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FINAL INTERIM MEASURES WORK PLAN FOR SOLID WASTE MANAGEMENT UNIT 17 PCB CAPACITOR BURIAL POLE YARD NSA CRANE IN

3/1/2013

TETRA TECH

Interim Measures Work Plan
for
SWMU 17 - PCB Capacitor Burial/Pole Yard

Naval Support Activity
Crane, Indiana

Naval Facilities Engineering Command
Midwest
Contract Number N62472-03-D-0057
Contract Task Order F271

March 2013

081101/P

FINAL
INTERIM MEASURES WORK PLAN FOR SWMU 17 – PCB CAPACITOR BURIAL/POLE YARD

NAVAL SUPPORT ACTIVITY
CRANE, INDIANA

COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Naval Facilities Engineering Command Midwest
201 Decatur Avenue
Building 1A, Code EV
Great Lakes, Illinois 60088

Submitted by:
Tetra Tech
234 Mall Boulevard, Suite 260
King of Prussia, Pennsylvania 19406

CONTRACT NUMBER N62472-03-D-0057
CONTRACT TASK ORDER F271

MARCH 2013

PREPARED UNDER THE DIRECTION OF:

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TABLES

FIGURES

NUMBER

LIST OF ACRONYMS

bgs	below ground surface
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-term Environmental Action Navy
Contractor	Interim Measures Implementation Contractor
CTO	Contract Task Order
cy	cubic yard
DNR	Department of Natural Resources
DRMO	Defense Reutilization Marketing Office
ESA	Endangered Species Act
Handbook	Indiana Handbook for Erosion Control in Developing Areas
HSWA	Hazardous and Solid Waste Amendments
IAS	Initial Assessment Study
IDEM	Indiana Department of Environmental Management
IDOT	Indiana Department of Transportation
IM	Interim Measure
IMWP	Interim Measures Work Plan
IR	Installation Restoration
LDPE	Low density poylethylene
mg/kg	milligram(s) per kilogram
MSDS	Material Safety Data Sheet
msl	mean sea level
NAVFAC	Naval Facilities Engineering Command
NSA	Naval Support Activity
OICC	Officer in Charge of Construction
PCB	polychlorinated biphenyl
ppm	parts per million
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
SAIC	Science Applications International Corporation
sq.ft.	square feet
SVOC	Semivolatile Organic Compound

SWMU	Solid Waste Management Unit
TSCA	Toxic Substance Control Act
Tetra Tech	Tetra Tech, Inc.
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

The Polychlorinated Biphenyl (PCB) Capacitor Burial/Pole Yard, also known as Solid Waste Management Unit (SWMU) 17, at Naval Support Activity (NSA) Crane located in Crane, Indiana, has been studied extensively with regard to PCB contamination. Within this SWMU are four primary categories of environmental media groups that exhibit PCB contamination:

- Group 1: Ditches. These are natural water conveyances on the steeper slopes of SWMU 17 that do not necessarily contain water year round and are not necessarily under tree canopy.

- Group 2: Stream Sediments. These are sediments in streams that do contain water year round and are therefore considered to pose a slightly different set of challenges for PCB sediment removal.

- Group 3: Floodplain Soils. These soil areas are located adjacent to the streams that contain the Group 2 stream sediments. The extent of floodplain contamination, however, does not necessarily extend the entire length of stream channel containing contaminated sediments.

- Group 4: SWMU 17 Dump/Fill Area and Building Area Soils. This group is commonly called “building areas” throughout this document. The Dump/Fill Area is a known dumping ground for debris including electrical equipment that has been covered over and is known to contain the highest levels of PCB contamination observed in soils at SWMU 17. Previous excavations at select building areas has reduced the amount of PCB contamination but residual PCB contamination persists at levels greater than 1 mg/kg and even greater than 500 mg/kg in some areas.

Each of the four groups listed above comprises multiple excavation areas and each excavation area is typically divided into subareas. These areas and subareas, and the planned excavations within them, are described in detail in the main body of this plan. Table ES-1 presents data regarding the amount of sediment or soil to be removed, physical characteristics, and an estimate of the amount of waste in each subarea that will have a PCB concentration equal to or greater than 50 mg/kg and is therefore considered to be a waste regulated under the Toxic Substances Control Act (TSCA).

This plan is compartmentalized in a way that allows for completing the Interim Measures in phases. Remediation may be implemented concurrently, sequentially, or separately as directed by the Navy.

TABLE ES-1

SUMMARY OF INTERIM MEASURES ACTIVITIES AND SPECIFICATIONS
INTERIM MEASURES WORK PLAN SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE, INDIANA

Excavation Area	Sub - Area	Appendix A Calculation Sheet	IMWP Section	IMWP Figures	Remediation Area, sq. ft.	Target Maximum Excavation Depth, ft. bgs.	Estimated Average Excavation Depth, ft. bgs.	Estimated Excavation Vol., cubic ft.	Estimated Excavation Vol., cubic yds.	TSCA Status	Comment
Group 1: Ditches											
Northwest Ditch	NWD	1A	2.5.1.1	2-6, 3-1	6,240	2.0	1.5	9,360	347	non-TSCA	
Ditch 8	8a	1B	2.5.1.3	2-6, 2-7, and 3-1	400	1.0	1.0	400	15	non-TSCA	
Ditch 8	8b	1C	2.5.1.3	2-7 and 3-1	620	1.0	1.0	620	23	non-TSCA	
Group 2: Stream Sediments											
Boggs Cr.	17SD105	--	2.5.2.1	2-5, 3-2	400	1.5	1.5	600	22	non-TSCA	Figure 3-2 (East side of Boggs Creek, near Sample Point 17SD105
Boggs Cr.	Seg. 1	--	2.5.2.2	2-8, 3-1, and 3-3	2,970	0.5	0.5	1,485	55	non-TSCA	Boggs Creek, Segment 1 sediments
Ditch 3	Seg. 2	--	2.5.2.3	2-9, 3-1, and 3-3	6,000	0.5	0.5	3,000	111	non-TSCA	Ditch 3, Segment 2 sediments
Ditch 3	Seg. 3	--	2.5.2.4	2-10, 3-3	5,600	0.5	0.5	2,800	104	non-TSCA	Ditch 3, Segment 3 sediments
Ditch 3	Seg. 4	--	2.5.2.5	2-11, 3-4	7,500	0.5	0.34	2,550	94	non-TSCA	Ditch 3, Segment 4 sediments
Ditch 3	Seg. 5	--	2.5.2.6	2-12, 3-4	5,250	0.5	0.17	893	33	non-TSCA	Ditch 3, Segment 5 sediments
Ditch 3	Seg. 6	Upstream and Downstream Non-TSCA Areas	2.5.2.7	2-12, 2-13, 3-4	2,280	1.0	0.6	1,368	50.7	non-TSCA	Ditch 3, Segment 6 sediments outside two TSCA Areas shown on Figure 3-4.
Ditch 3	**Seg. 6**	**Downstream TSCA Area**	2.5.2.7	2-12, 2-13, 3-4	**500**	**0.5**	**0.25**	**125**	**4.63**	**TSCA**	**TSCA-regulated Sediments (Downstream Area)**
Ditch 3	**Seg. 6**	**Upstream TSCA Area**	2.5.2.7	2-13 and 3-4	**90**	**1.0**	**1.0**	**90**	**3.33**	**TSCA**	**TSCA-regulated Sediments (Upstream Area)**

TABLE ES-1

SUMMARY OF INTERIM MEASURES ACTIVITIES AND SPECIFICATIONS
INTERIM MEASURES WORK PLAN SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE, INDIANA

Excavation Area	Sub - Area	Appendix A Calculation Sheet	IMWP Section	IMWP Figures	Remediation Area, sq. ft.	Target Maximum Excavation Depth, ft. bgs.	Estimated Average Excavation Depth, ft. bgs.	Estimated Excavation Vol., cubic ft.	Estimated Excavation Vol., cubic yds.	TSCA Status	Comment
Group 3: Floodplain Soils											
Ditch 3	Seg. 1	3A-1	2.5.3.1	2-8, 3-1, and 3-3	3,770	2.0	2.0	7,540	279	non-TSCA	Figure 2-8 (north side of Boggs Creek)
Ditch 3	Seg. 1	3A-2	2.5.3.1	2-8, 3-1, and 3-3	1,688	1.5	1.5	2,532	94	non-TSCA	Figure 2-8 (north side of Boggs Creek)
Ditch 3	Seg. 1	3B	2.5.3.1	2-8, 3-1, and 3-3	8,122	1.5	1.5	12,183	451	non-TSCA	Figure 2-8 (south side of Boggs Creek)
Ditch 3	Seg. 2	3C	2.5.3.2	2-9, 3-1, and 3-3	2,144	0.5	0.5	1,072	40	non-TSCA	Figure 2-9 (southwest side of Segment 2 of Ditch 3)
Ditch 3	Seg. 2	3D	2.5.3.2	2-9, 3-1, and 3-3	3,858	1.0	1.0	3,858	155	non-TSCA	Figure 2-9 (south side of Segment 2 of Ditch 3). Includes Areas 3D-1 through 3D-4
Ditch 3	Seg. 2	3E	2.5.3.2	2-9, 3-1, and 3-3	4,322	1.0	1.0	4,322	172	non-TSCA	Figure 2-9 (north side of Segment 2 of Ditch 3). Includes areas 3E-1 and 3E-2.
Ditch 3	Seg. 3	3F	2.5.3.3	2-10, 3-1, and 3-3	1,032	Bedrock (about 1.5 ft bgs)	1.5	1,548	57	non-TSCA	Figure 2-10 (north side of Segment 3 of Ditch 3)
Ditch 3	Seg. 4	3G	2.5.3.4	2-11, 3-4	1,878	1.0	1.0	1,878	70	non-TSCA	Figure 2-11 (south side of Segment 4 of Ditch 3)
Ditch 3	**Seg. 4**	**3H**	2.5.3.4	2-11, 3-4	**1,778**	**1.0**	**1.0**	**1,778**	**66**	**TSCA**	Figure 2-11 (north [TSCA Removal Area] side of Segment 4 of Ditch 3)-**FP soil**
Ditch 3	Seg. 4	3I	2.5.3.4	2-11, 3-4	713	1.5	1.5	1,070	40	non-TSCA	Figure 2-11 (north side of Segment 4 of Ditch 3)
Ditch 3	Seg. 5	3J	2.5.3.5	2-12, 3-4	8,965	(0.5 in floodplain; 1.5 in oxbow area)	1.3	11,655	432	non-TSCA	Figure 2-12 (north side of Segment 5 of Ditch 3)
Ditch 3	Seg. 5	3K	2.5.3.5	2-12, 3-4	1,915	1.0	1.0	1,915	71	non-TSCA	Figure 2-12 (south side of Segment 5 of Ditch 3)
Ditch 3	**Seg. 5**	**3L**	2.5.3.5	2-12, 3-4	**808**	**Bedrock (about 1.5 ft bgs)**	**1.5**	**1,212**	**45**	**TSCA**	Figure 2-12 **(TSCA-regulated FP soil)**
Ditch 3	Seg. 5	3M	2.5.3.5	2-12, 3-4	703	0.5	0.5	352	13	non-TSCA	Figure 2-12 (south side of Segment 5 of Ditch 3)
Ditch 3	Seg. 5	3N	2.5.3.5	2-12, 3-4	1,377	1.0	1.0	1,377	51	non-TSCA	Figure 2-12 (north side of Segment 5 of Ditch 3)
Ditch 3	Seg. 6	3O	2.5.3.6	2-13, 3-4	1,006	Bedrock (about 2.0 ft bgs)	2.0	2,012	75	non-TSCA	Figure 2-13 - North side of Segment 6 of Ditch 3)

TABLE ES-1

SUMMARY OF INTERIM MEASURES ACTIVITIES AND SPECIFICATIONS
INTERIM MEASURES WORK PLAN SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE, INDIANA

Excavation Area	Sub - Area	Appendix A Calculation Sheet	IMWP Section	IMWP Figures	Remediation Area, sq. ft.	Target Maximum Excavation Depth, ft. bgs.	Estimated Average Excavation Depth, ft. bgs.	Estimated Excavation Vol., cubic ft.	Estimated Excavation Vol., cubic yds.	TSCA Status	Comment
Ditch 3	Seg. 6	3P	2.5.3.6	2-13, 3-4	674	Bedrock (about 2.0 ft bgs)	2.0	1,348	50	non-TSCA	Figure 2-13 - (south side of Segment 6 of Ditch 3)
Group 4: SWMU 17 Dump/Fill Area and Other Building Area Soils											
Dump/Fill Area SW of Bldg. 3072	**4A**	4A-1	2.5.4.1	2-14, 2-15, 3-3, and 3-5	823	4.0	4.0	3,292	122	non-TSCA	Figures 2-14 and 3-6 [Assume approximately 60 percent of the total 4A excavation volume (1,946 cubic yards) is TSCA-regulated soil and the other 40 percent (1,316 cubic yards) consists of 48 percent non-TSCA soil and 2 percent non-TSCA debris]
		4A-2	2.5.4.1	2-14, 2-15, 3-3, and 3-5	786	4.0	4.0	3,144	116	non-TSCA	
		4A-3	2.5.4.1	2-14, 2-15, 3-3, and 3-5	844	8.0	8.0	6,752	250	non-TSCA	
		4A-4	2.5.4.1	2-14, 2-15, 3-3, and 3-5	**555**	**6.0**	**6.0**	**3,330**	**123**	**TSCA**	
		4A-5	2.5.4.1	2-14,2-15, 3-3, and 3-5	4,180	4.0	4.0	16,720	619	non-TSCA	
		4A-6	2.5.4.1	2-14, 2-15, 3-3, and 3-5	**4,290**	**12.0**	**9.0**	**38,610**	**1,430**	**TSCA**	
		4A-7	2.5.4.1	2-14, 2-15, 3-3, and 3-5	**987**	**7.0**	**7.0**	**6,909**	**256**	**TSCA**	
		4A-8	2.5.4.1	2-14, 2-15, 3-3, and 3-5	974	6.0	4.0	3,896	144	non-TSCA	
		4A-9	2.5.4.1	2-14, 2-15, 3-3, and 3-5	**1,059**	**4.0**	**3.5**	**3,707**	**137**	**TSCA**	
		4A-10	2.5.4.1	2-14, 2-15, 3-3, and 3-5	196	9.0	9.0	1,764	65	non-TSCA	

TABLE ES-1

SUMMARY OF INTERIM MEASURES ACTIVITIES AND SPECIFICATIONS
INTERIM MEASURES WORK PLAN SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE, INDIANA

Excavation Area	Sub - Area	Appendix A Calculation Sheet	IMWP Section	IMWP Figures	Remediation Area, sq. ft.	Target Maximum Excavation Depth, ft. bgs.	Estimated Average Excavation Depth, ft. bgs.	Estimated Excavation Vol., cubic ft.	Estimated Excavation Vol., cubic yds.	TSCA Status	Comment
Between B357 and Road	4B	4B-1	2.5.4.2	2-16 and 3-5	8,781	1.5	1.5	13,172	488	non-TSCA	Figure 2-16 (in front of Building 357)
		4B-2	2.5.4.2	2-16 and 3-5	567	2.5	2.5	1,418	53	non-TSCA	Figure 2-16 (small area in middle, north-central portion of 4B)
		4B-3	2.5.4.2	2-16 and 3-5	179	4.0	4.0	716	27	non-TSCA	Figure 2-16 (small area in northeast section of 4B, east of 4B-50)
TSCA area between B357 and Road	**4B-50**	**4B-50**	2.5.4.2	2-15, 3-3, and 3-5	**814**	**Bedrock (about 4.0 ft bgs)**	**2.5**	**2,035**	**75**	**TSCA**	Figure 2-15 - 4B-50 (NE Corner of TolTest Excavation Area C) - **(TSCA-regulated soil)**
Northeast of TolTest Excavation Area D and West of Ditch 2	4C	4C	2.5.4.3	2-16, 3-3, and 3-5	7,392	2.5	2.5	18,480	684	non-TSCA	Figure 2-16 - (TolTest Excavation Area D, near headwaters of Ditch 2)
Near SW Corner of Bldg. 2721	**4D**	**4D**	2.5.4.4	2-13 and 3-4	**269**	**2.0**	**2.0**	**538**	**20**	**TSCA**	Figure 2-13 - 2721 4D (near the southwest corner of Bldg. 2721) - **(TSCA-regulated soil)**

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

The purpose of this document is to present the Interim Measures Work Plan (IMWP) for the Polychlorinated Biphenyl (PCB) Capacitor Burial/Pole Yard, also known as Solid Waste Management Unit (SWMU) 17, Naval Support Activity (NSA) Crane located in Crane, Indiana. This IMWP includes the excavation and off-site disposal of contaminated soils and sediment located within the floodplains, drainage channels, and streams that receive surface water runoff from the PCB Capacitor Burial/Pole Yard. Contaminated soil is also present in the areas adjacent to Buildings 357 and 2721 and in the buried electrical debris area adjacent to Building 3072. Excavation and off-site disposal of contaminated soil in these areas is governed by this IMWP. IMWP activities include backfilling of excavation areas and stream restoration. A small amount of final delineation sampling and confirmation sampling are also required, as well as waste characterization sampling and analysis. The IMWP was prepared for the United States Navy, Naval Facilities Engineering Command (NAVFAC) Midwest by Tetra Tech, Inc. (Tetra Tech) under Contract Task Order (CTO) F271 of the Comprehensive Long-Term Environmental Action Navy (CLEAN) IV Contract Number N62472-03-D-0057.

This work is being performed under the Navy's Installation Restoration (IR) Program. The following are the four distinct phases of work conducted for IR sites:

- Phase 1 is the Preliminary Assessment [formerly known as the Initial Assessment Study (IAS)]
- Phase 2 is the Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)
- Phase 3 is the RCRA Facility Investigation (RFI)/Corrective Measures Proposal
- Phase 4 is the Corrective Measures Implementation

This IMWP has been prepared under Phase 3 of the IR Program as part of an interim measure. The IMWP defines the activities associated with the corrective measures conducted to address PCB-contaminated soils and sediments that remain within the limits of SWMU 17. These include areas within several drainage channels, adjacent floodplains located southwest, west, northwest, north, and northeast of Buildings 357 and 2721, and soil near the buildings.

1.2 FACILITY DESCRIPTION

NSA Crane is located in the southern portion of Indiana, approximately 75 miles southwest of Indianapolis and 71 miles northwest of Louisville, Kentucky, immediately east of Crane Village and Burns City (Figure 1-1). NSA Crane encompasses 62,463 acres (approximately 98 square miles), most of which are located in the northern portion of Martin County. Smaller portions of NSA Crane are located in Greene, Daviess, and Lawrence Counties. NSA Crane is located in a rural, sparsely populated area. Most of NSA Crane is forested, and the surrounding area is wooded or farmed land.

NSA Crane provides material, technical, and logistical support to the Navy for equipment, shipboard weapons systems, and nonexpendable ordnance items. In addition, NSA Crane supports the Crane Army Ammunition Activity with production, renovation, storage, shipment, demilitarization, and disposal of conventional ammunition.

1.3 REGULATORY SUMMARY

1.3.1 NSA Crane

Following promulgation of the RCRA hazardous waste regulatory program, NSA Crane filed notification and application to operate as a RCRA hazardous waste treatment, storage, or disposal facility in October 1980. Interim status was granted subject to operating requirements and applicable technical standards found in Title 40 of the Code of Federal Regulations (CFR), Part 265.

Corrective action programs established as part of the 1984 RCRA Hazardous and Solid Waste Amendments (HSWA) required NSA Crane to address past releases of hazardous waste or hazardous constituents at SWMUs. Accordingly, NSA Crane submitted a Hazardous Waste Management Report, and several RFIs were conducted to characterize the potential for releases of hazardous waste or constituents from approximately 100 SWMUs identified during the RFA, including the SWMU 17 RFI (Tetra Tech, 2002).

On December 23, 1989, the United States Environmental Protection Agency (USEPA) issued the federal portion of the final RCRA Part B Permit for NSA Crane to the Navy. USEPA renewed the permit in 1995. The Indiana Department of Environmental Management (IDEM) now has responsibility for the Federal Corrective Action Permit. IDEM renewed the Corrective Action Permit on October 18, 2001. However, certain ongoing corrective actions, including corrective actions at SWMU 17, will continue under the USEPA/IDEM Work Sharing Agreement for Corrective Action Activities at NSA Crane.

1.3.2 SWMU 17 – PCB Capacitor Burial/Pole Yard

SWMU 17 is located in the north-central portion of NSA Crane, as shown on Figure 1-1. Figure 1-2 is an aerial photograph of SWMU 17. The PCB Capacitor Burial/Pole Yard has been in use since before 1966. Historically, SWMU 17 has been used for the following:

- Storage of electrical capacitors, some of which contained PCBs.
- Storage of electrical transformers, some of which contained PCBs.
- Burial of capacitors, some of which may have contained PCBs.
- Storage of creosote-impregnated utility poles, some of which may have been contaminated with PCBs.

It is known that capacitors were buried near Building 357 of SWMU 17 in the early to mid-1970s, but it is not known whether any capacitors were buried before the early 1970s or after the mid-1970s. Figure 1-3 is a land use map that shows the operational area of SWMU 17 near Building 357. Investigation of facilities documentation revealed that Building 2721, located approximately 1,500 feet northeast of Building 357, was used as a transformer maintenance facility, and that PCB-contaminated oils were collected in an oil-water separator. Investigation of facilities documentation revealed that Building 2721 was historically used as a transformer maintenance facility, and that PCB-contaminated oils were collected in an oil-water separator. Transformer maintenance operations ceased during the late 1970s. Building 2721 was decontaminated and the oil water separator was cleaned. The building was then released for other uses and is currently occupied by an EOD Detachment. No information was found that indicated that any soils sampling had been conducted or that soils had been remediated. Based on the nature of operations conducted and contamination observed in nearby ditches, the Navy has included Building 2721 as a separate (more recently identified) source of PCB contamination within SWMU 17.

The location of Building 2721 is shown on Figure 1-4 along with drainage channel and stream flow directions and topographical lines for the area surrounding SWMU 17.

The soil and sediment at SWMU 17 has been extensively investigated, and a previous Interim Measure (IM) to remove contaminated soil was conducted in August 2003 (TolTest, 2004). The following is a listing of the SWMU 17 investigations, the IM performed to date, and other SWMU 17 related investigations:

- Science Applications International Corporation (SAIC) Soil Investigation, March 2001
- Tetra Tech RFI, March 2002 (Tetra Tech, 2002)

- TolTest IM, August 2003 (TolTest, 2004)
- Tetra Tech RFI Addendum Field Investigations, October 2005, April 2006, May 2006, and October 2006 (Tetra Tech, 2007)
- Unites States Fish and Wildlife Service (USFWS) Fish Tissue Report, August 2008
- Tetra Tech Boggs Creek Field Investigation, December 2008 (Tetra Tech, 2010)
- Tetra Tech Field Investigation, January 2011 (Tetra Tech, 2011b)
- Technical Memorandum, Prescriptive Remediation Sampling and Analysis for SWMU 17 – PCB Capacitor Burial/Pole Yard. April. (Tetra Tech, 2012)

A summary of the environmental investigations and previous IM conducted at SWMU 17 is provided in Section 2.0.

1.4 REPORT ORGANIZATION

The following highlights the information contained in the remainder of this document:

- Section 2.0 summarizes site characteristics, including site physical and environmental characteristics, summary of environmental investigations conducted at SWMU 17, nature and extent of contamination, and rationale and limits of excavation. Data that were used to designate PCB contamination are presented in this section by major area and subarea as identified in Table ES-1. The 1 mg/kg PCB contamination boundaries are also presented. Major subheadings of this section correspond to the four groups of environmental media types and excavation areas identified in Table ES-1.

- Section 3.0 presents the IMWP. The structure of this section parallels that of Section 2.0.

- Section 4.0 presents erosion and sediment control features proposed for the IMWP described in Section 3.0.

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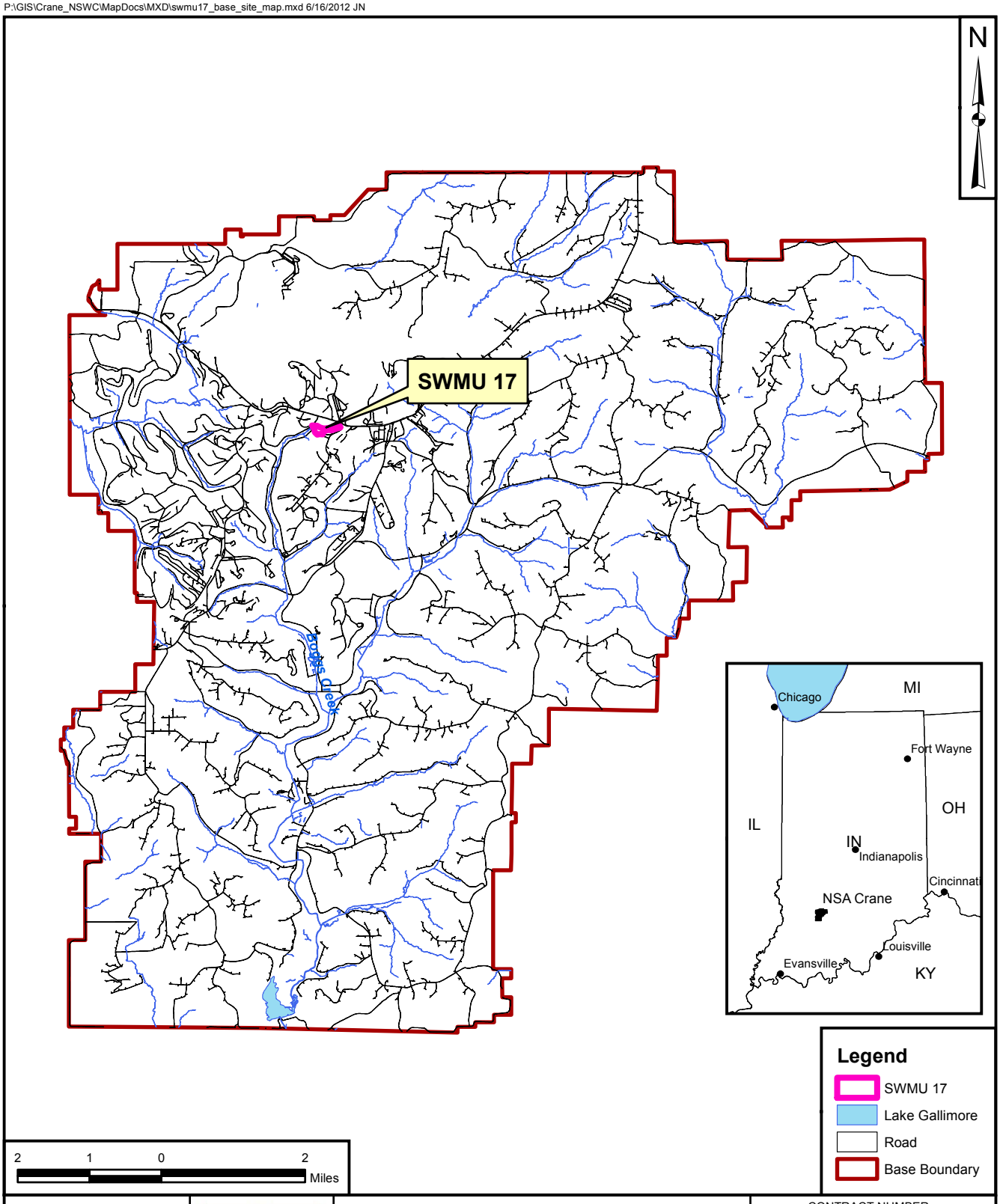

DRAWN BY	DATE
T. WHEATON	11/04/09
CHECKED BY	DATE
T. JOHNSTON	06/16/12
REVISED BY	DATE
J. NOVAK	06/16/12
SCALE	
AS NOTED	

NAVFAC

SITE LOCATION MAP
SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	
F271	
APPROVED BY	DATE
___	___
APPROVED BY	DATE
___	___
FIGURE NO.	REV
FIGURE 1-1	0

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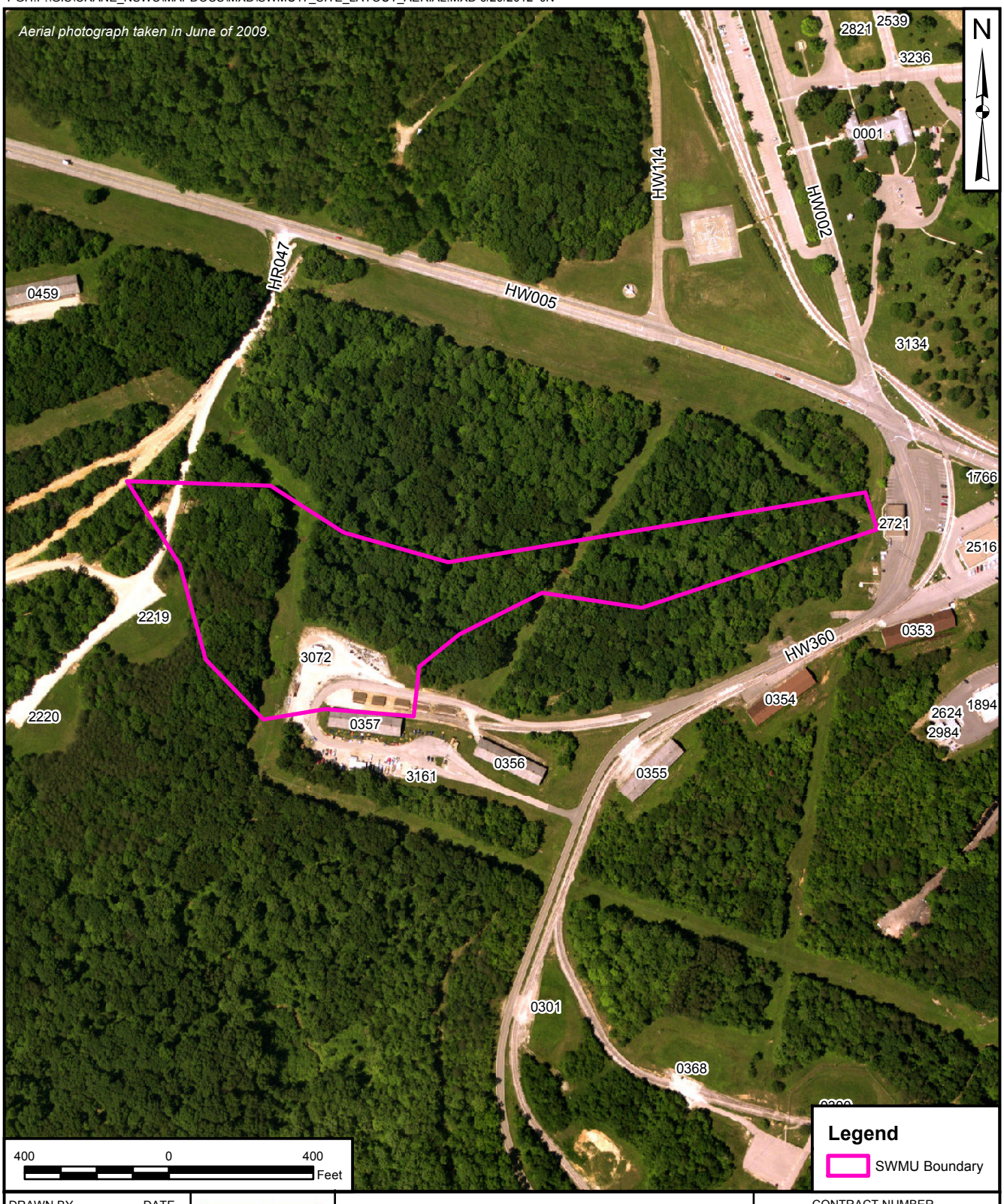

DRAWN BY J. ENGLISH	DATE 05/06/11	SITE LAYOUT - 2009 AERIAL PHOTOGRAPH SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD INTERIM MEASURES WORK PLAN NSA CRANE CRANE, INDIANA	CONTRACT NUMBER F271
CHECKED BY T. JOHNSTON	DATE 06/20/12		APPROVED BY ___ DATE ___
REVISED BY J. NOVAK	DATE 06/20/12		APPROVED BY ___ DATE ___
SCALE AS NOTED			FIGURE NO. FIGURE 1-2 REV 0

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N

Geophysical Survey Area

NORTHWEST DITCH

CAPACITOR BURIAL AREA

3072 Concrete Pad

FORMER TRANSFORMER STORAGE AREA

OPEN STORAGE

POLE YARD AREA

DITCH 2

TRANSFORMER LINE CORRIDOR

DITCH 1

2' Diameter Galvanized Pipe

8" Diameter Galvanized Pipe

HWY-470

1.3' Diameter Galvanized Pipe

357

1' Diameter Concrete Pipe

R-89

TRANSFORMER LINE CORRIDOR

DITCH 8

356

Newly Constructed Building

FORMER SUBSTATION TRANSFORMER AREA

3161

To HWY-360

HWY-470

TRANSFORMER LINE CORRIDOR

Legend

- Geophysical Survey Lines
- Stream / Ditch
- Water Flow Direction
- Building
- Pad
- Grass
- Wooded
- Road
- Gravel

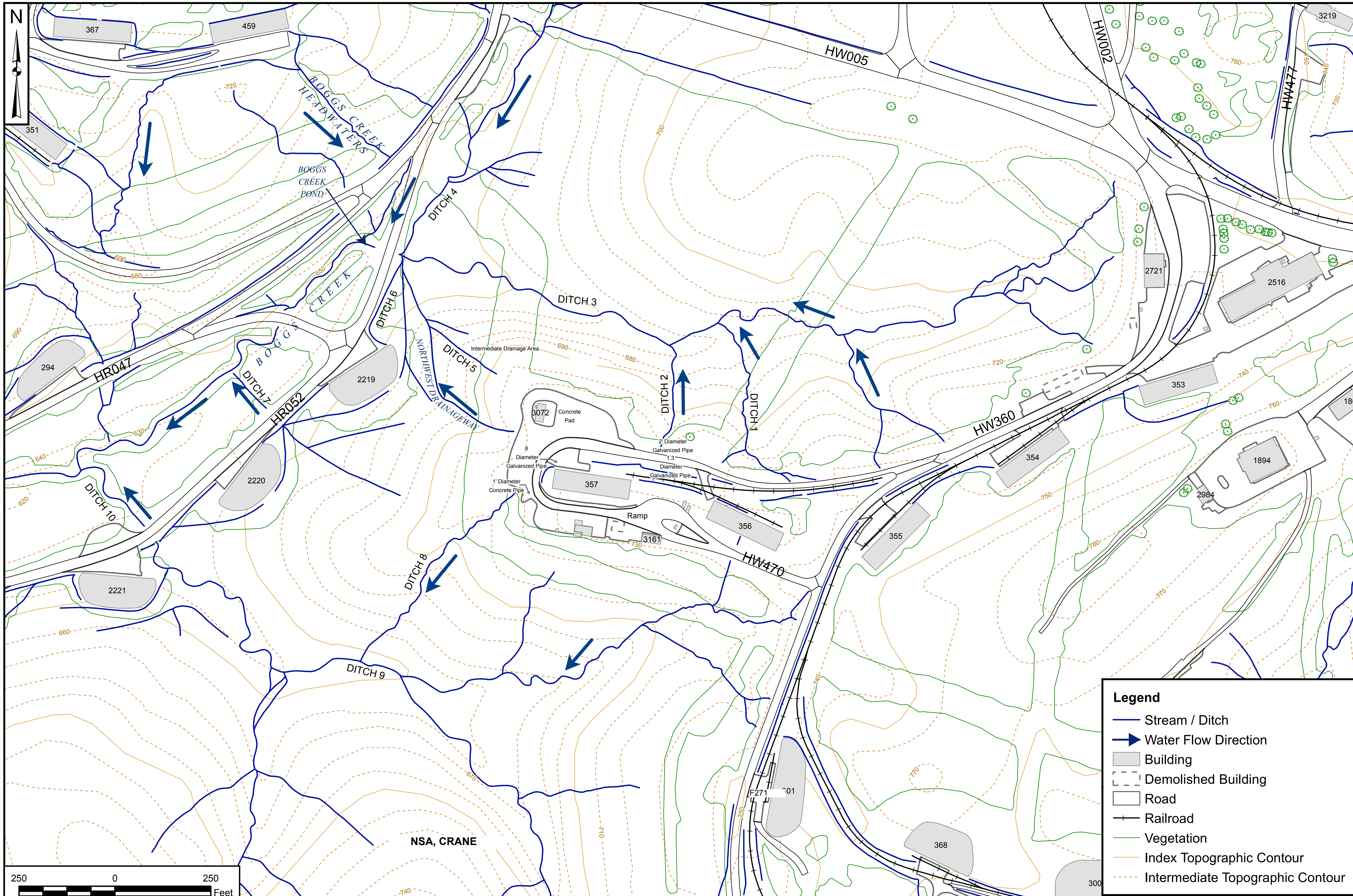
60 0 60 Feet

LAND USE MAP
SWMU17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA, CRANE
CRANE, INDIANA

CONTRACT NUMBER		CTO NUMBER F271		FIGURE NO. 1-3	REV 0
APPROVED BY	DATE				
APPROVED BY	DATE				
DRAWN BY J. NOVAK	DATE 06/21/12	CHECKED BY T. JOHNSTON	DATE 06/21/12	REVISED BY	DATE

SCALE AS NOTED

PGH: P:\GIS\Crane_NSWC\MapDocs\MXD\updated proposed SD sample locs.mxd 6/21/2012 JN



CTO NUMBER F271
CONTRACT NUMBER
APPROVED BY
DATE
APPROVED BY
DATE
FIGURE NO. 1-4
REV 0

SITE LAYOUT MAP
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURE WORK PLAN
NSA CRANE
CRANE, INDIANA

NAVFAC

DRAWN BY J. NOVAK	DATE 06/16/12
CHECKED BY T. JOHNSTON	DATE 06/21/12
REVISED BY J. NOVAK	DATE 06/21/12
SCALE AS NOTED	

2.0 SITE SUMMARY

2.1 SITE SUMMARY

A general description of SWMU 17 is provided in Section 1.0. The following sections describe the physical and environmental conditions of areas to be addressed in the IMWP. These descriptions were excerpted from the SWMU 17 RFI Report (Tetra Tech, 2002).

2.1.1 Physiography and Topography

The SWMU 17 area, surrounding terrain, nearby surface drainages, and local topography are presented on Figure 1-4. The topography is generally flat on both the Building 357 and Building 2721 ridge tops, with moderately steep side slopes on the northern, western, and southern sides of the Building 357 ridge top and moderately steep side slopes on the western side of the Building 2721 ridge top. The pole yard area is located on the northern and northeastern sides of Building 357. The transformer storage area is approximately 120 feet north of Building 357. A laydown area for broken telephone poles, extra or used electrical power line insulators, and related debris is located across the road on the west side of Building 357.

Ground surface elevations range from 720 to 730 feet above mean sea level (msl) on the ridge top at Building 357, and decrease to the north, south, and west. Ground surface elevations range from 740 to 745 feet msl on the ridge top at Building 2721, and decrease to the west. The elevations along the Boggs Creek channel west of SWMU 17 are approximately 630 to 640 feet above msl, which equates to approximately 115 feet of total topographic relief in the immediate vicinity of SWMU 17.

Heavy vegetation is located along the perimeter of the developed industrialized portion of SWMU 17. This heavy vegetation, consisting of trees and shrubs, extends down the hillsides to and beyond the receiving drainage channels and streams. With the exception of grass, the industrialized portion of SWMU 17 is devoid of vegetation.

2.1.2 Surface Water Hydrology

The pole yard and the transformer storage yard slope gently northward, as does the surface drainage channel (Ditch 2) that flows into the unnamed channel (Ditch 3) located approximately 400 feet north of Building 357 (Figure 1-4). This unnamed channel conveys surface water west-northwest where it joins the headwaters of Boggs Creek. Most surface runoff from the area located west of Building 357, the area

identified as the geophysical survey area (Figure 2-1), drains to the west and northwest and empties into a drainage channel (Northwest Ditch) (Figure 2-1). The southern portion of the geophysical survey area drains southwestward into an unnamed drainage channel (Ditch 8) that flows to the south. The Northwest Ditch and Ditch 8 are also readily visible on Figure 2-1. The flow in Ditch 8 then joins the flow in Ditches 9 and 10. The combined flow of Ditches 8, 9, and 10 travels west northwest and empties into Boggs Creek (Figure 1-4). Ditch 3, which begins just northwest of Building 2721, conveys surface water runoff from the Building 2721 area to Boggs Creek (Figure 1-4). The Dump/Fill Area, which overlaps the geophysical survey area, is where electrical capacitors and transformers that may have contained PCBs were reported to have been buried, thus representing a potential source of PCB contamination for the Northwest Ditch and possibly other down gradient locations.

2.1.3 Geology

The Pesticide Control Area (SWMU 9), which is located approximately 1 mile south-southeast of SWMU 17, has surface elevations similar to SWMU 17 (720 to 730 feet above msl). At SWMU 9, the United States Army Corps of Engineers (USACE) installed a monitoring well (09C01) that penetrated 13 feet of overburden soil and 132 feet of Pennsylvanian-age shales, siltstones, sandstones, and thin coal seams of the Mansfield Formation before Mississippian Glen Dean Limestone was encountered. At SWMU 17, it is expected that the Mississippian formation is at approximately the same elevation (570 feet above msl), which would place it at least 60 feet below the Boggs Creek channel bottom. Hence, all of the geologic units from the ridge top to the Boggs Creek channel and immediately below the channel are expected to be Pennsylvanian-age sandstone, siltstone, and shale. The sandstones can be slightly to moderately transmissive to groundwater, but the shales and siltstones are relatively impermeable and act as aquitards.

Based on boring logs for 49 soil cores collected during the 2002 sampling event at SWMU 17, the thickness of the residual soil layer on the ridge top ranges from 3.5 to 9.0 feet, and is typically 4 to 6 feet thick (Tetra Tech, 2002). The deepest soil depths were encountered in the Dump/Fill Area where test pit depths generally ranged from 4 to 8 feet deep, although two of the 17 test pits installed in this area extended to 11 feet below ground surface (bgs) and one extended to 10 feet bgs.

SWMU 17 residual soils are generally stiff to moderately stiff, silty clays and clayey silt with some fine sand. Fragments of weathered sandstone and/or siltstone are commonly found near the bottom of the soil profiles, indicating that sandstone and/or siltstone is the uppermost bedrock in the ridge top.

2.1.4 Hydrogeology

PCBs are relatively insoluble and tend to remain attached to soil particles close to where they were spilled. Therefore, they are not typically found in groundwater underlying PCB-contaminated sites. Even though PCBs are considered to be immobile in groundwater systems, three temporary wells were installed in the soil overburden and screened at the soil/bedrock interface to evaluate possible migration of PCBs in shallow groundwater. Perched groundwater was encountered in one location on the north side of Building 357 at a depth of 3.8 feet bgs. No perched groundwater was encountered in the other two temporary wells. No permanent monitoring wells were installed at SWMU 17 during this phase of the field investigation, or in any of the previous phases of investigation. Analytical results from the groundwater samples collected from temporary wells indicated that there was no PCB contamination found in the SWMU 17 groundwater. Groundwater sample analytical results are presented in the 2007 RFI report addendum (Tetra Tech, 2007).

2.2 PREVIOUS INVESTIGATIONS

Previous soil investigations at the PCB Capacitor Burial/Pole Yard are summarized below. Soil and sediment data from these investigations that are germane to this IMWP are presented in Table 2-1. This table also identifies the figure numbers and excavation areas where each sampling location can be found.

2001 Soil Investigation – In March 2001, SAIC conducted a limited surface and subsurface soil, i.e., 6 composite and 11 grab samples were collected for PCB analysis, investigation in and around the SWMU 17 capacitor burial and pole storage areas. The sampling results indicated elevated concentrations of PCBs, primarily aroclor-1260, within the surface soils of the investigated areas.

2002 RFI – Based on the results of the 2001 soil investigation, Tetra Tech conducted an RFI for SWMU 17. Field work consisted of surface and subsurface soil sampling and a geophysical survey. In total, 88 samples were collected from 44 surface soil sample locations (17SB01 through 17SB44). The sampling results identified five areas of concern immediately north and west of Building 357 and within the Northwest Ditch. The geophysical survey identified the limits of the reported capacitor burial area and several anomalies in the reported capacitor burial area.

2004 Interim Measure – Based on the results of the 2002 RFI, TolTest was contracted to remove PCB-contaminated soils from the SWMU 17 area. During the IM a large area of buried electrical equipment (electrical insulators) and other debris (“capacitor burial area” on Figure 2-1) was discovered in the central portion of the geophysical survey area. A search of the most upgradient portion (eastern-most portion) of

the Northwest Ditch revealed the presence of a small transformer and more debris, which was disposed of in compliance with NSA Crane's PCB Management Program.

Post-excavation sampling indicated PCBs remained in the surface soil within the drainageway downgradient of the Dump/Fill Area (the Northwest Ditch) and in the area between Building 357 and the asphalt paved road (eastern end of building) at concentrations greater than 1 milligram per kilogram (mg/kg). The sampling, however, did not identify the extent of the remaining contamination. The surface soil within the drainageway downgradient of the Dump/Fill Area was not excavated because the area was beyond the identified work area and posed no health risk to site workers. Surface soil between Building 357 and the paved road at the eastern end of Building 357 was not excavated based on a regulatory decision (TolTest, 2004). It was identified in the TolTest report that these areas would be targeted for further evaluation in a future RFI.

RFI Addendum Sampling – In October 2005, April 2006, and May 2006, Tetra Tech conducted sediment sampling within the drainage channels that receive runoff from the SWMU 17 area and surface soil sampling around Buildings 357 and 2721.

- The October 2005 sampling event included the collection of seven sediment samples (17SD01 through 17SD07) from within the Northwest Ditch, Boggs Creek, Ditch 8, and Ditch 3, five surface soil samples, and six subsurface soil samples from around Building 357 (see Figures 2-2 and 2-3). Results of the October 2005 sampling event identified PCB concentrations ranging from non-detection to 37 mg/kg.

- The April 2006 sampling event included the collection of 33 sediment samples (17SD08 through 17SD41; no sample from 17SD12) from upstream drainageways originating at SWMU 17. Results of the April 2006 identified PCB concentrations ranging from non-detection to 5.3 mg/kg. PCBs were detected at 1.3 mg/kg at location 17SD14, upgradient of a contributing stream that originated from SWMU 17. This detection suggested that an additional source of PCB contamination existed for this tributary other than Building 357. Further investigation of facilities upgradient of sample location 17SD14, indicated that Building 2721 was historically used as a transformer maintenance facility and that PCB-contaminated oils were discharged through an oil-water separator to the drainage ditch.

- The May 2006 sampling event included 23 sediment samples (17SD42 through 17SD64) from the drainage ditch where PCB detections occurred in the April 2006 sampling event, and other drainage channels upgradient of SWMU 17. The May 2006 results identified PCB concentrations ranging from non-detection to 70 mg/kg.

As a result of finding additional PCB contamination in the stream originating at Building 2721, additional soil and sediments samples were collected in the vicinity of the building in October 2006. Samples were collected within areas along the stream outside its banks that would likely receive flood waters, and within the drainage ditches within the vicinity of SWMU 17 not previously sampled. In total, 62 additional samples were collected from 35 soil boring (17SB50 through 17SB72; 17SB75 through 17SB86) and 5 sediment locations (17SD65 through 17SD69). PCB concentrations within the soil samples collected around Building 2721 and within the potential flood zone along the stream north of SWMU 17 range from non-detect to 73 mg/kg. PCB concentrations within the sediment samples collected from the streams and drainage channels range from non-detect to 0.96 mg/kg. The results of all the 2005 and 2006 investigations are presented on Figures 2-2 and 2-3.

April 2007 Regulatory Meeting – A draft IMWP was submitted to the Navy in February 2007 with the objective of protecting aquatic habitat through removal of all soil and sediment with PCB concentrations greater than 1 part per million (ppm). However, there is little or no aquatic habitat in the drainage ditches and upper portions of Ditch 3 so PCB levels in excess of 1 ppm were not expected to pose unacceptable risks to receptors in these areas. Ditch 3 was divided into segments and average concentrations were calculated for each segment. The ecological habitat in the middle portion of Ditch 3 had lower than average PCB concentrations (average concentrations for Segments 3, 4, and 5 ranging from 1.3 mg/kg to 3.2 mg/kg) and would likely be negatively impacted by a removal action. Therefore, an excavation approach based on removal of the highest mass of PCBs was developed. A draft Powerpoint presentation detailing the excavation approach of removing the stream segments containing the greatest mass of PCBs was submitted to the Navy and USEPA in March 2007.

Following the presentation of this mass excavation approach, comments were received from the United States Fish and Wildlife Service (USFWS) that if a mass removal approach was to be used, further studies would be necessary to ensure PCB contamination from SWMU 17 had not migrated into downstream portions of Boggs Creek and Lake Gallimore. To address these USFWS comments and support IMWP development based on a mass removal approach, the following studies were completed:

- A USFWS fish tissue study to determine if PCBs in Boggs Creek migrated to Lake Gallimore and contaminated fish tissue in the lake,

- A 2008 Boggs Creek surface water and sediment investigation to determine if PCB contaminated soil and sediment from SWMU 17 contaminated surface water and sediment in downstream areas of Boggs Creek (Tetra Tech, 2010).

USFWS Fish Tissue Report – In August 2008, the USFWS hired Geochemical Environmental Research to analyze fish tissue samples (spotted suckers) from Lake Gallimore for PCBs. The purpose of the study was to determine if PCBs in Boggs Creek had migrated to Lake Gallimore and contaminated fish in the lake, which might then be consumed by the Bald Eagles nesting there. The following three composite sample groups from Lake Gallimore spotted suckers were analyzed for PCBs:

- Whole Body (filet with carcass)
- Filets (filet without skin)
- Carcasses (no filet carcass)

The results of the fish tissue study demonstrated that spotted sucker filets are at the threshold of the Fish Consumption Advisory Group 1 (greater than 0.05 mg/kg) and Group 2 (0.06 to 0.2 mg/kg) concentration levels and that the whole body concentration is not ideal (dry weight = 1.52 mg/kg). These results suggest that downstream PCB migration from Boggs Creek into Lake Gallimore has occurred. The study concluded that cleanup in the upstream areas from Lake Gallimore is the most appropriate remedy for PCB contamination in spotted sucker tissue.

2008 Boggs Creek Field Investigation – Sediment and surface water samples were collected along Boggs Creek from locations near previous sample location 17SD069 (see southwest quadrant of Figure 2-2) near SWMU 17 south to the termination of the creek into Lake Gallimore. Sample 17SD1050006 was collected at the northernmost sample location of this field investigation, location 17SW/SD105. Sampling results indicate that PCB contamination associated with sample 17SD1050006 (2.8 mg/kg) at location 17SW/SD105 is an isolated case (see top third of Figure 2-4, and Figure 2-5). All sample locations further downstream (toward the south) had PCB concentrations less than 0.25 mg/kg, and the three closest samples to the north, which were collected in October 2006, had PCB concentrations of 0.96 mg/kg (17SW/SD069), 0.12 mg/kg (17SW/SD068), and 0.51 mg/kg (17SW/SD067) (Figure 2-2). These results were interpreted by the Navy to mean that PCBs are not being transported downstream via Boggs Creek sediment and that there appeared to be no link between PCBs in fish tissue in Lake Gallimore and PCBs in headwaters of Boggs Creek (near SWMU 17) (Tetra Tech, 2010).

April 2010 Powerpoint Presentation – The March 2007 Powerpoint presentation was revised to include the results of the USFWS fish tissue report and the Boggs Creek Field Investigation Report summarized above (Tetra Tech, 2010). The USFWS commented that excavation in Stream Segment 6, which was not included in the draft April 2010 Powerpoint presentation, would need to be included in the IMWP, in addition to the stream segments proposed for excavation (Boggs Creek Segment 1, Ditch 3 Segment 2,

and the Northwest Ditch). The USFWS also noted that the eastern half of Stream Segment 6 was not well characterized, and it was determined that sediment samples would be collected in the eastern portion of Stream Segment 6 at a later time to further characterize this area. Excavation in Stream Segment 6 was added and regulatory approval was received on the final version of the presentation.

2011 Field Investigation Letter Report – Samples were collected in January 2011 to determine the extent of sediment contamination in Ditch 3 Segment 6 and the horizontal and vertical extent of soil contamination in the floodplain of Boggs Creek Segment 1, Ditch 3 (Segments 2 and 6), and the Northwest Ditch. A technical memorandum (Tetra Tech, 2011a) was prepared for additional sampling and analysis in accordance with Quality Assurance Project Plan (QAPP) Addendum No. 4 (Tetra Tech, 2008) to delineate the extent of sediment and soil contamination in these areas to obtain sufficient data to prepare the IMWP in support of removal actions. A letter report (Tetra Tech, 2011b) was prepared to summarize the results of this additional sampling.

A total of 47 locations were sampled during the 2011 investigation. Eighteen locations were in Ditch 3, Segment 6 (15 sediment and three soil locations), 17 soil locations were in Ditch 3, Segment 2, one soil location was in the Northwest Ditch, and 11 soil locations were in Bogg's Creek, Segment 1. Of the 32 soil locations sampled, 15 surface soil samples and 13 subsurface soil samples contained PCB concentrations greater than 1 mg/kg. The two sediment samples collected from location 17SD120 contained PCB concentrations less than 1 mg/kg; the remaining 20 sediment samples contained PCB concentrations greater than 1 mg/kg. Figures 2-6 through 2-17 present the soil and sediment results from this 2011 sampling event and all previous sampling, including a 2012 sampling event described in the next paragraph.

2012 Field Investigation – In 2012 a prescriptive remediation approach to SWMU 17 PCB contamination was proposed to USEPA Region 5. This approach would involve removal of contaminated material based on the PCB contamination profiles throughout SWMU 17, but because the vertical and lateral extent of contamination would be well defined, sampling to confirm satisfactory removal of PCBs would be unnecessary. After conducting a site walk reviewing the results of previous investigations with USEPA Region 5, it was determined that additional sampling would be prudent, especially in areas not previously identified for removal. Fourteen additional sediment samples, two surface water samples, and more than 1,100 soil samples were collected. Of these, more than 700 samples were analyzed for PCBs, and four sediment samples and both surface water samples were analyzed for semivolatile organic compounds (SVOCs) and volatile organic compounds (VOCs). The SVOC and VOC data were collected for information only and do not affect the PCB corrective action decisions. The goal of this investigation was to delineate PCB contamination in soil and sediment to a level of 1 mg/kg and identify soil and sediment

volumes with PCB concentrations greater than 1 mg/kg and volumes with PCB concentrations greater than 50 mg/kg. Only samples that were required to achieve this goal were analyzed.

Sample Nomenclature – Different sample numbering systems have been used throughout the SWMU 17 investigations. One system identifies the SWMU number (i.e., 17) followed by a location code indicating what matrix (e.g., soil or sediment) is represented by the sample, a sequential location number, and, if the sample represents soil or sediment, the depth interval represented by the sample (sediment and soil). Early samples numbered this way were represented with a two-digit sequential location identifier. Because the number of soil samples totaled more than 100, however, new samples incorporated a three-digit sequential location identifier. Therefore, all location identifiers less than "100" were changed to incorporate a leading "0" so, for example, location "17SB74" is now "17SB074." The updated sample numbers are used on most figures.

2.3 CLEANUP GOALS

This IMWP includes the removal of PCB contaminated soil and sediment in the floodplains, ditches, and streams at SWMU 17, as well as surface debris at the head of the Northwest Ditch, and PCB-contaminated soil near Buildings 357, 2721, and 3072. The extent of contamination in these media was established to a level of 1 mg/kg. The cleanup goals established for SWMU 17 floodplains and streams for this IM include the following:

- Remove surface debris at the head of the Northwest Ditch which may contain PCBs.

- Remove contaminated Boggs Creek sediments and floodplain surface soils. Boggs Creek sediments and floodplain surface soils with PCB concentrations, which are greater than 1 mg/kg will be considered contaminated.

- Remove contaminated soil, from the surface or subsurface, as appropriate, from the Dump/Fill Area, immediately southwest of Building 2721, and select areas where TolTest had excavated surface soil.

- Minimize damage to ecological receptors resulting from soil/sediment removal actions.

2.4 EXTENT OF CONTAMINATION

The extent of contamination within the floodplains, ditches, streams of SWMU 17, and building areas was adequately delineated during the above mentioned investigations and interim measures to support

prescriptive remediation. PCB contamination is present in sediments and soils within the drainage channel network surrounding SWMU 17 and surface and subsurface soils surrounding Buildings 357, 2721, and 3072 (Figures 2-6 through 2-17). A single contamination point (location 17SW/SD105 on Figures 2-4 and 2-5) in Bogg's Creek, southwest of Building 225 was identified in the 2010 Field Investigation Report (Tetra Tech, 2010).

The contaminated areas and environmental media were divided into four groups representing areas to be excavated:

Group	Description
1	Contaminated drainage channels on steep slopes that often do not contain water
2	Streams that contain water perennially and in which contaminated sediments were found
3	Contaminated floodplain soil flanking the contaminated stream channels
4	Contaminated building area soils

Each of these groups was subdivided into smaller areas for presentation purposes and to support selective implementation of the interim measure in individual areas. The subareas are represented by alpha characters. All areas are tabulated on Table ES-1 with references to figures on which the individual areas are shown.

Figures 2-4 through 2-17 identify the contaminated areas planned for excavation and the associated PCB concentrations as a function of depth. If PCB concentrations at a particular sampling location were less than 1 mg/kg at all sampled depths, the dot (for soil samples) or triangle (for sediment samples) representing that location is colored green. Orange dots or triangles represent a location where at least one sampled interval had PCB concentrations equal to or greater than 1 mg/kg but less than 50 mg/kg. Red dots or triangles represent locations where PCB concentrations were greater than 50 mg/kg in at least one of the sampled depth intervals.

Select areas near SWMU 17 buildings were excavated previously by TolTest. In those areas soil was excavated to a maximum of 3 feet bgs. Post excavation sampling showed that residual contamination was present at select locations at the bottoms and sidewalls of the excavations but the excavations were filled with soil containing no PCBs after excavation was complete. In Figures 2-14 through 2-17 data tags for TolTest samples (labeled "17FL…" or "17EW…") show the residual PCB concentrations at the bottom (17FL) or side walls (17EW) of the excavations. If a sample was collected deeper, the PCB concentrations deeper in the soil are also shown with the bottom of the excavated interval at the top of this next deeper interval. Therefore, if the next deeper interval PCB concentration was less than 1 mg/kg,

it could be concluded that the PCB concentration from the surface to the bottom of this next deeper interval was less than 1 mg/kg and the elevated PCB concentration at the bottom of the excavation represented a thin veneer of residual PCB concentrations greater than 1 mg/kg. The significance of this is that, for example, in TolTest excavation area D, none of the soil exceeds 1 mg/kg PCBs in a 2-foot soil interval beginning at the bottom of the excavation even though the excavation confirmation samples alone would indicate otherwise.

2.5 RATIONALE AND LIMITS OF EXCAVATION

Based on the results of the sampling events summarized above, removal actions are recommended to address PCB contamination in soil and sediment of floodplains, ditches, streams, and building areas at SWMU 17. This includes:

- Spot removal of sediment from one location in Boggs Creek around sampling point 17SB105
- Removal of soil and sediment from the channels and floodplain areas of the Northwest Ditch, near Ditch 2, Ditch 8, Boggs Creek Stream Segment 1, and Ditch 3 Stream Segments 2 through 6
- Removal of soil near Buildings 357, and 2721
- Removal soil in the SWMU 17 Dump/Fill Area near Building 3072
- Removal of debris from the buried electrical equipment area near Building 3072. Note: the amount of debris and electronic/electrical components uncovered during exploratory trenching and soil boring (described later) has been small compared to contaminated soil volumes.
- Removal of approximately 10 tons of debris on the surface of the western portion of the Dump/Fill Area that coincides with the eastern most portion of the northwest ditch
- Avoiding the excavation of bedrock.

Figures 2-6 through 2-17 show the proposed limits of excavation for these areas. More detail is provided in Section 3 and on Section 3 figures. As explained in Section 3, there are some excavation areas that are not completely bounded by sampled locations with <1 mg/kg total PCBs. In those cases, excavation boundaries were developed based on topographic controls or provisions have been made for additional delineation sampling. More detail is provided in Section 3 and for individual excavation areas, as

appropriate. Table ES-1 is a summary of excavation volumes that also links the estimated volumes to text, figures, and calculation sheets supporting the estimated volumes.

In the ditches, streams and floodplains, removal of all contamination above the 1 mg/kg limit (for surface soil and sediment) is planned. For the building areas, removal of all contaminated soil to a level of 1 mg/kg or less is also planned. Volume calculations used to develop the limits of excavation are included as Appendix A. Any remaining sediment contamination contains low concentrations of PCBs (average concentrations of remaining segments less than 1 mg/kg) and represents no significant benefit if it would be removed compared to the planned removals. The rationales for the planned excavation limits are presented below.

When estimating ditch and stream sediment removal volumes, average channel widths were used. When performing the actual sediment removal, however, all stream bottom sediments for the entire stream width must be excavated along the length of channel designated for excavation. Segregation of TSCA level waste (i.e., > 50 mg/kg total PCBs) and non-TSCA waste (≤50 mg/kg total PCBs) and preventing TSCA level contamination from mixing with lesser contaminated materials are requirements of this work plan. Furthermore, erosion and sediment control devices are to be used in a way that ensures segregation of TSCA from non-TSCA wastes and prevents contamination of non-TSCA areas with TSCA level contamination. The more contaminated of drainage channel sediments generally occur near the upper elevations. To prevent recontamination of already excavated areas, removal of higher elevation contamination before removing lower elevation contamination is expected.

2.5.1 Removal of Contamination within Drainage Ditch Segments

The limits of ditch bottom sediment excavation shown on Figures 2-5 through 2-7 are based on the volume of sediment present in the sediment and soils within each of the ditches and ditch banks, as calculated in Appendix A. Limits of contamination were determined using analytical data, topography, photos, and field observations. Table ES-1 identifies excavation volumes and links the excavation areas and volumes to text, tables, figures, and calculation sheets supporting the volume estimates (the Northwest Ditch and Ditch 8).

2.5.1.1 Northwest Ditch (Area 1A)

Removal of contaminated sediments in the Northwest Ditch (see Figure 2-6) alone is expected to remove nearly all PCB concentrations greater than 1 mg/kg in the sediment of SWMU 17 ditches. Removal of this sediment will protect human and ecological receptors in this area and protect downstream areas from

potential migration of a large mass of PCBs. The last paragraph of Section 2.5 describes in more detail how excavation volumes were determined and how wide the actual excavations will be.

2.5.1.2 Ditch 2

This Ditch warrants special treatment because of a discrepancy between previous data and current understanding of extent of contamination. The culvert at the top of Ditch 2 drains the eastern end of the Building 357 area, where PCB contaminated soil had been observed. Ditch 2 had been noted in previous versions of this work plan as being contaminated with PCBs because of a sample collected from location 17SD011 that exhibited 1.8 mg/kg PCBs in the top 6 inch interval (see Figure 2-2). Sample 17SD011, however, is a soil sample, not a sediment sample, and was collected from an area west of Ditch 2, not from within Ditch 2. All sediment samples actually collected from within Ditch 2 exhibit PCB concentrations less than 1 mg/kg. Therefore contamination in Ditch 2 was not found to be unacceptable and excavation of Ditch 2 is not planned.

2.5.1.3 Ditch 8 (Segments 8a and 8b)

The two ditch segments of Ditch 8 that were identified for sediment/soil removal are labeled Ditch 8a and Ditch 8b on Figure 2-7. The downstream contamination/excavation boundary of Segment 8a is tentatively depicted pending confirmation sampling that will occur prior to or near the beginning date of excavation. The additional sampling will occur between locations 17SW/SD025 and 17SW/SD127 to more precisely establish the extent of contamination in Ditch 8a, as described in Section 3.2.1.2. Removals of soil (Ditch 8a) and sediment (Ditch 8b) are planned for these two segments of Ditch 8 and the soil flanking the ditch, which is more akin to a swale, near sampling location 17SWSD007 (i.e., in Ditch 8a). Removal of the contaminated soil and sediment will prevent downstream migration of PCBs in this Ditch. The last paragraph of Section 2.5 describes in more detail how excavation volumes were determined and how wide the actual excavations will be, but note that Ditch 8 does not contain TSCA level contamination.

2.5.2 Removal of Contaminated Sediment From Within Stream Segments

The limits of excavation shown on Figures 2-5 and 2-8 through 2-13 are based on the volume of sediment present in the sediment within each of the ditches and channel segments, as calculated in Appendix A. The rationale for sediment excavation in each of the stream segments is detailed below. Table ES-1 identifies excavation volumes and links the planned excavation areas and excavation volumes to text, tables, figures, and calculation sheets supporting the volume estimates. Refer to the last paragraph of Section 2.5 for details regarding excavation sequence, determining how much sediment is to be removed, and waste segregation.

2.5.2.1 Spot Sediment Removal in Boggs Creek (17SD105 Area)

The limits of excavation for the 17SD105 Area shown on Figure 2-5 are based on photos taken at location 17SD105 (during the December 2008 Boggs Creek Investigation) and on the site visit conducted on April 27/28, 2012. These excavation limits are approximate. Sample 17SD105 was collected from an area of sediment accumulation on the side of the stream channel that was estimated to be approximately 40 feet long, 10 feet wide, and 1.5 feet deep. All contaminated sediment in the depositional area around location 17SD105 must be removed, which may result in removal of more or less than the estimated 22 cubic yards of sediment. By removing this contaminated sediment, all sediment PCB concentrations along the entire length of Boggs Creek from Stream Segment 1 to Lake Gallimore will be rendered less than 1 mg/kg.

2.5.2.2 Boggs Creek, Segment 1 (Ditch 3, Segment 1) Sediment

The sediment in Boggs Creek Segment 1 contains a relatively low mass of PCBs based on the PCB concentrations (near 1 mg/kg or less) and length of the stream segment. Nevertheless, removal of this sediment (see Figure 2-8) will limit future migration of PCB contamination in Boggs Creek.

Additional sampling between locations 17SW/SD033 and 17SW/SD123 will occur to more precisely establish the extent of contamination in Boggs Creek Stream Segment 1. The downstream boundary of Ditch 8a will be extended downstream to include all samples with >1mg/kg total PCBs based on 3-day turnaround analysis for PCB Aroclors. At least two soil samples will be collected to represent the 0-1 ft interval. The additional samples will be sequentially analyzed from upstream to downstream, as needed, to bound the contamination.

2.5.2.3 Ditch 3, Segment 2 Sediment

The PCB concentrations of sediment samples from this segment (see Figure 2-9) ranged from less than 1 mg/kg to less than 4 mg/kg. The combined concentration and segment length are an indication that this segment contains a greater mass of PCBs than Segment 1; therefore, removing sediment from this segment will significantly help prevent downstream migration into Boggs Creek.

2.5.2.4 Ditch 3, Segment 3 Sediment

The range of concentrations in this stream segment (see Figure 2-10) is between those of Stream Segments 1 and 2. Removing sediment from this segment will help prevent downstream migration into Boggs Creek.

