation of all analyses performed shall be furnished to the ROICC NTR. Additional sampling and analyses to the extent required by the approved off-site TSD facility shall be the responsibility of the Contractor and shall be subject to approval by the ROICC NTR.

3.2.2 Sampling Liquid

Liquid collected from concrete pad cleaning, excavations, storage areas, and decontamination facilities shall be sampled at a frequency as required by the TSD facility if disposed off-site. On-site treatment shall be the preferred method if economics prove on-site treatment is more cost effective than off-site disposal. Liquids containing PCBs shall be disposed off-site. Analyses for contaminated liquid to be taken to an off-site TSD facility shall conform to local, state, and federal criteria as well as to the requirements of the TSD facility. Documentation of all analyses performed shall be furnished to the ROICC NTR. Additional sampling and analysis to the extent required by the approved off-site TSD facility receiving the material shall be the responsibility of the Contractor and shall be subject to approval by the ROICC NTR.

3.3 RECORDS

The Contractor shall originate, use, and maintain the waste shipment records/manifests as required by MDE.

3.4 DECONTAMINATION

The Contractor shall be solely responsible for complying with all federal, state, and local requirements for decontamination of vehicles, equipment, and containers and shall bear all responsibility and cost for any noncompliance. In addition to those requirements, the Contractor shall perform the following.

a. Visually inspect all vehicles, equipment, and containers leaving the work site for proper decontamination.

b. Prepare and maintain a written decontamination log.

c. Decontamination log shall remain on site at all times for inspection purposes.

3.5 TRANSPORTATION

The Contractor shall be solely responsible for complying with all federal, state, and local requirements for transporting petroleum and volatile organic compound contaminated materials through the applicable jurisdictions and shall bear all responsibility and cost for any noncompliance. In addition to those requirements, the Contractor shall perform the following:

a. Inspect and document all vehicles and containers for proper operation and covering.

b. Inspect all vehicles and containers for proper markings, manifest documents, and other requirements for waste shipment.

c. Perform and document decontamination procedures prior to leaving the worksite and again before leaving the disposal site.

3.6 DISPOSAL

All contaminated materials removed from the site shall be disposed in a treatment/disposal facility permitted to accept such materials.

-- End of Section --

SECTION 02224

GEOGRAPHIC INFORMATION SYSTEM (GIS) GRADE-B POST-CONSTRUCTION LOCATION

PART 1 GENERAL

1.1 REFERENCES

The publication listed below forms a part of this specification to the extent referenced. The publication is referenced to the text by the basic designation only. This publication is provided as Appendix A at the end of this specification section.

INDIAN HEAD DIVISION, NAVAL SURFACE WARFARE CENTER (IHDIV-NSWC)

IHDIV-NSWC GIS-DG	Geographic Information System, Drafting Guidelines

1.2 SYSTEM DESCRIPTION

Provide a survey to locate all new and altered existing surface and subsurface items, including buried utilities, as required by the basic contract including all addendums, change orders, and modifications. Using the data from this GIS survey, provide a CADD file and an F-size mylar reproducible and print which shows these new items including buried utilities. The work required by this specification is a separate item required by the basic contract. It can be used to help update the construction AS-BUILTS drawings, but is not to be considered as such.

1.3 SUBMITTALS

Submit the following in accordance with Section C, Part 7.0, of the basic contract.

SD-11 Closeout Submittals

Buried Utility Location Plan

Survey Report

GIS CADD file(s)

F-Size plot of the CADD file(s)

PART 2 PRODUCTS

2.1 BURIED UTILITY LOCATION PLAN

2.1.1 Description

The plan shall indicate the method that the Contractor and his surveyor shall use to horizontally and vertically locate all new and altered existing surface and subsurface utilities and lines provided as a result of this contract including all change orders, addendums, and modifications. This shall include, but not be limited to, fresh and river water pipelines, sanitary and storm sewer pipelines, electrical conduits and lines,

grounding rods and cables, telephone lines, cable television and fiber optic lines, various process pipelines, etc. The plan shall be composed on 8 1/2 inch x 11 inch sheets only. No legal sheets are allowed.

2.1.2 Contents

The plan shall contain as a minimum:

- A cover sheet with the contract title and contract number.
- The company name, address, and telephone number of the Contractor and Project Manager as well as a point of contact for this GIS work.
- The company name, address, and telephone number of the firm performing the survey with the names of the personnel performing the survey.
- A full description of the method to be used for locating all new and altered existing surface and subsurface utilities for the GIS survey.
- The typed or neatly printed name and signature of the Contractor's Project Manager and the Registered Land Surveyor stamping the GIS work.

2.2 SURVEY REPORT

2.2.1 Physical Description

The report shall describe the companies and persons involved with the GIS work required by this specification section as well as providing information on what equipment was used to perform the survey. The report shall be compiled such that it is in one bound unit that may be filed in a standard file cabinet. The report shall be composed on 8 1/2 inch x 11 inch sheets only. No legal sheets are allowed.

2.2.2 Contents

The report shall include as a minimum:

- A cover sheet with the contract title and contract number.
- The company name, address, and telephone number of the firm performing the survey with the names of the personnel performing the GIS survey.
- The date(s) that the GIS survey was performed.
- The make and model of the hardware used to perform the survey.
- The method of data collection with the name and version of the data collection software.
- A hard copy of the field data.
- The company name, address, and telephone number of the firm providing the CADD file with the names of persons creating the file.

- A copy of the Buried Utility Location Plan.

2.3 GIS CADD FILE(S)

2.3.1 Drafting Standards

All CADD files shall be prepared in accordance with IHDIV-NSWC GIS-DG provided as Appendix A at the end of this specification section.

2.3.2 Media

The CADD file(s) shall be submitted on 3 1/2 inch HD diskettes (1.44 MB formatted). The diskettes shall become the property of the Government (IHDIV-NSWC) at each submission.

2.3.3 Format

The CADD files shall be provided in the AutoCad (.DWG) R-12 or later version format only. The files shall be read and utilized without conversion or reprocessing with the exception of archiving.

2.3.4 Archiving

The CADD files may be archived for convenience and for space limitations. The files shall be archived using PKZIP software, and shall be able to be unarchived using PKUNZIP. No other means of archival is allowed. A copy of the same version of PKZIP and PKUNZIP used to zip the files shall be included with the zipped files.

2.3.5 Scale

The CADD files shall all be done at FULL scale. The scale is 1.0 (1'-0" = 1'-0").

2.3.6 Orientation

Each CADD file shall be oriented such that all items are located at their true SPCS coordinates. The coordinates shall be in the U.S. Foot measurement using Northing and Easting Coordinates consistent with the State Plane Coordinate System (SPCS) for the State of Maryland (NAD 83). The files shall be oriented such that North is at the top of the screen.

2.3.7 Vector Graphics

The CADD files shall be in vector form only. The files shall be created using vector entities. The use of scanned or digitized files is not allowed. The use of files that have been vectorized from hand drawn, scanned, or digitized drawings is not allowed.

2.3.8 Plot Files

The plot file shall be provided on a 3 1/2 inch HD diskette for each F-Size plot, and shall be identical to the plot of each CADD files submitted.

2.3.9 Multiple Sites

If the project has multiple sites, a separate CADD file shall be made for each site.

2.3.10 Drawing Border and Title Block

The border and title block will be provided by the Government on a 3 1/2 inch diskette.

2.4 F-SIZE PLOT

2.4.1 Description

The Contractor shall provide one mylar reproducible hard copy F-Size plot and four (4) blueprint copies of all new and altered existing surface and subsurface items as a result of this project including all addendums, change orders, and modifications. The plot shall be oriented such that North is at the top of the sheet. All copies required by submittal shall be made from the mylar reproducible from the same submission. The border and title block will be provided by the Government on a 3 1/2 inch diskette.

2.4.2 Items Required on the Plot

The following items shall be included on the plan in addition to the GIS plan:

- The border and title block as provided by the Government.
- The contract number and title.
- The date the CADD file was plotted.
- The scale of the plot and a graphic scale of the scale used to plot the drawing.
- A North arrow.
- A legend of items indicated on the GIS plan.
- The control points used for the survey and their Northing and Easting coordinates and elevations (each point shall be located at its true SPCS location).
- The name and address of the Contractor's firm.
- The name and address of the firm performing the post-construction survey.
- The name and address of the firm producing the GIS CADD file.
- The name and signature of the person preparing the CADD file and plot.
- The stamp and signature of the Registered Land Surveyor (physical imprint on the mylar reproducible only).

2.4.3 Multiple Sites

If the project has multiple sites, a separate F-size sheet shall be made for each site.

PART 3 EXECUTION

3.1 BURIED UTILITY LOCATION PLAN

3.1.1 Procedure

The Buried Utility Location Plan shall be prepared by the Contractor with input from the Contractor's surveyor. The Contractor shall prepare and submit the Buried Utility Location Plan prior to performing any construction work.

3.2 GIS SURVEY

3.2.1 Description

A survey shall be performed by the Contractor to horizontally and vertically locate all new and altered existing surface and subsurface items installed as a result of this contract. The Contractor shall locate all items required by all disciplines of the contract and as required by all change orders, addendums, and modifications. This includes all new or altered underground utilities including, but not limited to, fresh and river water pipelines, sanitary and storm sewer pipelines, electrical conduits and lines, grounding rods and cables, telephone lines, cable television and fiber optic lines, and various process pipelines, etc.

3.2.2 Procedure

The survey shall be performed with a total station. The survey shall initiate at any primary or secondary combined (horizontal and vertical) control point near the construction site and backside one other primary or secondary combined control point in order to provide the correct coordinates, elevations, and orientation. Available control points in the area will be indicated to the surveyor prior to the survey. Should additional turning points be required to complete the survey, a set-up on any other secondary combined control point may be used, or single turning points may be set from these primary or secondary control points. Any number of single turning points, that have been established from a primary or secondary combined control point, may be used to complete the survey. Should it be necessary to set additional turning points due to inaccessible areas, an open and traverse and level run shall be performed that extends from one existing primary or secondary control point to another with a minimum error of closure of 1/5000. Documentation of the open-end traverse and level run shall be included in the survey report.

3.2.3 Horizontal Location Standards

3.2.3.1 Surface and Subsurface Items

Horizontally locate all new or altered existing surface and subsurface items to 0.10 foot of their true SPCS coordinates.

3.2.4 Typical Horizontal Items

The survey shall include, but not be limited to:

3.2.4.1 Corners and Edges

Buildings, pads, dikes, tanks, structures, pavements, roads, parking areas, walks, woodlines, piers, walls, ponds, marshes, rivers, exposed portions of footings. Buildings shall be located at the corners of the building, not

the corners of rooflines. Items indicated with edges such as woodlines, roads, ponds, and shorelines, shall be surveyed such that they provide a reasonable degree of accuracy, to meet the intent of this specification. Woodlines shall be surveyed at the tree-dripline. When shorelines subject to tidal action are required to be surveyed, the shoreline shall be indicated at the Mean High Water (MHW) elevation of 1.42 feet.

3.2.4.2 Lines and Centerlines

Utility lines and pipelines, ditches, fences, overhead transmission lines, steam and air lines, cable trays.

3.2.4.3 Point Entities

Identify the following using symbols: valves, hydrants, poles, ground test pockets, stanchions, signs, trees.

3.2.5 Vertical Location Standards

The survey shall include, but not be limited to:

3.2.5.1 Elevated Items

The elevation of platform decks, top of masts, top of roofs, top of exhaust stacks. The elevation of overhead transmission lines, steam and air lines, and cable trays is not required.

3.2.5.2 Surface Items

The Contractor shall indicate the elevation of all new and altered existing surface and subsurface items to 0.10 foot of their true elevation as determined from the IHDIV-NSWC vertical control. Indicate the top and invert elevations of all manholes, catch basin, headwalls, finished floor(s) of buildings, top of slabs, top of curbs, invert of dikes, etc. Indicate the elevation of the top of buried lines at a maximum of 50 feet intervals. Indicate the elevations at all connections to existing utilities, thrust blocks, reducers, changes in direction both horizontally and vertically and terminations.

3.2.5.3 Subsurface Items

The Contractor shall indicate the elevation of all new and altered existing surface and subsurface items to 0.50 feet of their true elevation as determined from the IHDIV-NSWC vertical control.

3.2.6 Topography

The survey shall be performed such that the contours can be indicated in one foot increments with no more than one half contour error at any location. Indicate high and low points with spot elevations.

3.2.7 Utility Material and Sizes

The line size and material type of all new and altered existing subsurface piped utilities shall be indicated on the CADD file and on the F-size plot according to the IHDIV-NSWC GIS-DG.

3.3 GIS CADD FILE

At the completion of the survey the CADD file(s) for each site shall be created. The survey points shall be input into the file at their true SPCS coordinates and all items shall be drawn in at their true SPCS horizontal IHDIV-NSWC GIS-DG.

3.4 F-SIZE PLOT

Upon completion of the CADD file, a mylar reproducible F-size plot shall be made to show the contents of each site. The file shall be plotted at full scale 1"=1" (scale = 1.0). Each site may be shown at any of the following scales: 1" = 10', 20', 30', 40', 50', 100', 200', 300', 400', 1000', 2000'. The plot shall be made such that the GIS plan occupies as much of the page as possible. If extensive GIS plans are required, the use of match lines may be used while maintaining true SPCS coordinates.

3.5 SUBMISSIONS

3.5.1 Buried Utility Location Plan

The Contractor shall prepare and submit four (4) copies of the Buried Utility Location Plan prior to performing any construction work. The plan shall not be considered as an acceptable means of location until approved by the Contracting Officer.

3.5.2 CADD Files and F-Size Plot

3.5.2.1 First Submission

Prepare and submit four (4) copies of the CADD files and F-size plots. Only one mylar reproducible is required per submission. The Contractor shall make the required submission within four weeks after the completion of the post-construction survey.

3.5.2.2 Government Review

The Government shall have two (2) weeks to perform a review of the GIS submissions for compliance with this specification and the IHDIV-NSWC GIS-DG. At the end of two weeks the Contractor shall receive a set of comments detailing the modifications required to be made to the GIS submittals.

3.5.2.3 Government Accuracy Testing

The Government may elect to perform tests to check the accuracy of the post-construction location plan. If the Contractor's plan does not produce results within the indicated accuracy requirements, the Contractor shall perform another survey, correct all errors, and make all necessary changes to reflect the true locations of the individual items at no cost to the Government.

3.5.2.4 Following Submissions

The Contractor shall address all comments indicated by the government. The review process indicated above shall continue until all GIS, Grade-B Post Construction Location submittals are approved by the government. Only when the government approves the GIS submittals shall authorization be made for final payment of the construction contract, notwithstanding other items required by the construction contract.

-- End of Section --

APPENDIX A

INDIAN HEAD DIVISION
NAVAL SURFACE WARFARE CENTER
GEOGRAPHIC INFORMATION SYSTEM/DRAFTING GUIDELINES

ORIGINAL

INDIAN HEAD DIVISION
NAVAL SURFACE WARFARE CENTER

ENGINEERING DESIGN DIVISION
GEOGRAPHIC INFORMATION SYSTEM / DRAFTING GUIDELINES

REVISION 4-3-97 SUPERSEDES ALL PREVIOUS REVISION

NOTE TO USER : *THESE BASIC CADD DRAFTING CRITERIA WERE CREATED TO ELIMINATE THE NEED FOR MULTIPLE REVIEWS DUE TO NON COMPLIANT SUBMISSIONS. THE INDIAN HEAD DIVISION, NAVAL SURFACE WARFARE CENTER (IHD, NSWC) IS ALSO DEDICATED TO IMPLEMENTATION OF THE TRI-SERVICE CADD STANDARDS THAT ARE BEING DEVELOPED AT THIS TIME.*

THESE STANDARDS WILL BE REVIEWED AND MODIFIED AS DEEMED NECESSARY, BY PW ENGINEERING DESIGN DIV. (IHD, NSWC). ALL DRAFTING AND SPECIFICATION PREPARATION SHALL BE IN ACCORDANCE WITH MIL-HANDBOOK "MIL-HDBK-1006/1" ITEMS LISTED IN THIS ENCLOSURE SHALL SUPERSEDE CADD REQUIREMENTS

1. DRAWINGS WILL BE SPOT CHECKED TO ENSURE COMPLIANCE BY CODE 092 PERSONNEL AT SUBMISSION INTERVALS.

2. ALL DRAWINGS SHALL BE DONE IN CADD FORMAT (.DWG) OR (.DGN) FILES

3. ALL DRAWINGS SHALL BE DONE AT FULL SCALE I.E. 1=1, 1.0 .

4. NEW WORK SHALL STAND OUT FROM EXIST BY LINE WEIGHT AS WELL AS BY DESCRIPTION, LINE TYPES SHALL MATCH EXISTING WHERE APPLICABLE.

5. PLOTTED SIZE OF TEXT SHALL BE MIN. OF 1/8 INCH HIGH

6. ALL DRAWINGS , INCLUDING DETAILS SHOULD BE DRAFTED AND PLOTTED AT 1=1.

7. SUBMIT CADD FILES IN DIGITAL FORMAT ON HD DISKETTES AND PLOTS FOR ALL DESIGNS DURING NORMAL REVIEW PROCESS.

8. USE *(IHD, NSWC)* TITLE SHEETS WHICH ARE AVAILABLE IN (.DWG) OR (.DGN) FORMAT

9. USE C2 TERMINOLOGY RATHER THAN SHEET 2 OF 17

ALL SITE PLANS

1. ALL SITE PLANS SHALL MAINTAIN SPCS, NAD83, USFOOT, ZONE 1900 COORDINATES AS PROVIDED ON ORIGINAL TOPO AND PLANIMETRIC FILES, NOTE: IMPROPER MANIPULATION OF ORIGIN WILL DESTROY ORIGINAL COORDINATES.

2. SITE PLANS SHALL BE DONE BY COMBINING GIS FILES WITH NEW AND EXIST UTILITY FILES; SEE ENCLOSURE (1) LAYER FORMAT .

3. MULTIPLE/ INTERDISCIPLINE SITE PLANS MAY BE USED FOR EASE OF DRAFTING BUT MUST BE COMBINED TO FORM A SINGLE FILE FOR GIS PURPOSES.

4. SITE PLANS SHALL BE PLOTTED TO SCALE USING STANDARD CIVIL ENGINEERING SCALES 1"=10', 20', 30', 40', 50', 60', 100', 200', AND 400'

5. GIS PLANIMETRIC, TOPO, REAL ESTATE AND STORM WATER CADD FILES ARE AVAILABLE AND MAY BE USED FOR STORM WATER WAVIER/DESIGN PURPOSES ONLY. IF PLANIMETRIC FILES ARE USED FOR DESIGN PURPOSES THERE ACCURACY SHALL BE VERIFIED BY SURVEY OR FIELD TAPE. (I.E. APPROXIMATELY TO TRUE LOCATION + OR - 15" ,ROOF OVER HANGS WERE USED FOR BUILDING CORNERS.) IF TOPO IS NEEDED FOR DESIGN PURPOSES, A SURVEY SHOULD BE DONE.

6. ALL ITEMS THAT ARE FOUND TO BE INCORRECTLY SHOWN ON GIS PLANIMETRIC OR TOPO FILES SHALL HAVE THIER LOCATION VERIFIED I.E. SURVEYED OR FIELD TAPED, AND SHALL BE NOTED ON THE EXISTING UTILITY FILE WHERE DESCREPENCIES ARE FOUND.

7. GIS FILES SHALL BE CLEANED UP WHEN USED, I.E. DELETE ROOF ELEVATIONS, STORM DRAIN IDENTIFIERS, CHANGE SIZE OF TEXT TO MATCH PLOT SCALE ETC.

SITE PLANS GIS GRADE A

1. DESIGN DRAWINGS MUST SHOW TEMPORARY CONSTRUCTION BASE LINE THAT IS PART OF TRAVERSE. INDICATE COORDINATES AND ELEVATION.

2. LOCATE ALL BUILDING CORNERS AND STRUCTURES.

3. UTILITIES AND MINOR PLANIMETRIC FEATURES DO NOT NEED TO BE LOCATED DURING THE DESIGN PHASE.

4. PROVIDE NOTE ON DRAWINGS THAT CONSTRUCTION CONTRACTOR MUST LOCATE ALL NEW AND EXISTING WORK WITHIN INDICATED GIS LIMITS; SEE *(IHD, NSWC)* GUIDE SPEC. SECTION 02223.

5. INDICATE LIMITS OF GIS GRADE A ACCURACY ON DRAWINGS FOR POST CONSTRUCTION SURVEY.

SITE PLANS GRADE B

1. DESIGN DRAWINGS MUST SHOW TEMPORARY CONSTRUCTION BASE LINE AND INDICATE COORDINATES AND ELEVATIONS. BASE LINE MAY BE TAKEN FROM EXISTING PLANIMETRIC FEATURES IDENTIFIED BY " A & E GEOGRAPHIC INFORMATION SYSTEM GUIDELINES". ELEVATIONS MAY BE TAKEN FROM BUILDING PLANT ACCOUNT DATA OR REAL ESTATE FILE.

2. LOCATE (BY DIMENSIONS) ALL NEW BLDGS, STRUCTURE CORNERS AND ANY ITEMS THAT APPEAR IN THE NEW PLANIMETRIC AND UTILITY FILE.

3. PROVIDE NOTE ON DRAWINGS THAT CONSTRUCTION CONTRACTOR MUST LOCATE ALL NEW WORK . SEE *(IHD, NSWC)* GUIDE SPEC SECTION 02224.

4. AFTER RECEIVING SITE PLAN CONSTRUCTION ASBUILT FROM PROJECT ENGINEER, REDRAW SITE PLAN TO REFLECT PROPER COORDINATES FOR NEW AND EXISTING UTILITY FILES.

5. IF CODE 092 PERSONNEL FIND INCORRECT ITEMS ON PLANIMETRIC OR OTHER ORIGINAL GIS FILES THE ITEM SHOULD BE CORRECTED IN THE EXISTING PLANIMETRIC LAYER OF THE EXISTING UTILITY . IF THESE CORRECTIONS INFLUENCE A&E DESIGNS PRESENTLY UNDER CONTRACT 092 EIC WILL BE NOTIFIED.

FLOOR PLANS AND SECTIONS

1. BUILDING FLOOR PLANS SHOULD BE CONSISTENT BETWEEN ENGINEERING DISCIPLINES AND THE FLOOR PLAN SHALL BE ORIENTED SUCH THAT THE MAIN ENTRANCE IS LOCATED AT THE BOTTOM OF THE SHEET.

2. IF SYMBOLS ARE USED TO REFERENCE NOTES FOR WORK TO BE DONE; THEY SHOULD BE SHOWN ON THE SAME SHEET AS THEY ARE USED.

DETAILS.

1. NEW DETAILS SHALL MEET TRI-SERVICE CADD/GIS TECHNOLOGY CENTERS "GENERIC CADD DETAILS LIBRARY" FORMAT. (SEE ENCLOSURE (2)).

2. NEW DETAILS; IF LARGER THAN 7.36" BY 7.48" SHALL BE IN MULTIPLES OF THIS SIZE.

3. NEW PW STANDARDS SHALL MEET THE REQUIREMENTS OF 1 AND 2 ABOVE.

4. OLD PW STANDARDS SHALL BE RE DRAWN TO MEET THE REQUIREMENTS OF 1 AND 2 ABOVE.CODE 092 PERSONNEL MAY USE PW STANDARDS IN PRESENT FORMAT.

5. AFTER ACCEPTANCE OF FINAL DESIGN, A CADD FILE OF ALL NEW AND CONVERTED PW STANDARDS SHALL BE GIVEN TO CODE 0921 OR 092

DEMOLITION

ALL DEMOLITION WORK SHALL BE IDENTIFIED BY CROSS HATCHING OF THE ITEM TO BE DEMOLISHED, A DEMOLITION LAYER SHALL ALSO BE ADDED TO THE NEW UTILITY FILE.

