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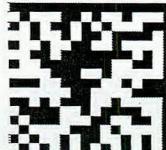
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# PROPOSED REMEDIAL ACTION PLAN FOR HANCOCK AIR NATIONAL GUARD SITE 15

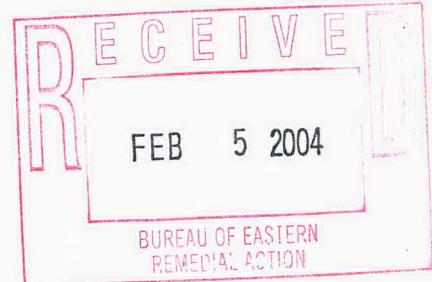
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NYSDEC Site No. 734054

*Prepared For:*

**Air National Guard**

Environmental Restoration Branch  
3500 Futchet Avenue  
Andrews AFB, MD 20762-5157



and

**174<sup>th</sup> Fighter Wing of the Air National Guard**

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1/29/04

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David G. Johnson/JGB

1/29/04

Date

**JANUARY 2004**

## NOTICE OF AVAILABILITY AND

### PUBLIC MEETING

New York Air National Guard

Proposed Remedial Action Plan for

Former Jet Fuel Site

Environmental Restoration Program (ERP) Site 15  
Hancock Air National Guard Station, Syracuse, NY

The Air National Guard (ANG) has prepared a Proposed Remedial Action Plan for a former jet fuel site (Site 15), located near the main gate of the Hancock Air National Guard Station. The site is off Molloy Road in the town of Salina near Syracuse, New York. The plan presents an evaluation of remedial alternatives to address soil and groundwater contamination identified during previous environmental field investigations.

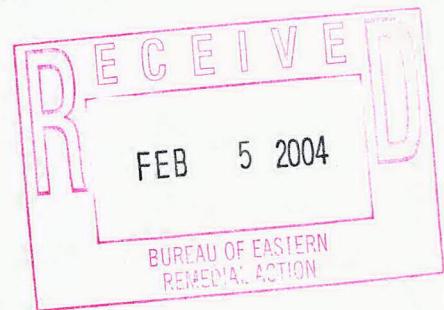
Previous investigations identified soil and groundwater containing benzene, other jet fuel constituents and polychlorinated biphenyls (PCBs) above State of New York standards. This contamination is believed to have been caused by occasional releases during historical Station operations. The PCBs and most of the jet fuel contaminants were removed as part of an interim soil removal action in 2003.

The recommended remediation methods for the residual contamination at Site 15 include vapor extraction from the soil, air sparging of shallow groundwater and natural attenuation.

The public is invited to attend a meeting on Thursday, Feb. 12, 2004 from 6:30 to 8 p.m. in the Salina Free Library in Mattydale (100 Belmont Street, next to Roxboro Road Middle School between US Route 11 and Interstate Route 81) to hear the proposed plan and make any verbal comments. Copies of the proposed plan and one copy of each of the site documents are available at Salina Free Library. In addition, a 30-day public comment period will begin Feb. 9, 2004.

Written comments or questions on the proposed plan may be submitted to:

Lieutenant Anthony Bucci  
Hancock Air National Guard Base  
6001 East Molloy Road  
Syracuse, NY 13211-7099  
(315) 454-6651  
[anthony.bucci@nysyra.ang.af.mil](mailto:anthony.bucci@nysyra.ang.af.mil)