2.5.2.5 Ditch 3, Segment 4 Sediment

The sediment contamination in Stream Segment 4 (see Figure 2-11) is comparable to that of Stream Segments 1 and 3. Removing sediment from this segment will help prevent downstream migration into Boggs Creek.

2.5.2.6 Ditch 3, Segment 5 Sediment

The sediment in Stream Segment 5 (see Figure 2-12) contains slightly greater PCB concentrations than in segments 1 through 4. Removing sediment from this segment will help prevent downstream migration into Boggs Creek.

2.5.2.7 Ditch 3, Segment 6 Sediment (Up- and Down-stream non-TSCA Areas, and Up- and Down-stream TSCA Areas)

Stream Segment 6 (see Figures 2-12 and 2-13) contains significantly greater PCB concentrations than the other stream segments and is estimated to contain approximately one third of total PCB mass in the stream segments. Removal of this mass would represent a substantial reduction in total PCB mass in stream sediments.

2.5.3 Removal of Contaminated Soil From Stream Segment Floodplains

The limits of floodplain soil excavation shown on Figures 2-8 through 2-13 are based on the volume of soil present in the floodplain associated with each of the stream segments, as calculated in Appendix A. Limits of contamination in the floodplain of Boggs Creek Stream Segment 1 and Ditch 3 Stream Segments 2 through 6 were determined using analytical data, topography, photos, and field observations. Table ES-1 identifies excavation volumes and links the various areas and excavation volumes to text, figures, and calculation sheets supporting the volume estimates.

2.5.3.1 Boggs Creek, Segment 1 Floodplain Soil (Ditch 3, Segment 1, Areas 3A and 3B)

Removal of the contaminated soil in the floodplain of this stream segment (see Figure 2-8) will prevent future migration of PCBs into Boggs Creek. The area of contamination on each side of this stream segment is at least 70 percent of the floodplain. Area 3A is subdivided into two sections (3A-1 and 3A-2) each of which must be excavated to a different depth as shown on figure 2-8. The southwestern boundary of 3A-1 makes use of topographical elevations that limit the extent of contaminant transport in stream flow and the drainage channel that forms part of the southwestern boundary to bound the extent of contamination.

2.5.3.2 Ditch 3, Segment 2 Floodplain Soil (Areas 3C, 3D and 3E)

This segment is the most downstream segment of Ditch 3 (see Figure 2-9), so removing contaminated soil from this segment will help prevent downstream migration of PCBs with concentrations greater than 1 mg/kg into Boggs Creek.

The southwestern boundary of Area 3C was drawn after considering observed PCB concentrations and the topography and drainage channel network. Sediment samples collected upgradient of this southwestern boundary at locations 17SW/SD023 and 17SW/SD041 had <1 mg/kg PCBs. Flow in these channels is northward from the south to the main stream channel. The adjacent Northwest Ditch, from the top of Northwest Ditch to soil sampling location 17SB135, is deeply to moderately incised in several places, including the region southeast of soil boring 17SB135. The steep sidewalls of the ditch prevent transport of PCB contamination outside of the ditch. Near 17SB135, however, the stream banks of the Northwest Ditch flatten into the area north of 17SB135 where spread of PCB contaminated soil and sediment is possible and probable. The Area C boundary represents the area beyond which transport of contaminated soil or sediment with concentrations greater than 1 mg/kg is viewed to be improbable based on local topography. All floodplain data east of soil boring 17SB135 indicates that PCB contamination greater than 1 mg/kg has not spread above the 652 ft elevation above means sea level (amsl). Therefore, the eastern boundary of Area 3C was drawn from the Northwest Ditch northward to encompass elevations lower than 652 ft amsl.

The boundary of Area 3D was established based on soil data collected to the east that indicate contamination greater than 1 mg/kg is limited to elevations less than 652 ft amsl. To confirm this, a sample will be collected on the southern edge of the Area D boundary south of 17SB139. See Section 3.2.3 for details.

2.5.3.3 Ditch 3, Segment 3 Floodplain Soil (Area 3F)

A relatively small amount of soil flanking Stream Segment 3 contains PCB concentrations greater than 1 mg/kg to bedrock (see Figure 2-10). The contamination boundary shown in Figure 2-10 was drawn based on the available data that suggest the contamination in Area 3F is isolated. Specifically, all locations sampled over about 300 ft of floodplain parallel to the stream channel had <1 mg/kg PCBs except for three samples located in stretch of floodplain about 15 ft long. To confirm the western and eastern boundaries, however, confirmation sampling will be conducted on the western and eastern boundaries as described in Section 3.2.3. Removing this volume of soil will help prevent downstream migration of PCBs into Boggs Creek.

2.5.3.4 Ditch 3, Segment 4 Floodplain Soil (Areas 3G, 3H and 3I)

Three areas of soil flanking Stream Segment 4 contain PCBs at concentrations greater than 1 mg/kg (see Figure 2-11). One of these areas, 3H, contains soil with PCB concentrations greater than 50 mg/kg and must be managed as Toxic Substance Control Act (TSCA) waste. Removing sediment from this segment will help significantly limit PCB migration into Boggs Creek.

2.5.3.5 Ditch 3, Segment 5 Floodplain Soil (Areas 3J, 3K, 3L, 3M, and 3N)

The relatively large areas of soil flanking Stream Segment 5 (see Figure 2-12) contain a large proportion of the total floodplain PCB mass based on the concentrations and area of contamination. Area 3J includes an oxbow. The boundary of the oxbow was made larger than the oxbow to ensure that the deepest soil PCB contamination greater than 1 mg/kg would be removed from this excavation. The northern boundary of Area 3J was based on topography and nearby PCB concentration data that indicate the contamination is limited to elevations within the prescribed excavation boundary.

The lateral western boundary of Area 3K was terminated along a line perpendicular to the stream channel and included boring 17SB296 because that boring had <1 mg/kg total PCBs. Topography and spatial contamination patterns were considered. These factors indicated that the contaminated area had been delineated west of 17SB297. For example, no total PCB concentration greater than 1 mg/kg was detected south of this stream segment at an elevation greater than about 703 ft amsl. Extension to boring 17SB295 is not necessary based on the overall contamination pattern. The lateral eastern boundary was terminated along a line that connects boring 17SB198 and the stream. This line, which is perpendicular to the stream, separates a non-TSCA and TSCA excavation areas.

In Area 3L, the PCB concentrations exceed the TSCA limit of 50 mg/kg. Removing soil from this segment will significantly reduce the total mass of PCBs in floodplain soil and help prevent downstream migration of PCBs into Boggs Creek. To ensure all unacceptable contamination is removed, a confirmation sample will be collected along the southern and eastern walls of Area 3L. The details of sampling and continued excavation, if necessary, are described in Section 3.2.3.

2.5.3.6 Ditch 3, Segment 6 Floodplain Soil (Areas 3O and 3P)

Two areas, 3O and 3P, of the Stream Segment 6 floodplain (see Figures 2-12 and 2-13) contain PCBs in excess of 1 mg/kg. This segment is nearest to a presumed historical PCB source that no longer exists and removal of contaminated soil in these two areas is expected significantly reduce the potential for migration of PCBs into Boggs Creek. The prescribed excavation boundaries were based on available PCB data and topography. Confirmation sampling will occur, however, in accordance with Section 3.2.3.

2.5.4 Building Areas

Although select areas around SWMU 17 buildings have been excavated to a maximum depth of 3 feet, some residual PCB contamination remains, especially near the SWMU 17 Dump/Fill Area. The areas requiring additional excavation are described below. Table ES-1 identifies excavation volumes and links the various areas and excavation volumes to text, figures, and calculation sheets supporting the volume estimates.

2.5.4.1 Dump/Fill Area, Near Building 3072 (Area 4A)

Figures 2-14 and 2-15 show PCB concentrations measured in exploratory trenches and soil borings used to delineate the extent of buried debris and PCB-contaminated soil in the SWMU 17 Dump/Fill Area. PCB analyses were conducted on soil removed from the trenches during test pitting. If a trench contained less than 1 mg/kg PCBs at all depths, the rectangle representing the trench on Figure 2-14 is colored green to signify that the trench is not significantly contaminated. If the PCB concentration in any depth interval within a trench exceeded 1 mg/kg PCBs, the rectangle representing the trench is colored orange (1 to 50 mg/kg total PCBs) or red (≥ 50 mg/kg total PCBs). A tag is attached to all rectangles colored orange or red on Figure 2-14 to identify the PCB concentrations as a function of depth interval for the respective trenches. After trenching, soil borings were installed to more completely delineate the PCB contamination in soil (see Figure 2-15). It is estimated that approximately 60 percent of the Area 4A soil volume with PCB concentrations greater than 1 mg/kg could also be greater than 50 mg/kg PCBs. Area 4A is subdivided into 10 subareas labeled 4A-1 through 4A-10. Each subarea represents an excavation depth

and/or PCB contamination level significantly different than adjacent subareas (refer to Figures 2-14 and 2-15). About 90 ft of the Northwest Ditch is included in Area 4A.

The debris in Area 4A is primarily limited to the level portion of the Dump/Fill Area and the uppermost 40 feet of the Northwest Ditch. A minor amount of sparsely distributed debris extends about 150 feet downstream from the Dump/Fill Area. The major area of debris will be excavated as part of the Dump/Fill Area and the remaining, sparsely distributed debris, will be removed as a separate Northwest Ditch sediment removal.

2.5.4.2 Previous TolTest Excavation Area C (Areas 4B and 4B-50)

Surface and subsurface soil must be removed from these areas to attain a PCB concentration less than 1 mg/kg in the surface and subsurface throughout the areas. Area 4B is subdivided into four areas (4B-1, 4B-2, 4B-3, and 4B-50), each of which represents a different excavation depth or contamination level than adjacent areas as show on figure 2-16. Subareas 4B-1, 4B-2, and 4-B3 contain non-TSCA level contamination. The excavation volumes presented in Table ES-1 assume the goal is to achieve less than 1 mg/kg PCBs in both surface and subsurface of these areas. Sampling locations of Area 4B-50, where subsurface soil currently exceeds 50 mg/kg PCBs at the bottom of the previous excavation, are marked on Figure 2-16. The surface soil between 0 and 2 ft bgs is clean fill except in a small area, Area 4B-3. Because the past excavations were installed to a depth of 2 feet, and clean fill was used to fill the excavations, excavation will begin at a depth of 1.5 ft bgs after removing the top 1.5 ft of clean material except in Area 4B-3. In subarea 4B-1 the excavation will extend from 1.5 to 3 ft bgs; in subarea 4B-2 the excavation will extend from 1.5 to 4 ft bgs; in subarea 4B-50 the excavation will extend from 1.5 ft to bedrock which is about 4 ft deep; in Area 4B-3 the excavation will extend form surface to 4 ft bgs.

2.5.4.3 Northeast of Previous TolTest Excavation Area D (Area 4C)

Surface soil, where PCB concentrations range from less than 1 mg/kg to slightly greater than 1 mg/kg must be removed from this area to a depth of 2.5 feet bgs (See Figure 2-17). Subsurface soil removal is not planned as bedrock is generally less than 3 feet deep and contamination greater than 1 mg/kg was not detected below 2.0 ft bgs. Sampling from the bottom of the previous TolTest excavation indicate that there is a small amount of residual PCB contamination at a depth of about 2 ft bgs but more recent sampling in the 2 to 4 ft interval indicated that concentrations in that interval are less than 1 mg/kg. Detection limits were typically less than 0.01 mg/kg PCBs. This removal will require removal of some of the clean fill that was emplaced by TolTest after the previous excavation but the cost of excavating only surface soil and slightly into surface soil is expected to outweigh the cost of removing clean surface fill

that is already in place and excavating deeper to remove residual PCB contamination to less than 1 mg/kg.

2.5.4.4 Area Near Southwest Corner of Building 2721 (Area 4D)

Surface soil with a PCB concentration greater than 50 mg/kg over an area of approximately 270 sq. ft. must be removed from this area to a depth of 2 feet bgs. Removal of this soil is designed to reduce surface soil concentrations to less than 1 mg/kg PCBs. Subsurface soil removal is not planned as contamination greater than 1 mg/kg was not detected in the subsurface. Detection limits were less than 0.01 mg/kg PCBs. Figure 2-13 identifies Area 4D.