ABANDONMENT

ALL ABANDONED WORK SHALL BE IDENTIFIED BY PLACING THE ITEM TO BE ABANDONED ON A **ABANDONED** LAYER IN THE EXISTING UTILITY FILE, (ABANDONED ---FW---, ETC)

END OF GUIDELINES --- SEE FILE SYSTEM ATTACHED (2 SHEETS

NEW UTILITY FILE NEWUTIL 11/2/94

Description	Layer #	Line Style	style	thickness	color	COMMENTS
AIR	1	—A—	0	4	5	
ELEC PRIMARY LINE	2	—EPL—	0	4	4	
ELEC SECONDARY LINE	3	—ESL—	0	4	5	
FIRE LOOP LINE	4	—FA—	0	4	7	
FRESH WATER	5	—FW—	0	4	3	
FUEL SUPPLY	6	—FS—	0	4	2	oil tanks /piping
GROUNDING	7	—G—	0	4	2	
HYDROGRAPHY	8		0	4	4	sww structures,erosion control
INDUSTRIAL PROCESS	9		0	4	10	process piping tanks
INDUSTRIAL WASTE	10	—IW—	0	4	2	
LAN LINE	11	—LAN—	0	4	8	
OTHER BURIED ITEMS	12		0	4	7	other buried items not listed
PAD MOUNTED XFMER	13		0	4	3	
PLANIMETERIC FEATURES	14		0	4	7	new items shown on gis planimetaric file
POLE INCL GUY	15		0	4	1	
POLE MOUNTED XFMER	16		0	4	1	pole mounted transformers
REAL ESTATE/SURVEY	17		0	4	2	control points ,. data collector
RIVER WATER	18	—RW—	0	4	1	
SANITARY SEWER	19	—S—	0	4	4	
SOILS	20		0	4	1	soil borings
STEAM	21	—ST—	0	4	6	
STORM SEWER	22	—SW—	0	4	5	
TELEPHONE LINE	23	—T—	0	4	6	
TEXT CIVIL	24		0	2	3	general text
TEXT ELEC.	25		0	2	3	
TEXT MECH.	26		0	2	3	
TOPOGRAPHY	27		0	4	6	contours, spot elev,
UG PRIMARY	28	—UGP—	3	4	4	
UG. SECONDARY	29	—UGS—	3	4	5	

EXISTING UTILITY FILE EXSTUTIL

description	layer #	Line Style	style	thickness	color	COMMENTS
AIR	1	—A—	0	2	5	
LEC PRIMARY LINE	2	—EPL—	0	2	4	
ELEC SECONDARY LINE	3	—ESL—	0	2	5	
FIRE LOOP LINE	4	—FA—	0	2	7	
FRESH WATER	5	—FW—	0	2	3	
FUEL SUPPLY	6	—FS—	0	2	2	oil tanks /piping
GROUNDING	7	—G—	0	2	2	
HYDROGRAPHY	8		0	2	4	sww structures,erosion control
INDUSTRIAL PROCESS	9		0	2	10	process piping tanks
INDUSTRIAL WASTE	10	—IW—	0	2	2	
LAN LINE	11	—LAN—	0	2	8	
OTHER BURIED ITEMS	12		0	2	7	other buried items not listed
PAD MOUNTED XFMER	13		0	2	3	
PLANIMETRIC FEATURES	14		0	2	7	new location items on gis planimetric files
POLE INCL GUY	15		0	2	1	
POLE MOUNTED XFMER	16		0	2	1	pole mounted transformers
REAL ESTATE/SURVEY	17		0	2	2	control points , data collector
RIVER WATER	18	—RW—	0	2	1	
SANITARY SEWER	19	—S—	0	2	4	
SOILS	20		0	2	1	soil borings
STEAM	21	—ST—	0	2	6	
STORM SEWER	22	—SW—	0	2	5	
TELEPHONE LINE	23	—T—	0	2	6	
TEXT CIVIL	24		0	2	3	
TEXT ELEC.	25		0	2	3	
TEXT MECH.	26		0	2	3	
TOPOGRAPHY	27		0	2	6	contours, spot elev,
UG PRIMARY	28	—UGP—	3	2	4	
UG. SECONDARY	29	—UGS—	3	2	5	

2 Generic Details Library

Library Creation

"Evolution" is the best description of the process for incorporating the suggested format for creating generic details. Agencies currently developing detail libraries are encouraged to begin incorporating the format into their daily design efforts, not to attempt a complete revamping of their existing detail libraries. As project-specific details are created, they should be included into the agencies' detail library and submitted to the TSTC for inclusion into the DoD-wide master set. By no means should the Generic Details Library ever be considered a completed product. It is only the beginning of what should be a daily routine of adding and revising details for all design disciplines within the Tri-Services.

As more agencies begin developing details in the suggested format, the TSTC will formally request that details be submitted for inclusion into the master set. Once the TSTC has compiled the details, the appropriate Field Working Group will meet to review the submitted details for proper format and applicability prior to field distribution.

Detail Integrity

Although a liability disclaimer covering all the details is included as part of the Generic Details Library, each detail submitted for inclusion into the library should be reviewed by the submitting agency for integrity and compliance with current design criteria. It will be extremely helpful to the TSTC and the Field Working Groups if each detail is properly reviewed prior to submitting it for placement into the Library.

Creating a Detail

Step 1

When developing a detail, draw the detail at full size (1 in. = 1 in.) first. After the detail is graphically complete, but prior to placing text, dimensions, patterning, leader lines, and terminators, the detail should be scaled to the appropriate final size, such as 3 in. = 1 ft - 0 in. (Figure 1). Table 1 lists the common scales, the type of detail to be drawn for each scale, and the factor by which details drawn at full size should be scaled.

Step 2

After scaling, any hatching or patterning should be placed on the detail (Figure 2). This method ensures that the hatching and patterning for all details, regardless of their scale, will be consistent. (Note for MicroStation users: When dimensioning a scaled detail be sure to set "scale dimension"

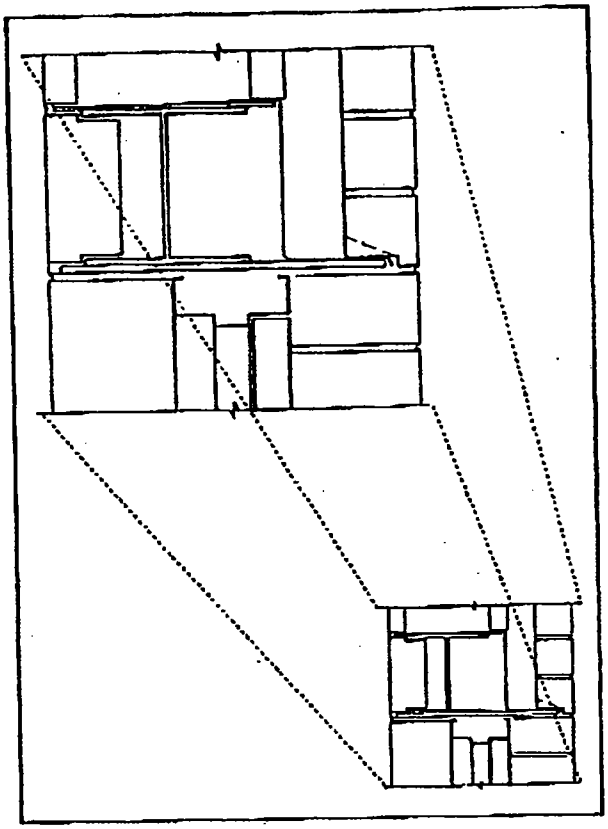


Figure 1. Step 1: draw the detail at full size, then scale per Table 1

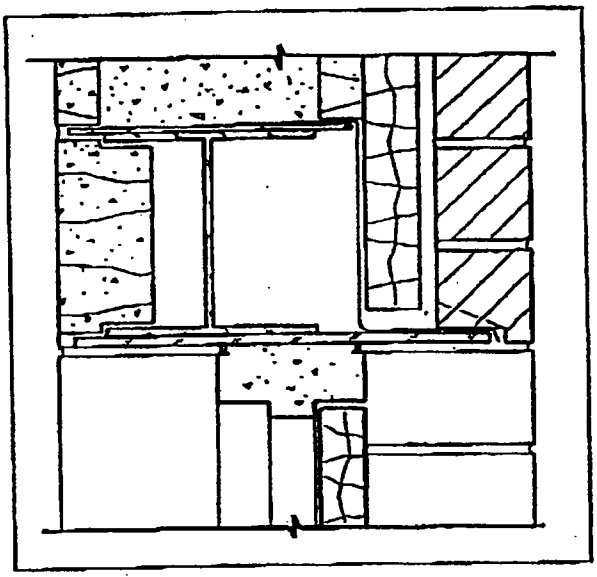


Figure 2. Step 2: add any hatching and patterning to detail

to ensure that the detail will dimension correctly.)

Step 3

To help ensure a consistent visual clarity to the details, the AAFWG has provided the

Table 1
Scaling Factors

Detail Type	Common Scales for Details	Factor by Which a Full-Size Detail Should be Scaled
Details	6 in. = 1 ft - 0 in.	6.00
Details	3 in. = 1 ft - 0 in.	3.00
Details	1-1/2 in. = 1 ft - 0 in.	1.50
Details	1 in. = 1 ft - 0 in.	~~1.00~~ 12.00
Wall Sections	3/4 in. = 1 ft - 0 in.	0.75
Wall Types	1/2 in. = 1 ft - 0 in.	0.50
Large-Scale Plans	1/4 in. = 1 ft - 0 in.	0.25
Floor/Ceiling Plans	1/8 in. = 1 ft - 0 in.	0.125
Composite/Roof Plans	1/16 in. = 1 ft - 0 in.	0.0625

standard detail layout (provided as a cell or block) shown in Figure 3. To utilize the layout form when creating a detail, the designer should place the layout form over the detail at the active scale "as = 1." Once properly positioned and placed over the detail, add the text, leaders, line terminators, and title to the detail as noted on the layout form. Level/layer assignments are listed in Table 2.

Step 4

Once the detail is complete, delete the layout cell/block (Figure 4). The completed detail will then conform to the AAFWG's standard detail size of 187 mm (7.36 in.) by 190 mm (7.48 in.). It is understood that not all details will fit into this typical detail layout (at the scale intended), but this format should be used to the extent possible. For those exceptions, the use of multiple 187-mm by 190-mm grids is encouraged.

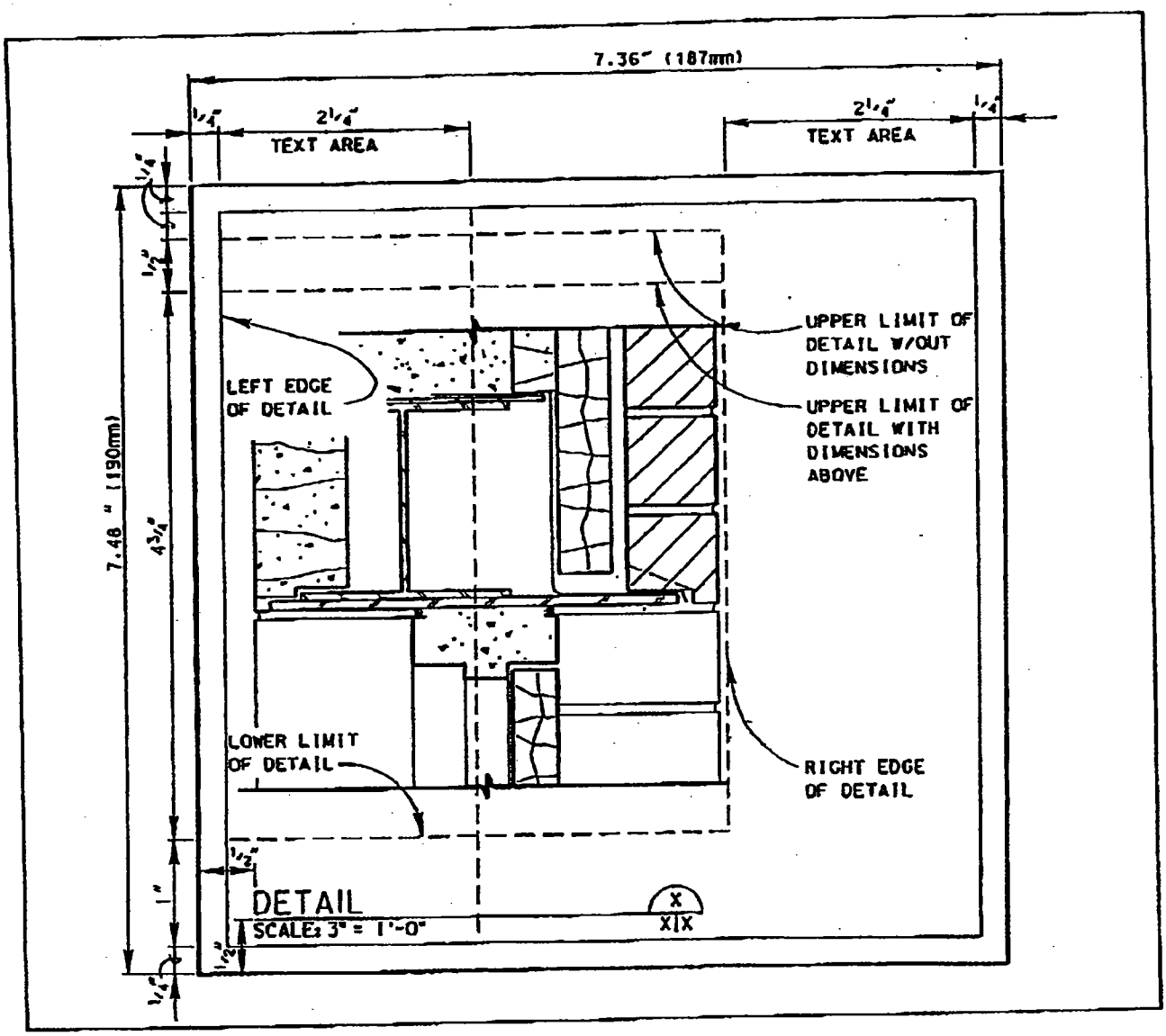


Figure 3. Step 3: position the layout.cel/dwg over the detail and add text, dimensions, leader lines, titles, and line terminators

Table 2
Layer Assignments

Level/Layer	Description
A-DETL-TEXT	Notes, Text, & Dimension Text
A-DETL-SYMB	Symbols, Bubbles, etc.
A-DETL-DIMS	Dimension Linework
A-DETL-NPLT	Sheet Grid
A-DETL-LW10	Detail Linework
A-DETL-LW25	Detail Linework
A-DETL-LW35	Detail Linework
A-DETL-LW50	Detail Linework
A-DETL-LW70	Detail Linework
A-DETL-PATT	Pattern/Hatch

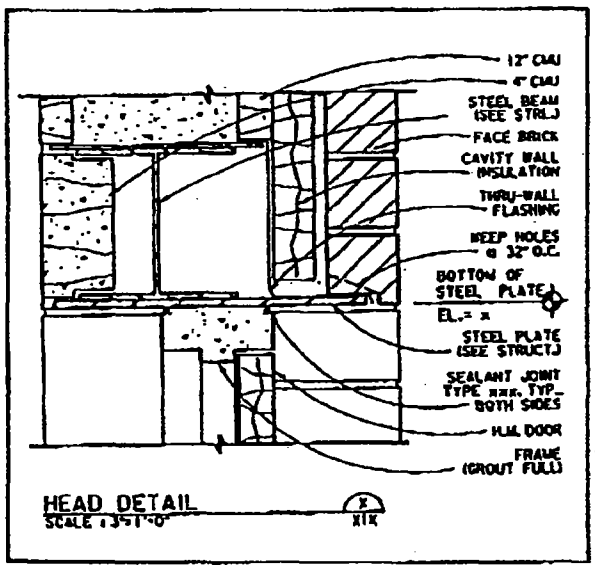


Figure 4. Step 4: remove layout.cel/block to complete

Standard Graphics/Terminology

All graphics and detail terminology should be represented in a consistent manner for detail uniformity and graphic quality. Graphic symbology conventions (including line styles and patterning) used in creating generic details should conform to the material representations as shown in the Architectural Engineering Instructions (AEI) manual *Design Criteria* and/or Engineer Manual EM 1110-1-1807.

Abbreviations

Abbreviations for words or phrases frequently used on the details should be as noted in Appendix A. When possible, abbreviations should be kept to a minimum. Other abbreviations, particularly discipline-unique abbreviations, may be used but must not conflict with those in Appendix A.

Levels/layers

Level/layer separation of the various graphic elements within a detail is necessary to ensure the easy manipulation of details by subsequent users. All details should adhere to the layer assignments in Table 2.

Line widths/weights

The primary purpose of line widths/weights is to provide a drawing with visual depth and clarity or, in some CADD systems, to determine plotted line widths. To accommodate both MicroStation and AutoCAD and to ensure easy translations between systems, line widths (weights) will be determined as specified in the next section, "Color."

Color

Although final drawings are most often plotted in black and white, colors are prescribed for details to aid the designer in drawing and/or manipulating the details on a computer monitor. To accommodate CADD systems where line color dictates plotted line widths, colors should adhere to Table 3.

Text

The text style for generic details shall be Intergraph's Font 1 as supplied with MicroStation. For AutoCAD users, the "Romans" text style should be used to ensure easy translation between systems. Text for detail notes should be placed at a height of 1-1/2 in. Detail titles should be placed at 2-1/2 in.

Detail naming

For the master set of details, the Construction Specification Institute/Construction Specifications Canada (CSI/CSC) UniFormat-based naming system has been developed. The format for naming individual detail drawing files should follow the eight-character format shown in Figure 5.

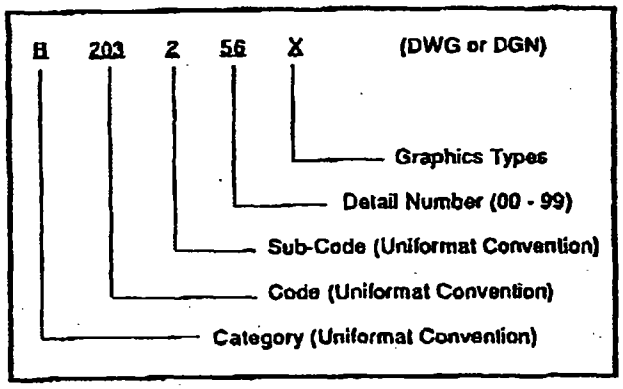


Figure 5. Naming convention. Note: A full listing of Uniformat catagories and codes is outlined in Section 5, Index of Details

Table 3
Color/Line Width Guidelines

Layer Name	Color	AutoCAD Color #	MicroStation Color #	Line/Pen Width
A-DETL-LW10	Cyan	4	7	0.10 mm/0.004 in.
A-DETL-LW25	White	7	0	0.25 mm/0.010 in.
A-DETL-LW35	Yellow	2	4	0.35 mm/0.014 in.
A-DETL-LW50	Magenta	6	5	0.50 mm/0.020 in.
A-DETL-LW70	Blue	5	1	0.70 mm/0.028 in.
A-DETL-TEXT	Green	3	2	0.35 mm/0.014 in.
A-DETL-SYMB	Yellow	2	4	0.35 mm/0.014 in.
A-DETL-DIMS	Cyan	4	7	0.10 mm/0.004 in.
A-DETL-NPLT	Red	1	3	0.10 mm/0.004 in.
A-DETL-PATT	Cyan	4	7	0.10 mm/0.004 in.

SECTION 02315N

EXCAVATION AND FILL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 136	(1996; Rev. A) Sieve Analysis of Fine and Coarse Aggregates
ASTM D 698	(1991; R 1998) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft (600 kN-m/m))
ASTM D 1140	(1997) Amount of Material in Soils Finer Than the No. 200 (75-Micrometer) Sieve
ASTM D 1556	(1990; R 1996) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(1991; R 1998) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft (2,700 kN-m/m))
ASTM D 2487	(1998) Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2922	(1996) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(1996) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
ASTM D 4253	(2000) Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
ASTM D 4254	(2000) Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density
ASTM D 4318	(1998) Liquid Limit, Plastic Limit, and Plasticity Index of Soils

U.S. DEPARTMENT OF AGRICULTURE (USDA)

USDA FSA	(January 1985) Federal Seed Act Rules and Regulations of the Secretary of Agriculture

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA SW-846	(1986) Evaluating Solid Waste (Physical/Chemical Methods)
EPA 600/4-79-020	(1983) Methods for Chemical Analysis of Water and Wastes

MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE)

MDE SESC	(1994) Standards and Specifications for Soil Erosion and Sediment Control

MARYLAND STATE HIGHWAY ADMINISTRATION (MD SHA)

MD SHA CM	(1993) Construction and Materials

1.2 DEFINITIONS

1.2.1 Regulatory Requirements

Provide work and materials in accordance with applicable requirements of MD SHA CM. Divisions and sections mentioned herein refer to those specifications. Paragraphs in MD SHA CM entitled "Measurement and Payment," shall not apply.

1.2.2 Modification of Reference

Where term "Engineer" is used in MD SHA CM it shall be construed to mean Contracting Officer. Where term "Administration" is used, it shall mean Government.

1.2.3 Contaminated Soil Removal

Soil and waste located in the indicated areas may be contaminated with PCBs, PAHs and inorganics (metals) above the Preliminary Remediation Goals (PRGs). The Navy has requested and the ROD requires the removal of the contaminated soil, as indicated for off-site disposal as contaminated material. Excavated contaminated soil is to be dewatered on-site, when required, for transportation and disposal as a solid material.

1.2.4 Cohesive Materials

Materials ASTM D 2487 classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesive only when the fines have a plasticity index greater than zero.

1.2.5 Cohesionless Materials

Materials ASTM D 2487 classified as GW, GP, SW, and SP. Materials classified as GM and SM will be identified as cohesionless only when the fines have a plasticity index of zero.

1.2.6 Stand of Turf

95 percent ground cover of the established species.

1.2.7 Pesticide

Pesticide means soil fumigants, herbicides, insecticides, and fungicides.

1.3 SUBMITTALS

Submit the following in accordance with Section C of the basic contract.

SD-06 Test Reports

Borrow Site Testing

Common fill test

Select fill test

Topsoil

Density tests

SD-07 Certificates

Excavation and handling work plan

Dewatering work plan

1.3.1 Excavation and Handling Work Plan

Provide within 15 calendar days of issuance of the delivery order, and before procurement, fabrication, or mobilization. No work at the site, with the exception of site inspections, clearing and grubbing, and surveys, shall be performed until this Work Plan is approved. Allow 15 calendar days in the schedule for the Government's review. At a minimum, the Work Plan shall include the following elements as specified in Section 01115N, "General Paragraphs (Remedial Action Contracts)."

a. Schedule of activities.

b. Method of excavation and equipment to be used.

c. Method of compaction and equipment to be used.

d. Excavation dewatering plan.

e. Dewatering of excavated impacted soil for off-site disposal.

f. Storage methods and locations for liquid and solid contaminated material.

g. Decontamination procedures.

h. Spill contingency plan.

1.4 CRITERIA FOR PROPOSAL

Base proposals on the following criteria:

a. Surface elevations are as indicated.

b. Pipes or other artificial obstructions, except those indicated, will not be encountered.

c. Ground water elevations indicated by the boring logs and groundwater monitoring well logs were those existing at the time subsurface investigations were made and do not necessarily represent ground water elevation at the time of construction. Logs are provided in Appendix A of the Basis of Design Report. Drawing elevations reference National Geodetic Vertical Datum, 1929 (NGVD1929).

d. Blasting will not be permitted. Remove material in an approved manner.