## TABLE OF CONTENTS

	<u>PAGE</u>
<b>SECTION 1 SUMMARY OF PURPOSE.....</b>	<b>1-1</b>
1.1 INTRODUCTION.....	1-1
1.2 POTENTIAL IMPACTS.....	1-1
1.3 PROPOSED REMEDY.....	1-2
1.4 PUBLIC PARTICIPATION.....	1-3
1.5 SITE REFERENCES.....	1-4
<b>SECTION 2 SITE BACKGROUND.....</b>	<b>2-1</b>
2.1 PROJECT BACKGROUND.....	2-1
2.2 SITE LOCATION AND DESCRIPTION.....	2-1
2.3 SITE HISTORY.....	2-2
2.4 LOCAL GEOLOGY AND HYDROGEOLOGY .....	2-2
2.4.1 Local Geology .....	2-2
2.4.2 Local Hydrogeology .....	2-3
2.5 SITE AND REMEDIAL INVESTIGATIONS .....	2-3
2.5.1 Spill Investigation (June 1990).....	2-4
2.5.2 First Site Investigation (November and December 1990).....	2-4
2.5.3 Second Site Investigation (June and July 1994).....	2-5
2.5.4 Remedial Investigation (1995 and 1996) .....	2-5
2.5.5 Treatability Study (May 1998 and September-October 1999) .....	2-6
2.5.6 Data Gap Investigation (2000 and 2001).....	2-7
2.5.7 Fall 2001 Investigation.....	2-7
2.5.8 Removal Action.....	2-8
<b>SECTION 3 DEVELOPMENT OF REMEDIAL GOALS.....</b>	<b>3-1</b>
3.1 STANDARDS, CRITERIA, AND GUIDANCE VALUES.....	3-1
3.2 NATURE AND EXTENT OF IMPACTED MEDIA .....	3-1
3.2.1 Soil.....	3-1
3.2.2 Groundwater.....	3-2
3.3 SUMMARY OF HUMAN EXPOSURE PATHWAYS.....	3-3

**PARSONS**

## TABLE OF CONTENTS (continued)

	<u>PAGE</u>
3.4 SUMMARY OF REMEDIATION GOALS .....	3-3
<b>SECTION 4 REMEDIAL ALTERNATIVES.....</b>	<b>4-1</b>
4.1 SUMMARY OF THE EVALUATION OF ALTERNATIVES.....	4-1
4.2 EVALUATION OF ALTERNATIVE 1 – MONITORED NATURAL ATTENUATION .....	4-2
4.2.1 Description .....	4-2
4.2.2 Overall Protection of Human Health and the Environment .....	4-2
4.2.3 Compliance with SCGs .....	4-3
4.2.4 Long-term Effectiveness and Permanence .....	4-3
4.2.5 Reduction of Toxicity, Mobility, or Volume.....	4-3
4.2.6 Short-term Effectiveness .....	4-3
4.2.7 Implementability.....	4-3
4.2.8 Cost.....	4-4
4.3 EVALUATION OF ALTERNATIVE 2 – ADDITIONAL SOIL REMOVAL	4-4
4.3.1 Description .....	4-4
4.3.2 Overall Protection of Human Health and the Environment .....	4-5
4.3.3 Compliance with SCGs .....	4-5
4.3.4 Long-term Effectiveness and Permanence .....	4-5
4.3.5 Reduction of Toxicity, Mobility, or Volume.....	4-5
4.3.6 Short-term Effectiveness .....	4-5
4.3.7 Implementability.....	4-5
4.3.8 Cost.....	4-6
4.4 EVALUATION OF ALTERNATIVE 3 – ACTIVE GROUNDWATER CONTROL.....	4-6
4.4.1 Description .....	4-6
4.4.2 Overall Protection of Human Health and the Environment .....	4-7
4.4.3 Compliance with SCGs .....	4-8
4.4.4 Long-term Effectiveness and Permanence .....	4-8
4.4.5 Reduction of Toxicity, Mobility, or Volume.....	4-8
4.4.6 Short-term Effectiveness .....	4-8
4.4.7 Implementability.....	4-8
4.4.8 Cost.....	4-8
4.5 COMPARISON OF ALTERNATIVES .....	4-9
4.5.1 Overall Protection of Human Health and the Environment .....	4-9
4.5.2 Compliance with SCGs .....	4-9
4.5.3 Long-term Effectiveness and Permanence .....	4-9

**PARSONS**

## TABLE OF CONTENTS (continued)

	<u>PAGE</u>
4.5.4 Reduction of Toxicity, Mobility, or Volume.....	4-9
4.5.5 Short-term Effectiveness .....	4-9
4.5.6 Implementability.....	4-9
4.5.7 Cost.....	4-10
<b>SECTION 5 RECOMMENDED REMEDIAL ALTERNATIVE.....</b>	<b>5-1</b>
5.1 DESCRIPTION OF RECOMMENDED ALTERNATIVE .....	5-1
5.2 ASSESSMENT OF RECOMMENDED ALTERNATIVE USING EVALUATION CRITERIA.....	5-2
5.2.1 Overall Protection of Human Health and the Environment .....	5-2
5.2.2 Compliance with SCGs .....	5-2
5.2.3 Long-term Effectiveness and Permanence .....	5-2
5.2.4 Reduction of Toxicity, Mobility, or Volume.....	5-3
5.2.5 Short-term Effectiveness .....	5-3
5.2.6 Implementability.....	5-3
5.2.7 Cost.....	5-3