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
Prior to 2012	Soil	4A-5	17EW-B-008	NA	17EW-B-008	0202	feet	2-14	2.6	MG/KG
Prior to 2012	Soil	4A-5	17EW-B-017	17SB392	17EW-B-017	0202	feet	2-14	3.5	MG/KG
08/08/2012	Soil	4A-5	17EW-B-017	17SB392	17SB3920304	0304	feet	2-14	0.0023 J	MG/KG
Prior to 2012	Soil	NA	17EW-B-024	NA	17EW-B-024	0202	feet	2-14	0.098	MG/KG
Prior to 2012	Soil	4A-3	17EW-B-025	NA	17EW-B-025	0202	feet	2-14	13	MG/KG
Prior to 2012	Soil	4B-1	17EW-C-099	17SB386	17EW-C-099	0202	feet	2-16	29	MG/KG
08/08/2012	Soil	4B-1	17EW-C-099	17SB386	17SB3860304	0304	feet	2-16	0.00243 U	MG/KG
Prior to 2012	Soil	4B-1	17EW-C-100	NA	17EW-C-100	0202	feet	2-16	11	MG/KG
Prior to 2012	Soil	4C	17EW-D-033	NA	17EW-D-033	0303	feet	2-17	14	MG/KG
Prior to 2012	Soil	4C	17EW-D-049	NA	17EW-D-049	0202	feet	2-17	6	MG/KG
Prior to 2012	Soil	4C	17EW-D-105	NA	17EW-D-105	0202	feet	2-17	1.4	MG/KG
Prior to 2012	Soil	NA	17EW-E-028	17SB226	17EW-E-028	0202	feet	2-14	5.9	MG/KG
Prior to 2012	Soil	4A-6	17EWPIT30002	NA	17EWPIT30002	0001	feet	2-06, 2-14	41	MG/KG
Prior to 2012	Soil	NA	17FL-A-050	NA	17FL-A-050	0101	feet	2-06	0.099	MG/KG
Prior to 2012	Soil	NA	17FL-A-051	NA	17FL-A-051	0202	feet	2-06	0.018	MG/KG
Prior to 2012	Soil	4A-5	17FL-B-001	NA	17FL-B-001	0202	feet	2-14	0.4	MG/KG
Prior to 2012	Soil	4A-5	17FL-B-002	17SB394	17FL-B-002	0202	feet	2-14	1.4	MG/KG
08/08/2012	Soil	4A-5	17FL-B-002	17SB394	17SB3940304	0304	feet	2-14	0.0126 U	MG/KG
Prior to 2012	Soil	4A-5	17FL-B-003	NA	17FL-B-003	0202	feet	2-14	1.8	MG/KG
Prior to 2012	Soil	4A-5, 4A-10	17FL-B-004	NA	17FL-B-004	0202	feet	2-14	1.7	MG/KG
Prior to 2012	Soil	4A-5	17FL-B-005	17SB457	17FL-B-005	0202	feet	2-14	8.4	MG/KG
Prior to 2012	Soil	4A-5	17FL-B-006	NA	17FL-B-006	0202	feet	2-14	2.7	MG/KG
Prior to 2012	Soil	4A-4, 4A-5	17FL-B-007	NA	17FL-B-007	0202	feet	2-14	5.3	MG/KG
Prior to 2012	Soil	4A-10	17FL-B-009	NA	17FL-B-009	0202	feet	2-14	81	MG/KG
Prior to 2012	Soil	4A-10	17FL-B-010	NA	17FL-B-010	0202	feet	2-14	55	MG/KG
Prior to 2012	Soil	4A-4	17FL-B-011	NA	17FL-B-011	0202	feet	2-14	8.8	MG/KG
Prior to 2012	Soil	4A-3	17FL-B-012	NA	17FL-B-012	0202	feet	2-14	6	MG/KG
Prior to 2012	Soil	4A-5	17FL-B-013	NA	17FL-B-013	0202	feet	2-14	0.18	MG/KG
Prior to 2012	Soil	4A-5, 4A-10	17FL-B-014	17SB393	17FL-B-014	0202	feet	2-14	7	MG/KG
08/08/2012	Soil	4A-5, 4A-10	17FL-B-014	17SB393	17SB3930304	0304	feet	2-14	0.00246 U	MG/KG
10/02/2012	Soil	4A-5, 4A-10	17FL-B-014	17SB393	17SB3930406	0406	feet	2-14	0.0131	MG/KG
10/02/2012	Soil	4A-5, 4A-10	17FL-B-014	17SB393	17SB3930607	0607	feet	2-14	0.00244 U	MG/KG
Prior to 2012	Soil	4A-5	17FL-B-015	NA	17FL-B-015	0202	feet	2-14	3.3	MG/KG
Prior to 2012	Soil	4A-5	17FL-B-016	NA	17FL-B-016	0202	feet	2-14	3	MG/KG
Prior to 2012	Soil	4A-5	17FL-B-018	17SB391	17FL-B-018	0202	feet	2-14	15	MG/KG
08/08/2012	Soil	4A-5	17FL-B-018	17SB391	17SB3910304	0304	feet	2-14	0.00383	MG/KG
Prior to 2012	Soil	4A-5	17FL-B-019	NA	17FL-B-019	0202	feet	2-14	1.2	MG/KG
Prior to 2012	Soil	4A-5, 4A-10	17FL-B-020	NA	17FL-B-020	0202	feet	2-14	0.89	MG/KG
Prior to 2012	Soil	NA	17FL-B-021	NA	17FL-B-021	0202	feet	2-14	0.95	MG/KG
Prior to 2012	Soil	NA	17FL-B-022	NA	17FL-B-022	0202	feet	2-14	0.049	MG/KG
Prior to 2012	Soil	NA	17FL-B-023	NA	17FL-B-023	0202	feet	2-14	0.042	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-052	NA	17FL-C-052	0202	feet	2-16	0.078	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-053	NA	17FL-C-053	0202	feet	2-16	0.49	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-054	NA	17FL-C-054	0202	feet	2-16	0.44	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-055	NA	17FL-C-055	0202	feet	2-16	1.2	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-056	NA	17FL-C-056	0202	feet	2-16	3	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-057	NA	17FL-C-057	0202	feet	2-16	0.37	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-058	NA	17FL-C-058	0202	feet	2-16	2.3	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-059	NA	17FL-C-059	0202	feet	2-16	3.1	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-060	NA	17FL-C-060	0202	feet	2-16	4	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-061	NA	17FL-C-061	0202	feet	2-16	1.3	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-062	NA	17FL-C-062	0202	feet	2-16	1.4	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-063	17SB389	17FL-C-063	0303	feet	2-16	19	MG/KG
08/08/2012	Soil	4B-1	17FL-C-063	17SB389	17SB3890304	0304	feet	2-16	0.00255 U	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-064	NA	17FL-C-064	0303	feet	2-16	10	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
Prior to 2012	Soil	4B-1	17FL-C-065	NA	17FL-C-065	0303	feet	2-16	7	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-066	NA	17FL-C-066	0202	feet	2-16	3.1	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-067	NA	17FL-C-067	0202	feet	2-16	4	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-068	NA	17FL-C-068	0202	feet	2-16	1.9	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-069	17SB195	17FL-C-069	0202	feet	2-16	27	MG/KG
08/07/2012	Soil	4B-1	17FL-C-069	17SB195	17SB3790304	0304	feet	2-16	0.719	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-070	17SB194	17FL-C-070	0202	feet	2-16	30	MG/KG
08/07/2012	Soil	4B-1	17FL-C-070	17SB194	17SB3780304	0304	feet	2-16	0.00379 U	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-071	NA	17FL-C-071	0202	feet	2-16	1.9	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-072	17SB390	17FL-C-072	0303	feet	2-16	26	MG/KG
08/08/2012	Soil	4B-1	17FL-C-072	17SB390	17SB3900304	0304	feet	2-16	0.00235 U	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-073	NA	17FL-C-073	0303	feet	2-16	72	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-074	17SB388	17FL-C-074	0303	feet	2-16	21	MG/KG
08/08/2012	Soil	4B-1	17FL-C-074	17SB388	17SB3880304	0304	feet	2-16	0.00248 U	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-075	NA	17FL-C-075	0303	feet	2-16	7.5	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-076	NA	17FL-C-076	0202	feet	2-16	3.4	MG/KG
Prior to 2012	Soil	4B-1, 4B-2	17FL-C-077	17SB454	17FL-C-077	0202	feet	2-16	4.4	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-078	17SB385	17FL-C-078	0202	feet	2-16	1.7	MG/KG
08/08/2012	Soil	4B-1	17FL-C-078	17SB385	17SB3850304	0304	feet	2-16	0.00953 J	MG/KG
Prior to 2012	Soil	4B-2	17FL-C-079	17SB384	17FL-C-079	0202	feet	2-16	22	MG/KG
08/08/2012	Soil	4B-2	17FL-C-079	17SB384	17SB3840304	0304	feet	2-16	1.26	MG/KG
Prior to 2012	Soil	4B-1, 4B-2	17FL-C-080	17SB453	17FL-C-080	0202	feet	2-16	15	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-081	NA	17FL-C-081	0202	feet	2-16	15	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-082	17SB380	17FL-C-082	0202	feet	2-16	23	MG/KG
08/07/2012	Soil	4B-1	17FL-C-082	17SB380	17SB3800304	0304	feet	2-16	0.0918	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-083	NA	17FL-C-083	0202	feet	2-16	12	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-084	17SB377	17FL-C-084	0202	feet	2-16	22	MG/KG
08/07/2012	Soil	4B-1	17FL-C-084	17SB377	17SB3770304	0304	feet	2-16	0.00263 U	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-085	NA	17FL-C-085	0202	feet	2-16	1.2	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-086	17SB376	17FL-C-086	0202	feet	2-16	4.6	MG/KG
08/07/2012	Soil	4B-1	17FL-C-086	17SB376	17SB3760304	0304	feet	2-16	0.817	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-087	NA	17FL-C-087	0202	feet	2-16	1.9	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-088	17SB381	17FL-C-088	0202	feet	2-16	23	MG/KG
08/07/2012	Soil	4B-1	17FL-C-088	17SB381	17SB3810304	0304	feet	2-16	0.00211 U	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-089	NA	17FL-C-089	0202	feet	2-16	16	MG/KG
Prior to 2012	Soil	4B-1, 4B-2	17FL-C-090	17SB382	17FL-C-090	0202	feet	2-16	25	MG/KG
08/07/2012	Soil	4B-1, 4B-2	17FL-C-090	17SB382	17SB3820304	0304	feet	2-16	0.00258 U	MG/KG
Prior to 2012	Soil	4B-2	17FL-C-091	17SB383	17FL-C-091	0202	feet	2-16	24	MG/KG
08/08/2012	Soil	4B-2	17FL-C-091	17SB383	17SB3830304	0304	feet	2-16	0.00235 U	MG/KG
Prior to 2012	Soil	4B-1, 4B-2	17FL-C-092	NA	17FL-C-092	0202	feet	2-16	6.8	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-093	NA	17FL-C-093	0202	feet	2-16	2.8	MG/KG
Prior to 2012	Soil	4B-1	17FL-C-094	NA	17FL-C-094	0202	feet	2-16	4.3	MG/KG
Prior to 2012	Soil	4B-50	17FL-C-095	NA	17FL-C-095	0202	feet	2-16	81	MG/KG
Prior to 2012	Soil	4B-50	17FL-C-096	NA	17FL-C-096	0202	feet	2-16	58	MG/KG
Prior to 2012	Soil	4B-50	17FL-C-097	NA	17FL-C-097	0202	feet	2-16	78	MG/KG
Prior to 2012	Soil	4B-50	17FL-C-098	NA	17FL-C-098	0303	feet	2-16	55	MG/KG
Prior to 2012	Soil	4C	17FL-D-029	17SB225, 17SB203	17FL-D-029	0303	feet	2-17	4.7	MG/KG
Prior to 2012	Soil	4C	17FL-D-030	NA	17FL-D-030	0303	feet	2-17	0.89	MG/KG
Prior to 2012	Soil	4C	17FL-D-031	NA	17FL-D-031	0303	feet	2-17	0.81	MG/KG
Prior to 2012	Soil	4C	17FL-D-032	NA	17FL-D-032	0303	feet	2-17	0.89	MG/KG
Prior to 2012	Soil	4C	17FL-D-034	17SB233	17FL-D-034	0303	feet	2-17	1.4	MG/KG
Prior to 2012	Soil	4C	17FL-D-035	17SB216	17FL-D-035	0303	feet	2-17	2.1	MG/KG
Prior to 2012	Soil	4C	17FL-D-036	17SB221	17FL-D-036	0303	feet	2-17	1.7	MG/KG
Prior to 2012	Soil	4C	17FL-D-037	17SB224	17FL-D-037	0303	feet	2-17	17	MG/KG
Prior to 2012	Soil	4C	17FL-D-038	NA	17FL-D-038	0202	feet	2-17	0.33	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
Prior to 2012	Soil	4C	17FL-D-039	NA	17FL-D-039	0202	feet	2-17	0.46	MG/KG
Prior to 2012	Soil	4C	17FL-D-040	17SB218	17FL-D-040	0202	feet	2-17	8	MG/KG
Prior to 2012	Soil	4C	17FL-D-041	17SB220	17FL-D-041	0202	feet	2-17	2.4	MG/KG
Prior to 2012	Soil	4C	17FL-D-042	17SB222	17FL-D-042	0202	feet	2-17	13	MG/KG
Prior to 2012	Soil	4C	17FL-D-043	17SB223	17FL-D-043	0202	feet	2-17	1.8	MG/KG
Prior to 2012	Soil	NA	17FL-D-044	NA	17FL-D-044	0202	feet	2-17	0.17	MG/KG
Prior to 2012	Soil	4C	17FL-D-045	17SB215	17FL-D-045	0202	feet	2-17	3.9	MG/KG
Prior to 2012	Soil	4C	17FL-D-046	17SB217	17FL-D-046	0202	feet	2-17	3.8	MG/KG
Prior to 2012	Soil	4C	17FL-D-047	17SB219	17FL-D-047	0202	feet	2-17	12	MG/KG
Prior to 2012	Soil	4C	17FL-D-048	NA	17FL-D-048	0202	feet	2-17	0.37	MG/KG
Prior to 2012	Soil	4C	17FL-D-101	17SB214	17FL-D-101	0202	feet	2-17	1.6	MG/KG
Prior to 2012	Soil	4C	17FL-D-102	NA	17FL-D-102	0202	feet	2-17	0.27	MG/KG
Prior to 2012	Soil	4C	17FL-D-103	17SB212	17FL-D-103	0202	feet	2-17	2	MG/KG
Prior to 2012	Soil	4C	17FL-D-104	17SB213	17FL-D-104	0202	feet	2-17	1.6	MG/KG
Prior to 2012	Soil	NA	17FL-E-026	17SB228	17FL-E-026	0202	feet	2-14	1	MG/KG
Prior to 2012	Soil	NA	17FL-E-027	17SB227	17FL-E-027	0202	feet	2-14	3.6	MG/KG
Prior to 2012	Soil	NA	17SB001		17SS0010002	0002	feet	2-06	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB001		17SB0010204	0204	feet	2-06	0.00 U	MG/KG
Prior to 2012	Soil	NW Ditch	17SB001T		17SS001	0002	feet	2-06	3.1	MG/KG
Prior to 2012	Soil	NA	17SB002		17SS0020002	0002	feet	2-06	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB002		17SB0020204	0204	feet	2-06	0.00 U	MG/KG
Prior to 2012	Soil	NW Ditch	17SB002T		17SS002	0002	feet	2-06	31	MG/KG
Prior to 2012	Soil	NW Ditch	17SB002T		17SB002	0204	feet	2-06	2.2	MG/KG
Prior to 2012	Soil	NA	17SB003		17SS0030002	0002	feet	2-06	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB003		17SB0030204	0204	feet	2-06	0.00 U	MG/KG
Prior to 2012	Soil	NW Ditch	17SB003T		17SS003	0002	feet	2-06	33	MG/KG
Prior to 2012	Soil	NW Ditch	17SB003T		17SB003	0204	feet	2-06	12	MG/KG
Prior to 2012	Soil	NA	17SB004		17SS0040002	0002	feet	2-06	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB004		17SB0040204	0204	feet	2-06	0.00 U	MG/KG
Prior to 2012	Soil	NW Ditch	17SB004T		17SS004	0002	feet	2-06	10	MG/KG
Prior to 2012	Soil	NA	17SB004T		17SB004	0204	feet	2-06	4.4	MG/KG
Prior to 2012	Soil	NA	17SB005		17SS0050002	0002	feet	2-06	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB005		17SB0050204	0204	feet	2-06	0.00 U	MG/KG
Prior to 2012	Soil	NW Ditch	17SB005T		17SS005	0002	feet	2-06	15	MG/KG
Prior to 2012	Soil	NW Ditch	17SB005T		17SB005	0204	feet	2-06	1.1	MG/KG
Prior to 2012	Soil	NA	17SB006		17SS0060002	0002	feet	2-06	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB006		17SB0060204	0204	feet	2-06	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB006T		17SS006	0002	feet	2-06	0.16	MG/KG
Prior to 2012	Soil	NA	17SB007		17SS0070002	0002	feet	2-14, 2-15	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB007		17SB0070204	0204	feet	2-14, 2-15	0.00 U	MG/KG
10/02/2012	Soil	NA	17SB007		17SB0070406	0406	feet	2-14, 2-15	0.00676	MG/KG
10/02/2012	Soil	NA	17SB007		17SB0070608	0608	feet	2-14, 2-15	0.0291	MG/KG
10/02/2012	Soil	NA	17SB007		17SB0070810	0810	feet	2-14, 2-15	0.00248 U	MG/KG
Prior to 2012	Soil	Na	17SB007T		17SS007	0002	feet	2-14, 2-15	0.74	MG/KG
Prior to 2012	Soil	4A-5	17SB008		17SS0080002	0002	feet	2-14, 2-15	0.83	MG/KG
Prior to 2012	Soil	4A-5	17SB008		17SB0080204	0204	feet	2-14, 2-15	0.00 U	MG/KG
10/02/2012	Soil	4A-5	17SB008		17SB0080406	0406	feet	2-14, 2-15	0.00279 U	MG/KG
10/02/2012	Soil	4A-5	17SB008		17SB0080608	0608	feet	2-14, 2-15	0.00265 U	MG/KG
10/02/2012	Soil	4A-5	17SB008		17SB0080809	0809	feet	2-14, 2-15	0.00238 U	MG/KG
Prior to 2012	Soil	4B-3	17SB008T		17SS008	0002	feet	2-16	0.91	MG/KG
Prior to 2012	Soil	NA	17SB009		17SS0090002	0002	feet	2-16	0.18	MG/KG
Prior to 2012	Soil	NA	17SB009		17SB0090204	0204	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	**4B-3**	17SB009T		17SS009	0002	feet	2-16	31	MG/KG
Prior to 2012	Soil	4B-1	17SB010		17SS0100002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	4B-1	17SB010		17SB0100204	0204	feet	2-16	0.00 U	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
Prior to 2012	Soil	4B-1	17SB011		17SS0110002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	4B-1	17SB011		17SB0110204	0204	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	4B-1, 4B-2	17SB012		17SS0120002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	4B-1, 4B-2	17SB012		17SB0120204	0204	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB013		17SS0130002	0002	feet	2-16	0.82	MG/KG
Prior to 2012	Soil	NA	17SB013		17SB0130204	0204	feet	2-16	0.2	MG/KG
Prior to 2012	Soil	4B-50	17SB014		17SS0140002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	4B-50	17SB014		17SB0140204	0204	feet	2-16	0.69	MG/KG
Prior to 2012	Soil	4C	17SB015		17SS0150002	0002	feet	2-17	0.00 U	MG/KG
Prior to 2012	Soil	4C	17SB015		17SB0150204	0204	feet	2-17	0.00 U	MG/KG
Prior to 2012	Soil	Na	17SB016		17SS0160002	0002	feet	2-16	0.17	MG/KG
Prior to 2012	Soil	NA	17SB016		17SB0160204	0204	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB017		17SS0170002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB017		17SB0170204	0204	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB018		17SS0180002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB018		17SB0180204	0204	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB019		17SS0190002	0002	feet	2-06, 2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB019		17SB0190204	0204	feet	2-06, 2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB020		17SS0200002	0002	feet	2-06	0.32	MG/KG
Prior to 2012	Soil	NA	17SB020		17SB0200204	0204	feet	2-06	0.00 U	MG/KG
Prior to 2012	Soil	4A-5	17SB021		17SS0210002	0002	feet	2-14	0.00 U	MG/KG
Prior to 2012	Soil	4A-5	17SB021		17SB0210204	0204	feet	2-14	0.00 U	MG/KG
Prior to 2012	Soil	4A-5	17SB022		17SS0220002	0002	feet	2-14, 2-15	0.00 U	MG/KG
Prior to 2012	Soil	4A-5	17SB022		17SB0220204	0204	feet	2-14, 2-15	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB023		17SS0230002	0002	feet	2-14, 2-15, 2-16	0.24	MG/KG
Prior to 2012	Soil	NA	17SB023		17SB0230204	0204	feet	2-14, 2-15, 2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB024		17SS0240002	0002	feet	2-14, 2-15, 2-16	0.44	MG/KG
Prior to 2012	Soil	NA	17SB024		17SB0240204	0204	feet	2-14, 2-15, 2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB025		17SS0250002	0002	feet	2-14, 2-15, 2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB025		17SB0250204	0204	feet	2-14, 2-15, 2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB026		17SS0260002	0002	feet	2-16	0.6	MG/KG
Prior to 2012	Soil	NA	17SB026		17SB0260204	0204	feet	2-16	0.33	MG/KG
Prior to 2012	Soil	NA	17SB027		17SS0270002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB027		17SB0270204	0204	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB028		17SS0280002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB028		17SB0280204	0204	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB029		17SS0290002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB029		17SB0290204	0204	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB030		17SS0300002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB030		17SB0300204	0204	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB031		17SS0310002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB031		17SB0310204	0204	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB032		17SS0320002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB032		17SB0320204	0204	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB033		17SS0330002	0002	feet	2-06	0.89	MG/KG
Prior to 2012	Soil	NA	17SB033		17SB0330204	0204	feet	2-06	0.00 U	MG/KG
Prior to 2012	Soil	4A-8	17SB034		17SS0340002	0002	feet	2-06, 2-14, 2-15	0.00 U	MG/KG
Prior to 2012	Soil	4A-8	17SB034		17SB0340204	0204	feet	2-06, 2-14, 2-15	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB035		17SS0350002	0002	feet	2-06, 2-14	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB035		17SB0350204	0204	feet	2-06, 2-14	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB036		17SS0360002	0002	feet	2-14, 2-15	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB036		17SB0360204	0204	feet	2-14, 2-15	0.00 U	MG/KG
Prior to 2012	Soil	4A-4	17SB037		17SS0370002	0002	feet	2-14, 2-15	0.00 U	MG/KG
Prior to 2012	Soil	4A-4	17SB037		17SB0370204	0204	feet	2-14, 2-15	0.43	MG/KG
Prior to 2012	Soil	4A-5	17SB038		17SS0380002	0002	feet	2-02, 2-14, 2-15	0.00 U	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
Prior to 2012	Soil	4A-5	17SB038		17SB0380204	0204	feet	2-02, 2-14, 2-15	1.6	MG/KG
Prior to 2012	Soil	4A-5	17SB039		17SS0390002	0002	feet	2-02, 2-14, 2-15	0.00 U	MG/KG
Prior to 2012	Soil	4A-5	17SB039		17SB0390204	0204	feet	2-02, 2-14, 2-15	0.00 U	MG/KG
10/02/2012	Soil	4A-5	17SB039		17SB0390406	0406	feet	2-02, 2-14, 2-15	0.00239 U	MG/KG
Prior to 2012	Soil	4A-5	17SB040		17SS0400002	0002	feet	2-14, 2-15	0.00 U	MG/KG
Prior to 2012	Soil	4A-5	17SB040		17SB0400204	0204	feet	2-14, 2-15	0.00 U	MG/KG
Prior to 2012	Soil	4A-5	17SB041		17SS0410002	0002	feet	2-14, 2-15	0.00 U	MG/KG
Prior to 2012	Soil	4A-5	17SB041		17SB0410204	0204	feet	2-14, 2-15	0.00 U	MG/KG
Prior to 2012	Soil	4B-1	17SB042		17SS0420002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	4B-1	17SB042		17SB0420204	0204	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	4B-1	17SB043		17SS0430002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	4B-1	17SB043		17SB0430204	0204	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	4B-1	17SB044		17SS0440002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	4B-1	17SB044		17SB0440204	0204	feet	2-16	0.26	MG/KG
Prior to 2012	Soil	4B-1	17SB045		17SS0450002	0002	feet	2-16	0.00 U	MG/KG
Prior to 2012	Soil	4B-1	17SB045		17SB0450204	0204	feet	2-16	0.029	MG/KG
Prior to 2012	Soil	4B-1	17SB046/TW01	17TW01	17SS0460002	0002	feet	2-02, 2-16	0.00 U	MG/KG
Prior to 2012	Soil	4B-1	17SB046/TW01	17TW01	17SB0460204	0204	feet	2-02, 2-16	0.00 U	MG/KG
Prior to 2012	Soil	4B-1, 4B-50	17SB047		17SS0470002	0002	feet	2-16	0.063	MG/KG
Prior to 2012	Soil	4B-1, 4B-50	17SB047		17SB0470204	0204	feet	2-16	0.018	MG/KG
Prior to 2012	Soil	4B-50	17SB048		17SS0480002	0002	feet	2-16	0.077	MG/KG
Prior to 2012	Soil	4B-50	17SB048		17SB0480204	0204	feet	2-16	0.98	MG/KG
Prior to 2012	Soil	4A-4, 4A-5, 4A-10	17SB049		17SS0490002	0002	feet	2-02, 2-14, 2-15	0.00 U	MG/KG
Prior to 2012	Soil	4A-4, 4A-5, 4A-10	17SB049		17SB0490204	0204	feet	2-02, 2-14, 2-15	0.94	MG/KG
Prior to 2012	Soil	4A-4, 4A-5, 4A-10	17SB049		17SB0490608	0608	feet	2-02, 2-14, 2-15	0.021	MG/KG
Prior to 2012	Soil	NA	17SB050		17SS0500002	0002	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB050		17SB0500204	0204	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB050		17SB0501618	1618	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB051		17SS0510002	0002	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB051		17SB0510204	0204	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB051		17SB0511719	1719	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB052		17SS0520002	0002	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB052		17SB0520204	0204	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB053		17SS0530001	0001	feet	2-03, 2-13	0.084	MG/KG
Prior to 2012	Soil	NA	17SB053		17SB0530204	0204	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB053		17SB0531820	018020	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB054		17SS0540002	0002	feet	2-03, 2-13	0.2	MG/KG
Prior to 2012	Soil	4D	17SB055		17SS0550002	0002	feet	2-03, 2-13	73	MG/KG
04/27/2012	Soil	4D	17SB055		17SB0550204	0204	feet	2-03, 2-13	0.352	MG/KG
Prior to 2012	Soil	NA	17SB056		17SS0560002	0002	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB057		17SS0570002	0002	feet	2-03, 2-13	0.083	MG/KG
Prior to 2012	Soil	NA	17SB058		17SS0580002	0002	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB059		17SS0590001	0001	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB060		17SS0600001	0001	feet	2-03, 2-13	0.28	MG/KG
Prior to 2012	Soil	NA	17SB060		17SB0600204	0204	feet	2-03, 2-13	0.54	MG/KG
Prior to 2012	Soil	NA	17SB060		17SB0601719	017019	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB061		17SS0610002	0002	feet	2-03, 2-13	0.1	MG/KG
Prior to 2012	Soil	NA	17SB061		17SB0610204	0204	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB061		17SB0611618	1618	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB062/TW02	17TW02	17SS0620001	0001	feet	2-03, 2-13	0.047	MG/KG
Prior to 2012	Soil	NA	17SB062/TW02	17TW02	17SB0620204	0204	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB062/TW02	17TW02	17SB0621113	1113	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB063		17SS0630002	0002	feet	2-03, 2-13	0.044	MG/KG
Prior to 2012	Soil	NA	17SB064/TW03	17TW03	17SS0640001	0001	feet	2-03, 2-13	0.099	MG/KG
Prior to 2012	Soil	NA	17SB064/TW03	17TW03	17SB0640204	0204	feet	2-03, 2-13	0.00 U	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
Prior to 2012	Soil	NA	17SB064/TW03	17TW03	17SB0641315	1315	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB065		17SS0650001	0001	feet	2-03, 2-13	0.1	MG/KG
Prior to 2012	Soil	NA	17SB065		17SB0650204	0204	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB065		17SB0651416	1416	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB066		17SS0660001	0001	feet	2-03, 2-13	0.028	MG/KG
Prior to 2012	Soil	NA	17SB066		17SB0660204	0204	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB066		17SB0661416	1416	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB067		17SS0670002	0002	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB068		17SS0680002	0002	feet	2-03, 2-13	0.05	MG/KG
Prior to 2012	Soil	NA	17SB069		17SS0690001	0001	feet	2-03, 2-13	0.18	MG/KG
Prior to 2012	Soil	NA	17SB070/TW04	17TW04	17SS0700001	0001	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB070/TW04	17TW04	17SB0700204	0204	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB070/TW04	17TW04	17SB0700405	0405	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB071		17SS0710001	0001	feet	2-03, 2-13	0.039	MG/KG
Prior to 2012	Soil	NA	17SB071		17SB0710203	0203	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	NA	17SB072		17SS0720001	0001	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Soil	3N	17SB075		17SS0750006	0000.5	feet	2-12	11	MG/KG
04/25/2012	Soil	3N	17SB075		17SS0750612	00.501	feet	2-12	2.57	MG/KG
04/25/2012	Soil	3N	17SB075		17SS0751218	0101.5	feet	2-12	9.08	MG/KG
Prior to 2012	Soil	3M	17SB076		17SS0760006	0000.5	feet	2-12	1.6	MG/KG
04/24/2012	Soil	3M	17SB076		17SS0760612	00.501	feet	2-12	0.0208	MG/KG
Prior to 2012	Soil	3J, Oxbow	17SB077		17SS0770006	0000.5	feet	2-12	2.3	MG/KG
Prior to 2012	Soil	NA	17SB078		17SS0780006	0000.5	feet	2-11, 2-12	0.66	MG/KG
Prior to 2012	Soil	NA	17SB079		17SS0790006	0000.5	feet	2-11	0.64	MG/KG
Prior to 2012	Soil	NA	17SB080		17SS0800006	0000.5	feet	2-02, 2-10	0.85	MG/KG
Prior to 2012	Soil	NA	17SB081		17SS0810006	0000.5	feet	2-09	0.14	MG/KG
Prior to 2012	Soil	3E	17SB082		17SS0820006	0000.5	feet	2-09	14	MG/KG
04/23/2012	Soil	3E	17SB082		17SS0820612	00.501	feet	2-09	6.84	MG/KG
04/23/2012	Soil	3E	17SB082		17SS0821824	01.502	feet	2-09	0.0536	MG/KG
04/23/2012	Soil	3E	17SB082		17SS0821218	0101.5	feet	2-09	1.35	MG/KG
Prior to 2012	Soil	NA	17SB083		17SS0830006	0000.5	feet	2-02, 2-06	0.032	MG/KG
Prior to 2012	Soil	NA	17SB084		17SS0840006	0000.5	feet	2-02, 2-06	0.03	MG/KG
Prior to 2012	Soil	3B	17SB085		17SS0850001	0001	feet	2-02, 2-08	4.3	MG/KG
04/29/2012	Soil	3B	17SB085		17SS0851824	01.502	feet	2-02, 2-08	0.119 J	MG/KG
04/29/2012	Soil	3B	17SB085		17SS0851218	0101.5	feet	2-02, 2-08	2.13	MG/KG
Prior to 2012	Soil	NA	17SB086		17SS0860002	0002	feet	2-02, 2-08	0.026	MG/KG
Prior to 2012	Soil	3N	17SB087		17SS0870006	0000.5	feet	2-12	0.111	MG/KG
Prior to 2012	Soil	NA	17SB088		17SS0880006	0000.5	feet	2-12	0.04	MG/KG
Prior to 2012	Soil	3N	17SB089		17SS0890006	0000.5	feet	2-02, 2-12	0.253	MG/KG
Prior to 2012	Soil	3E	17SB090		17SS0900006	0000.5	feet	2-08, 2-09	4.19	MG/KG
Prior to 2012	Soil	3E	17SB090		17SS0900612	00.501	feet	2-08, 2-09	11.7	MG/KG
04/23/2012	Soil	3E	17SB090		17SS0901824	01.502	feet	2-08, 2-09	2.51	MG/KG
04/23/2012	Soil	3E	17SB090		17SS0901218	0101.5	feet	2-08, 2-09	15.2	MG/KG
04/23/2012	Soil	3E	17SB090		17SB0902430	0202.5	feet	2-08, 2-09	0.484	MG/KG
Prior to 2012	Soil	NA	17SB091		17SS0910006	0000.5	feet	2-08, 2-09	0.204	MG/KG
Prior to 2012	Soil	3E	17SB092		17SS0920006	0000.5	feet	2-09	12.4	MG/KG
Prior to 2012	Soil	3E	17SB092		17SS0920612	00.501	feet	2-09	1.8	MG/KG
04/23/2012	Soil	3E	17SB092		17SS0921824	01.502	feet	2-09	0.0284	MG/KG
04/23/2012	Soil	3E	17SB092		17SS0921218	0101.5	feet	2-09	0.29	MG/KG
Prior to 2012	Soil	3E	17SB093		17SS0930006	0000.5	feet	2-09	0.798	MG/KG
Prior to 2012	Soil	3E	17SB094		17SS0940006	0000.5	feet	2-09	2.28	MG/KG
Prior to 2012	Soil	3E	17SB094		17SS0940612	00.501	feet	2-09	3.05	MG/KG
04/23/2012	Soil	3E	17SB094		17SS0941218	0101.5	feet	2-09	0.827	MG/KG
Prior to 2012	Soil	3E	17SB095		17SS0950006	0000.5	feet	2-09	1.51	MG/KG
Prior to 2012	Soil	3E	17SB095		17SS0950612	00.501	feet	2-09	0.498	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
Prior to 2012	Soil	NA	17SB096		17SS0960006	0000.5	feet	2-09	0.818	MG/KG
Prior to 2012	Soil	NA	17SB097		17SS0970006	0000.5	feet	2-09	0.265	MG/KG
Prior to 2012	Soil	NA	17SB098		17SS0980006	0000.5	feet	2-09	0.0464	MG/KG
Prior to 2012	Soil	NA	17SB099		17SS0990006	0000.5	feet	2-09	0.0522	MG/KG
Prior to 2012	Soil	NA	17SB100		17SS1000006	0000.5	feet	2-09	0.886	MG/KG
Prior to 2012	Soil	3D	17SB101		17SS1010006	0000.5	feet	2-09	2.04	MG/KG
Prior to 2012	Soil	3D	17SB101		17SS1010612	00.501	feet	2-09	1.49	MG/KG
Prior to 2012	Soil	3D	17SB102		17SS1020006	0000.5	feet	2-09	0.351	MG/KG
Prior to 2012	Soil	NA	17SB103		17SS1030006	0000.5	feet	2-09	0.075	MG/KG
Prior to 2012	Soil	3D	17SB104		17SS1040006	0000.5	feet	2-09	5.27	MG/KG
Prior to 2012	Soil	3D	17SB104		17SS1040612	00.501	feet	2-09	1.77	MG/KG
Prior to 2012	Soil	3D	17SB105		17SS1050006	0000.5	feet	2-09	9.27	MG/KG
Prior to 2012	Soil	3D	17SB105		17SS1050612	00.501	feet	2-09	41.3	MG/KG
04/23/2012	Soil	3D	17SB105		17SS1051218	0101.5	feet	2-09	0.278 J	MG/KG
Prior to 2012	Soil	3D	17SB106		17SS1060006	0000.5	feet	2-09	24.5	MG/KG
Prior to 2012	Soil	3D	17SB106		17SS1060612	00.501	feet	2-09	8.2	MG/KG
04/24/2012	Soil	3D	17SB106		17SS1061218	0101.5	feet	2-09	0.0339	MG/KG
Prior to 2012	Soil	3C	17SB107		17SS1070006	0000.5	feet	2-09	1.63	MG/KG
Prior to 2012	Soil	3C	17SB107		17SS1070612	00.501	feet	2-09	0.375	MG/KG
Prior to 2012	Soil	NA	17SB111		17SS1110006	0000.5	feet	2-08	0.0877	MG/KG
Prior to 2012	Soil	NA	17SB112		17SS1120006	0000.5	feet	2-08	0.047	MG/KG
Prior to 2012	Soil	NA	17SB113		17SS1130006	0000.5	feet	2-08	0.121	MG/KG
Prior to 2012	Soil	NA	17SB114		17SS1140006	0000.5	feet	2-08	0.104	MG/KG
Prior to 2012	Soil	3A-2	17SB115		17SS1150006	0000.5	feet	2-08	1.75	MG/KG
Prior to 2012	Soil	3A-2	17SB115		17SS1150612	00.501	feet	2-08	1.19	MG/KG
04/23/2012	Soil	3A-2	17SB115		17SS1151218	0101.5	feet	2-08	0.00263 J	MG/KG
Prior to 2012	Soil	3A-2	17SB116		17SS1160006	0000.5	feet	2-08	5.27	MG/KG
Prior to 2012	Soil	3A-2	17SB116		17SS1160612	00.501	feet	2-08	3.65	MG/KG
04/29/2012	Soil	3A-2	17SB116		17SS1161218	0101.5	feet	2-08	0.0176	MG/KG
Prior to 2012	Soil	3B	17SB117		17SS1170006	0000.5	feet	2-08	1.82	MG/KG
Prior to 2012	Soil	3B	17SB117		17SS1170612	00.501	feet	2-08	2.38	MG/KG
04/28/2012	Soil	3B	17SB117		17SS1171824	01.502	feet	2-08	0.583	MG/KG
04/28/2012	Soil	3B	17SB117		17SS1171218	0101.5	feet	2-08	3.28	MG/KG
Prior to 2012	Soil	3A-2	17SB118		17SS1180006	0000.5	feet	2-08	1.85	MG/KG
Prior to 2012	Soil	3A-2	17SB118		17SS1180612	00.501	feet	2-08	3.73	MG/KG
04/28/2012	Soil	3A-2	17SB118		17SS1181824	01.502	feet	2-08	0.0372	MG/KG
04/28/2012	Soil	3A-2	17SB118		17SS1181218	0101.5	feet	2-08	4.01	MG/KG
Prior to 2012	Soil	3B	17SB119		17SS1190006	0000.5	feet	2-08	4.83	MG/KG
Prior to 2012	Soil	3B	17SB119		17SS1190612	00.501	feet	2-08	4.37	MG/KG
04/28/2012	Soil	3B	17SB119		17SS1191218	0101.5	feet	2-08	0.147	MG/KG
Prior to 2012	Soil	3B	17SB120		17SS1200006	0000.5	feet	2-08	8.19	MG/KG
Prior to 2012	Soil	3B	17SB120		17SS1200612	00.501	feet	2-08	5.51	MG/KG
04/29/2012	Soil	3B	17SB120		17SS1201218	0101.5	feet	2-08	0.119	MG/KG
Prior to 2012	Soil	NA	17SB121		17SS1210006	0000.5	feet	2-08	0.0527	MG/KG
04/23/2012	Soil	3B	17SB122		17SS1220006	0000.5	feet	2-08	2.48	MG/KG
04/23/2012	Soil	3B	17SB122		17SS1220612	00.501	feet	2-08	3.62	MG/KG
04/23/2012	Soil	3B	17SB122		17SS1221824	01.502	feet	2-08	0.0653	MG/KG
04/23/2012	Soil	3B	17SB122		17SS1221218	0101.5	feet	2-08	5.62	MG/KG
04/28/2012	Soil	3B	17SB123		17SS1230006	0000.5	feet	2-08	0.668	MG/KG
04/28/2012	Soil	3B	17SB123		17SS1230612	00.501	feet	2-08	0.0914	MG/KG
04/23/2012	Soil	NA	17SB125		17SS1250006	0000.5	feet	2-08	0.416	MG/KG
04/23/2012	Soil	NA	17SB125		17SS1250612	00.501	feet	2-08	0.0351	MG/KG
04/28/2012	Soil	3B	17SB126		17SS1260006	0000.5	feet	2-08	0.61	MG/KG
04/28/2012	Soil	3B	17SB126		17SS1260612	00.501	feet	2-08	0.0421	MG/KG
04/28/2012	Soil	3B	17SB128		17SS1280006	0000.5	feet	2-08	0.896	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
04/28/2012	Soil	3B	17SB128		17SS1280612	00.501	feet	2-08	0.216	MG/KG
04/28/2012	Soil	3B	17SB130		17SS1300006	0000.5	feet	2-08	0.258	MG/KG
04/28/2012	Soil	3B	17SB130		17SS1300612	00.501	feet	2-08	0.127	MG/KG
04/23/2012	Soil	3A-2	17SB131		17SS1310006	0000.5	feet	2-08	0.0547	MG/KG
04/23/2012	Soil	3A-2	17SB131		17SS1310612	00.501	feet	2-08	0.00929	MG/KG
04/23/2012	Soil	3A-2	17SB132		17SS1320006	0000.5	feet	2-08	0.0486	MG/KG
04/23/2012	Soil	3A-2	17SB132		17SS1320612	00.501	feet	2-08	0.0474	MG/KG
04/29/2012	Soil	3A-2	17SB133		17SS1330006	0000.5	feet	2-08	0.0829	MG/KG
04/29/2012	Soil	3A-2	17SB133		17SS1330612	00.501	feet	2-08	0.00522	MG/KG
04/23/2012	Soil	3A-1	17SB134		17SS1340006	0000.5	feet	2-08	0.173	MG/KG
04/23/2012	Soil	3A-1	17SB134		17SS1340612	00.501	feet	2-08	4.92	MG/KG
04/23/2012	Soil	3A-1	17SB134		17SS1341824	01.502	feet	2-08	0.00357 J	MG/KG
04/23/2012	Soil	3A-1	17SB134		17SS1341218	0101.5	feet	2-08	0.314	MG/KG
04/29/2012	Soil	3C	17SB135		17SS1350006	0000.5	feet	2-09	1.26	MG/KG
04/29/2012	Soil	3C	17SB135		17SS1350612	00.501	feet	2-09	0.577	MG/KG
04/29/2012	Soil	3C	17SB136		17SS1360006	0000.5	feet	2-09	1.49	MG/KG
04/29/2012	Soil	3C	17SB136		17SS1360612	00.501	feet	2-09	0.184	MG/KG
04/29/2012	Soil	3C	17SB137		17SS1370006	0000.5	feet	2-09	6.62	MG/KG
04/29/2012	Soil	3C	17SB137		17SS1370612	00.501	feet	2-09	0.864	MG/KG
04/29/2012	Soil	3D	17SB138		17SS1380006	0000.5	feet	2-09	1.8	MG/KG
04/29/2012	Soil	3D	17SB138		17SS1380612	00.501	feet	2-09	0.762	MG/KG
04/28/2012	Soil	3D	17SB139		17SS1390006	0000.5	feet	2-09	4.02	MG/KG
04/28/2012	Soil	3D	17SB139		17SS1390612	00.501	feet	2-09	0.269	MG/KG
04/28/2012	Soil	3D	17SB140		17SS1400006	0000.5	feet	2-09	0.25	MG/KG
04/28/2012	Soil	3D	17SB140		17SS1400612	00.501	feet	2-09	0.00907	MG/KG
04/23/2012	Soil	3D	17SB141		17SS1410006	0000.5	feet	2-09	0.0399	MG/KG
04/28/2012	Soil	3D	17SB142		17SS1420006	0000.5	feet	2-09	0.126	MG/KG
04/28/2012	Soil	3D	17SB142		17SS1420612	00.501	feet	2-09	0.0113	MG/KG
04/28/2012	Soil	3D	17SB143		17SS1430006	0000.5	feet	2-09	0.0783	MG/KG
04/28/2012	Soil	3D	17SB143		17SS1430612	00.501	feet	2-09	0.00268 U	MG/KG
04/28/2012	Soil	NA	17SB144		17SS1440006	0000.5	feet	2-09	0.112	MG/KG
04/28/2012	Soil	3E	17SB145		17SS1450006	0000.5	feet	2-09	0.913	MG/KG
04/28/2012	Soil	3E	17SB145		17SS1450612	00.501	feet	2-09	0.0368	MG/KG
04/24/2012	Soil	NA	17SB146		17SS1460006	0000.5	feet	2-09	1.08	MG/KG
04/24/2012	Soil	NA	17SB146		17SS1460612	00.501	feet	2-09	0.0186	MG/KG
04/28/2012	Soil	3E	17SB147		17SS1470006	0000.5	feet	2-09	0.359	MG/KG
04/28/2012	Soil	3E	17SB147		17SS1470612	00.501	feet	2-09	0.00499	MG/KG
04/28/2012	Soil	3E	17SB148		17SS1480006	0000.5	feet	2-09	3.31	MG/KG
04/28/2012	Soil	3E	17SB148		17SS1480612	00.501	feet	2-09	0.135	MG/KG
04/28/2012	Soil	3E	17SB149		17SS1490006	0000.5	feet	2-09	0.0581	MG/KG
04/28/2012	Soil	3E	17SB149		17SS1490612	00.501	feet	2-09	0.0145	MG/KG
04/28/2012	Soil	3E	17SB150		17SS1500006	0000.5	feet	2-09	1.18	MG/KG
04/28/2012	Soil	3E	17SB150		17SS1500612	00.501	feet	2-09	0.771	MG/KG
04/28/2012	Soil	3E	17SB150		17SS1501824	01.502	feet	2-09	0.0105 J	MG/KG
04/28/2012	Soil	3E	17SB150		17SS1501218	0101.5	feet	2-09	0.0538	MG/KG
04/28/2012	Soil	3E	17SB151		17SS1510006	0000.5	feet	2-09	0.473	MG/KG
04/28/2012	Soil	3E	17SB151		17SS1510612	00.501	feet	2-09	2.39	MG/KG
04/28/2012	Soil	3E	17SB151		17SS1511824	01.502	feet	2-09	0.445	MG/KG
04/28/2012	Soil	3E	17SB151		17SS1511218	0101.5	feet	2-09	0.681	MG/KG
04/24/2012	Soil	3L, 3M	17SB152		17SS1520006	0000.5	feet	2-12	0.145	MG/KG
04/24/2012	Soil	3L, 3M	17SB152		17SS1520612	00.501	feet	2-12	0.00598	MG/KG
04/24/2012	Soil	3L, 3M	17SB152		17SS1521218	0101.5	feet	2-12	0.00182 J	MG/KG
04/24/2012	Soil	NA	17SB153		17SS1530006	0000.5	feet	2-12	0.0275	MG/KG
04/24/2012	Soil	NA	17SB153		17SS1530612	00.501	feet	2-12	0.00169 J	MG/KG
04/24/2012	Soil	NA	17SB153		17SS1531218	0101.5	feet	2-12	0.00278 U	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
04/24/2012	Soil	3M	17SB154		17SS1540006	0000.5	feet	2-12	0.0203	MG/KG
04/24/2012	Soil	NA	17SB155		17SS1550006	0000.5	feet	2-12	0.0215	MG/KG
04/24/2012	Soil	NA	17SB156		17SS1560006	0000.5	feet	2-12	0.116	MG/KG
04/24/2012	Soil	NA	17SB157		17SS1570006	0000.5	feet	2-12	0.043	MG/KG
04/26/2012	Soil	NA	17SB158		17SS1580006	0000.5	feet	2-12	0.0509	MG/KG
04/24/2012	Soil	NA	17SB158		17SS1580612	00.501	feet	2-12	0.0302	MG/KG
04/26/2012	Soil	3N	17SB159		17SS1590006	0000.5	feet	2-12	0.136	MG/KG
04/24/2012	Soil	3N	17SB159		17SS1590612	00.501	feet	2-12	0.00281 U	MG/KG
04/26/2012	Soil	3N	17SB159		17SS1591218	0101.5	feet	2-12	0.00232 J	MG/KG
04/24/2012	Soil	3M	17SB161		17SS1610006	0000.5	feet	2-12	0.97	MG/KG
04/24/2012	Soil	3M	17SB163		17SS1630006	0000.5	feet	2-12	0.0351	MG/KG
04/24/2012	Soil	3M	17SB163		17SS1630612	00.501	feet	2-12	0.00371 J	MG/KG
04/24/2012	Soil	3M	17SB164		17SS1640006	0000.5	feet	2-12	15.9	MG/KG
04/24/2012	Soil	3M	17SB164		17SS1640612	00.501	feet	2-12	0.461	MG/KG
04/24/2012	Soil	3M	17SB164		17SS1641218	0101.5	feet	2-12	0.0389	MG/KG
04/27/2012	Soil	4D	17SB165		17SS1650002	0002	feet	2-13	0.0368	MG/KG
04/30/2012	Soil	4D	17SB166		17SS1660002	0002	feet	2-13	0.0211	MG/KG
04/27/2012	Soil	NA	17SB167		17SS1670002	0002	feet	2-13	0.00256 J	MG/KG
04/30/2012	Soil	4D	17SB168		17SS1680002	0002	feet	2-13	0.253	MG/KG
04/27/2012	Soil	4D	17SB170		17SS1700002	0002	feet	2-13	0.63	MG/KG
04/26/2012	Soil	4A-5	17SB171		17SB1710204	0204	feet	2-14, 2-15	1.28	MG/KG
04/26/2012	Soil	4A-5	17SB171		17SB1710406	0406	feet	2-14, 2-15	0.00635	MG/KG
04/26/2012	Soil	4A-5	17SB172		17SB1720204	0204	feet	2-14, 2-15	0.0293 J	MG/KG
04/26/2012	Soil	4A-5	17SB172		17SB1720406	0406	feet	2-14, 2-15	0.00855	MG/KG
04/26/2012	Soil	4A-4	17SB173		17SB1730204	0204	feet	2-14, 2-15	56.4	MG/KG
04/26/2012	Soil	4A-4	17SB173		17SB1730406	0406	feet	2-14, 2-15	104	MG/KG
04/26/2012	Soil	4A-4	17SB173		17SB1730608	0608	feet	2-14, 2-15	0.303	MG/KG
04/26/2012	Soil	4A-4	17SB174		17SB1740204	0204	feet	2-14, 2-15	6.24	MG/KG
04/26/2012	Soil	4A-4	17SB174		17SB1740406	0406	feet	2-14, 2-15	0.00576	MG/KG
04/26/2012	Soil	4A-4	17SB174		17SB1740608	0608	feet	2-14, 2-15	0.0026 U	MG/KG
04/26/2012	Soil	4A-4	17SB175		17SB1750204	0204	feet	2-14, 2-15	0.0205	MG/KG
04/26/2012	Soil	4A-4	17SB175		17SB1750406	0406	feet	2-14, 2-15	0.703	MG/KG
04/26/2012	Soil	4A-4	17SB175		17SB1750608	0608	feet	2-14, 2-15	0.00438	MG/KG
04/26/2012	Soil	4A-4, 4A-10	17SB176		17SB1760204	0204	feet	2-14, 2-15	0.753	MG/KG
04/26/2012	Soil	4A-4, 4A-10	17SB176		17SB1760406	0406	feet	2-14, 2-15	0.421	MG/KG
04/26/2012	Soil	4A-4, 4A-10	17SB176		17SB1760608	0608	feet	2-14, 2-15	37.9	MG/KG
04/27/2012	Soil	4B-1	17SB178		17SB1780204	0204	feet	2-16	0.00239 U	MG/KG
04/27/2012	Soil	4B-1	17SB179		17SB1790204	0204	feet	2-16	0.0193	MG/KG
04/26/2012	Soil	4B-1	17SB180		17SB1800204	0204	feet	2-16	0.00981	MG/KG
04/26/2012	Soil	4B-1	17SB181		17SB1810204	0204	feet	2-16	0.0046	MG/KG
04/26/2012	Soil	4B-1	17SB182		17SB1820204	0204	feet	2-16	0.00254 U	MG/KG
05/10/2012	Soil	4B-1	17SB183		17SB1830203	0203	feet	2-16	0.403	MG/KG
05/10/2012	Soil		17SB184		17SB1840203	0203	feet	2-16	1.2	MG/KG
05/10/2012	Soil	4B-1	17SB185		17SB1850204	0204	feet	2-16	0.35	MG/KG
05/10/2012	Soil	4B-1	17SB186	17SB387	17SB1860204	0204	feet	2-16	2.13	MG/KG
08/08/2012	Soil	4B-1	17SB186	17SB387	17SB3870304	0304	feet	2-16	0.525	MG/KG
05/10/2012	Soil	4B-1	17SB187		17SB1870203	0203	feet	2-16	0.337	MG/KG
05/10/2012	Soil	4B-50	17SB188		17SB1880204	0204	feet	2-16	0.272	MG/KG
05/10/2012	Soil	4B-50	17SB189		17SB1890204	0204	feet	2-16	4.1	MG/KG
05/10/2012	Soil	4B-50	17SB190		17SB1900204	0204	feet	2-16	0.0854	MG/KG
05/10/2012	Soil	4B-3	17SB191		17SB1910204	0204	feet	2-16	0.00515	MG/KG
05/10/2012	Soil	4B-1, 4B-50	17SB192		17SB1920203	0203	feet	2-16	0.105	MG/KG
05/10/2012	Soil	4B-50	17SB193		17SB1930204	0204	feet	2-16	0.0475	MG/KG
04/27/2012	Soil	4B-1	17SB194	17FL-C-070	17SB1940204	0204	feet	2-16	0.00266 U	MG/KG
05/10/2012	Soil	4B-1	17SB195	17FL-C-069	17SB1950203	0203	feet	2-16	0.0102	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
04/26/2012	Soil	NA	17SB196		17SB1960204	0204	feet	2-06	0.00267 U	MG/KG
04/26/2012	Soil	NA	17SB197		17SB1970204	0204	feet	2-06	0.0457	MG/KG
04/26/2012	Soil	NA	17SB198		17SB1980204	0204	feet	2-06	0.00248 U	MG/KG
04/26/2012	Soil	NA	17SB199		17SB1990204	0204	feet	2-06	0.00243 U	MG/KG
04/27/2012	Soil	4C	17SB200		17SB2000204	0204	feet	2-17	0.00572	MG/KG
04/25/2012	Soil	4C	17SB201		17SB2010204	0204	feet	2-17	0.00415	MG/KG
04/25/2012	Soil	4C	17SB202		17SB2020204	0204	feet	2-17	0.00231 J	MG/KG
04/25/2012	Soil	4C	17SB203	17FL-D-029, 17SB225	17SB2030204	0204	feet	2-17	0.0105	MG/KG
04/25/2012	Soil	4C	17SB208		17SB2080204	0204	feet	2-17	0.00725	MG/KG
04/25/2012	Soil	4C	17SB209		17SB2090204	0204	feet	2-17	0.0353	MG/KG
04/25/2012	Soil	NA	17SB210		17SB2100204	0204	feet	2-17	0.0211	MG/KG
05/10/2012	Soil	4B-50	17SB211		17SB2110204	0204	feet	2-16	0.0748	MG/KG
04/27/2012	Soil	4C	17SB212	17FL-D-103	17SB2120204	0204	feet	2-17	0.00388	MG/KG
04/25/2012	Soil	4C	17SB213	17FL-D-104	17SB2130204	0204	feet	2-17	0.00242 J	MG/KG
04/25/2012	Soil	4C	17SB214	17FL-D-101	17SB2140204	0204	feet	2-17	0.00443	MG/KG
04/25/2012	Soil	4C	17SB215	17FL-D-045	17SB2150204	0204	feet	2-17	0.00384 J	MG/KG
04/25/2012	Soil	4C	17SB216	17FL-D-035	17SB2160204	0204	feet	2-17	0.13	MG/KG
04/25/2012	Soil	4C	17SB217	17FL-D-046	17SB2170204	0204	feet	2-17	0.0148	MG/KG
04/25/2012	Soil	4C	17SB218	17FL-D-040	17SB2180204	0204	feet	2-17	0.00433	MG/KG
04/25/2012	Soil	4C	17SB219	17FL-D-047	17SB2190204	0204	feet	2-17	0.0131	MG/KG
04/25/2012	Soil	4C	17SB220	17FL-D-041	17SB2200204	0204	feet	2-17	0.149	MG/KG
04/25/2012	Soil	4C	17SB221	17FL-D-036	17SB2210204	0204	feet	2-17	0.118 J	MG/KG
04/25/2012	Soil	4C	17SB222	17FL-D-042	17SB2220204	0204	feet	2-17	0.121	MG/KG
04/25/2012	Soil	4C	17SB223	17FL-D-043	17SB2230204	0204	feet	2-17	0.00288 J	MG/KG
04/25/2012	Soil	4C	17SB224	17FL-D-037	17SB2240204	0204	feet	2-17	0.185	MG/KG
04/26/2012	Soil	NA	17SB226	17EW-E-028	17SB2260204	0204	feet	2-06	0.00267 U	MG/KG
04/26/2012	Soil	NA	17SB227	17FL-E-027	17SB2270204	0204	feet	2-06	0.00269 U	MG/KG
04/26/2012	Soil	NA	17SB228	17FL-E-026	17SB2280204	0204	feet	2-06	0.00253 J	MG/KG
04/25/2012	Soil	4C	17SB229		17SS2290002	0002	feet	2-17	3.23	MG/KG
04/25/2012	Soil	4C	17SB229		17SB2290204	0204	feet	2-17	0.0655	MG/KG
04/30/2012	Soil	4C	17SB230		17SS2300002	0002	feet	2-17	1.17	MG/KG
04/30/2012	Soil	4C	17SB230		17SB2300204	0204	feet	2-17	0.293	MG/KG
04/25/2012	Soil	4C	17SB233		17SB2330204	0204	feet	2-17	0.0194	MG/KG
05/01/2012	Soil	3P	17SB234		17SS2340001	0001	feet	2-13	0.245	MG/KG
05/01/2012	Soil	3O	17SB235		17SS2350001	0001	feet	2-13	2.17	MG/KG
05/01/2012	Soil	3O	17SB236		17SS2360001	0001	feet	2-13	16.8	MG/KG
05/01/2012	Soil	3O	17SB236		17SS2360102	0102	feet	2-13	1.41	MG/KG
05/01/2012	Soil	3O	17SB236		17SB2360203	0203	feet	2-13	0.312	MG/KG
05/01/2012	Soil	3O	17SB237		17SS2370001	0001	feet	2-13	8.71	MG/KG
05/01/2012	Soil	3O	17SB237		17SS2370102	0102	feet	2-13	4.85	MG/KG
04/25/2012	Soil	3N	17SB238		17SS2380006	0000.5	feet	2-12	11.4	MG/KG
04/25/2012	Soil	3N	17SB238		17SS2380612	00.501	feet	2-12	25	MG/KG
04/25/2012	Soil	3N	17SB238		17SS2381824	01.502	feet	2-12	0.352	MG/KG
04/25/2012	Soil	3N	17SB238		17SS2381218	0101.5	feet	2-12	0.46	MG/KG
04/25/2012	Soil	3J	17SB239		17SS2390006	0000.5	feet	2-12	4.4	MG/KG
04/25/2012	Soil	3J	17SB239		17SS2390612	00.501	feet	2-12	11.2	MG/KG
04/25/2012	Soil	3J	17SB239		17SS2391218	0101.5	feet	2-12	2.51	MG/KG
04/25/2012	Soil	3L	17SB240		17SS2400006	0000.5	feet	2-12	1.39	MG/KG
04/25/2012	Soil	3L	17SB240		17SS2400612	00.501	feet	2-12	20.5	MG/KG
04/25/2012	Soil	3J Oxbow	17SB241		17SS2410006	0000.5	feet	2-12	1.6	MG/KG
04/25/2012	Soil	3J Oxbow	17SB241		17SS2410612	00.501	feet	2-12	2	MG/KG
04/25/2012	Soil	3J Oxbow	17SB241		17SS2411218	0101.5	feet	2-12	1.5	MG/KG
04/25/2012	Soil	NA	17SB242		17SS2420006	0000.5	feet	2-12	0.399	MG/KG
04/26/2012	Soil	3J	17SB243		17SS2430006	0000.5	feet	2-12	0.00546 J	MG/KG
04/26/2012	Soil	3I	17SB244		17SS2440006	0000.5	feet	2-11	1.46	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
04/26/2012	Soil	3I	17SB244		17SS2440612	00.501	feet	2-11	3.32	MG/KG
04/26/2012	Soil	3I	17SB244		17SS2441824	01.502	feet	2-11	0.287	MG/KG
04/26/2012	Soil	3I	17SB244		17SS2441218	0101.5	feet	2-11	2.12	MG/KG
04/26/2012	Soil	3H	17SB245		17SS2450006	0000.5	feet	2-11	70.3	MG/KG
04/26/2012	Soil	3H	17SB245		17SS2450612	00.501	feet	2-11	11.3	MG/KG
04/26/2012	Soil	3H	17SB245		17SS2451824	01.502	feet	2-11	0.0619	MG/KG
04/26/2012	Soil	3H	17SB245		17SS2451218	0101.5	feet	2-11	0.821	MG/KG
04/26/2012	Soil	NA	17SB246		17SS2460006	0000.5	feet	2-11	0.581	MG/KG
04/26/2012	Soil	NA	17SB247		17SS2470006	0000.5	feet	2-11	0.754	MG/KG
04/26/2012	Soil	NA	17SB248		17SS2480006	0000.5	feet	2-10	0.145	MG/KG
04/26/2012	Soil	NA	17SB249		17SS2490006	0000.5	feet	2-10	0.244	MG/KG
04/26/2012	Soil	3F	17SB250		17SS2500006	0000.5	feet	2-10	41.7	MG/KG
04/26/2012	Soil	3F	17SB250		17SS2500612	00.501	feet	2-10	3.91	MG/KG
04/26/2012	Soil	3F	17SB250		17SS2501218	0101.5	feet	2-10	7.3	MG/KG
04/26/2012	Soil	NA	17SB251		17SS2510006	0000.5	feet	2-09, 2-10	1.49	MG/KG
04/30/2012	Soil	NA	17SB252		17SS2520006	0000.5	feet	2-06	27.4	MG/KG
04/30/2012	Soil	NA	17SB252		17SS2520612	00.501	feet	2-06	1.2	MG/KG
04/30/2012	Soil	NA	17SB252		17SS2521824	01.502	feet	2-06	0.251	MG/KG
04/30/2012	Soil	NA	17SB252		17SS2521218	0101.5	feet	2-06	3.3	MG/KG
04/30/2012	Soil	NA	17SB253		17SS2530006	0000.5	feet	2-06	2.33	MG/KG
04/30/2012	Soil	NA	17SB253		17SS2530612	00.501	feet	2-06	0.483	MG/KG
04/26/2012	Soil	NA	17SB254		17SS2540006	0000.5	feet	2-08, 2-09	0.496	MG/KG
04/26/2012	Soil	NA	17SB255		17SS2550006	0000.5	feet	2-08, 2-09	0.0567	MG/KG
05/10/2012	Soil	3B	17SB256		17SS2560006	0000.5	feet	2-08	0.603	MG/KG
05/10/2012	Soil	3B	17SB256		17SS2560612	00.501	feet	2-08	0.0806	MG/KG
05/10/2012	Soil	3B	17SB257		17SS2570006	0000.5	feet	2-08	0.477	MG/KG
05/10/2012	Soil	3B	17SB257		17SS2570612	00.501	feet	2-08	0.951	MG/KG
05/10/2012	Soil	3C	17SB258		17SS2580006	0000.5	feet	2-08, 2-09	0.0078	MG/KG
05/10/2012	Soil	3C	17SB258		17SS2580612	00.501	feet	2-08, 2-09	0.0187	MG/KG
05/11/2012	Soil	3F	17SB259		17SS2590006	0000.5	feet	2-10	0.298	MG/KG
05/11/2012	Soil	3F	17SB259		17SS2590612	00.501	feet	2-10	0.0868	MG/KG
05/11/2012	Soil	NA	17SB260		17SS2600006	0000.5	feet	2-10	0.0129	MG/KG
05/11/2012	Soil	NA	17SB260		17SS2600612	00.501	feet	2-10	0.0068	MG/KG
05/11/2012	Soil	NA	17SB261		17SS2610006	0000.5	feet	2-10	0.0644	MG/KG
05/11/2012	Soil	NA	17SB261		17SS2610612	00.501	feet	2-10	0.0328	MG/KG
05/11/2012	Soil	NA	17SB262		17SS2620006	0000.5	feet	2-10	0.414	MG/KG
05/11/2012	Soil	NA	17SB262		17SS2620612	00.501	feet	2-10	0.0702	MG/KG
05/11/2012	Soil	3H	17SB263		17SS2630006	0000.5	feet	2-11	0.114	MG/KG
05/11/2012	Soil	3H	17SB263		17SS2630612	00.501	feet	2-11	0.0179	MG/KG
05/11/2012	Soil	3H, 3I	17SB264		17SS2640006	0000.5	feet	2-11	7.74	MG/KG
05/11/2012	Soil	3H, 3I	17SB264		17SS2640612	00.501	feet	2-11	12.8	MG/KG
05/11/2012	Soil	3I	17SB265		17SS2650006	0000.5	feet	2-11	0.0923	MG/KG
05/11/2012	Soil	3I	17SB265		17SS2650612	00.501	feet	2-11	1.34	MG/KG
05/11/2012	Soil	3I	17SB265		17SS2651218	0101.5	feet	2-11	0.0265	MG/KG
05/11/2012	Soil	3N	17SB266		17SS2660006	0000.5	feet	2-12	1.5	MG/KG
05/11/2012	Soil	3N	17SB266		17SS2660612	00.501	feet	2-12	0.312	MG/KG
05/11/2012	Soil	4C	17SB267		17SS2670002	0002	feet	2-17	1.04	MG/KG
05/11/2012	Soil	3G	17SB268		17SS2680006	0000.5	feet	2-11	0.233	MG/KG
05/11/2012	Soil	3G	17SB268		17SS2680612	00.501	feet	2-11	0.0241	MG/KG
05/11/2012	Soil	3G	17SB269		17SS2690006	0000.05	feet	2-11	7.12	MG/KG
05/11/2012	Soil	3G	17SB269		17SS2690612	00.501	feet	2-11	1.09	MG/KG
05/11/2012	Soil	NA	17SB270		17SS2700006	0000.5	feet	2-11	0.0676	MG/KG
05/11/2012	Soil	NA	17SB270		17SS2700612	00.501	feet	2-11	0.00767	MG/KG
05/11/2012	Soil	3O	17SB271		17SS2710001	0001	feet	2-13	0.0726	MG/KG
05/11/2012	Soil	3O	17SB271		17SS2710102	0102	feet	2-13	0.0143	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
05/11/2012	Soil	3O	17SB272		17SS2720001	0001	feet	2-13	0.349	MG/KG
05/11/2012	Soil	3O	17SB272		17SS2720102	0102	feet	2-13	0.0403	MG/KG
05/11/2012	Soil	3P	17SB273		17SS2730001	0001	feet	2-13	0.053	MG/KG
05/22/2012	Soil	NA	17SB274		17SS2740006	0000.5	feet	2-08	0.00274 U	MG/KG
05/22/2012	Soil	NA	17SB274		17SS2740612	00.501	feet	2-08	0.00896	MG/KG
05/22/2012	Soil	3A-1	17SB275		17SS2750006	0000.5	feet	2-08	0.00304 U	MG/KG
05/22/2012	Soil	3A-1	17SB275		17SS2750612	00.501	feet	2-08	0.0351	MG/KG
05/22/2012	Soil	3A-1	17SB276		17SS2760006	0000.5	feet	2-08	2.59	MG/KG
05/22/2012	Soil	3A-1	17SB276		17SS2760612	00.501	feet	2-08	7.67	MG/KG
05/22/2012	Soil	3A-1	17SB276		17SS2761824	01.502	feet	2-08	0.0511	MG/KG
05/22/2012	Soil	3A-1	17SB276		17SS2761218	0101.5	feet	2-08	4.28	MG/KG
05/22/2012	Soil	3A-1	17SB277		17SS2770006	0000.5	feet	2-08	2.67	MG/KG
05/22/2012	Soil	3A-1	17SB277		17SS2770612	00.501	feet	2-08	4.31	MG/KG
05/22/2012	Soil	3A-1	17SB277		17SS2771824	01.502	feet	2-08	1.45	MG/KG
05/22/2012	Soil	3A-1	17SB277		17SS2771218	0101.5	feet	2-08	4.42	MG/KG
07/31/2012	Soil	3A-1	17SB277		17SB2772430	0202.5	feet	2-08	1.21	MG/KG
05/22/2012	Soil	3B	17SB278		17SS2780006	0000.5	feet	2-08	1.48	MG/KG
05/22/2012	Soil	3B	17SB278		17SS2780612	00.501	feet	2-08	0.225	MG/KG
05/22/2012	Soil	3B	17SB279		17SS2790006	0000.5	feet	2-08	1.9	MG/KG
05/22/2012	Soil	3B	17SB279		17SS2790612	00.501	feet	2-08	1.4	MG/KG
05/22/2012	Soil	3A-1	17SB280		17SS2800006	0000.5	feet	2-08	0.011	MG/KG
05/22/2012	Soil	3A-1	17SB280		17SS2800612	00.501	feet	2-08	0.00668	MG/KG
05/22/2012	Soil	3A-1	17SB280		17SS2801824	01.502	feet	2-08	0.0401	MG/KG
05/22/2012	Soil	3A-1	17SB280		17SS2801218	0101.5	feet	2-08	0.0036 J	MG/KG
05/22/2012	Soil	3C	17SB281		17SS2810006	0000.5	feet	2-08, 2-09	2.06	MG/KG
05/22/2012	Soil	3C	17SB281		17SS2810612	00.501	feet	2-08, 2-09	0.0933	MG/KG
05/22/2012	Soil	3C	17SB282		17SS2820006	0000.5	feet	2-08, 2-09	0.00483	MG/KG
05/22/2012	Soil	3C	17SB282		17SS2820612	00.501	feet	2-08, 2-09	0.46	MG/KG
05/22/2012	Soil	3E	17SB283		17SS2830006	0000.5	feet	2-08, 2-09	0.00908	MG/KG
05/22/2012	Soil	3E	17SB283		17SS2830612	00.501	feet	2-08, 2-09	0.00251 U	MG/KG
05/22/2012	Soil	NA	17SB284		17SS2840006	0000.5	feet	2-09	0.00269 U	MG/KG
05/22/2012	Soil	NA	17SB284		17SS2840612	00.501	feet	2-09	0.00267 U	MG/KG
05/22/2012	Soil	NA	17SB285		17SS2850006	0000.5	feet	2-09, 2-10	0.0465	MG/KG
05/22/2012	Soil	NA	17SB285		17SS2850612	00.501	feet	2-09, 2-10	0.00929	MG/KG
05/23/2012	Soil	3F	17SB286		17SS2860006	0000.5	feet	2-10	1.81	MG/KG
05/23/2012	Soil	3F	17SB287		17SS2870006	0000.5	feet	2-10	0.682	MG/KG
05/23/2012	Soil	3F	17SB287		17SS2870612	00.501	feet	2-10	2.81	MG/KG
05/23/2012	Soil	3F	17SB288		17SS2880006	0000.5	feet	2-10	0.0909	MG/KG
05/23/2012	Soil	3F	17SB288		17SS2880612	00.501	feet	2-10	0.151	MG/KG
05/23/2012	Soil	3F	17SB289		17SS2890006	0000.5	feet	2-10	0.462	MG/KG
05/23/2012	Soil	3F	17SB289		17SS2890612	00.501	feet	2-10	0.278	MG/KG
05/23/2012	Soil	3G	17SB290		17SS2900006	0000.5	feet	2-11	0.0118 J	MG/KG
05/23/2012	Soil	3G	17SB290		17SS2900612	00.501	feet	2-11	0.00267 UJ	MG/KG
05/23/2012	Soil	3H	17SB291		17SS2910006	0000.5	feet	2-11	0.0462 J	MG/KG
05/23/2012	Soil	3H	17SB291		17SS2910612	00.501	feet	2-11	0.0262 J	MG/KG
05/23/2012	Soil	3H	17SB292		17SS2920006	0000.5	feet	2-11	0.0334 J	MG/KG
05/23/2012	Soil	3H	17SB292		17SS2920612	00.501	feet	2-11	0.0113 J	MG/KG
05/23/2012	Soil	3H, 3I	17SB293		17SS2930006	0000.5	feet	2-11	0.0157 J	MG/KG
05/23/2012	Soil	3H, 3I	17SB293		17SS2930612	00.501	feet	2-11	0.00466 J	MG/KG
05/23/2012	Soil	3H, 3I	17SB293		17SS2931218	0101.5	feet	2-11	0.0194	MG/KG
05/23/2012	Soil	3I	17SB294		17SS2940006	0000.5	feet	2-11	0.0683 J	MG/KG
05/23/2012	Soil	3I	17SB294		17SS2940612	00.501	feet	2-11	0.105 J	MG/KG
05/23/2012	Soil	3I	17SB294		17SS2941824	01.502	feet	2-11	0.0197	MG/KG
05/23/2012	Soil	3I	17SB294		17SS2941218	0101.5	feet	2-11	0.00466	MG/KG
05/24/2012	Soil	NA	17SB295		17SS2950006	0000.5	feet	2-12	0.0321 J	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
05/24/2012	Soil	NA	17SB295		17SS2950612	00.501	feet	2-12	0.00667 J	MG/KG
05/24/2012	Soil	3K	17SB296		17SS2960006	0000.5	feet	2-12	0.0617 J	MG/KG
05/24/2012	Soil	3K	17SB296		17SS2960612	00.501	feet	2-12	0.00665 J	MG/KG
05/24/2012	Soil	3K	17SB297		17SS2970006	0000.5	feet	2-12	4.09 J	MG/KG
05/24/2012	Soil	3K	17SB297		17SS2970612	00.501	feet	2-12	0.537 J	MG/KG
05/24/2012	Soil	3K, 3L	17SB298		17SS2980006	0000.5	feet	2-12	6.58 J	MG/KG
05/24/2012	Soil	3K, 3L	17SB298		17SS2980612	00.501	feet	2-12	4.59 J	MG/KG
05/24/2012	Soil	3L	17SB299		17SS2990006	0000.5	feet	2-12	7.18 J	MG/KG
05/24/2012	Soil	3L	17SB299		17SS2990612	00.501	feet	2-12	160 J	MG/KG
05/24/2012	Soil	3L	17SB300		17SS3000006	0000.5	feet	2-12	0.0815 J	MG/KG
05/24/2012	Soil	3L	17SB300		17SS3000612	00.501	feet	2-12	0.036 J	MG/KG
05/24/2012	Soil	3J	17SB301		17SS3010006	0000.5	feet	2-12	0.0423 J	MG/KG
05/24/2012	Soil	3J	17SB301		17SS3010612	00.501	feet	2-12	0.00482 J	MG/KG
05/24/2012	Soil	3J	17SB302		17SS3020006	0000.5	feet	2-12	2.74 J	MG/KG
05/24/2012	Soil	3J	17SB302		17SS3020612	00.501	feet	2-12	0.473 J	MG/KG
05/24/2012	Soil	3L, 3M	17SB303		17SS3030006	0000.5	feet	2-12	6.32 J	MG/KG
05/24/2012	Soil	3L, 3M	17SB303		17SS3030612	00.501	feet	2-12	39.4 J	MG/KG
05/24/2012	Soil	NA	17SB304		17SS3040006	0000.5	feet	2-12	0.0103 J	MG/KG
05/24/2012	Soil	NA	17SB304		17SS3040612	00.501	feet	2-12	0.00432 J	MG/KG
05/24/2012	Soil	NA	17SB305		17SS3050006	0000.5	feet	2-12	0.00247 J	MG/KG
05/24/2012	Soil	NA	17SB305		17SS3050612	00.501	feet	2-12	0.00321 J	MG/KG
05/24/2012	Soil	3J	17SB306		17SS3060006	0000.5	feet	2-12	0.036 J	MG/KG
05/24/2012	Soil	3J	17SB306		17SS3060612	00.501	feet	2-12	0.00314 UJ	MG/KG
05/22/2012	Soil	3B	17SB307		17SS3070006	0000.5	feet	2-08	0.0381	MG/KG
05/22/2012	Soil	3B	17SB307		17SS3070612	00.501	feet	2-08	0.464	MG/KG
06/06/2012	Soil	3L	17SB308		17SS3080006	0000.5	feet	2-12	56.9	MG/KG
06/06/2012	Soil	3L	17SB308		17SS3080612	00.501	feet	2-12	1380	MG/KG
06/06/2012	Soil	NA	17SB309		17SS3090006	0000.5	feet	2-06	18.2	MG/KG
06/06/2012	Soil	NA	17SB309		17SS3090612	00.501	feet	2-06	5.32	MG/KG
06/06/2012	Soil	NA	17SB309		17SS3091824	01.502	feet	2-06	0.251	MG/KG
06/06/2012	Soil	NA	17SB309		17SS3091218	0101.5	feet	2-06	0.603	MG/KG
06/06/2012	Soil	NA	17SB310		17SS3100006	0000.5	feet	2-06	1.17	MG/KG
06/06/2012	Soil	NA	17SB310		17SS3100612	00.501	feet	2-06	0.259	MG/KG
06/06/2012	Soil	NA	17SB310		17SS3101824	01.502	feet	2-06	0.325	MG/KG
06/06/2012	Soil	NA	17SB310		17SS3101218	0101.5	feet	2-06	0.205	MG/KG
06/15/2012	Soil	NA	17SB311		17SS3110006	0000.5	feet	2-06	6.57	MG/KG
06/15/2012	Soil	NA	17SB311		17SS3110612	00.501	feet	2-06	0.985	MG/KG
06/15/2012	Soil	NA	17SB311		17SS3111218	0101.5	feet	2-06	0.228	MG/KG
06/06/2012	Soil	4C	17SB312		17SS3120002	0002	feet	2-17	0.0239	MG/KG
06/06/2012	Soil	NA	17SB313		17SS3130002	0002	feet	2-17	0.125	MG/KG
06/15/2012	Soil	3D	17SB314		17SS3140006	0000.5	feet	2-09	0.0162 J	MG/KG
06/15/2012	Soil	3D	17SB314		17SS3140612	00.501	feet	2-09	0.0248	MG/KG
06/15/2012	Soil	NA	17SB315		17SS3150006	0000.5	feet	2-09	0.00326 J	MG/KG
06/15/2012	Soil	NA	17SB315		17SS3150612	00.501	feet	2-09	0.00153 J	MG/KG
06/15/2012	Soil	NA	17SB315		17SS3151824	01.502	feet	2-09	0.00349 J	MG/KG
06/15/2012	Soil	NA	17SB315		17SS3151218	0101.5	feet	2-09	0.00329 J	MG/KG
06/27/2012	Soil	4A-1	17SB316		17SS3160002	0002	feet	2-15	0.0747	MG/KG
06/27/2012	Soil	4A-1	17SB316		17SB3160204	0204	feet	2-15	0.0191	MG/KG
06/27/2012	Soil	4A-1	17SB316		17SB3160405	0405	feet	2-15	0.00535 U	MG/KG
06/27/2012	Soil	4A-6	17SB317		17SS3170002	0002	feet	2-15	0.962	MG/KG
06/27/2012	Soil	4A-6	17SB317		17SB3170204	0204	feet	2-15	0.0626 U	MG/KG
06/27/2012	Soil	4A-1	17SB318		17SS3180002	0002	feet	2-15	1.54	MG/KG
06/27/2012	Soil	4A-1	17SB318		17SB3180204	0204	feet	2-15	0.0175	MG/KG
06/27/2012	Soil	4A-6	17SB319		17SS3190002	0002	feet	2-15	5.81	MG/KG
06/27/2012	Soil	4A-6	17SB319		17SB3190203	0203	feet	2-15	1.09	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
06/27/2012	Soil	4A-6	17SB320		17SS3200002	0002	feet	2-15	0.425	MG/KG
06/27/2012	Soil	4A-6	17SB320		17SB3200204	0204	feet	2-15	0.402	MG/KG
06/27/2012	Soil	4A-6	17SB321		17SS3210002	0002	feet	2-15	8.5	MG/KG
06/27/2012	Soil	4A-6	17SB321		17SB3210203	0203	feet	2-15	2.75	MG/KG
06/27/2012	Soil	4A-6	17SB322		17SS3220002	0002	feet	2-15	17	MG/KG
06/27/2012	Soil	4A-6	17SB322		17SB3220204	0204	feet	2-15	806	MG/KG
06/27/2012	Soil	4A-6	17SB323		17SS3230002	0002	feet	2-15	2010	MG/KG
06/27/2012	Soil	4A-6	17SB323		17SB3230204	0204	feet	2-15	646	MG/KG
06/26/2012	Soil	4A-6	17SB324		17SS3240002	0002	feet	2-15	0.0762	MG/KG
06/26/2012	Soil	4A-6	17SB324		17SB3240204	0204	feet	2-15	0.858	MG/KG
06/26/2012	Soil	4A-6	17SB324		17SB3240406	0406	feet	2-15	0.00297 U	MG/KG
06/26/2012	Soil	4A-6	17SB325		17SS3250002	0002	feet	2-15	0.0368	MG/KG
06/26/2012	Soil	4A-6	17SB325		17SB3250204	0204	feet	2-15	0.0196	MG/KG
06/26/2012	Soil	4A-6	17SB325		17SB3250406	0406	feet	2-15	0.00392 U	MG/KG
06/26/2012	Soil	4A-6	17SB325		17SB3250608	0608	feet	2-15	0.0938	MG/KG
06/26/2012	Soil	4A-6	17SB326		17SS3260002	0002	feet	2-15	3260	MG/KG
06/26/2012	Soil	4A-6	17SB326		17SB3260204	0204	feet	2-15	21.6	MG/KG
06/26/2012	Soil	4A-6	17SB326		17SB3260406	0406	feet	2-15	1.83	MG/KG
06/26/2012	Soil	4A-6	17SB326		17SB3260608	0608	feet	2-15	0.116	MG/KG
06/29/2012	Soil	4A-5	17SB327		17SS3270002	0002	feet	2-15	0.353	MG/KG
06/29/2012	Soil	4A-5	17SB327		17SB3270204	0204	feet	2-15	0.0084	MG/KG
06/29/2012	Soil	4A-5	17SB327		17SB3270406	0406	feet	2-15	0.00278 U	MG/KG
06/29/2012	Soil	4A-5	17SB327		17SB3270608	0608	feet	2-15	0.00252 U	MG/KG
06/29/2012	Soil	4A-5	17SB327		17SB3270809	0809	feet	2-15	0.0027 U	MG/KG
06/26/2012	Soil	4A-1	17SB328		17SS3280001	0001	feet	2-15	10.3	MG/KG
06/27/2012	Soil	4A-6	17SB329		17SS3290002	0002	feet	2-15	80.3	MG/KG
06/27/2012	Soil	4A-6	17SB329		17SB3290204	0204	feet	2-15	22.1	MG/KG
06/27/2012	Soil	4A-6	17SB329		17SB3290405	0405	feet	2-15	45.5	MG/KG
06/27/2012	Soil	4A-6	17SB330		17SS3300002	0002	feet	2-15	2160	MG/KG
06/27/2012	Soil	4A-6	17SB330		17SB3300204	0204	feet	2-15	1.69	MG/KG
06/27/2012	Soil	4A-6	17SB330		17SB3300405	0405	feet	2-15	0.688	MG/KG
06/27/2012	Soil	4A-6	17SB331		17SS3310002	0002	feet	2-15	1050	MG/KG
06/27/2012	Soil	4A-6	17SB331		17SB3310204	0204	feet	2-15	188	MG/KG
06/27/2012	Soil	4A-6	17SB331		17SB3310406	0406	feet	2-15	0.0125 J	MG/KG
06/26/2012	Soil	4A-6	17SB332		17SS3320002	0002	feet	2-15	128	MG/KG
06/26/2012	Soil	4A-6	17SB332		17SB3320204	0204	feet	2-15	294	MG/KG
06/26/2012	Soil	4A-6	17SB332		17SB3320406	0406	feet	2-15	1.79	MG/KG
06/26/2012	Soil	4A-6	17SB332		17SB3320607	0607	feet	2-15	0.169	MG/KG
06/26/2012	Soil	4A-6	17SB333		17SS3330002	0002	feet	2-15	2940	MG/KG
06/26/2012	Soil	4A-6	17SB333		17SB3330204	0204	feet	2-15	103	MG/KG
06/26/2012	Soil	4A-6	17SB333		17SB3330406	0406	feet	2-15	2.17	MG/KG
06/26/2012	Soil	4A-6	17SB333		17SB3330608	0608	feet	2-15	5.85	MG/KG
06/26/2012	Soil	4A-6	17SB333		17SB3330810	0810	feet	2-15	29.1	MG/KG
06/26/2012	Soil	4A-6	17SB334		17SS3340002	0002	feet	2-15	4.42	MG/KG
06/26/2012	Soil	4A-6	17SB334		17SB3340204	0204	feet	2-15	0.627	MG/KG
06/26/2012	Soil	4A-6	17SB334		17SB3340406	0406	feet	2-15	0.111	MG/KG
06/26/2012	Soil	4A-6	17SB334		17SB3340608	0608	feet	2-15	0.0105	MG/KG
06/26/2012	Soil	4A-6	17SB334		17SB3340810	0810	feet	2-15	0.00249 J	MG/KG
06/29/2012	Soil	4A-6	17SB335		17SS3350002	0002	feet	2-15	9.7	MG/KG
06/29/2012	Soil	4A-6	17SB335		17SB3350204	0204	feet	2-15	4.43	MG/KG
06/29/2012	Soil	4A-6	17SB335		17SB3350406	0406	feet	2-15	0.393	MG/KG
06/29/2012	Soil	4A-6	17SB335		17SB3350608	0608	feet	2-15	0.0271	MG/KG
06/29/2012	Soil	4A-6	17SB335		17SB3350810	0810	feet	2-15	0.288	MG/KG
06/29/2012	Soil	4A-6	17SB335		17SB3351011	1011	feet	2-15	1.41	MG/KG
06/27/2012	Soil	4A-6	17SB336		17SS3360002	0002	feet	2-15	2.81	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
06/27/2012	Soil	4A-6	17SB336		17SB3360204	0204	feet	2-15	2.75	MG/KG
06/27/2012	Soil	4A-6	17SB336		17SB3360405	0405	feet	2-15	1.63	MG/KG
06/27/2012	Soil	4A-6	17SB337		17SS3370002	0002	feet	2-15	41.7	MG/KG
06/27/2012	Soil	4A-6	17SB337		17SB3370204	0204	feet	2-15	8.68	MG/KG
06/27/2012	Soil	4A-6	17SB337		17SB3370405	0405	feet	2-15	1.18	MG/KG
06/27/2012	Soil	4A-6	17SB338		17SS3380002	0002	feet	2-15	62.6	MG/KG
06/27/2012	Soil	4A-6	17SB338		17SB3380204	0204	feet	2-15	202	MG/KG
06/27/2012	Soil	4A-6	17SB338		17SB3380406	0406	feet	2-15	13.1	MG/KG
06/27/2012	Soil	4A-6	17SB338		17SB3380608	0608	feet	2-15	0.0691	MG/KG
06/27/2012	Soil	4A-6	17SB338		17SB3380810	0810	feet	2-15	0.002 J	MG/KG
06/27/2012	Soil	4A-6	17SB339		17SS3390002	0002	feet	2-15	13.8	MG/KG
06/27/2012	Soil	4A-6	17SB339		17SB3390204	0204	feet	2-15	2.32	MG/KG
06/27/2012	Soil	4A-6	17SB339		17SB3390405	0405	feet	2-15	0.892	MG/KG
06/28/2012	Soil	4A-3	17SB340		17SS3400002	0002	feet	2-15	0.365	MG/KG
06/28/2012	Soil	4A-3	17SB340		17SB3400204	0204	feet	2-15	0.322	MG/KG
06/28/2012	Soil	4A-3	17SB340		17SB3400406	0406	feet	2-15	0.0202	MG/KG
06/28/2012	Soil	4A-3	17SB340		17SB3400608	0608	feet	2-15	3.68	MG/KG
06/28/2012	Soil	4A-3	17SB340		17SB3400810	0810	feet	2-15	0.00809 J	MG/KG
06/28/2012	Soil	4A-3	17SB340		17SB3401012	1012	feet	2-15	0.00281 J	MG/KG
06/27/2012	Soil	4A-6	17SB341		17SS3410002	0002	feet	2-15	88.3	MG/KG
06/27/2012	Soil	4A-6	17SB341		17SB3410204	0204	feet	2-15	3.26	MG/KG
06/27/2012	Soil	4A-6	17SB341		17SB3410406	0406	feet	2-15	1.66	MG/KG
06/27/2012	Soil	4A-6	17SB341		17SB3410608	0608	feet	2-15	0.435	MG/KG
06/27/2012	Soil	4A-6	17SB341		17SB3410809	0809	feet	2-15	0.47	MG/KG
06/29/2012	Soil	4A-6	17SB342		17SS3420002	0002	feet	2-15	6.65	MG/KG
06/29/2012	Soil	4A-6	17SB342		17SB3420204	0204	feet	2-15	4.97	MG/KG
06/28/2012	Soil	4A-6	17SB342		17SB3420406	0406	feet	2-15	1.68	MG/KG
06/28/2012	Soil	4A-6	17SB342		17SB3420608	0608	feet	2-15	0.0454	MG/KG
06/28/2012	Soil	4A-6	17SB342		17SB3420810	0810	feet	2-15	0.00514 J	MG/KG
06/28/2012	Soil	4A-6	17SB342		17SB3421012	1012	feet	2-15	57.4	MG/KG
06/28/2012	Soil	N A	17SB343		17SS3430002	0002	feet	2-15	0.101	MG/KG
06/28/2012	Soil	N A	17SB343		17SB3430204	0204	feet	2-15	0.00513	MG/KG
06/28/2012	Soil	N A	17SB343		17SB3430406	0406	feet	2-15	0.00241 J	MG/KG
06/28/2012	Soil	4A-2	17SB344		17SS3440002	0002	feet	2-15	13.3	MG/KG
06/28/2012	Soil	4A-2	17SB344		17SB3440204	0204	feet	2-15	2.81	MG/KG
06/28/2012	Soil	4A-2	17SB344		17SB3440406	0406	feet	2-15	0.978	MG/KG
06/28/2012	Soil	4A-2	17SB344		17SB3440608	0608	feet	2-15	0.046	MG/KG
06/28/2012	Soil	4A-2	17SB344		17SB3440810	0810	feet	2-15	0.295	MG/KG
06/27/2012	Soil	4A-2, 4A-3, 4A-6	17SB345		17SS3450002	0002	feet	2-15	0.0422	MG/KG
06/27/2012	Soil	4A-2, 4A-3, 4A-6	17SB345		17SB3450204	0204	feet	2-15	0.00816	MG/KG
06/27/2012	Soil	4A-2, 4A-3, 4A-6	17SB345		17SB3450406	0406	feet	2-15	0.0597	MG/KG
06/27/2012	Soil	4A-2, 4A-3, 4A-6	17SB345		17SB3450608	0608	feet	2-15	1.56	MG/KG
06/27/2012	Soil	4A-2, 4A-3, 4A-6	17SB345		17SB3450810	0810	feet	2-15	0.013	MG/KG
06/27/2012	Soil	4A-2, 4A-3, 4A-6	17SB345		17SB3451012	1012	feet	2-15	0.204	MG/KG
06/27/2012	Soil	4A-6	17SB346		17SS3460002	0002	feet	2-15	3.38 J	MG/KG
06/27/2012	Soil	4A-6	17SB346		17SB3460204	0204	feet	2-15	0.313	MG/KG
06/27/2012	Soil	4A-6	17SB346		17SB3460406	0406	feet	2-15	0.193	MG/KG
06/27/2012	Soil	4A-6	17SB346		17SB3460608	0608	feet	2-15	1460	MG/KG
06/27/2012	Soil	4A-6	17SB346		17SB3460810	0810	feet	2-15	9.7	MG/KG
06/27/2012	Soil	4A-6	17SB346		17SB3461012	1012	feet	2-15	111	MG/KG
06/29/2012	Soil	4A-5, 4A-6	17SB347		17SS3470002	0002	feet	2-15	4.23	MG/KG
06/29/2012	Soil	4A-5, 4A-6	17SB347		17SB3470204	0204	feet	2-15	1.16	MG/KG
06/29/2012	Soil	4A-5, 4A-6	17SB347		17SB3470406	0406	feet	2-15	0.00276 U	MG/KG
06/29/2012	Soil	4A-5, 4A-6	17SB347		17SB3470608	0608	feet	2-15	0.00281 U	MG/KG
06/29/2012	Soil	4A-5, 4A-6	17SB347		17SB3470810	0810	feet	2-15	0.00274 U	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
06/29/2012	Soil	4A-5, 4A-6	17SB347		17SB3471012	1012	feet	2-15	0.00255 U	MG/KG
06/28/2012	Soil	4A-2	17SB348		17SS3480002	0002	feet	2-15	0.0103 U	MG/KG
06/28/2012	Soil	4A-2	17SB348		17SB3480204	0204	feet	2-15	0.00518 U	MG/KG
06/28/2012	Soil	4A-2	17SB348		17SB3480406	0406	feet	2-15	0.00344 J	MG/KG
06/28/2012	Soil	4A-2	17SB348		17SB3480608	0608	feet	2-15	0.00264 U	MG/KG
06/28/2012	Soil	4A-2	17SB348		17SB3480810	0810	feet	2-15	0.00252 U	MG/KG
06/28/2012	Soil	4A-2, 4A-3	17SB349		17SS3490002	0002	feet	2-15	0.0877	MG/KG
06/28/2012	Soil	4A-2, 4A-3	17SB349		17SB3490204	0204	feet	2-15	0.0277	MG/KG
06/28/2012	Soil	4A-2, 4A-3	17SB349		17SB3490406	0406	feet	2-15	0.0101	MG/KG
06/28/2012	Soil	4A-2, 4A-3	17SB349		17SB3490608	0608	feet	2-15	0.00271 U	MG/KG
06/28/2012	Soil	4A-2, 4A-3	17SB349		17SB3490810	0810	feet	2-15	0.00393	MG/KG
06/28/2012	Soil	4A-2, 4A-3	17SB349		17SB3491011	1011	feet	2-15	0.0026 J	MG/KG
06/27/2012	Soil	NA	17SB350		17SS3500002	0002	feet	2-15	0.085	MG/KG
06/27/2012	Soil	NA	17SB350		17SB3500204	0204	feet	2-15	0.0139	MG/KG
06/27/2012	Soil	4A-1	17SB351		17SS3510002	0002	feet	2-15	0.127	MG/KG
06/26/2012	Soil	4A-1	17SB352		17SS3520002	0002	feet	2-15	4.36	MG/KG
06/27/2012	Soil	NA	17SB353		17SS3530002	0002	feet	2-15	0.135	MG/KG
06/28/2012	Soil	NA	17SB354		17SS3540002	0002	feet	2-15	0.0424	MG/KG
06/28/2012	Soil	NA	17SB354		17SB3540204	0204	feet	2-15	0.00867	MG/KG
06/28/2012	Soil	NA	17SB354		17SB3540405	0405	feet	2-15	0.00522	MG/KG
06/28/2012	Soil	NA	17SB355		17SS3550002	0002	feet	2-15	0.0815	MG/KG
06/28/2012	Soil	NA	17SB355		17SB3550204	0204	feet	2-15	0.00252 J	MG/KG
06/28/2012	Soil	NA	17SB355		17SB3550406	0406	feet	2-15	0.00277 U	MG/KG
06/28/2012	Soil	NA	17SB355		17SB3550608	0608	feet	2-15	0.0026 U	MG/KG
06/28/2012	Soil	NA	17SB355		17SB3550810	0810	feet	2-15	0.0025 U	MG/KG
06/29/2012	Soil	4A-5	17SB356		17SS3560002	0002	feet	2-15	0.165	MG/KG
06/29/2012	Soil	4A-5	17SB356		17SB3560204	0204	feet	2-15	0.015	MG/KG
06/29/2012	Soil	4A-5	17SB356		17SB3560406	0406	feet	2-15	0.0483	MG/KG
06/29/2012	Soil	4A-5	17SB356		17SB3560608	0608	feet	2-15	0.0353	MG/KG
06/29/2012	Soil	4A-5	17SB356		17SB3560810	0810	feet	2-15	0.00284 J	MG/KG
06/29/2012	Soil	4A-5	17SB357		17SS3570002	0002	feet	2-15	0.46	MG/KG
06/29/2012	Soil	4A-5	17SB357		17SB3570204	0204	feet	2-15	0.00808	MG/KG
06/29/2012	Soil	4A-5	17SB357		17SB3570406	0406	feet	2-15	0.00233 J	MG/KG
06/29/2012	Soil	4A-5	17SB357		17SB3570608	0608	feet	2-15	0.00151 J	MG/KG
06/29/2012	Soil	4A-5	17SB357		17SB3570809	0809	feet	2-15	0.00266 U	MG/KG
06/28/2012	Soil	4A-3, 4A-5	17SB358		17SB3580204	0204	feet	2-15	0.00704	MG/KG
06/29/2012	Soil	4A-5	17SB359		17SB3590103	0103	feet	2-14, 2-15	11.6	MG/KG
06/28/2012	Soil	4A-3	17SB360		17SB3600103	0103	feet	2-15	0.0892 J	MG/KG
06/28/2012	Soil	4A-4	17SB361		17SB3610204	0204	feet	2-15	111 J	MG/KG
10/02/2012	Soil	4A-4	17SB361		17SB3610406	0406	feet	2-15	0.159	MG/KG
10/02/2012	Soil	4A-4	17SB361		17SB3610608	0608	feet	2-15	0.00288 J	MG/KG
10/02/2012	Soil	4A-4	17SB361		17SB3610809	0809	feet	2-15	0.00244 U	MG/KG
06/28/2012	Soil	4A-5	17SB362		17SB3620204	0204	feet	2-15	0.00264 U	MG/KG
10/02/2012	Soil	4A-5	17SB362		17SB3620406	0406	feet	2-15	0.00268 U	MG/KG
10/02/2012	Soil	4A-5	17SB362		17SB3620608	0608	feet	2-15	0.00249 U	MG/KG
06/28/2012	Soil	4A-5	17SB363		17SB3630204	0204	feet	2-15	0.00258 U	MG/KG
10/02/2012	Soil	4A-5	17SB363		17SB3630406	0406	feet	2-15	0.00187 J	MG/KG
10/02/2012	Soil	4A-5	17SB363		17SB3630607	0607	feet	2-15	0.00249 U	MG/KG
06/28/2012	Soil	4A-5	17SB364		17SB3640103	0103	feet	2-15	0.0492 J	MG/KG
06/28/2012	Soil	4A-5, 4A-7	17SB365		17SB3650204	0204	feet	2-15	1.1	MG/KG
06/26/2012	Soil	NA	17SB366		17SS3660002	0002	feet	2-15	0.0353	MG/KG
06/26/2012	Soil	NA	17SB366		17SB3660204	0204	feet	2-15	0.0166	MG/KG
06/26/2012	Soil	NA	17SB366		17SB3660406	0406	feet	2-15	0.00248 U	MG/KG
06/28/2012	Soil	4A-2	17SB367		17SS3670002	0002	feet	2-15	0.0686	MG/KG
06/28/2012	Soil	4A-2	17SB367		17SB3670204	0204	feet	2-15	0.0293	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
06/28/2012	Soil	4A-2	17SB367		17SB3670406	0406	feet	2-15	0.0189	MG/KG
06/28/2012	Soil	4A-2	17SB367		17SB3670608	0608	feet	2-15	0.00479	MG/KG
06/27/2012	Soil	4A-2	17SB368		17SS3680002	0002	feet	2-15	0.0343	MG/KG
06/27/2012	Soil	4A-2	17SB368		17SB3680204	0204	feet	2-15	0.0409	MG/KG
06/27/2012	Soil	4A-2	17SB368		17SB3680406	0406	feet	2-15	0.0143	MG/KG
06/27/2012	Soil	4A-2	17SB368		17SB3680608	0608	feet	2-15	0.00271 U	MG/KG
06/27/2012	Soil	4A-2	17SB368		17SB3680810	0810	feet	2-15	0.00447 U	MG/KG
06/27/2012	Soil	4A-2	17SB368		17SB3681011	1011	feet	2-15	0.00266 U	MG/KG
07/31/2012	Soil	4A-5	17SB369		17SS3690002	0002	feet	2-15	0.0155	MG/KG
07/31/2012	Soil	4A-5	17SB369		17SB3690204	0204	feet	2-15	0.0161	MG/KG
07/31/2012	Soil	4B-1	17SB371		17SS3710102	0102	feet	2-16	0.00519 J	MG/KG
07/31/2012	Soil	4B-1	17SB371		17SB3710203	0203	feet	2-16	0.0138	MG/KG
07/31/2012	Soil	4B-1	17SB372		17SS3720002	0002	feet	2-16	0.274	MG/KG
07/31/2012	Soil	4B-3	17SB373		17SS3730002	0002	feet	2-16	5.27	MG/KG
07/31/2012	Soil	4B-3	17SB373		17SB3730204	0204	feet	2-16	1.04	MG/KG
07/31/2012	Soil	4C	17SB374		17SS3740002	0002	feet	2-17	0.00476	MG/KG
07/31/2012	Soil	4C	17SB374		17SB3740204	0204	feet	2-17	0.0041 J	MG/KG
07/31/2012	Soil	4A-7	17SB375		17SS3750002	0002	feet	2-14	850	MG/KG
07/31/2012	Soil	4A-7	17SB375		17SB3750204	0204	feet	2-14	35.6	MG/KG
08/08/2012	Soil	4A-7	17SB375		17SB3750406	0406	feet	2-14	49.7	MG/KG
08/08/2012	Soil	4A-5	17SB395		17SS3950002	0002	feet	2-14, 2-15	0.00735	MG/KG
08/08/2012	Soil	4A-5	17SB395		17SB3950204	0204	feet	2-14, 2-15	0.0018 J	MG/KG
08/08/2012	Soil	4A-5	17SB395		17SB3950406	0406	feet	2-14, 2-15	0.00241 U	MG/KG
08/08/2012	Soil	4A-5, 4A-7	17SB396		17SS3960002	0002	feet	2-14	3.18	MG/KG
08/08/2012	Soil	4A-5, 4A-7	17SB396		17SB3960204	0204	feet	2-14	0.0156	MG/KG
08/08/2012	Soil	4A-5, 4A-7	17SB396		17SB3960406	0406	feet	2-14	0.00943	MG/KG
08/08/2012	Soil	NA	17SB397		17SS3970002	0002	feet	2-14	0.0117	MG/KG
08/08/2012	Soil	NA	17SB397		17SB3970204	0204	feet	2-14	0.00624	MG/KG
08/08/2012	Soil	NA	17SB397		17SB3970406	0406	feet	2-14	0.00263 U	MG/KG
08/08/2012	Soil	NA	17SB397		17SB3970607	0607	feet	2-14	0.00242 U	MG/KG
08/08/2012	Soil	4A-5	17SB398		17SS3980002	0002	feet	2-14	3.64	MG/KG
08/08/2012	Soil	4A-5	17SB398		17SB3980204	0204	feet	2-14	0.00792	MG/KG
08/08/2012	Soil	4A-5	17SB398		17SB3980406	0406	feet	2-14	0.0025 U	MG/KG
08/09/2012	Soil	NA	17SB399		17SS3990002	0002	feet	2-14, 2-15	0.00207 J	MG/KG
08/09/2012	Soil	NA	17SB399		17SB3990204	0204	feet	2-14, 2-15	0.00268 U	MG/KG
08/09/2012	Soil	NA	17SB399		17SB3990406	0406	feet	2-14, 2-15	0.003 U	MG/KG
08/09/2012	Soil	NA	17SB399		17SB3990608	0608	feet	2-14, 2-15	0.00271 U	MG/KG
08/09/2012	Soil	4A-7	17SB400		17SS4000002	0002	feet	2-14, 2-15	0.0245	MG/KG
08/09/2012	Soil	4A-7	17SB400		17SB4000204	0204	feet	2-14, 2-15	0.00286 J	MG/KG
08/09/2012	Soil	4A-7	17SB400		17SB4000406	0406	feet	2-14, 2-15	0.00248 U	MG/KG
08/09/2012	Soil	4A-7	17SB400		17SB4000607	0607	feet	2-14, 2-15	0.00243 U	MG/KG
08/09/2012	Soil	4A-5, 4A-7	17SB401		17SS4010002	0002	feet	2-14	45.4	MG/KG
08/09/2012	Soil	4A-5, 4A-7	17SB401		17SB4010204	0204	feet	2-14	0.0166	MG/KG
08/09/2012	Soil	4A-5, 4A-7	17SB401		17SB4010406	0406	feet	2-14	0.00424 U	MG/KG
08/09/2012	Soil	NA	17SB402		17SS4020002	0002	feet	2-14, 2-15	0.0101	MG/KG
08/09/2012	Soil	NA	17SB402		17SB4020204	0204	feet	2-14, 2-15	0.0104	MG/KG
08/09/2012	Soil	NA	17SB402		17SB4020406	0406	feet	2-14, 2-15	0.0106 J	MG/KG
08/09/2012	Soil	NA	17SB402		17SB4020607	0607	feet	2-14, 2-15	0.0124 U	MG/KG
08/09/2012	Soil	4A-7	17SB403		17SS4030002	0002	feet	2-14	2940	MG/KG
08/09/2012	Soil	4A-7	17SB403		17SB4030204	0204	feet	2-14	550	MG/KG
08/09/2012	Soil	4A-7	17SB403		17SB4030406	0406	feet	2-14	323	MG/KG
08/09/2012	Soil	4A-7	17SB403		17SB4030607	0607	feet	2-14	396	MG/KG
08/09/2012	Soil	4A-5, 4A-7	17SB404		17SS4040002	0002	feet	2-14	1.45	MG/KG
08/09/2012	Soil	4A-5, 4A-7	17SB404		17SB4040204	0204	feet	2-14	0.0134 U	MG/KG
08/09/2012	Soil	4A-5, 4A-7	17SB404		17SB4040406	0406	feet	2-14	0.0019 U	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
08/09/2012	Soil	4A-8, 4A-9	17SB405		17SS4050002	0002	feet	2-14, 2-15	0.167	MG/KG
08/09/2012	Soil	4A-8, 4A-9	17SB405		17SB4050204	0204	feet	2-14, 2-15	0.0278	MG/KG
08/09/2012	Soil	4A-8, 4A-9	17SB405		17SB4050406	0406	feet	2-14, 2-15	0.0101 J	MG/KG
08/09/2012	Soil	4A-8, 4A-9	17SB405		17SB4050608	0608	feet	2-14, 2-15	0.0122 U	MG/KG
08/09/2012	Soil	4A-7, 4A-9	17SB406		17SS4060002	0002	feet	2-14	1200	MG/KG
08/09/2012	Soil	4A-7, 4A-9	17SB406		17SB4060204	0204	feet	2-14	907	MG/KG
08/09/2012	Soil	4A-7, 4A-9	17SB406		17SB4060406	0406	feet	2-14	0.159	MG/KG
08/09/2012	Soil	4A-7, 4A-9	17SB406		17SB4060608	0608	feet	2-14	0.0028 J	MG/KG
08/09/2012	Soil	4A-9	17SB407		17SS4070002	0002	feet	2-14, 2-15	0.399	MG/KG
08/09/2012	Soil	4A-9	17SB407		17SB4070204	0204	feet	2-14, 2-15	0.0127	MG/KG
08/10/2012	Soil	4A-8	17SB408		17SS4080002	0002	feet	2-14, 2-15	0.0126	MG/KG
08/10/2012	Soil	4A-8	17SB408		17SB4080203	0203	feet	2-14, 2-15	0.0141	MG/KG
08/08/2012	Soil	4A-8, 4A-9	17SB409		17SS4090002	0002	feet	2-14	7.44	MG/KG
08/08/2012	Soil	4A-8, 4A-9	17SB409		17SB4090204	0204	feet	2-14	4.22	MG/KG
08/08/2012	Soil	4A-8, 4A-9	17SB409		17SB4090406	0406	feet	2-14	0.54	MG/KG
08/09/2012	Soil	4A-8, 4A-9	17SB410		17SS4100002	0002	feet	2-14, 2-15	0.00298 J	MG/KG
08/09/2012	Soil	4A-8, 4A-9	17SB410		17SB4100204	0204	feet	2-14, 2-15	0.00274 U	MG/KG
08/10/2012	Soil	4A-8	17SB411		17SS4110002	0002	feet	2-14	0.0223	MG/KG
08/10/2012	Soil	4A-8	17SB411		17SB4110204	0204	feet	2-14	0.138	MG/KG
08/09/2012	Soil	4A-7, 4A-9	17SB415		17SS4150002	0002	feet	2-14, 2-15	0.00721	MG/KG
08/09/2012	Soil	4A-7, 4A-9	17SB415		17SB4150204	0204	feet	2-14, 2-15	0.00718	MG/KG
08/09/2012	Soil	4A-7, 4A-9	17SB415		17SB4150406	0406	feet	2-14, 2-15	0.00255 U	MG/KG
08/09/2012	Soil	4A-7, 4A-9	17SB415		17SB4150608	0608	feet	2-14, 2-15	0.00394	MG/KG
08/09/2012	Soil	4A-7	17SB416		17SS4160002	0002	feet	2-14, 2-15	41000	MG/KG
08/09/2012	Soil	4A-7	17SB416		17SB4160204	0204	feet	2-14, 2-15	255	MG/KG
08/09/2012	Soil	4A-7	17SB416		17SB4160406	0406	feet	2-14, 2-15	8.78	MG/KG
08/09/2012	Soil	4A-7	17SB416		17SB4160607	0607	feet	2-14, 2-15	0.0843	MG/KG
08/10/2012	Soil	4A-8, 4A-9	17SB417		17SS4170002	0002	feet	2-14	5.65	MG/KG
08/09/2012	Soil	4A-9	17SB418		17SS4180002	0002	feet	2-14	119	MG/KG
08/09/2012	Soil	4A-9	17SB418		17SB4180204	0204	feet	2-14	1.14	MG/KG
08/09/2012	Soil	4A-9	17SB418		17SB4180406	0406	feet	2-14	0.0027 U	MG/KG
08/09/2012	Soil	4A-9	17SB418		17SB4180608	0608	feet	2-14	0.00272 U	MG/KG
08/10/2012	Soil	4A-8	17SB420		17SS4200002	0002	feet	NA	4.27	MG/KG
08/08/2012	Soil	4A-8	17SB421		17SS4210002	0002	feet	NA	0.115	MG/KG
08/08/2012	Soil	4A-8	17SB421		17SB4210204	0204	feet	NA	0.0104	MG/KG
08/08/2012	Soil	4A-8	17SB421		17SB4210406	0406	feet	NA	0.0027 U	MG/KG
08/08/2012	Soil	4A-5	17SB423		17SS4230002	0002	feet	2-15	0.214	MG/KG
08/08/2012	Soil	4A-5	17SB423		17SB4230204	0204	feet	2-15	0.00378 J	MG/KG
08/08/2012	Soil	4A-5	17SB423		17SB4230406	0406	feet	2-15	0.00252 U	MG/KG
08/08/2012	Soil	4A-5	17SB423		17SB4230608	0608	feet	2-15	0.00188 J	MG/KG
08/10/2012	Soil	4A-8	17SB429		17SS4290002	0002	feet	2-14	0.0024 U	MG/KG
08/28/2012	Soil	NA	17SB430		17SS4300002	0002	feet	2-16	0.00325 J	MG/KG
08/28/2012	Soil	NA	17SB430		17SB4300204	0204	feet	2-16	0.00587	MG/KG
08/28/2012	Soil	NA	17SB431		17SS4310002	0002	feet	2-16	0.0419	MG/KG
08/28/2012	Soil	NA	17SB431		17SB4310204	0204	feet	2-16	0.00226 J	MG/KG
08/28/2012	Soil	NA	17SB432		17SS4320002	0002	feet	2-16	0.0125	MG/KG
08/28/2012	Soil	NA	17SB432		17SB4320204	0204	feet	2-16	0.00257 U	MG/KG
08/28/2012	Soil	NA	17SB433		17SS4330002	0002	feet	2-16	0.153	MG/KG
08/28/2012	Soil	NA	17SB433		17SB4330204	0204	feet	2-16	0.00535	MG/KG
08/28/2012	Soil	NA	17SB434		17SS4340002	0002	feet	2-16	0.00198 J	MG/KG
08/28/2012	Soil	NA	17SB434		17SB4340204	0204	feet	2-16	0.00256 U	MG/KG
08/28/2012	Soil	NA	17SB435		17SS4350002	0002	feet	2-16	0.0555	MG/KG
08/28/2012	Soil	NA	17SB435		17SB4350204	0204	feet	2-16	0.00275 U	MG/KG
08/28/2012	Soil	NA	17SB436		17SS4360002	0002	feet	2-16	0.0209	MG/KG
08/28/2012	Soil	NA	17SB436		17SB4360204	0204	feet	2-16	0.00945	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
08/28/2012	Soil	NA	17SB437		17SS4370002	0002	feet	2-16	0.0243	MG/KG
08/28/2012	Soil	NA	17SB437		17SB4370204	0204	feet	2-16	0.00241 U	MG/KG
08/28/2012	Soil	NA	17SB438		17SS4380002	0002	feet	2-16	0.00274 U	MG/KG
08/28/2012	Soil	NA	17SB438		17SB4380204	0204	feet	2-16	0.00277 U	MG/KG
08/28/2012	Soil	NA	17SB439		17SS4390002	0002	feet	2-16	0.0963	MG/KG
08/28/2012	Soil	NA	17SB439		17SB4390204	0204	feet	2-16	0.00176 J	MG/KG
08/28/2012	Soil	NA	17SB440		17SS4400002	0002	feet	2-14	0.121 J	MG/KG
08/28/2012	Soil	NA	17SB440		17SB4400204	0204	feet	2-14	0.00256 U	MG/KG
08/28/2012	Soil	NA	17SB441		17SS4410002	0002	feet	2-14	0.00273 U	MG/KG
08/28/2012	Soil	NA	17SB441		17SB4410204	0204	feet	2-14	0.0026 U	MG/KG
08/28/2012	Soil	NA	17SB442		17SS4420002	0002	feet	2-14	0.0182 J	MG/KG
08/28/2012	Soil	NA	17SB442		17SB4420204	0204	feet	2-14	0.00725	MG/KG
08/28/2012	Soil	NA	17SB443		17SS4430002	0002	feet	2-14	0.00432	MG/KG
08/28/2012	Soil	NA	17SB443		17SB4430204	0204	feet	2-14	0.00177 J	MG/KG
08/28/2012	Soil	NA	17SB444		17SS4440002	0002	feet	2-14	0.0153	MG/KG
08/28/2012	Soil	NA	17SB444		17SB4440204	0204	feet	2-14	0.00925	MG/KG
08/28/2012	Soil	NA	17SB445		17SS4450002	0002	feet	2-14	0.00454	MG/KG
08/28/2012	Soil	NA	17SB445		17SB4450204	0204	feet	2-14	0.00206 J	MG/KG
08/28/2012	Soil	NA	17SB446		17SS4460002	0002	feet	2-14	0.271	MG/KG
08/28/2012	Soil	NA	17SB446		17SB4460204	0204	feet	2-14	0.152	MG/KG
08/28/2012	Soil	NA	17SB447		17SS4470002	0002	feet	2-14	0.0528	MG/KG
08/28/2012	Soil	NA	17SB447		17SB4470204	0204	feet	2-14	0.0132 U	MG/KG
08/28/2012	Soil	4A-9	17SB448		17SS4480002	0002	feet	2-14	2.13	MG/KG
08/28/2012	Soil	4A-9	17SB448		17SB4480204	0204	feet	2-14	0.013 UJ	MG/KG
08/28/2012	Soil	NA	17SB449		17SS4490002	0002	feet	2-14	0.00255 J	MG/KG
08/28/2012	Soil	NA	17SB449		17SB4490203	0203	feet	2-14	0.00588 J	MG/KG
09/18/2012	Soil	4C	17SB451		17SS4510002	0002	feet	2-17	1.42	MG/KG
09/18/2012	Soil	4C	17SB451		17SB4510204	0204	feet	2-17	0.353	MG/KG
09/18/2012	Soil	4A-2	17SB452		17SS4520002	0002	feet	2-14, 2-15	0.0108	MG/KG
10/02/2012	Soil	4B-1, 4B-2	17SB453	17FL-C-080	17SB4530304	0304	feet	2-16	0.00269 U	MG/KG
10/02/2012	Soil	4B-1, 4B-2	17SB454	17FL-C-077	17SB4540304	0304	feet	2-16	0.728	MG/KG
10/02/2012	Soil	4C	17SB455		17SS4550002	0002	feet	2-17	1.25	MG/KG
10/02/2012	Soil	4C	17SB456		17SS4560002	0002	feet	2-17	0.376	MG/KG
10/02/2012	Soil	4A-5	17SB457	17FL-B-005	17SB4570204	0204	feet	2-14, 2-15	0.00263 U	MG/KG
10/02/2012	Soil	4A-5	17SB457	17FL-B-005	17SB4570406	0406	feet	2-14, 2-15	0.00258 U	MG/KG
10/02/2012	Soil	4A-5	17SB457	17FL-B-005	17SB4570608	0608	feet	2-14, 2-15	0.00253 U	MG/KG
10/02/2012	Soil	4A-5	17SB457	17FL-B-005	17SB4570809	0809	feet	2-14, 2-15	0.00264 U	MG/KG
05/09/2012	Soil	NA	17TPA1		17TPA1C0008	0008	feet	2-14, 2-15	0.0654	MG/KG
05/08/2012	Soil	NA	17TPA2		17TPA2C0102	0102	feet	2-14, 2-15	0.0038 J	MG/KG
05/08/2012	Soil	NA	17TPA2		17TPA2C0108	0108	feet	2-14, 2-15	0.198 J	MG/KG
05/08/2012	Soil	NA	17TPA2		17TPA2C0203	0203	feet	2-14, 2-15	0.572	MG/KG
05/08/2012	Soil	NA	17TPA2		17TPA2C0304	0304	feet	2-14, 2-15	0.353	MG/KG
05/08/2012	Soil	NA	17TPA2		17TPA2C0405	0405	feet	2-14, 2-15	0.00163 J	MG/KG
05/08/2012	Soil	NA	17TPA2		17TPA2C0506	0506	feet	2-14, 2-15	0.0757	MG/KG
05/08/2012	Soil	NA	17TPA2		17TPA2C0607	0607	feet	2-14, 2-15	0.00264 U	MG/KG
05/08/2012	Soil	NA	17TPA2		17TPA2C0708	0708	feet	2-14, 2-15	0.00309 J	MG/KG
05/09/2012	Soil	4A-6	17TPA3		17TPA3C0001	0001	feet	2-14	128	MG/KG
05/09/2012	Soil	4A-6	17TPA3		17TPA3C0008	0008	feet	2-14	173	MG/KG
05/09/2012	Soil	4A-6	17TPA3		17TPA3C0102	0102	feet	2-14	2.71	MG/KG
05/09/2012	Soil	4A-6	17TPA3		17TPA3C0203	0203	feet	2-14	86.5	MG/KG
05/09/2012	Soil	4A-6	17TPA3		17TPA3C0304	0304	feet	2-14	1880	MG/KG
05/09/2012	Soil	4A-6	17TPA3		17TPA3C0405	0405	feet	2-14	48.9	MG/KG
05/09/2012	Soil	4A-6	17TPA3		17TPA3C0506	0506	feet	2-14	545	MG/KG
05/09/2012	Soil	4A-6	17TPA3		17TPA3C0607	0607	feet	2-14	10.8	MG/KG
05/09/2012	Soil	4A-6	17TPA3		17TPA3C0708	0708	feet	2-14	159	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
05/09/2012	Soil	NA	17TPA4		17TPA4C0006	0006	feet	2-14, 2-15	0.12	MG/KG
05/10/2012	Soil	4A-6	17TPB4		17TPB4C0001	0001	feet	2-14	18.3	MG/KG
05/10/2012	Soil	4A-6	17TPB4		17TPB4C0003	0003	feet	2-14	10.5	MG/KG
05/10/2012	Soil	4A-6	17TPB4		17TPB4C0102	0102	feet	2-14	15.6	MG/KG
05/10/2012	Soil	4A-6	17TPB4		17TPB4C0203	0203	feet	2-14	12.3	MG/KG
05/10/2012	Soil	4A-6	17TPB5		17TPB5C0001	0001	feet	2-14	0.789	MG/KG
05/10/2012	Soil	4A-6	17TPB5		17TPB5C0004	0004	feet	2-14	43.7	MG/KG
05/10/2012	Soil	4A-6	17TPB5		17TPB5C0102	0102	feet	2-14	0.156	MG/KG
05/10/2012	Soil	4A-6	17TPB5		17TPB5C0203	0203	feet	2-14	3.62	MG/KG
05/10/2012	Soil	4A-6	17TPB5		17TPB5C0304	0304	feet	2-14	77.6	MG/KG
05/08/2012	Soil	NA	17TPC2		17TPC2C0111	0111	feet	2-14, 2-15	0.0448	MG/KG
05/11/2012	Soil	4A-6	17TPC3		17TPC3C0102	0102	feet	2-14	28.1	MG/KG
05/11/2012	Soil	4A-6	17TPC3		17TPC3C0108	0108	feet	2-14	2.58	MG/KG
05/11/2012	Soil	4A-6	17TPC3		17TPC3C0203	0203	feet	2-14	1.62	MG/KG
05/11/2012	Soil	4A-6	17TPC3		17TPC3C0304	0304	feet	2-14	34.1	MG/KG
05/11/2012	Soil	4A-6	17TPC3		17TPC3C0405	0405	feet	2-14	0.119	MG/KG
05/11/2012	Soil	4A-6	17TPC3		17TPC3C0506	0506	feet	2-14	0.00193 J	MG/KG
05/11/2012	Soil	4A-6	17TPC3		17TPC3C0607	0607	feet	2-14	0.0027 U	MG/KG
05/11/2012	Soil	4A-6	17TPC3		17TPC3C0708	0708	feet	2-14	0.0102	MG/KG
05/10/2012	Soil	4A-6	17TPD2		17TPD2C0102	0102	feet	2-14	4.34	MG/KG
05/10/2012	Soil	4A-6	17TPD2		17TPD2C0111	0102	feet	2-14	15.7	MG/KG
05/10/2012	Soil	4A-6	17TPD2		17TPD2C0203	0203	feet	2-14	1.12	MG/KG
05/10/2012	Soil	4A-6	17TPD2		17TPD2C0304	0304	feet	2-14	1.23	MG/KG
05/10/2012	Soil	4A-6	17TPD2		17TPD2C0405	0405	feet	2-14	0.719	MG/KG
05/10/2012	Soil	4A-6	17TPD2		17TPD2C0506	0506	feet	2-14	0.00663	MG/KG
05/10/2012	Soil	4A-6	17TPD2		17TPD2C0607	0607	feet	2-14	0.0134 U	MG/KG
05/10/2012	Soil	4A-6	17TPD2		17TPD2C0708	0709	feet	2-14	0.0027 U	MG/KG
05/10/2012	Soil	4A-6	17TPD2		17TPD2C0809	0809	feet	2-14	0.0136 U	MG/KG
05/10/2012	Soil	4A-6	17TPD2		17TPD2C1011	1011	feet	2-14	0.834	MG/KG
05/10/2012	Soil	4A-4	17TPE2		17TPE2C0102	0102	feet	2-14	0.128 J	MG/KG
05/10/2012	Soil	4A-4	17TPE2		17TPE2C0106	0106	feet	2-14	4.98	MG/KG
05/10/2012	Soil	4A-4	17TPE2		17TPE2C0203	0203	feet	2-14	0.0635	MG/KG
05/10/2012	Soil	4A-4	17TPE2		17TPE2C0304	0304	feet	2-14	8.35	MG/KG
05/10/2012	Soil	4A-4	17TPE2		17TPE2C0405	0405	feet	2-14	19.2	MG/KG
05/09/2012	Soil	4A-2	17TPF1		17TPF1C0001	0001	feet	2-14	26.2	MG/KG
05/09/2012	Soil	4A-2	17TPF1		17TPF1C0010	0010	feet	2-14	0.141	MG/KG
05/09/2012	Soil	4A-2	17TPF1		17TPF1C0102	0102	feet	2-14	1.13	MG/KG
05/09/2012	Soil	4A-2	17TPF1		17TPF1C0203	0203	feet	2-14	0.293	MG/KG
05/09/2012	Soil	4A-2	17TPF1		17TPF1C0304	0304	feet	2-14	0.114	MG/KG
05/09/2012	Soil	4A-2	17TPF1		17TPF1C0405	0405	feet	2-14	0.0101	MG/KG
05/09/2012	Soil	4A-2	17TPF1		17TPF1C0506	0506	feet	2-14	0.0444	MG/KG
05/09/2012	Soil	4A-2	17TPF1		17TPF1C0607	0607	feet	2-14	0.00687	MG/KG
05/09/2012	Soil	4A-2	17TPF1		17TPF1C0708	0708	feet	2-14	0.00175 J	MG/KG
05/09/2012	Soil	4A-2	17TPF1		17TPF1C0809	0809	feet	2-14	0.00279 U	MG/KG
05/09/2012	Soil	4A-2	17TPF1		17TPF1C0910	0910	feet	2-14	0.00284 U	MG/KG
05/09/2012	Soil	NA	17TPF3		17TPF3C0009	0009	feet	2-14, 2-15	0.032	MG/KG
05/09/2012	Soil	NA	17TPF4		17TPF4C0009	0009	feet	2-14, 2-15	0.0192	MG/KG
05/10/2012	Soil	NA	17TPG1		17TPG1C0108	0108	feet	2-14, 2-15	0.00934	MG/KG
05/10/2012	Soil	NA	17TPG2		17TPG2C0105	0105	feet	2-09	0.0107	MG/KG
05/10/2012	Soil	NA	17TPG3		17TPG3C0107	0107	feet	2-14, 2-15	0.0026 U	MG/KG
05/09/2012	Soil	NA	17TPG4		17TPG4C0008	0108	feet	2-14, 2-15	0.0622	MG/KG
Prior to 2012	Soil	4A-5	CSS01		CSS01	0000.5	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	4A-5	CSS01		CSUB01	00.501	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	4A-5	CSS02		CSS02	0000.5	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	4A-5	CSS02		CSUB02	00.501	feet	2-01	0 U	UG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
Prior to 2012	Soil	NA	CSS03		CSS03	0000.5	feet	2-01	110	UG/KG
Prior to 2012	Soil	NA	CSS03		CSUB03	00.501	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	NA	CSS04		CSS04	0000.5	feet	2-01	67	UG/KG
Prior to 2012	Soil	NA	CSS04		CSUB04	00.501	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	4B-1, 4B-50	CSS05		CSS05	0000.5	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	4B-1, 4B-50	CSS05		CSUB05	00.501	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	NA	CSS06		CSS06	0000.5	feet	2-01	830	UG/KG
Prior to 2012	Soil	NA	CSS06		CSUB06	00.501	feet	2-01	290	UG/KG
Prior to 2012	Soil	NA	GSS01		GSS01	0000.5	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	NA	GSS01		GSUB01	00.501	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	NA	GSS02		GSS02	0000.5	feet	2-01	650	UG/KG
Prior to 2012	Soil	NA	GSS02		GSUB02	00.501	feet	2-01	200	UG/KG
Prior to 2012	Soil	NA	GSS03		GSS03	0000.5	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	NA	GSS03		GSUB03	00.501	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	NA	GSS04		GSS04	0000.5	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	NA	GSS04		GSUB04	00.501	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	4B-50	GSS05		GSS05	0000.5	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	4B-50	GSS05		GSUB05	00.501	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	4B-50	GSS06		GSS06	0000.5	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	4B-50	GSS06		GSUB06	00.501	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	NA	GSS07		GSS07	0000.5	feet	2-01	120	UG/KG
Prior to 2012	Soil	NA	GSS07		GSUB07	00.501	feet	2-01	84	UG/KG
Prior to 2012	Soil	NA	GSS08		GSS08	0000.5	feet	2-01	0 U	UG/KG
Prior to 2012	Soil	NA	GSS08		GSUB08	00.501	feet	2-01	0 U	UG/KG
Prior to 2012	Sediment	NA	17SW/SD001	N A	17SD0010006	000.5	feet	2-06, 2-15	37	MG/KG
Prior to 2012	Sediment	NA	17SW/SD002	N A	17SD0020006	000.5	feet	2-06	25	MG/KG
Prior to 2012	Sediment	NA	17SW/SD003	N A	17SD0030006	000.5	feet	2-06, 2-09	17	MG/KG
Prior to 2012	Sediment	NA	17SW/SD004	N A	17SD0040006	000.5	feet	2-09	3.6	MG/KG
Prior to 2012	Sediment	NA	17SW/SD005	N A	17SD0050006	000.5	feet	2-08	1.7	MG/KG
Prior to 2012	Sediment	NA	17SW/SD006	N A	17SD0060006	000.5	feet	2-06	0.013	MG/KG
Prior to 2012	Sediment	NA	17SW/SD007	N A	17SD0070006	000.5	feet	2-06	2.2	MG/KG
Prior to 2012	Sediment	NA	17SW/SD008	N A	17SD0080006	000.5	feet	Not shown	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD009	N A	17SD0090006	000.5	feet	2-11	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD010	N A	17SD0100006	000.5	feet	2-11	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD011	N A	17SD0110006	000.5	feet	2-17	1.8	MG/KG
Prior to 2012	Sediment	NA	17SW/SD013	N A	17SD0130006	000.5	feet	2-10, 2-11, 2-17	0.53	MG/KG
Prior to 2012	Sediment	NA	17SW/SD014	N A	17SD0140006	000.5	feet	2-11	1.3	MG/KG
Prior to 2012	Sediment	NA	17SW/SD015	N A	17SD0150006	000.5	feet	2-11	1	MG/KG
Prior to 2012	Sediment	NA	17SW/SD016	N A	17SD0160006	000.5	feet	2-10, 2-11	0.48	MG/KG
Prior to 2012	Sediment	NA	17SW/SD017	N A	17SD0170006	000.5	feet	2-10	2.2	MG/KG
Prior to 2012	Sediment	NA	17SW/SD018	N A	17SD0180006	000.5	feet	2-09	3.7	MG/KG
Prior to 2012	Sediment	NA	17SW/SD019	N A	17SD0190006	000.5	feet	2-09	3.7	MG/KG
Prior to 2012	Sediment	NA	17SW/SD020	N A	17SD0200006	000.5	feet	2-08	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD021	N A	17SD0210006	000.5	feet	2-06	0.021	MG/KG
Prior to 2012	Sediment	NA	17SW/SD022	N A	17SD0220006	000.5	feet	2-06, 2-09	0.03	MG/KG
Prior to 2012	Sediment	NA	17SW/SD023	N A	17SD0230006	000.5	feet	2-06, 2-08, 2-09	0.025	MG/KG
Prior to 2012	Sediment	NA	17SW/SD024	N A	17SD0240006	000.5	feet	2-02	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD025	N A	17SD0250006	000.5	feet	2-07	0.58	MG/KG
Prior to 2012	Sediment	NA	17SW/SD026	N A	17SD0260006	000.5	feet	2-07	5.3	MG/KG
Prior to 2012	Sediment	NA	17SW/SD027	N A	17SD0270006	000.5	feet	2-07	0.011	MG/KG
Prior to 2012	Sediment	NA	17SW/SD028	N A	17SD0280006	000.5	feet	2-02	0.083	MG/KG
Prior to 2012	Sediment	NA	17SW/SD029	N A	17SD0290006	000.5	feet	2-02	0.18	MG/KG
Prior to 2012	Sediment	NA	17SW/SD030	N A	17SD0300006	000.5	feet	2-08	0.089	MG/KG
Prior to 2012	Sediment	NA	17SW/SD031	N A	17SD0310006	000.5	feet	2-08	0.11	MG/KG
Prior to 2012	Sediment	NA	17SW/SD032	N A	17SD0320006	000.5	feet	2-08	0.2	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
Prior to 2012	Sediment	NA	17SW/SD033	N A	17SD0330006	000.5	feet	2-08	1.3	MG/KG
Prior to 2012	Sediment	NA	17SW/SD034	N A	17SD0340006	000.5	feet	2-08	0.22	MG/KG
Prior to 2012	Sediment	NA	17SW/SD035	N A	17SD0350006	000.5	feet	2-02	0.95	MG/KG
Prior to 2012	Sediment	NA	17SW/SD036	N A	17SD0360006	000.5	feet	2-02	0.15	MG/KG
Prior to 2012	Sediment	NA	17SW/SD037	N A	17SD0370006	000.5	feet	2-02	0.55	MG/KG
Prior to 2012	Sediment	NA	17SW/SD038	N A	17SD0380006	000.5	feet	2-02	0.29	MG/KG
Prior to 2012	Sediment	NA	17SW/SD039	N A	17SD0390006	000.5	feet	2-08	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD040	N A	17SD0400006	000.5	feet	2-06	0.063	MG/KG
Prior to 2012	Sediment	NA	17SW/SD041	N A	17SD0410006	000.5	feet	2-06, 2-08, 2-09	0.5	MG/KG
Prior to 2012	Sediment	NA	17SW/SD042	N A	17SD0420006	000.5	feet	2-03, 2-11, 2-12, 2-16	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD043	N A	17SD0430006	000.5	feet	2-11, 2-16	3.3	MG/KG
Prior to 2012	Sediment	NA	17SW/SD044	N A	17SD0440006	000.5	feet	2-03, 2-11, 2-12	0.57	MG/KG
Prior to 2012	Sediment	NA	17SW/SD045	N A	17SD0450006	000.5	feet	2-11	6	MG/KG
Prior to 2012	Sediment	NA	17SW/SD046	N A	17SD0460006	000.5	feet	2-07	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD047	N A	17SD0470006	000.5	feet	2-07	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD048	N A	17SD0480006	000.5	feet	2-07	0.37	MG/KG
Prior to 2012	Sediment	NA	17SW/SD049	N A	17SD0490006	000.5	feet	2-07	0.32	MG/KG
Prior to 2012	Sediment	NA	17SW/SD050	N A	17SD0500006	000.5	feet	2-07	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD051	N A	17SD0510006	000.5	feet	2-07	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD052	N A	17SD0520006	000.5	feet	2-07	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD053	N A	17SD0530006	000.5	feet	2-07	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD054	N A	17SD0540006	000.5	feet	2-02	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD055	N A	17SD0550006	000.5	feet	2-02	0.017	MG/KG
Prior to 2012	Sediment	NA	17SW/SD056	N A	17SD0560006	000.5	feet	2-03	0.26	MG/KG
Prior to 2012	Sediment	NA	17SW/SD057	N A	17SD0570006	000.5	feet	2-03, 2-13	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD058	N A	17SD0580006	000.5	feet	2-03	0.29	MG/KG
Prior to 2012	Sediment	NA	17SW/SD059	N A	17SD0590006	000.5	feet	2-03, '2-13	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD060	N A	17SD0600006	000.5	feet	2-03, 2-12	0.012	MG/KG
Prior to 2012	Sediment	NA	17SW/SD061	N A	17SD0610006	000.5	feet	2-03, 2-12	70	MG/KG
Prior to 2012	Sediment	NA	17SW/SD062	N A	17SD0620006	000.5	feet	2-03, 2-12	7.1	MG/KG
Prior to 2012	Sediment	NA	17SW/SD063	N A	17SD0630006	000.5	feet	2-03, 2-12	0.72	MG/KG
Prior to 2012	Sediment	NA	17SW/SD064	N A	17SD0640006	000.5	feet	2-03, 2-12	4.1	MG/KG
Prior to 2012	Sediment	NA	17SW/SD065	N A	17SD0650006	000.5	feet	Not shown	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD066	N A	17SD0660006	000.5	feet	Not shown	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD067	N A	17SD0670006	000.5	feet	2-02	0.51	MG/KG
Prior to 2012	Sediment	NA	17SW/SD068	N A	17SD0680006	000.5	feet	2-02	0.12	MG/KG
Prior to 2012	Sediment	NA	17SW/SD069	N A	17SD0690006	000.5	feet	2-04, '2-05	0.96	MG/KG
Prior to 2012	Sediment	NA	17SW/SD070	N A	17SD0700006	0006	inches	2-04	0.069	MG/KG
Prior to 2012	Sediment	NA	17SW/SD071	N A	17SD0710006	0006	inches	2-04	0.072	MG/KG
Prior to 2012	Sediment	NA	17SW/SD072	N A	17SD0720006	0006	inches	2-04	0.059	MG/KG
Prior to 2012	Sediment	NA	17SW/SD072	N A	17SD0720612	0612	inches	2-04	0.077	MG/KG
Prior to 2012	Sediment	NA	17SW/SD073	N A	17SD0730006	0006	inches	2-04, 2-13	0.13	MG/KG
Prior to 2012	Sediment	NA	17SW/SD074	N A	17SD0740006	0006	inches	2-04	0.055	MG/KG
Prior to 2012	Sediment	NA	17SW/SD075	N A	17SD0750006	0006	inches	2-04	0.15	MG/KG
Prior to 2012	Sediment	NA	17SW/SD076	N A	17SD0760006	0006	inches	2-04	0.04	MG/KG
Prior to 2012	Sediment	NA	17SW/SD077	N A	17SD0770006	0006	inches	2-04	0.034	MG/KG
Prior to 2012	Sediment	NA	17SW/SD078	N A	17SD0780006	0006	inches	2-04	0.037	MG/KG
Prior to 2012	Sediment	NA	17SW/SD079	N A	17SD0790006	0006	inches	2-04	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD080	N A	17SD0800006	0006	inches	2-04	0.065	MG/KG
Prior to 2012	Sediment	NA	17SW/SD081	N A	17SD0810006	0006	inches	2-04	0.025	MG/KG
Prior to 2012	Sediment	NA	17SW/SD082	N A	17SD0820006	0006	inches	2-04	0.028	MG/KG
Prior to 2012	Sediment	NA	17SW/SD083	N A	17SD0830006	0006	inches	2-04	0.014	MG/KG
Prior to 2012	Sediment	NA	17SW/SD083	N A	17SD0830612	0612	inches	2-04	0.03	MG/KG
Prior to 2012	Sediment	NA	17SW/SD084	N A	17SD0840006	0006	inches	2-04	0.23	MG/KG
Prior to 2012	Sediment	NA	17SW/SD085	N A	17SD0850006	0006	inches	2-04	0.00 U	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
Prior to 2012	Sediment	NA	17SW/SD085	N A	17SD0850612	0612	inches	2-04	0.013	MG/KG
Prior to 2012	Sediment	NA	17SW/SD086	N A	17SD0860006	0006	inches	2-04	0.044	MG/KG
Prior to 2012	Sediment	NA	17SW/SD087	N A	17SD0870006	0006	inches	2-04	0.094	MG/KG
Prior to 2012	Sediment	NA	17SW/SD088	N A	17SD0880006	0006	inches	2-04	0.024	MG/KG
Prior to 2012	Sediment	NA	17SW/SD089	N A	17SD0890006	0006	inches	2-04	0.15	MG/KG
Prior to 2012	Sediment	NA	17SW/SD090	N A	17SD0900006	0006	inches	2-04	0.035	MG/KG
Prior to 2012	Sediment	NA	17SW/SD090	N A	17SD0900612	0012	inches	2-04	0.049	MG/KG
Prior to 2012	Sediment	NA	17SW/SD091	N A	17SD0910006	0006	inches	2-04	0.033	MG/KG
Prior to 2012	Sediment	NA	17SW/SD092	N A	17SD0920006	0006	inches	2-04	0.027	MG/KG
Prior to 2012	Sediment	NA	17SW/SD093	N A	17SD0930006	0006	inches	2-04	0.043	MG/KG
Prior to 2012	Sediment	NA	17SW/SD094	N A	17SD0940006	0006	inches	2-04	0.02	MG/KG
Prior to 2012	Sediment	NA	17SW/SD095	N A	17SD0950006	0006	inches	2-04	0.067	MG/KG
Prior to 2012	Sediment	NA	17SW/SD096	N A	17SD0960006	0006	inches	2-04	0.086	MG/KG
Prior to 2012	Sediment	NA	17SW/SD097	N A	17SD0970006	0006	inches	2-04	0.018	MG/KG
Prior to 2012	Sediment	NA	17SW/SD098	N A	17SD0980006	0006	inches	2-04	0.055	MG/KG
Prior to 2012	Sediment	NA	17SW/SD099	N A	17SD0990006	0006	inches	2-04	0.19	MG/KG
Prior to 2012	Sediment	NA	17SW/SD100	N A	17SD1000006	0006	inches	2-04	0.018	MG/KG
Prior to 2012	Sediment	NA	17SW/SD101	N A	17SD1010006	0006	inches	2-04	0.094	MG/KG
Prior to 2012	Sediment	NA	17SW/SD102	N A	17SD1020006	0006	inches	2-04	0.19	MG/KG
Prior to 2012	Sediment	NA	17SW/SD103	N A	17SD1030006	0006	inches	2-04	0.00 U	MG/KG
Prior to 2012	Sediment	NA	17SW/SD104	N A	17SD1040006	0006	inches	2-04	0.11	MG/KG
Prior to 2012	Sediment	NA	17SW/SD105	N A	17SD1050006	0006	inches	2-04, 2-05	2.8	MG/KG
Prior to 2012	Sediment	NA	17SW/SD106	N A	17SD1060006	000.5	feet	2-12	34.74	MG/KG
Prior to 2012	Sediment	NA	17SW/SD107	N A	17SD1070006	000.5	feet	2-12	101	MG/KG
Prior to 2012	Sediment	NA	17SW/SD108	N A	17SD1080006	000.5	feet	2-12	4.99	MG/KG
Prior to 2012	Sediment	NA	17SW/SD109	N A	17SD1090006	000.5	feet	2-12	175	MG/KG
Prior to 2012	Sediment	NA	17SW/SD110	N A	17SD1100006	000.5	feet	2-12, 2-13	26.5	MG/KG
Prior to 2012	Sediment	NA	17SW/SD111	N A	17SD1110006	000.5	feet	2-12, 2-13	20.41	MG/KG
Prior to 2012	Sediment	NA	17SW/SD112	N A	17SD1120006	000.5	feet	2-12, 2-13	14.48	MG/KG
Prior to 2012	Sediment	NA	17SW/SD113	N A	17SD1130006	000.5	feet	2-12, 2-13	41.7	MG/KG
Prior to 2012	Sediment	NA	17SW/SD114	N A	17SD1140006	000.5	feet	2-13	14.87	MG/KG
Prior to 2012	Sediment	NA	17SW/SD115	N A	17SD1150006	000.5	feet	2-13	28.62	MG/KG
Prior to 2012	Sediment	NA	17SW/SD116	N A	17SD1160006	000.5	feet	2-13	22.95	MG/KG
Prior to 2012	Sediment	NA	17SW/SD116	N A	17SD1160612	0.501	feet	2-13	24.9	MG/KG
Prior to 2012	Sediment	NA	17SW/SD116	N A	17SD1161224	0102	feet	2-13	8.86	MG/KG
Prior to 2012	Sediment	NA	17SW/SD117	N A	17SD1170006	000.5	feet	2-13	29.98	MG/KG
Prior to 2012	Sediment	NA	17SW/SD117	N A	17SD1170612	0.501	feet	2-13	9.3	MG/KG
Prior to 2012	Sediment	NA	17SW/SD117	N A	17SD1171224	0102	feet	2-13	46.82	MG/KG
Prior to 2012	Sediment	NA	17SW/SD118	N A	17SD1180006	000.5	feet	2-09, 2-132	4.73	MG/KG
Prior to 2012	Sediment	NA	17SW/SD118	N A	17SD1180612	0.501	feet	2-09, 2-132	100	MG/KG
Prior to 2012	Sediment	NA	17SW/SD119	N A	17SD1190006	000.5	feet	2-13	2.256	MG/KG
Prior to 2012	Sediment	NA	17SW/SD119	N A	17SD1190612	0.501	feet	2-13	3.55	MG/KG
Prior to 2012	Sediment	NA	17SW/SD120	N A	17SD1200006	000.5	feet	2-13	0.0952	MG/KG
Prior to 2012	Sediment	NA	17SW/SD120	N A	17SD1200612	0.501	feet	2-13	0.077	MG/KG
04/26/2012	Sediment	NA	17SW/SD121	N A	17SD1210006	000.5	feet	2-13	0.116	MG/KG
04/26/2012	Sediment	NA	17SW/SD121	N A	17SD1210612	0.501	feet	2-10	0.136	MG/KG
04/26/2012	Sediment	NA	17SW/SD122	N A	17SD1220006	000.5	feet	2-09	0.362	MG/KG
04/26/2012	Sediment	NA	17SW/SD122	N A	17SD1220612	0.501	feet	2-09	0.153	MG/KG
04/29/2012	Sediment	NA	17SW/SD123	N A	17SD1230006	000.5	feet	2-08	0.207	MG/KG
04/29/2012	Sediment	NA	17SW/SD123	N A	17SD1230612	0.501	feet	2-08	0.225	MG/KG
05/01/2012	Sediment	NA	17SW/SD124	N A	17SD1240006	000.5	feet	2-17	0.554	MG/KG
05/01/2012	Sediment	NA	17SW/SD124	N A	17SD1240612	0.501	feet	2-17	0.0829	MG/KG
04/30/2012	Sediment	NA	17SW/SD125	N A	17SD1250006	000.5	feet	2-07	0.0603	MG/KG
04/30/2012	Sediment	NA	17SW/SD125	N A	17SD1250612	0.501	feet	2-07	0.25	MG/KG
05/01/2012	Sediment	NA	17SW/SD126	N A	17SD1260006	000.5	feet	2-06	0.903	MG/KG