1.5 REQUIREMENTS FOR OFF SITE SOIL

Soils and aggregates brought in from off-site shall be tested for full TCLP including ignitability, corrosivity and reactivity and shall contain less than 100 parts per million (ppm) of total petroleum hydrocarbons (TPH) and less than 10 ppm of the sum of Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) and shall not fail the TCLP test. TPH concentrations shall be determined by using EPA 600/4-79-020 Method 418.1. BTEX concentrations shall be determined by using EPA SW-846 Method 5030/8020. TCLP shall be performed in accordance with EPA SW-846 Method 1311. Provide Borrow Site Testing for TPH, BTEX and TCLP from a composite sample of material from the borrow site, with at least one test from each borrow site. Material shall not be brought on site until tests have been approved by the ROICC NTR.

1.5.1 Seed Protection

Protect from drying out and from contamination during delivery, on-site storage, and handling.

1.5.2 Fertilizer and Lime Delivery

Deliver to the site in original, unopened containers bearing manufacturer's chemical analysis, name, trade name, or trademark, and indication of conformance to state and Federal laws. Fertilizer and lime may be furnished in bulk with a certificate indicating the above information.

1.5.3 Pesticide Delivery

Deliver to the site in original unopened containers with legible label indicating EPA registration number and manufacturer's registered uses.

1.5.4 Storage

1.5.4.1 Lime, Fertilizer, and Mulch Storage

Store in dry locations away from contaminants.

1.5.4.2 Pesticides Storage

Do not store with other landscape materials.

1.5.4.3 Seed, Fertilizer and Lime Storage

Store in cool, dry locations away from contaminants.

1.5.4.4 Topsoil

Prior to stockpiling topsoil, treat growing vegetation with application of appropriate specified non-selective postemergence herbicide. Clear and grub existing vegetation three to four weeks prior to stockpiling topsoil.

1.6 TIME RESTRICTIONS AND PLANTING CONDITIONS

1.6.1 Planting Dates

Planting dates as indicated. Planting outside these time periods may be acceptable depending on specific conditions at the site. However, planting outside these periods shall be conducted only after the approval by the Contracting Officer.

1.6.2 Restrictions

Do not plant when ground is frozen, snow covered, or when air temperature exceeds 95 degrees F.

1.6.3 Seed

Apply seed within twenty four hours after seed bed preparation.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

Free of debris, roots, wood, scrap material, vegetation, refuse, soft unsound particles, and frozen, deleterious, or objectionable materials. Unless specified otherwise, the maximum particle diameter shall be one-half the lift thickness at the intended location.

2.1.1 Common Fill Material

Off-site borrow. ASTM D 2487, classification GW, GP, GM, GC, SW, SP, SM, SC with a maximum ASTM D 4318 liquid limit of 35, maximum ASTM D 4318 plasticity index of 12, and a maximum of 25 percent by weight passing ASTM D 1140, No. 200 sieve.

2.1.2 Topsoil

Medium texture (loam, sandy loam, loamy sand, silt loam, or silt) contain from 5.0 to 8.0 percent organic matter, have pH between 6.0 and 7.5, and soluble salts less than or equal to 500 ppm.

Test for USDA classification, organic content, pH, soluble salts, nitrogen, phosphorous, and potassium by a recognized commercial laboratory.

2.1.3 Select Fill

ASTM D 2487, classification SM, SC, or ML with a maximum particle size of 3 inches.

2.1.4 Coarse Aggregate

MD SHA CM, Section 901, Bank Run Gravel, Graded Aggregate, or equivalent clean free-draining coarse aggregate subject to approval of the ROICC NTR.

2.2 BORROW

Obtain borrow materials required in excess of those furnished from excavations from sources outside of Government property.

2.3 BURIED WARNING AND IDENTIFICATION TAPE

Polyethylene plastic and metallic core or metallic-faced, acid- and alkali-resistant, polyethylene plastic warning tape manufactured specifically for warning and identification of buried utility lines. Provide tape on rolls, 3 inch minimum width, color coded as specified below for the intended utility with warning and identification imprinted in bold black letters continuously over the entire tape length. Warning and identification to read, "CAUTION, BURIED (intended service) LINE BELOW" or similar wording. Color and printing shall be permanent, unaffected by moisture or soil.

Warning Tape Color Codes

Yellow:	Electric
Orange:	Telephone and Other Communications
Blue:	Water Systems
Green:	Sewer Systems
Gray:	Compressed Air

2.3.1 Warning Tape for Metallic Piping

Acid and alkali-resistant polyethylene plastic tape conforming to the width, color, and printing requirements specified above. Minimum thickness of tape shall be 0.003 inch. Tape shall have a minimum strength of 1500 psi lengthwise, and 1250 psi crosswise, with a maximum 350 percent elongation.

2.3.2 Detectable Warning Tape for Non-Metallic Piping

Polyethylene plastic tape conforming to the width, color, and printing requirements specified above. Minimum thickness of the tape shall be 0.004 inch. Tape shall have a minimum strength of 1500 psi lengthwise and 1250 psi crosswise. Tape shall be manufactured with integral wires, foil backing, or other means of enabling detection by a metal detector when tape is buried up to 3 feet deep. Encase metallic element of the tape in a protective jacket or provide with other means of corrosion protection.

2.4 DETECTION WIRE FOR NON-METALLIC PIPING

Detection wire shall be insulated single strand, solid copper with a minimum of 12 AWG.

2.5 pH ADJUSTERS

Lime as indicated.

2.6 FERTILIZER

Requirements for temporary and permanent seeding as indicated.

2.7 SOIL CONDITIONERS

MDE SESC, Section 21 for permissible soil conditioners or as otherwise specified.

2.8 SURFACE TOPDRESSING

Mulches as indicated.

2.9 SEEDS

2.9.1 Classification

Provide State-certified seed of the latest season's crop delivered in original sealed packages, bearing producer's guaranteed analysis for percentages of mixtures, purity, germination, weed and seed content, and inert material. Label in conformance with USDA FSA and MDE SESC. Wet, moldy, or otherwise damaged seed will be rejected. Field mixes will be acceptable when field mix is performed on site in the presence of the Contracting Officer.

2.9.2 Composition

MDE SESC Section 20 or as otherwise specified.

2.9.3 Seed Mixture

2.9.3.1 Permanent Seed Mixture

As indicated.

2.9.3.2 Temporary Seed Mixture

As indicated.

2.10 PESTICIDES AND FERTILIZERS

All pesticides and fertilizers proposed for use must be approved by the Contracting Officer prior to application.

2.10.1 Pesticide Ingredients

Use herbicides containing the only active ingredient of glyphosate.

2.11 WATER

Suitable quality for irrigation.

2.12 MULCH

All mulch used shall be approved by the Contracting Officer prior to application and shall comprise shredded woody material free of stones and other foreign material.

PART 3 EXECUTION

3.1 SURFACE PREPARATION

3.1.1 Clearing and Grubbing

Unless indicated otherwise, remove trees, stumps, logs, shrubs, and brush within the area of construction. Remove stumps entirely. Grub out matted roots and roots over 2 inches in diameter to at least 18 inches below existing surface unless otherwise indicated. Chip and dispose of grubbed

materials at an approved facility.

3.1.2 Proof Rolling

Proof rolling shall be done on an exposed subgrade free of surface water (wet conditions resulting from rainfall) which would promote degradation of an otherwise acceptable subgrade. Proof roll the exposed subgrade with six passes of a 15-ton, pneumatic-tired roller or equivalent subject to approval of the ROICC NTR. Operate the equipment in a systematic manner to ensure the number of passes over all areas, and at speeds between 2 1/2 to 3 1/2 miles per hour. Notify the ROICC NTR a minimum of 3 days prior to proof rolling. Proof rolling shall be performed in the presence of the ROICC NTR. Rutting or pumping material shall be undercut as directed by the ROICC NTR and replaced with common fill.

3.2 PROTECTION

3.2.1 Drainage and Dewatering

Provide for the collection, treatment, and disposal when required of surface and subsurface water encountered during construction. Submit a dewatering work plan. On-site treatment, when required, shall be the preferred method if economics prove on-site treatment is more cost effective than off-site disposal.

3.2.1.1 Drainage

So that construction operations progress successfully, completely drain construction site during periods of construction to keep soil materials sufficiently dry. The Contractor shall establish/construct storm drainage features at the earliest stages of site development, and throughout construction grade the construction area to provide positive surface water runoff away from the construction activity and/or provide temporary ditches, swales, and other drainage features and equipment as required to maintain dry soils. When unsuitable working platforms for equipment operation and unsuitable soil support for subsequent construction features develop, remove unsuitable material and provide new soil material as specified herein. It is the responsibility of the Contractor to assess the soil and groundwater conditions presented by the plans and specifications and to employ necessary measures to permit construction to proceed.

3.2.1.2 Dewatering

Groundwater flowing toward or into excavations shall be controlled to prevent sloughing of excavation slopes and walls, boils, uplift and heave in the excavation and to eliminate interference with orderly progress of construction. French drains, sumps, ditches or trenches will not be permitted within 3 feet of the foundation of any structure, except with specific written approval by the ROICC NTR, and after specific contractual provisions for restoration of the foundation area have been made. Control measures shall be taken by the time the excavation reaches the water level in order to maintain the integrity of the in situ material. While the excavation is open, the water level shall be maintained continuously, at least one feet below the working level or to the depth required to provide a safe excavation, stable working surface, stable side slopes, and to permit verification sampling, when required. Perform all dewatering activities in accordance with MDE SESC.

Operate dewatering system continuously until construction work below

existing water levels is complete. All water shall be containerized and tested to determine proper disposal requirements, when required.

3.2.2 Underground Utilities

Location of the existing utilities indicated is approximate. The Contractor shall physically verify the location and elevation of the existing utilities indicated prior to starting construction. The Contractor shall contact the ROICC NTR for assistance in locating existing utilities. The Contractor shall scan the construction site with electromagnetic and sonic equipment and mark the surface of the ground where existing underground utilities are discovered.

3.2.3 Machinery and Equipment

Movement of construction machinery and equipment over pipes during construction shall be at the Contractor's risk. Repair, or remove and provide new pipe for existing or newly installed pipe that has been displaced or damaged.

3.3 EXCAVATION

Excavate to contours, elevation, and dimensions indicated. Reuse excavated materials that meet the specified requirements for the material type required at the intended location. Keep excavations free from water. Excavate soil disturbed or weakened by Contractor's operations, soils softened or made unsuitable for subsequent construction due to exposure to weather. Refill with common fill and compact to 95 percent of ASTM D 698 maximum density unless indicated otherwise. Refill excavations cut below indicated depth with common fill material and compact to 95 percent of ASTM D 698 maximum density unless otherwise indicated.

3.4 FILLING AND BACKFILLING

Fill and backfill to contours, elevations, and dimensions indicated. Compact each lift before placing overlaying lift.

3.4.1 Common Fill Placement

Provide for general site as indicated. Place in 6 inch loose lifts. Compact areas not accessible to rollers or compactors with mechanical hand tampers. Aerate material excessively moistened by rain to a satisfactory moisture content. Finish to a smooth surface by blading, rolling with a smooth roller, or both.

3.4.2 Select Fill Placement

Place in 8-inch loose lifts. Compact area not accessible to rollers or compactors with mechanical hand tampers. Aerate material excessively moistened by rain to a satisfactory moisture content. Finish to a smooth surface by blading, rolling with a smooth roller, or both.

3.4.3 Coarse Aggregate Placement

Provide for depth interval where it is impractical to assure the water level is maintained in accordance with paragraph entitled "Dewatering" subject to approval of the ROICC NTR. Place in 1-foot lifts.

3.5 BURIED WARNING AND IDENTIFICATION TAPE

Provide buried utility lines with utility identification tape. Bury tape 12 inches below finished grade; under pavements and slabs, bury tape 6 inches below top of subgrade.

3.6 BURIED DETECTION WIRE

Bury detection wire directly above non-metallic piping at a distance not to exceed 12 inches above the top of pipe. The wire shall extend continuously and unbroken, from manhole to manhole. The ends of the wire shall terminate inside the manholes at each end of the pipe, with a minimum of 3 feet of wire, coiled, remaining accessible in each manhole. The wire shall remain insulated over it's entire length. The wire shall enter manholes between the top of the corbel and the frame, and extend up through the chimney seal between the frame and the chimney seal. For force mains, the wire shall terminate in the valve pit at the pump station end of the pipe.

3.7 SAMPLING

Sampling and analysis of stored material and liquid in accordance with Section 02223, "Transportation and Disposal of Contaminated Material."

3.8 COMPACTION

Expressed as a percentage of maximum dry density. Determine in-place density of existing subgrade; if required density exists, no compaction or proof-rolling of existing subgrade will be required.

3.8.1 General Site

Compact underneath areas designated for vegetation and areas outside the 5 foot line of the structure to 85 percent of ASTM D 698.

3.8.2 Common Fill and Select Fill

Compact to 95 percent of ASTM D 698 unless otherwise indicated.

3.8.3 Paved Areas

Compact top 12 inches of subgrades to 97 percent of ASTM D 1557. Compact MD SHA graded aggregate base to a minimum of 97 percent of ASTM D 1557 or 70 percent relative density in accordance with ASTM D 4253 and ASTM D 4254.

Compact bituminous concrete pavement materials in accordance with Section 02742N, "Pavement With A Bituminous Concrete Surface."

3.8.4 Coarse Aggregate Fill Areas

Compact coarse aggregate with bucket of hydraulic excavator subject to the approval of the ROICC NTR.

3.9 FINISH OPERATIONS

3.9.1 Grading

Finish grades as indicated within one-tenth of one foot. Grade areas to drain water away from structures. For existing grades that will remain but which were disturbed by Contractor's operations, grade as directed by the ROICC NTR.

3.9.2 Vegetated Areas

Provide soil preparation, fertilizing, seeding, and topdressing of all newly graded finished earth surfaces, unless indicated otherwise, and at all areas inside or outside the limits of construction that are disturbed by the Contractor's operations.

3.9.3 Soil Preparation

After areas have been brought to finish subgrade elevation, thoroughly till to minimum depth of 6 inches by scarifying, discing, harrowing, or other methods approved by the ROICC NTR. Remove debris and stones larger than one inch in any dimension remaining on surface after tillage. Spread stockpiled topsoil evenly to provide positive drainage. Provide off-site topsoil to meet indicated finish grade. Do not spread topsoil when frozen or excessively wet or dry. Correct irregularities in finished surfaces to eliminate depressions. Protect finished prepared topsoil areas from damage by vehicular or pedestrian traffic.

After areas have been brought to indicated finish grade, incorporate fertilizer, pH adjusters and topsoil conditioners as indicated by discing, harrowing, tilling or other method approved by the ROICC NTR. Remove debris and stones larger than one inch in any dimension remaining on the surface after tillage. Correct irregularities in finished surfaces to eliminate depressions. Protect finished topsoil areas from damage by vehicular or pedestrian traffic.

3.9.3.1 pH Adjuster Application Rates

Apply pH adjuster at rates as determined by laboratory soil analysis of the topsoil as indicated.

3.9.3.2 Soil Conditioner Application Rates

Apply topsoil conditioners at rates as determined by laboratory soil analysis of the topsoil as indicated.

3.9.3.3 Fertilizer Application Rates

Apply fertilizer at rates as determined by laboratory soil analysis of the topsoil as indicated.

3.9.4 Seeding

3.9.4.1 Seed Application Seasons and Conditions

Immediately before seeding, restore topsoil to proper grade and thoroughly moisten topsoil. Do not seed when ground is muddy, frozen, snow covered or in an unsatisfactory condition for seeding. If special conditions exist that may warrant a variance in the above seeding dates or conditions, submit a written request to the ROICC NTR stating the special conditions and proposed variance. Apply seed within twenty four hours after seedbed preparation. Sow seed by approved sowing equipment as indicated.

3.9.4.2 Seed Application Method

As indicated.

3.9.4.3 Surface Topdressing

For seeding methods other than hydroseeding, spread straw over seed bed area as indicated. Take precautionary measures to prevent topdressing materials from spilling onto pavements, utilities structures, or planter beds. Wood cellulose fiber mulch shall be utilized in conjunction with hydroseeding.

3.9.4.4 Rolling

Immediately after seeding, firm entire area except for slopes in excess of 3H to 1V with a roller not exceeding 90 pounds for each foot of roller width. If seeding is performed with cultipacker-type seeder or by hydroseeding, rolling may be eliminated.

3.9.4.5 Watering

Start watering areas seeded as required by temperature and wind conditions. Apply water for duration and at a rate sufficient to insure topsoil is moist to a depth of 6 inches and topsoil surface is thoroughly wetted without run-off. During the germination process, seed is to be kept actively growing and not allowed to dry out.

3.9.5 Protection of Turf Areas

Immediately after turfing, protect area against traffic and other use.

3.9.6 Restoration

Restore to original condition existing turf areas which have been damaged during turf installation operations.

3.9.7 Maintenance

Maintenance shall begin immediately after planting. Seeded areas shall be protected and maintained until formal acceptance by the ROICC NTR. Maintenance shall consist of watering activities and other necessary operations adequate to ensure the survival of the planted materials and seeded areas for the duration of the maintenance period, as specified in MDE SESC Section 20.

3.9.8 Protection of Surfaces

Protect newly graded areas from traffic, erosion, and settlements that may occur. Repair or reestablish damaged grades, elevations, or slopes.

3.10 DISPOSITION OF SURPLUS MATERIAL

Remove from Government property surplus or other soil material not required or suitable for filling or backfilling, and brush, refuse, stumps, roots, and timber.

3.11 FIELD QUALITY CONTROL

3.11.1 Sampling

Take the number and size of samples required to perform the following tests.

3.11.2 Testing

Perform one of each of the following tests for each material used. Provide additional tests for each source change.

3.11.2.1 Common Fill Material Testing

Test common fill in accordance with ASTM D 698 for moisture density relations, as applicable.

3.11.2.2 Select Fill Testing

Test select material in accordance with ASTM C 136 for conformance to ASTM D 2487 gradation limits; ASTM D 1140 for material finer than the No. 200 sieve; ASTM D 4318 for liquid limit and for plastic limit; and ASTM D 698 for moisture density relations, as applicable.

3.11.2.3 Density Tests

Test density in accordance with ASTM D 1556, or ASTM D 2922 and ASTM D 3017. When ASTM D 2922 and ASTM D 3017 density tests are used, verify density test results by performing an ASTM D 1556 density test at a location already ASTM D 2922 and ASTM D 3017 tested as specified herein. Perform an ASTM D 1556 density test at the start of the job, and for every 10 ASTM D 2922 and ASTM D 3017 density tests thereafter. Test common and select fills each lift at randomly selected locations every 2500 square feet and a minimum of 3 tests per lift per area.

-- End of Section --

SECTION 02525N

MONITORING WELLS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 53	(1996) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A 312/A 312M	(1995; Rev. A) Seamless and Welded Austenitic Stainless Steel Pipes
ASTM C 150	(1997) Portland Cement
ASTM D 1586	(1984; R 1992) Penetration Test and Split-Barrel Sampling of Soils
ASTM D 1587	(1994) Thin-Walled Tube Geotechnical Sampling of Soils
ASTM D 2487	(1998) Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2488	(1993) Description and Identification of Soils (Visual-Manual Procedure)
ASTM D 4397	(1996) Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
ASTM D 5088	(1990) Decontamination of Field Equipment Used at Nonradioactive Waste Sites
ASTM D 5092	(1990; R 1995) Design and Installation of Ground Water Monitoring Wells in Aquifers
ASTM F 480	(1995) Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80
ASTM F 883	(1997) Padlocks

STATE OF MARYLAND CODE OF MARYLAND REGULATION (COMAR)

COMAR 26.04.04	Department of Environment; Regulation of Water Supply, Sewage Disposal, and Solid Waste; Well Construction

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 600-4-89-034	(1989) Handbook of Suggested Practices for the Design and Installation of Groundwater Monitoring Wells
EPA 600/4-79-020	(1983) Methods for Chemical Analysis of Water and Wastes

1.2 DESCRIPTION OF WORK

Abandon existing and provide new monitoring wells including drilling, casing, well screen, gravel packing, grouting, development, monitoring device, and incidental related work complete and ready for operation.

1.3 GENERAL REQUIREMENTS

Each system, including equipment, materials, installation, and performance, shall be in accordance with local, State, and Federal regulations, ASTM D 5092, and EPA 600-4-89-034 except as modified herein. Consider the advisory or recommended provisions to be mandatory, as though the word "shall" has been substituted for the word "should" wherever it appears. Reference to the "Project Representative" and the "Owner" shall be interpreted to mean the ROICC NTR. Mark and secure monitoring wells to avoid unauthorized access and tampering.

1.4 SUBMITTALS

Submit the following in accordance with Section C of the basic contract.

SD-02 Shop Drawings

Well construction

SD-03 Product Data

Well riser

Well screen

Filter pack

Cement/bentonite grout

Bentonite pellet seal

SD-07 Certificates

Well Drilling/Development Material Handling Plan

Field Sampling and Laboratory Testing Plan

Treatment facility permit

Installation Survey Report

Well Development Report

Well Abandonment Report

Borehole Analysis Report

SD-11 Closeout Submittals

Well Construction Permit

1.5 DELIVERY, STORAGE, AND HANDLING

Deliver materials in an undamaged condition. Unload and store with minimal handling. Store materials in on-site enclosures or under protective coverings. Store plastic piping and jointing materials, under cover, out of direct sunlight. Store materials off the ground. Keep insides of pipes and fittings free of dirt and debris. Replace defective or damaged materials with new materials.

1.6 QUALITY ASSURANCE

1.6.1 Required Drawings

Submit well construction drawings showing components and details of well casing, well screen, filter pack, annular seal, and associated items. Drawings shall be prepared by a State certified professional geologist or hydrogeologist, or by a State registered professional civil engineer, hereafter referred to as the Contractor's Professional Consultant (CPC). Drawings shall be sealed.

1.6.2 Well Drilling/Development Material Handling Plan

A material handling plan shall be furnished by the Contractor 15 days prior to initiation of the work that describes phases of dealing with the potentially contaminated soil and groundwater, including the following: a schedule to be employed in the well drilling and development stages, a sequence of operations, the method of drilling and development, material hauling, proposed equipment, handling of the contaminated materials, soil and water testing requirements, and safety precautions and requirements.

1.6.3 Health and Safety Plan (HASP)

Provide in accordance with Section 01115N, "General Paragraphs (Remedial Action Contracts)."

1.6.4 Field Sampling and Laboratory Testing Plan

Describe field sampling methods and quality control procedures. Identify laboratory and laboratory methods to be used for contamination testing. Sample reports shall show sample identification for location, date, time, sample method, contamination level, name of individual sampler, identification of laboratory, and quality control procedures.

1.6.5 Treatment Facility Permit

Verification that the proposed treatment facility is permitted to accept the contaminated materials specified, prior to the start of excavation.

1.6.6 Well Development Report

Provide report, containing the following data for each well: project name and location, well designation, date and time of well installation, date

and time of well development, static water level from top of well casing before development and 24 hours after development, field measurements of pH, temperature, and specific conductivity, depth of well from top of casing to bottom of well, screen length, description of development methodology size/capacity of pump or bailer, pumping rate, and recharge rate.

1.6.7 Well Abandonment Report

Submit a completed well abandonment report to the appropriate state agency after abandonment.

1.6.8 Well Construction Permit

Submit a completed permit application and a proposed method of construction to the appropriate state agency prior to construction of the well. Construction of the wells will not be allowed until an approved Well Construction Permit has been submitted to the ROICC NTR.

PART 2 PRODUCTS

2.1 WELL RISER

2.1.1 PVC Piping

ASTM F 480, Type 1, Grade 1, PVC 12454, NSF wc or NSF pw, Schedule 40, with flush threaded joint fittings. Threaded joints shall be wrapped with flouropolymer tape, and provided with nitrile O-ring gaskets.