## LIST OF FIGURES

Figure 2.1 Site Location Map .....	2-11
Figure 2.2 Site Plan.....	2-12
Figure 3.1 Surface Soil (0 to 2 feet) Analytical Map (BTEX + PCBs Prior to Soil Removal Action) .....	3-4
Figure 3.2 Subsurface Soil (2 to 10 feet) Analytical Map Prior to Soil Removal Action.....	3-5
Figure 3.3 Subsurface Soil (5 to 12 feet) Total BTEX Analytical Map Prior to Soil Removal Action.....	3-6
Figure 3.4 Soil Removal Locations .....	3-7
Figure 3.5 BTEX in Groundwater at Hancock ANG Site 15 (October 2001).....	3-8
Figure 4.1 Most Significantly Impacted Soils .....	4-12

## TABLE OF CONTENTS (CONTINUED)

	<u>PAGE</u>
<b>LIST OF TABLES</b>	
Table 2.1 Timeline for Hancock Site 15 .....	2-9
Table 4.1 Summary of Comparative Analysis of Alternatives .....	4-11
Table 5.1 Summary Comparison of Soil Disposal Options.....	5-5

## LIST OF APPENDICES

ATTACHMENT LAND USE CONTROL ASSURANCE PLAN

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# SECTION 1

## SUMMARY OF PURPOSE

### 1.1 INTRODUCTION

The Air National Guard, in consultation with the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH), is proposing a remedy to address the potentially significant impact to human health and the environment created by the presence of environmental contaminants at Hancock Field, Site 15 located in the Town of Salina just north of Syracuse, New York. As more fully described in Section 2 of this document, soil and groundwater have been impacted at Site 15 by past releases associated with fuel storage and with transformers that contained polychlorinated biphenyls (PCBs). This plan proposes remedial activities intended to address potential threats to human health and the environment caused by these releases to soil at Site 15 and subsequent migration to and within groundwater to downgradient areas (i.e., within Site 15 extending to the northernmost portion of the Brooklawn Golf Course adjacent to Site 15). The reports documenting the investigations and studies completed at Site 15 are listed at the end of this section and are summarized in Section 2.

This Proposed Remedial Action Plan (PRAP) identifies the proposed remedy, summarizes the other alternatives considered, and discusses why the proposed remedy was selected. The proposed remedy is discussed in detail in Section 5 and is intended to attain the remediation goals identified for this site in Section 3.

The remedial alternatives discussed for this site were developed as if no remediation has been completed. This is important to bear in mind as a portion of the chosen alternative, the source area soil removal action, was completed in May of 2003. This soil removal action was deemed time critical and completed as an interim removal action.

### 1.2 POTENTIAL IMPACTS

Two potentially, significant long-term impacts to human health and the environment exist at Site 15 resulting from past petroleum/oil releases:

- A potential human exposure pathway is exposure to contaminated soil located primarily south of and adjacent to the former pump house. The exposure is to PCBs and volatile organic compounds, consisting mainly of benzene, toluene, ethylbenzene, and xylene(s) (BTEX). This potential exposure pathway has been addressed by the removal of approximately 8200 tons of soil from the source areas.
- A second potentially significant impact to human health is associated with exposure to impacted groundwater at Site 15. Groundwater from Site 15 originates at the former pump house and extends downgradient to the Brooklawn Golf Course. The primary exposure is to volatile organic compounds, consisting mainly of benzene, toluene, ethylbenzene, and xylene(s) (BTEX) and will be addressed by the proposed remedy.

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### 1.3 PROPOSED REMEDY

This Proposed Remedial Action Plan (hereafter referred to as the proposed plan) identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for this preference. The ANG in consultation with the NYSDEC and NYSDOH will select a final remedy for Site 15 only after careful consideration of all comments received during the public comment period.