TABLE 2-1

SAMPLING LOCATIONS AND ASSOCIATED DATA
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE, CRANE INDIANA

Sample Date	Matrix	Excavation Area [1]	Sampling Location [2]	Sampling Location Alias [3]	Sample	Depth Interval [4]	Depth units	Figure Number [5]	Total PCB Result	Result Units
05/01/2012	Sediment	NA	17SW/SD126	N A	17SD1260612	0.501	feet	2-06	6.5	MG/KG
05/01/2012	Sediment	NA	17SW/SD127	N A	17SD1270006	000.5	feet	2-07	1.08	MG/KG
05/01/2012	Sediment	NA	17SW/SD127	N A	17SD1270612	0.501	feet	2-07	0.841	MG/KG
Prior to 2012	SW	NA	17SW/SD004	NA	17SW0401	NA	NA	2-09	0 U	UG/L
Prior to 2012	SW	NA	17SW/SD005	NA	17SW0501	NA	NA	2-08	0 U	UG/L
Prior to 2012	SW	NA	17SW/SD071	NA	17SW071	NA	NA	2-04	0 U	UG/L
Prior to 2012	SW	NA	17SW/SD078	NA	17SW078	NA	NA	2-04	0 U	UG/L
Prior to 2012	SW	NA	17SW/SD091	NA	17SW091	NA	NA	2-04	0 U	UG/L
Prior to 2012	SW	NA	17SW/SD097	NA	17SW097	NA	NA	2-04	0 U	UG/L
Prior to 2012	SW	NA	17SW/SD102	NA	17SW102	NA	NA	2-04	0 U	UG/L
Prior to 2012	SW	NA	17SW/SD105	NA	17SW105	NA	NA	2-04	0 U	UG/L
20/12/0501	SW	NA	17SW/SD124	NA	17SW124050112	NA	NA	2-17	1.22 J	UG/L
20/12/0501	SW	NA	17SW/SD126	NA	17SW126050112	NA	NA	2-06	3.08 J	UG/L
Prior to 2012	GW	NA	17SB046/TW01	TW01	17GWTW01	Overburden	NA	2-03, 2-13, 2-16	0 U	UG/L
Prior to 2012	GW	NA	17SB062/TW02	TW02	17GWTW02	Overburden	NA	2-03, 2-13	0 U	UG/L
Prior to 2012	GW	NA	17SB070/TW04	TW04	17GWTW04	Overburden	NA	2-03, 2-13	0 U	UG/L

NA = not applicable
(1) Excavation areas correspond to areas shown on figures that still require excavation. TolTest excavation areas from previous Interim Measures are not referenced in this column.
(2) Sample locations beginning with "17SB" were adjusted to render the location number a three-digit number by inserting "0" immediately after "17SB" for all location number's from "01" to "99."
(3) The sampling location alias is useful for matching surface and subsurface samples collected from the same location at a different time.
(4) The first two digits represent the top of the depth interval and the second two digits represent the bottom of the depth interval.
(5) Figure numbers refer to the figures in this work plan. This column is provided as an aid to help locate specific sampling locations and does not necessarily list all figures on which a particular location can be found.

Color Coding (soil and sediment results only):

Green	≤1 mg/kg
Orange	>=1 mg/kg but ≤50 mg/kg
Red	>50 mg/kg

PGH:P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU17_TOLTEST IMWP AREA.MXD 6/21/2012 JN

N

Geophysical Survey Area

CAPACITOR BURIAL AREA

3072 Concrete Pad

FORMER TRANSFORMER STORAGE AREA

OPEN STORAGE

POLE YARD AREA

357

356

3161

Newly Constructed Building

NORTHWEST DITCH

DITCH 2

DITCH 1

DITCH 8

TRANSFORMER LINE CORRIDOR

TRANSFORMER LINE CORRIDOR

NSA, CRANE

F271

HWY-470

To HWY-360

R-89

8" Diameter Galvanized Pipe

2' Diameter Galvanized Pipe

1.3' Diameter Galvanized Pipe

1' Diameter Concrete Pipe

17SB01 17SB02 17SB03 17SB04 17SB05 17SB06 17SB07 17SB08 17SB09 17SB10 17SB11 17SB12 17SB13 17SB14 17SB15 17SB16 17SB17 17SB18 17SB19 17SB20 17SB21 17SB22 17SB23 17SB24 17SB25 17SB26 17SB27 17SB28 17SB29 17SB30 17SB31 17SB32 17SB33 17SB34 17SB35 17SB36 17SB37 17SB38 17SB39 17SB40 17SB42 17SB43 17SB44

CSS01 CSS02 CSS03 CSS04 CSS05 CSS06

GSS01 GSS02 GSS03 GSS04 GSS05 GSS06 GSS07 GSS08

Legend

- Existing Grab Sample Location
- Existing Composite Soil Sample Location
- Soil Boring Location
- Toltest IM Excavation (approximate)
- Geophysical Survey Lines
- Stream / Ditch
- Water Flow Direction
- Building
- Pad
- Grass
- Wooded
- Road
- Gravel

60 0 60 Feet

2004 INTERIM MEASURES EXCAVATION AREAS
SWMU17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA, CRANE
CRANE, INDIANA

CONTRACT NUMBER		CTO NUMBER F271	REV 0
APPROVED BY	DATE		
APPROVED BY	DATE		
FIGURE NO.	2-1		

NAVFAC

DRAWN BY	DATE	CHECKED BY	DATE	REVISED BY	DATE
J. NOVAK	06/21/12	T. JOHNSTON	06/21/12		

SCALE AS NOTED

PGH: P:\GIS\Crane_NSWC\MapDocs\MXD\swmu17_so_sd_locs_2.mxd 6/20/2012 JN

Legend

- Soil Sample Location with PCBs < 1 mg/kg
- Soil Sample Location with PCBs ≥ 1 mg/kg
- Sediment Sample Location with PCBs < 1 mg/kg
- Sediment Sample Location with PCBs ≥ 1 mg/kg
- Stream / Ditch
- Vegetation
- Building
- Demolished Building
- Road
- Railroad
- Surface Water - Stream
- Topographic Contour (5-ft interval)

N

17SD066
17SD065
17SD0040006 [0-6 IN] 3.6
17SS820006 [0-0.5 FT] 14
17SD0190006 [0-6 IN] 3.7
17SD0170006 [0-6 IN] 2.2
17SD0140006 [0-6 IN] 1.3
17SD0150006 [0-6 IN] 1
17SD0450006 [0-6 IN] 6
17SD0180006 [0-6 IN] 3.7
17SD0050006 [0-6 IN] 1.7
17SD039
17SD031
17SD020
17SB86
17SD032
17SD030
17SS850001 [0-1 FT] 4.3
17SD0330006 [0-6 IN] 1.3
17SD034
17SD041
17SD023
17SB81
17SD0030006 [0-6 IN] 17
17SD022
17SD006
17SB83
17SB84
17SD021
17SD040
17SD035
17SD036
17SD024
17SD0020006 [0-6 IN] 25
17SD037
17SD038
17SD029
17SD067
17SD0010006 [0-6 IN] 37
17SD0110006 [0-6 IN] 1.8
17SB49
17SB45
17SB47
17SB46
17SB48
17SD0070006 [0-6 IN] 2.2
17SD069
17SD068
17SD028
17SD025
17SD048
17SD049
17SD0260006 [0-6 IN] 5.3
17SD027
17SD047
17SD046
17SD053
17SD051
17SD052
17SD050
17SD055
17SD054
17SB80
17SD010
17SB79
17SD016
17SD013
17SD009
17SD008
17SD12 NO SAMPLE
2' DIAMETER GALVANIZED PIPE
1.3" DIAMETER GALVANIZED PIPE
8" DIAMETER GALVANIZED PIPE
4" DIAMETER CONCRETE PIPE
PUMP
CONCRETE PAD
INTERMEDIATE DRAINAGE AREA
BOGGS CREEK HEADWATERS
BOGGS CREEK POND
BOGGS CREEK
DITCH 1
DITCH 2
DITCH 3
DITCH 4
DITCH 5
DITCH 6
DITCH 7
DITCH 9
DITCH 10
NORTHWEST DITCH
F271
Match Line to Figure 2-3
NSA, CRANE
2
367
459
351
294
437
2219
2220
2221
2222
2223
3072
357
356
3161
301

Notes:
1) Sample results represent total PCBs (summation of Aroclor results). Results reported in mg/kg.
2) Samples without tags were non-detect or 1 mg/kg for PCBs.

200 0 200 Feet

CONTRACT NUMBER CTO F271
APPROVED BY — DATE —
APPROVED BY — DATE —
FIGURE NO. 2-2
REV 0

TETRA TECH 2005 AND 2006 FIELD INVESTIGATIONS
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

NAVFAC

DRAWN BY	DATE
S. STROZ	05/03/11
CHECKED BY	DATE
T. JOHNSTON	06/20/12
REVISED BY	DATE
J. NOVAK	06/20/12

SCALE AS NOTED

PGH: P:\GIS\Crane_NSWC\MapDocs\MXD\swmu17_2005_2006_so_sd_locs_alt.mxd 12/18/2012 JN

N

Match Line
to Figure 2-2

17SD059
17SB54
17SB64
17SB60
17SB61
17SB51
17SD058
17SB65
17SB52
17SB62
17SB50
17SB63
17SB53
17SB56
17SB66
17SS550002
[0-2 FT] 73
17SB57
17SB58
17SB59
17SS750006
[0-0.5 FT] 11
17SD063
17SD0640006
[0-6 IN] 4.1
17SD0610006
[0-6 IN] 70
17SD060
17SS770006
[0-0.5 FT] 2.3
17SD0620006
[0-6 IN] 7.1
17SS760006
[0-0.5 FT] 1.6
17SB79
17SB78
17SD044
17SD042
17SD0430006
[0-6 IN] 3.3
DITCH 3
17SD057
17SB67
17SB68
17SD056
17SB69
17SB71
17SB70
17SB72
2721
2516
353
354
1894
2984
720
715
710
705
700
695
690
685
725
730
735
740
745
750
755
760
765
770
775

Legend

- Soil Sample Location with PCBs < 1 mg/kg
- Soil Sample Location with PCBs ≥ 1 mg/kg
- Sediment Sample Location with PCBs < 1 mg/kg
- Sediment Sample Location with PCBs ≥ 1 mg/kg
- Stream / Ditch
- Building
- Demolished Building
- Road
- Railroad
- Vegetation
- Surface Water - Stream
- Topographic Contour (5-ft interval)

Notes:
1) Sample results represent total PCBs (summation of aroclor results). Results reported in mg/kg.
2) Samples without tags were non-detect or < 1 mg/kg for PCBs.

90 0 90 Feet

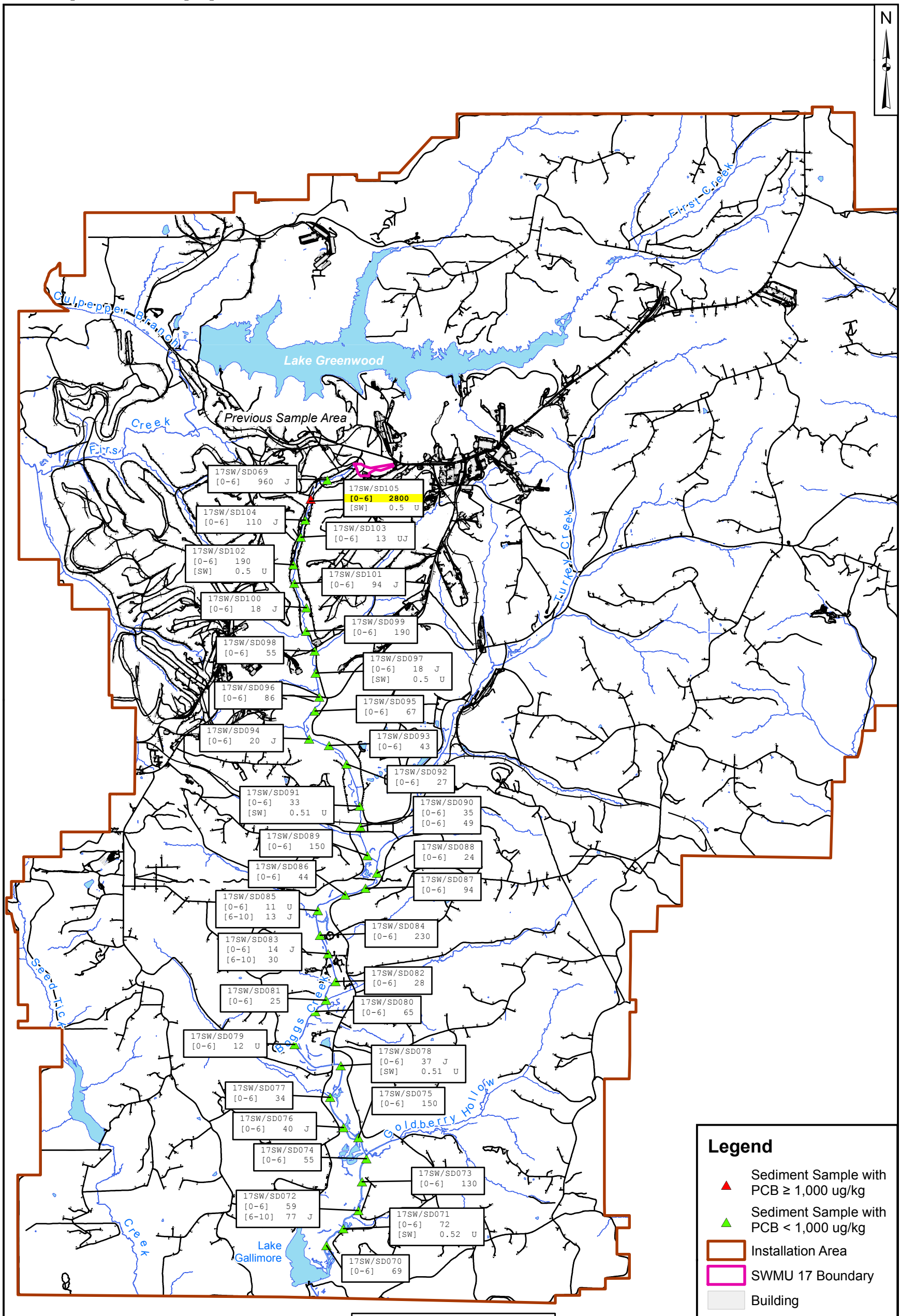
TETRA TECH 2005 AND 2006 FIELD INVESTIGATIONS
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER F271
APPROVED BY — DATE —
APPROVED BY — DATE —
FIGURE NO. 2-3
REV 1

NAVFAC

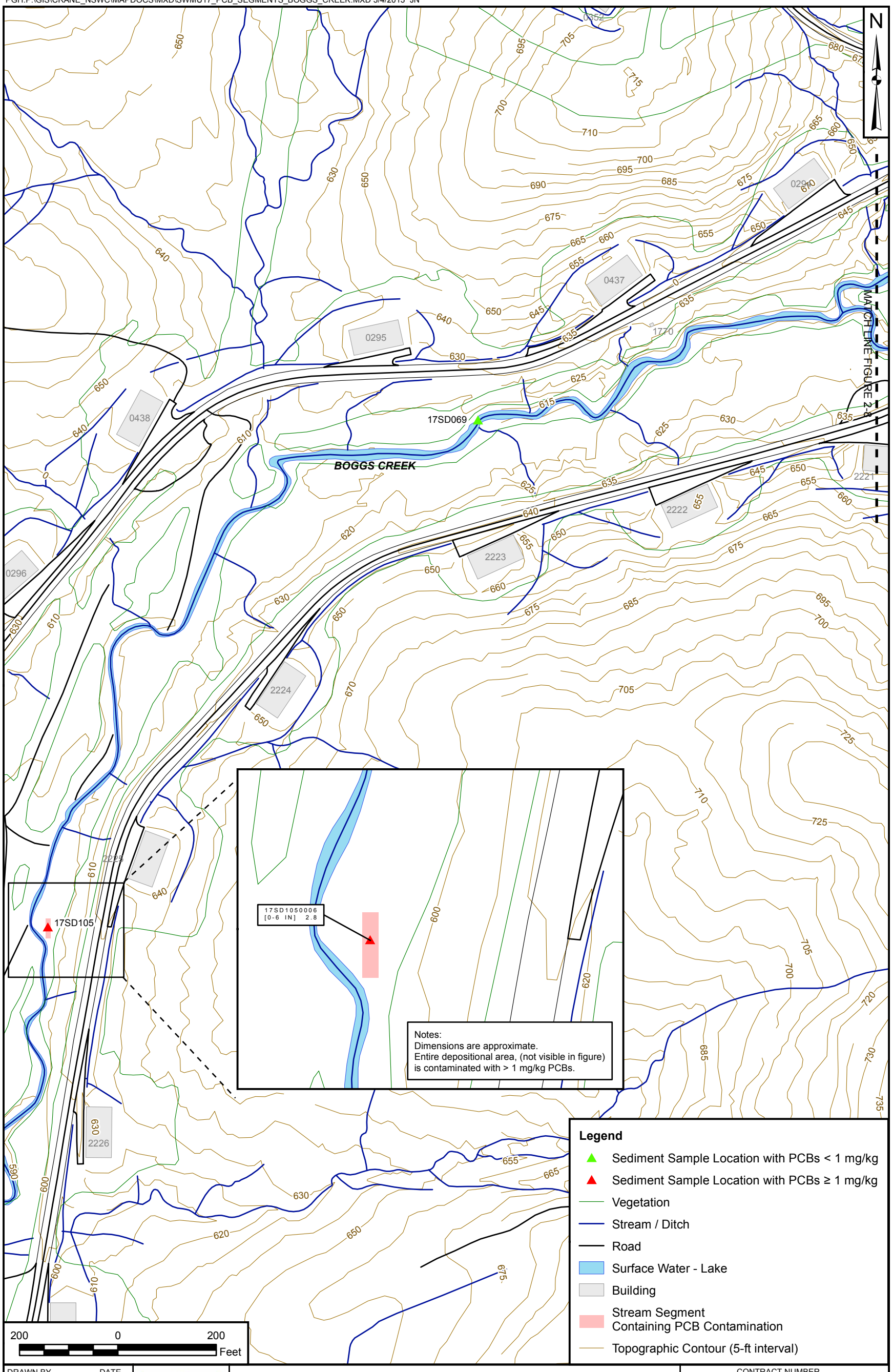
DRAWN BY	DATE	CHECKED BY	DATE	SCALE
S. STROZ	05/02/11	T. JOHNSTON	12/18/12	AS NOTED
REVISED BY	DATE			
J. NOVAK	12/18/12			

PGH:P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU17_SWSD_TAGS.MXD 6/20/2012 JN



DRAWN BY T. WHEATON	DATE 05/21/10	2005/2006FIELD INVESTIGATION SAMPLE RESULTS - BOGGS CREEK DETAIL SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD INTERIM MEASURES WORK PLAN NSA CRANE CRANE, INDIANA	CONTRACT NUMBER F271
CHECKED BY T. JOHNSTON	DATE 06/20/12		APPROVED BY ___ DATE ___
REVISED BY J. NOVAK	DATE 06/20/12		APPROVED BY ___ DATE ___
SCALE AS NOTED			FIGURE NO. 2-4 REV 0

PGH:P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU17_PCB_SEGMENTS_BOGGS_CREEK.MXD 3/4/2013 JN



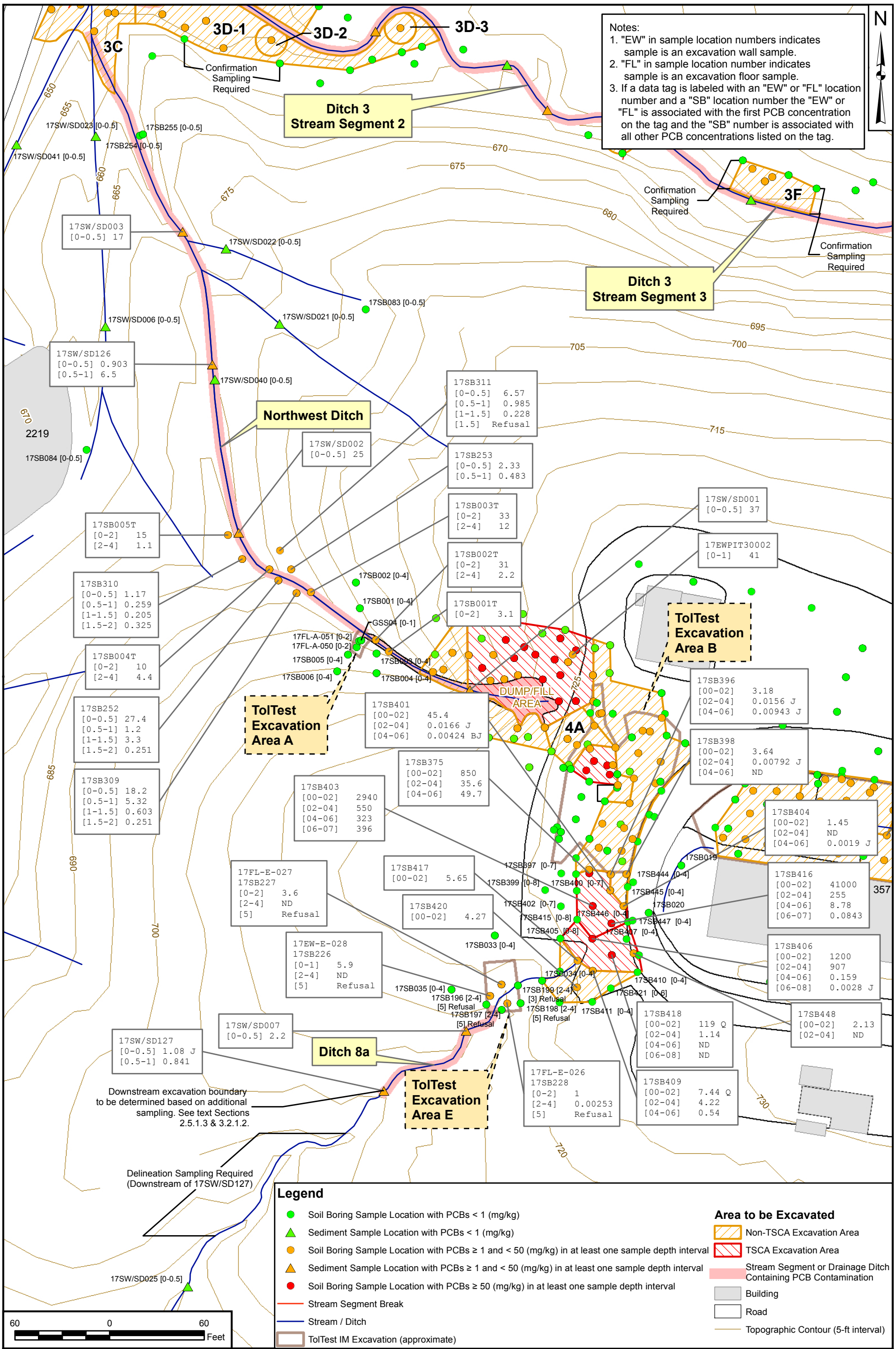
DRAWN BY / DATE	J. ENGLISH 06/18/10
CHECKED BY / DATE	T. JOHNSTON 06/20/12
REVISED BY / DATE	J. NOVAK 06/20/12
SCALE	AS NOTED

NAVFAC

EXTENT OF CONTAMINATION NEAR SEDIMENT SAMPLING LOCATION 17SD105
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO F271
APPROVED BY / DATE	— —
APPROVED BY / DATE	— —
FIGURE NO.	2-5
REV	0

PGH:P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU17_PCB_10-A_FINAL.MXD 3/4/2013 JN



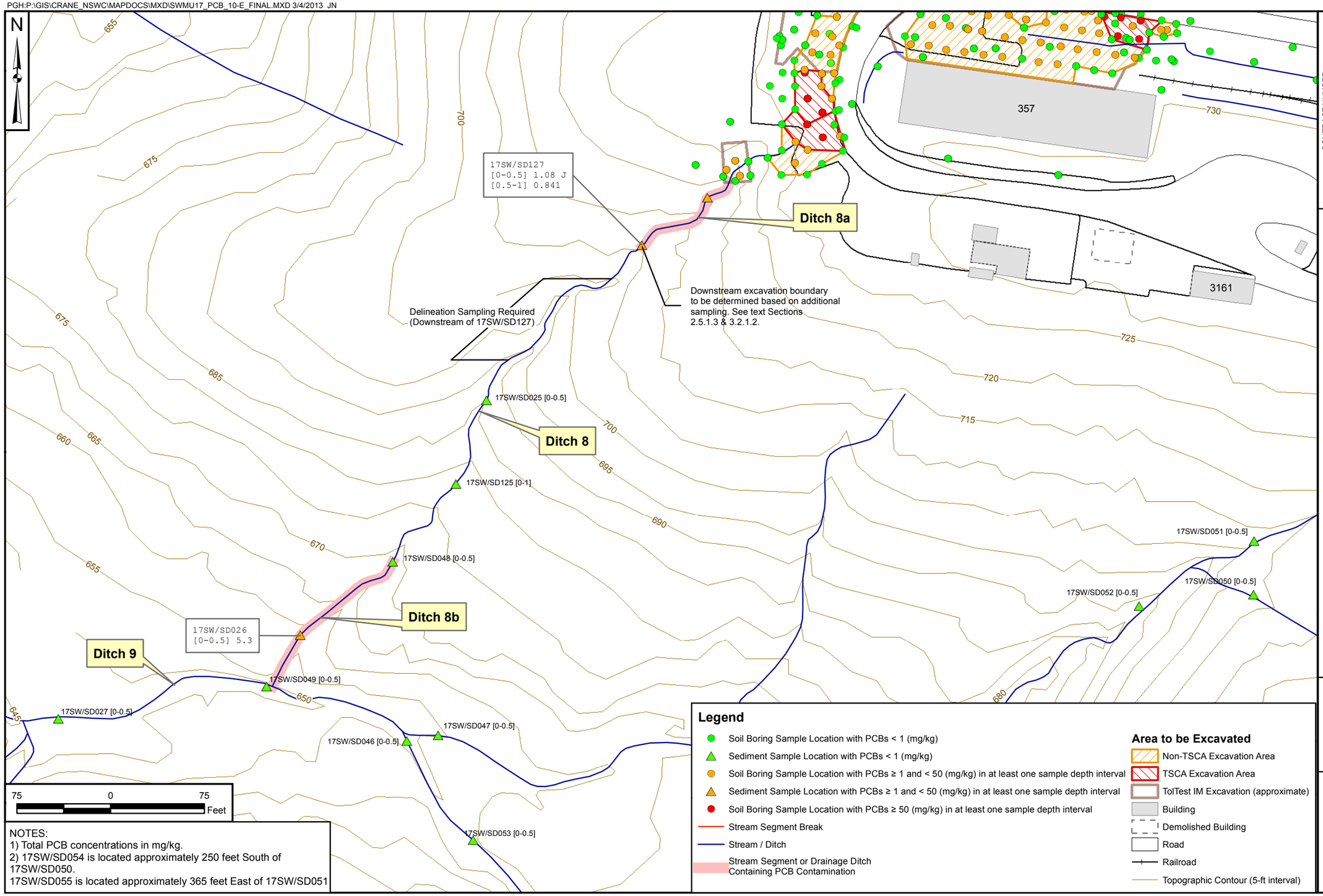
DRAWN BY: J. NOVAK	DATE: 5/24/2012
CHECKED BY: T. JOHNSTON	DATE: 3/4/2013
REVISED BY: J. NOVAK	DATE: 3/4/2013
SCALE: AS NOTED	

NAVFAC

2005-06-11-12 TOTAL PCB CONCENTRATIONS GREATER THAN 1 mg/kg
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER: ___	CTO NUMBER: F271
APPROVED BY: __	DATE: __
APPROVED BY: __	DATE: __
FIGURE NO.: 2-6	REV: 0

PGH:P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU17_PCB_10-E_FINAL.MXD 3/4/2013 JN



NOTES:
1) Total PCB concentrations in mg/kg.
2) 17SW/SD054 is located approximately 250 feet South of 17SW/SD050.
17SW/SD055 is located approximately 365 feet East of 17SW/SD051

Legend

- Soil Boring Sample Location with PCBs < 1 (mg/kg)
- Sediment Sample Location with PCBs < 1 (mg/kg)
- Soil Boring Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Sediment Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Soil Boring Sample Location with PCBs ≥ 50 (mg/kg) in at least one sample depth interval
- Stream Segment Break
- Stream / Ditch
- Stream Segment or Drainage Ditch Containing PCB Contamination

Area to be Excavated

- Non-TSCA Excavation Area
- TSCA Excavation Area
- TolTest IM Excavation (approximate)
- Building
- Demolished Building
- Road
- Railroad
- Topographic Contour (5-ft interval)

CONTRACT NUMBER CTO F271 | APPROVED BY — DATE — | APPROVED BY — DATE — | FIGURE NO. 2-7 | REV 0

2005-06-11-12 PCB CONCENTRATIONS IN DITCH 8
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

NAVFAC

	DATE
DRAWN BY J. NOVAK	5/31/2012
CHECKED BY T. JOHNSTON	3/4/2013
REVISED BY J. NOVAK	3/4/2013

SCALE AS NOTED

PGH:P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU17_PCB_4_FINAL.MXD 3/4/2013 JN

N

Boggs Creek Stream Segment 1

Ditch 3 Stream Segment 2

Northwest Ditch

Downstream excavation boundary to be determined based on additional sampling.

Delineation Sampling Required (0-1.5 ft)

Delineation Sampling Required

Stream Flow Direction

Matchline Figure 2-9

3A-1 Bedrock (~2 ft)

3A-2 0-1.5 ft

3B 0-1.5 ft

3C 0-0.5 ft

3E-1 0-1 ft

3E-2 Bedrock (0-2 ft)

17SB115
[0-0.5] 1.75
[0.5-1] 1.19
[1-1.5] 0.00263 J

17SB118
[0-0.5] 1.85
[0.5-1] 3.73
[1-1.5] 4.01
[1.5-2] 0.0372

17SB085
[0-1] 4.3
[1-1.5] 2.13
[1.5-2] 0.119 J
[1.8] Refusal

17SB116
[0-0.5] 5.27
[0.5-1] 3.65
[1-1.5] 0.0176 J
[1.5] Refusal

17SB134
[0-0.5] 0.173
[0.5-1] 4.92
[1-1.5] 0.314
[1.5-2] 0.00357 J

17SB276
[0-0.5] 2.59
[0.5-1] 7.67
[1-1.5] 4.28
[1.5-2] 0.0511

17SB277
[0-0.5] 2.67
[0.5-1] 4.31
[1-1.5] 4.42
[1.5-2] 1.45
[2] Refusal

17SB278
[0-0.5] 1.48
[0.5-1] 0.225

17SB279
[0-0.5] 1.9
[0.5-1] 1.4
[1.5] Refusal

17SB122
[0-0.5] 2.48
[0.5-1] 3.62
[1-1.5] 5.62
[1.5-2] 0.0653

17SB117
[0-0.5] 1.82
[0.5-1] 2.38
[1-1.5] 3.28
[1.5-2] 0.583
[5] Refusal

17SW/SD033
[0-0.5] 1.3

17SB119
[0-0.5] 4.83
[0.5-1] 4.37
[1-1.5] 0.147

17SB120
[0-0.5] 8.19
[0.5-1] 5.51
[1-1.5] 0.119
[2] Refusal

17SW/SD005
[0-0.5] 1.7

17SB150
[0-0.5] 1.18
[0.5-1] 0.771
[1-1.5] 0.0538
[1.5-2] 0.0105 JQ

17SB151
[0-0.5] 0.473
[0.5-1] 2.39
[1-1.5] 0.681
[1.5-2] 0.445

17SB090
[0-0.5] 4.19
[0.5-1] 11.7
[1-1.5] 15.2
[1.5-2] 2.51
[2-2.5] 0.484 J
[5] Refusal

17SB281
[0-0.5] 2.06
[0.5-1] 0.0933

17SB136
[0-0.5] 1.49
[0.5-1] 0.184

17SB135
[0-0.5] 1.26
[0.5-1] 0.577
[1.2] Refusal

17SB137
[0-0.5] 6.62 J
[0.5-1] 0.864
[1] Refusal

17SB107
[0-0.5] 1.63
[0.5-1] 0.375

17SB112 [0-0.5]
17SB086 [0-2]
17SB113 [0-0.5]
17SB114 [0-0.5]
17SB131 [0-1]
17SB132 [0-1]
17SB133 [0-1] [1.5] Refusal
17SB126 [0-1]
17SB128 [0-1]
17SB130 [0-1]
17SB121 [0-0.5]
17SB307 [0-1]
17SB125 [0-1]
17SB123 [0-1]
17SB257 [0-1]
17SB256 [0-1]
17SB275 [0-1] [0.8] Refusal
17SB274 [0-1]
17SB280 [0-2]
17SW/SD123 [0-1]
17SW/SD034 [0-0.5]
17SW/SD032 [0-0.5]
17SW/SD031 [0-0.5]
17SW/SD039 [0-0.5]
17SB111 [0-0.5]
17SB283 [0-1]
17SB282 [0-1]
17SW/SD030 [0-0.5]
17SB258 [0-1]
17SB106
17SW/SD020 [0-0.5]
17SB091 [0-0.5]
17SW/SD041 [0-0.5]
17SW/SD023 [0-0.5]
17SB255 [0-0.5]
17SB254 [0-0.5]

640 645 650 655 660 665 670 675

30 0 30 Feet

Notes:
1) Sample results represent total PCBs (summation of aroclor results). Results reported in mg/kg.

Legend

- Soil Boring Sample Location with PCBs < 1 (mg/kg)
- Sediment Sample Location with PCBs < 1 (mg/kg)
- Soil Boring Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Sediment Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Stream Segment Break
- Stream / Ditch
- Stream Segment or Drainage Ditch Containing PCB Contamination
- Floodplain Area to be Excavated
- Road
- Surface Water - Stream
- Topographic Contour (5-ft interval)

CONTRACT NUMBER CTO F271

APPROVED BY — DATE —

APPROVED BY — DATE —

FIGURE NO. 2-8

REV 0

2005-06-11-12 SAMPLE RESULTS-STREAM SEGMENT 1
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

NAVFAC

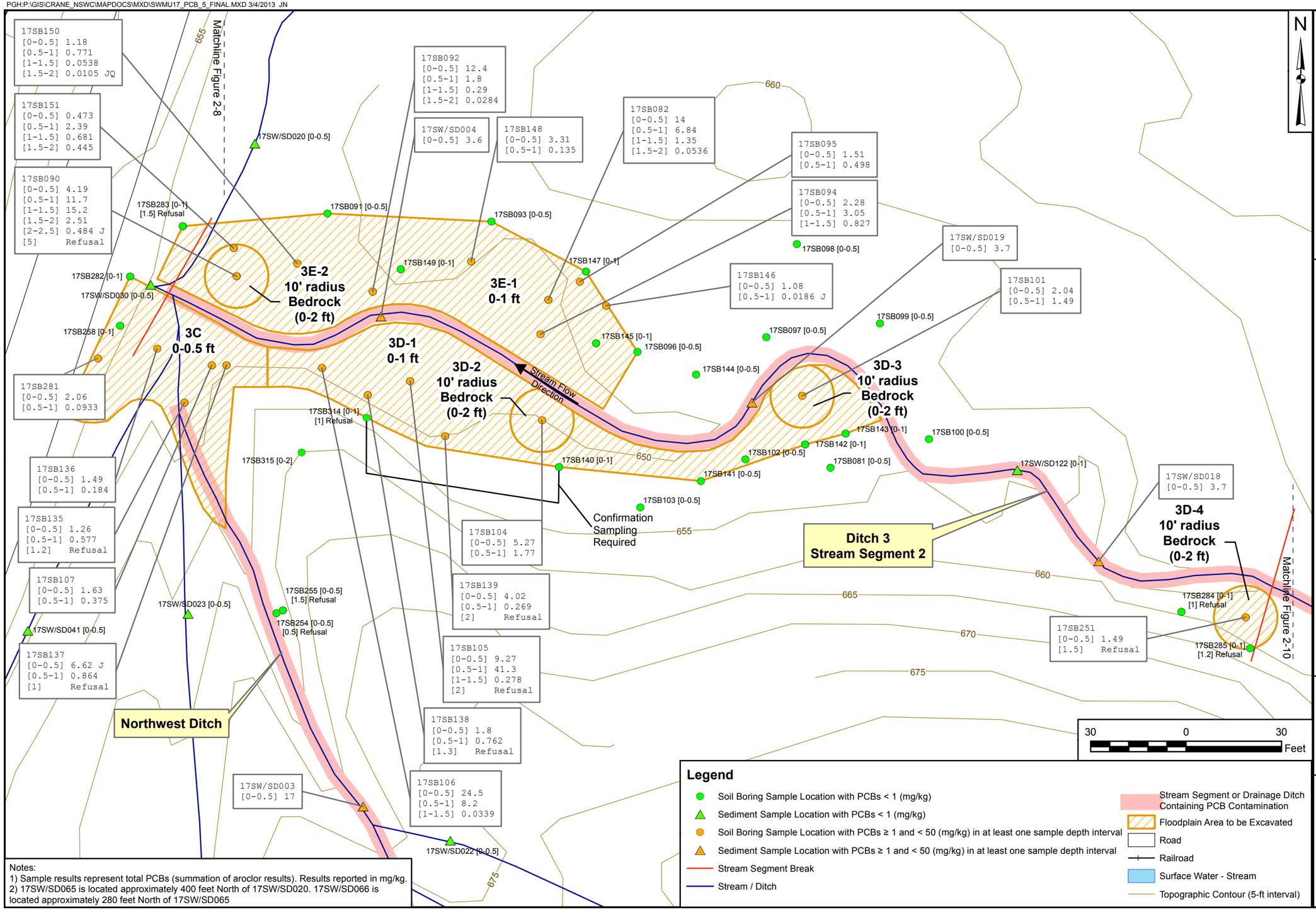
DRAWN BY J. NOVAK DATE 5/15/2012

CHECKED BY T. JOHNSTON DATE 3/4/2013

REVISED BY J. NOVAK DATE 3/4/2013

SCALE AS NOTED

PGH:P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU17_PCB_5_FINAL.MXD 3/4/2013 JN



Notes:
1) Sample results represent total PCBs (summation of aroclor results). Results reported in mg/kg.
2) 17SW/SD065 is located approximately 400 feet North of 17SW/SD020. 17SW/SD066 is located approximately 280 feet North of 17SW/SD065

CONTRACT NUMBER
CTO F271

APPROVED BY — DATE —

APPROVED BY — DATE —

FIGURE NO. 2-9

REV 0

2005-06-11-12 SAMPLE RESULTS - STREAM SEGMENT 2
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

NAVFAC

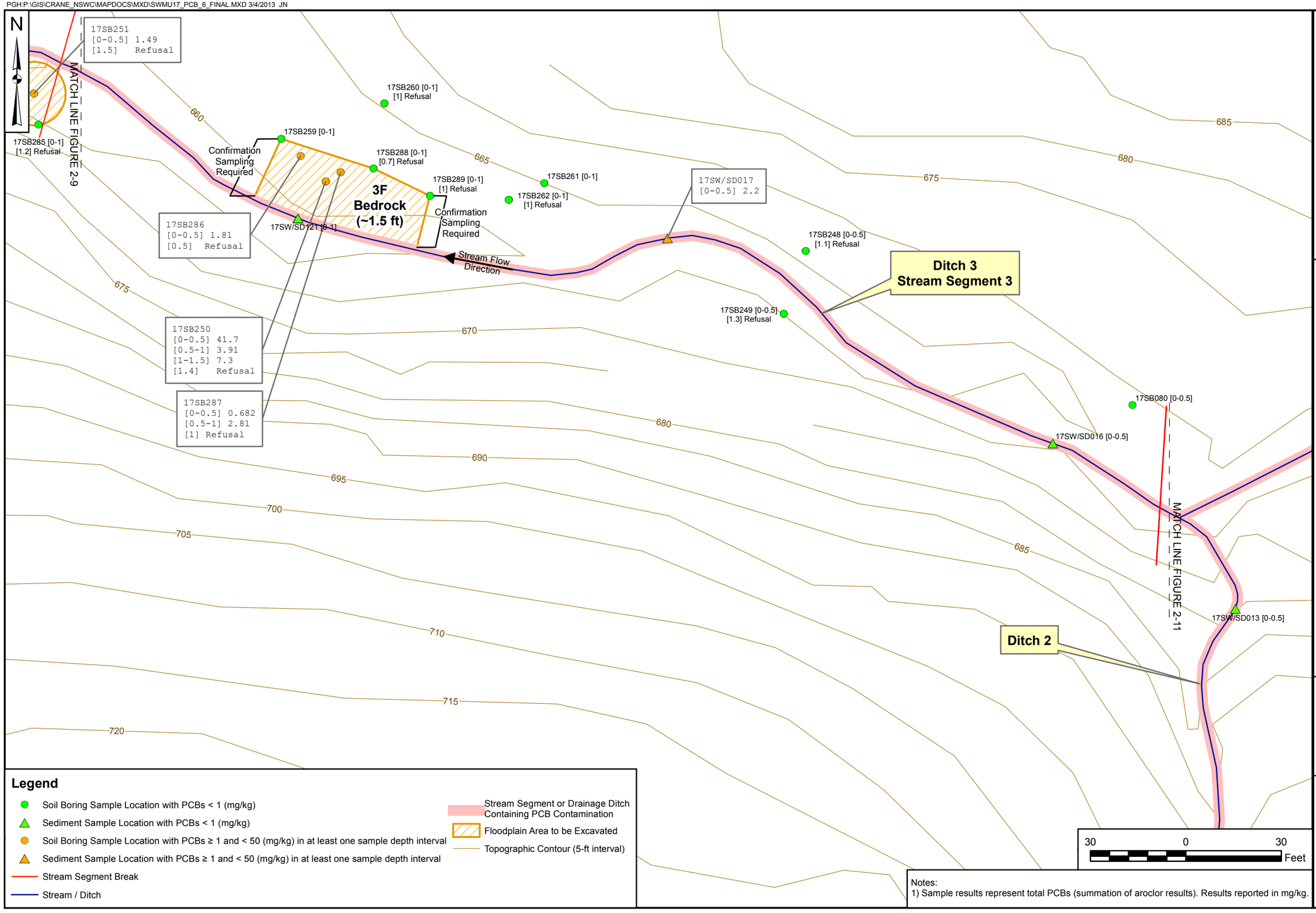
DRAWN BY J. NOVAK — DATE 5/24/2012

CHECKED BY T. JOHNSTON — DATE 3/4/2013

REVISED BY J. NOVAK — DATE 3/4/2013

SCALE AS NOTED

PGH:P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU17_PCB_6_FINAL.MXD 3/4/2013 JN



Legend

- Soil Boring Sample Location with PCBs < 1 (mg/kg)
- Sediment Sample Location with PCBs < 1 (mg/kg)
- Soil Boring Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Sediment Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Stream Segment Break
- Stream / Ditch
- Stream Segment or Drainage Ditch Containing PCB Contamination
- Floodplain Area to be Excavated
- Topographic Contour (5-ft interval)

Notes:
1) Sample results represent total PCBs (summation of aroclor results). Results reported in mg/kg.