2.1.2 Well Riser Cap

Provide cap on top of the well riser. Cap shall be a flush threaded cap and of the same material as the well riser.

2.2 WELL SCREEN

Well screens shall be located as indicated. The length of each screen shall be as indicated. Slot size shall be 0.010 inch. Slotted openings shall be distributed uniformly around the circumference of the screen. Open area shall approach the formation's natural porosity.

2.2.1 Stainless Steel Screens

ASTM A 312/A 312M, Type 304, 2-inch ID Schedule 40S, continuous slot construction, wire wound, with flush threaded joint ends.

2.3 PRIMARY FILTER PACK

Provide clean, durable, well-rounded, and washed quartz or granite, with less than 5 percent non-siliceous material. The filter pack shall not contain organic matter or friable materials. The filter pack shall allow free flow of water in the well, and shall prevent the infiltration of aquifer materials. Filter pack shall have 100 percent passing the U.S. Standard Number 20 sieve and 100 percent retained on the U.S. Standard Number 30 sieve.

2.4 ANNULAR SEALANTS

2.4.1 Bentonite Pellet Seal

Provide pelletized, sodium montmorillonite in sealed containers from a commercial source, free of impurities. Diameter of pellets shall be less than one fifth the diameter of the borehole annular space to prevent bridging.

2.4.2 Cement/Bentonite Grout

Provide cement/bentonite grout in accordance with ASTM D 5092, typical cement base grout with 4 percent bentonite by weight. Cement shall be in accordance with ASTM C 150. Quick setting admixtures shall not be allowed. Drilling mud or cuttings shall not be used as a sealing material.

2.5 BOTTOM PLUGS

Provide flush threaded solid plug at the bottom of the well. Plug shall be the same material as the well screen to which it is attached. Joints shall be provided with nitrile O-ring gaskets.

2.6 LOCKING WELL CAP

Provide flush threaded, weatherproof, and non-removable locking well cap on the top of the well. Well cap shall be of the same material as the well casing to which it is attached. Well cap shall accommodate padlock. Provide a long shackled padlock in accordance with ASTM F 883. Provide two keys for the padlock, and turn them over to the ROICC NTR. Locks at the site shall be keyed alike.

2.7 WELL HEAD COMPLETIONS

Clearly mark and secure the well to avoid unauthorized access and tampering. Cast the words "MONITORING WELL" on the well head cover. Provide a sign reading, "WELL IS FOR MONITORING AND IS NOT SAFE FOR DRINKING." Provide stamped metal identification tag as follows:

DO NOT DISTURB
ID #: Date:
Installed By:
Total Depth:
Screened Interval:
TOC Elevation:
Other:
For Information, Call:

2.7.1 Aboveground Completions

Provide protective outer casing around the well riser extending above grade. The diameter of the protective outer casing shall be a minimum of 4 inches larger than the well riser diameter. The top of the protective outer casing shall extend a minimum of 6 inches above the top of the well riser cap. The protective outer casing shall be set in cement/bentonite grout and the bottom of the protective well casing shall extend to the depth indicated. A 1/4 inch diameter weep hole shall be drilled in the protective outer casing 3 inches above the ground surface. The annular space between the protective outer casing and the well riser shall be filled with pea gravel or coarse sand to just below the level of the cap on the well riser. The locking well cap shall be provided on top of the protective outer casing. Provide 6 inch diameter steel pipe bollards, filled with concrete as indicated to protect the exposed well head.

2.7.1.1 Protective Outer Casing and Bollards

ASTM A 53, Type E or S, Grade B.

2.7.1.2 Well Casing Cap

Provide cap on top of the protective outer casing. Cap shall be a locking cap and of the same material as the protective outer casing.

2.7.2 At-Grade Completions

Provide galvanized steel vault box, 12 inch diameter, with watertight frame and cast iron bolt downcover. Vault shall support H-20 loading for traffic areas. The frame shall be 6 inches deep, and shall be set in a concrete collar a minimum of 8 inches thick, and extending 4 inches beyond the edge of the frame in all directions. Frame and concrete collar shall be set flush with the level of the existing pavement. Locking well cap shall be provided on top of the well riser, which will terminate inside the vault as indicated.

2.8 POLYETHYLENE SHEETING

ASTM D 4397.

PART 3 EXECUTION

3.1 GENERAL

Notify the ROICC NTR at least 15 days prior to commencement of work. Locations of wells shall be as indicated. Abandonment of existing and d rilling, installation, and development of the proposed monitoring wells shall be supervised, directed, and monitored by the CPC. Drilling, sampling, and well development equipment introduced to the well shall be decontaminated before and after each use in accordance with ASTM D 5088.

3.2 DRILLING

Borehole shall be advanced using conventional 4-1/4 inch ID hollow-stem auger drilling methods. If it is the opinion of the CPC that an alternate drilling method is required, justification for a boring method change shall be submitted to the ROICC NTR, and approval for the change granted prior to drilling. Drill crew shall be experienced and trained in drilling and safety requirements for contaminated sites.

3.2.1 Sampling

Obtain samples in accordance with ASTM D 1586 or ASTM D 1587. Perform standard penetration tests at the following depths: 0.0 to 2.0 feet; 2.0 to 4.0 feet; 4.0 to 6.0 feet; and continuing for the total depth of the boring. Each soil sample shall be screened in the field with an organic vapor analyzer/flame ionization device (OVA/FID) capable of detecting vapors to a minimum of one ppm. Log boring in accordance with ASTM D 2487 and ASTM D 2488. Groundwater elevation shall be indicated.

3.2.2 Analysis

The CPC shall review the log data from each borehole and compare the data with the well design requirements. The CPC shall verify the adequacy of

the well design, or shall offer a proposed modification to the design based on the geologic and hydrogeologic data obtained from the borehole. This review and analysis shall be conducted for each borehole. The CPC shall submit the borehole boring logs, the analysis of the well design, and any proposed design modifications to the ROICC NTR in a Borehole Analysis Report. Any modifications to the well design approved by the ROICC NTR shall be considered a change to the contract documents and shall be negotiated in accordance with the "CHANGES" clause.

3.2.3 Alignment

Verify that the well is straight by lowering a 10 foot section of 1 inch diameter steel pipe into the well.

3.3 SOIL REMOVED FROM THE BOREHOLE

3.3.1 Temporary Containment of Soil Removed from the Borehole

Soil removed from the borehole shall be placed in a temporary containment area. Provide a temporary containment area near the well site. Cover containment area with 10 mil reinforced polyethylene sheeting. Place soil removed from the boreholes on the impervious barrier and cover with 6 mil reinforced polyethylene sheeting. Provide a straw bale berm around the outer limits of the containment area and cover with polyethylene sheets. Secure edges of sheets with weights to keep the polyethylene sheeting in place. Water runoff shall be diverted from the stockpiled material. As an option, soil may be stockpiled in trucks suitable for transporting contaminated soils as specified herein.

3.3.2 Testing Requirements for Stockpiled Soils

In accordance with Section 02223, "Transportation and Disposal of Contaminated Material."

3.4 WELL INSTALLATION

Well installation shall be in accordance with ASTM D 5092 and EPA 600-4-89-034, and as indicated on the well construction drawings submitted by the CPC and approved by the ROICC NTR. Borehole shall be stable and shall be verified straight before beginning installation.

3.4.1 Casings and Screens

Well casings, screens, plugs, and caps shall be decontaminated prior to delivery by the manufacturer and shall be certified clean. Materials shall be delivered, stored, and handled in such manner as to ensure that grease, oil, or other contaminants do not contact any portion of the well screen and casing assembly prior to installation. If directed by the ROICC NTR, the well screen and casing assembly shall be cleaned with high pressure water prior to installation. Personnel shall wear clean cotton or surgical gloves while handling the assembly. If directed by the ROICC NTR, centralizers shall be used to ensure that the well screen and casing assembly is installed concentrically in the borehole. When the assembly has been installed at the appropriate elevation, it shall be adequately secured to preclude movement during placement of the filter packs and annular seals. The top of the well casing shall be capped during filter pack placement.

3.4.2 Primary Filter Pack

Primary filter pack shall be placed as indicated on the approved well construction drawings to fill the entire annular space between the screen and casing assembly and the outside wall of the borehole. Place the primary filter pack material with a tremie pipe in accordance with EPA 600-4-89-034 and ASTM D 5092. Placement of the primary filter by gravity or free fall methods is not allowed. Control speed of filter placement to prevent bridging and to allow for settlement. Prior to commencement of work, equipment and methods required to place filters shall be approved by the ROICC NTR.

3.4.3 Bentonite Seal

Bentonite pellets shall be placed through a tremie pipe. Control speed of bentonite pellet placement to prevent bridging. Additional water shall be added to the annular space as directed by the CPC to ensure complete hydration of the bentonite. Bentonite pellets shall cure a minimum of 48 hours before the placement of cement/bentonite grout to ensure complete hydration and expansion of the bentonite pellets.

3.4.4 Cement/Bentonite Grout

Cement/bentonite grout shall be placed in the annular space above the bentonite seal as indicated on the well construction drawings. Grout shall be placed as a slurry through a tremie pipe, and injected under pressure to reduce chance of voids. Grout shall be injected in one continuous operation until full strength grout flows out at the ground surface without evidence of drilling cuttings or fluid. Cement/bentonite grout shall cure a minimum of 48 hours before beginning well development operations.

3.4.5 Well Head Completions

Well head completions shall be as indicated and as specified herein.

3.5 WELL DEVELOPMENT

Well development shall be in accordance with EPA 600-4-89-034 and ASTM D 5092 except as modified herein. Bailing, surging, and pumping/overpumping/backwashing are acceptable development methods. Air surging and jetting are prohibited. Method of development shall be chosen by the CPC and approved by the ROICC NTR. Well development shall not begin until the well installation is complete and accepted by the ROICC NTR. Well development operations shall be conducted continuously until development water flows clear and free of drilling fluids, cuttings, or other materials. At such time representative water samples shall be tested for pH, temperature, and specific conductivity in accordance with EPA 600/4-79-020. Samples shall be taken every 3 hours. When stabilized readings of these parameters, as accepted by the ROICC NTR, have been achieved for 3 consecutive sets of readings, well development operations shall cease.

3.6 WATER FROM WELL DEVELOPMENT OPERATIONS

Water from the well development operations shall be containerized in accordance with State and local regulations and transported and disposed in accordance with Section 02223, "Transportation and Disposal of Contaminated Material".

3.7 INSTALLATION SURVEY

Upon completion of well installation and development and acceptance by the ROICC NTR therefor, the Contractor vertical and horizontal position of each well shall be determined by a registered land surveyor licensed in the State of Maryland. The survey shall document the vertical elevations (NGVD29) of the top of the casing pipe, top of riser pipe, and the ground surface elevation adjacent to each well. The survey shall also determine the horizontal location of each well based on the NAD83 coordinate system. Survey shall be accurate to the nearest 0.01 foot. This data shall be submitted with a well location map as the Installation Survey Report.

3.8 CLEANUP

Upon completion of the well construction, remove debris and surplus materials from the jobsite.

3.9 WELL ABANDONMENT

COMAR 26.04.04.

-- End of Section --

SECTION 02742N

PAVEMENT WITH A BITUMINOUS CONCRETE SURFACE

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 1557	(1991; R 1998) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft (2,700 kN-m/m))
ASTM D 2922	(1996) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 2950	(1997) Density of Bituminous Concrete in Place by Nuclear Methods
ASTM D 4253	(2000) Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
ASTM D 4254	(2000) Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density

MARYLAND STATE HIGHWAY ADMINISTRATION (MD SHA)

MD SHA CM	(1993) Construction and Materials

1.2 SUBMITTALS

Submit the following in accordance with Section C of the basic contract.

SD-06 Test Reports

Subbase material density

Subbase and aggregate base course

Bituminous Concrete Courses Test

SD-07 Certificates

Aggregate base materials

Subbase materials

Tack coat

Bituminous concrete mix

1.3 DESCRIPTION

This section includes a provision for the construction upon a prepared subgrade surface, subbase, bituminous concrete binder (base) course, and bituminous concrete wearing (surface) course for scrap yard entrance as indicated; and aggregate base course for gravel paved road as indicated. Work shall be performed in accordance with the applicable requirements of the MD SHA CM specifications, except that the contractual and payment provisions do not apply. Articles and sections listed herein refer to these specifications. Where the term "Engineer" is used, it will equate to " ROICC NTR"; where the term "Administration" is used, it will equate to the "Federal Government" or "Government."

1.4 DEFINITION OF TERMS

1.4.1 Subgrade

An existing or borrow earth foundation upon which the pavement is constructed.

1.4.2 Subbase

A graded aggregate material having greater stability than the underlying subgrade material, used to reduce the thickness requirements of the bituminous concrete pavement section.

1.4.3 Aggregate Base Course

A gravel or crushed stone course immediately below the bituminous concrete binder course.

1.4.4 Bituminous Concrete Binder Course

A bituminous concrete layer immediately below the bituminous concrete wearing course. It is referred to as a base course in the specified reference documents.

1.4.5 Bituminous Concrete Wearing Course

The top traffic-bearing layer of bituminous concrete pavement. It is referred to as a surface course in the specified reference documents.

1.4.6 Tack Coat

A light application of bituminous material applied to an existing bituminous surface, Portland cement concrete surface, or the vertical cut surfaces of an existing pavement section to ensure bonding between the surfaces being paved and the new bituminous concrete material.

PART 2 PRODUCTS

2.1 SUBBASE MATERIALS

MD SHA CM Section 901, Table 901A Crusher Run Aggregate CR-6.

2.2 AGGREGATE BASE COURSE MATERIALS

Conform to the paragraph entitled "Subbase Materials."

2.3 BITUMINOUS CONCRETE BINDER (BASE) COURSE MATERIALS

MD SHA CM Section 901, Table 901C BF or current approved MD SHA CM equivalent subject to approval of the ROICC NTR. MD SHA CM Section 904.

2.4 BITUMINOUS CONCRETE WEARING (SURFACE) COURSE MATERIALS

MD SHA CM Section 901, Table 901C SF or current approved MD SHA CM equivalent subject to approval of the ROICC NTR. MD SHA CM Section 904.

2.5 WOVEN GEOTEXTILE

MD SHA CM Section 921.09, Maryland application class ST.

2.6 TACK COAT MATERIALS

MD SHA CM Section 904.05, emulsified asphalt.

PART 3 EXECUTION

3.1 SUBGRADE PREPARATION

Prepare a subgrade and cut the existing pavement in accordance with Section 02315N, "Excavation and Fill."

3.2 SUBBASE CONSTRUCTION

Construct in accordance with MD SHA CM Section 501.03. Subbase material density shall be compacted to 97 percent of ASTM D 1557 or 70 percent relative density ASTM D 4253 and ASTM D 4254.

Place woven geotextile in a loose and unstretched condition. Overlap edges a minimum of 12 inches.

3.3 AGGREGATE BASE COURSE CONSTRUCTION

Conform to the paragraph entitled "Subbase Construction."

3.4 BITUMINOUS CONCRETE BINDER (BASE) COURSE CONSTRUCTION

MD SHA CM Section 504.

3.5 BITUMINOUS CONCRETE WEARING (SURFACE) COURSE CONSTRUCTION

MD SHA CM Section 504.

3.6 TACK COAT APPLICATION

MD SHA CM Section 504.03.04. Apply to the vertical cut surfaces of bituminous concrete pavement, to the top of the bituminous binder (base) course, to the top of concrete surfaces, and as indicated.

Clean and fill transverse joints between old and new pavement as directed by the ROICC NTR with tack coat material insuring that it fully penetrates and completely fills the joint. Remove excess tack coat material along the joint. Immediately cover with a light application of clean sand.

3.7 FIELD TESTING

3.7.1 Subbase and Aggregate Base Courses

3.7.1.1 Smoothness Tests

Correct deviations on the surface in excess of 3/8 inch when tested with a 10 foot straightedge applied parallel with and at right angles to the center line of the paved area by loosening, adding or removing material, reshaping, watering, and compacting. The smoothness requirements specified herein apply only to the top layer when the subbase and the base courses are constructed in more than one layer.

3.7.1.2 Density Tests

ASTM D 2922, as follows: one test per 100 square yards, with a minimum of three tests.

3.7.1.3 Thickness Tests

Measure the thickness of the subbase and the base course at intervals such that there will be a depth measurement for at least each 100 square yards of complete subbase and base courses, with a minimum of three tests. Make a depth measurement with test holes at least 3 inches in diameter through the subbase and base courses. Alternatively determine subbase and base course thicknesses using survey control. Where there is a deficiency greater than 1/2 inch, correct by scarifying, adding the mixture of proper gradation, reblading, and recompacting. Where the measured thickness is more than 1/2 inch thicker than indicated, consider it as the indicated thickness plus 1/2 inch for determining the average. The average thickness is the average of the depth measurements; the average thickness shall have a maximum underrun of the thickness indicated of 1/4 inch.

3.7.2 Bituminous Concrete Courses Test

3.7.2.1 Smoothness

Test the compacted surface of the bituminous concrete binder and wearing courses with a straightedge as the work progresses. Apply the straightedge parallel with and at right angles to the centerline after the final rolling. The evenness of the binder course shall have a maximum variance of plus or minus 1/4 inch for every 10 feet. The maximum variance in the wearing course shall be plus or minus 1/8 inch for every 10 feet. Correct any portion of the pavement showing irregularities greater than those specified.

3.7.2.2 Density

One field test for each 100 square yards of bituminous concrete binder course and wearing course, with a minimum of three tests each course, in accordance with ASTM D 2950. Thin layer nuclear density gauge readings shall be taken on a control strip to determine the number of coverages to obtain optimum density. Optimum density is defined when the average density does not change by more than 1.0 percent between successive coverages.

3.7.2.3 Thickness

The maximum allowable deficiency at any point shall be 1/4 inch less than the indicated thickness for any course. The minimum average thickness of the course shall be equal to the indicated thickness. Where the deficiency exceeds the specified tolerances, the Contractor shall correct such area or areas by removing the pavement in question and replacing with new pavement.

-- End of Section --

SECTION 02821N

CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 94	(1996) Ready-Mixed Concrete
ASTM F 883	(1997) Padlocks

FEDERAL SPECIFICATIONS (FS)

FS RR-F-191	(Rev. K) Fencing, Wire and Post Metal (and Gates, Chain-Link Fence Fabric, and Accessories) (General Specification)
FS RR-F-191/1	(Rev. D) Fencing, Wire and Post, Metal (Chain-Link Fence Fabric) (Detail Specification)
FS RR-F-191/2	(Rev. D) Fencing, Wire and Post, Metal (Chain-Link Fence Gates) (Detail Specification)
FS RR-F-191/3	(Rev. D) Fencing, Wire and Post, Metal (Chain-Link Fence Posts, Top Rails and Braces) (Detail Specification)
FS RR-F-191/4	(Rev. D) Fencing, Wire and Post, Metal (Chain-Link Fence Accessories) (Detail Specification)

1.2 SUBMITTALS

Submit the following in accordance with Section C of the basic contract

SD-02 Shop Drawings

Gates

Post spacing

Location of gate, corner, end, and pull posts

SD-03 Product Data

Chain-link fencing components

Accessories

SD-06 Test Reports

Weight in ounces for zinc coating

Chemical composition and thickness of aluminum alloy coating

SD-07 Certificates

Fabric

Posts

Braces

Framing

Tension wires

Gates

Padlocks

SD-08 Manufacturer's Instructions

Fence

1.3 DELIVERY, STORAGE, AND HANDLING

Deliver materials to site in an undamaged condition. Store materials off the ground to provide protection against oxidation caused by ground contact.

1.4 QUALITY ASSURANCE

1.4.1 Required Report Data

Submit reports of listing of chain-link fencing and accessories regarding Weight in ounces for zinc coating, and chemical composition and thickness of aluminum alloy coating.

PART 2 PRODUCTS

2.1 CHAIN-LINK FENCING AND ACCESSORIES

FS RR-F-191 and detailed specifications as referenced and other requirements as specified.

2.1.1 Fabric

Salvage existing fabric for reuse subject to ROICC NTR approval.

FS RR-F-191/1; Type I, zinc-coated steel, 9 gage, or Type II, aluminum-coated steel, 9 gage. Mesh size, 2 inches. Provide selvage knuckled at one selvage and twisted and barbed at the others. Height of fabric, as indicated.

2.1.2 Gates

FS RR-F-191/2; Type II, double swing. Shape and size of gate frame as

indicated. Framing and bracing members, round of steel alloy. Steel member finish, zinc-coated or aluminum-coated steel. Gate frames and braces of minimum sizes listed in FS RR-F-191/3 for each Class and Grade except that steel pipe frames shall be 1.90 inches od, 0.120 inches minimum wall thickness. Gate fabric, as specified for fencing fabric. Barbed wire top on gate, as specified herein. Coating for steel latches, stops, hinges, keepers, and accessories, galvanized. Gate latches, plunger bar type. Gate leaves more than 8 feet wide shall have intermediate members as necessary to provide rigid construction, free from sag or twist. Gate leaves less than 8 feet wide shall have truss rods or intermediate braces. Attach gate fabric to gate frame in accordance with manufacturer's standards, except that welding will not be permitted. Arrange padlocking latches to be accessible from both sides of gate, regardless of latching arrangement.

2.1.3 Posts and Braces

FS RR-F-191/3 line posts; Class 1, steel pipe, Grade A. End, corner, and pull posts; Class 1, steel pipe, Grade A. Braces; Class 1, steel pipe, Grade A, in minimum sizes listed in FS RR-F-191/3 for each class and grade.

2.1.4 Fencing Accessories

FS RR-F-191/4. Provide wire ties constructed of the same material as the fencing fabric.

2.1.5 Concrete

ASTM C 94, using 3/4 inch maximum-size aggregate, and having minimum compressive strength of 3000 psi at 28 days.

2.1.6 Grout

Provide grout of proportions one part Portland cement to three parts clean, well-graded sand and a minimum amount of water to produce a workable mix.

2.1.7 Padlocks

ASTM F 883, with chain.

PART 3 EXECUTION

3.1 SITE PREPARATION

3.1.1 Clearing and Grading

Clear fence line of trees, brush, and other obstacles to install fencing. Establish a graded, compacted fence line prior to fencing installation. Compact fill used to establish fence line.

3.1.2 Excavation

Excavate to dimensions indicated for concrete-embedded items. Clear post holes of loose material. Dispose of waste material at an approved off-site disposal facility.

3.2 FENCE INSTALLATION

Install fence on prepared surfaces to line and grade indicated. Secure

fastening and hinge hardware in place to fence framework by peening or welding. Allow for proper operation of components. Coat peened or welded areas with a repair coating matching original coating. Install fence in accordance with fence manufacturer's written installation instructions except as modified herein.

3.2.1 Post Spacing

Provide line posts spaced equidistantly apart, not exceeding 10 feet on center. Provide gate posts spaced as necessary for size of gate openings. Do not exceed 500 feet on straight runs between braced posts. Provide corner or pull posts, with bracing in both directions, for changes in direction of 15 degrees or more, or for abrupt changes in grade. Provide drawings showing location of gate, corner, end, and pull posts.

3.2.2 Post Setting

Set posts plumb. Allow concrete and grout to cure a minimum of 72 hours before performing other work on posts.

3.2.2.1 Earth and Bedrock

Provide concrete bases of dimensions indicated. Compact concrete to eliminate voids, and finish to a dome shape.

3.2.2.2 Concrete Slabs and Walls

Set posts into zinc-coated sleeves, set in concrete slab or wall, to a minimum depth of 12 inches. Fill sleeve joint with nonshrink grout, or other approved material.