In order to restore Site 15 to pre-spill conditions to the extent feasible and required by law, but at a minimum eliminate or mitigate all significant potential threats to human health and the environment caused by environmental contaminants at Site 15, ANG proposed two actions:

#### Soil Removal Action (completed in May 2003)

- Removed 2,880 tons of soil exceeding 1 parts per million (ppm) PCBs in site surface soil and 10 ppm PCBs in site subsurface soil at a depth greater than one foot below ground surface. Additionally, removed the closed underground tanks and 5,360 tons of soil containing BTEX adjacent to the tanks as specified by the NYSDEC Region 7 spill program site representative.
- Drained saturated soil in place, as needed, prior to excavating below the water table. Plans were in place to treat extracted water, however no water treatment was necessary.
- Transported and managed the excavated soil at a permitted offsite disposal facility.
- Replaced excavated material with clean fill to pre-excavation grade. Provided proper drainage and seeded the remediated area.

#### Additional Soil Remediation and Groundwater Impact Control

- Continue to restrict access to the site and prevent use of onsite groundwater.
- Install an air sparging and soil vapor extraction system within the area showing total soil BTEX levels over 10 ppm to address soil and groundwater contamination and at the northernmost portion of the Brooklawn Golf Course to intercept and control the contaminant plume. The golf course is located directly downgradient of Site 15 across Molloy Road from the Hancock Air National Guard Base's main entrance. Connect the air sparging and soil vapor extraction system to one or more common vapor treatment locations with a knockout tank to collect incidental water. Operate and reassess the system annually.
- Conduct quarterly monitoring of the groundwater for eight quarters to monitor performance of the AS/SVE system. After eight quarters of monitoring the frequency of sampling will be reassessed.

#### Monitored Natural Attenuation

- Conduct groundwater monitoring semi-annually for up to five years to further assess natural attenuation within the groundwater plume outside the area containing soil above 10 ppm BTEX. Reassess overall system performance after a minimum of three and a maximum of five years.

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- If natural attenuation is not considered sufficient in a three- to five-year timeframe, implement additional remedial measures (e.g., air sparging, delivery of a limiting nutrient, or other amendments to the subsurface) to enhance the attenuation of BTEX.

The proposed remedy, discussed in more detail in Section 5 of this proposed plan, is intended to attain the remediation goals selected for Site 15, in conformity with applicable standards, criteria, and guidelines (SCGs). These remediation goals are:

- Maintain the current land use of the property for the foreseeable future and allow the Site to be available for intended future military use. Land use will be controlled in accordance with the Land Use Control Assurance Plan for the Hancock ANG Base (provided herein as an attachment to this proposed plan).
- Eliminate and/or minimize the exposure route hazards posed by the chemical constituents present in different media at the site;
- Remove or control identified sources of potentially significant impacts;
- Control groundwater as needed to reduce or eliminate further migration of site contaminants; and
- Monitor groundwater, as needed, to evaluate long-term groundwater quality in meeting NYS groundwater quality standards.

The Air National Guard Readiness Center at Andrews Air Force Base in Maryland identified two sites at Hancock Field, Sites 1 and 15, requiring potential remediation within the framework of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Superfund Amendment and Reauthorization Act (SARA). Site 1 was identified only because some soil from Site 15 was temporarily stored on a pad at Site 1 until the soil removal action was conducted.

The NYSDEC has issued this Plan pursuant to the NYS Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in greater detail in the investigation reports, feasibility study (FS), and other relevant reports and documents. To better understand Site 15 and the investigations conducted, the public is encouraged to review the project documents at the following location:

Salina Free Library  
100 Belmont (Next to Roxboro Road Middle School)  
Mattydale, NY 13211  
(315) 454-4524

## 1.4 PUBLIC PARTICIPATION

The ANG seeks input from the community on this proposed plan. A public comment period has been set from February 9, 2004 through March 11, 2004 to provide an opportunity for public participation in the remedy selection process for Site 15. During the public comment period, ANG will also hold a public meeting to be held at the Salina Free Library in Mattydale, NY on Thursday, February 12, 2004 from 6:30 to 8 PM.

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At the public meeting, the results of the investigations and feasibility study will be summarized and the proposed remedy will be presented. At the public meeting after the presentation, a question-and-answer period will be held, during which participants can submit verbal or written comments on this proposed plan.