CONTRACT NUMBER
CTO F271

APPROVED BY ___ DATE ___

APPROVED BY ___ DATE ___

FIGURE NO. 2-10

REV 0

2005-06-11-12 SAMPLE RESULTS - STREAM SEGMENT 3
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

NAVFAC

DRAWN BY	DATE	CHECKED BY	DATE	REVISED BY	DATE	SCALE
J. NOVAK	5/24/2012	T. JOHNSTON	3/4/2013	J. NOVAK	3/4/2013	AS NOTED

PGH:P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU17_PCB_7_FINAL.MXD 3/4/2013 JN

N

Ditch 3
Stream Segment 4

Ditch 1

Ditch 2

17SW/SD014 [0-0.5] 1.3

17SW/SD015 [0-0.5] 1

17SW/SD045 [0-0.5] 6

17SW/SD043 [0-0.5] 3.3

17SB245
[0-0.5] 70.3
[0.5-1] 11.3
[1-1.5] 0.821
[1.5-2] 0.0619

17SB265
[0-0.5] 0.0923
[0.5-1] 1.34
[1-1.5] 0.0265
[1.5] Refusal

17SB244
[0-0.5] 1.46
[0.5-1] 3.32
[1-1.5] 2.12
[1.5-2] 0.287

17SB264
[0-0.5] 7.74
[0.5-1] 12.8
[1] Refusal

17SB269
[0-0.05]7.12
[0.5-1] 1.09
[1] Refusal

17SB246 [0-0.5]

17SB247 [0-0.5]
[0.7] Refusal

17SB263 [0-1]
[1.3] Refusal

17SB291 [0-1]
[1.1] Refusal

17SB268 [0-1]
[1.2] Refusal

17SB270 [0-1]
[1.9] Refusal

17SB290 [0-1]

17SB292 [0-1]

17SB293 [0-1.5]
[1.5] Refusal

17SB294 [0-2]

17SB078 [0-0.5]

17SB079 [0-0.5]

17SB080 [0-0.5]

17SW/SD016 [0-0.5]

17SW/SD010 [0-0.5]

17SW/SD013 [0-0.5]

17SW/SD009 [0-0.5]

17SW/SD044 [0-0.5]

17SW/SD042 [0-0.5]

3G Bedrock (0-1 ft)

3H Bedrock (0-1 ft)

3I Bedrock (0-1.5 ft)

Stream Flow Direction

MATCH LINE FIGURE 2-10

MATCH LINE FIGURE 2-12

665 670 675 680 685 690 695 700

40 0 40 Feet

Notes:
1) Sample results represent total PCBs (summation of aroclor results). Results reported in mg/kg.
2) 17SW/SD008 is located approximately 238 feet South of 17SW/SD009

Legend

- Soil Boring Sample Location with PCBs < 1 (mg/kg)
- Sediment Sample Location with PCBs < 1 (mg/kg)
- Soil Boring Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Sediment Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Soil Boring Sample Location with PCBs ≥ 50 (mg/kg) in at least one sample depth interval
- Stream Segment Break
- Stream / Ditch
- Stream Segment or Drainage Ditch Containing PCB Contamination

Area to be Excavated

- Non-TSCA Floodplain Excavation Area
- TSCA Floodplain Excavation Area
- Vegetation
- Topographic Contour (5-ft interval)

CONTRACT NUMBER
CTO F271

APPROVED BY — DATE —

APPROVED BY — DATE —

FIGURE NO. 2-11

REV 0

2005-06-11-12 SAMPLE RESULTS - STREAM SEGMENT 4
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

NAVFAC

	DATE
DRAWN BY J. NOVAK	5/24/2012
CHECKED BY T. JOHNSTON	3/4/2013
REVISED BY J. NOVAK	3/4/2013

SCALE AS NOTED

PGH:P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU17_PCB_8_FINAL.MXD 3/4/2013 JN

N

17SB266
[0-0.5] 1.5
[0.5-1] 0.312

17SB238
[0-0.5] 11.4
[0.5-1] 25
[1-1.5] 0.46
[1.5-2] 0.352

17SW/SD064
[0-0.5] 4.1

17SB075
[0-0.5] 11
[0.5-1] 2.57
[1-1.5] 9.08
[1.5] Refusal

17SW/SD110
[0-0.5] 26.5

17SW/SD109
[0-0.5] 175

17SW/SD108
[0-0.5] 4.99

17SW/SD113
[0-0.5] 41.7

17SW/SD112
[0-0.5] 14.48

17SW/SD111
[0-0.5] 20.41

17SB164
[0-0.5] 15.9
[0.5-1] 0.461
[1-1.5] 0.0389

17SB303
[0-0.5] 6.32
[0.5-1] 39.4
[1.5] Refusal

17SB302
[0-0.5] 2.74
[0.5-1] 0.473

17SB241
[0-0.5] 1.6
[0.5-1] 2
[1-1.5] 1.5
[2] Refusal

17SB305 [0-1]

17SB304 [0-1]

17SB306 [0-1]
[1.5] Refusal

17SB301 [0-1]
[1.5] Refusal

17SB243 [0-0.5]
[2.3] Refusal

17SB077
[0-0.5] 2.3

17SB242 [0-0.5]
[1] Refusal

17SB296 [0-1]

17SB295 [0-1]

17SB297
[0-0.5] 4.09
[0.5-1] 0.537
[1.8] Refusal

17SW/SD043
[0-0.5] 3.3

17SB298
[0-0.5] 6.58
[0.5-1] 4.59
[1] Refusal

17SB240
[0-0.5] 1.39
[0.5-1] 20.5
[1] Refusal

17SB299
[0-0.5] 7.18
[0.5-1] 160
[1.5] Refusal

17SB239
[0-0.5] 4.4
[0.5-1] 11.2
[1-1.5] 2.51
[1.5] Refusal

17SB078 [0-0.5]

17SW/SD044 [0-0.5]

17SW/SD042 [0-0.5]

17SB087 [0-0.5]

17SB089 [0-0.5]

17SB088 [0-0.5]

17SB158 [0-1]
[1.8] Refusal

17SB161 [0-0.5]

17SB157 [0-0.5]

17SB156 [0-0.5]

17SB163 [0-1]

17SB154 [0-0.5]

17SB155 [0-0.5]

17SB152 [0-1.5]

17SB153 [0-1.5]

17SB300 [0-1]
[0.7] Refusal

17SW/SD063 [0-0.5]

17SB159 [0-1.5]

17SW/SD060 [0-0.5]

17SW/SD062
[0-0.5] 7.1

17SB076
[0-0.5] 1.6
[0.5-1] 0.0208

17SB308
[0-0.5] 56.9
[0.5-1] 1380
[1] Refusal

17SW/SD107
[0-0.5] 101

17SW/SD061
[0-0.5] 70

17SW/SD106
[0-0.5] 34.74

17SB068 [0-2]

695
685
690
700
725
730
735
715
720
710

MATCH LINE FIGURE 2-11

MATCH LINE FIGURE 2-13

Ditch 3
Stream Segment 5

3J
0-0.5 ft
in Floodplain

Stream Flow
Direction

Oxbow
0-1.5 ft

3K
Bedrock
(0-1 ft)

3L
Bedrock
(~1.5 ft)

3M
0.5 ft

3N
0-1 ft

Confirmation
Sampling
Required

Downstream
TSCA Sediment

Upstream
Non-TSCA Sediment

Downstream
Non-TSCA Sediment

Ditch 3
Stream Segment 6

Legend

- Soil Boring Sample Location with PCBs < 1 (mg/kg)
- Sediment Sample Location with PCBs < 1 (mg/kg)
- Soil Boring Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Sediment Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Soil Boring Sample Location with PCBs ≥ 50 (mg/kg) in at least one sample depth interval
- Sediment Sample Location with PCBs ≥ 50 (mg/kg) in at least one sample depth interval
- Stream Segment Break
- Stream / Ditch
- Stream Segment or Drainage Ditch Containing PCB Contamination

Area to be Excavated

- Non-TSCA Floodpplain Excavation Area
- TSCA Excavation Area
- Building
- Demolished Building
- Road
- Topographic Contour (5-ft interval)

45 0 45 Feet

Notes:
1) Sample results represent total PCBs (summation of aroclor results). Results reported in mg/kg.

CONTRACT NUMBER
CTO F271

APPROVED BY — DATE —

APPROVED BY — DATE —

FIGURE NO. 2-12

REV 0

2005-06-11-12 SAMPLE RESULTS - STREAM SEGMENTS 5 AND 6
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURE WORK PLAN
NSA CRANE
CRANE, INDIANA

NAVFAC

DRAWN BY J. NOVAK — DATE 5/24/2012
CHECKED BY T. JOHNSTON — DATE 3/4/2013
REVISED BY J. NOVAK — DATE 3/4/2013
SCALE AS NOTED

PGH:P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU17_PCB_9_FINAL.MXD 3/5/2013 JN

N

17SW/SD059 [0-0.5]

17SW/SD110
[0-0.5] 26.5

17SW/SD111
[0-0.5] 20.41

17SB235
[0-1] 2.17
[1] Refusal

17SW/SD117
[0-0.5] 29.98
[0.5-1] 9.3
[1-2] 46.82

17SB237
[0-1] 8.71
[1-2] 4.85
[1.5] Refusal

17SW/SD118
[0-0.5] 4.73
[0.5-1] 100

17SW/SD119
[0-0.5] 2.256
[0.5-1] 3.55

17SB054 [0-2]

Confirmation Sampling Required

3O Bedrock (~2 ft)

3P Bedrock (~2 ft)

Upstream TSCA Sediment

Confirmation Sampling Required

Ditch3 Stream Segment 6

17SB272 [0-2]

17SB271 [0-2]
[2] Refusal

17SB234 [0-1]
[1] Refusal

17SB273 [0-1]
[1] Refusal

17SB062/TW02 [0-13]

17SB063 [0-2]

17SB064/TW03 [0-15]

17SW/SD120 [0-1]

17SW/SD058 [0-0.5]

17SB065 [0-16]

17SB060 [0-19]

17SB061 [0-18]

17SB051 [0-19]

17SB052 [0-4]

17SB050 [0-18]

17SB053 [0-20]

2721

740

725

730

735

710

715

720

Upstream Non-TSCA Sediment

Matchline Figure 2-12

17SW/SD115
[0-0.5] 28.62

17SW/SD116
[0-0.5] 22.95
[0.5-1] 24.9
[1-2] 8.86

17SB236
[0-1] 16.8
[1-2] 1.41
[2-3] 0.312
[3] Refusal

17SW/SD112
[0-0.5] 14.48

17SW/SD113
[0-0.5] 41.7

17SW/SD114
[0-0.5] 14.87

17SW/SD057 [0-0.5]

17SB066 [0-16]

17SB165 [0-2]

17SB168 [0-2]

17SB055
[0-2] 73
[2-4] 0.352

17SB056 [0-2]

17SB166 [0-2]

17SB170 [0-2]

17SB167 [0-2]

4D 0-2 ft

17SB057 [0-2]

17SB058 [0-2]

17SB059 [0-1]

17SB067 [0-2]

17SB068 [0-2]

353

40 0 40 Feet

Legend

- Soil Boring Sample Location with PCBs < 1 (mg/kg)
- Sediment Sample Location with PCBs < 1 (mg/kg)
- Soil Boring Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Sediment Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Soil Boring Sample Location with PCBs ≥ 50 (mg/kg) in at least one sample depth interval
- Sediment Sample Location with PCBs ≥ 50 (mg/kg) in at least one sample depth interval
- Stream Segment Break
- Stream / Ditch
- Stream Segment or Drainage Ditch Containing PCB Contamination

Area to be Excavated

- Non-TSCA Floodplain Excavation Area
- TSCA Excavation Area
- Building
- Demolished Building
- Road
- Railroad
- Topographic Contour (5-ft interval)

Notes:
1) Sample results represent total PCBs (summation of aroclor results). Results reported in mg/kg

DRAWN BY / DATE	J. NOVAK 5/24/2012
CHECKED BY / DATE	T. JOHNSTON 3/5/2013
REVISED BY / DATE	J. NOVAK 3/5/2013
SCALE	AS NOTED

NAVFAC

2005-06-11-12 SAMPLE RESULTS - STREAM SEGMENT 6
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER F271
APPROVED BY / DATE	
APPROVED BY / DATE	
FIGURE NO.	2-13
REV	0

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU17_PCB_10-B_FINAL_1_CSIZE.MXD 03/04/13 JN

N

17TPA3
[0-1] 128
[1-2] 2.71
[2-3] 86.5
[3-4] 1880
[4-5] 48.9
[5-6] 545
[6-7] 10.8
[7-8] 159
[8-9] Refusal

17TPB5
[0-1] 0.789
[1-2] 0.156
[2-3] 3.62
[3-4] 77.6
[4-5] Refusal

17TPB4
[0-1] 18.3
[1-2] 15.6
[2-3] 12.3
[3-4] Refusal

17EWPIT30002
[0-1] 41

17TPC3
[0-1] Gravel
[1-2] 28.1
[2-3] 1.62
[3-4] 34.1
[4-5] 0.119
[5-6] 0.00193
[6-7] ND
[7-8] 0.0102
[8-9] Refusal

17TPD2
[0-1] Gravel
[1-2] 4.34
[2-3] 1.12
[3-4] 1.23
[4-5] 0.719
[5-6] 0.00663
[6-7] ND
[7-8] ND
[8-9] ND
[9-10] NC
[10-11] 0.834
[11-12] Refusal

CSS03A [0-0.5]

17SB038
[0-2] ND
[2-4] 1.6

CSS03 [0-0.5]

17SB171
[2-4] 1.28
[4-6] 0.00635 J

17FL-B-012
[2] 6

CSS03B [0-0.5]

17FL-B-011
[2] 8.8

17FL-B-007
[2] 5.3

17FL-B-006
[2] 2.7

A1 - 8ft

A2 - 8ft

A4 - 6ft

DUMP/FILL AREA

B5

B4

A3

C3

4A-6
TSCA
Bedrock
(Depth varies with location)

4A-1
0-4 ft

C2 - 11ft

17SW/SD001
[0-0.5] 37

17TPF1
[0-1] 26.2
[1-2] 1.13
[2-3] 0.293
[3-4] 0.114
[4-5] 0.0101
[5-6] 0.0444
[6-7] 0.00687
[7-8] 0.00175
[8-9] ND
[9-10] ND
[10-11] Refusal

17SB452 [0-4]

17SB007 [0-10]

17EW-B-008
[1] 2.6

17SB359
[1-3] 11.6
[10.25] Refusal

17SB025 [0-4]

17SB023 [0-4]

17FL-B-005
17SB457
[2] 8.4
[2-4] ND
[4-6] ND
[6-8] ND
[8-9] ND

17FL-B-013 [2]

D2

CSS01B

17SB369 [0-4]

17SB172 [2-6]

F1

4A-3
0-8 ft

17EW-B-025
[0-1] 13

4A-2
0-4 ft

F4 - 9ft

17SB358 [0-4]
[9.4] Refusal

17SB041 [0-4]

17FL-B-001 [2]

17FL-B-002
17SB394
[2] 1.4
[3-4] ND

17SB024 [0-4]

17SB008 [0-9]

17SB009 [0-4]

17FL-B-004
[2] 1.7

17SB176
[4-6] 0.421
[6-8] 37.9

4A-4
TSCA
0-6 ft

4A-5
0-4 ft

17SB360 [0-10]
[10] Refusal

E2

17SB362 [0-8]
[8] Refusal

CSS01 [0-1]

17SB037 [0-4]

G1 - 8ft

17SB049 [0-8]

17TPE2
[0-1] Gravel
[1-2] 0.128
[2-3] 0.0635
[3-4] 8.35
[4-5] 19.2
[5-6] Metal Pipe

17SB173
[2-4] 56.4
[4-6] 104
[6-8] 0.303

F3 - 9ft

17FL-B-010
[2] 55

17SB175 [2-8]

17SB022 [0-4]

17FL-B-003
[2] 1.8

17SB440 [0-4]

17FL-B-014
17SB393
[2] 7
[3-4] ND
[4-6] 0.0131
[6-7] ND
[7] Refusal

17SB040 [0-4]

Confirmation Sampling Required

4A-10
Bedrock
(~9 ft)

17SB361
[2-4] 111
[4-6] 0.159
[6-8] 0.00288
[8-9] ND
[9] Refusal

17FL-B-021 [2]

G2 - 5ft

G4 - 8ft

G3 - 7ft

17FL-B-020 [2]

17FL-B-019
[2] 1.2

17FL-B-015
[2] 3.3

17FL-B-009
[2] 81

17FL-B-022 [2]

17SB441 [0-4]

17SB442 [0-4]

17SB174
[2-4] 6.24
[4-6] 0.00576 J
[6-8] ND

17FL-B-018
17SB391
[2] 15
[3-4] 0.00651

17EW-B-024 [2]

CSS01A

17SB036 [0-4]

17FL-B-023 [2]

TolTest Excavation Area B

17SB039 [0-6]
[6] Refusal

17SB363 [0-7]
[6.6] Refusal

17EW-B-017
17SB392
[2] 3.5
[3-4] 0.00441

17SB443 [0-4]

17SB371 [1-3]

4B-1
1.5 ft to 3 ft

17SB178

17SB365
[2-4] 1.1
[5] Refusal

17SB021 [0-4]

17FL-B-016
[2] 3

17SB364 [0-3]
[5.5] Refusal

17SB375
[0-2] 850
[2-4] 35.6
[4-6] 49.7

17SB397 [0-7]

17SB395 [0-6]

17SB444 [0-4]

17SB398
[0-2] 3.64
[2-4] 0.00792 J
[4-6] ND
[6] Refusal

TolTest Excavation Area C

17SB406
[0-2] 1200
[2-4] 907
[4-6] 0.159
[6-8] 0.0028 J
[7.3] Refusal

17SB403
[0-2] 2940
[2-4] 550
[4-6] 323
[6-7] 396
[6.3] Refusal

17SB399 [0-8]

17SB400 [0-7]

17SB445 [0-4]

17SB396
[0-2] 3.18
[2-4] 0.0156 J
[4-6] 0.00943 J
[6] Refusal

17SB402 [0-7]

17SB020 [0-4]

17SB415 [0-8]

4A-7
TSCA
0-7 ft

17SB447 [0-4]

17SB446 [0-4]

17SB401
[0-2] 45.4
[2-4] 0.0166 J
[4-6] 0.00424 BJ
[6] Refusal

17SB033 [0-4]

17SB405 [0-8]

17SB407 [0-4]

17FL-E-027
17SB227
[0-2] 3.6
[2-4] ND
[5] Refusal

TolTest Excavation Area E

17SB417
[0-2] 5.65
[1.2] Refusal

17SB449 [0-3]

4A-9
TSCA
0-4 ft

17SB404
[0-2] 1.45
[2-4] ND
[4-6] 0.0019 J
[6] Refusal

17EW-E-028
17SB226
[0-1] 5.9
[2-4] ND
[5] Refusal

17SB408 [0-3]
[3] Refusal

4A-8
0-6 ft

17SB410 [0-4]
[8] Refusal

17SB416
[0-2] 41000
[2-4] 255
[4-6] 8.78
[6-7] 0.0843
[7] Refusal

17SB032 [0-4]

17SB199 [2-4]
[3] Refusal

17SB034 [0-4]

17SB421 [0-6]

17SB035 [0-4]

17SB196 [2-4]
[5] Refusal

17SB198 [2-4]
[5] Refusal

17SB429 [0-2]
[3] Refusal

17SB411 [0-4]
[3.5] Refusal

17SB418
[0-2] 119
[2-4] 1.14
[4-6] ND
[6-8] ND
[8] Refusal

17SB448
[0-2] 2.13
[2-4] ND

17FL-E-026
17SB228
[0-2] 1
[2-4] 0.00253
[5] Refusal

17SB197 [2-4]
[5] Refusal

17SB420
[0-2] 4.27
[2] Refusal

17SW/SD007
[0-0.5] 2.2

Ditch 8

17SB409
[0-2] 7.44
[2-4] 4.22
[4-6] 0.54
[9.5] Refusal

17SW/SD127
[0-0.5] 1.08 J
[0.5-1] 0.841

Delineation Sampling Required
(Downstream of 17SW/SD127)

Downstream excavation boundary to be determined based on additional sampling. See text Sections 2.5.1.3 & 3.2.1.2.

20 0 20
Feet

Legend

- Soil Boring Sample Location with PCBs < 1 (mg/kg)
- Soil Boring Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Sediment Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Soil Boring Sample Location with PCBs ≥ 50 (mg/kg) in at least one sample depth interval
- Trench Location with PCBs < 1 (mg/kg)
- Trench Location with PCBs ≥ 1 and < 50 (mg/kg)
- Trench Location with PCBs ≥ 50 (mg/kg)
- Dump/Fill Area
- Stream / Ditch

Area to be Excavated

- Non-TSCA Excavation Area
- TSCA Excavation Area
- Stream Segment or Drainage Ditch Containing PCB Contamination
- Debris Area
- TolTest IM Excavation (approximate)
- Building
- Road
- Topographic Contour (5-ft interval)

DRAWN BY J. NOVAK	DATE 10/10/12
CHECKED BY T. JOHNSTON	DATE 03/04/13
REVISED BY J. NOVAK	DATE 03/04/13
SCALE AS NOTED	

2005-06-11-12 PCB CONCENTRATIONS
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
DUMP/FILL AREA AND EXCAVATION AREA 4A
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER F271
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. 2-14	REV 1

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU17_PCB_10-B_FINAL_2_CSIZE.MXD 03/04/13 JN

N

17SB337
[0-2] 41.7
[2-4] 8.68
[4-5] 1.18
[4.7] Refusal

17SB321
[0-2] 8.5
[2-3] 2.75
[3] Refusal

17SB336
[0-2] 2.81
[2-4] 2.75
[4-5] 1.63
[4.9] Refusal

17SB319
[0-2] 5.81
[2-3] 1.09
[3] Refusal

17SB329
[0-2] 80.3
[2-4] 22.1
[4-5] 45.5
[4.3] Refusal

17SB318
[0-2] 1.54
[2-4] 0.0175 J
[3.6] Refusal

17SB328
[0-1] 10.3
[1] Refusal

17SB352
[0-2] 4.36
[1.8] Refusal

17SB339
[0-2] 13.8
[2-4] 2.32
[4-5] 0.892
[4.3] Refusal

17SB346
[0-2] 3.38 J
[2-4] 0.313
[4-6] 0.193
[6-8] 1460
[8-10] 9.7
[10-12] 111
[11.6] Refusal

17SB342
[0-2] 6.65
[2-4] 4.97
[4-6] 1.68
[6-8] 0.0454
[8-10] 0.00514 J
[10-12] 57.4
[11.7] Refusal

17SB344
[0-2] 13.3
[2-4] 2.81
[4-6] 0.978
[6-8] 0.046
[8-10] 0.295
[10] Refusal

17SB345
[0-2] 0.0422
[2-4] 0.00816 J
[4-6] 0.0597
[6-8] 1.56
[8-10] 0.013 J
[10-12] 0.204
[11.7] Refusal

17SB340
[0-2] 0.365
[2-4] 0.322
[4-6] 0.0202
[6-8] 3.68
[8-10] 0.00809 J
[10-12] 0.00281 J
[11.25] Refusal

17SW/SD001
[0-0.5] 37

17EW-B-025
[0-1] 13

17FL-B-011
[2] 8.8

17SB173
[2-4] 56.4
[4-6] 104
[6-8] 0.303

17FL-B-010
[2] 55

17SB361
[2-4] 111
[4-6] 0.159
[6-8] 0.00288
[8-9] ND
[9] Refusal

17SB323
[0-2] 2010
[2-4] 646
[3.9] Refusal

17SB330
[0-2] 2160
[2-4] 1.69
[4-5] 0.688
[4.7] Refusal

17SB322
[0-2] 17
[2-4] 806
[3.2] Refusal

17SB331
[0-2] 1050
[2-4] 188 J
[4-6] 0.0125 J
[6] Refusal

17SB341
[0-2] 88.3
[2-4] 3.26
[4-6] 1.66
[6-8] 0.435
[8-9] 0.47
[8.3] Refusal

17SB332
[0-2] 128
[2-4] 294
[4-6] 1.79
[6-7] 0.169
[6.7] Refusal

17SB326
[0-2] 3260
[2-4] 21.6
[4-6] 1.83
[6-8] 0.116
[7.6] Refusal

17SB333
[0-2] 2940
[2-4] 103
[4-6] 2.17
[6-8] 5.85
[8-10] 29.1
[9.9] Refusal

17EWPIT30002
[0-1] 41

17SB334
[0-2] 4.42
[2-4] 0.627
[4-6] 0.111
[6-8] 0.0105
[8-10] 0.00249 J
[9.7] Refusal

17SB338
[0-2] 62.6
[2-4] 202
[4-6] 13.1
[6-8] 0.0691
[8-10] 0.002 J
[9.25] Refusal

17SB335
[0-2] 9.7
[2-4] 4.43
[4-6] 0.393
[6-8] 0.0271
[8-10] 0.288
[10-11] 1.41
[10.6] Refusal

17SB347
[0-2] 4.23
[2-4] 1.16
[4-6] 0.00138 U
[6-8] 0.0014 U
[8-10] 0.00137 U
[10-12] 0.00128 U
[11.2] Refusal

17SB171
[2-4] 1.28
[4-6] 0.00635 J

17SB038
[0-2] ND
[2-4] 1.6

17EW-B-008
[1] 2.6

17SB359
[1-3] 11.6
[10.25] Refusal

17FL-B-006
[2] 2.7

17FL-B-012
[2] 6

17FL-B-002
17SB394
[2] 1.4
[3-4] ND

17FL-B-005
17SB457
[2] 8.4
[2-4] ND
[4-6] ND
[6-8] ND
[8-9] ND

17FL-B-007
[2] 5.3

17FL-B-003
[2] 1.8

17FL-B-004
[2] 1.7

17SB174
[2-4] 6.24
[4-6] 0.00576 J
[6-8] ND

17SB176
[4-6] 0.421
[6-8] 37.9

17FL-B-009
[2] 81

17FL-B-014
17SB393
[2] 7
[3-4] ND
[4-6] 0.0131
[6-7] ND
[7] Refusal

17EW-B-017
17SB392
[2] 3.5
[3-4] 0.00441

17FL-B-015
[2] 3.3

17FL-B-016
[2] 3

17FL-B-019
[2] 1.2

17FL-B-018
[2] 15
[3-4] 0.00657

17SB365
[2-4] 1.1
[5] Refusal

17SB033 [0-4]
17SB034 [0-4]
17SB032 [0-4]
17SB025 [0-4]
17SB007 [0-10]
17SB023 [0-4]
17SB369 [0-4]
17SB041 [0-4]
17SB008 [0-9]
17SB022 [0-4]
17SB440 [0-4]
17SB441 [0-4]
17SB442 [0-4]
17SB371 [1-3]
17SB443 [0-4]
17SB019 [0-4]
17SB444 [0-4]
17SB445 [0-4]
17SB020 [0-4]
17SB447 [0-4]
17SB446 [0-4]
17SB407 [0-4]
17SB449 [0-3]
17SB410 [0-4]
17SB421 [0-6]
17SB429 [0-2]
17SB408 [0-3]
17SB199 [2-4] [3] Refusal
17SB196 [2-4] [5] Refusal
17SB197 [2-4] [5] Refusal
17SB198 [2-4] [5] Refusal
17SB350 [0-4]
17SB316 [0-5]
17SB317 [0-4]
17SB366 [0-6]
17SB325 [0-8]
17SB324 [0-6]
17SB320 [0-4]
17SB351 [0-2]
17SB353 [0-2]
17SB452 [0-4]
17SB354 [0-5]
17SB367 [0-8]
17SB343 [0-6]
17SB348 [0-10]
17SB368 [0-11]
17SB349 [0-11]
17SB355 [0-10]
17SB357 [0-9]
17SB327 [0-9]
17SB356 [0-10]
17SB358 [2-4]
17SB360 [0-10] [10] Refusal
17SB037 [0-4]
17SB362 [0-8] [8] Refusal
17SB049 [0-8]
17SB175 [2-8]
17SB040 [0-4]
17SB363 [0-7] [6.6] Refusal
17SB039 [0-6] [6] Refusal
17SB364 [1-3] [5.5] Refusal
17SB021 [0-4]
17SB423 [0-8]
17SB397 [0-7]
17SB395 [0-6]
17SB399 [0-8]
17SB400 [0-7]
17SB402 [0-7]
17SB415 [0-8]
17SB405 [0-8]
17SB036 [0-4]
17SB007 [0-10]
17SB172 [2-6]
17SB369 [0-4]
17SB041 [0-4]
17SB008 [0-9]
17SB022 [0-4]
17SB440 [0-4]
17SB441 [0-4]
17SB442 [0-4]
17SB371 [1-3]
17SB443 [0-4]
17SB019 [0-4]
17SB444 [0-4]
17SB445 [0-4]
17SB020 [0-4]
17SB447 [0-4]
17SB446 [0-4]
17SB407 [0-4]
17SB449 [0-3]
17SB410 [0-4]
17SB421 [0-6]
17SB032 [0-4]

CSS03A [0-0.5]
CSS03 [0-0.5]
CSS01B
CSS01 [0-1]
CSS01A

17FL-B-013 [2]
17FL-B-001 [2]
17FL-B-021 [2]
17FL-B-020 [2]
17FL-B-022 [2]
17EW-B-024 [2]
17FL-B-023 [2]

A1 - 8ft
A2 - 8ft
A4 - 6ft
B5
B4
A3
C3
C2 - 11ft
D2
F1
F4 - 9ft
F3 - 9ft
G1 - 8ft
G2 - 5ft
G4 - 8ft
G3 - 7ft
E2

4A-1
0-4 ft

4A-2
0-4 ft

4A-3
0-8 ft

4A-4
TSCA
0-6 ft

4A-5
0-4 ft

4A-6
TSCA
Bedrock
(Depth varies with location)

4A-7
TSCA
0-7 ft

4A-8
0-6 ft

4A-9
TSCA
0-4 ft

4A-10
Bedrock
(~9 ft)

Confirmation Sampling Required

DUMP/FILL AREA

3072

TolTest Excavation Area B

TolTest Excavation Area C

TolTest Excavation Area E

Ditch 8

17SW/SD007

Delineation Sampling Required (Downstream of 17SW/SD127)

Downstream excavation boundary to be determined based on additional sampling. See text Sections 2.5.1.3 & 3.2.1.2.

705
725
700
715
720
710
357

20 0 20 Feet

Legend

- Soil Boring Sample Location with PCBs < 1 (mg/kg)
- Soil Boring Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Sediment Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Soil Boring Sample Location with PCBs ≥ 50 (mg/kg) in at least one sample depth interval
- Trench Location with PCBs < 1 (mg/kg)
- Trench Location with PCBs ≥ 1 and < 50 (mg/kg)
- Trench Location with PCBs ≥ 50 (mg/kg)
- Stream / Ditch

Area to be Excavated

- Non-TSCA Excavation Area
- TSCA Excavation Area
- Stream Segment or Drainage Ditch Containing PCB Contamination
- Debris Area
- TolTest IM Excavation (approximate)
- Building
- Road
- Topographic Contour (5-ft interval)

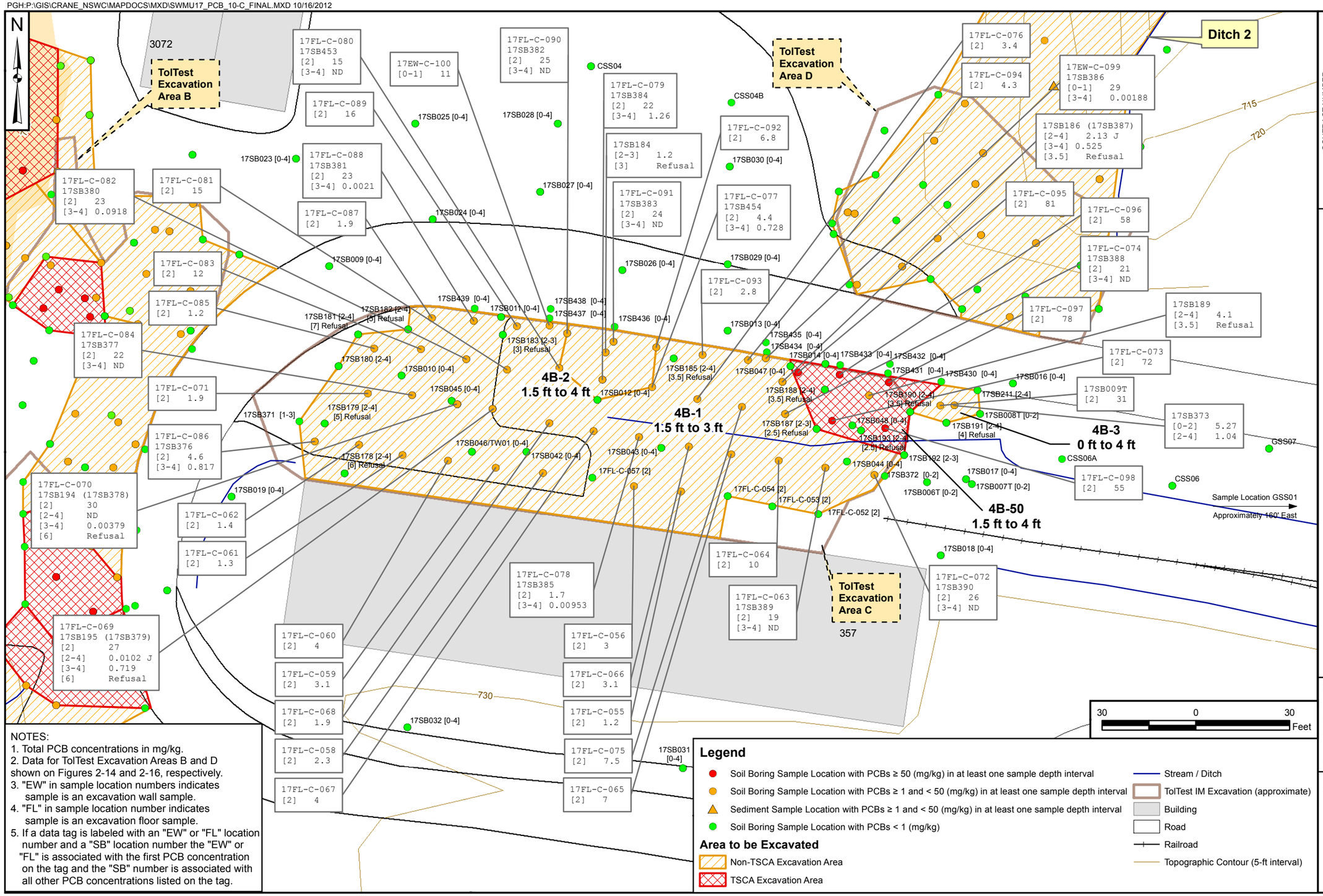
DRAWN BY	DATE
J. NOVAK	10/10/12
CHECKED BY	DATE
T. JOHNSTON	3/4/2013
REVISED BY	DATE
J. NOVAK	3/4/2013
SCALE	
AS NOTED	

NAVFAC

2005-06-11-12 PCB CONCENTRATIONS IN SOIL
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
DUMP/FILL AREA AND EXCAVATION AREA 4A
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
	F271
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. 2-15	REV 1

PGH:P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU17_PCB_10-C_FINAL.MXD 10/16/2012



NOTES:
1. Total PCB concentrations in mg/kg.
2. Data for TolTest Excavation Areas B and D shown on Figures 2-14 and 2-16, respectively.
3. "EW" in sample location numbers indicates sample is an excavation wall sample.
4. "FL" in sample location number indicates sample is an excavation floor sample.
5. If a data tag is labeled with an "EW" or "FL" location number and a "SB" location number the "EW" or "FL" is associated with the first PCB concentration on the tag and the "SB" number is associated with all other PCB concentrations listed on the tag.

Legend

- Soil Boring Sample Location with PCBs ≥ 50 (mg/kg) in at least one sample depth interval
- Soil Boring Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Sediment Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Soil Boring Sample Location with PCBs < 1 (mg/kg)

Area to be Excavated

- Non-TSCA Excavation Area
- TSCA Excavation Area
- Stream / Ditch
- TolTest IM Excavation (approximate)
- Building
- Road
- Railroad
- Topographic Contour (5-ft interval)

PREVIOUS TOLTEST EXCAVATION AREA C RESIDUAL PCB CONCENTRATIONS AND 2012 PCB CONCENTRATIONS FOR BURIAL/POLE YARD EXCAVATION AREA 4B SWMU 17 - PCB CAPACITOR BURIAL INTERIM MEASURE WORK PLAN NSA CRANE CRANE, INDIANA

CONTRACT NUMBER CTO F271
APPROVED BY — DATE —
APPROVED BY — DATE —
FIGURE NO. 2-16
REV 0

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DRAWN BY J. NOVAK DATE 5/31/2012
CHECKED BY T. JOHNSTON DATE 10/16/2012
REVISED BY J. NOVAK DATE 10/16/2012
SCALE AS NOTED

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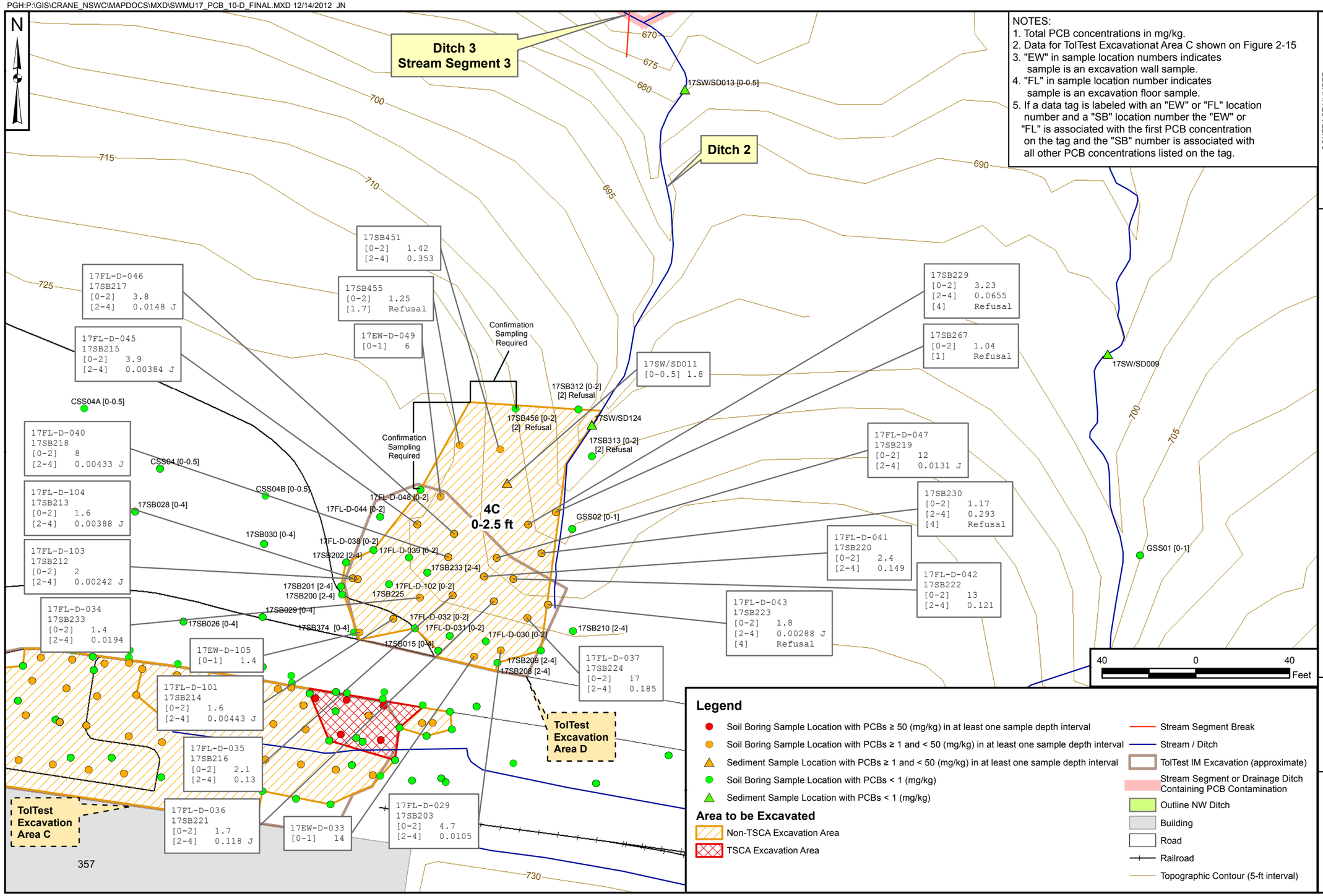


NOTES:
1. Total PCB concentrations in mg/kg.
2. Data for TolTest Excavationat Area C shown on Figure 2-15
3. "EW" in sample location numbers indicates sample is an excavation wall sample.
4. "FL" in sample location number indicates sample is an excavation floor sample.
5. If a data tag is labeled with an "EW" or "FL" location number and a "SB" location number the "EW" or "FL" is associated with the first PCB concentration on the tag and the "SB" number is associated with all other PCB concentrations listed on the tag.

Legend

- Soil Boring Sample Location with PCBs ≥ 50 (mg/kg) in at least one sample depth interval
- Soil Boring Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Sediment Sample Location with PCBs ≥ 1 and < 50 (mg/kg) in at least one sample depth interval
- Soil Boring Sample Location with PCBs < 1 (mg/kg)
- Sediment Sample Location with PCBs < 1 (mg/kg)

Area to be Excavated
- Non-TSCA Excavation Area
- TSCA Excavation Area

- Stream Segment Break
- Stream / Ditch
- TolTest IM Excavation (approximate)
- Stream Segment or Drainage Ditch Containing PCB Contamination
- Outline NW Ditch
- Building
- Road
- Railroad
- Topographic Contour (5-ft interval)

CONTRACT NUMBER CTO F271 | REV 1
APPROVED BY — DATE —
APPROVED BY — DATE —
FIGURE NO. 2-17

PREVIOUS TOLTEST EXCAVATION AREA D RESIDUAL PCB CONCENTRATIONS AND 2012 PCB CONCENTRATIONS
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD EXCAVATION AREA 4C INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

NAVFAC

	DATE
DRAWN BY J. NOVAK	5/31/2012
CHECKED BY T. JOHNSTON	12/14/2012
REVISED BY J. NOVAK	12/14/2012

SCALE AS NOTED

3.0 INTERIM MEASURES WORK PLAN

The interim measure for the floodplains, ditches, and streams at SWMU 17 includes the excavation and off-site disposal of contaminated soils and sediments within the limits and downgradient of SWMU 17. The intent of this IMWP is to describe the performance standards and associated requirements for removal and off-site disposal of contaminated soil and sediment from the downgradient drainage ditches, streams, floodplains, and SWMU 17 building areas so that PCBs will no longer have the potential to migrate downstream and affect human and ecological receptors.

The IM Implementation Contractor (Contractor) should be aware that the Navy may elect to implement this IMWP in phases. To accommodate this possibility, the excavation volumes reported in this IMWP are presented in a manner that allows the Navy to direct the Contractor to perform individual tasks (i.e., phases). In the event this IMWP is implemented in phases, the Navy will indicate the individual tasks of this IMWP to be implemented.

When estimating ditch and stream sediment removal volumes, average channel widths were used. When performing the actual sediment removal, however, all stream bottom sediments for the entire stream width must be excavated along the length of channel designated for excavation. Segregation of TSCA level waste (i.e., > 50 mg/kg total PCBs) and non-TSCA waste (<50 mg/kg total PCBs) and preventing TSCA level contamination from mixing with lesser contaminated materials are requirements of this work plan. Furthermore, erosion and sediment control devices are to be used in a way that ensures segregation of TSCA from non-TSCA wastes and prevents contamination of non-TSCA areas with TSCA level contamination. The more contaminated of drainage channel sediments generally occur near the upper elevations. To prevent recontamination of already excavated areas, removal of higher elevation contamination before removing lower elevation contamination is expected.

3.1 DESCRIPTION OF THE INTERIM MEASURES

This IMWP specifies the removal of contaminated soils and sediments within and adjacent to SWMU 17 and removal of debris in select areas, primarily the SWMU 17 Dump/Fill Area and the top of the Northwest Ditch located immediately downgradient of the Dump/Fill Area. In addition, the IMWP specifies the restoration of the floodplains, streams, drainage ditches, and excavated areas around select SWMU 17 buildings impacted by PCB contamination, and all other areas disturbed by IMWP activities. The contaminated soils and sediments to be removed have been identified as SWMU 17 Building Areas near Buildings 357, 2721, and the Building 3072 Dump/Fill Area, as well as downgradient streams,

ditches, and floodplains with PCBs at concentrations greater than 1 mg/kg. Aroclor-1260, Aroclor-1254, and Aroclor-1242 were the PCBs detected in the SWMU 17 soils and sediments, with Aroclor-1260 being the most frequently detected Aroclor. The volumes presented for the soils and sediments to be excavated are in-place estimates. It is anticipated that these volumes will increase after the soils and sediments are excavated and are in an unconsolidated state. The Navy may elect to remove contaminated soil around buildings in such a manner as to leave some areas of subsurface soil with PCB concentrations greater than 1 mg/kg and will indicate this option prior to removals.

A work assignment responsibility chart (Table 3-1) identifies the responsibilities that the Contractor, NSA Crane, and Tetra Tech will have in the implementation of the IMWP.

Specifically, the IMWP consists of the following major components:

- Sediment Excavation/Removal – Sediments with PCB concentrations greater than 1 mg/kg are present within:
  - Select drainage channels (approximately 1,160 linear feet) that drain the SWMU 17 building areas to lower elevation streams,
  - Select stream segments (approximately 2,620 linear feet of stream) in Ditch 3, that collect and convey surface water runoff from SWMU 17 and the surrounding area,
  - Two sections of Boggs Creek, one (approximately 40 linear feet of the creek) of which is well downstream of SWMU 17.

- Sediments with total PCB concentrations greater than 1 mg/kg will be excavated. Sediment will be disposed at a Navy-approved waste disposal facility based on the in-situ delineation. Sediment with a total PCB concentration greater than 50 mg/kg must be disposed at a TSCA or Subtitle C hazardous waste facility; all other soil will be disposed at a Navy approved off-site non-hazardous waste disposal facility. The locations of the sediment excavation/removal areas are identified on Figures 3-1, 3-2, 3-3, and 3-4. Portions of streams containing sediment with PCB concentrations greater than or equal to 50 mg/kg are identified on these figures. Figure 3-1 identifies the drainage channels planned for excavation and Figures 3-2 through 3-4 identify the stream segments scheduled for contaminated sediment removal.

- Floodplain Surface Soil Excavation/Removal –Floodplain areas adjacent to the stream channels designated for sediment removal contain soil with high concentrations of PCBs. The locations of these floodplain areas (Areas 3A through 3P) are identified on Figures 3-3 and 3-4. Surface and

subsurface soil in these floodplain areas that exceed 50 mg/kg total PCBs, as determined by in-situ delineation, will be excavated for disposal offsite at a Navy-approved TSCA or Subtitle C hazardous waste facility as PCB-contaminated soil; all other soil will be disposed as non-hazardous waste in a Navy-approved facility. The locations and depths of excavation for these floodplain areas are identified on Figures 3-3 and 3-4.

- Excavation of buried debris in the SWMU 17 Dump/Fill Area southwest of Building 3072 and at the top of the Northwest Ditch – Figures 2-14 and 2-15 show the locations of trenches and soil borings installed to delineate buried debris and soil PCB contamination in this area. These figures and Figure 3-5 show the known limits of the debris based on these test pits and the concentrations of total PCBs in soil for those trenches. Buried debris is primarily limited to the level portion at the top of the Dump/Fill Area but surface debris is visible primarily in the uppermost 40 feet of the Northwest Ditch. The volume of buried debris and electronic/electrical components uncovered during exploratory trenching was small compared to contaminated soil volumes. A minor amount of surface debris extends to about 150 feet downstream from the Dump/Fill Area, and will be removed and disposed off-site as non-regulated material during a separate, Northwest Ditch remediation. The location of buried debris and surface debris is shown on Figure 3-5. The volume of surface debris, consisting of dead trees, brush, glass, metal, wood, concrete, electrical insulators, and other materials at the top of the Northwest Ditch is estimated to be 7 cy (approximately 10 tons); the volume of buried debris in the Dump/Fill Area is estimated to be 52 cy or about 78 tons. A minor amount of surface debris is found in the form of metallic items (e.g., a partial rusted drum) further downstream.

- Excavation of surface and subsurface soil to an estimated maximum depth of 12 feet in the Dump/Fill Area near Building 3072 – Figures 2-14, 2-15, and 3-5 show PCB concentrations measured in exploratory trenches and soil borings used to delineate the extent of buried debris in this area. If a trench contained less than 1 mg/kg PCBs at all depths, the rectangle representing the trench on Figure 2-14 is colored green to signify that all trench PCB concentrations were less than 1 mg/kg. If the PCB concentration in any depth interval within a trench exceeded 1 mg/kg PCBs, the rectangle representing the trench is colored orange (≥1 to <50 mg/kg total PCBs) or red (≥50 mg/kg total PCBs) to signify that appreciable PCB contamination was detected there. A tag is attached to all rectangles on Figure 2-14 that are colored orange or red to identify the PCB concentrations as a function of depth interval for the respective trenches. The actual depth to bedrock varies with location but the maximum depth observed during trenching was 11 feet and during DPT sampling the maximum depth was 12 feet. Area 4A is subdivided to show planned excavation depths on Figures 2-15 and 3-6.

Approximately 60 percent of soil to be excavated in Area 4A is considered to be TSCA waste and must be managed accordingly. Based on trenching and DPT results, it does not appear that free oil is present in this area. A layer of gray organic material was observed at approximately 5 feet below ground surface in Test Pit A3 but it did not contain visible oil. The distribution of PCBs in this area is heterogeneous. Some debris was encountered during trenching.

- Excavation of surface and subsurface soil near Building 357 to a maximum depth of about 4 feet bgs – TolTest previously excavated PCB-contaminated soil to a depth of 2 feet bgs in an area overlapping what is labeled as 4B on Figure 2-16 and Figure 3-5. Additional depths must be excavated and some additional lateral area must also be excavated to remove all soil containing PCB concentrations greater than 1 mg/kg. One area, which was identified to contain greater than 50 mg/kg PCBs after the TolTest interim measure, is labeled as Area 4B-50 to signify that the subsurface soil concentrations there exceed the subsurface TSCA limit of 50 mg/kg. Excavation to 3 or 4 ft bgs is planned for non-TSCA portions of Area 4B as indicated in Figures 2-16 and 3-5, and to top of bedrock for Area 4B-50.

- Excavation of contaminated soil northeast of Building 357 immediately west of Ditch 2. Figure 3-5 identifies an area labeled 4C, which contains surface and subsurface soil with PCB concentration greater than 1 mg/kg. It is noteworthy that bedrock is shallow in this area so excavation is likely to be interrupted by encountering bedrock at some locations. Bedrock is not to be excavated.

- Excavation of surface soil to a depth of 2 feet bgs near the southwest corner of Building 2721 (Area 4D) – A small volume of surface soil is contaminated with PCBs greater than 50 mg/kg concentration and shall be removed (see Figure 2-13 and 3-4).

- Dewatering of Excavated/Removed Sediment – Prior to off-site disposal, sediments will be stockpiled within a dewatering pad located within the construction area. The water drained from the sediments will be containerized, filtered, and analyzed prior to discharge. All discharges to the NSA Crane NPDES-permitted waste water treatment plant (WWTP) must meet a discharge limit of 3 µg/L PCBs [40 Code of Federal Regulations (CFR) §761.79(b)(1)(ii)] and 100 µg/L total toxic organics as defined by the NSA Crane WWTP operator. Samples will be collected and analyzed for each batch of water that is discharged. If filtered waters are discharged to the drainage channel the unrestricted discharge limit is 0.5 µg/LPCBs and each batch of water discharged must be tested to ensure it meets this limit [40 CFR §761.79(b)]. The Contractor is responsible for conducting all required sampling and analyses. The volume of water collected through dewatering is not expected to be

large. Sediment excavation/removal will not be performed during periods of heavy rain. Steps should be taken to minimize collection of waters.

- Sampling and Analysis – At the completion of this IM and following the removal of the support facilities (e.g., dewatering pad, decontamination pad, and material storage area) Tetra Tech will collect support area verification samples to confirm that the lining systems of the support facilities did not fail during implementation of this IM. These samples will be collected as composite samples comprising six separate grab samples acquired using the standard hand augering technique. The spatial distribution shall be two rows of three equally spaced sampling points in a 20 x 20 ft^2 area (or smaller footprint if the support area is smaller). As many 20 x 20 ft^2 areas will be used as necessary to span the entire footprint underneath the support area. Each grab sample shall constitute a 1-ft depth interval, to exclude vegetation. If it is determined that the lining system under any of the support facilities did fail, potentially resulting in the contamination of the soils below the support facilities, the Contractor will be required to remove that contamination (greater than 1 mg/kg PCBs) at their own expense. Sampling will continue until each 6-point composite sample has a total PCB concentration less than or equal to 1 mg/kg.

  Off-site Disposal of Soils, Sediments, and Debris – Excavated soil, sediment, and debris will be disposed at an off-site NSA Crane-approved waste disposal facility. It is anticipated that sediment from two discrete portions of Ditch 3 Segment 6 (see Figure 3-4), soil in two floodplain areas (3H of Ditch 3 Segment 4 and 3L of Ditch 3 Segment 5), and soil from the building areas (4A, 4B-50, and 4D), will be disposed at a TSCA or Subtitle C hazardous waste disposal facility because the total PCB concentrations are greater than 50 mg/kg. All other sediment and soil is expected to be disposed at a non-hazardous waste facility because the in-place PCB concentrations are less than 50 mg/kg. Debris removed from the Northwest Ditch may be contaminated with PCBs. For example, the PCB contaminated sediment in approximately 150 linear feet of Ditch 3, Segment 6 was characterized by samples from four locations that contained PCB concentrations greater than 50 mg/kg (17SD061, 17SD107, 17SD109, and 17SD118) (Figures 2-12 and 2-13). Disposal of PCB-contaminated soil will be based on the in-situ delineation results for total PCBs. All soil with a total PCB concentration greater than 50 mg/kg must be disposed as TSCA waste at a Navy-approved TSCA or Subtitle C hazardous waste facility. Debris from an excavation should be disposed under the assumption that the PCB contamination level of the debris is commensurate with the in place PCB contamination level of the collocated soil (Note: The debris may not be used as fill). Alternatively, the contractor may elect to verify this assumption by conducting characterization sampling and analysis and satisfying the waste disposal facility requirements in accordance with 40 CFR §761.60. If, upon visual

inspection, the debris appears to be liquid filled electrical equipment (e.g., transformers or capacitors), the debris shall be disposed in accordance with requirements of 40 CFF §761.60. Growing vegetation may be cut at one foot (or higher) above ground level and disposed as non-hazardous waste and grass cut during mowing may be disposed similarly.

- Backfilling and Restoration of Floodplain Excavations – After excavation of PCB contaminated soils in the 17 floodplain areas located adjacent to Boggs Creek Segment 1 and Ditch 3 (Segments 2 through 6), the excavated areas will be backfilled and regraded to the pre-construction grade (Figures 3-3 and 3-4). In addition, the backfilled area will be restored to pre-construction conditions using a variety of habitat enhancement vegetation.

- Backfilling and Restoration of Drainage Ditches, Drainage Channels, and Streams – After the removal of sediment as indicated on Figures 3-1 through 3-5, the drainage channels and streams will be backfilled to pre-construction conditions and restored using stabilization practices that include use of sands and gravels, biodegradable erosion control mats, native rocks, and vegetation. Contractor shall also restore these areas with habitat diversity in mind by restoring features such as pool and riffle areas.

- Backfilling and Restoration of SWMU 17 Building Areas – During removal of contaminated soil as indicated on Figures 3-5 and 3-6, the excavated building areas will be backfilled to pre-construction conditions and restored using soil, gravel, grass seed, and moisture retention cover, as appropriate. Confirmation sampling, which would require leaving excavations open until confirmation data are available, will be required only in limited areas; therefore, this backfilling should occur throughout the course of excavation (except when awaiting confirmation sampling analytical results) to minimize the amount of time excavations are open. Backfilling under roadway pavement at the southeast end of Area 4A-7 must be compacted to support replacement of the excavated roadbed to original condition or better.

3.2 PERFORMANCE STANDARDS

For the purposes of defining the excavation areas and performance standards associated with each excavation area presented on Figures 3-1 through 3-5, Table ES-1 summarizes important information about the excavation areas shown and the associated performance standards for that excavation area. Performance standards for the IMWP are presented in the following sections.

In general, performance standards are based on a need to remove PCB contamination in excess of 1 mg/kg from all SWMU 17 areas. Most excavation areas are completely bounded by "clean" sampling points that were demonstrated to have less than 1 mg/kg contamination. For excavation areas not completely bounded by clean sampling points, topography was inspected to determine whether contamination could logically have migrated beyond the excavation boundary. If it was believed that topography confidently bounded the contaminant migration, the boundary was left as is. If, however, contaminant migration beyond the designated excavation boundary seemed plausible, the boundary was revised or additional sampling was prescribed to ensure that the excavations will remove all contamination greater than 1 mg/kg total PCBs. For areas where topography or other factors played a significant role in establishing the excavation boundary, details are provided below.

3.2.1 Drainage Channels, Northwest Ditch, and Ditch 8a and 8b Excavation Areas

Drainage channel excavation will occur in the Northwest Ditch, and two segments of Ditch 8 (segments 8a and 8b). Based on in-situ delineation results, all excavated sediment with a total PCB concentration greater than 50 mg/kg (Northwest Ditch only) will be disposed off-site at a Navy–approved TSCA or Subtitle C hazardous waste disposal facility; all other sediment will be disposed at a Navy-approved off-site non-hazardous waste disposal facility. Excavated sediments will be placed in a small off-road dump truck with a sealed tailgate to prevent the loss of sediment and liquids while the material is transported to a dewatering pad, if necessary. The excavated sediments will gravity-drain within the dewatering pad prior to off-site transport and disposal.

Sediment that accumulates in erosion and sediment control devices (see Section 4.0) prior to excavation of contaminated sediment within the drainage channels will be disposed offsite along with the excavated contaminated sediments. Following backfilling of the excavation, sediments that accumulate in the erosion and sediment control devices will be spread across the disturbed ground surface of the drainage channel excavation.

Because most of the excavation of contaminated sediments from the drainage channels will occur in wooded areas, the dewatering pad (stockpile location) will be located away from the excavation area. To minimize the impact to the wooded areas in which excavation will occur, biodegradable temporary access trails (woodchip/mulch) will be used instead of temporary gravel access roads. The Contractor will ensure that the temporary access trails are not contaminated with excavated sediment. In the event the Contractor spills excavated sediments on a temporary access trail, the Contractor will be responsible for removing the contaminated sediments along with the impacted surface soils, verifying that all contaminated materials have been removed, and disposing of that material at their own expense.

The Contractor should note that the process of transporting excavated sediments and the use of access trails may vary based on the phasing identified by the Navy. These processes should be identified in the Contractor's work plan.

3.2.1.1 Northwest Ditch

Sediment in the Northwest Ditch from the western edge of the Dump/Fill Area excavation node 82 to the southern edge of Floodplain Area 3C, excavation node 23, will be removed. The uppermost portion of the Northwest Ditch overlaps with the planned Dump/Fill Area excavation and is therefore covered in detail in Section 2.5.4.1 that describes the Dump/Fill Area excavation.

The volume of sediment to be removed from the Northwest Ditch is based on the average thickness of sediment overlying consolidated soils, average width of the channel (base width plus height of channel banks), and length of the channel from the edge of the Dump/Fill Area to the lowest elevation of the Northwest Ditch. The extent of excavation in the Northwest Ditch is identified on Figure 3-1. The field location may differ slightly from that shown on Figure 3-1, but this entire channel length of the ditch should be excavated, excluding the Building Area excavation portion. Northing and easting coordinates for the beginning and end of the Northwest Ditch are provided in Table 3-2.

3.2.1.2 Ditch 8, Excavation Area 1B (Segment 8a)

Ditch 8, Segment 8a, is near the beginning of Ditch 8 and the soil of this area to be excavated is shown on Figure 3-1. The downstream excavation boundary of Segment 8a, however, is tentatively depicted pending confirmation sampling that will occur prior to or near the beginning date of the excavation (see next paragraph). Important information about estimated sediment removal volumes and other information is provided in Table ES-1.

Additional sampling between locations 17SW/SD025 and 17SW/SD127 will occur to more precisely establish the extent of contamination in Ditch 8a. The downstream boundary of Ditch 8a will be extended downstream to include all samples with >1mg/kg total PCBs based on 3-day turnaround analysis for PCBs. At least two soil samples will be collected to represent the 0-1 ft interval. The additional samples will be sequentially analyzed from upstream to downstream, as needed, to bound the contamination.

3.2.1.3 Ditch 8, Excavation Area 1C (Segment 8b)

Ditch 8, Segment 8b, is at the lower end of Ditch 8 and this area to be excavated is shown on Figure 3-1. Important information about estimated sediment removal volumes and other information is provided in Table ES-1.

3.2.2 Stream Excavation Areas

Sediments in four sampling locations of Ditch 3 Segment 6 (17SD061, 17SD107, 17SD109, and 17SD118) are identified as having PCB concentrations greater than 50 mg/kg (Figures 2-12 and 2-13). Based on in-situ delineation results, all excavated sediment with a total PCB concentration greater than 50 mg/kg will be disposed off-site at a Navy-approved TSCA or Subtitle C hazardous waste disposal facility; all other sediment will be disposed at a Navy-approved off-site non-hazardous waste disposal facility. TSCA anti-dilution Rule [40 CFR §761.1(b)] states that it is prohibited to dilute PCB materials at a concentration of greater than or equal to 50 mg/kg with PCB-free materials or low concentration PCB materials in order to reduce the concentration in the resultant mixture to below 50 mg/kg. Therefore, for this project PCB contaminated soils with PCB concentrations greater than or equal to 50 mg/kg cannot be mixed with non-PCB contaminated soils or PCB contaminated soils with PCB concentrations less than 50 mg/kg to avoid land disposal restrictions. Sediment samples from all other locations are identified as having PCB concentrations less than 50 mg/kg. It is assumed that all material removed from these locations will be analyzed (characterized), and sent for disposal at an approved off-site non-hazardous waste facility (based on the assumption that disposal characterization sampling identifies PCBs at concentrations less than 50 mg/kg) unless the Contractor obtained characterization sample results indicate that non-hazardous waste disposal would violate state or federal law. Excavated sediments will be placed in a small off-road dump truck with a sealed tail-gate to prevent the loss of sediment and liquid while the material is transported. If necessary, the sediments will be taken to a dewatering pad. The excavated sediments will gravity-drain within the dewatering pad prior to off-site transport and disposal. As identified in Section 2.5.2, stream excavation will occur in all sections of Boggs Creek downstream near sampling location 17SW/SD105, Boggs Creek Segment 1, and Ditch 3, Segments 2 through 6 (Figures 3-2, 3-3, and 3-4). The extent of excavation in each stream is defined in Section 2.5.2 although some additional sampling to refine excavation boundaries will take place as described at the end of this section. Table ES-1 identified important excavation areas and volumes and related information for sediment excavations in these stream segments.

The volume of sediment to be removed from each of the stream segments is based on the average thickness of sediment overlying bedrock, average width of the drainage channel (base width plus height

of channel banks), and length of excavation in each channel. The extent of excavation is identified on Figures 3-2, 3-3, and 3- with possible modification to be made based on additional sampling as described at the end of this section. Excavation nodes 8 (downstream end of Boggs Creek Segment 1 shown on Figure 3-3) and 73 (upstream end of Ditch 3, Segment 6 shown on Figure 3-4) indicate the beginnings and ends of stream channel sediment excavations. The excavation volume calculations are provided in Appendix A and summarized in Table ES-1. These estimates are based on excavation boundaries shown on Figures 3-2, 3-3, and 3-4 and could change slightly based on additional sampling.

Manmade materials (concrete, lumber, etc.) will likely be found within some stream excavation areas. Such debris found to be in contact with sediment will be assumed to be contaminated at the same PCB concentrations as the sediment in which it is found and must be disposed in the same manner as the contaminated sediment. Debris that is not in contact with contaminated soil or sediment, is determined not to contain or be contaminated with PCBs, and is otherwise non-hazardous, may be disposed as non-hazardous waste. The volume of manmade material to be removed from the stream excavation areas is estimated to be approximated at 10 cy. Buried or partially buried natural debris such as large rocks, tree stumps, or branches must be disposed under the assumption that the contamination level of this debris is the same as soil or sediment with which it is in contact. Growing vegetation (except grass) may be cut at 1 foot above ground level (or higher) and disposed as non-hazardous waste. Cutting of vegetation higher than 1 ft above ground surface should be limited to minimize waste volume. Mowed grass will be exempt from these requirements.

Sediment that accumulates in erosion and sediment control devices (see Section 4.0) prior to backfilling the stream excavations will be disposed off-site along with the contaminated sediments. Following backfilling of the excavations, sediments that accumulate in the erosion and sediment control devices will be used to restore the stream or spread across the disturbed ground surface of the stream excavation. Sediment and erosion controls must prevent migration of TSCA-level contamination to non-TSCA level materials.

Because the excavation of contaminated sediments from the stream segments will occur in wooded areas, the dewatering pad (stockpile location) will be located away from the excavation area. To minimize the impact to the wooded areas in which excavation will occur, biodegradable temporary access trails (woodchip/mulch) will be used instead of temporary gravel access roads. The Contractor will ensure that temporary access trails are not contaminated with excavated sediment. In the event that the Contractor spills excavated sediments on a temporary access trail, the Contractor will be responsible for

removing the contaminated sediments along with the impacted surface soils, verify that all contaminated materials have been removed, and disposal of that material will be at their own expense.

The Contractor should note that the process of transporting excavated sediments and the use of access trails may vary based on the phasing identified by the Navy. These processes should be identified in the Contractor's work plan.

Additional sampling between locations 17SW/SD033 and 17SW/SD123 will occur near the start date of excavation to more precisely establish the extent of contamination in Boggs Creek Stream Segment 1 (see Figures 2-8 and 3-3). The downstream excavation boundary of Ditch 3 Segment 1 will be extended downstream to include all samples upstream of 17SW/SD123 with >1mg/kg total PCBs based on 3-day turnaround analysis for PCBs. At least two sediment samples will be collected, each representing the surface-to-bedrock interval which is about 0.5 to 1 ft deep. The additional samples will be sequentially analyzed from upstream to downstream, as needed, to bound the contamination.

3.2.3 Floodplains, Excavation Areas 3A through 3P

Floodplain areas adjacent to the stream segments where excavation will occur will also be excavated (as described in Section 2.5.3). Soil will be disposed at a Navy-approved waste disposal facility based on the in-situ delineation. Soil with a total PCB concentration greater than 50 mg/kg must be disposed at a TSCA or Subtitle C hazardous waste facility; all other soil will be disposed at an approved off-site non-hazardous waste disposal facility. Most soil will not be transported to a TSCA disposal facility. Loss of soil and liquids while the material is transported, including transport to a dewatering pad, if necessary, will be prevented. The excavated soils will gravity-drain within the dewatering pad prior to off-site transport and disposal. As detailed in Section 2.5.3, floodplain excavation will occur adjacent to Boggs Creek Stream Segment 1 and Ditch 3 Segments 2 through 6, as identified on Figures 3-3 and 3-4.

The volume of soil to be removed from each of the 16 floodplain areas (identified on Figures 3-3 and 3-4) is based on field observations of the extent of the floodplain, and the locations of samples with concentrations of PCBs greater than 1 mg/kg within the floodplain areas, as shown on Table ES-1. The extent of excavation is identified on Figures 3-3 and 3-4. On Figure 2-9, three additional circular areas are designated for excavation to remove localized contamination from surface to bedrock depth. These three circular areas, each of which is 20-ft in diameter are centered on the following points:

3D-1, centered on soil boring 17SB101.
3D-2, centered on soil boring 17SB104.
3D-3, centered on soil boring 17SB251.