3.2.3 Bracing

Brace gate, corner, end, and pull posts to nearest post with a horizontal brace used as a compression member, placed at least 12 inches below top of fence, and a diagonal truss rod and truss tightener used as a tension member.

3.2.4 Top and Bottom Tension Wires

Install top and bottom tension wires before installing chain-link fabric, and pull wires taut. Place top and bottom tension wires within 8 inches of respective fabric line.

3.2.5 Fabric

Pull fabric taut and secure fabric to top wire and bottom wire, close to both sides of each post and at maximum intervals of 24 inches on center. Secure fabric to posts using stretcher bars, ties or clips spaced 15 inches on center, or by integrally weaving to integral fastening loops of end, corner, pull, and gate posts for full length of each post. Install fabric on opposite side of posts from area being secured. Install fabric so that bottom of fabric is 1 inch above ground level.

3.3 ACCESSORIES INSTALLATION

3.3.1 Post Caps

Install post caps as recommended by the manufacturer.

3.3.2 Supporting Arms

Install supporting arms as recommended by manufacturer. In addition to manufacturer's standard connections, permanently secure supporting arms to posts. Studs driven by low-velocity powder-actuated tools may be used with steel, wrought iron, ductile iron, or malleable iron. Do not use studs driven by powder-actuated tools with gray iron or other material that will fracture.

3.3.3 Barbed Wire

Install barbed wire on supporting arms above fence posts. Extend each end member of gate frames sufficiently above top member to carry three strands of barbed wire in horizontal alignment with barbed wire strands on the fence. Pull each strand taut and securely fasten each strand to each supporting arm or extended member. Secure wires in accordance with fence manufacturer's recommendations.

3.3.4 Gates

Install swing gates to swing through 180 degrees from closed to open.

3.3.5 Padlocks

Provide padlocks for gate openings and provide chains that are securely attached to gate or gate posts. Provide padlocks keyed alike, and provide two keys for each padlock.

3.4 SECURITY

Install new security fencing, remove existing security fencing, and perform related work to provide continuous security for facility. Schedule and fully coordinate work with Contracting Officer and cognizant Security Officer.

3.5 CLEANUP

Remove waste fencing materials and other debris from the station.

-- End of Section --

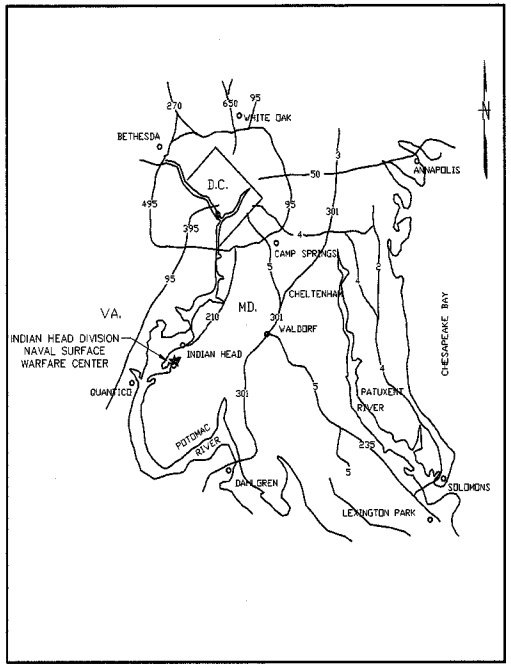
FINAL SUBMISSION
SITE 41 - SCRAP YARD
REMEDIAL ACTION DESIGN
INDIAN HEAD DIVISION, NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND
RAC CONTRACT NO. N62470-97-D-5000 T.O. 0077

PROJECT LOCATION MAP

NOT TO SCALE

DRAWING INDEX

NAVFAC DWG. No.	SHEET No.	SHEET TITLE
3456975	T-1	TITLE SHEET
3456976	T-2	GENERAL NOTES AND LEGEND
3456977	C-1	EXISTING CONDITIONS PLAN
3456978	C-2	EROSION AND SEDIMENT CONTROL PLAN
3456979	C-3	EROSION AND SEDIMENT CONTROL NOTES
3456980	C-4	REVEGETATION NOTES
3456981	C-5	EROSION AND SEDIMENT CONTROL DETAILS
3456982	C-6	EXCAVATION AND FILL PLAN
3456983	C-7	RESTORATION PLAN
3456984	C-8	MISCELLANEOUS DETAILS



VICINITY MAP

10 0 10 20

SCALE IN MILES

SYMBOL	DESCRIPTION	DATE	APPROVED
	REVISIONS		

D9A	403		
04	404		
E.I.C.	405		
	401	409	
	402	D4B	

REVIEWED BY NSWC — DATE

Tetra Tech NUS, Inc. — DES. TKS | DR. HJB | CHK. RCM | PM. | SUPV. | DATE 8-14-02 — DATE

EFD FOR COMMANDER NAVFAC

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WASHINGTON, D.C.
ENGINEERING FIELD ACTIVITY-CHESAPEAKE
INDIAN HEAD, MARYLAND
INDIAN HEAD DIVISION, NAVAL SURFACE WARFARE CENTER
FINAL SUBMISSION
SITE 41 – SCRAP YARD
REMEDIAL ACTION DESIGN
TITLE SHEET

CODE I.D. NO. 80091

DRAWING SIZE: D

CONST. CONT. NO. N62470-97-D-0077

SPEC. 31-97-5000-0077

NAVFAC DRAWING NO. 3456975

SHEET 1 OF 10

T-1

ACAD:3525T003.dwg 08/13/02 HJB PIT

GENERAL NOTES

1. GRID COORDINATES REFERENCE MARYLAND STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NORTH AMERICAN DATUM, 1983 (NAD83).

2. ELEVATIONS REFERENCE NATIONAL GEODETIC VERTICAL DATUM, 1929 (NGVD29).

3. EXISTING TOPOGRAPHY AND FEATURES WERE PREPARED BY MURPHY HOBSON SACKS OF RALEIGH, NORTH CAROLINA VIA FIELD SURVEY PERFORMED DECEMBER 1997.

4. ONE FOOT CONTOUR INTERVAL UNLESS OTHERWISE INDICATED.

5. UTILITY LOCATIONS WERE OBTAINED FROM IHDIV-NSWC BASEWIDE MAP. LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY UNDERGROUND UTILITY LOCATIONS PRIOR TO THE BEGINNING OF ANY SITE WORK USING A MINIMUM OF TWO PASSIVE DETECTION METHODS (E.G., ELECTROMAGNETIC INDUCTION, GROUND PENETRATING RADAR, MAGNETIC LOCATORS, ACOUSTIC SURVEY, ETC.) SUBJECT TO THE APPROVAL OF THE RESIDENT OFFICER IN CHARGE OF CONSTRUCTION (ROICC).

6. ALL WORK FOR THIS PROJECT SHALL BE IN STRICT ACCORDANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS. ALL METHODS OF WORK FOR THIS PROJECT SHALL ALSO COMPLY WITH FEDERAL, STATE OF MARYLAND, AND LOCAL ORDINANCES.

7. THIS PROJECT REQUIRES GRADE B GEOGRAPHIC INFORMATION SYSTEM (GIS) COORDINATE ACCURACY. THE CONTRACTOR SHALL PERFORM A POST-CONSTRUCTION SURVEY OF ALL NEW AND/OR ALTERED EXISTING ITEMS PROVIDED AS A RESULT OF THIS CONSTRUCTION. SEE SPECIFICATION SECTION 02224 PARAGRAPH TITLED "GIS GRADE B POST-CONSTRUCTION LOCATION".

8. FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS. CHECK GRAPHIC SCALE BEFORE SCALING DRAWINGS.

9. THE CONTRACTOR SHALL THOROUGHLY INSPECT THE SITE PRIOR TO CONSTRUCTION TO VERIFY EXISTING SITE CONDITIONS AND TO VERIFY THE REMOVAL BY OTHERS, OF ALL RECYCLABLE AND BULKY WASTE FROM THE SCRAP YARD.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING HORIZONTAL AND VERTICAL CONTROL FOR CONSTRUCTION. SEE DRAWING C-1 FOR EXISTING MONUMENTS.

11. THE CONTRACTOR SHALL STAKE THE LOCATION OF ALL AREAS TO BE EXCAVATED OR DISTURBED PRIOR TO ACTUAL WORK. THE FIELD LOCATIONS MUST BE REVIEWED AND APPROVED BY THE ROICC.

12. THE LOCATION(S) FOR CONTRACTOR STAGING AREA(S) ARE TO BE APPROVED BY THE ROICC AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) AND SHALL BE OUT OF THE WAY OF TRAFFIC AND/OR PEDESTRIAN FLOW. ALL TO-BE-DETERMINED STAGING AREAS OUTSIDE APPROVED LIMITS OF DISTURBANCE SHALL, AT A MINIMUM, BE RINGED WITH SILT FENCE AND HAVE ONLY ONE POINT OF INGRESS/EGRESS OVER AN APPROVED STABILIZED STONE CONSTRUCTION ENTRANCE.

13. THE SOLE POINT FOR INGRESS AND EGRESS OF THE SITE WILL BE VIA A STABILIZED STONE CONSTRUCTION ENTRANCE WHICH WILL BE CONSTRUCTED ACCORDING TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.

14. THE CONTRACTOR WILL PROVIDE INGRESS/EGRESS CONTROL INTO THE SITE AS PART OF MOBILIZATION ACTIVITIES.

15. THE CONTRACTOR WILL PROVIDE MAXIMUM PROTECTION FOR EXISTING UTILITIES WHICH ARE TO REMAIN IN SERVICE. THE CONTRACTOR WILL PROVIDE ALL TEMPORARY SERVICES. THE CONTRACTOR WILL CONTACT THE ROICC AT (TO BE DETERMINED AT PRE-CONSTRUCTION MEETING) TO ARRANGE FOR LOCATION OF BASE UTILITIES. VERIFICATION OF THE UTILITY LOCATIONS MUST BE MADE PRIOR TO ANY CONSTRUCTION.

16. EXISTING GROUNDWATER MONITORING WELLS 41MW01, 41MW02, AND 41MW04 WILL BE IMPACTED BY EXCAVATION AND OTHER SITE ACTIVITIES AND WILL THEREFORE BE ABANDONED. VERIFY ABANDONMENT OF GROUNDWATER MONITORING WELL 41MW03. NEW GROUNDWATER MONITORING WELLS 41MW05 THROUGH 41MW10 SHALL BE INSTALLED DURING THE REMEDIAL ACTION AS INDICATED. ABANDON, VERIFY ABANDONMENT, AND INSTALL MONITORING WELLS IN ACCORDANCE WITH COMAR 26.04.04.

17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LIMITING ALL WORK TO THE IMMEDIATE PROJECT AREA WITHIN THE APPROVED LIMITS OF DISTURBANCE.

18. THE CONTRACTOR SHALL MAINTAIN ALL WORK AREAS FREE FROM DUST AND ODORS IN A MANNER APPROVED BY THE ROICC.

19. ALL DISTURBED AREAS INCLUDING EARTHEN AREAS DEVOID OF VEGETATION PRIOR TO CONSTRUCTION, SHALL BE GRADED TO MAINTAIN POSITIVE DRAINAGE.

20. ALL AREAS WITHIN THE LIMITS OF DISTURBANCE SHALL BE STABILIZED (SEEDED AND MULCHED, OR BITUMINOUS CONCRETE OR GRAVEL PAVED) IMMEDIATELY UPON ESTABLISHING FINAL GRADE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING THE MEASURES INDICATED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.

21. REMOVE EXISTING FENCE OUTSIDE THE SOUTHERN WALL OF THE SCRAP YARD IN ORDER TO EXCAVATE CONTAMINATED SOIL AND REMOVE EXISTING RAILROAD RAIL, TIES AND BALLAST. SALVAGE EXISTING FABRIC FOR REUSE SUBJECT TO ROICC APPROVAL. SALVAGED OR NEW FENCING SHALL BE INSTALLED IN LOCATIONS WHERE FENCING WAS REMOVED.

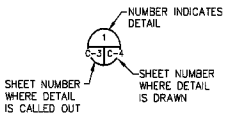
22. REMOVE SOIL FROM THE SURFACE OF THE CONCRETE PAD. REMOVE RAILROAD RAIL, TIES AND BALLAST TO A DEPTH OF 12 INCHES BELOW EXISTING GROUND SURFACE WITHIN LIMITS OF REMEDIATION. EXCAVATE SOILS FROM THE AREA OUTSIDE OF THE CONCRETE PAD AS INDICATED AND UNTIL VERIFICATION THAT ALL CHEMICALS OF CONCERN (COC) HAVE BEEN REMOVED OR REDUCED TO LEVELS BELOW THE PRELIMINARY REMEDIATION GOALS (PRGs). THE PLANAR LIMITS OF SOIL EXCAVATION OUTSIDE OF THE CONCRETE PAD WILL EXTEND NO FURTHER THAN THE LIMIT OF REMEDIATION (SITE LIMITS).

23. STOCKPILE REMOVED/EXCAVATED SOIL AND OTHER WASTES [I.E. RAILROAD MATERIALS, CARTRIDGE ACTIVATED DEVICES (CADs), AND WASTEWATER] SEPARATELY AS REQUIRED TO MINIMIZE OFF-SITE TREATMENT, STORAGE, AND DISPOSAL (TSD) FACILITY COSTS. THE NUMBER OF STOCKPILES WILL BE DETERMINED BY THE CONTRACTOR BASED ON WASTE DISPOSAL CHARACTERIZATION RESULTS AND THE REQUIREMENTS OF THE SELECTED TSD FACILITY SUBJECT TO APPROVAL BY THE ROICC.

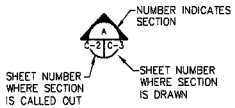
24. THE CONTRACTOR SHALL PREPARE AN UNEXPLODED ORDNANCE (UXO) HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW) SUPPORT WORK PLAN (UXO HTRW SUPPORT WORK PLAN) AS REQUIRED BY NAVSEA OP 5 VOLUME 1 "AMMUNITION AND EXPLOSIVES ASHORE, SAFETY REGULATIONS FOR HANDLING, STORING, PRODUCTION, RENOVATION, AND SHIPPING" (SIXTH EDITION). THE UXO HTRW SUPPORT WORK PLAN SHALL BE SUBMITTED TO THE NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY (NOSSA) FOR APPROVAL. SITE WORK SHALL NOT COMMENCE UNTIL THE UXO HTRW SUPPORT WORK PLAN IS APPROVED. THE UXO HTRW SUPPORT WORK PLAN SHALL BE PREPARED IN ACCORDANCE WITH NAVSEA INSTRUCTION 8023.11 "STANDARD OPERATING PROCEDURES FOR MANUFACTURE, HANDLING, AND STORAGE OF EXPENDABLE ORDNANCE AT NAVY AND MARINE CORPS ACTIVITIES" AND USACE EP 75-1-2 "UNEXPLODED ORDNANCE (UXO) SUPPORT DURING HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW) AND CONSTRUCTION ACTIVITIES.

GENERAL LEGEND

BM-L11-14	BENCHMARK
41MW01	MONITORING WELL
41MW01	MONITORING WELL TO BE ABANDONED
	PORTABLE SEDIMENT TANK
X 7.3	SPOT ELEVATION
	GUY WIRE
	SPOT LIGHT
	HAUL ROUTE
	TREELINE
—SF—SF—SF—SF—SF—	SILT FENCE
—S—S—S—S—S—	ABOVE GROUND STEAM LINE
—E—E—E—E—E—	OVER HEAD ELECTRIC (WITH UTILITY POLE)
—x—x—x—x—x—	EXISTING SECURITY FENCE
	STREAM/ EDGE OF WATER
	RAILROAD TRACKS
-+++++++-	HIDDEN/ REMOVED RAILROAD TRACKS
	LIMIT OF DISTURBANCE
	LIMIT OF REMEDIATION
10	EXISTING SURFACE ELEVATION CONTOUR
1+00	CONSTRUCTION BASELINE
	DELINEATED WETLANDS



DETAIL IDENTIFIER



SECTION IDENTIFIER

SYMBOL	DESCRIPTION	DATE	APPROVED
	REVISIONS		

03A	403	
04	404	
E.I.C.	405	
401	408	
402	D48	DATE

REVIEWED BY ROICC

Tetra Tech NUS, Inc. PITTSBURGH, PA

DSG TWG DR. HJB CHK. RCM DATE 8/24/01

APPROVED: ... 8/24/01 DATE

EFD FOR COMMANDER NAVFAC

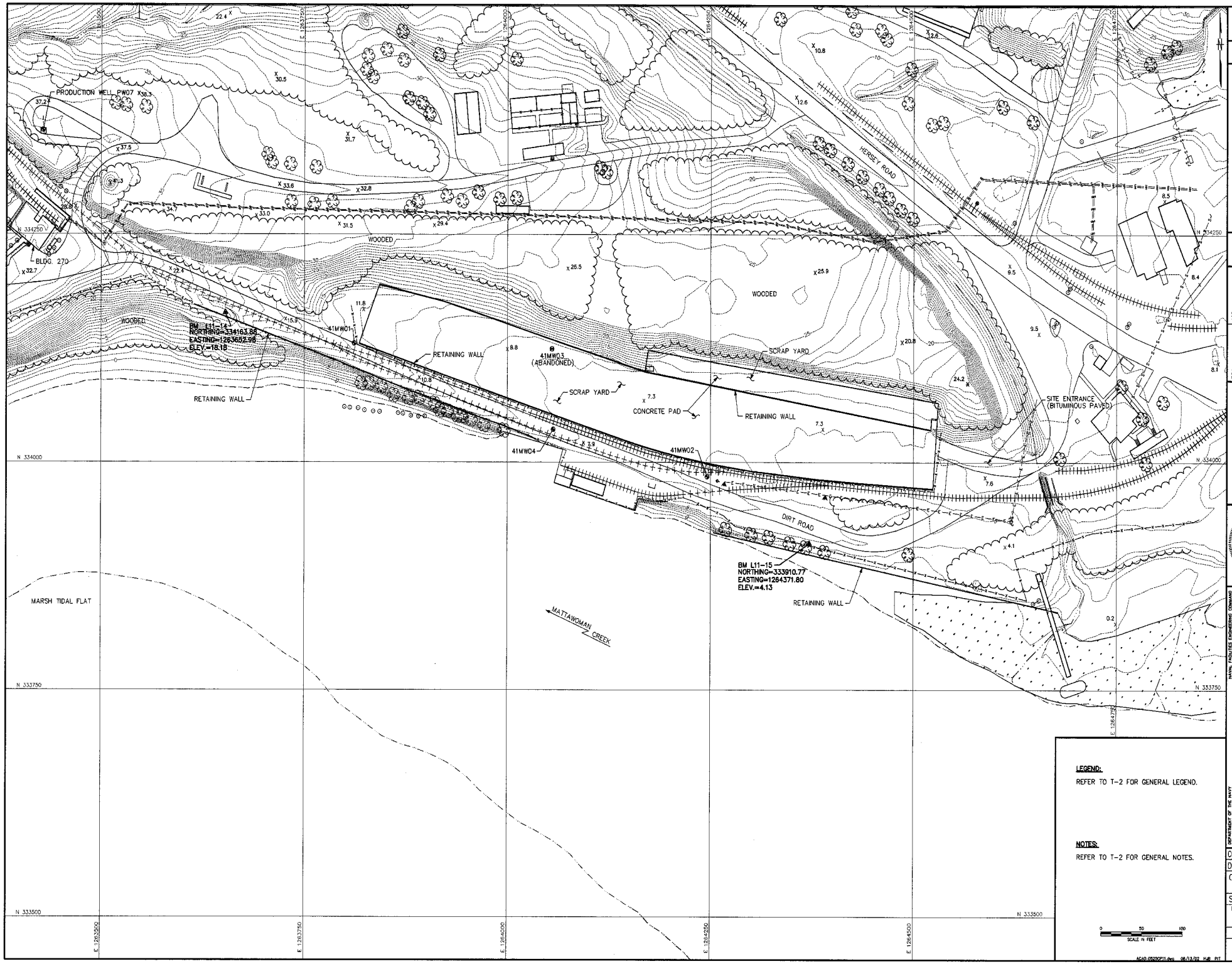
SEAL AREA

DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY-CHESAPEAKE
NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON, D.C.
NAVAL SURFACE WARFARE CENTER INDIAN HEAD, MARYLAND

FINAL SUBMISSION
SITE 41 - SCRAP YARD
REMEDIAL ACTION DESIGN
GENERAL NOTES AND LEGEND

CODE I.D. NO. 80091
DRAWING SIZE: D
CONST. CONT. NO. N62470-97-D-0077
SPEC. 21-97-5009-0077
NAVFAC DRAWING NO. 3456976
SHEET 2 OF 10
T-2

ACAD DESIGN/GB.dwg 08/13/02 HJB PIT



LEGEND:

REFER TO T-2 FOR GENERAL LEGEND.

NOTES:

REFER TO T-2 FOR GENERAL NOTES.

0 50 100
SCALE IN FEET

SYMBOL	DESCRIPTION	DATE	APPROVED
	REVISIONS		

199A	403		
84	404		
E.I.C.	405		
401	408		
402	D48		
REVIEWED BY ROICC	DATE		

Tetra Tech NUS, Inc.
PITTSBURGH, PA 15220

DESIGNED: JMB
DRAWN: JMB
CHKD: 4-98
DATE: 4-98
TITLE: CAD
APPROVED: [signature] 20 MAY 02
DATE:
CTO FOR COMMANDER NAVFAC

SEAL AREA

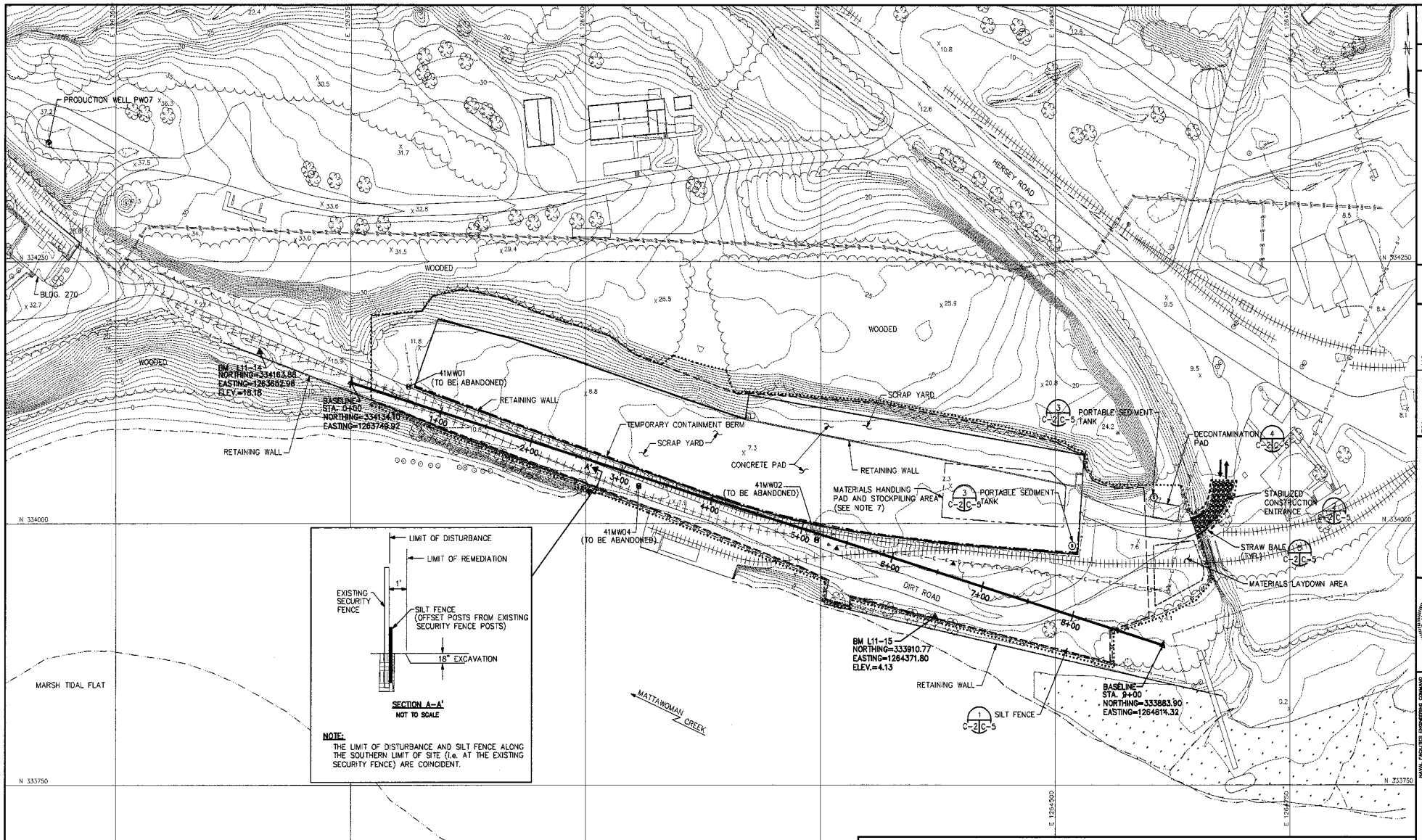
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WASHINGTON, D.C.