Because the actual location of the stream channel may vary from that shown on the figures, excavation node coordinates at the stream channel edge may require adjustment based on field conditions but nodes not along the stream edge should not change. Floodplain excavation should extend from the stream channel edge to the most upstream and downstream excavation nodes of each floodplain closest to the stream as shown on Figures 3-3 and 3-4. Additional detail is visible on corresponding figures located in Section 2. Northing and easting coordinates for the excavation area nodes are provided in Table 3-2. Excavations will extend over each floodplain area represented by the associated nodes regardless of where the stream is actually positioned within that area. Volume calculations are provided in Appendix A and are summarized on Table ES-1.

Topographic considerations were used to help bound contamination in some areas. These areas and an explanation of how topography was used are provided below. If additional flood plain sampling is required to bound or confirm the bounding of contamination, it is indicated.

Area	Rationale	Additional Sampling
3A-1	Elevated topography and a drainage channel on the southwestern edge of this area bound the extent and limit migration potential of contamination.	Not Required.
3A-2	Boundaries are based on observed PCB concentrations and, on the northeastern boundary of this area, the topography which limits the elevation to which contamination can be transported in stream flow.	**Required.** Collect one sidewall soil boring confirmation sample at a single location (i.e., no lateral spread) from 0-1.5 ft bgs on the northwest corner near 17SB115 at the highest boundary elevation. If total PCB concentration is >1 mg/kg, collect additional samples in a northward direction until no longer >1 mg/kg and redraw excavation boundary to point nearest 17SB115 with <1 mg/kg PCBs.
3C	See Section 2.5.3.2	Not Required.
3D	All data south of this area indicates that contamination is limited to elevations less than 652 ft.	**Required.** Sample south wall of indicated excavation boundary (see Figure 2-9) using a composite sample collected in the same manner as described in Section 3.2.4.3, but between soil boring soil borings 17SB314 and 17SB140. Continue confirmation sampling and excavation away from the main stream channel until the confirmation sample PCB concentration is ≤1 mg/kg. Each additional step out excavation boundary should be located no more than 1 ft south of the stream channel than the previous boundary.

Area	Rationale	Additional Sampling
3F	The boundary of this area was drawn based on the collection of data in this area that indicates contamination is isolated. to facilitate excavation, however, there is a reasonably chance that the eastern or western boundary do not encompass all PCB contamination.	**Required.** Samples will be composites using the same approach described in Section 3.2.4.3, but on the western and eastern edges of the designated excavation. Continue confirmation sampling and excavation away from the main stream channel until the confirmation sample PCB concentration is ≤1 mg/kg. Each step out excavation boundaries should be located 3 feet up or downstream from where PCB concentrations exceed 1 mg/kg on the eastern or western excavation wall, respectively.
3G	The western edge of this area was extended from soil boring 17SB290 along approximately the 675 ft elevation contour to the bank of the main stream channel.	Not Required.
3K	The western boundary is along a line perpendicular to the stream channel and includes boring 17SB296 because that boring had <1 mg/kg total PCBs. Topography and spatial contamination patterns indicated that the contaminated area had been delineated west of 17SB297. For example, no total PCB concentration greater than 1 mg/kg was detected south of this stream segment at an elevation greater than 700 ft except at 17SB076, which is located at least two hundred feet upstream. The eastern boundary is along a line connecting boring 17SB198 and the stream. This line, which is perpendicular to the stream, separates a non-TSCA and TSCA excavation areas.	Not required.
3L	The southern and eastern boundaries of this area were based on topography and available data.	**Required.** Collect one composite sample using the same approach described in Section 3.2.4.3, but on the southern and eastern edges of the excavation boundary shown on Figures 2-12 and 3-4 (from surface to bedrock depths). Continue confirmation sampling and excavation away from the main stream channel until the confirmation sample PCB concentration is ≤1 mg/kg. Each step out excavation boundaries should be located 1 ft further from where PCB concentrations exceed 1 mg/kg on the excavation wall.

Area	Rationale	Additional Sampling
3O	The tentative boundary of this area was based on topography and available data but is subject to confirmation sampling.	**Required.** On northern and northeastern sidewalls of Area 3O between soil boring 17SB272 and the stream bank collect one composite sample using the same approach described in Section 3.2.4.3 and consisting of up to nine grab samples. The grab samples will be collected approximately every 10 ft along the wall beginning at 17SB272 to the stream channel. If contamination greater than 1 mg/kg is found in this composite sample, excavation will be expanded and additional confirmation sampling will conducted until ≤1 mg/kg total PCBs is demonstrated to exist in the lateral direction in this area.
3P	The tentative boundary of this area was based on topography and available data but is subject to confirmation sampling.	**Required.** On southern and eastern sidewalls of Area 3P between soil boring 17SB234 and the stream bank collect one composite sample using the same approach described in Section 3.2.4.3, consisting of up to nine grab samples. The grab samples will be collected approximately every 10 ft along the wall beginning at 17SB234 to the stream channel. If contamination greater than 1 mg/kg is found in this composite sample, excavation will be expanded and additional confirmation sampling will conducted until ≤1 mg/kg total PCBs is demonstrated to exist in the lateral direction in this area.

Manmade debris (concrete, lumber, etc.) might be found within the floodplain excavation areas. Such debris found to be in contact with soil will be assumed to be contaminated at the same PCB concentrations as the soil and must be disposed in the same manner as the soil. Debris that is not in contact with contaminated soil or sediment, is determined not to contain or be contaminated with PCBs, and is otherwise non-hazardous, may be disposed as non-hazardous waste. The anticipated volume of manmade material to be removed from the floodplain excavation areas is approximated at 10 cy. Buried or partially buried natural debris such as large rocks, tree stumps, or branches must be disposed under the assumption that the contamination level of this debris is the same as soil or sediment with which it is in contact. Growing vegetation (except grass) may be cut at one foot above ground level and disposed as non-hazardous waste. If necessary, the cut may be higher than 1 ft above ground surface but cuts this high should be limited to minimize waste. Mowed grass will be exempt from these requirements.

Soil that accumulates in erosion and sediment control devices (see Section 4.0) prior to backfilling of the floodplain excavations will be disposed off-site along with the contaminated soil. Following backfilling of the excavation, soil that accumulates in the erosion and sediment control devices will be used to restore the floodplain or spread across the disturbed ground surface of the floodplain excavation. Sediment and erosion controls must prevent migration of TSCA-level contamination to non-TSCA level materials.

Because the excavation of contaminated soil from the floodplain will occur in wooded areas, the dewatering pad (stockpile location) will be located away from the excavation area. To minimize the impact to the wooded areas in which excavation will occur, biodegradable temporary access trails (woodchip/mulch) will be used instead of temporary gravel access roads. The Contractor will ensure that the temporary access trails are not contaminated with excavated soil. In the event the Contractor spills excavated soil on a temporary access trail, the Contractor will be responsible for removing the contaminated soil along with the impacted surface soils, verify that all contaminated materials have been removed, and dispose of that material at their own expense.

The Contractor should note that the process of transporting excavated soil and the use of access trails may vary based on the phasing identified by the Navy. These processes should be identified in the Contractor's work plan.

Growing vegetation (except grass) may be cut at one foot above ground level and disposed as non-hazardous solid waste. If necessary, the cut may be greater than 1 ft above ground surface but instances of cuts this high should be minimized. If grass mowing occurs, no particular height cutting restrictions will apply. Truck corridors used to gain access to the site may be cleared as necessary to make them passable (see Section 4).

3.2.4 Building Area Excavations

3.2.4.1 Dump/Fill Area and Upper Reach of Northwest Ditch, Excavation Area 4A

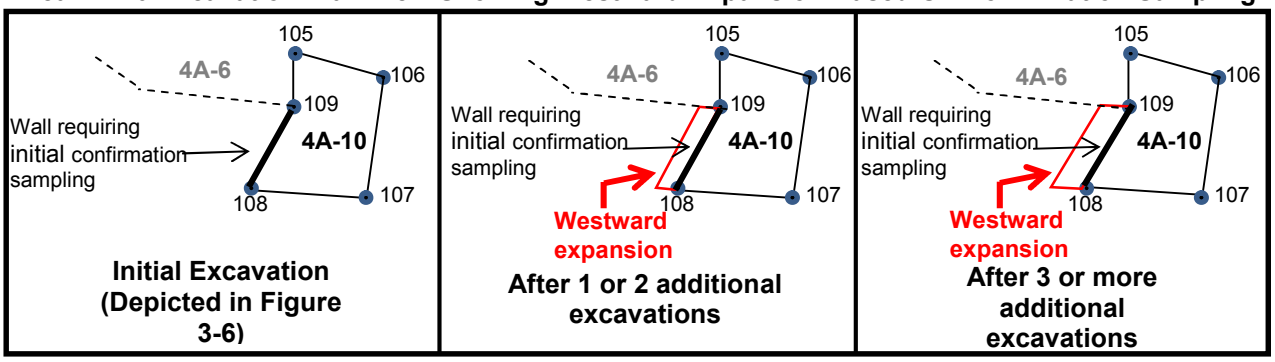
The approximate location of surface debris in the upgradient portion of the Northwest Ditch is based on the TolTest IM report (TolTest, 2004) and is shown on Figures 3-5 and 3-6. The exact volume of this debris could not be estimated based on the current information, but for costing purposes, assume that 10 tons of surface debris will be collected and disposed off-site from this area of the site. Upon removal, this debris will be visually inspected to determine whether liquid filled electrical equipment or other material potentially contaminated with PCBs is present. If any material that appears to be potentially contaminated with PCBs is present, it will be removed from the debris. This removed debris will then be evaluated to visually determine its TSCA status and if it is potentially contaminated with PCBs, it will be disposed off-site at a Navy-approved TSCA or Subtitle C hazardous waste disposal facility. Liquid filled electrical equipment (e.g., transformers and capacitors) must be disposed in accordance with 40 CFR §761.60. Natural or manmade debris that is in contact with soil or sediment must be disposed under the assumption that the debris is contaminated at the same level as the soil or sediment with which it is in contact. If the debris is not in contact with soil or sediment and it is determined not to be contaminated

with PCBs or to otherwise be a hazardous waste, the debris may be disposed as non-hazardous solid waste. Growing vegetation (except grass) may be cut at one foot (or higher) above ground level and disposed as non-hazardous waste. Cutting of vegetation higher than 1 ft above ground surface should be limited to minimize waste volume. Mowed grass will be exempt from these requirements.

Soil in the area designated as Area 4A will be excavated to various depths based on the observed PCB contamination levels. These depths and locations are shown on Figures 2-15 and 3-6 and are listed in Table ES-1. Excavation volume calculations are provided in Appendix A and excavation node coordinates are listed in Table 3-2 and are shown on Figures 3-5 and 3-6. Roughly 60 percent of the total sol excavation volume contains PCBs at a concentration greater than 50 mg/kg and must be excavated. Bedrock will not be excavated. TSCA anti-dilution Rule [40 CFR §761.1(b)] states that it is prohibited to dilute PCB materials at a concentration of greater than or equal to 50 mg/kg with PCB-free materials or low concentration PCB materials in order to reduce the concentration in the resultant mixture to below 50 mg/kg. Therefore, for this project PCB contaminated soils with PCB concentrations greater than or equal to 50 mg/kg cannot be mixed with non-PCB contaminated soils or PCB contaminated soils with PCB concentrations less than 50 mg/kg to avoid land disposal restrictions.

During excavation of Area 4A-10, at least one verification sample must be collected along the western excavation wall between previously sampled locations 17SB176 and 17FL-B-020. The sample(s) must be analyzed to confirm whether total PCB concentrations exceed 1 mg/kg. The initial excavation sidewall at which this confirmation sampling must be conducted is identified near the middle of Figure 3-6 with the label “Confirmation Sampling Required.” If the confirmation sample exhibits a total PCB concentration greater than 1 mg/kg, excavation and confirmation sampling must continue in the direction of PCB concentrations greater than 1 mg/kg until the total PCB concentration for the last confirmation sample no longer exceeds 1 mg/kg. If the initial sidewall shown on Figure 3-6 is excavated because of a 1 mg/kg total PCB exceedance, a new northern and southern boundary will develop along the northern and southern edges, respectively, of this expanded excavation. The schematic diagram below (not to scale) depicts the evolution of the new western, northern, and southern sidewalls (red lines) under a scenario requiring additional excavation in the western direction after the initial excavation.

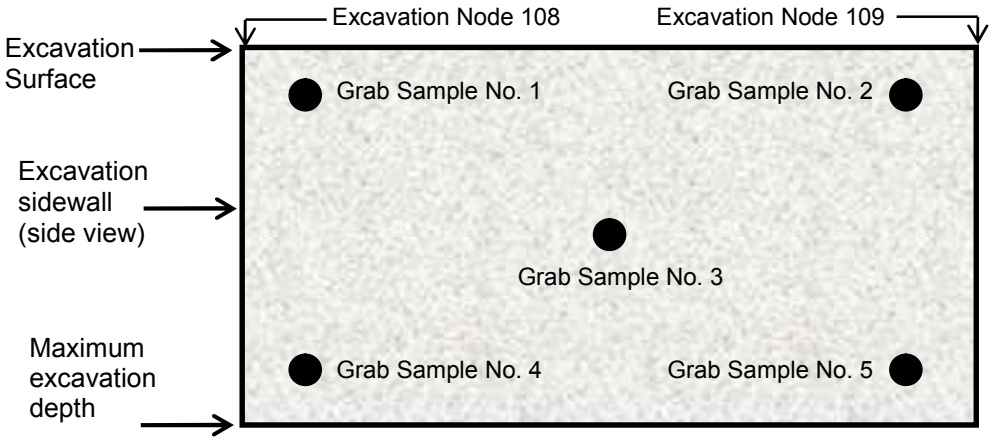
Area 4A-10 Excavation Plan View Showing Westward Expansion Based On Confirmation Sampling



These new northern and southern sidewalls must also be sampled (and excavated as necessary). The developing northern sidewall will extend along the southern boundary of Excavation Area 4A-6 to bedrock depth. Confirmation sampling and additional excavation (as needed) shall proceed as follows:

1. Lay out a five-point pattern comprising four corners and one middle point of a rectangle representing the entire exposed wall down to the maximum excavated depth for excavation area 4A-10. The diagram below is an example of this five-point pattern.

Five-Point Excavation Sidewall Grab Sampling Pattern for Composite Confirmation Samples



Note: The maximum depth is anticipated to be about 8 ft bgs but sampling must represent the actual entire depth.

2. At each of the five points, collect grab samples, each of which is nominally 2-inches in diameter and extends 6 inches into the excavation side wall.

3. Combine the soil of the five grab samples in a stainless steel mixing bowl or in a disposable plastic bag.

4. Remove vegetation and gravel, if present, by physically extracting the vegetation/gravel but retaining the soil. This may require crushing soil clumps and shaking soil loose from the vegetation/gravel until no more loose soil is produced.

5. Mix the five grab samples in the mixing bowl (or bag) and remove 4 to 8 ounces of this well mixed soil for analysis.

6. Transfer the removed soil to an amber glass wide-mouth sampling container with Teflon® lined lid.

7. Label the sample container using the numbering system described in the note below.

Note: The sample number assigned to each sample shall be in the format of 174A10xxCyyzz, where "17" represents SWMU 17; "4A10" represents excavation area 4A-10; "xx" represents the sequential composite sample number (beginning with "01" and allowing for up to 99 different samples to be collected); "C" represents a composite sample; "yy" represents the top depth of the composite measured in feet bgs (this should generally be "00" unless, for example, too much vegetation or gravel is present); and "zz" represents the bottom depth of the composite, in feet bgs rounded to the nearest whole foot (e.g., if the excavation is 8.3 ft deep, use "08"). Sequential composite sample numbers (xx) and the top and bottom sampling depths (yyzz) will be determined in the field; the two-digit top and bottom depths should be rounded to the nearest whole foot for inclusion in the sample number.

8. Place the sample in a cooler with enough ice to maintain a temperature between 0 and 6 degrees Celsius throughout sample storage and shipping.

9. Ship the sample to the analytical laboratory for total PCB analysis as Aroclors (three-day turnaround time or less).

10. If the confirmation sample total PCB concentration exceeds 1 mg/kg, excavate an additional one to two feet of sidewall (as directed by the Navy) in the direction of total PCB concentrations greater than 1 mg/kg and repeat this process (Steps 1 through 10) until the total PCB concentration no longer exceeds 1 mg/kg.

Note: The areal density of the five grab samples comprising each composite sample will be high, initially, for new northern and southern excavation walls and will decrease as excavation continues (because the area increases but the number of grab samples remains constant). If either of the new northern or southern sidewalls increases to more than 100 square feet, consult with NSA Crane to determine the appropriate course of action. The intent will be to limit the maximum size of a five-point grab sampling pattern to approximately 100 square feet.

Manmade materials (concrete, lumber, etc.) will be found within the Northwest Ditch and Dump/Fill Area excavation area. Such debris found to be in contact with soil will be assumed to be contaminated at the same PCB concentrations as the soil with which it is in contact and must be disposed in the same manner as the soil. Material that is not in contact with contaminated soil or sediment and is determined not to be associated with PCB use and is not otherwise considered to be a hazardous waste may be disposed as non-hazardous solid waste. Any material not contaminated with PCBs but is otherwise a potential hazardous waste will either be disposed as hazardous waste or will be evaluated in accordance with applicable hazardous waste regulations to determine how to dispose of it. The debris may not be used as fill. The volume of manmade material to be removed from the Northwest Ditch excavation area is approximated at 7 cy. Additionally, large rocks with an average nominal diameter of 9-inches or more will be found throughout the length of the Northwest Ditch. These rocks will be removed, and disposed in a manner commensurate with the soil or sediment in contact with them.

A small section of the road on the southeast side of Area 4A-7 requires removal along with contaminated soil under that section of the road to a depth of 7 ft. bgs.

3.2.4.2 Area Between Building 357 and Road, Excavation Area 4B

This area was excavated by TolTest to a depth of 2 ft bgs. Residual contamination was found at the bottom of the excavated areas but subsequent sampling indicates that PCB concentrations greater than 1 mg/kg a sporadically located throughout this excavation area. Bedrock depth is also shallow, typically within 4 ft of the surface. To remove all soil contaminated with PCBs greater than 1 mg/kg, the planned approach is to remove and stockpile the top 1.5 feet of clean soil, which will be used after excavation for fill, and excavate the remaining soil to 4 ft. The excavation volumes are documented in Appendix A and summarized in Table ES-1. Excavation nodes are identified on Figure 3-5.

A small area labeled 4B-50 in the northeast corner of Area 4B contains PCB concentrations in soil greater than 50 mg/kg. TSCA anti-dilution Rule [40 CFR §761.1(b)] states that it is prohibited to dilute PCB materials at a concentration of greater than or equal to 50 mg/kg with PCB-free materials or low

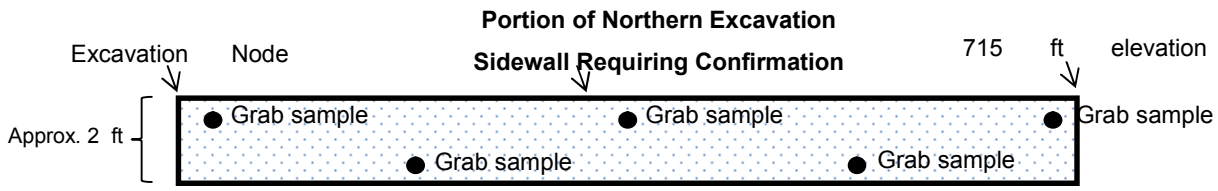
concentration PCB materials in order to reduce the concentration in the resultant mixture to less than 50 mg/kg. Therefore, for this project PCB contaminated soils with PCB concentrations greater than or equal to 50 mg/kg cannot be mixed with non-PCB contaminated soils or PCB contaminated soils with PCB concentrations less than 50 mg/kg to avoid land disposal restrictions. Soil excavation in Area 4B-50 will be to top of bedrock.

3.2.4.3 Northeast of Building 357, Excavation Area 4C

A limited amount of contaminated soil greater than 1 mg/kg PCB but less than 25 mg/kg remains in this area. Excavation of all surface soil to a depth of 2 feet is planned and this excavation would remove all soil contaminated at a level of 1 mg/kg PCBs and greater. Bedrock may be encountered at shallower depths and is not to be excavated. The excavation volume calculations are presented in Appendix A and are summarized in Table ES-1. Excavation nodes are identified on Figure 3-5.

During excavation of Area 4C, a composite verification sample must be collected from the excavation sidewall between Excavation Nodes 172 and 173 (see Figure 3-5), and a composite verification sample must be collected from the excavation sidewall between Excavation Node 173 and the 715 ft topographic elevation contour (see Figures 3-5) located 20 feet due east. The initial boundaries at which this confirmation sampling must be conducted are identified on Figure 3-5 with the label “Confirmation Sampling Required.” If the confirmation sample from either boundary exhibits a total PCB concentration greater than 1 mg/kg, excavation and confirmation sampling must continue in the direction of PCB concentrations greater than 1 mg/kg until the total PCB concentration for the last confirmation sample no longer exceeds 1 mg/kg. If either sidewall designated for initial confirmation sampling is excavated, a new boundary perpendicular to the boundaries shown on Figure 3-5 will develop. These new sidewalls must also be sampled and excavated as necessary until the total PCB concentration no longer exceeds 1 mg/kg. Confirmation sampling and additional excavation (as needed) shall proceed as follows:

1. For every 100 square feet or less of sidewall, lay out a five-point zigzag pattern representing the entire exposed wall down to the maximum excavated depth for excavation area 4C. Using the northern 4C boundary as an example, the grab sample pattern would appear as follows (this pattern biases toward finding shallow contamination because surface runoff is the perceived contamination migration mechanism):



Note: The maximum depth is anticipated to be limited by bedrock to about 2 ft bgs or less but sampling must represent the actual entire depth, with a maximum 2.5 ft bgs depth.

2. At each of the five points, collect grab samples, each of which is nominally 2-inches in diameter and extends 6 inches into the excavation side wall.

3. Combine the soil of the five grab samples in a stainless steel mixing bowl or in a disposable plastic bag.

4. Remove vegetation, if present, by physically extracting the vegetation but retaining the soil. This may require crushing soil clumps and shaking soil loose from the vegetation until no more soil falls from the vegetation upon shaking.

5. Mix the five grab samples in the mixing bowl (or bag) and remove 4 to 8 ounces of this well mixed soil for analysis.

6. Transfer the removed soil to an amber glass wide-mouth sampling container with Teflon® lined lid.

7. Label the sample container using the numbering system described in the note below.

Note: The sample number assigned to each sample shall be in the format of 174CxxCyyzz, where "17" represents SWMU 17; "4C" represents excavation area 4C; "xx" represents the sequential composite sample number (beginning with "01" and allowing for up to 99 different samples to be collected); "C" represents a composite sample; "yy" represent the top depth of the composite measured in feet bgs (this should generally be "00" unless, for example, too much vegetation is present); and "zz" represents the bottom depth of the composite, in feet bgs rounded to the nearest whole foot (e.g., if the excavation is 1.3 ft deep, use "01"). Sequential composite sample numbers (xx) and the top and bottom sampling depths (yyzz) will be determined in the field; the two-digit top and bottom depths should be rounded to the nearest whole foot for inclusion in the sample number.

8. Place the sample in a cooler with enough ice to maintain a temperature between 0 and 6 degrees Celsius throughout sample storage and shipping.

9. Ship the sample to the analytical laboratory for total PCB analysis as Aroclors (three-day turnaround time or less).

10. If the confirmation sample total PCB concentration exceeds 1 mg/kg, excavate an additional one to two feet of sidewall (as directed by the Navy) in the direction of total PCB concentrations greater than 1 mg/kg and repeat this process (Steps 1 through 10) until the total PCB concentration no longer exceeds 1 mg/kg.

Note: The areal density of the five grab samples comprising each composite sample will be high, initially, for new excavation walls perpendicular to those identified on Figure 3-5 as the initial confirmation sampling walls. This areal density, however, will decrease if excavation continues in a northern or westward direction. If either of the initial northwestern or northern sidewalls designated for confirmation sampling increases to more than 100 square feet, consult with NSA Crane to determine the appropriate course of action. Sampling in this area indicates that bedrock is approximately 2 ft bgs or shallower; the maximum excavation depth is scheduled to be 2.5 ft bgs.

3.2.4.4 Southwest of Building 2721, Excavation Area 4D

A small volume of soil southwest of Building 2721 contains more than 50 mg/kg PCBs. Excavation nodes are shown on Figure 3-4 and the volume calculations for soil to be removed are presented in Appendix A and summarized on Table ES-1. This soil must be disposed as TSCA waste. TSCA anti-dilution Rule [40 CFR §761.1(b)] states that it is prohibited to dilute PCB materials at a concentration of greater than or equal to 50 mg/kg with PCB-free materials or low concentration PCB materials in order to reduce the concentration in the resultant mixture to below 50 mg/kg. Therefore, for this project PCB contaminated soils with PCB concentrations greater than or equal to 50 mg/kg cannot be mixed with non-PCB contaminated soils or PCB contaminated soils with PCB concentrations less than 50 mg/kg to avoid land disposal restrictions.

3.3 DEWATERING

When necessary, excavated soil and sediments will be placed on the dewatering pad and allowed to drain by gravity. Following dewatering, the Contractor will collect the required disposal analyses

(characterization samples) and mix the sediment lift to promote additional dewatering. It is anticipated that the only material that will need dewatering includes floodplain soil and channel/stream sediment. Sediment and erosion controls must prevent migration of TSCA-level contamination to non-TSCA level materials.

The Contractor is responsible to cover and maintain covers at the excavation sites to minimize dewatering requirements. Additionally, excavation during periods of "heavy precipitation" is to be avoided. A heavy precipitation is any precipitation event that would require dewatering of the excavated materials.

Because of the tendency of PCBs to bond with soil and sediment and not be water soluble, water removed from material within the dewatering pad is not expected to contain PCB contamination after the filtering process is completed. Therefore, following filtration, the water is not expected to require further treatment. The water drained from the sediments will be containerized, filtered, and each batch of water to be discharged will be analyzed (characterized) prior to discharge. All discharges to the NSA Crane NPDES-permitted WWTP must meet a discharge limit of 3 µg/L PCBs and 100 µg/L total toxic organics [40 CFR §761.69(b)(1)(ii)]. If filtered waters are discharged to the drainage channel the unrestricted discharge limit is 0.5 µg/L PCBs, as required by 40 CFR §761.79(b).

3.4 SAMPLING AND ANALYSIS

Support area verification samples will be collected by Tetra Tech from the surface soil below the decontamination pad, material storage area, dewatering pad, and temporary access trails. Additional excavation may or may not be required, based on the results of this verification sampling. Soil that exceeds 50 mg/kg total PCBs, as determined by in-situ delineation, will be excavated for disposal off site at a Navy-approved TSCA or Subtitle C hazardous waste facility as PCB-contaminated soil; all other soil with total PCB concentrations greater than 1 mg/kg will be disposed as non-hazardous waste in a Navy-approved facility. Excavation and confirmation sampling and analysis will continue until the total PCB concentration is no longer greater than 1 mg/kg.

3.5 DISPOSAL

Dewatering pad materials, filtered solids, filter media, and excavated soils and sediments will be sampled by the Contractor and analyzed (characterized) for waste disposal using the methods required by the NSA Crane-approved waste disposal facility. The soils and sediments will be sampled following the dewatering process and the disposal requirements for these media are presented in earlier sections. The

dewatering pad materials will be sampled upon decommissioning of the dewatering pad. PCB impacted decontamination wastes (e.g., residues and filter media) should be disposed of in accordance with 40 CFR §761.79(b)(1)(ii), i.e., in a manner commensurate with the level of PCB contamination adhering to or contained in the wastes. The Contractor is responsible for satisfying all disposal requirements of the selected disposal facility. Table ES-1 summarizes the volumes of soil and sediment expected to be disposed off-site. Only the approximate weight of surface and buried debris could be estimated based on the current information and the dewatering pad disposal volume should be identified in the Contractor's work plan. Total off-site disposal volumes in Table ES-1 also exclude the volume of the surface debris from Northwest Ditch.

3.6 BACKFILLING

Floodplain surface soil, building area, drainage channel, and stream excavation areas will be backfilled to pre-construction conditions. Backfill material is to be staged on site such that backfilling activities can commence immediately upon completion of an excavation, or no later than at the end of each excavation day. The backfill materials obtained from an off-site borrow source will have properties similar to the native SWMU 17 soils and sediments. These soils will be subject to analytical testing by the Contractor to assure the material satisfies the following requirements:

- Total petroleum hydrocarbon, diesel range organics, EPA SW-845 8015M DRO - less than 1 ppm
- Total petroleum hydrocarbon, gasoline range organics, EPA SW-845 8015M GRO - less than 1 ppm
- Sum of benzene, toluene, ethylbenzene, and xylenes, EPA SW-846 5030 / 8021 - less than 1 ppm
- Characteristic waste determination (ignitability, corrosivity, reactivity, and toxicity), EPA SW-846 1311 - shall not fail the test for characteristic waste
- Total PCB, EPA SW-846 8082 - less than 1 ppm.

Additionally, the backfill material shall meet the following physical characteristics for each of the four types (Groups) of excavation areas.

Drainage Channel and Stream Excavation Backfill (Groups 1 and 2) – Backfill for the drainage channel and stream excavation areas will be placed and compacted, for example, by track-walking across the backfilled area with a track-type tractor or equivalent. The backfill material placed on the drainage channel and stream side slopes, shall meet the following physical characteristics:

- ASTM D 2487, Classifications GW, GP, GM, SW, SP, or SM
- ASTM D 4318, Liquid limit, 35 maximum
- ASTM D 4318, Plasticity index, 12 maximum
- Maximum of 25 percent by weight passing ASTM D 1140, No. 200 sieve
- Maximum particle size of 2 inches

The backfill material to be used to re-establish the drainage channel and stream beds will satisfy the Indiana Department of Transportation (IDOT) requirements for bank-run sands and gravel.

Large rocks that were removed from the drainage channels and streams, cleaned, and saved during excavation activities will be used to help re-establish the drainage channels and streams at the general locations from where they were removed.

Floodplain Surface Soil Excavation Backfill (Group 3) - Backfill soil for the floodplain excavation areas will be placed in 0.5 to 1-foot thick lifts and compacted, for example, by track-walking across the backfilled area with track-type equipment. The backfill material shall meet the following physical characteristics:

- ASTM D 2487, Classifications GW, GP, GM, SW, SP, or SM
- ASTM D 4318, Liquid limit, 35 maximum
- ASTM D 4318, Plasticity index, 12 maximum
- Maximum of 25 percent by weight passing ASTM D 1140, No. 200 sieve
- Maximum particle size of 1 inch

Building Area Excavation Backfill (Group 4) -- Backfill for the building areas will be placed and compacted to 95% of ASTM D 698, using excavation and/or compaction equipment. The backfill material placed shall meet the following physical characteristics:

- ASTM D 2487, Classifications GM, SW, SP, SM, SC, ML, ML-CL, or CL
- ASTM D 4318, Liquid limit, 40 maximum
- ASTM D 4318, Plasticity index, 25 maximum
- Maximum particle size of 2 inches

3.7 RESTORATION

The disturbed areas backfilled and regraded as part of the IMWP implementation will be restored/stabilized using permanent stabilization practices. Restoration will consist of surface preparation, fertilizing, seeding, mulching, gravel surfacing, and stream restoration, where appropriate. Seeding procedures and procedures for associated activities (fertilizing and mulching) are presented in detail in Section 4.4. The following paragraphs describe the restoration activities to be performed at each of the four types of excavation areas.

Drainage Channel Excavation Area Restoration – Restoration includes placing biodegradable erosion control matting in the grass-lined portions, seeding, and placing bank-run sands and gravels and large rocks removed during excavation. The upper reaches of the drainage channels to be excavated are grass-lined and the lower reaches are lined with sands and gravels. The Contractor will identify these transitions prior to excavation and restore the drainage channels to pre-construction conditions.

Stream Excavation Area Restoration – Restoration includes seeding and placing bank-run sands and gravels and large rocks removed during excavation. Biodegradable erosion control matting will be used in portions of the stream channels that are grass-lined. Seeding will be performed on the banks of the excavated streams, and in portions of the stream that were grass-lined prior to excavation, and sands, gravels, and rocks will be placed within the stream bed. The Contractor will identify stream conditions and take photographs of natural pools, locations of natural aquatic features, and locations of stream bed transitions from grass lined to sand and gravel lined prior to excavation and restore the disturbed stream sections to pre-construction conditions, including pre-construction alignment and pre-construction aquatic features.

Floodplain Excavation Area Restoration – Restoration includes placement of biodegradable erosion control matting, seeding, and placing common fill/topsoil and large rocks removed during excavation. Biodegradable erosion control matting will be used over the entire excavation area.

Building Areas – Restoration includes seeding and replacement of gravel and asphalt pavement. Existing gravel surfaces shall be returned to gravel surfaces by providing a 6-inch thick layer of gravel, matching the existing gravel, compacted with excavation and/or compaction equipment. Grassy surfaces shall be restored to grassy condition. Removed roadway (asphalt pavement) shall be restored to original condition or better by replacing the roadbed and pavement.

Building Area Excavation Restoration - Restoration includes placement of biodegradable erosion control matting in slopes areas, seeding, and placing common fill and large rocks removed during excavation. The areas must be returned to original grade and allowance for settling must be made, especially in the deeper areas of excavation such as Areas 4A and 4B.

3.8 EROSION AND SEDIMENT CONTROL

Before excavation activities begin, erosion and sediment controls will be established to prevent impacts to surface water downgradient of the disturbance areas, namely Boggs Creek (see Section 4.0). These controls must especially prevent migration of TSCA-level contamination to non-TSCA level materials.

During excavation, backfilling, and restoration operations and until stabilization is achieved, either through placement of biodegradable erosion control matting or vegetation establishment, the erosion and sediment controls will be regularly inspected and maintained. Erosion and sediment control requirements to be complied with during IMWP implementation include the Indiana Handbook for Erosion Control in Developing Areas (IDEM, 1992).

3.9 GRAVEL CONSTRUCTION ENTRANCE

Gravel construction entrances will be installed from the access trails to the disturbed areas, which are described in detail in Section 4.0. The Contractor is required to minimize the amount of disturbance to the wooded areas where excavation activities will be performed. This requirement and the Navy's selected construction phasing will result in the use of several temporary access trails. The Contractor will be required to have a gravel construction entrance at the end of each temporary access trail that connects to NSA Crane facility roads.

3.10 DECONTAMINATION PAD

A temporary decontamination pad will be set up to clean equipment used to excavate and transport contaminated soils and sediments at an estimated four locations. The pads will be sized to accommodate all the equipment to be used at the site and will be constructed in a manner that contains all the contaminated materials removed from equipment and the liquids used to clean the equipment. Contaminated materials removed from the equipment will be disposed off-site with the excavated sediment and soil. Wash water will be filtered and discharged to the NSA Crane sanitary sewer system. Additional decontamination pad requirements are discussed in Section 4.5. Care will be taken to keep off-road transport equipment clean to minimize the spread of contaminated soils and sediments to areas

adjacent to the excavations or the temporary access trails. Any soil or sediment removal from these areas and the associated disposal and restoration costs will be the responsibility of the Contractor.

3.11 DEWATERING PAD

A temporary dewatering pad will be set up to dewater sediments excavated from the drainage channels and streams at an estimated two locations. The dewatering pads will be sized to accommodate excavated sediments and loading equipment, as necessary. The dewatering pads will be constructed in such a manner that will retain all materials while allowing the water to drain by gravity from the sediment and be collected in a sump. The water will then be filtered to remove any remaining sediments. Following the filtering of the water, and if approved by the OICC, the filtered water will be discharged to an NSA Crane approved stabilized drainage channel or storm drain or disposed off-site. The filtered water will be characterized and if the water contains a total PCB concentration greater than 3 µg/L, it will be disposed at a Navy-approved wastewater disposal facility. If the total PCB concentration of the water is less than or equal to 0.5 µg/L, and if the NSA Crane OICC approves, the filtered water will be discharged to an NSA Crane approved stabilized drainage channel or storm drain. If the total PCB concentration is greater than or equal to 0.5 µg/L and less than 3 µg/L and the OICC approves, the water may be discharged to a NSA Crane WWTP manhole designated by NSA Crane. Water with PCB concentrations greater than 3 µg/L must be removed to an off-site treatment facility.

3.12 CLEARING

Clearing will be performed only within the limits of disturbance shown on Figures 3-1 through 3-5. Any disturbance for access trails as shown on Figures 4-1 and 4-2 should be detailed in the Contractor's work plan. Clearing activities will be kept to a minimum to minimize impacts to natural habitat. Vegetation cleared at a height greater than 1 foot above ground surface will be chipped and used for the temporary access trails. Standing trees will not be removed between April 1 and September 30 to comply with Indiana bat regulations, further addressed in Section 3.16.2.

3.13 TEMPORARY ACCESS TRAILS

Temporary access trails will be constructed with chipped vegetation obtained during clearing operations and wood chips and/or mulch material obtained from an off-site borrow source. The temporary access trails will be left in place following the completion of this IM.

3.14 STORMWATER POLLUTION PREVENTION

The SWMU 17 ground surface hydrology, grading, and cover will not be altered due to IMWP implementation activities. Pre- and post-development runoff from the limits of disturbance will be the same; therefore, additional stormwater detention capacity is not required.

An IDEM Storm Water General Permit is required (stormwater permits are required for disturbances greater than 1 acre). Navy construction phasing may result in smaller areas of disturbances; in these cases, a permit may not be required. In addition, because IM activities include working in and around a water course, the IDEM 401 Permit and Department of Natural Resources (DNR) Construction in Floodway Permit is required (refer to Table 3-1). Additionally, IMWP implementation activities require the use of best management practices for erosion and sediment control and stormwater pollution prevention as described in Section 4.0.

3.15 OTHER IMWP IMPLEMENTATION REQUIREMENTS

3.15.1 Utilities

The Contractor is required to verify all utility locations and adequately protect any utilities located in the active work areas before any earth-disturbing activities begin.

3.15.2 Protection of Natural Resources

Threatened and endangered species or species of special concern protected under Indiana or Federal regulations exist or may exist in SWMU 17 and will be protected. Protected bird species that may use SWMU 17 as part of their home ranges include the bald eagle, osprey, sharp-shinned hawk, red-shouldered hawk, broad-winged hawk, black and white warbler, hooded warbler, and the worm-eating warbler (B&RE, 1997). Also, the Indiana bat, a federal endangered species, is known to forage at NSA Crane. During the spring and summer, Indiana bats roost in trees and forage for insects primarily in riparian and upland forests. The most important characteristic of roost trees is thought to be structural-exfoliating bark with space for bats to roost between the bark and the bole of the tree. To a limited extent, tree cavities and crevices are also used for roosting.

In 1997, NSA Crane received a letter from the USFWS stating that, in their opinion, NSA Crane had an abundance of Indiana bat habitat and that any activity that would result in the clearing of woody vegetation may affect the Indiana bat and would require consultation under the Endangered Species Act (ESA). The USFWS recommended interim guidelines for protecting Indiana bats and their habitat from

silvicultural activities, and these recommendations were immediately implemented by NSA Crane under the timber management program.

Due to the presence of the Indiana bat and its potential habitat, the cutting of trees at NSA Crane is restricted to certain times during the year, and the cutting of shagbark hickory trees (potential Indiana bat habitat) is prohibited. A summary of Indiana bat-related restrictions prepared by the NAVFAC Crane Natural Resources Office (i.e., "bat primer") is as follows:

- Woody vegetation that is 5 inches in diameter or greater at 4.5 feet above the ground surface may not be removed between April 1 and September 30.

- Standing dead trees may not be removed between April 1 and September 30.

- Timber harvesting may occur between October 1 and March 31 without a case-by-case consultation provided the interim guidelines for silvicultural treatment issued to the NSA Crane Natural Resources Office by the USFWS are followed.

- During emergency situations, necessary and prudent tree removal is allowed at all times without consultation. Though the need for emergency tree cutting is unlikely, any emergency tree cutting that occurs from April 1 through September 30 must be reported immediately to the NAVFAC Crane Natural Resources office and must be reported to the US Fish and Wildlife service within 24 hours of the tree cutting.

- Brush clearing of woody vegetation less than 3 inches in diameter at 4.5 feet above the ground may occur at any time of the year without consultation.

- All other tree removal or clearing projects not covered above must be submitted to the NAVFAC Crane Natural Resources Office for informal consultation with the USFWS on a case-by-case basis.

3.15.3 Traffic Control Plan

Access to NSA Crane is via four gates: the Main Gate referred to as the Bloomington Gate (Gate House No. 1) in the north, Burns City Gate (Gate House No. 2) in the west, Bedford Gate (Gate House No. 3) in the east, and Crane Gate (Gate house No. 4) in the northwest. NSA Crane will be accessed by the Contractor only through the Crane Gate. All vehicles will pass through the Crane Gate via the traffic

routing plan shown on Figure 3-7. The Contractor is not permitted to travel within restricted areas of the Crane facility. All waste hauling vehicles will be weighed upon arrival and at time of departure using the certified weight scale located at the Defense Reutilization and Marketing Office (DRMO) (Building 1940). The DRMO scale is operated during normal business hours, and weight tickets are available. The DRMO scale is the preferred scale for Contractors' use. Alternatively, if the DRMO scale is not available, the Army scale (Building 2913) may be used. The Army scale is no longer manned and weight tickets are not available. However, a weight readout is available at the Army scale. If this scale is used, the Contractor is required to maintain a log of recorded weights.

3.15.4 Contractor Requirements

The Contractor will be required to perform all IMWP implementation activities in accordance with the Contractor's Basic Contract, NSA Crane Contractor's Operations Manual (NSWC Crane, 2002), and supplemental specifications provided in Appendix B.

The IWMP will be implemented by the Contractor, NSA Crane, and Tetra Tech, with work assignments summarized on Table 3-1.

3.16 IMPLEMENTATION

The Contractor will coordinate all field work through the OICC.

IMWP implementation may be impacted by NSA Crane activities and the facility's "Protective Measures". NSA Crane will implement a corresponding set of "Protective Measures" based on the warnings provided by the Homeland Security Advisory System in the form of graduated "Threat Conditions." The Contractor will be subject to any implemented "Protective Measures."

The Navy will provide a full-time oversight representative during IMWP implementation. Potable water for project personnel and equipment decontamination will be provided by NSA Crane.

TABLE 3-1

WORK ASSIGNMENT RESPONSIBILITY CHART
INTERIM MEASURES WORK PLAN SWMU 17 – PCB CAPACITOR BURIAL/POLE YARD
NSA CRANE
CRANE, INDIANA

WORK ITEM	CONTRACTOR	NSA CRANE	Tetra Tech
Pre-IMWP Implementation Meeting	X	X	X
Interim Measure Implementation	X		
Contractor Work Plan [1]	X		
Site Specific Health and Safety Plan / Activity Hazard Analysis	X		
Project Quality Control Plan	X		
Surveying and marking of excavation node			X
Environmental Conditions Report	[2]		X
Permits			
- Safety & Building Availability Permit (ESO 8020/11)	X		
- Digging Permit (NWSCC 11000/3)	X	[3]	
- Flame Tool / Hot Work Permit (NWSCC 11320)	X		
- HERO Permit (approval for portable radios)	X		
- Tree Clearing Permit		X	
- IDEM Storm Water General Permit			X
- IDEM 401 Permit			X
- DNR Construction in the Floodway Permit			X
Field Work Reports and Submittals [4]	X		
Sampling and Analysis	X[5]		
Wastewater Disposal (Decontamination Water)	X	[6]	
CTO Closure Report	X [6]		X

NOTES:

1. Contractor Work Plan includes, but is not limited to, an excavation and handling plan, waste management plan, environmental protection plan, erosion and sediment control plan, stormwater pollution prevention plan, sampling plan, and transportation and disposal plan.
2. Contractor will participate in documenting environmental conditions before, during, and after implementation of the interim measures.
3. Contractor completes the permit form. NSA Crane performs the utility clearance.
4. Contractor will furnish items identified in the Basic Contract, NSA Crane Contractor's Operations Manual, and the Supplemental Specifications provided in Appendix B.
5. Tetra Tech will collect verification samples to confirm that the lining systems of the support facilities did not fail during the implementation of this IM. Contractor will be responsible for collection, storage, characterization, and discharge of wastewater to the NSA Crane approved stabilized drainage channel, storm drain, or wastewater treatment plant. Contractor will be required to characterize backfill materials. Contractor will be required to characterize soil and sediment to meet non-PCB disposal criteria of the disposal facility.
6. Contractor will furnish items identified in the Supplemental Specifications provided in Appendix D.

CTO - Contract Task Order
HERO - Hazards of Electromagnetic Radiation to Ordnance
IMWP - Interim Measures Work Plan
NSA - Naval Support Activity
Tetra Tech - Tetra Tech, Inc.
X – Indicates responsible party

TABLE 3-2

EXCAVATION NODE NORTHING AND EASTING COORDINATES
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE
CRANE, INDIANA

Node ID	Northing	Easting
1	1318121.06000	3021459.31000
1a	1318092.72048	3021459.27123
2	1318181.79095	3021539.88743
3	1318229.07050	3021588.60621
4	1318231.79323	3021613.73167
5	1318088.85980	3021482.58282
6	1318097.65840	3021564.95510
7	1318101.15820	3021525.52920
8	1318104.34244	3021514.07874
9	1318130.44450	3021600.79470
10	1318165.34340	3021608.57260
11	1318200.16200	3021658.39070
12	1318225.71160	3021683.53790
13	1318238.61581	3021687.99312
14	1318251.10883	3021654.47882
15	1318244.39540	3021780.76890
15a	1318248.11165	3021830.96797
16	1318245.83000	3021877.81000
17	1318230.13590	3021907.53440
17a	1318204.87100	3021923.70840
18	1318186.90855	3021912.89370
19	1318227.79397	3021772.78953
20	1318228.57510	3021764.25450
21	1318184.43459	3021743.23224
22	1318183.13251	3021757.16453
23	1318187.68980	3021774.09162
24	1318155.65855	3021787.24266
25	1318149.40855	3021794.27391
26	1318193.80959	3021796.87807
27	1318193.80959	3021807.42495
28	1318206.43980	3021807.42495
29	1318193.02834	3021820.18537
30	1318175.18980	3021857.29474
31	1318168.66080	3021899.02220
32	1318164.25410	3021943.61510
33	1318183.52313	3022000.39370
34	1318107.19590	3022192.60920
35	1318097.89240	3022221.57010

TABLE 3-2

EXCAVATION NODE NORTHING AND EASTING COORDINATES
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE
CRANE, INDIANA

Node ID	Northing	Easting
36	1318089.29710	3022239.30720
37	1318073.10644	3022235.21676
38	1318089.25228	3022184.30530
39	1318054.26963	3022666.75502
40	1318032.81900	3022693.29200
41	1318075.19346	3022761.05642
42	1318084.52506	3022747.27603
43	1318093.30930	3022751.16320
44	1318083.99730	3022789.19940
45	1318060.54502	3022850.90017
46	1318044.26898	3022830.17534
47	1318042.42436	3022876.83333
48	1318050.17480	3022875.32020
49	1318025.92392	3023009.95968
50	1318081.90300	3023021.17470
51	1318104.14200	3023166.25540
52	1318099.81776	3023226.17216
53	1318115.18235	3023257.55237
54	1318132.23964	3023268.35966
55	1318149.94797	3023286.45862
56	1318127.43000	3023312.29860
57	1318139.71120	3023356.86150
58	1318133.15110	3023361.19820
58a	1318132.69788	3023378.99582
58b	1318156.45037	3023446.97709
59	1318114.53130	3023276.56278
60	1318108.02060	3023277.09360
61	1318097.56060	3023266.92250
62	1318100.31620	3023247.82250
63	1318081.34930	3023235.47340
64	1318090.31255	3023221.61487
65	1318063.88026	3023235.54716
66	1318029.50526	3023207.03153
67	1318026.64068	3023182.55237
68	1318035.10422	3023181.64091
69	1318046.43235	3023095.96383
70	1318015.96360	3023096.22424
71	1318185.91990	3023569.38040

TABLE 3-2

EXCAVATION NODE NORTHING AND EASTING COORDINATES
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE
CRANE, INDIANA

Node ID	Northing	Easting
72	1318230.97995	3023621.77575
73	1318219.91224	3023631.21586
73a	1318202.36534	3023609.52961
74	1318215.68047	3023635.44763
75	1318201.43670	3023620.66380
76	1318161.31849	3023604.84867
77	1318170.97561	3023591.82784
78	1318141.98810	3023689.16960
79	1318147.33190	3023702.80030
80	1318131.17090	3023710.34730
81	1318127.62020	3023691.59020
82	1317782.10977	3021987.47334
83	1317815.90242	3022011.52857
84	1317816.17502	3022017.98237
85	1317775.57941	3022018.24809
86	1317768.91131	3022018.04977
87	1317816.78464	3022032.41479
88	1317814.47862	3022047.52221
89	1317812.39768	3022061.15500
90	1317809.52288	3022079.98861
91	1317803.32369	3022097.99232
92	1317764.12298	3022097.88988
93	1317760.37897	3022090.89125
94	1317747.59813	3022067.00012
95	1317749.69719	3022066.42765
96	1317778.83809	3022061.44601
97	1317778.09156	3022047.75851
98	1317766.09590	3022027.90434
99	1317765.72408	3022034.47614
100	1317741.18418	3022031.47556
101	1317732.47814	3022071.20986
102	1317721.31200	3022083.53200
103	1317736.85696	3022094.18846
104	1317734.88800	3022111.78300
105	1317717.89000	3022112.96000
106	1317715.26900	3022123.55400
107	1317699.57400	3022120.80800
108	1317700.61367	3022105.11200

TABLE 3-2

EXCAVATION NODE NORTHING AND EASTING COORDINATES
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE
CRANE, INDIANA

Node ID	Northing	Easting
109	1317711.05540	3022113.36260
110	1317676.79867	3022095.40800
111	1317664.76640	3022086.87140
112	1317654.56670	3022086.87140
113	1317657.38310	3022095.07520
114	1317656.11211	3022108.77966
115	1317644.25860	3022108.57280
116	1317634.27597	3022116.92784
117	1317634.33182	3022118.21034
118	1317671.82092	3022123.77704
119	1317700.50287	3022134.89960
120	1317720.76318	3022152.14074
121	1317732.83789	3022167.98462
122	1317742.34400	3022144.35000
123	1317756.15630	3022143.25850
124	1317756.31320	3022110.07560
125	1317777.18241	3022108.95530
126	1317799.71280	3022108.47906
127	1317625.70392	3022087.52245
128	1317613.59450	3022097.15780
129	1317624.20371	3022118.75994
130	1317592.49311	3022127.75146
131	1317593.36885	3022097.39659
132	1317599.67260	3022087.83210
133	1317613.76810	3022076.88870
134	1317592.82630	3022076.67170
135	1317588.62736	3022065.41404
136	1317586.93600	3022065.40800
137	1317573.18656	3022076.34624
138	1317573.51208	3022097.17957
139	1317582.19263	3022108.89832
140	1317666.09184	3022177.10423
141	1317684.12037	3022175.20940
142	1317711.99540	3022194.02730
143	1317713.62030	3022210.04510
144	1317720.99035	3022210.83312
145	1317719.27589	3022231.28118
146	1317715.33252	3022261.62290

TABLE 3-2

EXCAVATION NODE NORTHING AND EASTING COORDINATES
INTERIM MEAUSRES WORK PLAN, SWMU 17 - PCB CAPACITOR BURIAL / POLE YARD
NSA CRANE
CRANE, INDIANA

Node ID	Northing	Easting
147	1317701.23100	3022258.37700
148	1317691.03640	3022270.56230
149	1317695.10400	3022288.11900
150	1317711.16042	3022289.79889
151	1317703.91107	3022332.39760
152	1317701.83000	3022332.40000
153	1317681.73180	3022340.71160
154	1317673.40590	3022368.74000
155	1317687.22220	3022370.66510
156	1317695.86400	3022380.50717
157	1317693.97394	3022392.45813
158	1317686.55100	3022393.04800
159	1317683.72720	3022382.24390
160	1317662.29198	3022358.80388
161	1317658.94359	3022350.76774
162	1317654.51100	3022341.22200
163	1317660.25500	3022312.24500
164	1317646.72180	3022309.76473
165	1317717.39782	3022386.82238
166	1317720.06300	3022387.28300
167	1317729.69700	3022377.21900
168	1317724.85780	3022353.73851
169	1317747.52800	3022345.71580
170	1317757.72730	3022347.87980
171	1317763.01400	3022359.60400
172	1317788.67200	3022379.64500
173	1317826.15593	3022400.49814
174	1317822.48479	3022456.96307
175	1317799.65407	3022441.63050
176	1317720.11660	3022431.02100
177	1317714.95350	3022412.48840
178	1317711.47157	3022411.84307
179	1317569.05035	3022035.33793
180	1317264.88368	3021766.58793
181	1317163.14757	3021669.01848

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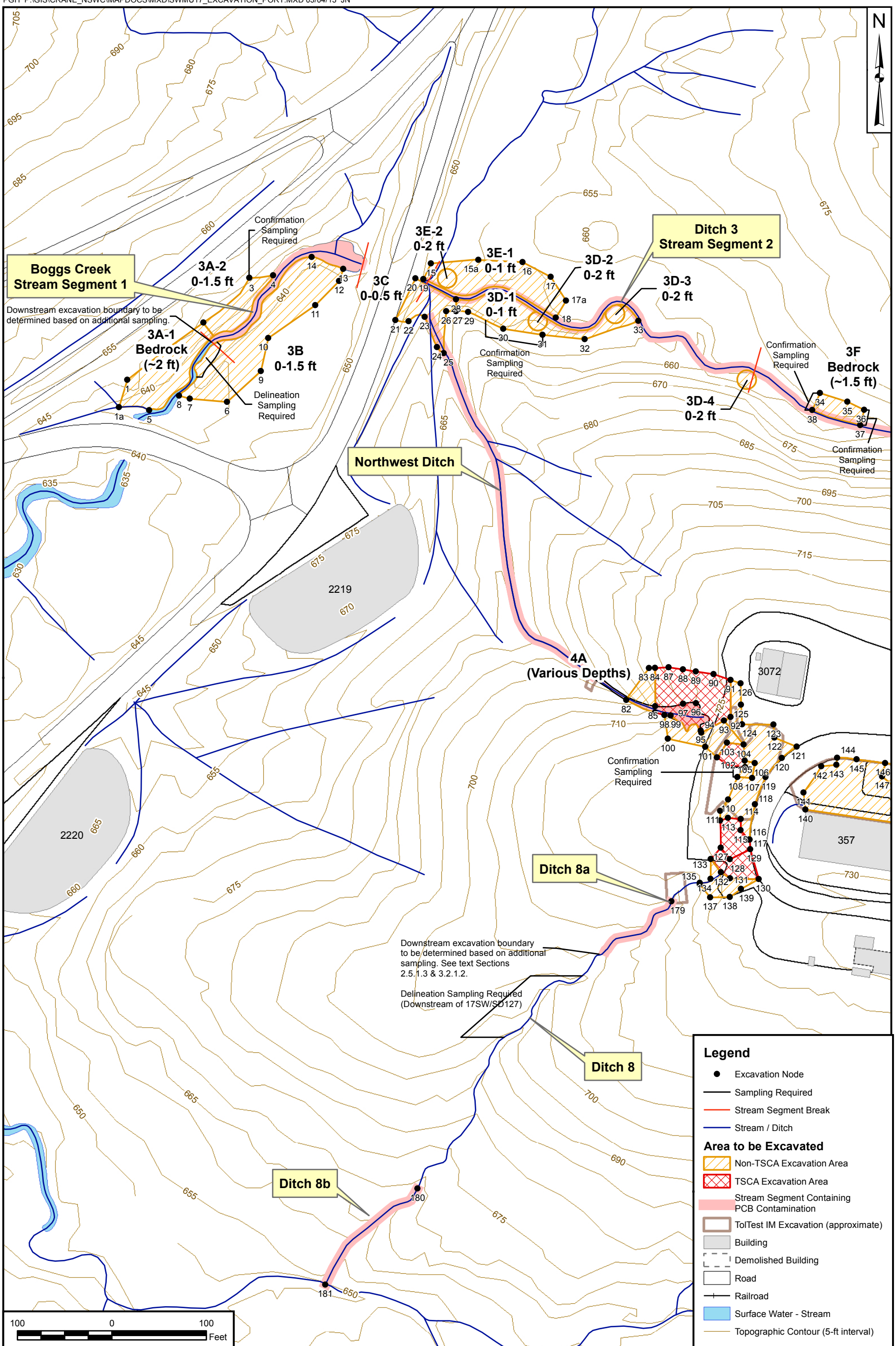

DRAWN BY / DATE	J. NOVAK 06/21/12
CHECKED BY / DATE	T. JOHNSTON 03/04/13
REVISED BY / DATE	J. NOVAK 03/04/13
SCALE	AS NOTED

NAVFAC

EXTENT OF SEDIMENT EXCAVATION IN NORTHWEST DITCH AND DITCH 8
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
APPROVED BY / DATE	
APPROVED BY / DATE	
FIGURE NO.	REV
3-1	0

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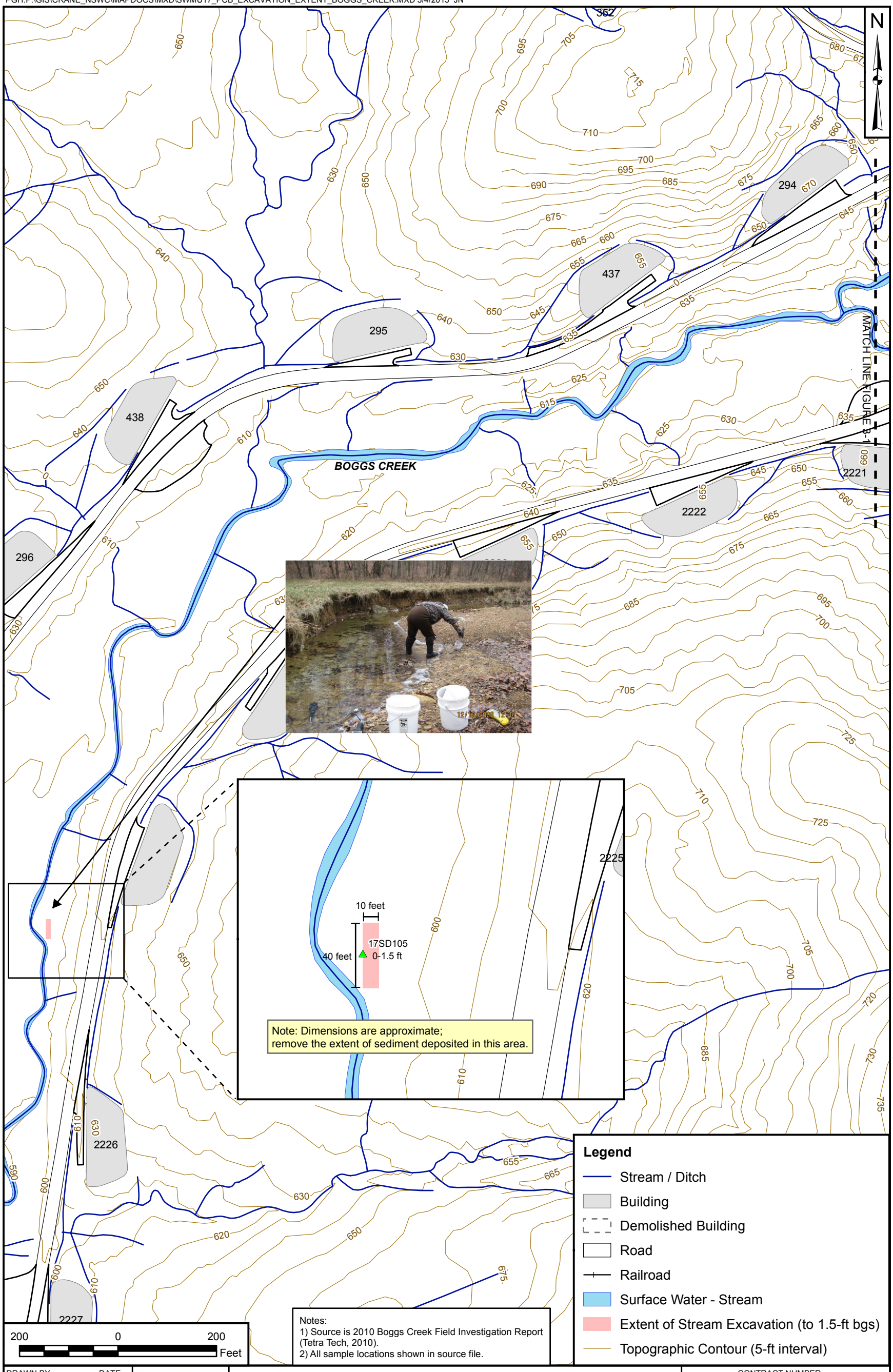

DRAWN BY	DATE
K. MOORE	5/11/11
CHECKED BY	DATE
T. JOHNSTON	03/04/13
REVISED BY	DATE
J. NOVAK	03/04/13
SCALE	
AS NOTED	

NAVFAC

EXTENT OF SEDIMENT EXCAVATION IN AREA 17SD105 AREA
SWMU 17 PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	
CTO F271	
APPROVED BY	DATE
—	—
APPROVED BY	DATE
—	—
FIGURE NO.	REV
3-2	0

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N

Boggs Creek Stream Segment 1

3A-2 0-1.5 ft

Confirmation Sampling Required

Downstream excavation boundary to be determined based on additional sampling.