ENGINEERING FIELD ACTIVITY–CHESAPEAKE
INDIAN HEAD, MARYLAND
INDIAN HEAD DIVISION, NAVAL SURFACE WARFARE CENTER

FINAL SUBMISSION
SITE 41 – SCRAP YARD
REMEDIAL ACTION DESIGN
EXISTING CONDITIONS PLAN

CODE I.D. NO. 80091
DRAWING SIZE: D
CONST. CONT. NO.
N62470-97-D-0077
SPEC. 21-97-5000-0077
NAVFAC DRAWING NO.
3456977
SHEET 3 OF 10
C-1

AC40-0020CF11.dwg 06/13/02 HJB PIT



SECTION A–A'
NOT TO SCALE

NOTE:
THE LIMIT OF DISTURBANCE AND SILT FENCE ALONG THE SOUTHERN LIMIT OF SITE (i.e. AT THE EXISTING SECURITY FENCE) ARE COINCIDENT.

NOTES:

1. REFER TO DRAWING T–2 FOR GENERAL NOTES.
2. REFER TO DRAWINGS C–3 AND C–4 FOR EROSION AND SEDIMENT CONTROL PLAN NOTES AND REVEGETATION NOTES, RESPECTIVELY.
3. CLEAR BUT DO NOT GRUB WITHIN THE LIMITS OF DISTURBANCE WHERE REQUIRED FOR INSTALLATION OF TEMPORARY FACILITIES, REMOVAL OF RAILROAD RAILS, TIES, AND BALLAST, AND REMOVAL/EXCAVATION OF SOIL UNLESS OTHERWISE INDICATED.
4. ACTUAL LOCATIONS OF DECONTAMINATION PAD(S), MATERIALS HANDLING PAD(S), CONSTRUCTION LAYDOWN AREA(S), AND STABILIZED CONSTRUCTION ENTRANCE(S) TO BE DETERMINED PRIOR TO CONSTRUCTION BY THE CONTRACTOR, SUBJECT TO APPROVAL BY THE ROICC AND MDE.
5. TEMPORARY SAFETY/SECURITY FENCE SHALL BE INSTALLED ALONG THE SITE PERIMETER AS NECESSARY OR AS DIRECTED BY THE ROICC TO RESTRICT ACCESS DURING THE REMEDIAL ACTION.
6. THE LOCATION OF THE TEMPORARY CONTAINMENT BERMS SHALL BE DETERMINED AFTER REMOVAL OF SOILS FROM THE CONCRETE PAD AND A CONDITION ASSESSMENT OF THE CONCRETE PAD PERFORMED.
7. THE MATERIALS HANDLING PAD AND STOCKPILE AREAS SHALL BE LINED TO PREVENT DISCHARGES TO THE ENVIRONMENT.

LEGEND:

REFER TO T–2 FOR GENERAL LEGEND.

- 41MW01 — EXISTING MONITORING WELL TO BE ABANDONED
- HAUL ROUTE
- LIMIT OF DISTURBANCE
- LIMIT OF REMEDIATION
- TEMPORARY CONTAINMENT BERM
- SF — SILT FENCE
- 10 — EXISTING SURFACE ELEVATION CONTOUR
- DELINEATED WETLANDS

SCALE IN FEET: 0 50 100

ACAD:0526CP12.dwg 08/12/02 HJB PLT

SYMBOL	DESCRIPTION	DATE	APPROVED
	REVISIONS		

DSN	403
DR	404
E.I.C.	405
PM	406
DAB	402

REVIEWED BY ROICC DATE

Tetra Tech NUS, Inc. 661 Andersen Dr. Pittsburgh, PA 15220

DES. JMS DR. JOR CKT. RCM TECH. CHK. RCM E.I.C. JMS PROJECT MGR. JMS

DATE 8/12/02 SCALE AS SHOWN

APPROVED EFD FOR COMMANDER NAVFAC

SEAL AREA

DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY–CHESAPEAKE
NAVAL FACILITIES ENGINEERING COMMAND
WASHINGTON, D.C.
NAVAL FACILITIES ENGINEERING COMMAND
INDIAN HEAD, MARYLAND

FINAL SUBMISSION
SITE 41 – SCRAP YARD
REMEDIAL ACTION DESIGN
EROSION AND SEDIMENT CONTROL PLAN

CODE I.D. NO. 80091
DRAWING SIZE: D
CONST. CONT. NO. N62470-97-D-0077
SPEC. 21-97-5000-0077
NAVFAC DRAWING NO. 3456978
SHEET 4 OF 10
C–2

EROSION AND SEDIMENT CONTROL PLAN NOTES

1. UNLESS OTHERWISE INDICATED, ALL VEGETATION AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MANUAL.

2. THE CONTRACTOR SHALL NOTIFY THE ROICC AND MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) BOTH IN WRITING AND BY TELEPHONE (MDE AT (410) 631-3510):

   A. 7 DAYS PRIOR TO THE REQUIRED PRE-CONSTRUCTION MEETING
   B. FOLLOWING INSTALLATION OF EROSION AND SEDIMENT CONTROL DEVICES AND PRIOR TO COMMENCEMENT OF LAND DISTURBING ACTIVITIES.
   C. 7 DAYS PRIOR TO FINAL INSPECTION

3. CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE APPROVED PLAN AND SEQUENCE OF CONSTRUCTION CONTAINED IN THE EROSION AND SEDIMENT CONTROL PLAN REPORT AND DRAWINGS, AND HAVE THEM INSPECTED AND APPROVED BY THE ROICC AND MDE PRIOR TO BEGINNING ANY OTHER LAND DISTURBANCES. MINOR SEDIMENT CONTROL DEVICE LOCATION ADJUSTMENTS MAY BE MADE IN THE FIELD WITH THE APPROVAL OF THE ROICC. ENSURE THAT ALL RUNOFF FROM DISTURBED AREAS IS DIRECTED TO THE SEDIMENT CONTROL DEVICES AND DO NOT REMOVE ANY EROSION OR SEDIMENT CONTROL MEASURE WITHOUT PRIOR APPROVAL FROM THE ROICC. THE CONTRACTOR MUST OBTAIN PRIOR APPROVAL FROM THE ROICC AND MDE FOR CHANGES TO EROSION AND SEDIMENT CONTROL PLAN AND/OR THE SEQUENCE OF CONSTRUCTION.

4. ALL INGRESS TO, AND EGRESS FROM THE SITE SHALL BE AT LOCATIONS PROTECTED BY AN APPROVED STABILIZED CONSTRUCTION ENTRANCE.

5. THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES IN A CONTINUOUSLY EFFECTIVE OPERATING CONDITION UNTIL SUCH TIME AS THEY ARE REMOVED WITH PRIOR APPROVAL FROM THE ROICC AND MDE.

6. THE CONTRACTOR SHALL APPLY SEED AND ANCHORED STRAW MULCH, OR APPROVED STABILIZATION MEASURES, TO ALL DISTURBED AREAS AND STOCKPILES WITHIN 14 CALENDAR DAYS AFTER STRIPPING AND GRADING ACTIVITIES HAVE CEASED IN THE AREA (7 DAYS FOR SENSITIVE AREAS). MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION.

7. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED EROSION AND SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBANCE ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED. ALL ACCUMULATED WATER IN EXCAVATIONS WILL BE COLLECTED AND TESTED TO DETERMINE THE APPROPRIATE DISPOSAL METHOD.

8. IN THE EVENT THAT A DETERMINATION IS MADE TO ALLOW SURFACE DISCHARGE OF WATER GENERATED BY THE MATERIALS HANDLING PADS AND WATER COLLECTED IN EXCAVATIONS, ALL WATER WILL BE BROADCAST UPON AN APPROVED VEGETATED AREA. WATER RESULTING FROM EXCAVATION DEWATERING OPERATIONS SHALL PASS THROUGH AN APPROVED FILTRATION DEVICE PRIOR TO DISCHARGE. DECONTAMINATION WATER WILL BE CONTAINERIZED AND CHARACTERIZED PRIOR TO OFF-SITE DISPOSAL.

9. THE CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE INSPECTED DAILY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION AND SEDIMENT CONTROL DEVICES AND THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE MADE IMMEDIATELY. SILT FENCING SHALL BE INSPECTED REGULARLY FOR UNDERMINING OR DETERIORATION. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCE WHEN SEDIMENT ACCUMULATION REACHES 50% OF GEOTEXTILE HEIGHT. ANY SEDIMENT REMOVED FROM THE EROSION AND SEDIMENT CONTROL DEVICES DURING REMEDIAL ACTIVITIES PRIOR TO BACKFILLING ALL EXCAVATIONS SHALL BE STOCKPILED FOR OFF-SITE DISPOSAL.

10. PRIOR TO REMOVAL OF EROSION AND SEDIMENT CONTROL MEASURES, THE CONTRACTOR SHALL STABILIZE AND ESTABLISH PERMANENT STABILIZATION FOR ALL CONTRIBUTORY DISTURBED AREAS USING THE PERMANENT SEED MIXTURE INDICATED ON DRAWING C-4 WITH REQUIRED SOIL AMENDMENTS AND AN APPROVED ANCHORED MULCH. WOOD FIBER MULCH MAY ONLY BE USED IN SEEDING SEASON WHERE THE SLOPE DOES NOT EXCEED 10% AND GRADING HAS BEEN DONE TO PROMOTE SHEET FLOW DRAINAGE. AREAS BROUGHT TO FINISHED GRADE DURING THE SEEDING SEASON SHALL BE PERMANENTLY STABILIZED AS SOON AS POSSIBLE, BUT NO LATER THAN 14 CALENDAR DAYS AFTER ESTABLISHMENT. WHEN PROPERTY IS BROUGHT TO FINISHED GRADE OUTSIDE THE SEEDING SEASON AND PERMANENT STABILIZATION IS FOUND TO BE IMPRACTICAL, TEMPORARY SEED AND ANCHORED STRAW MULCH SHALL BE APPLIED TO DISTURBED AREAS. THE FINAL PERMANENT STABILZATION OF SUCH PROPERTY SHALL BE APPLIED BY MARCH 15 OR EARLIER IF GROUND AND WEATHER CONDITIONS ALLOW.

11. THE SITE'S APPROVAL LETTER, APPROVED EROSION AND SEDIMENT CONTROL PLAN, TEST REPORTS, AND LOG OF ALL EROSION AND SEDIMENT CONTROL FEATURES INSPECTIONS SHALL BE MAINTAINED BY THE CONTRACTOR, AND THE LOGS SHALL BE AVAILABLE AT THE SITE AT ALL TIMES FOR INSPECTION BY DULY AUTHORIZED OFFICIALS.

12. SURFACE DRAINAGE FLOWS OVER UNSTABILIZED EXCAVATION AREAS SHALL BE CONTROLLED BY EITHER PREVENTING DRAINAGE FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING PROTECTIVE DEVICES TO MINIMIZE DOWNSLOPE EROSION. PROTECTIVE METHODS, SUCH AS EROSION CONTROL MATTING AND RIPRAP MUST BE PROVIDED AT POINTS OF CONCENTRATED FLOW WHERE EROSION IS LIKELY TO OCCUR.

13. TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES SHALL BE REMOVED, WITH APPROVAL OF THE ROICC AND MDE, WITHIN 30 CALENDAR DAYS FOLLOWING ESTABLISHMENT OF PERMANENT STABILIZATION IN ALL CONTRIBUTORY DRAINAGE AREAS.

14. FOR FINISHED GRADING, THE CONTRACTOR SHALL PROVIDE ADEQUATE GRADIENTS TO PREVENT WATER FROM STANDING ON THE SURFACE FOR MORE THAN 24 HOURS AFTER THE END OF A RAINFALL EVENT EXCEPT IN DESIGNATED DRAINAGE COURSES AND CHANNEL FLOW AREAS WHICH MAY DRAIN AS LONG AS 48 HOURS AFTER THE END OF A RAINFALL EVENT. AREAS DESIGNED TO HAVE STANDING WATER SHALL NOT BE REQUIRED TO MEET THIS REQUIREMENT.

15. THE ROICC AND MDE INSPECTOR HAVE THE OPTION OF REQUIRING ADDITIONAL SAFETY OR SEDIMENT CONTROL MEASURES IF DEEMED NECESSARY.

16. VEGETATIVE STABILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. REFER TO APPROPRIATE SPECIFICATIONS FOR TEMPORARY SEEDING, PERMANENT SEEDING, MULCHING, AND GROUND COVER.

17. OFF-SITE BORROW AREAS ON STATE OR FEDERAL PROPERTY MUST HAVE PRIOR APPROVAL FROM THE ROICC AND MDE. ALL BORROW AREAS OFF-SITE MUST BE PROTECTED BY SEDIMENT CONTROL MEASURES AND STABILIZED.

18. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THE PLANS (INCLUDING, BUT NOT LIMITED TO OFF-SITE BORROW), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTAL EROSION CONTROL PLAN TO THE ROICC FOR SUBMISSION TO THE STATE OF MARYLAND FOR REVIEW AND CONCURRENCE. THE SUPPLEMENTAL PLAN IS NOT TO BE IMPLEMENTED UNTIL APPROVAL IS RECEIVED FROM THE ROICC AND MDE.

EROSION AND SEDIMENT CONTROL PLAN NOTES (CONTINUED)

19. ALL UNDISTURBED AREAS SHALL BE PROTECTED AT ALL TIMES DURING CONSTRUCTION ACTIVITIES AND UNTIL PERMANENT VEGETATION IN THE DISTURBED AREAS HAS BEEN ESTABLISHED.

20. DEWATERING DEVICE(S) SHALL BE CONSTRUCTED IN SUCH A WAY THAT PREVENTS WATER REMOVED FROM SOILS FROM INFILTRATING TO THE GROUNDWATER. RATHER THE STRUCTURE SHALL ALLOW FOR THE COLLECTION AND TEMPORARY STORAGE OF ALL WATER GENERATED BY DEWATERING PROCEDURES.

21. DURING CLEARING ACTIVITIES ABOVE GROUND TREE MATERIAL WITHIN LIMITS OF DISTURBANCE WILL BE CHIPPED AND TAKEN OFF-SITE FOR USE ELSEWHERE AT IHDIV-NSWC.

22. FINAL STABILIZATION OF ALL DISTURBED AREAS SHALL BE APPROVED BY THE ROICC AND MDE INSPECTOR BEFORE EROSION AND SEDIMENT CONTROLS ARE REMOVED.

23. THE TEMPORARY CONTAINMENT BERM(S) WILL BE CONSTRUCTED TO DIRECT WATER THAT FLOWS ACROSS THE CONCRETE PAD TO THE PORTABLE SEDIMENT TANKS. THE BERM(S) WILL BE CONSTRUCTED OF AN IMPERMEABLE MATERIAL THAT PREVENTS FLOW THROUGH THE BERM(S). THE BERM(S) WILL BE INSPECTED DAILY AND AFTER EACH RAIN AND/OR CONCRETE CLEANING EVENT.

24. SITE INFORMATION:
   TOTAL AREA OF SITE 41 __130,277_____ SQUARE FEET
   AREA DISTURBED ____143,400__ SQUARE FEET
   TOTAL REMOVED _____1,350____ CUBIC YARDS (ESTIMATED)
   TOTAL EXCAVATED _____2,935____ CUBIC YARDS (INCLUDES RAILROAD)
   TOTAL FILL ____2,935____ CUBIC YARDS (INCLUDED ROADWAY MATERIAL)
   OFF-SITE BORROW _____2,935___ CUBIC YARDS (INCLUDED ROADWAY MATERIAL)
   OFF-SITE TREATMENT, STORAGE, OR DISPOSAL ___4,285______ CUBIC YARDS (INCLUDES RAILROAD)

OWNER'S/DEVELOPER'S CERTIFICATION:

"I/WE HEREBY CERTIFY THAT I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN AND THAT ALL CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPEMENT WILL BE ACCOMPLISHED STRICTLY IN ACCORDANCE WITH THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT."

(PRINT NAME & TITLE) (SIGNATURE) (DATE)

DESIGN CERTIFICATION:

"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL OR CURRENT REVISIONS THEREOF, AND DEPARTMENT OF THE ENVIRONMENT STORMWATER MANAGEMENT REGULATIONS."

8/20/02
DATE

MD. REGISTRATION NO. PE: 11079
P.E., R.L.S., OR R.L.A.

SEQUENCE OF CONSTRUCTION

1. HOLD PRE-CONSTRUCTION MEETING WITH THE CONTRACTING OFFICER AND THE MDE INSPECTOR.

2. INSPECT SITE PRIOR TO CONSTRUCTION TO VERIFY EXISTING SITE CONDITIONS AND UNDERGROUND UTILITY LOCATIONS. VERIFY REMOVAL BY OTHERS OF ALL RECYCLABLE AND BULKY WASTE FROM THE SCRAP YARD.

3. ESTABLISH HORIZONTAL AND VERTICAL CONTROL FOR CONSTRUCTION. STAKE THE LOCATIONS OF ALL AREAS TO BE EXCAVATED OR DISTURBED PRIOR TO ACTUAL WORK.

4. INSTALL ALL PERIMETER CONTROLS FOR STABILIZED CONSTRUCTION ENTRANCE. INSTALL THE STABILIZED CONSTRUCTION ENTRANCE. INSTALL ALL PERIMETER CONTROLS FOR DECONTAMINATION PAD, AND MATERIALS STORAGE AND STAGING AREAS AS INDICATED ON DRAWING C-2. PERIMETER CONTROL LOCATIONS ARE SUBJECT TO APPROVAL BY THE ROICC AND MDE AND MUST BE APPROVED PRIOR TO ANY EARTH DISTURBANCE ACTIVITIES. ALL PERIMETER CONTROLS WILL CONFORM TO STANDARDS AND SPECIFICATIONS IDENTIFIED IN THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MANUAL. [THE SEQUENCE OF CONSTRUCTION THAT FOLLOWS ASSUMES THAT THE SITE 41 CONCRETE PAD WILL BE USED AS THE MATERIALS HANDLING PAD(S). IF THE RAC ELECTS NOT TO USE THE CONCRETE PAD AS THE MATERIALS HANDLING PAD(S), A MATERIALS HANDLING PAD(S) SHOULD BE ADDED TO SEQUENCE OF CONSTRUCTION ITEMS 5, 6, AND 17. IN ADDITION, PERIMETER CONTROLS FOR THE MATERIALS HANDLING PAD WOULD BE REQUIRED.] THE PERIMETER CONTROLS TO BE INSTALLED INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

   * SILT FENCE LOCATED SOUTH OF SITE 41 AS INDICATED.
   * SILT FENCE ON THE DOWNSLOPE SIDES OF THE MATERIALS STORAGE AND STAGING AREAS, DECONTAMINATION PAD, AND STABILIZED CONSTRUCTION ENTRANCE.
   * TEMPORARY CONTAINMENT BERM LOCATED ON DOWNSLOPE SIDES OF THE CONCRETE PAD TO DIRECT RUNOFF TO THE TEMPORARY SEDIMENT AND WASTEWATER STORAGE TANKS.
   * ADDITIONAL CONTROLS AS MAY BE REQUIRED BY THE CONTRACTING OFFICER AND/OR WARRANTED BY SITE CONDITIONS AND BEST CONSTRUCTION PRACTICES.

5. CLEAR AND GRUB CONSTRUCTION LAYDOWN AREAS AND AREAS FOR MATERIALS STORAGE AND STAGING AREAS, AND DECONTAMINATION PAD.

6. CONSTRUCT DECONTAMINATION PAD, CONSTRUCTION LAYDOWN AREAS, AND MATERIALS STORAGE AND STAGING AREAS. ERECT SAFETY/SECURITY FENCING (IF REQUIRED).

7. CLEAR BUT DO NOT GRUB WITHIN THE LIMITS INDICATED.

8. ABANDON EXISTING GROUNDWATER MONITORING WELLS 41MW01, 41MW02, AND 41MW04 IN ACCORDANCE WITH CODE OF MARYLAND REGULATIONS (COMAR) 26.04.04. VERIFY ABANDONMENT OF GROUNDWATER MONITORING WELL 41MW03 IN ACCORDANCE WITH COMAR 26.04.04.

9. PERFORM A SWEEP OF THE CONCRETE PAD FOR UNEXPLODED ORDNANCE (UXO). FOLLOWING THE UXO SWEEP, REMOVE SOIL FROM THE SURFACE OF THE CONCRETE PAD AND MECHANICALLY SCREEN SOIL TO REMOVE CARTRIDGE-ACTIVATED DEVICES (CADS). STOCKPILE SCREENED SOIL WITHIN THE CONCRETE PAD AT A DESIGNATED LOCATION, BASED ON THE REQUIREMENTS OF THE SELECTED TREATMENT, STORAGE AND DISPOSAL (TSD) FACILITY, SUBJECT TO APPROVAL BY THE ROICC. MANAGE STOCKPILED SOILS OFF-SITE AT AN APPROVED TSD FACILITY. MANAGE CADS IN ACCORDANCE WITH NAVSEA INSTRUCTION 8023.11, STANDARD OPERATING PROCEDURES FOR THE PROCESSING OF EXPENDABLE ORDNANCE AT NAVY AND MARINE CORPS ACTIVITIES (NAVSEA, 1991). MANAGE MATERIALS REMAINING FROM TREATMENT OF CADS OFF-SITE AT AN APPROVED TSD FACILITY.

10. FOLLOWING REMOVAL OF SOILS FROM THE CONCRETE PAD, VISUALLY ASSESS THE INTEGRITY OF THE CONCRETE PAD TO DETERMINE IF STEAM CLEANING THE CONCRETE PAD IS APPROPRIATE (I.E., DETERMINE IF THE CONCRETE PAD IS SUFFICIENTLY INTACT TO ALLOW COLLECTION OF RINSEWATER). IF THE IHDIV-NSWC ENVIRONMENTAL DEPARTMENT PERSONNEL JUDGE THE CONCRETE PAD CAPABLE OF RETAINING THE RINSEWATER, INSTALL CONTAINMENT BERMS ON THE CONCRETE PAD TO COLLECT ALL RINSEWATER AND STEAM CLEAN THE EXPOSED CONCRETE PAD WITH HIGH PRESSURE, HIGH TEMPERATURE WATER. IF THE IHDIV-NSWC ENVIRONMENTAL DEPARTMENT PERSONNEL JUDGE THE CONCRETE PAD IS IN POOR CONDITION, THE INDIAN HEAD INSTALLATION RESTORATION TEAM (IHIRT) WILL EVALUATE SITE CONDITIONS TO DETERMINE APPROPRIATE FURTHER REMEDIAL ACTION.

11. FOLLOWING CLEANING OF THE CONCRETE PAD SURFACE, PERFORM VERIFICATION SAMPLING FOR THE CONCRETE PAD IN ACCORDANCE WITH THE VERIFICATION SAMPLING AND ANALYSIS PLAN (VSAP). IF THE RESULTS OF THE VERIFICATION SAMPLING INDICATE CONTAMINANT OF CONCERN (COC) CONCENTRATIONS HAVE BEEN REDUCED TO LEVELS BELOW THE PRGS, REMOVE TEMPORARY CONTAINMENT BERMS, MANAGE BERM MATERIAL OFF-SITE AT AN APPROVED TSD FACILITY. IF THE RESULTS OF VERIFICATION SAMPLING INDICATE COC CONCENTRATIONS IN EXCESS OF THE PRGS, THE IHIRT WILL EVALUATE SITE CONDITIONS AND ANALYTICAL DATA TO DETERMINE APPROPRIATE FURTHER REMEDIAL ACTION.

12. REMOVE RAILROAD RAIL AND TIES WITHIN LIMITS INDICATED. CLEAN RAILS WITHIN CONTAMINATED AREAS, AND STOCKPILE CLEANED RAILS FOR SALVAGE BY OTHERS. STOCKPILE TIES FOR OFF-SITE DISPOSAL.

13. PERFORM A SWEEP OF THE AREA OUTSIDE OF THE CONCRETE PAD FOR UXO. FOLLOWING THE UXO SWEEP, EXCAVATE AND MECHANICALLY SCREEN THE SOILS TO REMOVE CADS. STOCKPILE SCREENED SOIL WITHIN THE LIMITS OF DISTURBANCE AT A DESIGNATED LOCATION, BASED ON THE REQUIREMENTS OF THE SELECTED TSD FACILITY, SUBJECT TO APPROVAL BY THE ROICC. MANAGE STOCKPILED SOILS OFF-SITE AT AN APPROVED TSD FACILITY. MANAGE CADS IN ACCORDANCE WITH SEQUENCE OF CONSTRUCTION ITEM 9. PERFORM VERIFICATION SAMPLING FOR THE AREA OUTSIDE THE CONCRETE PAD IN ACCORDANCE WITH THE VSAP. EXCAVATE ADDITIONAL SOIL AS REQUIRED PENDING RESULTS OF POST-REMOVAL VERIFICATION SAMPLING AND ANALYSIS.

14. FOLLOWING VERIFICATION THAT ALL COCS HAVE BEEN REMOVED OR REDUCED TO LEVELS BELOW THE PRGS, BACKFILL EXCAVATIONS TO PRE-EXCAVATION CONTOURS AND RESTORE THE SITE AS INDICATED ON DRAWING C-7 USING FILL, TOPSOIL, AND GRANULAR MATERIAL, AS INDICATED. VEGETATE IMMEDIATELY AFTER TOPSOIL IS PLACED.

15. INSTALL NEW GROUNDWATER MONITORING WELLS (41MW05 THROUGH 41MW10) AS INDICATED.

16. CONSTRUCT ACCESS ROAD AND REPLACE FENCING WHERE REQUIRED.

17. REMOVE ALL TEMPORARY FACILITIES (I.E., DECONTAMINATION PAD, SEDIMENT TANKS, WASTEWATER STORAGE TANKS, ETC.). RESTORE AND REVEGETATE AS NEEDED. WHEN ALL UPSTREAM AREAS HAVE BEEN STABILIZED AND HAVE BEEN ACCEPTED BY THE ROICC AND WITH THE APPROVAL OF THE MDE INSPECTOR, REMOVE ALL REMAINING PERIMETER CONTROLS AND IMMEDIATELY STABILIZE ALL AREAS DISTURBED BY THE REMEDIAL ACTION.

ACAD: 0525CN09.dwg 08/13/02 HJB PIT

SYMBOL	DESCRIPTION	DATE	APPROVED
REVISIONS			

Tetra Tech NUS, Inc. FOSTER PLAZA VII, 661 ANDERSEN DRIVE, PITTSBURGH, PA 15220
DES. TWS | DR. DLT | CHK. RCM
SUBMITTED BY: | TITLE | DATE
PROGRAM MANAGER | DATE 8-14-02
APPROVED | DATE
EFD FOR COMMANDER NAVFAC
D9A 403 | 04 404 | E.I.C. 405 | 401 408 | 402 04B
REVIEWED BY ROICC | DATE

STATE OF MARYLAND — GEORGE ... PHILIPPE — No. 11079 — REGISTERED PROFESSIONAL ENGINEER
SEAL AREA

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ENGINEERING FIELD ACTIVITY-CHESAPEAKE
WASHINGTON, D.C.
INDIAN HEAD DIVISION, NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND

FINAL SUBMISSION
SITE 41 - SCRAP YARD
REMEDIAL ACTION DESIGN
EROSION AND SEDIMENT CONTROL NOTES

CODE I.D. NO. 80091
DRAWING SIZE: D
CONST. CONT. NO. N62470-97-D-0077
SPEC. 21-97-5000-0077
NAVFAC DRAWING NO. 3456979
SHEET 5 OF 10

C-3

REVEGETATION NOTES

SECTION I – VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. SITE PREPARATION

I. INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS SILT FENCE AND STRAW BALES PRIOR TO OTHER SITE DISTURBANCE.

II. PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT NECESSARY FOR TEMPORARY SEEDING.

III. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES. SUBMIT TEST RESULTS AND RECOMMENDATIONS FOR SEED MIXTURE AND FERTILIZER RATES FOR APPROVAL BY ROICC.

B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

I. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER. SOIL ANALYSIS WILL BE PERFORMED BY A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSIS.

II. FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING, AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE ROICC. FERTILIZERS SHALL BE DELIVERED TO THE SITE, FULLY LABELED ACCORDING TO APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADE NAME OR TRADEMARK, AND WARRANTY OF THE PRODUCER.

III. LIME MATERIALS SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE, AND 98 TO 100% WILL PASS THROUGH A #20 MESH SIEVE.

IV. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISCING OR OTHER SUITABLE MEANS. REFER TO 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, SECTION 20.0.

C. SEEDBED PREPARATION

I. *TEMPORARY SEEDING*

a. SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS, CHISEL PLOWS, OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH, BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3H:1V) SHOULD BE TRACKED BY A DOZER LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.

b. APPLY SOIL AMENDMENTS AS PER SOIL TEST AND AS PRESCRIBED ON THE SEEDING SUMMARY.

c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISCING OR OTHER SUITABLE MEANS.

II. PERMANENT SEEDING

a. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT:

1. SOIL pH SHALL BE BETWEEN 6.0 AND 7.0.

2. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).

3. TOPSOIL SHALL CONTAIN 5.0 TO 8.0% ORGANIC MATTER BY WEIGHT.

4. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.

5. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON-SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21.0 "STANDARDS AND SPECIFICATIONS FOR TOPSOIL" OF THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

b. AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES TO PERMIT BONDING OF THE SOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.

c. APPLY SOIL AMENDMENTS AS PER SOIL TEST, AND AS PRESCRIBED ON THE SEEDING SUMMARY.

d. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISCING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE; REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (STEEPER THAN 3H:1V) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1 TO 3 INCHES OF SOIL SHOULD BE LOOSE AND FRIABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS.

D. SEED SPECIFICATIONS

I. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED SHALL MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW.

NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO ROICC TO VERIFY TYPE AND RATE OF SEED USED.

E. METHODS OF SEEDING

I. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER), BROADCAST OR DROP SEEDER, OR A CULTIPACKER SEEDER.

a. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES WILL NOT EXCEED THE FOLLOWING:
NITROGEN: 100 POUNDS/ACRE OF SOLUBLE NITROGEN
PHOSPHOROUS: 200 POUNDS/ACRE
POTASSIUM: 200 POUNDS/ACRE

b. LIME – USE ONLY GROUND AGRICULTURAL LIMESTONE. NORMALLY NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.

c. SEED AND FERTILIZER SHALL BE MIXED ON SITE, AND SEEDING SHALL BE DONE IMMEDIATELY WITHOUT INTERRUPTION.

d. IF SOIL AMENDMENTS ARE BEING APPLIED DURING HYDROSEEDING, APPLICATION BY DISCING AS DISCUSSED IN REVEGETATION NOTES (SECTION I, B, IV) NEED NOT BE PERFORMED.

II. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.

a. SEED SPREAD SHALL BE INCORPORATED INTO THE SOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SUMMARIES. THE SEEDED AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.

b. *WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS* PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

III. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.

a. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.

b. *WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS* PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

F. MULCH SPECIFICATIONS

I. STERILE STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT OR OAT STRAW, REASONABLY BRIGHT IN COLOR, AND SHALL NOT BE MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY, AND SHALL BE FREE OF NOXIOUS WEED SEEDS.

II. *WOOD CELLULOSE FIBER MULCH (WCFM)*

a. WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

b. WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.

c. WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

d. WCFM SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER, AND OTHER ADDITIVES TO FORM A HOMOGENOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDINGS.

e. WCFM SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.

f. WOOD CELLULOSE FIBER MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10 mm., DIAMETER APPROXIMATELY 1 mm., pH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM, AND WATER HOLDING CAPACITY OF 90% MINIMUM.

NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE A STAND OF ONE SPECIES OF GRASS IS DESIRED.

G. MULCHING SEEDED AREAS – MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

I. IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, AN APPROPRIATE NURSERY CROP ALONG WITH MULCH SHALL BE APPLIED TO THE GRADED AREAS.

II. WHEN STERILE STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS/ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1 AND 2 INCHES. MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED, AND MUST BE ANCHORED.

III. WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 LBS PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER, AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

H. SECURING STRAW MULCH (MULCH ANCHORING): MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON SIZE OF AREA AND EROSION HAZARD:

I. A MULCH ANCHORING TOOL IS A TRACTOR-DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS IS THE MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD BE USED ON THE CONTOUR.

II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 LBS/ACRE.

III. APPLICATIONS OF LIQUID BINDERS SHOULD BE APPLIED HEAVIER AT EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD BE UNIFORM AFTER BINDER APPLICATION.

IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

V. PEG AND TWINE: SECURE MULCH BY STRETCHING TWINE BETWEEN 8 TO 10 INCH PEGS DRIVEN TO WITHIN 3 INCHES OF THE SOIL SURFACE IN A CRISS-CROSS WITHIN A SQUARE PATTERN.

I. REPAIRS AND MAINTENANCE

INSPECT ALL SEEDED AREAS FOR FAILURES AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.

I. ONCE THE VEGETATION IS ESTABLISHED, THE SITE SHALL HAVE 95% GROUND COVER TO BE CONSIDERED ADEQUATELY STABILIZED, AS DETERMINED BY THE ROICC AND MDE.

II. IF THE STAND PROVIDES LESS THAN 40% GROUND COVERAGE, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER, SEEDBED PREPARATION, AND SEEDING RECOMMENDATIONS.

III. IF THE STAND PROVIDES BETWEEN 40% AND 94% GROUND COVERAGE, OVERSEEDING AND FERTILIZING USING HALF OF THE RATES ORIGINALLY APPLIED MAY BE NECESSARY, AS DETERMINED AND DIRECTED BY THE ROICC.

SECTION II – TEMPORARY SEEDING

VEGETATION – ANNUAL GRASS OR GRAIN USED TO PROVIDE COVER ON DISTURBED AREAS FOR UP TO TWELVE MONTHS. FOR LONGER DURATION OF VEGETATIVE COVER, PERMANENT SEEDING IS REQUIRED.

TEMPORARY SEEDING SUMMARY

SEED MIXTURE				FERTILIZER RATE (10–10–10)	LIME RATE
SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS		
ANNUAL RYE GRASS	50	2/1–4/30 AND 8/15–11/1	1/4–1/2 INCHES	600 lb/ac (15 lb/1000 sf)	4000 lb/ac (100 lb/1000 sf)

NOTE:
1) IN LIEU OF PROVIDING MARYLAND STANDARD FERTILIZER AND LIME RATES PERFORM SOIL TEST TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER.
2) *THE FERTILIZATION RATE (10–10–10) REFERS TO THE PERCENT N,* P_2O_5, *AND* K_2O PROVIDED IN THE FERTILIZER.

SECTION III – PERMANENT SEEDING

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM PERIOD OF ONE YEAR ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.

PERMANENT SEEDING SUMMARY

SEED MIXTURE				FERTILIZER RATE (10–20–20)	LIME RATE
SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS		
TALL FESCUE	125	3/1–5/15 AND 8/15–11/15	1/4–1/2 INCHES	900 lb/ac (20 lb/1000 sf)	4000 lb/ac (100 lb/1000 sf)
PERENNIAL RYEGRASS	15	3/1–5/15 AND 8/15–11/15	1/4–1/2 INCHES		
KENTUCKY BLUEGRASS	10	3/1–5/15 AND 8/15–11/15	1/4–1/2 INCHES		

NOTE:
1) IN LIEU OF PROVIDING MARYLAND STANDARD FERTILIZER AND LIME RATES PERFORM SOIL TEST TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER.
2) *THE FERTILIZATION RATE (10–20–20) REFERS TO THE PERCENT N,* P_2O_5, AND K_2O PROVIDED IN THE FERTILIZER.

REVISIONS

SYMBOL	DESCRIPTION	DATE	APPROVED
403			
404			
405			
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DATE	REVIEWED BY ROICC		

Tetra Tech NUS, Inc. — FOSTER PLAZA 7, 661 ANDERSON DRIVE, PITTSBURGH, PA 15220
DES. JMS | DR. GLT | CHK. RGM | APPROVED | DATE 8/16/02
APPROVED: FOR COMMANDER NAVFAC

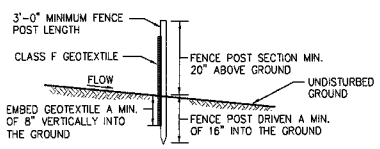
SEAL AREA

NAVAL FACILITIES ENGINEERING COMMAND
DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY–CHESAPEAKE
WASHINGTON, D.C.
INDIAN HEAD, MARYLAND
INDIAN HEAD DIVISION, NAVAL SURFACE WARFARE CENTER

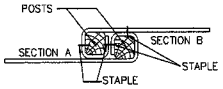
FINAL SUBMISSION
SITE 41 – SCRAP YARD
REMEDIAL ACTION DESIGN
REVEGETATION NOTES

CODE I.D. NO. 80091
DRAWING SIZE: D
CONST. CONT. NO. N62470-97-D-0077
SPEC. 21-97-5000-0077
NAVFAC DRAWING NO. 3456980
SHEET 6 OF 10
C-4

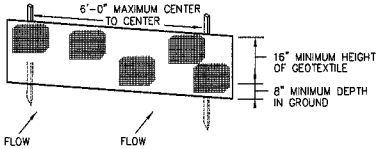
AC AD: 0525CH1G.dwg 08/07/02 HJB PIT



CROSS SECTION



TOP VIEW – JOINING TWO ADJACENT SILT FENCE SECTIONS



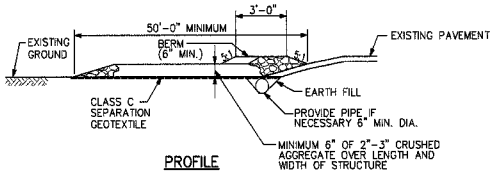
PERSPECTIVE VIEW

NOTES:

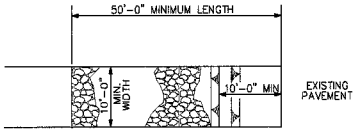
1. FENCE POSTS SHALL BE A MINIMUM OF 36" LONG DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 1.5" BY 1.5" SQUARE (MIN) CUT OR 1.75" DIAMETER (MIN) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD T OR U SECTION WEIGHING NOT LESS THAN 1.00 POUND PER LINEAR FOOT.
2. CLASS F GEOTEXTILE SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION AND SHALL MEET THE REQUIREMENTS OF CLASS F GEOTEXTILE.
3. FROM CONSTRUCTION BASELINE STATION 6+00 TO 8+50 GEOTEXTILE SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED 24" AT THE TOP AND MID-SECTION.

SILT FENCE DETAIL (1 / C-2 | C-5)

NOT TO SCALE



PROFILE



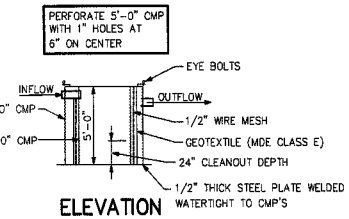
PLAN VIEW

NOTES:

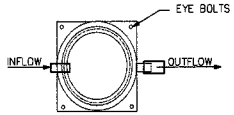
1. GEOTEXTILE SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE.
2. ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PIPED THROUGH THE ENTRANCE TO MAINTAIN POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5H:1V SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. THE PIPE SHALL BE SIZED ACCORDING TO DRAINAGE REQUIREMENTS.

STABILIZED CONSTRUCTION ENTRANCE DETAIL (2 / C-2 | C-5)

NOT TO SCALE



ELEVATION



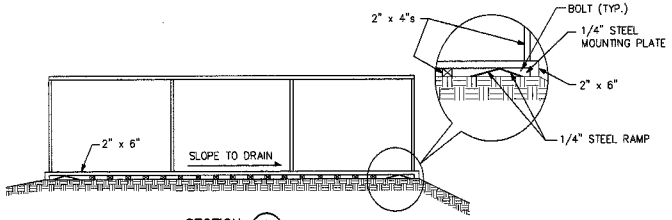
PLAN VIEW

NOTES:

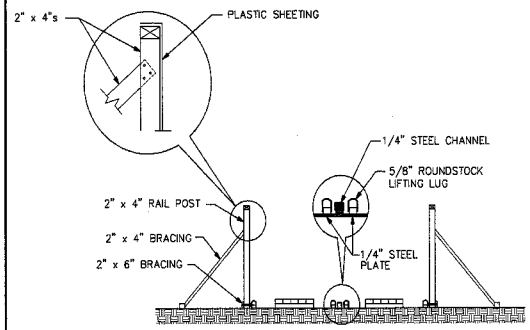
1. AN EXAMPLE OF A TYPICAL SEDIMENT TANK IS SHOWN. OTHER CONTAINER DESIGNS CAN BE USED IF THE STORAGE VOLUME IS ADEQUATE AND APPROVAL IS OBTAINED FROM THE ROICC AND MDE.
2. PORTABLE SEDIMENT TANKS SHALL BE PLACED IN SERIES IF ADDITIONAL RETENTION TIME OR CAPACITY IS REQUIRED. ONE CUBIC FOOT OF STORAGE VOLUME SHALL BE PROVIDED FOR EACH GALLON PER MINUTE OF PUMP DISCHARGE CAPACITY.
3. GEOTEXTILE MESH SIZE MAY VARY FROM TANK TO TANK IF TANKS ARE INSTALLED IN SERIES. FOR TANKS INSTALLED IN SERIES, THE DOWNSTREAM MOST GEOTEXTILE MUST MEET MDE CLASS C OR BETTER.
4. DISCHARGE FROM PORTABLE SEDIMENT TANKS SHALL BE CONTROLLED TO PROTECT DOWNSLOPE AREAS FROM EROSION. EROSION CONTROLS (E.G. EROSION CONTROL MATTING, RIPRAP, ETC.) SHALL BE SUBJECT TO ROICC AND MDE APPROVAL.

PORTABLE SEDIMENT TANK DETAIL (3 / C-2 | C-5)

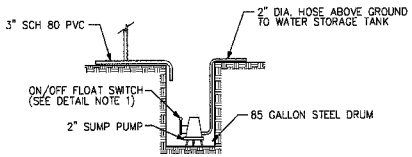
NOT TO SCALE



SECTION (A / C-5 | C-5)



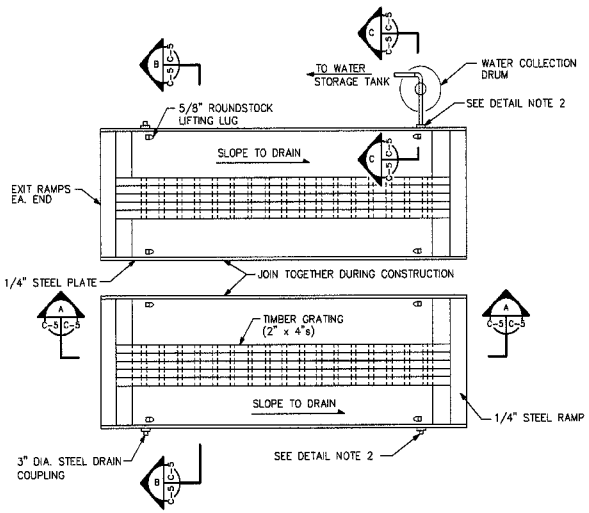
SECTION (B / C-5 | C-5)



SECTION (C / C-5 | C-5)

NOTES:

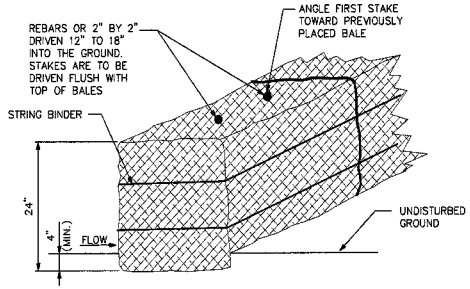
1. ON/OFF OPERATION OF PUMP IS CONTROLLED BY FLOAT SO THAT PUMP STARTS WHEN SUMP WATER LEVEL REACHES 4" BELOW SUMP INLET AND SHUTS OFF WHEN WATER LEVEL DROPS TO PUMP DISCHARGE LEVEL.
2. DRAIN COUPLING IS TO BE FITTED WITH QUICK DISCONNECT AND 3" DIA. SCH 80 PVC (INNER COUPLING) OR 3" DIA. RUBBER DISCHARGE HOSE (OUTER COUPLING) TO SUMP. THE OUTER DRAIN COUPLING IS TO BE USED ONLY AFTER VEHICLE HAS LEFT THE PAD. PLUG ALL DRAINS NOT BEING USED.



PLAN – DECONTAMINATION PAD

DECONTAMINATION PAD DETAIL (4 / C-2 | C-5)

NOT TO SCALE



STRAW BALE DETAIL (5 / C-2 | C-5)

NOT TO SCALE

LEGEND:

REFER TO DRAWING T-2 FOR GENERAL LEGEND.