3A-1 Bedrock (~2 ft)

3B 0-1.5 ft

Delineation Sampling Required

3E-2 Bedrock (0-2 ft)

3C 0-0.5 ft

3E-1 0-1 ft

3D-1 0-1 ft

3D-2 Bedrock (0-2 ft)

3D-3 Bedrock (0-2 ft)

Ditch 3 Stream Segment 2

3D-4 Bedrock (0-2 ft)

Confirmation Sampling Required

3F Bedrock (~1.5 FT)

Ditch 3 Stream Segment 3

Confirmation Sampling Required

Matchline Figure 3-4

Northwest Ditch

2219

Ditch 2

4A (Various Depths)

3072

Delineation Sampling Required

Confirmation Sampling Required

4C 0-2.5 ft

4B-2 1.5 ft to 4 ft

4B-3 0 ft to 4 ft

4B-1 1.5 ft to 3 ft

4B-50 1.5 ft to 4 ft

357

Ditch 8

100 0 100 Feet

Legend

- Excavation Node
- Stream Segment Break
- Stream / Ditch

Area to be Excavated

- Non-TSCA Excavation Area
- TSCA Excavation Area
- Stream Segment Containing PCB Contamination
- TolTest IM Excavation (approximate)
- Building
- Demolished Building
- Road
- Railroad
- Surface Water - Stream
- Topographic Contour (5-ft interval)

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FIGURE NO. 3-3

REV 0

EXTENT OF SEDIMENT AND SOIL EXCAVATION IN DITCH 3
STREAM SEGMENTS 1 THROUGH 3 AND TOLTEST EXCAVATION AREA
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

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REVISED BY J. NOVAK	DATE 3/4/2013
SCALE AS NOTED	

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N

Matchline Figure 3-3

Ditch 3
Stream Segment 4

Ditch 3
Stream Segment 5

Ditch 3
Stream Segment 6

Ditch 2

3G
Bedrock
(0-1 ft)

3H
Bedrock
(0-1 ft)

3I
Bedrock
(0-1.5 ft)

3J
0-0.5 ft in Floodplain
0-1.5 ft in Oxbow

Floodplain

Oxbow

3K
Bedrock
(0-1 ft)

3L
Bedrock
(~1.5 ft)

3M
0-0.5 ft

3N
0-1 ft

Downstream
Non-TSCA Sediment

Downstream
TSCA Sediment

Upstream
TSCA Sediment

Upstream
Non-TSCA Sediment

3O
Bedrock
(~1.5 ft)

3P
Bedrock
(~1 ft)

4D
0-2 ft

Confirmation
Sampling
Required

Confirmation
Sampling
Required

Confirmation
Sampling
Required

2721

353

354

355

NSA CRANE

Legend

- Excavation Node
- Stream Segment Break
- Stream / Ditch

Area to be Excavated

- Non-TSCA Excavation Area
- TSCA Excavation Area
- Stream Segment Containing PCB Contamination
- Building
- Demolished Building
- Road
- Railroad
- Surface Water - Stream
- Topographic Contour (5-ft interval)

100 0 100 Feet

FIGURE 3-4
CTO F271

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FIGURE NO. 3-4

REV 0

EXTENT OF SEDIMENT AND SOIL EXCAVATION IN DITCH 3
STREAM SEGMENTS 4 THROUGH 6 AND AREA 4D
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
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Northwest Ditch

Dump/Fill Area

3072

4A-1 0-4 ft

4A-6 Various Depths

4A-4 TSCA 0-6 ft

4A-2 0-4 ft

4A-5 0-4 ft

4A-3 0-8 ft

Confirmation Sampling Required

4A-10 0-9 ft

4A-7 TSCA 0-7 ft

4A-9 TSCA 0-4 ft

4A-8 0-6 ft

Ditch 8

Ditch 2

Confirmation Sampling Required

Confirmation Sampling Required

4C 0-2.5 ft

4B-2 1.5 ft to 4 ft

4B-50 1.5 ft to 4 ft

4B-3 0 ft to 4 ft

4B-1 1.5 ft to 3 ft

357

3161

356

700 705 710 725 730 680 695

Legend

- Excavation Node
- Stream Segment Break
- Stream / Ditch

Area to be Excavated

- Non-TSCA Excavation Area
- TSCA Excavation Area
- Stream Segment Containing PCB Contamination
- Debris Area
- Toltest IM Excavation (approximate)
- Building
- Demolished Building
- Road
- Railroad
- Surface Water - Stream
- Topographic Contour (5-ft interval)

50 0 50 Feet

EXTENT OF SEDIMENT AND SOIL EXCAVATION AT AREAS 4A, 4B AND 4C
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

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FIGURE NO. 3-5

REV 1

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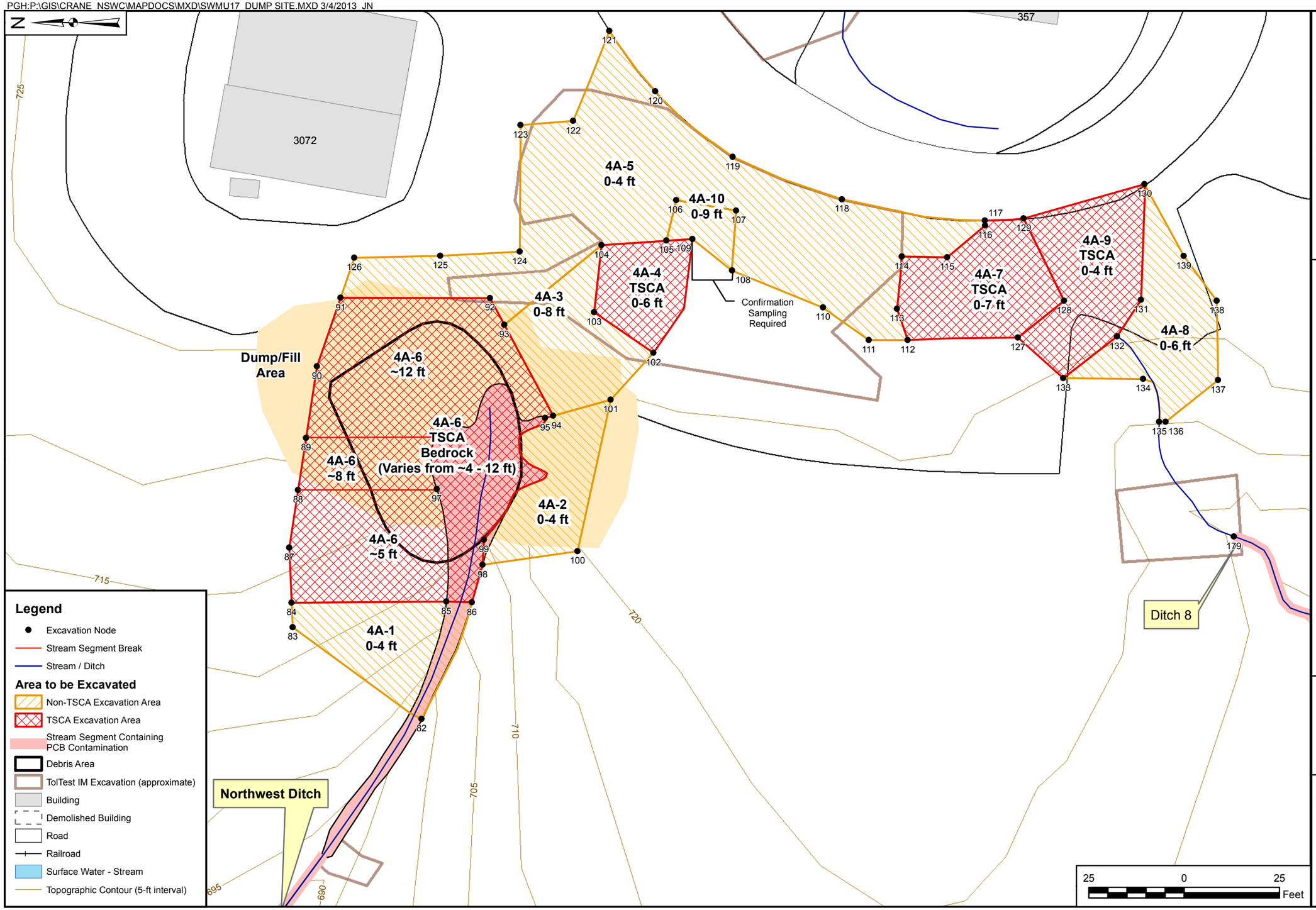

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FIGURE NO. 3-6

REV 1

DUMP/FILL AREA EXCAVATION DETAIL
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NSA CRANE
CRANE, INDIANA

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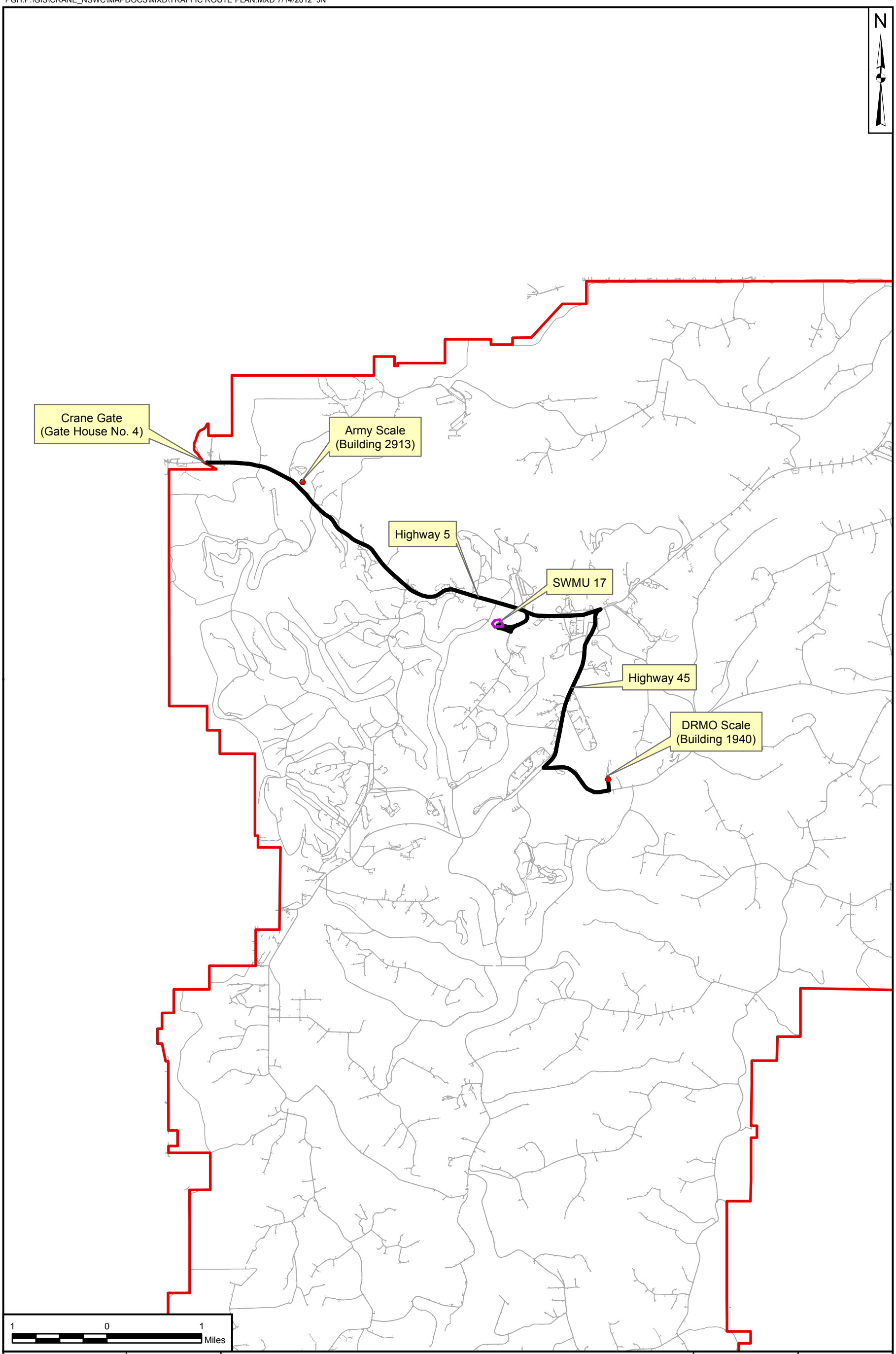

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TRAFFIC ROUTING PLAN
SWUM 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NAS CRANE
CRANE, INDIANA

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FIGURE NO.: 3-7	REV: 0

4.0 EROSION AND SEDIMENT CONTROL PLAN

4.1 PURPOSE

The purpose of this section is to provide the steps that will be taken to minimize and/or eliminate erosion and sedimentation during the implementation of the IMWP for floodplains, ditches, and streams at SWMU 17. The erosion and sediment control plan has been developed in accordance with the guidelines defined in the Indiana Handbook for Erosion Control in Developing Areas (Handbook) (IDEM, 1992). Relevant standards and specifications from the Handbook are included in this section and Appendix C. The erosion and sediment control devices described in this text can be modified based on construction equipment and techniques presented in the Contractor's Work Plan. Selected erosion and sediment control devices must be identified in the Erosion and Sediment Control Plan submitted with the Contractor Work Plan. After the Erosion and Sediment Control Plan is approved, no changes may be made without approval by the OICC and the IDEM.

The Contractor should note that this Erosion and Sediment Control Plan assumes that all elements of the SWMU 17 removal action will occur at one time. In the event the Navy elects to phase the construction activities at SWMU 17 all of the Erosion and Sediment Controls identified in this plan may or may not be required. The Contractor must identify the Erosion and Sediment Controls required for the construction activities identified in their work plan.

4.2 EROSION AND SEDIMENT CONTROL REQUIREMENTS

Erosion and sediment control measures are implemented to reduce or eliminate erosion and sedimentation of soils that would be detrimental to surface water quality. Several of the excavation activities associated with the IMWP are within or adjacent to drainage channels and streams. All the surface water runoff from disturbed areas migrates to Boggs Creek. Some of the SWMU 17 drainage channels to be excavated only carry flow from stormwater runoff during rain events; the remaining drainage channels and streams have a base flow and support aquatic life. Boggs Creek, which discharges into Lake Gallimore, is located approximately 120 feet from SWMU 17 at its closest point. Lake Gallimore discharges to a tributary of the Wabash River.

IMWP implementation activities for SWMU 17 consist of excavation and off-site disposal of PCB-contaminated surface soils and sediments, backfilling excavations, and restoration of disturbed areas. Surface soil will be excavated from the floodplains adjacent to Boggs Creek Segment 1 and Ditch 3, Segments 2 through 6, as well as the SWMU 17 Dump/Fill Area located southwest of Building 3072, the

area between Building 357 and the road to the immediate north of this building, the previously excavated soil area west and southwest of Ditch 2, and a small area immediately southwest of Building 2721. Sediment will be excavated from the Northwest Ditch, Segments 8a and 8b of Ditch 8, Boggs Creek downstream near sampling location 17SW/SD105, Boggs Creek Segment 1, and Ditch 3 Segments 2 through 6. Because of site conditions, temporary access trails will need to be constructed to allow access to the excavation areas.

Considering the type of IMWP activities and access issues, the proposed erosion and sediment control measures include the following:

- Silt Fence – Placed along the downslope sides of the gravel construction entrances, trails, and support facilities to provide a temporary sediment barrier. Silt fencing consists of synthetic filter fabric and wooden posts.

- In-stream Sediment Trap – Placed within the drainage channels and streams downstream of the portions from which PCB-contaminated sediments will be removed to provide a temporary sediment barrier while allowing flow within the disturbed channel. Multiple in-stream sediment traps will be required based on the proposed segments of channel to be disturbed within a given time period. In-stream sediment traps are constructed of gravel, riprap, and filter fabric and will not be placed greater than 300 feet apart.

- Gravel Construction Entrances – Placed as a controlled site entrance to reduce the amount of sediment transported by construction vehicles onto facility and public roads.

- Dust Control – Used to prevent surface and air movement of dust from exposed soil surfaces and to reduce the amount of airborne substances that may present health hazards, traffic safety problems, or harm plant/animal life.

- Permanent Seeding – Used to establish perennial vegetation on disturbed areas by planting seeds of native grasses.

The construction, implementation, and maintenance of these erosion and sediment control devices will be in accordance with the Handbook. Figures 4-1 and 4-2 present proposed excavation areas along with the limits of disturbance and locations of proposed erosion and sediment control devices. Figures 4-3A and 4-3B present typical details of the erosion and sediment control devices proposed for the IMWP

implementation (i.e., silt fence, gravel construction entrance, and in-stream sediment trap). It is important to note that the example (conceptual) road locations and support facility shown on Figures 4-1 and 4-2 are only examples. The excavation contractor may determine, based on field conditions, that support facility locations and size, roads, stream crossings, etc. must be moved to most efficiently support the interim measures. **THEREFORE, PRIOR TO IMPLEMENTATION OF THE INTERIM MEASURES, THE CONTRACTOR MUST SUBMIT AN UPDATED VERSION OF THESE FIGURES AND OBTAIN NAVY APROVAL OF THEM.**

Permanent seeding is discussed in Section 4.4. Dust control will be addressed in the Contractor's Work Plan. All erosion and sediment controls will remain in place until all upstream areas have been stabilized. Stabilization will be determined by the OICC.

4.3 INSPECTION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS

In general, all erosion and sediment control measures will be checked daily and after each runoff-producing rainfall event. Any required repairs will be made immediately. The following items will be checked:

- The stone construction entrance will be maintained in a condition that will minimize tracking sediment and dust onto facility or public roads.

- Silt fence will be checked for undermining or deterioration of the fabric. Sediment will be removed when the level of sediment causes bulging or reaches one-half of the fabric height.

- In-stream sediment traps will be checked for undermining or erosion around the edges of the trap(s). Sediment will be removed when the level of sediment reaches one-half the height of the in-stream sediment trap or when the quantity of flow through the in-stream sediment trap is significantly reduced.

- Seeded areas will be checked regularly to ensure that a good growth of vegetation is maintained and these areas will be fertilized and reseeded, as needed.

- The fuel and lubricant materials storage area will be checked to ensure that stored containers are not leaking and that the lining system is functioning properly.

All erosion and sediment control devices will be inspected and maintained until the OICC has formally accepted the permanent stabilization of the disturbed areas. The Contractor will maintain a log book of all erosion and sediment control device inspections and maintenance. This log book will be available at the site at all times for inspection by duly authorized officials including NSA Crane personnel and the IDEM.

4.4 SITE RESTORATION

All areas disturbed by the IMWP implementation activities (excavation and support facility areas) will be restored/stabilized using soil, gravel, bank-run sands and gravels, pavement, and permanent seeding. Activities to establish permanent stabilization will be implemented as soon as possible following the establishing of final grades. The establishment of permanent vegetation includes site/seed bed preparation, seeding, and mulching of the following locations:

- Banks of the drainage channels and streams and floodplain areas
- Drainage channel and stream beds where applicable
- Surface soils below support facilities
- Grassy areas disturbed by excavation or access/support activities

In addition, gravel shall be replaced in existing gravel areas to meet the specifications of Sections 3.6 and 3.7 and return site conditions to pre-remediation condition. Asphalt pavement that is removed as part of the Area 4A-7 excavation must be replaced to restore the road to its original condition or better.

The procedures and requirements for permanent seeding activities are presented in Section 3.7 of the Handbook. The seed mixture recommended for use at SWMU 17 is a standard Indiana seed mixture for open and disturbed areas. The seed mixture includes perennial ryegrass and tall fescue. Planting rates and optimum soil pH for this mixture are presented in Exhibit 3.12-C of the Handbook (this exhibit is provided in Appendix C). Following seeding, the seeded areas will be covered with temporary erosion control matting (e.g., coconut fiber matting) to provide additional stabilization until vegetation is established. In the event that disturbed areas are brought to final grade outside of the optimal growing season for the permanent seed mixture, the disturbed areas will be temporarily stabilized using a temporary seed mixture. The procedures and requirements for establishing temporary stabilization are presented in Section 3.11 of the Handbook. As indicated in the Handbook, erosion and sediment control devices will remain in place until permanent stabilization is established over the disturbed areas. Therefore, erosion and sediment control devices will not be removed by the Contractor until directed by the OICC.

Sections 3.11 through 3.15 (Temporary Seeding, Permanent Seeding, Dormant and Frost Seeding, and Mulching) of the Handbook are provided in Appendix C.

4.5 RESPONSE PROCEDURES FOR SPILL MITIGATION

Potential non-stormwater discharges anticipated during IMWP implementation activities include dewatering liquids, wash water resulting from decontamination efforts associated with field equipment and vehicles, fuel and lubricant spills from vehicle fueling, lubrication, and maintenance, and spills of fertilizers and small quantities of laboratory chemicals used in sample collection, and other flammable substances.

All decontamination wash water will be collected in a lined decontamination and equipment wash pad area. All waters generated from decontamination and/or other washing activities will be collected, analyzed, and transported to the NSA Crane wastewater treatment facility, if approved by NSA Crane, or to an approved off-site treatment facility. All vehicle fueling, lubrication, and maintenance will be performed utilizing drip pans to contain any spills that may occur or within the decontamination pad to contain spills. Containers of detergents and vehicle maintenance fluids (oil, grease, antifreeze, hydraulic fluid, etc.) will be stored within an enclosed, lined, diked area along with the equipment fuel, which is stored in tanks. This area, referred to as the materials storage area, will be bermed and lined with a 60-mil low-density polyethylene (LDPE) geomembrane and will be sized to contain 110 percent of the volume stored within the area. A small sump or low point in the liner will be designed to serve as a collection and monitoring point for any leaks or spills from the containers stored within the materials storage area. When not in use, chemicals, paints, and other flammable substances must be stored in a flammable materials storage cabinet. A HAZMAT locker may be placed temporarily onsite during remediation.

Good housekeeping procedures will be followed to reduce risks associated with these materials. These procedures include, but are not limited to, keeping materials in their original containers whenever possible, maintaining original labels and Material Safety Data Sheets (MSDSs), and using proper disposal methods for surplus materials. Accidental spills that may occur will be contained as appropriate for the spilled medium (liquid or solid) and collected and containerized immediately after discovery of the spill. Containerized material will be analyzed (characterized) for off-site transportation and disposal. The following spill mitigation equipment should be available on site during construction activities:

- Drip pans
- Oil-dry or similar compound
- Absorbent socks

- Shovels
- 55-gallon drums or storage tank (for containerization)
- Labels for contents identification

Following spill cleanup, the cause of the spill will be investigated, and material storage and handling procedures will be reviewed and revised where appropriate. All spills will be reported to the NAVFAC Crane Environmental Department.

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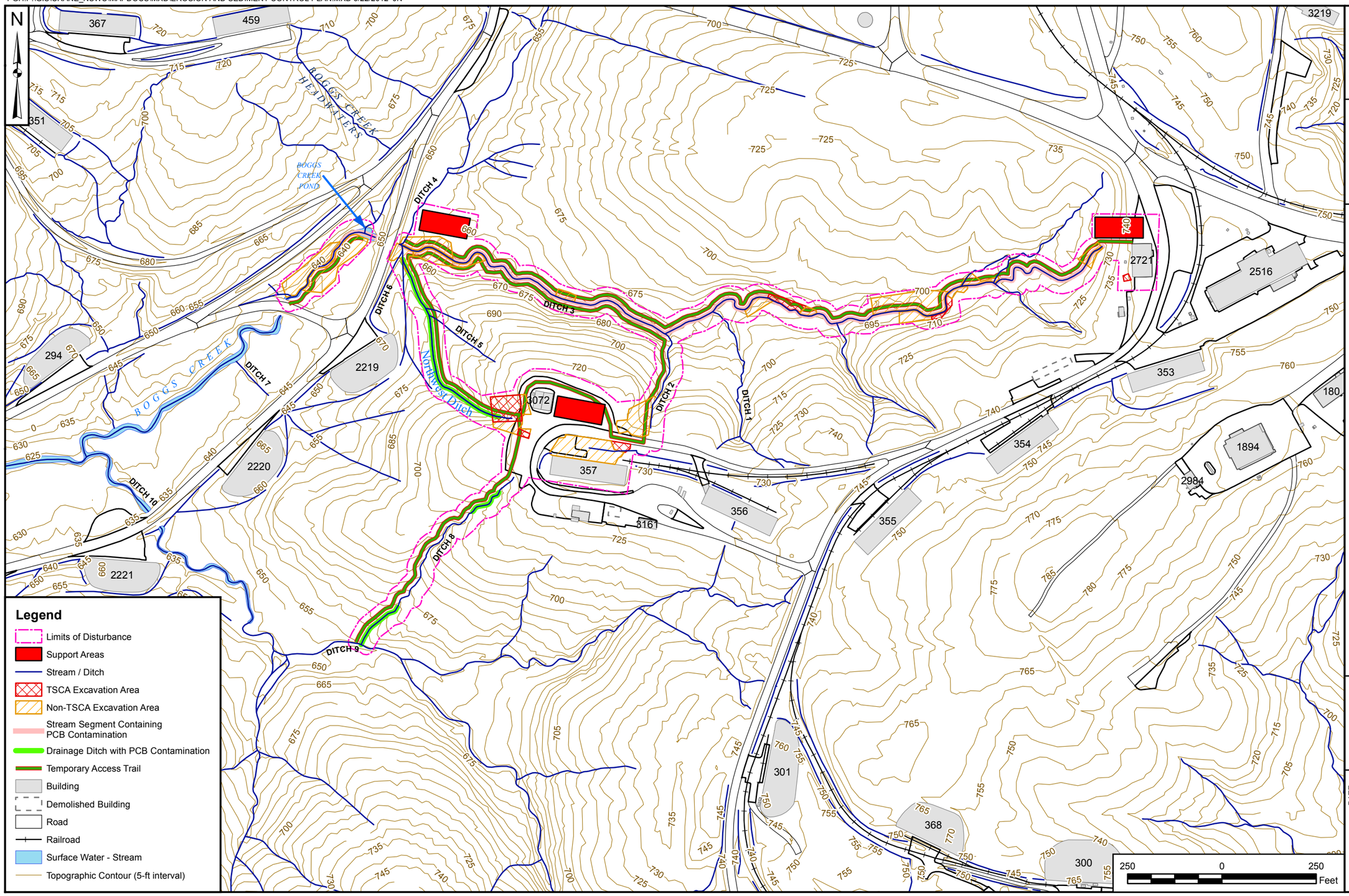

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FIGURE NO. 4-1 | REV 0

CONCEPTUAL SUPPORT AREAS
SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD
INTERIM MEASURES WORK PLAN
NAS CRANE
CRANE, INDIANA

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T. JOHNSTON	06/22/12
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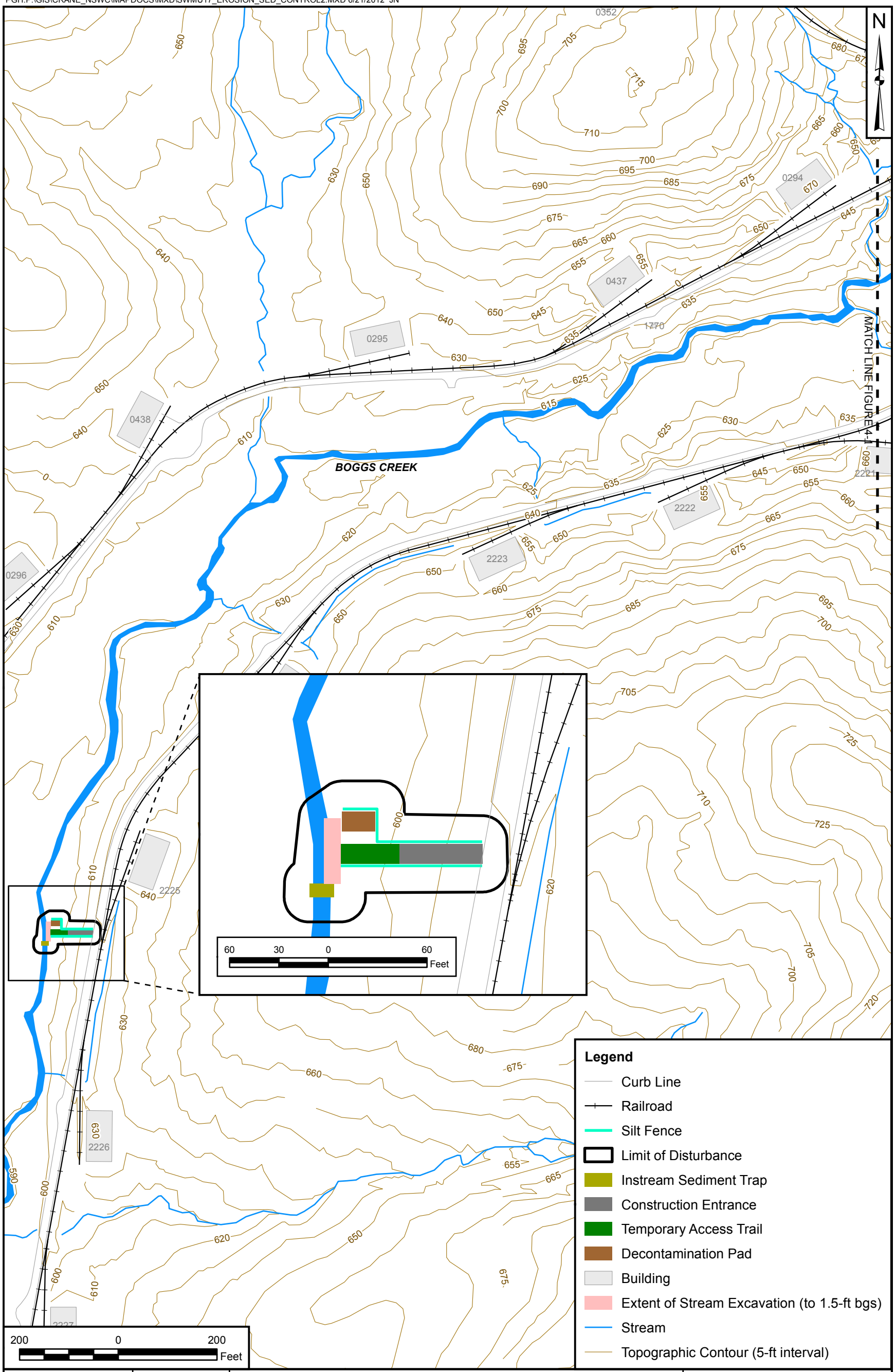

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CHECKED BY: T. JOHNSTON — DATE: 06/21/12		APPROVED BY: — DATE: —	
REVISED BY: J. NOVAK — DATE: 06/21/12		APPROVED BY: — DATE: —	
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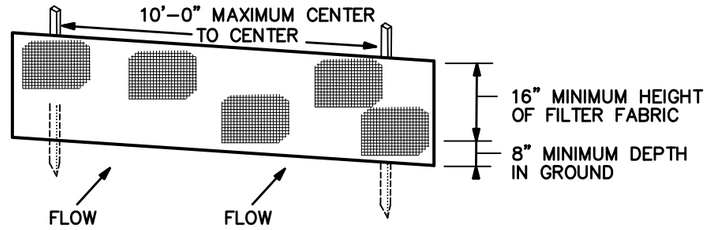
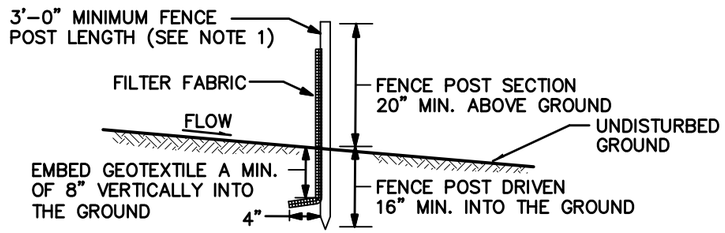
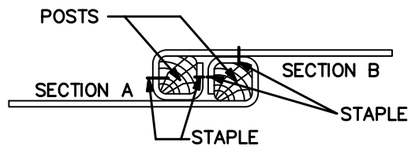


PERSPECTIVE VIEW



CROSS SECTION

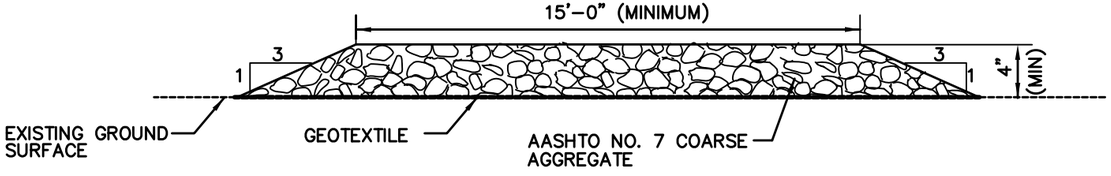


TOP VIEW – JOINING TWO ADJACENT SILT FENCE SECTIONS

NOTES:

1. 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. FILTER FABRIC SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID–SECTION.
3. INSTALL SILT FENCE PARALLEL TO THE CONTOUR OF THE LAND.

SILT FENCE



TEMPORARY SITE ACCESS ROAD

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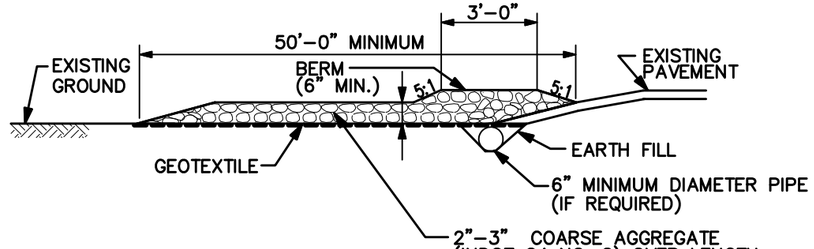
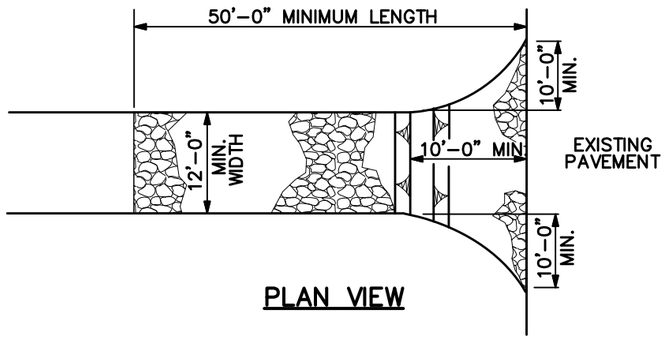


PROFILE



PLAN VIEW

NOTES:

1. ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE.
2. IF REQUIRED PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A 6" MINIMUM DIAMETER WILL BE REQUIRED.

GRAVEL CONSTRUCTION ENTRANCE

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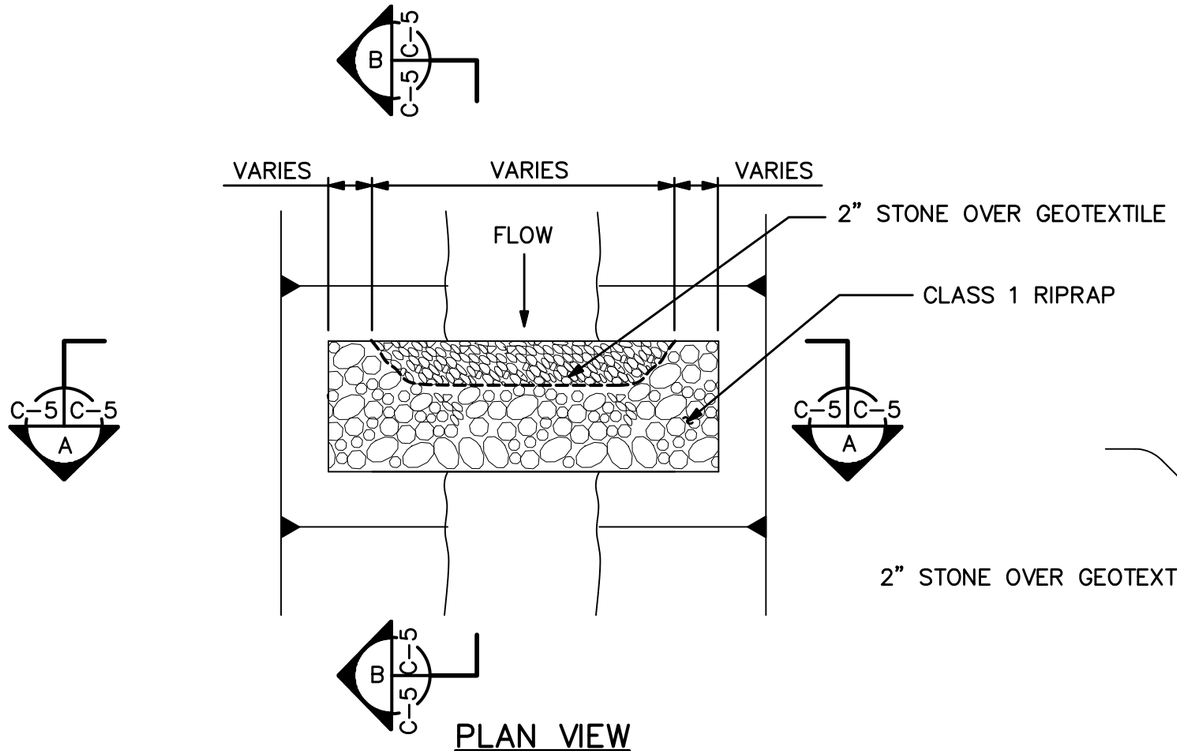
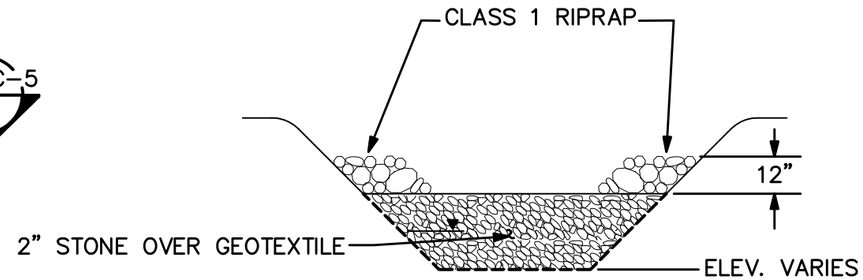
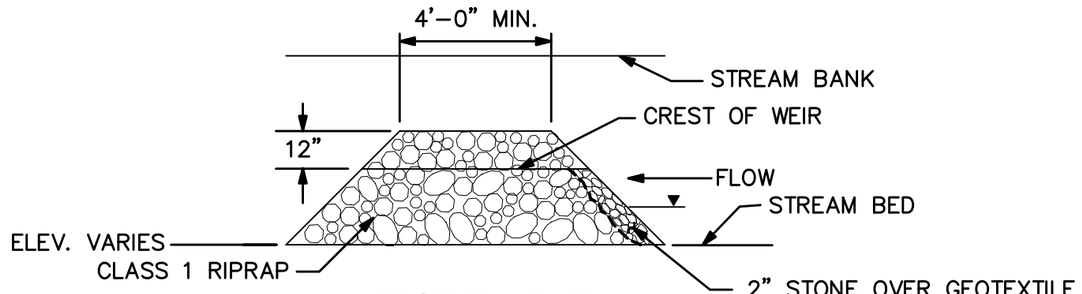


PLAN VIEW



SECTION A–A



SECTION B–B

NOTE:

1. GABION BASKETS – GABION BASKETS WITH GEOTEXTILE CAN BE USED INSTEAD OF STONE.

IN–STREAM SEDIMENT TRAP

NOT TO SCALE

DRAWN BY MF DATE 5/16/06	NAVFAC	EROSION AND SEDIMENT CONTROL DEVICES (SHEET 2 OF 2) SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD INTERIM MEASURES WORK PLAN NSA CRANE CRANE, INDIANA	CONTRACT NO. F271
CHECKED BY DATE			OWNER NO. 0020
REVISED BY DATE			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 4-3B / REV. 0

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Tetra Tech, 2011b. Letter Report for Results of Additional Sampling and Analysis in SWMU 17 Boggs Creek [Segment 1, Ditch 3 (Segments 2 and 6), and Northwest Ditch], NSA Crane, Crane, Indiana. May.

Tetra Tech, 2012. Technical Memorandum, Prescriptive Remediation Sampling and Analysis for SWMU 17 – PCB Capacitor Burial/Pole Yard. April.

APPENDIX A

CALCULATIONS

CLIENT:	NAVAL SUPPORT ACTIVITY, CRANE	JOB NUMBER:	112G01573 - 0000.1520
SUBJECT:	SWMU 17 - PCB CAPACITOR BURIAL/POLE YARD - PCB REMOVALS FROM FLOODPLAINS/DITCHES/STREAMS/BUILDING AREAS		
BASED ON:	Soil / Sediment Field Sample Logs and Photographs	DRAWING NUMBER:	Figures 2-5 thru 2-17 and 3-1 thru 3-6 (IMWP)
BY: R. Barringer Date: 3-4-13	CHECKED BY: T. Johnston Date: 3-4-13	APPROVED BY: T. Johnston	DATE: 3-4-13

OBJECTIVE: **Note:** Revised 10-16-12 by Johnston/checked by Barringer to modify boundaries based on most recent data.

The purpose of this calculation is to estimate the volume of surface soil and sediment within the stream/drainage channel and floodplain areas and general building areas near Buildings 357, 3072, and 2721 (SWMU 17) containing PCB concentrations greater than 1 mg/kg, as identified in this report.

APPROACH:

1. Based on information collected during the Tetra Tech 2005, 2006, 2011, and 2012 field investigations (depth of sediment measurements, field photographs, and channel width), the volume of sediment in each drainage channel and stream segment associated with SWMU 17 containing sediment with PCB concentrations greater than 1 mg/kg was calculated.

2. Based on the information collected during the Tetra Tech 2005, 2006, 2011, and 2012 field investigations (field photographs, field notes, width of floodplain), the area of floodplain adjacent to each drainage channel and stream segment associated with SWMU 17 that will be excavated was estimated. The areas to be excavated were then used to calculate the volumes of soil in the floodplains requiring excavation

REFERENCES:

1 TolTest (TolTest Inc.), 2004. Interim Measures Report, PCB Capacitor Burial Pole Yard Remediation, NSWC Crane, Crane, Indiana, November.

2 Tetra Tech, 2007. Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report Addendum for PCB Capacitor Burial/Pole Yard Solid Waste Management Unit (SWMU) 17, NSWC Crane, Crane, Indiana, August [Appendix B].

3 Tetra Tech, 2011. Letter Report for Results of Additional Sampling and Analysis in SWMU 17 Boggs Creek [Segment 1, Ditch 3 (Segments 2 and 6), and Northwest Ditch], Appendix B.

4 Tetra Tech, 2010. Field Investigation Report for SWMU 17 – Boggs Creek, Naval Support Activity Crane, Crane, Indiana. September.

5 Tetra Tech, 2002. Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report for PCB Capacitor Burial/Pole Yard Solid Waste Management Unit (SWMU) 17, NSWC Crane, Crane, Indiana, August [Appendix C].

6 Tetra Tech, 2011. Interim Measures Work Plan SWMU 17 - PCB Capacitor Burial/Pole Yard Floodplains, Ditches, and Streams, Naval Support Activity Crane, Crane, Indiana. June 2011.

7 Tetra Tech, 2012. Final Technical Memorandum Dated April 2012: Sampling and Analysis to Support Prescriptive Remediation for SWMU 17 and Response to Comments on Draft Version of Same Memorandum, Naval Support Activity Crane, Crane, Indiana. April 2012.

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CALCULATIONS

Group 1 - Ditch Bottoms and Adjacent Soil Volumes in Drainage Channels

There are two drainage channels containing PCB-contaminated sediment with a concentration greater than 1 mg/kg. These channels include the Northwest Ditch and two discrete portions of Ditch 8. The remaining drainage channels sampled in the SWMU 17 area did not contain sediment with PCB concentrations greater than 1 mg/kg, so the volume of sediment in these channels was not calculated. The depth of sediment within these three ditch channel segments was estimated based on the soil / sediment sample log sheets and site photographs (References 2 and 3). The information from all of the sample locations within the length of drainage channel were used to calculate the average stream dimensions and sediment depths. No significant floodplains were recorded in these ditches (based on field observations).

1A. Northwest Ditch:

Based on the results of the surface soil samples collected during the 2004 Interim Measure (samples 17SS01 through 17SS05), Tetra Tech collected 3 sediment samples within the Northwest Ditch during the SWMU 17 RFI Addendum sampling event performed in October 2005. The reported sediment depths at each location are as follows (Soil / Sediment Field Sample Logs are provided in Reference 2).

	Sample Number	Sediment Depth	Notes
Area 1A	17SD01	6 in	Sample depth interval
	17SD02	6 in	Sample depth interval
	17SD03	6 in	Sample depth interval
	17SD126	12 in	Sample depth interval

Average Sediment Depth = 1.5 ft (2 feet or bedrock - assume 1.5 feet for average depth)

The width of the Northwest Ditch was determined by reviewing historic photographs from the 2004 Interim Measure and Tetra Tech field personnel recollection. The reported average channel width equals the channel bottom plus the channel banks. Excavation will begin at the left edge of Area 4A in the Dump Area and continue to the point where it intersects the adjacent ditch (near Floodplain Area 3C on Ditch 3 - See Figures 2-6 and 3-1 of the text).

Average Channel Width = 12 ft Based on field observations and historic photographs.

Length of Channel = 520 ft (See Figures 2-6 and 3-1 of text)

Square Footage of Ditch Area = 6240 sq. ft. (Channel Width ft. X Channel Length ft.)

Sediment Volume = 9,360 cf (520 x 12 x 1.5)
Sediment Volume = **347 cy** (9,360 / 27) **non-TSCA**

Volume of Sediment (Northwest Ditch) = 347 cy

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1B and 1C. Portions of Ditch No. 8 (Segments 8a and 8b):

During the October 2005, April 2006, and May 2006 RFI Addendum sampling event 4 sediment samples were collected from within Ditch No. 8. The reported sediment depths at each location are as follows (Soil / Sediment Field Sample Logs are provided in Reference 2). More recent sediment sampling added data point 17SD127 and verified that contamination was limited to two discrete segments of Ditch 8. Ditch 8a (Area 1B) consists of the ditch sediments within approximately100 feet immediately downslope of TolTest Excavation Area E to Location 17SD127 (Figure 2-6). Ditch 8b (Area 1C) consists of another segment in this same ditch beginning at point 17SD048 and continuing downslope about 155 feet (though 17SD026) down to the confluence with Ditch 9 (Figures 2-6, 2-7, and 3-1 of the text).

	Sample Number	Sediment Depth	Notes
Area 1B (8a)	17SD07	6 in	Sample depth interval
	17SD127	12 in	Depth of sediment reported on log sheet
Portion of Ditch 8 not to be excavated	17SD25	8 in	Depth of sediment reported on log sheet
	17SD125	12 in	Depth of sediment reported on log sheet
Area 1C (8b)	17SD26	5 in	Depth of sediment reported on log sheet
	17SD48	3 in	Depth of sediment reported on log sheet
	Average Sediment Depth =	6.8 in	(assume 1 foot for average depth)

The width of Drainage Channel Ditch No. 8 was recorded on the soil and sediment field sampling logs during the April 2006 and May 2006 investigations. The width of Drainage Channel Ditch No. 8 at the October 2005 sample locations was estimated based on photographs (Soil / Sediment Field Sample Logs are provided in Reference 2).

Sample Number	Channel Width	Notes
17SD07	4 ft	Estimated based on site photographs
17SD25	4.5 ft	2.5-foot base width and 1-foot channel depth
17SD26	4.3 ft	2.5-foot base width and 0.9-foot channel depth
17SD48	3 ft	2-foot base width and 0.5-foot channel depth
Average Channel Width =	3.95 ft	
Rounded Channel Width =	4.0 ft	

Length of Channel in Ditch 8a = 100 ft (See Figures 2-6, 2-7, and 3-1 of text)

Area 1B (8a)

Square Footage of Ditch Area = 400 sq. ft. (Channel Width ft. X Channel Length ft.)

Sediment Volume = 400 cf (100 x 4.0 x 1.0)
Sediment Volume = **15 cy** 400 / 27 **non-TSCA**

Volume of Sediment (Portion of Ditch No. 8a) = 15 cy

Length of Channel in Ditch 8b = 155 ft (See Figures 2-6, 2-7, and 3-1 of text)

Area 1C (8b)

Square Footage of Ditch Area = 620 sq. ft. (Channel Width ft. X Channel Length ft.)

Sediment Volume = 620 cf (155 x 4.0 x 1.0)
Sediment Volume = **23 cy** 620 / 27 **non-TSCA**

Volume of Sediment (Portion of Ditch No. 8b) = 23 cy

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Group 2 - Stream/Ditch Sediment Volumes

Sediment Volume in Streams

There are 2 streams that contain PCB-contaminated sediment with a concentration greater than 1 mg/kg. These streams include Ditch 3 and Boggs Creek. The depth of sediment within these streams was estimated based on the soil / sediment sample log sheets and the site photographs (soil logs are in References 2 and 3). The information from all of the sample locations within the length of the streams was used to calculate the average stream dimensions and sediment depths. To facilitate the segmental excavation approach, the upper reach of Boggs Creek has been identified as Stream Segment 1, and Ditch 3 has been divided into Stream Segments 2 through 6.

Boggs Creek Location 17SD105

Surface water and sediment samples were collected in Boggs Creek to determine if contamination from SWMU 17 had migrated downstream. One sample (17SD1050006) contained PCB concentrations greater than 1 mg/kg and spot sediment removal was recommended at that location. The depth of sediment and the width of the stream as reported on the sample logsheet was used to determine the volume of sediment requiring removal. Soil / Sediment Field Sample Logs are provided in Reference 4. A photograph is provided on Figure 3-2 of the IMWP.

Sample Number	Sediment Depth	Notes
17SD105	1.5 ft	Thickness of sediment based on photographs
Sediment Depth =	1.5 ft	

The width of sediment in this area of Boggs Creek was estimated from photographs taken during the December 2010 sampling event. The width of the portion of the channel with flowing water does not contain sediment (rocky bottom), so only the width of the sediment depositional area on the side of the channel was used (see photograph on Figure 3-2 of the IMWP). The length of the sediment depositional area in this section was estimated to be 20 feet downstream and 20 feet upstream of location 17SD105.

Average Channel Width =	10.0 ft		Estimated from photographs	
Length of Channel =	40 ft		Estimated from photographs	
Square Footage of Ditch Area =	400	sq. ft.	(Channel Width ft. X Channel Length ft.)	
Sediment Volume =	600 cf		(10 x 40 x 1.5)	
Sediment Volume =	**22 cy**		(600 / 27)	**non-TSCA**

Volume of Sediment (Location 17SD105) = 22 cy

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Boggs Creek (Ditch 3 - Stream Segment 1)

During the October 2005 and April 2006 RFI Addendum sampling events 10 sediment samples were originally collected from within Boggs Creek. Because the size of Boggs Creek changes rapidly the average dimensions are based on the four sample locations collected within the top reach of Boggs Creek (Soil / Sediment Field Sample Logs are provided in Reference 2). Supplemental samples were collected during May-June 2012.

Sample Number	Sediment Depth	Notes
17SD32	0.33 ft	Thickness of sediment reported on log sheet
17SD33	0.67 ft	Thickness of sediment reported on log sheet
17SD34	0.33 ft	Thickness of sediment reported on log sheet
17SD05	0.50 ft	Thickness of sediment reported on log sheet
Average Sediment Depth =	0.46 ft	(assume 0.5 feet for average depth)
Rounded Sediment Depth =	0.5 ft	(target depth)

The width of Boggs Creek was recorded on the soil and sediment field sampling logs during the April 2006 investigations. (Soil / Sediment Field Sample Logs are provided in Reference 2).

Sample Number	Channel Width	Notes
17SD32	7.2 ft	4.4-foot base width and 1.4-foot channel depth
17SD33	11 ft	8-foot base width and 1.5-foot channel depth
17SD34	15.6 ft	10-foot base width and 2.8-foot channel depth
17SD05	20 ft	15-foot base width and 2.5-foot channel depth
Average Channel Width =	13.5 ft	
Length of Channel =	220 ft	(See Figure 2-8 of text)
Square Footage of Stream Segment =	2,970 sq. ft.	(Channel Width ft. X Channel Length ft.)
Sediment Volume =	1,485 cf	(220 x 13.5 x 0.5)
Sediment Volume =	**55 cy**	(1,485 / 27) **non-TSCA**

Volume of Sediment (Stream Segment 1) = 55 cy

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Ditch 3

During the October 2005, April 2006, and May 2006 RFI Addendum sampling events 14 sediment samples were collected from within Ditch No. 3. During the January 2011 sampling event 15 sediment samples were collected in Ditch 3 segment 6 only. The reported sediment depth at each location is as follows (Soil / Sediment Field Sample Logs are provided in References 2 and 3). For the purposes of generating segmented excavation areas ditch 3 was subdivided into 5 stream segments (see Figures 2-8 through 2-13 and 3-3 and 3-4 in text for channel reach designation).

Ditch 3 - Stream Segment 2

Sample Number	Sediment Depth	Notes
17SD04	0.50 ft	Thickness of sediment reported on log sheet
17SD19	0.42 ft	Thickness of sediment reported on log sheet
17SD18	0.50 ft	Thickness of sediment reported on log sheet
Average Sediment Depth =	0.47 ft	(assume 0.5 feet for average depth)
Rounded Sediment Depth =	0.5 ft	(target depth)

Sample Number	Channel Width	Notes
17SD04	14 ft	10-foot base width and 2-foot channel depth
17SD19	14 ft	10-foot base width and 2-foot channel depth
17SD18	16 ft	12-foot base width and 2-foot channel depth
Average Channel Width =	14.7 ft	(assume 15 feet for average width)
Rounded Channel Width =	15.0 ft	
Length of Channel =	400 ft	(See Figures 2-9 and 3-3 of text)
Square Footage of Ditch Segment =	6,000 sq. ft.	(Channel Width ft. X Channel Length ft.)
Sediment Volume =	3,000 cf	(400 x 15 x 0.5)
Sediment Volume =	**111 cy**	(3,000 / 27) **non-TSCA**

Volume of Sediment (Stream Segment 2) = 111 cy

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Ditch 3 - Stream Segment 3

Sample Number	Sediment Depth	Notes
17SD17	0.50 ft	Thickness of sediment reported on log sheet
17SD16	0.42 ft	Thickness of sediment reported on log sheet
Average Sediment Depth =	0.46 ft	(assume 0.5 feet for average depth)
Rounded Sediment Depth =	0.5 ft	(target depth)

Sample Number	Channel Width	Notes
17SD17	16 ft	12-foot base width and 2-foot channel depth
17SD16	12 ft	8-foot base width and 2-foot channel depth
Average Channel Width =	14.0 ft	
Length of Channel =	400 ft	(See Figures 2-10 and 3-3 of text)
Square Footage of Ditch Segment =	5,600 sq. ft.	(Channel Width ft. X Channel Length ft.)
Sediment Volume =	2,800 cf	(400 x 14 x 0.5)
Sediment Volume =	**104 cy**	(2,800 / 27) **non-TSCA**

Volume of Sediment (Stream Segment 3) = 104 cy

Ditch 3 - Stream Segment 4

Sample Number	Sediment Depth	Notes
17SD15	0.42 ft	Thickness of sediment reported on log sheet
17SD14	0.42 ft	Thickness of sediment reported on log sheet
17SD45	0.33 ft	Thickness of sediment reported on log sheet
17SD44	0.17 ft	Thickness of sediment reported on log sheet
Average Sediment Depth =	0.34 ft	
	0.5 ft	(target depth)

Sample Number	Channel Width	Notes
17SD15	16 ft	12-foot base width and 2-foot channel depth
17SD14	14 ft	10-foot base width and 2-foot channel depth
17SD45	9 ft	5-foot base width and 2-foot channel depth
17SD44	11 ft	7-foot base width and 2-foot channel depth
Average Channel Width =	12.5 ft	
Length of Channel =	600 ft	(See Figures 2-11 and 3-4 of text)
Square Footage of Ditch Segment =	7,500 sq. ft.	(Channel Width ft. X Channel Length ft.)
Sediment Volume =	2,550 cf	(600 x 12.5 x 0.34)
Sediment Volume =	**94 cy**	(2,550 / 27) **non-TSCA**

Volume of Sediment (Stream Segment 4) = 94 cy

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Ditch 3 - Stream Segment 5

Sample Number	Sediment Depth		Notes	
17SD43	0.17	ft	Thickness of sediment reported on log sheet	
17SD64	0.17	ft	Thickness of sediment reported on log sheet	
Average Sediment Depth =	0.17	ft		
	0.5	ft	(target depth)	
Sample Number	Channel Width		Notes	
17SD43	11	ft	7-foot base width and 2-foot channel depth	
17SD64	10	ft	6-foot base width and 2-foot channel depth	
Average Channel Width =	10.5	ft		
Length of Channel =	500	ft	(See Figures 2-12 and 3-4 of text)	
Square Footage of Ditch Segment =	5,250	sq. ft.	(Channel Width ft. X Channel Length ft.)	
Sediment Volume =	893	cf	(500 x 10.5 x 0.17)	
Sediment Volume =	**33**	**cy**	(893 / 27)	**non-TSCA**

Volume of Sediment (Stream Segment 5) = 33 cy

Ditch 3 - Stream Segment 6

Sample Number	Sediment Depth		Notes
17SD62	0.33	ft	Thickness of sediment reported on log sheet
17SD61	0.17	ft	Thickness of sediment reported on log sheet
17SD58	0.58	ft	Thickness of sediment reported on log sheet
17SD106	0.40	ft	Thickness of sediment reported on log sheet
17SD107	0.30	ft	Thickness of sediment reported on log sheet
17SD108	0.50	ft	Thickness of sediment reported on log sheet
17SD109	0.20	ft	Thickness of sediment reported on log sheet
17SD110	0.50	ft	Thickness of sediment reported on log sheet
17SD111	0.30	ft	Thickness of sediment reported on log sheet
17SD112	0.40	ft	Thickness of sediment reported on log sheet
17SD113	0.20	ft	Thickness of sediment reported on log sheet
17SD114	0.45	ft	Thickness of sediment reported on log sheet
17SD115	0.20	ft	Thickness of sediment reported on log sheet
17SD116	0.80	ft	Thickness of sediment reported on log sheet
17SD117	1.50	ft	Thickness of sediment reported on log sheet
17SD118	1.00	ft	Thickness of sediment reported on log sheet
17SD119	1.10	ft	Thickness of sediment reported on log sheet
17SD120	1.15	ft	Thickness of sediment reported on log sheet
Average Sediment Depth =	0.56	ft	
Rounded Sediment Depth =	0.56	ft	

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Sample Number	Channel Width	Notes
17SD62	10 ft	6-foot base width and 2-foot channel depth
17SD61	6 ft	4-foot base width and 1-foot channel depth
17SD58	3 ft	2-foot base width and 0.5-foot channel depth
17SD106	12 ft	Width of channel reported on log sheet
17SD107	4 ft	Width of channel reported on log sheet
17SD108	3.5 ft	Width of channel reported on log sheet
17SD109	4 ft	Width of channel reported on log sheet
17SD110	4 ft	Width of channel reported on log sheet
17SD111	4 ft	Width of channel reported on log sheet
17SD112	10 ft	Width of channel reported on log sheet
17SD113	8 ft	Width of channel reported on log sheet
17SD114	4 ft	Width of channel reported on log sheet
17SD115	2 ft	Width of channel reported on log sheet
17SD116	5 ft	Width of channel reported on log sheet
17SD117	12 ft	Width of channel reported on log sheet
17SD118	3 ft	Width of channel reported on log sheet
17SD119	3.5 ft	Width of channel reported on log sheet
17SD120	5 ft	Width of channel reported on log sheet
Average Channel Width =	5.7 ft	
Rounded Channel Width =	5.7 ft	
Length of Channel =	500 ft	(See Figures 2-12, 2-13, and 3-4 of text)
Square Footage of Ditch Segment =	2,850 sq. ft.	(Channel Width ft. X Channel Length ft.)

Ditch 3, Seg. 6 Sediment Vol. = 1,596 cf (500 x 5.7 x 0.56)

Ditch 3, Seg. 6 Sediment Vol. = **59 cy** (1,596 / 27) **TSCA plus non-TSCA**

Four locations within stream segment 6 (17SD61, 17SD107, 17SD109 in the Downstgram TSCA Area, and 17SD118 in the Upstream TSCA Area) contained sediment with concentrations exceeding 50 ppm (the TSCA limit). The volume of this material was calculated by multiplying the length of the channel segment represented by the sample (to the next sample in both directions) and the above width and depth measurements.
Rounding uncertainty causes these calculated values to differ slightly from the values on Table ES-1

	Sample Number	Channel Width (ft)	Depth (ft)	Length (ft)	Volume (cf) (width x depth x length)	Volume (cy) (cf/27)
Down-stream TSCA Area	17SD61	6	0.17	30	30.6	1.1
	17SD107	4	0.30	48	57.6	2.1
	17SD109	4	0.20	45	36	1.3
Upstream TSCA Area	17SD118	3	1.00	30	90	3.3

Volume of sediment (Stream Segment 6) (TSCA)= 8 (1.1+2.1+1.3+3.3)

Volume of Sediment (Stream Segment 6) (non-TSCA) = 51 cy Total Ditch 3, Segment 6 Sediment Volume Minus the Volume of the Upstream and Downstream TSCA Areas noted in the line below

Volume of Sediment (Stream Segment 6) (TSCA) = 8 cy (sum of upstream and downstream TSCA Areas)

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Group 3 - Floodplain Soil Excavation

During the October 2006, January 2011, and April-June 2012 investigations, surface soil samples and as necessary, subsequent deeper or more distant samples were collected from the floodplains associated with the streams that contain PCB-contaminated sediment to determine if PCB-contaminated sediment migrated beyond the banks of the streams during flood conditions. Site walks and reconnaissance in mid-March 2012 and late April 2012 supported the April-June 2012 investigation Specific sections of Boggs Creek Segment 1 and Ditch 3 Segments 2 through Segment 6 were determined to contain flood zones that required some limited removal to address the PCB contamination detected in the floodplain soils and the stream/ditch channel sediment.

Prior to 2012, floodplain materials in Segment 1 (Boggs Creek) and Segments 2 and 6 of Ditch 3 were targeted for removal to address detected PCB contamination. Based on the 2012 data, the floodplain PCB contamination was more completely delineated and PCB contamination was identified and delineated in the floodplains of Ditch 3, Segments 3, 4, and 5.

The areas of contaminated soil requiring excavation within the floodplains of Boggs Creek Segment 1 and Ditch 3 Segments 2 through 6 were identified based on the results of all samples collected within the field-determined floodplain boundaries (See Figures 2-8 through 2-13 and 3-3 and 3-4) with supplemental information obtained from field notes, site photographs, map coordinates from professional land surveys, and global positioning system (GPS) instruments. The actual areas were computed using a geographical information system and the established coordinates of sampling locations. These areas were multiplied by the depth of contaminated soil to determine the volume of excavation required in Boggs Creek Segment 1, Ditch 3 Segment 2 through Ditch 3 Segment 6.

Calculations are described in the following pages.

The depth used to calculate the volume of surface soil requiring excavation in each flood zone is based in the vertical limits of defined contamination (PCBs above 1.0 ppm).

3A-1, 3A-2, and 3B. Boggs Creek - Floodplain Stream Segment 1

Boggs Creek contains two floodplain areas with contaminated soil: the floodplain area on the north side of the stream channel (Area 3A-1 and 3A-2) and the floodplain area on the south side of the stream channel (Area 3B). A separate calculation was done for each one of these areas and the volumes are shown below. See Figure 2-8 for the locations of these areas within the floodplain.

Area 3A-1 dimensions	Area =	3,770	square feet	(field notes, survey and GPS data)	
	Depth =	2	feet	(surface soil analytical data)	
Boggs Creek Floodplain - Area 3A Volume =		7,540	cf	(3,770 x 2)	
Boggs Creek Floodplain - Area 3A Volume =		**279**	**cy**	(7,540 / 27)	**non-TSCA**
Area 3A-2 dimensions	Area =	1,688	square feet	(field notes, survey and GPS data)	
	Depth =	1.5	feet	(surface soil analytical data)	
Boggs Creek Floodplain - Area 3A Volume =		2,532	cf	(1,688x 1.5)	
Boggs Creek Floodplain - Area 3A Volume =		**94**	**cy**	(2,532 / 27)	**non-TSCA**
Area 3B dimensions	Area =	8,122	square feet	(field notes, survey and GPS data)	
	Depth =	1.5	feet	(surface soil analytical data)	
Boggs Creek Floodplain - Area 3B Volume =		12,183	cf	(8,122 x 1.5)	
Boggs Creek Floodplain - Area 3B Volume =		**451**	**cy**	(12,183 / 27)	**non-TSCA**
Volume of Contaminated Floodplain Soil (Stream Segment 1 - Areas 3A-1/3A-2/3B) =		**824**	**cy**		**non-TSCA**

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BASED ON:	Soil / Sediment Field Sample Logs and Photographs	DRAWING NUMBER:	Figures 2-5 thru 2-17 and 3-1 thru 3-6 (IMWP)
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3C / 3D / 3E. Ditch 3 - Floodplain Stream Segment 2

Stream Segment 2 contains three floodplain areas with contaminated soil: the floodplain area on the south side of the stream between segment 2 and the northwest ditch (Area 3C), the floodplain area on the north side of the stream channel (Area 3E) and the floodplain area on the south side of the stream channel (Area 3D). A separate calculation was done for each one of these areas and the volumes are shown below. See Figure 2-9 for the location of these areas within the floodplain.

Area 3C dimensions	Area =	2,144	square feet	(field notes, survey and GPS data)	
	Depth =	0.5	foot	(surface soil analytical data)	
Ditch 3 Stream Segment 2 - Area 3C Volume =		1,072	cf	(2,144 x 0.5)	
Ditch 3 Stream Segment 2 - Area 3C Volume =		**40**	**cy**	(1,072 / 27)	**non-TSCA**
Area 3D dimensions	Area =	3,858	square feet	(field notes, survey and GPS data)	
	Depth =	1	feet	(surface soil analytical data)	
Ditch 3 Stream Segment 2 - Area D Volume =		3,858	cf	(3,858 x 1)	
Ditch 3 Stream Segment 2 - Area D Volume =		**143**	cy	(3,858 / 27)	
Add 12 c.y. for including Area 3D-4 (10-ft radius^2*3.14*1 ft deep)=		**155**	cy	(143 + 12)	**non-TSCA**
Area 3E dimensions	Area =	4,322	square feet	(field notes, survey and GPS data)	
	Depth =	1	feet	(surface soil analytical data)	
Ditch 3 Stream Segment 2 - Area E Volume =		4,322	cf	(4,322 x 1)	
Ditch 3 Stream Segment 2 - Area E Volume =		**160**	**cy**	(4,322 / 27)	
Add 12 c.y. for additional depth at Area 3E-1 (10-ft radius^2*3.14*1 ft deep)=		**172**	cy	(160 + 12)	

Volume of Contaminated Floodplain Soil (Stream Segment 2 - Areas 3C/3D/3E) = 367 cy non-TSCA

3F. Ditch 3 - Floodplain Stream Segment 3

In Stream Segment 3, three samples containing between 1 and 42 mg/kg total PCBs were collected from the relatively small floodplain. These samples were located within 10 feet from the bank of the stream. Stream Segment 3 contains one area (Area 3F) on the north side of the stream that surrounds the three locations and is targeted for soil excavation. Figure 2-10 shows the location of Area 3F.

Area 3F dimensions	Area =	1,032	square feet	(field notes, survey and GPS data)	
	Depth =	1.5	feet	(avg. depth to bedrock)	
Ditch 3 Stream Segment 3 - Area 3F Volume =		1,548	cf	(1,032 x 1.5)	
Ditch 3 Stream Segment 3 - Area 3F Volume =		**57**	**cy**	(1,548 / 27)	

Volume of Contaminated Floodplain Soil (Stream Segment 3 - Area 3F) = 57 cy non-TSCA

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3G / 3H / 3I. Ditch 3 - Floodplain Stream Segment 4

Stream Segment 4 contains three floodplain areas with contaminated soil to be excavated: the floodplain on the south side of the stream about 160 feet upstream of the confluence with Ditch 1 (Area 3G), the floodplain area on the north side of the stream channel (Area 3H) with TSCA-regulated PCB concentrations (>50 ppm) and the adjacent upstream floodplain area also on the north side of the stream channel (Area 3I). A separate calculation was done for each one of these areas and the volumes are shown below. See Figure 2-11 for the locations of these areas within the floodplain.

Area 3G dimensions	Area =	1,878	square feet	(field notes, survey and GPS data)	
	Depth =	1.0	foot	(depth of contamination)	
Ditch 3 Stream Segment 4 - Area 3G Volume =		1,878	cf	(1,878 x 1.0)	
Ditch 3 Stream Segment 4 - Area 3G Volume =		**70**	**cy**	(1,878 / 27)	**non-TSCA**
Area 3H dimensions **(TSCA Waste)**	Area =	1,778	square feet	(field notes, survey and GPS data)	
	Depth =	1	feet	(surface soil analytical data)	
Ditch 3 Stream Segment 4 - Area 3H Volume =		1,778	cf	(1,778 x 1.0)	
Ditch 3 Stream Segment 4 - Area 3H Volume =		**66**	**cy**	(1,778 / 27)	**TSCA**
Area 3I dimensions	Area =	713	square feet	(field notes, survey and GPS data)	
	Depth =	1.5	feet	(surface soil analytical data)	
Ditch 3 Stream Segment 4 - Area 3I Volume =		1,070	cf	(713 x 1.5)	
Ditch 3 Stream Segment 4 - Area 3I Volume =		**40**	**cy**	(1,070 / 27)	**non-TSCA**

Volume of Contaminated Floodplain Soil (Stream Segment 4 - Areas 3G/3H/3I) = 176 cy (66 cu. Yd. is TSCA)

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3J / 3K/ 3L / 3M / 3N. Ditch 3 - Floodplain Stream Segments 5 and 6

Stream Segments 5 and 6 contain five floodplain areas with contaminated soil targeted for removal: (Areas 3J, 3K, 3L, 3M, and 3N). A separate calculation was done for each one of these areas and the volumes are shown below. See Figures 2-12 and 3-4 for the locations of these areas within the floodplain.

Area 3J dimensions	Area =	8,965	square feet	(field notes, survey and GPS data)	
	Depth =	1.3	foot*	(surface soil analytical data)	
*Depths in Area 3J vary from 0.5 feet in floodplains to 1.5 feet in oxbow area (1.3 ft used for estimates)					
Ditch 3 Stream Segment 5 - Area 3J Volume =		11,655	cf	(8.965 x 1.3)	
Ditch 3 Stream Segment 5 - Area 3J Volume =		**432**	**cy**	(11,655 / 27)	**non-TSCA**
Area 3K dimensions	Area =	1,915	square feet	(field notes, survey and GPS data)	
	Depth =	1	foot	(surface soil analytical data)	
Ditch 3 Stream Segment 5 - Area 3K Volume =		1,915	cf	(1,915 x 1.0)	
Ditch 3 Stream Segment 5 - Area 3K Volume =		**71**	**cy**	(1,915 / 27)	**non-TSCA**
Area 3L dimensions **(TSCA Waste)**	Area =	808	square feet	(field notes, survey and GPS data)	
	Depth =	1.5	feet	(surface soil analytical data)	
Ditch 3 Stream Segment 6 - Area 3L Volume =		1,212	cf	(808 x 1.5)	
Ditch 3 Stream Segment 6 - Area 3L Volume =		**45**	**cy**	(1,212 / 27)	**TSCA**
Area 3M dimensions	Area =	703	square feet	(field notes, survey and GPS data)	
	Depth =	0.5	feet	(surface soil analytical data)	
Ditch 3 Stream Segment 6 - Area 3M Volume =		352	cf	(703 x 0.5)	
Ditch 3 Stream Segment 6 - Area 3M Volume =		**13**	**cy**	(352 / 27)	**non-TSCA**
Area 3N dimensions	Area =	1,377	square feet	(field notes, survey and GPS data)	
	Depth =	1	foot	(surface soil analytical data)	
Ditch 3 Stream Segment 6 - Area 3N Volume =		1,377	cf	(1,377 x 1.0)	
Ditch 3 Stream Segment 6 - Area 3N Volume =		**51**	**cy**	(1377 / 27)	**non-TSCA**

Volume of Contaminated Floodplain Soil (Stream Segments 5/6 - Areas 3J/3K/3L/3M/3N) = 612 cy

(45 cu. Yd. is TSCA)

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3O / 3P. Ditch 3 - Floodplain Stream Segment 6

The upstream portion of Segment 6 contains two floodplain areas with contaminated soil targeted for removal: (Areas 3O and 3P). A separate calculation was done for each one of these areas and the volumes are shown below. See Figures 2-13 and 3-4 for the location of these areas within the floodplain.

Area 3O dimensions	Area =	1,006	square feet	(field notes, survey and GPS data)
	Depth =	2	feet	(soil analytical data)
Ditch 3 Stream Segment 6 - Area 3O Volume =		2,012	cf	(1,006 x 2)
Ditch 3 Stream Segment 6 - Area 3O Volume =		**75**	**cy**	(2,025/ 27)
Area 3P dimensions	Area =	674	square feet	(field notes, survey and GPS data)
	Depth =	2	feet	(soil analytical data)
Ditch 3 Stream Segment 6 - Area 3P Volume =		1,348	cf	(674 x 2)
Ditch 3 Stream Segment 6 - Area 3P Volume =		**50**	**cy**	1,348 / 27)

Volume of Contaminated Floodplain Soil (Stream Segment 6 - Areas 3O/3P) = 125 cy non-TSCA

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Group 4 - Dump and Building Areas

4A. Dump Area West of Buildings 0357 and 3072 (upslope of Northwest Ditch and Ditch 8) - (Partial TSCA Waste)

Multiple trenches were excavated in the western laydown area and slope southwest of Building 3072. The presence of a Dump Areas was confirmed near the center of Area 4A based on recorded surface debris (capacitors, other electrical equipment debris), uncovered buried debris, and elevated PCB concentrations present in soil samples from this area. It is believed that this Dump Area and the past waste management activities performed in the immediate area are the likely source areas for PCBs detected in the sediments of the Northwest Ditch and possibly Ditch 8. Two trenches in the Dump Area (Area 4A) near the headwaters of the Northwest Ditch contained PCB contamination at concentrations greater than 50 mg/kg, so those wastes must be managed as TSCA waste. The perimeter of Area 4A defines the extent of the TSCA-regulated PCB Soil Contamination, but also includes lower (non-TSCA) PCB concentrations and continues out to soil analysis results of less that 1 ppm PCBs. To remove all soil containing greater than 1 mg/kg PCBs, removals will be down to bedrock ina significant portion of Area 4A. The average excavation depth for this entire area is estimated to be eight feet bgs based on the trenches installed in the area. See Figures 2-14, 2-15, 3-3, and 3-6 for the location of this former dump / building area.

Area 4A-1 dimensions	Area =	823	square feet	(field notes, survey and GPS data)	
	Depth =	4	feet	(estimated avg. depth to bedrock)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-1 Volume =		3,292	cf	(823 x 4.0)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-1 Volume =		**122**	**cy**	(3,292 / 27)	**non-TSCA**
Area 4A-2 dimensions	Area =	786	square feet	(field notes, survey and GPS data)	
	Depth =	4	feet	(soil analytical data)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-2 Volume =		3,144	cf	(786 x 4.0)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-2 Volume =		**116**	**cy**	(3,144 / 27)	**non-TSCA**
Area 4A-3 dimensions	Area =	844	square feet	(field notes, survey and GPS data)	
	Depth =	8	feet	(soil analytical data)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-3 Volume =		6,752	cf	(844 x 8.0)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-3 Volume =		**250**	**cy**	6,752 / 27)	**non-TSCA**
Area 4A-4 dimensions (TSCA Waste)	Area =	555	square feet	(field notes, survey and GPS data)	
	Depth =	6	feet	(estimated avg. depth to bedrock)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-4 Volume =		3,330	cf	(555 x 6.0)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-4 Volume =		**123**	**cy**	(3,330 / 27)	**TSCA**
Area 4A-5 dimensions	Area =	4,180	square feet	(field notes, survey and GPS data)	
	Depth =	4	feet	(soil analytical data)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-5 Volume =		16,720	cf	(4,180 x 4.0)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-5 Volume =		**619**	**cy**	(16,720 / 27)	**non-TSCA**
Area 4A-6 dimensions (TSCA Waste)	Area =	4,290	square feet	(field notes, survey and GPS data)	
	Depth =	9	feet	(soil analytical data)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-6 Volume =		38,610	cf	(4,290 x 9.0)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-6 Volume =		**1430**	**cy**	38,610 / 27)	**TSCA**
Area 4A-7 dimensions (TSCA Waste)	Area =	987	square feet	(field notes, survey and GPS data)	
	Depth =	7	feet	(estimated avg. depth to bedrock)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-7 Volume =		6,909	cf	(987 x 7.0)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-7 Volume =		**256**	**cy**	(6,909 / 27)	**TSCA**
Area 4A-8 dimensions	Area =	974	square feet	(field notes, survey and GPS data)	
	Depth =	4	feet	(soil analytical data)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-8 Volume =		3,896	cf	(974 x 4.0)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-8 Volume =		**144**	**cy**	(3,896 / 27)	**non-TSCA**

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Area 4A-9 dimensions (TSCA Waste)	Area =	1059	square feet	(field notes, survey and GPS data)	
	Depth =	3.5	feet	(soil analytical data)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-9 Volume =		3,707	cf	(1,059 x 3.5)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-9 Volume =		**137.0**	**cy**	(3,707 / 27)	**TSCA**
Area 4A-10 dimensions (non-TSCA Waste)	Area =	196	square feet	(field notes, survey and GPS data)	
	Depth =	9	feet	(soil analytical data)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-9 Volume =		1,764	cf	(196 x 9.0)	
Dump Area West of Buildings 0357 and 3072 - Area 4A-9 Volume =		**65.0**	**cy**	(1,764 / 27)	**non-TSCA**

Volume of Contaminated Soil (Dump W. of Bldgs. 0357 / 3072 - Area 4A) = 3,262 cy **Total for Areas 4A-1 thru 4A-10**

(Assume 60 percent of the volume for Building Area 4A [1,946 cubic yards] is TSCA-regulated soil and the other 40 percent [1,316 cubic yards] consists of 48 percent non-TSCA soil and 2 percent non-TSCA debris)

Volume of Contaminated Soil (Dump W. of Bldgs. 0357 / 3072 - Area 4A) =	**1,316**	**cy**	(Non-TSCA Waste)
Volume of Contaminated Soil (Dump W. of Bldgs. 0357 / 3072 - Area 4A) =	**1,946**	**cy**	**(TSCA Waste)**
Total =	**3,262**	**cy**	**Total for Areas 4A-1 thru 4A-10**

4B. Area North of Building 0357 Between the Building and the Road

A limited number of subsurface soil samples (2-4 ft bgs) were identified in the area north of Building 0357 and south of the road with detected PCB contamination at concentrations less than 25 mg/kg but greater than 1 mg/kg. The former surface soil (0 - 2 ft bgs) in this area was excavated and removed by TolTest during 2003-2004. Clean fill was placed in the former excavation area. The next deeper two-foot interval of subsurface soil beneath the sampled points with low-level PCB detections (2-4 ft bgs) encountered refusal in multiple locations. The overall dpeth of non-TSCA-regulated PCB soil contamination (Area 4B) is limited and is covered by 2 ft of clean fill. See Figures 2-16 and 3-6 for the location of this building area.

Area 4B-1 dimensions	Area =	8,781	square feet	(field notes, survey and GPS data)	
	Depth =	1.5	feet	(estimated avg. depth to bedrock)	
Area North of Building 0357 and the Road - Area 4B-1 Volume =		13,172	cf	(8,781 x 1.5)	
Area North of Building 0357 and the Road - Area 4B-1 Volume =		**488**	**cy**	(13,172 / 27)	**non-TSCA**
Area 4B-2 dimensions	Area =	567	square feet	(field notes, survey and GPS data)	
	Depth =	2.5	feet	(soil analytical data)	
Area North of Building 0357 and the Road - Area 4B-2 Volume =		1,418	cf	(567 x 2.5)	
Area North of Building 0357 and the Road - Area 4B-2 Volume =		**53**	**cy**	(1,418 / 27)	**non-TSCA**
Area 4B-3 dimensions	Area =	179	square feet	(field notes, survey and GPS data)	
	Depth =	4	feet	(avg. depth to bedrock)	
Area North of Building 0357 and the Road - Area 4B Volume =		716	cf	(179 x 4)	
Area North of Building 0357 and the Road - Area 4B Volume =		**27**	**cy**	(716 / 27)	**non-TSCA**

Volume of Contaminated Soil (N. of Bldg. 0357 and Road - Area 4B) = 568 cy **non-TSCA**

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4B - 50. Northeastern corner of the Area North of Building 0357 Between the Building and the Road (TSCA Waste)

A limited number of subsurface soil samples (2-4 ft bgs) were identified in the area north of Building 0357 and south of the road with detected PCB contamination at concentrations of more than 50 mg/kg (TSCA-regulated). The former surface soil (0 - 2 ft bgs) in this area was excavated and removed by TolTest during 2003-2004. Clean fill was placed in the former excavation area. The next deeper two-foot interval of subsurface soil beneath the sampled points with low-level PCB detections (2-4 ft bgs) typically could not be collected due to shallow bedrock. The depth of subsurface soil containing PCB soil contamination greater than 50mg/kg (Area 4B -50) is limited to the northeastern corner of Area 4B. See Figures 2-16 and 3-6 for the location of this building area.

Area 4B - 50 dimensions	Area =	814	square feet	(field notes, survey and GPS data)	
	Depth =	2.5	feet	(avg. depth to bedrock)	
Soil Contamination NE of Building 0357 - Area 4B Volume =		2,035	cf	(814 x 2.5)	
Soil Contamination NE of Building 0357 - Area 4B Volume =		**75**	**cy**	(2,035 / 27)	**TSCA**
Volume of Contaminated Soil (NE. of Bldg. 0357 - Area 4B - 25) =		**75.0**	**cy**		**TSCA**

4C. Northeast of Building 0357 (upslope of Ditch 2)

A limited number of surface soil samples (0 - 2 ft bgs) were identified in the headwaters area of Ditch 2 (northeast of Building 0357) with PCB contamination at concentrations less than 25 mg/kg but greater than 1 mg/kg. The two-foot interval of subsurface soil beneath these points (2 - 4 ft bgs) had no detections greater 1 mg/kg and defined the depth of the non-TSCA-regulated PCB soil contamination (Area 4C). Additional sampling downslope of the original excavation area revealed additional surface soil contamination and also that bedrock is shallow in that area. See Figures 2-17 and 3-6 for the location of this area.

Area 4C dimensions	Area =	7,392	square feet	(field notes, survey and GPS data)	
	Depth =	2.5	feet	(avg. depth to bedrock)	
Soil Contamination NE of Building 0357 - Area 4C Volume =		18,480	cf	(7,392 x 2.5)	
Soil Contamination NE of Building 0357 - Area 4C Volume =		684	cy	(18.480 / 27)	
Volume of Contaminated Soil (NE. of Bldg. 0357 - Area 4C) =		**684**	**cy**		**non-TSCA**

4D. Building 2721 - Soil Near SW Corner (TSCA Waste)

A single soil sample was collected from the soil adjacent to the SW corner of Building 2721 which contained PCB contamination at concentrations greater than 50 mg/kg. The sample was located about 10 feet from the building wall. The two-foot interval of soil underneath this point and the four surface soil samples collected from the soil borings closest to this point had no PCB detections greater than 1 mg/kg and defined the extent of the TSCA-regulated PCB soil contamination (Area P). See Figures 2-13, 3-4, and 3-6 for the location of this building area.

Area 4D dimensions	Area =	269	square feet	(field notes, survey and GPS data)	
	Depth =	2	feet	(avg. depth to bedrock)	
Building 2721 SW Corner Soil - Area 4D Volume =		538	cf	(269 x 2.0)	
Building 2721 SW Corner Soil - Area 4D Volume =		**20**	**cy**	(538 / 27)	**TSCA**
Volume of Contaminated Soil (SW Corner of Bldg. 2721 - Area 4D) =		**20**	**cy**		**(TSCA Waste)**

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VOLUME SUMMARY

Subtotal Volume of Contaminated Sediment in Group 1 Ditch Channels (non-TSCA)	**384**	**cy**
Subtotal Volume of Contaminated Sediment in Group 1 Ditch Channels (TSCA)	**0**	**cy**
Subtotal Volume of Contaminated Sediment in Group 2 Stream Channels (non-TSCA)	**470**	**cy**
Subtotal Volume of Contaminated Sediment in Group 2 Stream Channels (TSCA)	**8**	**cy**
Subtotal Volume of Contaminated Soil in Group 3 Stream Segment Floodplains (non-TSCA)	**1,993**	**cy**
Subtotal Volume of Contaminated Soil in Group 3 Stream Segment Floodplains (TSCA)	**111**	**cy**
Subtotal Volume of Contaminated Soil in Group 4 Building Areas and Dumps (non-TSCA)	**2,568**	**cy**
Subtotal Volume of Contaminated Soil in Group 4 Building Areas and Dumps (TSCA)	**2,041**	**cy**
Total Volume of Contaminated Sediments/Soils in Groups 1 - 4 (non-TSCA)	**5,415**	**cy**
Total Volume of Contaminated Sediments/Soils in Groups 1 - 4 (TSCA)	**2,160**	**cy**
Total Volume of All Excavated Sediments/Soils in Groups 1 - 4 (TSCA and non-TSCA)	**7,575**	**cy**

APPENDIX B

SUPPLEMENTAL SPECIFICATIONS

SUPPLEMENTAL SPECIFICATIONS
INTERIM MEASURES WORK PLAN
SWMU 17 – PCB CAPACITOR BURIAL/POLE YARD
NSA CRANE
CRANE, INDIANA

Contractor Requirements

The Contractor will be responsible for performing the following work:

1. Attend pre-IMWP implementation conference.
2. Submit documentation in accordance with the 'Basic Contract' 30 days prior to beginning work to allow the Navy sufficient time to review and comment. The Contractor will then incorporate Navy comments into the documents. These documents include the following:
    - Work Plan
        - Excavation and Handling Plan
        - Hazardous/Waste Management Plan
        - Environmental Protection Plan
        - Erosion and Sediment Control Plan
        - Stormwater Pollution Prevention Plan
        - Transportation and Disposal Plan
    - Site Specific Health and Safety Plan (SSHSP) and Activity Hazard Analysis
    - Project Quality Control Plan (QCP)
3. Acquire Facility-specific permits, including but not limited to the following:
    - Safety & Building Availability Permit (ESO 8020/11)
    - Digging Permit (NWSCC 11000/3)
    - Flame Tool/Hot Work Permit (NWSCC 11320)
    - Hazards of Electromagnetic Radiation to Ordnance (HERO) (approval for portable radios)
4. Mobilize required equipment and personnel to excavate the indicated contaminated soil and sediments.
5. Construct and maintain the required erosion and sediment control devices for the duration of the project.
6. Construct required support facilities including, but not limited to, temporary gravel construction entrance, temporary access trails, dewatering pad, decontamination pad(s), and material storage areas.
7. Excavate, transport, and dispose PCB-contaminated surface soils and sediments.
8. Stabilize and restore surface soil excavation area to meet surrounding grades.
9. Restore drainage channels and streams to pre-construction conditions and alignment.
10. Remove all temporary support facilities, leaving perimeter erosion and sediment controls in place until revegetation is complete and as instructed by the Navy.
11. Restore areas used for temporary support facilities (regrading and revegetation).
12. Demobilize equipment and personnel.

In addition to the QC submittals and Safety and Health submittals required by the NSA Crane Contractor's Operations Manual and the Basic Contract, the Contractor shall submit the following to the Navy:

- Field work reports in accordance with Part 6.4 Section C of the Basic Contract.
- Contractor 40 CFR 1910.120 Employee Training Certificates for all Contractor employees scheduled to be on-site.
- Erosion and Sediment Control installation and inspection logs.
- Copies of NSA Crane specific permits.
- Certification and sampling results for backfill material and topsoil. A minimum of one sample per borrow source is required.

- Waste transportation subcontractor name, address, contact name, telephone number, and USDOT number.
- Hazardous waste disposal facility name, address, contact name, telephone number, and USEPA and State identification numbers, if required.
- Solid waste disposal facility name, address, contact name, telephone number, USEPA and State identification numbers.
- Copies of Treatment/Disposal Facility Permits.
- Waste profiles, complete waste characterization results, and any waste disposal facility pre-approval or approval documentation.
- Work Site Decontamination Certificates (verification that all vehicles equipment and containers were properly decontaminated prior to leaving the work site).
- Disposal Site Decontamination Certificates (verification that vehicles and containers were decontaminated prior to leaving the disposal facility).
- Shipment Manifests (manifests and other documents required to ship waste).
- Delivery Certificates (verification that waste was received at identified waste disposal facility).
- Treatment and Disposal Certificates (verification that waste was successfully received and disposed).
- Decontamination Log.

The Contractor-provided information will be compiled in the project CTO Closure Report to be prepared by the Navy.

Supplemental Specifications

In addition to the performance specifications presented in the NSA Crane Contractor's Operation Manual and in the Basic Contract, the Contractor shall perform the activities in accordance with the supplemental specifications provided below.

General Requirements

The Contractor is advised that this project is subject to Federal, State, and local regulatory agency inspections and review for 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 Officer in Charge of Construction (OICC), who shall accompany them on any subsequent site inspections. The Contractor shall complete, maintain, and make available to the OICC, Facility, 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 OICC if a Notice of Violation, Notice of Deficiency, 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 an applicable Federal, State, or local environmental law or regulation. Should a Notice of Violation, Notice of Noncompliance, Notice of Deficiency, or similar regulatory agency notice be issued to the Government or Facility owner/operator on account of the actions or inactions of the Contractor or one if 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.

After approval of the Contractor's Work Plan and before commencement of work the Contractor shall submit to the OICC the required certifications. As requested by the OICC, the Navy Representative for this project may review and provide surveillance for the OICC to determine if Contractor's submittals comply with the contract requirements.

The Contractor shall be required to commence work on the approved Contractor's Work Plan within 5 calendar days after receiving the notice to proceed and to prosecute the work diligently after receiving the notice to proceed.

NSA Crane will remain in operation during the entire construction period. The Contractor shall schedule the work as to cause the least amount of interference with the Facility. Work schedules shall be subject to the approval of the OICC. Permission to interrupt Facility road services shall be requested in writing a minimum of 15 calendar days prior to the desired date of interruption. The OICC shall be notified 48 hours prior to starting excavation activities.

Regular work hours shall consist of an 8-1/2 hour daily period established by the OICC, Monday through Friday, excluding Government holidays. The Contractor should assume an 8-1/2 hour daily period. Working outside of the 8-1/2 hour daily period will require approval by the OICC. Work hours shall be established during the pre-IMWP implementation conference.

On-site storage, laydown, material handling, and decontamination activities shall be limited to areas approved by the OICC.

During the progress of construction activities, 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, the Contractor shall sweep paved areas and rake clean landscaped areas, and remove waste and surplus materials, rubbish, and construction facilities from the site.

Work Restrictions

Contractor personnel employed at the Facility shall become familiar with and obey Facility regulations and keep within the limits of the work and avenues of ingress and egress as directed. Personnel shall not enter any restricted areas unless required to do so and until cleared for such entry. The Contractor's equipment shall be clearly marked for identification.

The Contractor shall indicate on the construction schedule any activity that could potentially interrupt Facility operations. The Contractor shall notify the OICC in writing 15 calendar days prior to the required interruption.

Facilities and Services

Provide utility permits in accordance with Part 4.13 Section C of the Basic Contract.

NSA Crane shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as indicated. The amount of each utility service consumed shall be charged to or paid for by the Contractor at the prevailing rates charged to NSA Crane or shall be furnished at no charge as indicated. The Contractor shall carefully conserve any utilities furnished without charge.

The point at which NSA Crane will deliver such utilities or services and the quantity available will be identified by NSA Crane.

The Contractor, at its expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the Government, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

Electric – Electrical power available, primary voltage is [2400 volt 3 phase, 3 wire, 60 cycle AC. Secondary voltages may be 120/208 or 120/240 volts.] Final taps and tie-ins to the NSA Crane utility grid will be made by NSA Crane electric shop.

Potable Water – Potable water is not available. Contractor shall provide potable water for use by all personnel.

Water – A reasonable quantity of water is available at [Building [ ] fire station] at no charge. Provide backflow preventor devices on connections to potable water supplies. Under no circumstances will taps to NSA Crane fire hydrants be allowed for obtaining water.

Telephone – Telephone service is not available.

Sanitary Facilities - Provide temporary sanitary facilities for use by all personnel in accordance with Part 3.10 Section C of the Basic Contract.

Municipal Waste – Municipal waste storage and disposal is not available.

Sewer – Water resulting from personnel and equipment decontamination, excavation dewatering, and water from materials handling pad may be discharged to the NSA Crane sanitary sewer system, subject to approval of the NSA Crane based on characterization samples of water to be discharged.

Site Personnel Qualifications

Site Superintendent - The Contractor shall designate a Site Superintendent who shall have responsibility and authority to direct work performed. The Site Superintendent shall be responsible for the management and execution of all site activities in accordance with the IMWP, approved Contractor's Work Plan, and all Federal, State, and local laws and regulations. The Site Superintendent may not act in the dual role as the Project Quality Control Manager or Site Health and Safety Specialist (SHSS). The Site Superintendent shall have, as a minimum, the following qualifications:

- A minimum of six years site superintendent experience.
- A minimum of three years experience on hazardous, toxic and radioactive waste (HTRW) projects.
- Familiar with the requirements of the U.S. Army Corps of Engineers Safety - Safety and Health Requirements (EM 385-1-1).
- Experience in the areas of hazard identification and safety compliance.

Project Quality Control Manager - The Contractor shall designate a Project Quality Control (QC) Manager who shall assist and represent the QC Program Manager in continued implementation and enforcement of the approved Project QC Plan. The QC Program Manager or Project QC Manager shall be physically present at the project site whenever work is in progress. The Project QC Manager may be dual hatted with the SHSS if qualified. The Project QC Manager shall have, as a minimum, the following qualifications:

- A minimum two years experience as a Project QC Manager.
- A minimum of ten years combined experience in the following positions: project superintendent, QC manager, project manager, project engineer or construction manager on similar size and type of construction contracts which included the major trades that are part of this IM.
- Alternatively, the above ten year combined experience requirement may be satisfied by providing a professional engineer registered in the State of Indiana having at least two years experience as a Project QC Manager.
- Familiar with the requirements of the U.S. Army Corps of Engineers Safety - Safety and Health Requirements (EM 385-1-1).
- Experience in the areas of hazard identification and safety compliance.

Site Health and Safety Specialist - The Contractor shall designate a Site Health and Safety Specialist (SHSS) who shall assist and represent the Contractor's Health and Safety (H/S) Manager in continued implementation and enforcement of the approved Site Health and Safety Plan (SSHSP). The SHSS shall have the on-site responsibility and authority to modify and stop work, or remove personnel from the site if working conditions change which may effect on-site and off-site health and safety. The SHSS shall be physically present at the project site at all times. The SHSS may be dual hatted with the Project QC Manager. The SHSS shall have, as a minimum, the following qualifications:

- A minimum of five years safety work on similar projects.
- 30-hour OSHA construction safety class or equivalent within the last five years.
- An average of at least 24 hours of formal safety training each year for the last five years.
- Competent person status for at least the following:
    - excavation,
    - health hazard recognition, evaluation and control of chemical, physical and biological agents, and
    - personal protective equipment and clothing to include selection, use and maintenance.
- First aid and cardiopulmonary resuscitation (CPR) qualified.

Quality Control

Approval of the QC Plan is required prior to the start of construction. The OICC 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.

The OICC shall be notified, in writing, of any proposed changes to the QC Plan, at a minimum of seven calendar days prior to the implementation of the proposed change. Proposed changes must be approved by the OICC.

Combined Contractor Production Report/Contractor Quality Control Report (CPR/CQCR) is required for each day that work is performed. CPR/CQCRs are to be prepared, signed, and dated by the Project QC Manager.

Safety and Occupational Health Requirements

The SHSS and Contractor representatives who have a responsibility or significant role in accident prevention shall attend the pre-IMWP implementation conference. The purpose of the conference is for the Contractor and the OICC to become acquainted and explain the functions and operating procedures of their respective organizations and to reach mutual understanding relative to the administration of the overall project before the initiation of work. The Contractor shall discuss the details of the work identified in the approved Contractor's Work Plan and discuss which construction phases will require significant or additional activity hazard analysis. In addition, a schedule for the preparation, submittal, review, and acceptance of additional hazard analysis shall be established to preclude project delays. Lastly, deficiencies in the submitted accident prevention report will be brought to the attention of the Contractor at the conference. The Contractor shall revise the plan to correct deficiencies and resubmit the plan for acceptance.

New employees (prime or subcontractor) will be informed of specific site hazards before they begin work. Documentation of this orientation shall be kept on file at the project site.

If unforeseen materials hazardous to human health are encountered during operations, that portion of the work shall be stopped and the OICC shall be notified immediately. Within 14 days, the Navy will determine if the material is hazardous. If the material is not hazardous or poses no danger, the OICC will direct the Contractor to proceed without change. If the material is determined to be hazardous or to pose danger, and handling of the material is necessary to accomplish the work, the Contracting Officer will issue modifications to the proposed work.

Equipment shall be operated by designated qualified operators. Proof of qualifications shall be kept on the project site for review. Manufacturer's specifications or owner's manual for the equipment shall be on site and reviewed for additional safety precautions or requirements. Such additional safety precautions or requirements shall be incorporated into the activity hazard analysis. Mechanized equipment shall be inspected in accordance with manufacturer's recommendations for safe operations by a competent person prior to being placed into use. Daily checks or tests shall be conducted and documented on mechanized equipment by designated competent persons.

The competent person for excavations performed as a result of contract work shall be on-site when excavation work is being performed, and shall inspect and document the excavations daily prior to entry by workers. The competent person must evaluate all hazards, including atmospheric, that may be associated with the work, and shall have the resources necessary to correct hazards promptly.

Environmental Controls

An Erosion and Sediment Control Plan is included in the IMWP. The Erosion and Sediment Control Plan describes the location and description of all erosion and sediment control measures, a sequence of construction to be followed, graphic details of all erosion and sediment control measures to be used, and an approval sign-off block containing the names of the Facility and Contractor contacts, whose signatures indicate plan acceptance/approval.

The Contractor shall strictly follow the Erosion and Sediment Control Plan and maintain all measures used during construction. Modifications to the Erosion and Sediment Control Plan shall be submitted to the OICC and the Indiana Department of Environmental Management (IDEM) for approval. No modifications to the Erosion and Sediment Control Plan will be allowed until these changes have been approved by the OICC and IDEM and three copies of the approved modifications have been submitted to the OICC and one copy of the approved modifications have been submitted to IDEM.

Transportation and Disposal of Contaminated Material

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 these requirements, the Contractor shall perform the following:

- Visually inspect all vehicles, equipment, and containers leaving the work site for proper decontamination.
- Prepare and maintain a written decontamination log.

The Contractor shall be solely responsible for complying with all Federal, State, and local requirements for transporting contaminated materials through the applicable jurisdictions and shall bear all responsibility and cost for any noncompliance. In addition to these requirements, the Contractor shall perform the following:

- Inspect and document all vehicles and containers for proper operation and covering.
- Inspect all vehicles and containers for proper markings, manifest documents, and other requirements for waste shipment.

All contaminated materials removed from the site shall be disposed in a treatment/disposal facility permitted to accept such material.

The Contractor shall properly dispose of investigation derived waste, personnel protective equipment, and miscellaneous wastes associated with implementation of the IMWP, including sampling and analysis that are generated by the Navy representatives.

APPENDIX C

IDEM STABILIZATION SPECIFICATIONS

Practice 3.11
Temporary Seeding

Purpose
(Exhibit 3.11-A)

* To reduce erosion and sedimentation damage by stabilizing disturbed areas where additional work (e.g., grading) is not scheduled for a period of 2 mo. to 1 yr.
* To reduce problems associated with mud or dust from bare soil surfaces during construction.
* To reduce sediment runoff to downstream areas.
* To improve visual aesthetics of the construction areas.

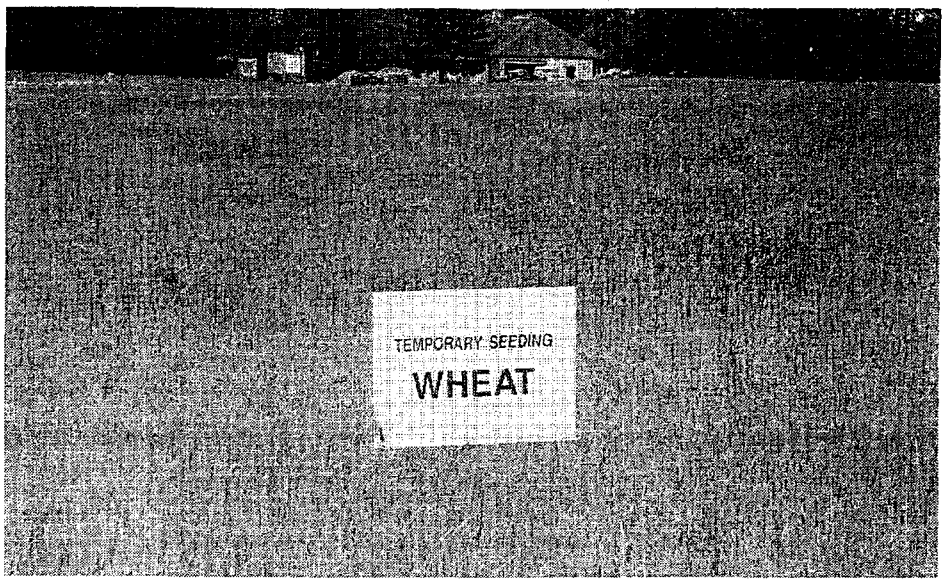

Exhibit 3.11-A. A temporary seeding of wheat to reduce erosion on a future home lot.

Requirements

Site and seedbed preparation: Graded and fertilizer applied.

Plant species: Selected on the basis of quick germination, growth, and time of year to be seeded (see *Exhibit 3.11-B*).

Mulch: Clean grain straw, hay, wood fibre, etc., to protect seedbed and encourage plant growth.

Seeding frequency: As often as possible following construction activity. Daily seeding of rough graded areas when the soil is loose and moist is usually most effective.

Application
(Exhibit 3.11-B)

SITE PREPARATION:

1. Install practices needed to control erosion, sedimentation, and water runoff, such as temporary and permanent diversions, sediment traps or basins, silt fences, and straw bale dams (Practices 3.21, 3.22, 3.72, 3.73, 3.74, and 3.75).
2. Grade the site as specified in the construction plan.

SEEDBED PREPARATION:

1. Test soil to determine its nutrient levels. (Contact your county SWCD or Cooperative Extension office for assistance and soils information, including available soil testing services.)
2. Fertilize as recommended by the soil test. If testing is not done, consider applying 400-600 lbs./ acre of 12-12-12 analysis, or equivalent, fertilizer.
3. Work the fertilizer into the soil 2-4 in. deep with a disk or rake operated across the slope.

SEEDING:

1. Select a seeding mixture and rate from *Exhibit 3.11-B*, and plant at depth and on dates shown.
2. Apply seed uniformly with a drill or cultipacker-seeder or by broadcasting, and cover to the depth shown in *Exhibit 3.11-B*.

3. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
4. Mulch seeded areas to increase seeding success. Anchor all mulch by crimping or tackifying. Use of netting or erosion control blankets is possible, but may not be cost-effective for temporary seedings.

Exhibit 3.11-B. Temporary Seeding Recommendations.

Seed species*	Rate/acre	Planting depth	Optimum dates**
Wheat or rye	150 lbs.	1 to 1½ in.	9/15 to 10/30
Spring oats	100 lbs.	1 in.	3/1 to 4/15
Annual ryegrass	40 lbs.	1/4 in.	3/1 to 5/1 8/1 to 9/1
German millet	40 lbs.	1 to 2 in.	5/1 to 6/1
Sudangrass	35 lbs.	1 to 2 in.	5/1 to 7/30

* Perennial species may be used as a temporary cover, especially if the area to be seeded will remain idle for more than a year (Practice 3.12).

** Seeding done outside the optimum dates increases the chances of seeding failure.

Maintenance

* Inspect periodically after planting to see that vegetative stands are adequately established; re-seed if necessary.
* Check for erosion damage after storm events and repair; reseed and mulch if necessary.
* Topdress fall seeded wheat or rye seedings with 50 lbs./acre of nitrogen in February or March if nitrogen deficiency is apparent. (*Exhibit 3.11-B* shows only wheat/rye fall seeded.)

Common concern

Fertilizer not incorporated at least 2 in. deep—may be lost in runoff or remain concentrated near the surface to inhibit germination.

Mulch rate inadequate—results in poor germination and failure.

Seeding uneven or rate too low—results in patchy growth and erosion.

Practice 3.12
Permanent Seeding

Purposes
(Exhibit 3.12-A)

* To reduce erosion and sedimentation damage by stabilizing exposed areas where additional work (e.g., grading) is not scheduled for a period of more than a year or areas where final grading has been completed.
* To reduce problems associated with mud or dust from bare soil surfaces during construction.
* To reduce sediment runoff to downstream areas.
* To improve the visual aesthetics of the construction area.

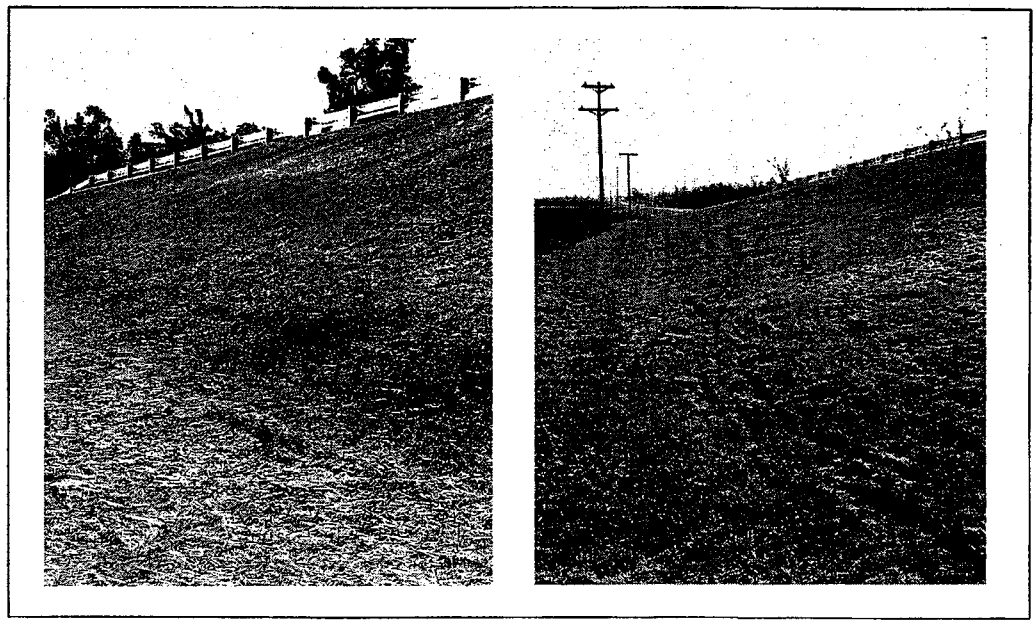

Exhibit 3.12-A. A road right-of-way (left) newly permanent seeded and mulched and (right) 6 mo. later.

Requirements

Site and seedbed preparation: Graded, and lime and fertilizer applied.

Plant species: Selected on the basis of soil type, soil pH, region of the state, time of year, and planned use of the area to be seeded *(see Exhibit 3.12-C)*.

Mulch: Clean grain straw, hay, wood fibre, etc., to protect seedbed and encourage plant growth. The mulch may need to be anchored to reduce removal by wind or water, or erosion control blankets may be considered.

Application
(Exhibits 3.12-B, C, and D)

Permanently seed all final grade areas (e.g., landscape berms, drainage swales, erosion control structures, etc.) as each is completed and all areas where additional work is not scheduled for a period of more than a year.

SITE PREPARATION:

1. Install practices needed to control erosion, sedimentation, and runoff prior to seeding. These include temporary and permanent diversions, sediment traps and basins, silt fences, and straw bale dams (Practices 3.21, 3.22, 3.72, 3.73, 3.74, and 3.75).
2. Grade the site and fill in depressions that can collect water.
3. Add topsoil to achieve needed depth for establishment of vegetation (Practice 3.02).

SEEDBED PREPARATION:

1. Test soil to determine pH and nutrient levels. (Contact your county SWCD or Cooperative Extension office for assistance and soils information, including available testing services.)
2. If soil pH is unsuitable for the species to be seeded, apply lime according to test recommendations.

3. Fertilize as recommended by the soil test. If testing was not done, consider applying 400-600 lbs./acre of 12-12-12 analysis, or equivalent, fertilizer.
4. Till the soil to obtain a uniform seedbed, working the fertilizer and lime into the soil 2-4 in. deep with a disk or rake operated across the slope *(Exhibit 3.12-B)*.

SEEDING:

Optimum seeding dates are Mar. 1-May 10 and Aug. 10-Sept. 30. Permanent seeding done between May 10 and Aug. 10 may need to be irrigated. As an alternative, use temporary seeding (Practice 3.11) until the preferred date for permanent seeding.

1. Select a seeding mixture and rate from *Exhibit 3.12-C*, based on site conditions, soil pH, intended land use, and expected level of maintenance.
2. Apply seed uniformly with a drill or cultipacker-seeder *(Exhibit 3.12-D)* or by broadcasting, and cover to a depth of 1/4-1/2 in.
3. If drilling or broadcasting, firm the seedbed with a roller or cultipacker.
4. Mulch all seeded areas (Practice 3.15). Consider using erosion control blankets on sloping areas (Practice 3.17). (NOTE: If seeding is done with a hydroseeder, fertilizer and mulch can be applied with the seed in a slurry mixture.)

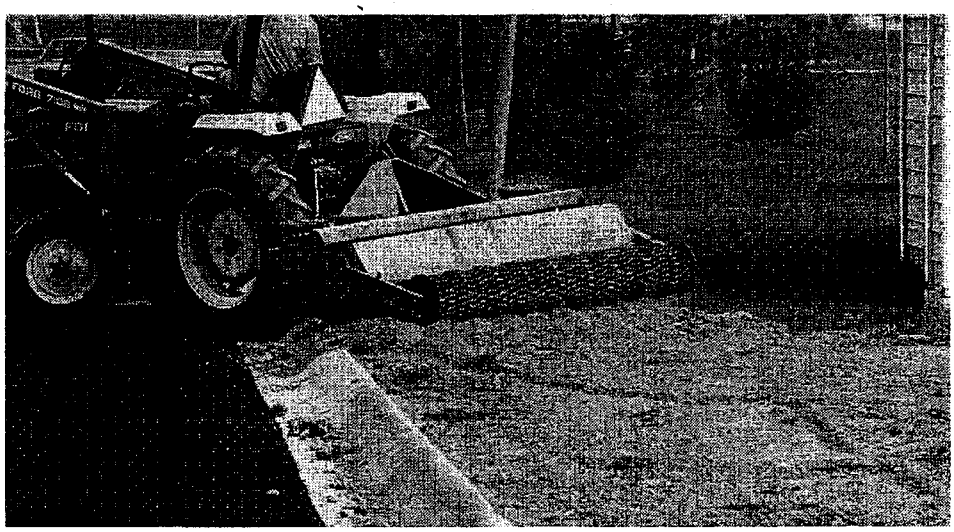

Exhibit 3.12-B. Preparing the seedbed with a combination roto-tiller and cultipacker.

Exhibit 3.12-C. Permanent Seeding Recommendations.

This table provides several seeding options. Additional seed species and mixtures are available commercially. When selecting a mixture, consider site conditions, including soil properties (e.g., soil pH and drainage), slope aspect and the tolerance of each species to shade and droughtiness.

Seed species and mixtures	Rate per acre	Optimum soil pH
OPEN AND DISTURBED AREAS (REMAINING IDLE MORE THAN 1 YR.)		
1. Perennial ryegrass	35 to 50 lbs.	5.6 to 7.0
+ white or ladino clover*	1 to 2 lbs.	
2. Kentucky bluegrass	20 lbs.	5.5 to 7.5
+ smooth bromegrass	10 lbs.	
+ switchgrass	3 lbs.	
+ timothy	4 lbs.	
+ perennial ryegrass	10 lbs.	
+ white or ladino clover*	1 to 2 lbs.	

Exhibit 3.12-C. Continued.

Seed species and mixtures	Rate per acre	Optimum soil pH
3. Perennial ryegrass	15 to 30 lbs.	5.6 to 7.0
+ tall fescue**	15 to 30 lbs.	
4. Tall fescue**	35 to 50 lbs.	5.5 to 7.5
+ ladino or white clover*	1 to 2 lbs.	
STEEP BANKS AND CUTS, LOW MAINTENANCE AREAS (NOT MOWED)		
1. Smooth bromegrass	25 to 35 lbs.	5.5 to 7.5
+ red clover*	10 to 20 lbs.	
2. Tall fescue**	35 to 50 lbs.	5.5 to 7.5
+ white or ladino clover*	1 to 2 lbs.	
3. Tall fescue**	35 to 50 lbs.	5.5 to 7.5
+ red clover*	10 to 20 lbs.	
(Recommended north of US 40)		
4. Orchardgrass	20 to 30 lbs.	5.6 to 7.0
+ red clover*	10 to 20 lbs.	
+ ladino clover*	1 to 2 lbs.	
5. Crownvetch*	10 to 12 lbs.	5.6 to 7.0
+ tall fescue**	20 to 30 lbs.	
(Recommended south of US 40)		
LAWNS AND HIGH MAINTENANCE AREAS		
1. Bluegrass	105 to 140 lbs.	5.5 to 7.0
2. Perennial ryegrass (turf-type)	45 to 60 lbs.	5.6 to 7.0
+ bluegrass	70 to 90 lbs.	
3. Tall fescue (turf-type)**	130 to 170 lbs.	5.6 to 7.5
+ bluegrass	20 to 30 lbs.	
CHANNELS AND AREAS OF CONCENTRATED FLOW		
1. Perennial ryegrass	100 to 150 lbs.	5.6 to 7.0
+ white or ladino clover*	1 to 2 lbs.	
2. Kentucky bluegrass	20 lbs.	5.5 to 7.5
+ smooth bromegrass	10 lbs.	
+ switchgrass	3 lbs.	
+ timothy	4 lbs.	
+ perennial ryegrass	10 lbs.	
+ white or ladino clover*	1 to 2 lbs.	
3. Tall fescue**	100 to 150 lbs.	5.5 to 7.5
+ ladino or white clover*	1 to 2 lbs.	
4. Tall fescue**	100 to 150 lbs.	5.5 to 7.5
+ Perennial ryegrass	15 to 20 lbs.	
+ Kentucky bluegrass	15 to 20 lbs.	

* For best results: (a) legume seed should be inoculated; (b) seeding mixtures containing legumes should preferably be spring-seeded, although the grass may be fall-seeded and the legume frost-seeded (Practice 3.13); and (c) if legumes are fall-seeded, do so in early fall.

** Tall fescue provides little cover for, and may be toxic to, some species of wildlife. The IDNR recognizes the need for additional research on alternatives to tall fescue, such as buffalograss, orchard-grass, smooth bromegrass, and switch-grass. This research, in conjunction with demonstration areas, should focus on erosion control characteristics, wildlife toxicity, turf durability, and drought resistance.

NOTE: An oat or wheat companion or nurse crop may be used with any of the above permanent seeding mixtures. If so, it is best to seed during the fall seeding period, especially after Sept. 15, and at the following rates: spring oats--1/4 to 3/4 bu./acre; wheat--no more than 1/2 bu./acre.

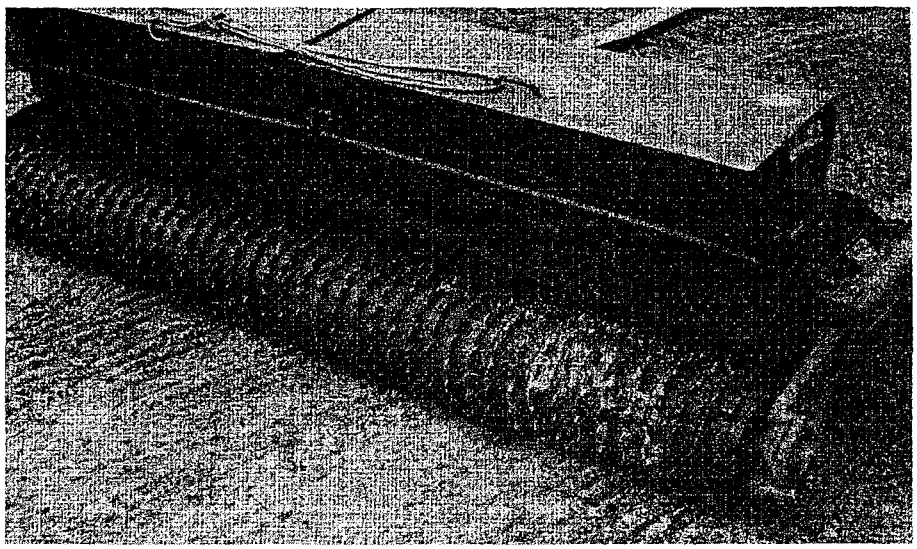

Exhibit 3.12-D. A cultipacker-seeder.

Maintenance

* Inspect periodically, especially after storm events, until the stand is successfully established. (Characteristics of a successful stand include: vigorous dark green or bluish-green seedlings; uniform density with nurse plants, legumes, and grasses well inter-mixed; green leaves; and the perennials remaining green throughout the summer, at least at the plant base.)
* Plan to add fertilizer the following growing season according to soil test recommendations.
* Repair damaged, bare, or sparse areas by filling any gullies, re-fertilizing, over- or re-seeding, and mulching.
* If plant cover is sparse or patchy, review the plant materials chosen, soil fertility, moisture condition, and mulching; then repair the affected area either by over-seeding or by re-seeding and mulching after re-preparing the seedbed.
* If vegetation fails to grow, consider soil testing to determine acidity or nutrient deficiency problems. (Contact your SWCD or Cooperative Extension office for assistance.)
* If additional fertilization is needed to get a satisfactory stand, do so according to soil test recommendations.

Common concerns

Insufficient topsoil or inadequately tilled, limed, and/or fertilized seedbed—results in poor establishment of vegetation.

Unsuitable species or seeding mixture—results in poor establishment of vegetation.

Nurse crop rate too high in the mixture—results in competition with the perennials.

Seeding done at the wrong time of year—results in poor establishment of vegetation, also plant hardiness is significantly decreased.

Mulch rate inadequate—results in poor germination and failure.

Practice 3.13
Dormant and Frost Seeding

Dormant seeding is a temporary or permanent seeding application at a time when soil temperatures are too low for germination to occur (less than 50°F). *Frost seeding* is a temporary or permanent seeding application in early spring when soils are in the freeze-thaw stage. (This practice can be used to repair or enhance areas having thin or declining cover or to re-vegetate an area.)

Purposes
(Exhibit 3.13-A)

* To provide early germination and soil stabilization in the spring.
* To reduce sediment runoff to downstream areas.
* To improve the visual aesthetics of the construction area.
* To repair previous seedings.

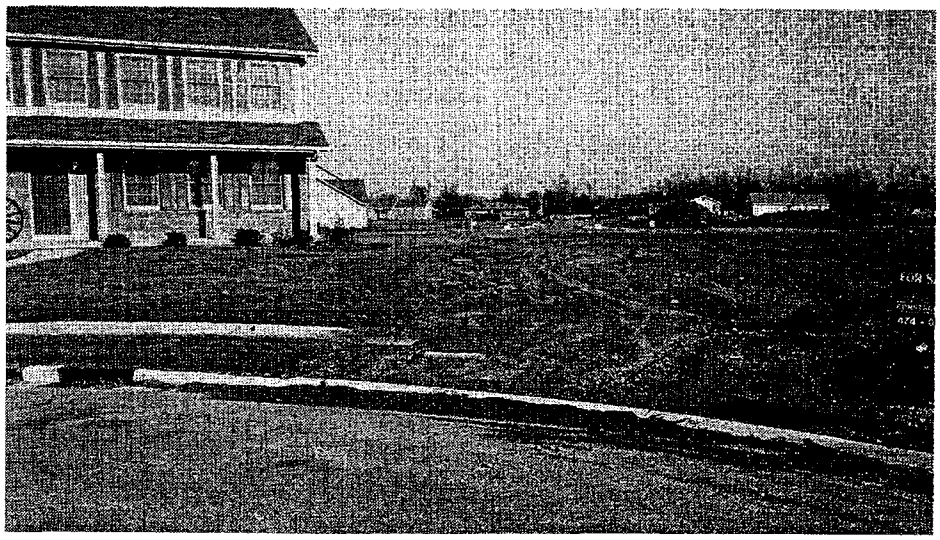

Exhibit 3.13-A. Use of dormant seeding could have reduced excessive early spring erosion on this site.

Requirements

Site and seedbed preparation: Graded as needed, and lime and fertilizer applied.
Plant species: Selected on the basis of soil type, adaptability to the region, and planned use of the area (see *Exhibits 3.13-B* and *3.13-C*).

Application
(Exhibits 3.13-B and C)

SITE PREPARATION:

1. Grade the area to be seeded.
2. Install needed erosion/water runoff control practices, such as temporary or permanent diversions, sediment basins, silt fences, or straw bale dams (Practices 3.21, 3.22, 3.72, 3.74, or 3.75).

FOR DORMANT SEEDING:

Site and seedbed preparation and mulching can be done months ahead of actual seeding; or if the existing ground cover is adequate, seeding can be done directly into it.

Seeding dates: Dec. 1-Feb. 28 (north of U.S. 40), Dec. 10-Jan. 15 (south of U.S. 40).

1. Broadcast fertilizer as recommended by a soil test; or if testing was not done, consider applying 400-600 lbs./acre of 12-12-12 analysis, or equivalent, fertilizer.
2. Apply mulch upon completion of grading (Practice 3.15).
3. Select an appropriate seed species or mixture from *Exhibit 3.13-B* for temporary seeding or *Exhibit 3.13-C* for permanent seeding, and broadcast on top of the mulch and/or into existing ground cover at the rate shown. (If site preparation occurs within the recommended dates, fertilize and lime, seed, and mulch at that time.)

FOR FROST SEEDING:

Seed is broadcast over the prepared seedbed and incorporated into the soil by natural freeze-thaw action.

Seeding dates: Feb. 28-Mar. 28 (north of U.S. 40), Feb. 15-Mar. 15 (south of U.S. 40).

1. Broadcast fertilizer as recommended by a soil test; or if testing was not done, consider applying 400-600 lbs./acre of 12-12-12 analysis, or equivalent, fertilizer.
2. Select an appropriate seed species or mixture from *Exhibit 3.13-B* for temporary seeding or *Exhibit 3.13-C* for permanent seeding, and broadcast on to the seedbed or into the existing ground cover at the rate shown. (Do not work the seed into the soil.)

Exhibit 3.13-B. Temporary Dormant or Frost Seeding Recommendations.

Seed species*	Rate per acre
Wheat or rye	150 lbs.
Spring oats	150 lbs.
Annual ryegrass	60 lbs.

* Perennial species may be used as a temporary cover, especially if the area to be seeded will remain idle for more than a year (Practice 3.12).

Exhibit 3.13-C. Permanent Dormant or Frost Seeding Recommendations.

This table provides several seeding options. Additional seed species and mixtures are available commercially. When selecting a mixture, consider site conditions, including soil properties (e.g., soil pH and drainage), slope aspect and the tolerance of each species to shade and droughtiness.

Seed species and mixtures	Rate per acre	Optimum soil pH
OPEN AND DISTURBED AREAS (REMAINING IDLE MORE THAN 1 YR.)		
1. Perennial ryegrass	50 to 75 lbs.	5.6 to 7.0
+ white or ladino clover*	1½ to 3 lbs.	
2. Kentucky bluegrass	30 lbs.	5.5 to 7.5
+ smooth bromegrass	15 lbs.	
+ switchgrass	5 lbs.	
+ timothy	6 lbs.	
+ perennial ryegrass	15 lbs.	
+ white or ladino clover*	1½ to 3 lbs.	
3. Perennial ryegrass	22 to 45 lbs.	5.6 to 7.0
+ tall fescue**	22 to 45 lbs.	
4. Tall fescue**	50 to 75 lbs.	5.5 to 7.5
+ ladino or white clover*	1½ to 3 lbs.	
STEEP BANKS AND CUTS, LOW MAINTENANCE AREAS (NOT MOWED)		
1. Smooth bromegrass	35 to 50 lbs.	5.5 to 7.5
+ red clover*	15 to 30 lbs.	
2. Tall fescue**	50 to 75 lbs.	5.5 to 7.5
+ white or ladine clover*	1½ to 3 lbs.	
3. Tall fescue**	50 to 75 lbs.	5.5 to 7.5
+ red clover*	15 to 30 lbs.	
(Recommended north of US 40)		
4. Orchardgrass	30 to 45 lbs.	5.6 to 7.0
+ red clover*	15 to 30 lbs.	
+ ladino clover*	1½ to 3 lbs.	
5. Crownvetch*	15 to 18 lbs.	5.6 to 7.0
+ tall fescue**	30 to 45 lbs.	
(Recommended south of US 40)		

Exhibit 3.13-C. Continued.

Seed species and mixtures	Rate per acre	Optimum soil pH
LAWNS AND HIGH MAINTENANCE AREAS		
1. Bluegrass	160 to 210 lbs.	5.5 to 7.0
2. Perennial ryegrass (turf-type)	70 to 90 lbs.	5.6 to 7.0
+ bluegrass	105 to 135 lbs.	
3. Tall fescue (turf-type)**	195 to 250 lbs.	5.6 to 7.5
+ bluegrass	30 to 45 lbs.	
CHANNELS AND AREAS OF CONCENTRATED FLOW		
1. Perennial ryegrass	150 to 225 lbs.	5.6 to 7.0
+ white or ladino clover*	1½ to 3 lbs.	
2. Kentucky bluegrass	30 lbs.	5.5 to 7.5
+ smooth bromegrass	15 lbs.	
+ switchgrass	5 lbs.	
+ timothy	6 lbs.	
+ perennial ryegrass	15 lbs.	
+ white or ladino clover*	1½ to 3 lbs.	
3. Tall fescue**	150 to 225 lbs.	5.5 to 7.5
+ ladino or white clover*	1½ to 3 lbs.	
4. Tall fescue**	150 to 225 lbs.	5.5 to 7.5
+ Perennial bluegrass	22 to 30 lbs.	
+ Kentucky bluegrass	22 to 30 lbs.	

* For best results: (a) legume seed should be inoculated; (b) seeding mixtures containing legumes should preferably be spring-seeded, although the grass may be fall-seeded and the legume frost-seeded; and (c) if legumes are fall-seeded, do so in early fall.

** Tall fescue provides little cover for, and may be toxic to, some species of wildlife. The IDNR recognizes the need for additional research on alternatives to tall fescue, such as buffalograss, orchardgrass, smooth bromegrass, and switch-grass. This research, in conjunction with demonstration areas, should focus on erosion control characteristics, wildlife toxicity, turf durability, and drought resistance.

NOTE: If using mixtures other than those listed here, increase the seeding rate by 50% over the conventional rate.

Maintenance

* Apply 200-300 lbs./acre of 12-12-12 or equivalent fertilizer between Apr. 15 and May 10 or during periods of vigorous growth.
* Re-seed and mulch any areas that have inadequate cover by mid- to late-April. For best results, re-seed within the recommended dates shown in Practices 3.11 for temporary seeding or 3.12 for permanent seeding.

Common concerns

Seeding done at wrong time of year--results in poor seed germination and vegetative stands.
Seeding on too steep a slope--results in seed loss and poor stands.
Seeding failure due to late freeze, killing germinated seedlings.
Mulch rate inadequate--results in poor germination and failure of dormant seeding.
Unsuitable choice of seed species or seeding mixture--results in poor vegetative stands or vegetation that does not serve the intended purpose.
Poor soil and seed contact--results in poor seed germination and vegetative stands.
Dormant seeding over mulch or frost seeding in concentrated flow areas--can result in seed being washed away before seed-soil contact and germination can occur.

Exhibit 3.13-C. Continued.

Seed species and mixtures	Rate per acre	Optimum soil pH
LAWNS AND HIGH MAINTENANCE AREAS		
1. Bluegrass	160 to 210 lbs.	5.5 to 7.0
2. Perennial ryegrass (turf-type)	70 to 90 lbs.	5.6 to 7.0
+ bluegrass	105 to 135 lbs.	
3. Tall fescue (turf-type)**	195 to 250 lbs.	5.6 to 7.5
+ bluegrass	30 to 45 lbs.	
CHANNELS AND AREAS OF CONCENTRATED FLOW		
1. Perennial ryegrass	150 to 225 lbs.	5.6 to 7.0
+ white or ladino clover*	1½ to 3 lbs.	
2. Kentucky bluegrass	30 lbs.	5.5 to 7.5
+ smooth bromegrass	15 lbs.	
+ switchgrass	5 lbs.	
+ timothy	6 lbs.	
+ perennial ryegrass	15 lbs.	
+ white or ladino clover*	1½ to 3 lbs.	
3. Tall fescue**	150 to 225 lbs.	5.5 to 7.5
+ ladino or white clover*	1½ to 3 lbs.	
4. Tall fescue**	150 to 225 lbs.	5.5 to 7.5
+ Perennial bluegrass	22 to 30 lbs.	
+ Kentucky bluegrass	22 to 30 lbs.	

* For best results: (a) legume seed should be inoculated; (b) seeding mixtures containing legumes should preferably be spring-seeded, although the grass may be fall-seeded and the legume frost-seeded; and (c) if legumes are fall-seeded, do so in early fall.

** Tall fescue provides little cover for, and may be toxic to, some species of wildlife. The IDNR recognizes the need for additional research on alternatives to tall fescue, such as buffalograss, orchardgrass, smooth bromegrass, and switch-grass. This research, in conjunction with demonstration areas, should focus on erosion control characteristics, wildlife toxicity, turf durability, and drought resistance.

NOTE: If using mixtures other than those listed here, increase the seeding rate by 50% over the conventional rate.

Maintenance

* Apply 200-300 lbs./acre of 12-12-12 or equivalent fertilizer between Apr. 15 and May 10 or during periods of vigorous growth.
* Re-seed and mulch any areas that have inadequate cover by mid- to late-April. For best results, re-seed within the recommended dates shown in Practices 3.11 for temporary seeding or 3.12 for permanent seeding.

Common concerns

Seeding done at wrong time of year--results in poor seed germination and vegetative stands.
Seeding on too steep a slope--results in seed loss and poor stands.
Seeding failure due to late freeze, killing germinated seedlings.
Mulch rate inadequate--results in poor germination and failure of dormant seeding.
Unsuitable choice of seed species or seeding mixture--results in poor vegetative stands or vegetation that does not serve the intended purpose.
Poor soil and seed contact--results in poor seed germination and vegetative stands.
Dormant seeding over mulch or frost seeding in concentrated flow areas--can result in seed being washed away before seed-soil contact and germination can occur.

Practice 3.15
Mulching

Purposes
(Exhibit 3.15-A)

* To prevent erosion by protecting the soil from wind and water impact.
* To provide temporary surface stabilization.
* To prevent soil from crusting.
* To conserve moisture thereby promoting seed germination and seedling growth.

Exhibit 3.15-A. Applying straw mulch with a chopper-blower on freshly seeded soil adjacent to a road.

Requirements
(Exhibits 3.15-B and C)

Material: Straw, hay, wood fiber, cellulose, or excelsior (see *Exhibit 3.15-B*), or erosion control blankets or turf reinforcement mats (Practices 3.17 and 3.18), as specified in the erosion and sediment control plan.

Coverage: At least 75% of the soil surface.

Anchoring: Required for straw or hay mulch and sometimes excelsior to prevent displacement by wind and/or water (see *Exhibit 3.15-C*).

Exhibit 3.15-B. Mulch Materials, Rates, and Comments.

Material	Rate	Comments
Straw or hay	1½-2 tons/acre	Should be dry, unchopped, free of undesirable seeds. Spread by hand or machine. Must be crimped or anchored (see *Exhibit 3.15-D*).
Wood fiber or cellulose	1 ton /acre	Apply with a hydromulcher and use with tacking agent.
Long fiber wood (excelsior)	1/2-3/4 ton/acre	Anchor in areas subject to wind.

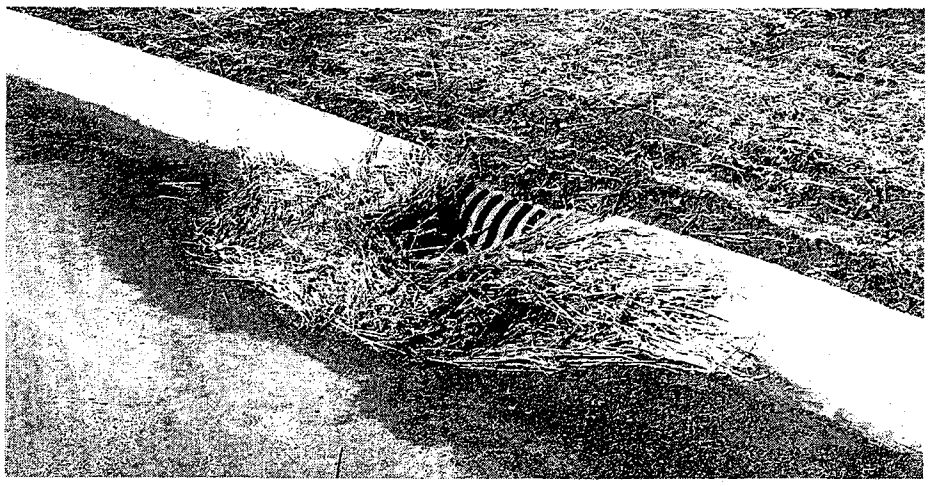

Exhibit 3.15-C. This unanchored straw mulch flowed with runoff to the storm drain. While acting somewhat as an inlet protection filter, it would have been more effective keeping soil from eroding off the site.

Application and anchoring

(Exhibits 3.15-D, E, and F)

1. Apply mulch at the recommended rate.
2. Spread uniformly by hand, hay fork, mulch blower, or hydromulcher. After spreading, no more than 25% of the ground surface should be visible.
3. If straw or hay is used, anchor it immediately one of the following ways (see *Exhibit 3.15-D*):
   - Crimp with a mulch anchoring tool, a weighted farm disk with dull serrated blades set straight (see *Exhibit 3.15-E*), or track cleats of a bulldozer; OR
   - Hydromulch with short cellulose fibers (see *Exhibit 3.15-F*); OR
   - Apply a liquid tackifier; OR
   - Cover with netting secured by metal staples.

Exhibit 3.15-D. Mulch Anchoring Methods.

Anchoring method	How to apply
Mulch anchoring tool OR Farm disk (dull, serrated, and set straight)	Crimp or punch the straw or hay into the soil 2-4 in. Operate machinery on the contour of the slope.
Cleating with dozer tracks	Operate dozer up and down slope, not across, or else the tracks will form rills.
Wood hydromulch fibers	Apply 1-2 tons/acre using a hydromulcher at a rate of 750 lbs./acre with a tacking agent (or according to contractor specifications). Do not use in areas of concentrated flow.
Asphalt emulsion	Emulsified asphalt should conform to the requirements of ASTM Spec. #977. Apply with suitable equipment at a rate of 0.05 gal./sq. yd. Do not use in areas of concentrated flow.
Synthetic tackifier, binder or soil stabilizer	Apply according to manufacturer's recommendation.
Biodegradable netting (polypropylene or similar material)*	Apply over mulch and staple with 6-8 in. wire staples. Follow manufacturer's recommendations for installation. Best suited to slope application.

* Install the netting immediately after applying the mulch. In areas of concentrated water flow, lay it parallel to the direction of flow; on other slopes, lay it either parallel or perpendicular to direction of flow. Edges of adjacent netting strips should overlap 4-6 in., with the strip on the upgrade side of any lateral water flow on top. Installation details are site specific, so follow manufacturer's directions.

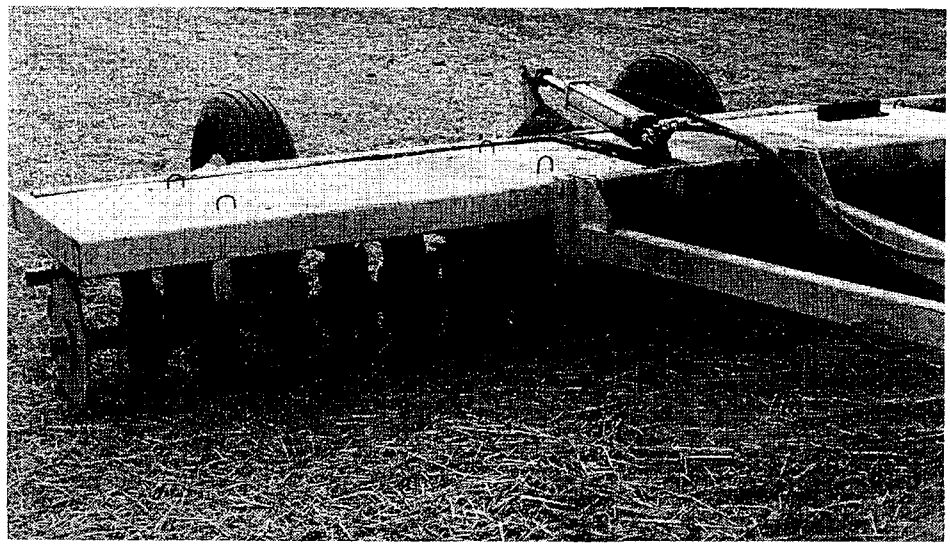

Exhibit 3.15-E. A crimper can be used to anchor mulch into the soil more securely.

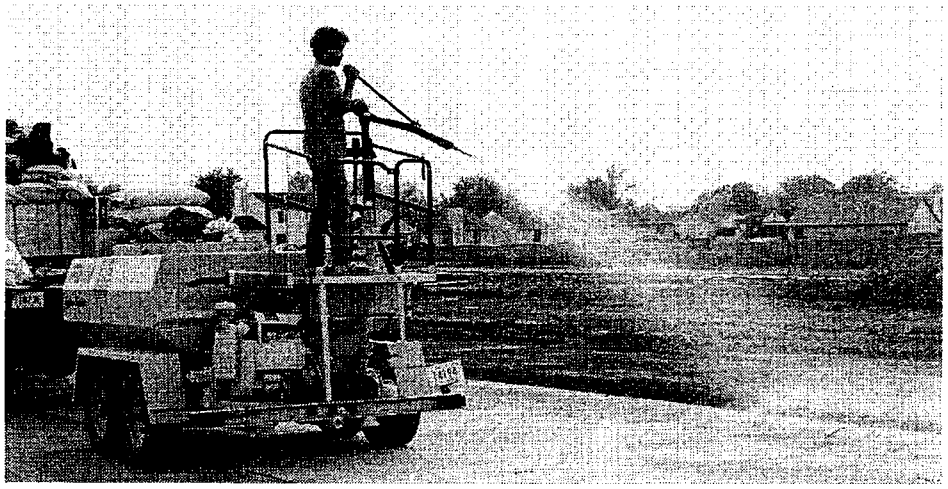

Exhibit 3.15-F. Hydroseeding the roadside in a new subdivision.

Maintenance

* Inspect after storm events to check for movement of mulch or for erosion.
* If washout, breakage, or erosion is present, repair the surface, then re-seed, re-mulch and, if applicable, install new netting.
* Continue inspections until vegetation is firmly established.

Common concerns

Inadequate coverage—results in erosion, washout, and poor plant establishment.

Appropriate tacking agent not applied or applied in insufficient amount—results in mulch being lost to wind and runoff.

Flow too concentrated to use straw mulch—results in erosion in channel; consider use of erosion control blankets and/or a diversion until vegetation is established.

Hydromulch applied in winter—results in deterioration of mulch before plants can become established.

Netting washed away—because insufficient number of staples used.