NOTES:

1. REFER TO DRAWING T-2 FOR GENERAL NOTES.

ACAD:0329C005.dwg 08/13/02 HJB PIT

SYMBOL	DESCRIPTION	DATE	APPROVED
	REVISIONS		

09A	403		
04	404		
	405		
E.I.C.	401		
	408		
	402		
	048		
DATE	REVIEWED BY ROICC	DATE	

Tetra Tech NUS, Inc. CONTRACTOR NO. N62470-97-D-0077 ANNAPOLIS, PA 21401

SIZE 36"x48" | TRC | Jan 04 | DRN. | DLT | CHK. | RCM | DATE | Oct. 17, 2001

PROJECT MANAGER | DATE | Oct. 17, 2001

APPROVED | DATE | EFD FOR COMMANDER NAVFAC

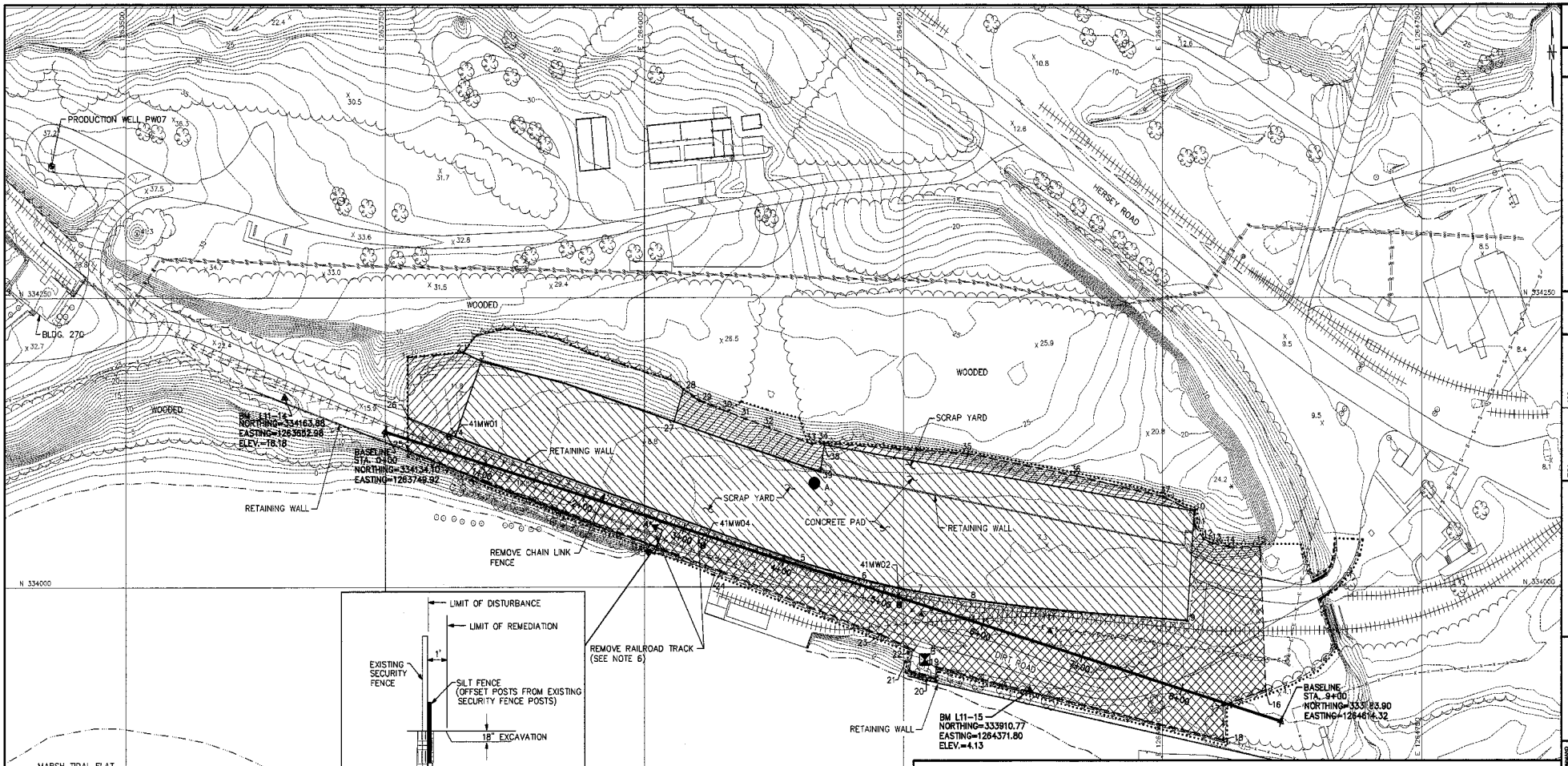
STATE OF MARYLAND PROFESSIONAL ENGINEER No. 11584 — SEAL, AREA

DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY–CHESAPEAKE
NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON, D.C.
INDIAN HEAD DIVISION, NAVAL SURFACE WARFARE CENTER INDIAN HEAD, MARYLAND

FINAL SUBMISSION
SITE 41 – SCRAP YARD
REMEDIAL ACTION DESIGN
EROSION AND SEDIMENT CONTROL DETAILS

CODE I.D. NO. 80091
DRAWING SIZE: D
CONST. CONT. NO. N62470-97-D-0077
SPEC. 21-97-5000-0077
NAVFAC DRAWING NO. 3456981
SHEET 7 OF 10

C-5



SECTION A–A'
NOT TO SCALE

NOTE:
THE LIMIT OF DISTURBANCE AND SILT FENCE ALONG THE SOUTHERN LIMIT OF SITE (i.e. AT THE EXISTING SECURITY FENCE) ARE COINCIDENT.

SOIL REMOVAL		
LOCATION ID	NORTHING	EASTING
1	334198	1263772
2	334202	1263825
3	334195	1263843
4	334131	1263818
5	334022	1264146
6	334007	1264207
7	333996	1264261
8	333988	1264314
9	333970	1264524
10	334066	1264532
11	334053	1264531
12	334041	1264540
13	334038	1264548
14	334034	1264564
15	334035	1264594
16	333911	1264600
17	333898	1264558
18	333868	1264558
19	333931	1264282
20	333919	1264272
21	333935	1264252
22	333945	1264260
23	333959	1264228
24	334013	1264074
25	334118	1263772
26	334146	1263772
27	334143	1264029
28	334171	1264038
29	334161	1264053

SOIL REMOVAL		
LOCATION ID	NORTHING	EASTING
30	334152	1264082
31	334145	1264098
32	334137	1264121
33	334123	1264162
34	334124	1264173
35	334115	1264312
36	334096	1264417
37	334078	1264501
38	334123	1264173
39	334100	1264170
A	334090	1264164
B	333937	1264270

NOTES:

1. REFER TO DRAWING T–2 FOR GENERAL NOTES.
2. LOCATION A IS PRESENTED WITHIN THE CONCRETE PAD LIMITS BECAUSE SAMPLES COLLECTED FROM THE SOIL ABOVE THE CONCRETE PAD HAD PCB CONCENTRATIONS EXCEEDING 500 mg/kg. FOR COMPLETE ANALYTICAL RESULTS REFER TO THE INITIAL ASSESSMENT STUDY (NEESA, MAY 1983), SUPPLEMENTAL PRELIMINARY ASSESSMENT REPORT (NEESA, 1992), FINAL SITE INSPECTION REPORT (E/A&H, MARCH 1994), REMEDIAL INVESTIGATION (RI) REPORT (TtNUS, JULY 1999), AND FEASIBILITY STUDY (FS) REPORT (TtNUS, JANUARY 2001).
3. REMOVE CADs FROM REMOVED AND EXCAVATED SOIL BY MECHANICALLY SCREENING THE SOIL. STOCKPILE SCREENED SOIL WITHIN THE CONCRETE PAD AT A DISIGNATED LOCATION, BASED ON THE REQUIREMENTS OF THE SELECTED TSD FACILITY, SUBJECT TO APPROVAL BY THE ROICC. MANAGE CADs IN ACCORDANCE WITH THE NAVSEA INSTRUCTION 8023.11, STANDARD OPERATING PROCEDURES FOR MANUFACTURE, HANDLING, AND STORAGE OF EXPENDABLE ORDNANCE AT NAVY AND MARINE CORPS ACTIVITIES (NAVSEA, 1991). MANAGE MATERIALS REMAINING FROM TREATMENT OF CADs OFF–SITE AT AN APPROVED DISPOSAL FACILITY.
4. EXCAVATION LIMITS INDICATED ARE INITIAL LIMITS. EXCAVATION DEPTHS INDICATED ARE INITIAL DEPTHS. EXCAVATION LIMITS AND DEPTHS MAY INCREASE BASED ON RESULTS OF POST–REMOVAL VERIFICATION SAMPLING AND ANALYSIS. EXCAVATION LIMITS SHALL NOT EXTEND BEYOND THE LIMIT OF REMEDIATION. EXCAVATION DEPTHS SHALL NOT EXTEND BELOW THE GROUNDWATER TABLE, EXCEPT AT LOCATION ID B.
5. THE CONTRACTOR SHALL DETERMINE THE NUMBER OF STOCKPILES REQUIRED BASED ON WASTE DISPOSAL CHARACTERIZATION RESULTS AND THE REQUIREMENTS OF THE SELECTED TSD FACILITY, SUBJECT TO APPROVAL BY THE ROICC.
6. REMOVE RAILROAD RAIL AND TIES WITHIN LIMITS OF REMEDIATION. CLEAN SOIL FROM RAILS AND TIES AND STOCKPILE CLEANED RAILS FOR SALVAGE BY OTHERS. STOCKPILE TIES FOR SUBSEQUENT OFF–SITE DISPOSAL AT AN APPROVED DISPOSAL FACILITY. BALLAST ALONG WITH SOIL FOUND ABOVE, BELOW, AND BETWEEN TIES SHALL BE STOCKPILED FOR DISPOSAL OFF–SITE AT AN APPPROVED TSD FACILITY WITH OTHER EXCAVATED SOILS.

LEGEND:

REFER TO DRAWING T–2 FOR GENERAL LEGEND.

- 41MW01 — EXISTING MONITORING WELL TO BE ABANDONED
- ++++ — HIDDEN/ REMOVED RAILROAD TRACKS
- A — SURFACE SOIL SAMPLE PCB CONCENTRATIONS EXCEED 500 mg/kg
- 6–INCH EXCAVATION DEPTH
- 18 INCH EXCAVATION DEPTH
- SOIL REMOVAL AREA
- B — 8–FOOT EXCAVATION DEPTH 10' x 10' EXCAVATION FLOOR AREA

0 50 100
SCALE IN FEET

ACAD:0320CP13.dwg 08/14/02 NJB PIT

SYMBOL	DESCRIPTION	DATE	APPROVED
	REVISIONS		

DSN	403
DR	404
C.I.C.	405
401	406
402	1148

DATE
REVIEWED BY ROICC

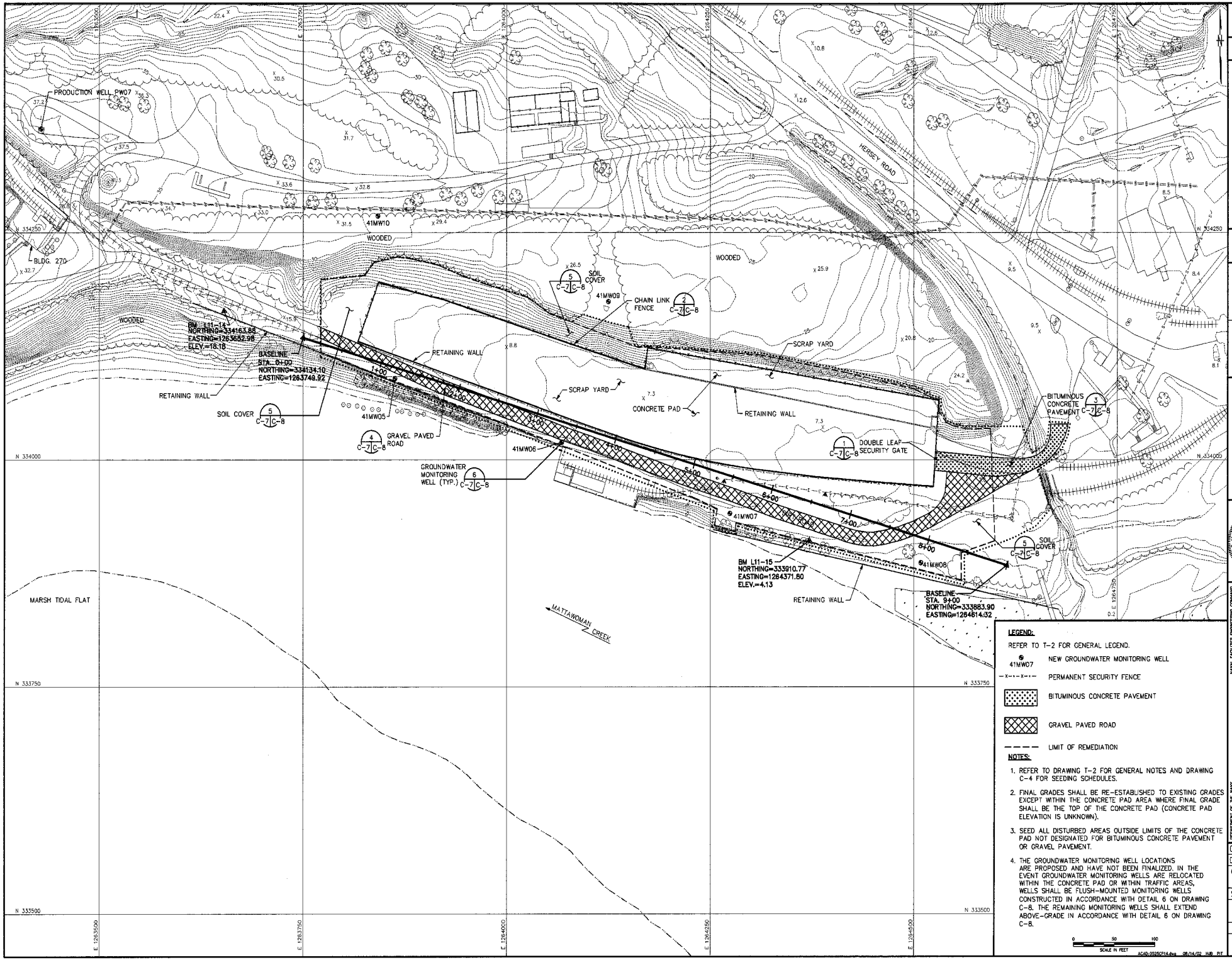
Tetra Tech NUS, Inc.
PITTSBURGH, PA 15220
DES. TNC DR. DLT TNC CHK. RCM
PROJECT MANAGER
DATE
CONSTRUCTION MANAGER
DATE
EFD FOR COMMANDER NAVFAC

SEAL AREA

DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY–CHESAPEAKE
NAVAL FACILITIES ENGINEERING COMMAND
WASHINGTON, D.C.
INDIAN HEAD DIVISION, NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND

FINAL SUBMISSION
SITE 41 – SCRAP YARD
REMEDIAL ACTION DESIGN
EXCAVATION AND FILL PLAN

CODE I.D. NO. 80091
DRAWING SIZE: D
CONST. CONT. NO.
N62470–97–D–0077
SPEC. 21–97–5000–0077
NAVFAC DRAWING NO.
3456982
SHEET 8 OF 10
C–6



LEGEND:

REFER TO T-2 FOR GENERAL LEGEND.

41MW07 — NEW GROUNDWATER MONITORING WELL

—x—x—x— PERMANENT SECURITY FENCE

BITUMINOUS CONCRETE PAVEMENT

GRAVEL PAVED ROAD

LIMIT OF REMEDIATION

NOTES:

1. REFER TO DRAWING T-2 FOR GENERAL NOTES AND DRAWING C-4 FOR SEEDING SCHEDULES.
2. FINAL GRADES SHALL BE RE-ESTABLISHED TO EXISTING GRADES EXCEPT WITHIN THE CONCRETE PAD AREA WHERE FINAL GRADE SHALL BE THE TOP OF THE CONCRETE PAD (CONCRETE PAD ELEVATION IS UNKNOWN).
3. SEED ALL DISTURBED AREAS OUTSIDE LIMITS OF THE CONCRETE PAD NOT DESIGNATED FOR BITUMINOUS CONCRETE PAVEMENT OR GRAVEL PAVEMENT.
4. THE GROUNDWATER MONITORING WELL LOCATIONS ARE PROPOSED AND HAVE NOT BEEN FINALIZED. IN THE EVENT GROUNDWATER MONITORING WELLS ARE RELOCATED WITHIN THE CONCRETE PAD OR WITHIN TRAFFIC AREAS, WELLS SHALL BE FLUSH-MOUNTED MONITORING WELLS CONSTRUCTED IN ACCORDANCE WITH DETAIL 6 ON DRAWING C-8. THE REMAINING MONITORING WELLS SHALL EXTEND ABOVE-GRADE IN ACCORDANCE WITH DETAIL 6 ON DRAWING C-8.

0 50 100
SCALE IN FEET

ACAD:0525C114.dwg 08/14/02 HJB PJT

SYMBOL	DESCRIPTION	DATE	APPROVED

REVISIONS

LPA	403		
04	404		
E.I.C.	405		
	406		
D48	432	REVIEWED BY RAOC	DATE

PETER BRAND & ASSOCIATES, INC. PITTSBURGH, PA. 15206

Tetra Tech NUS, Inc.

DES. | DRN. | CHK. | DLT | TITLE CHK. | APPR. | DATE

APPROVED: J.T. GATES 8/22/02

EFD FOR COMMANDER NAVFAC

SEAL AREA

DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY-CHESAPEAKE
NAVAL FACILITIES ENGINEERING COMMAND
WASHINGTON, D.C.
NIGHT HEAD DIVISION, NAVAL SURFACE WARFARE CENTER
NIGHT HEAD, MARYLAND

FINAL SUBMISSION
SITE 41 – SCRAP YARD
REMEDIAL ACTION DESIGN
RESTORATION PLAN

CODE I.D. NO. 80091

DRAWING SIZE: D

CONST. CONT. NO. N62470-97-D-0077

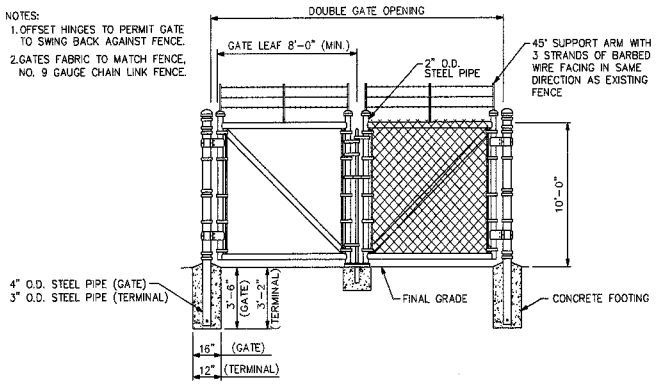
SPEC. 21-97-5000-0077

NAVFAC DRAWING NO. 3456983

SHEET 9 OF 10

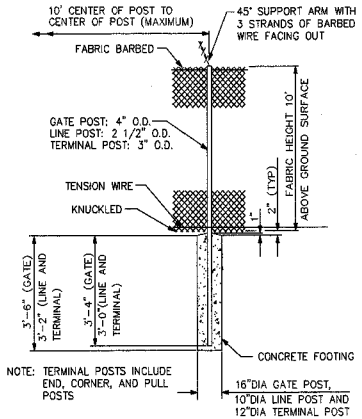
C-7

NOTES:
1. OFFSET HINGES TO PERMIT GATE TO SWING BACK AGAINST FENCE.
2. GATES FABRIC TO MATCH FENCE, NO. 9 GAUGE CHAIN LINK FENCE.



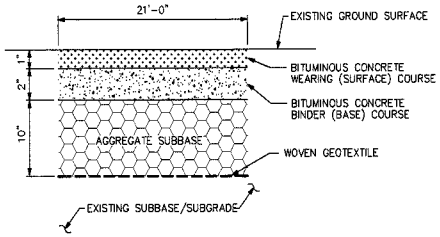
DOUBLE LEAF SECURITY GATE DETAIL (1 / C-7 | C-8)

NOT TO SCALE



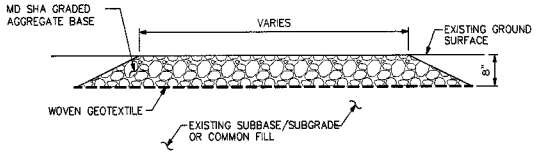
CHAIN LINK FENCE DETAIL (2 / C-7 | C-8)

NOT TO SCALE



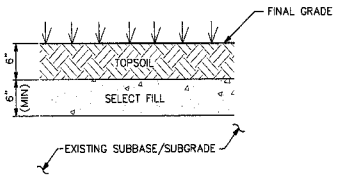
BITUMINOUS CONCRETE PAVEMENT DETAIL (3 / C-7 | C-8)

NOT TO SCALE



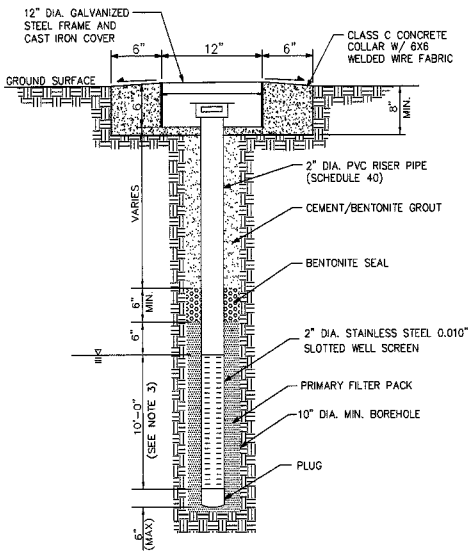
GRAVEL PAVED ROAD DETAIL (4 / C-7 | C-8)

NOT TO SCALE

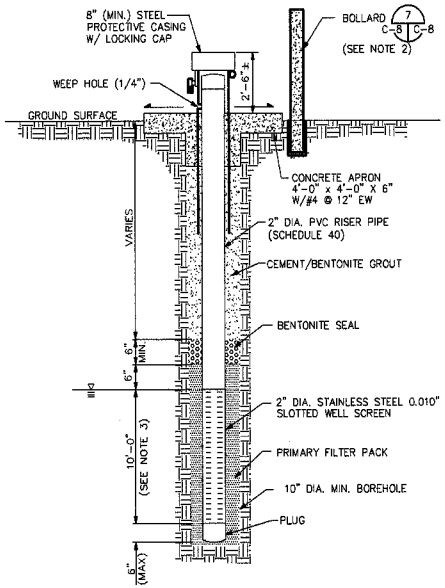


SOIL COVER (5 / C-7 | C-8)

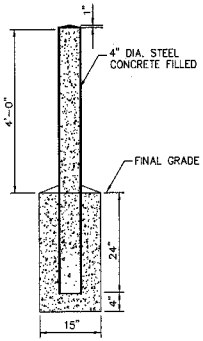
NOT TO SCALE



FLUSH-MOUNT



ABOVE-GRADE



BOLLARD (7 / C-8 | C-8)

NOT TO SCALE

GROUNDWATER MONITORING WELL DETAILS (6 / C-7 | C-8)

NOT TO SCALE

LEGEND:

REFER TO DRAWING T-2 FOR GENERAL LEGEND.

NOTES:

1. REFER TO DRAWING T-2 FOR GENERAL NOTES.
2. PROVIDE 4 BOLLARDS FOR EACH PROPOSED MONITORING WELL AT EACH CORNER OF THE CONCRETE APRON.
3. MONITORING WELL SCREEN INTERVALS SHALL EXTEND FROM THE WATER TABLE DOWN 10-FEET.

SYMBOL	DESCRIPTION	DATE	APPROVED
402	REVISIONS		
401			
488			
405			
404			
403			

REVIEWED BY RDCC

Tetra Tech NUS, Inc. — CHESAPEAKE DIVISION, INDIAN HEAD, MD

DSN	04	E.I.C.	
DRN		CHK.	TRC
BY		DATE	8-4-02
SUBMITTED			

APPROVED FOR COMMANDER NAVFAC

SEAL AREA

DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY-CHESAPEAKE
NAVAL FACILITIES ENGINEERING COMMAND
WASHINGTON, D.C.
INDIAN HEAD DIVISION/NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND

FINAL SUBMISSION
SITE 41 – SCRAP YARD
REMEDIAL ACTION DESIGN
MISCELLANEOUS DETAILS

CODE I.D. NO. 80091
DRAWING SIZE: D
CONST. CONT. NO. N62470-97-D-0077
SPEC. 21-97-5000-0077
NAVFAC DRAWING NO. 3456984
SHEET 10 OF 10

C-8

ACAD:0525C006.dwg 08/13/02 HJB PIT