The ANG in conjunction with the New York State Departments of Environmental Conservation and Health may modify the preferred alternative or select another of the alternatives presented in this proposed plan based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here.

Comments will be summarized and responses provided in the Responsiveness Summary Section of the Record of Decision (ROD). The ROD will present the final remedy for Site 15. Written comments may be sent to either of the following two ANG project representatives by March 11, 2004:

2<sup>nd</sup> Lt. Anthony Bucci

Hancock Air National Guard Base

6001 East Molloy Road

Syracuse, NY 13211-7099

Telephone (315) 454-6651

Email address: [anthony.bucci@nysyra.ang.af.mil](mailto:anthony.bucci@nysyra.ang.af.mil)

## 1.5 SITE REFERENCES

Aneptek, 1999. *Draft Treatability Study/Technical Memorandum for Petroleum, Oil, and Lubricant Facility, Site 15*. 174<sup>th</sup> Fighter Wing, New York Air National Guard, Hancock Field, Syracuse, New York. Prepared by Aneptek Corporation for the Air National Guard Readiness Center, Andrews AFB, Maryland. December 1999.

Lockheed, 1997. *Final Remedial Investigation Report for Petroleum, Oil, and Lubricant Facility, Site 15*. Volumes I and II. Prepared by Lockheed Martin for the Air National Guard Readiness Center, Andrews AFB, Maryland. July 1997.

Metcalf & Eddy (M&E), 1995. *Final Technical Memorandum*. 174<sup>th</sup> Fighter Wing, New York Air National Guard, Hancock Field, Syracuse, New York. Prepared by Metcalf & Eddy for the Air National Guard Readiness Center, Andrews AFB, Maryland. February 1995.

Parsons ES, 2000. *Work Plan for Data Gap Investigation, Focused Feasibility Study, and Subsequent Pre-Design and Design Tasks for Site 15 at Hancock Field, Syracuse, NY*. Prepared for National Guard Bureau and Air National Guard. December 2000.

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Parsons ES, 2001. *Work Plan for the Time Critical Removal Action at Site 15 at Hancock Field, Syracuse, NY.* Prepared for National Guard Bureau and Air National Guard. October 2001.

Parsons, 2002. Feasibility Study Report for Site 15 (includes Data Gap Investigation Report as Appendix A). Prepared for the Air National Guard Readiness Center, Andrews AFB, Maryland. February 2002.

Parsons, 2003. Remedial Action Report for the Hancock Air National Guard Site 15 and Site 1. Prepared for the Air National Guard Readiness Center, Andrews AFB, Maryland. June 2003.

Radian, 1994. *Management Action Plan.* 174<sup>th</sup> Fighter Wing, New York Air National Guard, Hancock Field, Syracuse, New York. Prepared by Radian Corporation for the Air National Guard Readiness Center, Andrews AFB, Maryland. July 1994.

## SECTION 2

### SITE BACKGROUND

#### 2.1 PROJECT BACKGROUND

The 174<sup>th</sup> Fighter Wing of the New York Air National Guard is based at Hancock Field, a former Air Force Base located two miles north-northeast of the City of Syracuse in Onondaga County in central New York (see Figure 2.1). The Air National Guard facility is currently operating within the southern portion of the former Hancock Air Force Base located south of the Syracuse airport. The Air National Guard Readiness Center at Andrews AFB in Maryland manages Installation Restoration Program-related efforts for Air National Guard installations. This Plan provides information in regards to the proposed remedial action at Site 15.

Site 15 is a 2.5-acre plot of land and the site of a former petroleum, oil, and lubricant storage area near the southern boundary of Hancock Field (see Figure 2.2). Site soil and groundwater have been impacted by past spills associated with fuel storage and with transformers that contained PCBs. Multiple previous investigation efforts have been conducted at this site. These previous investigations have documented the presence of jet fuel-related compounds, PCBs, and a light non-aqueous phase liquid on top of groundwater within a portion of the site (Lockheed, 1997). BTEX dissolved in groundwater extends from the northern portion of the site where the spills occurred to slightly past East Molloy Road at the southern edge of the NYANG property. PCBs, on the other hand, were concentrated around the north-central portion of the site prior to the soil removal action.

#### 2.2 SITE LOCATION AND DESCRIPTION

Site 15 is part of land used by the 174<sup>th</sup> Fighter Wing of the New York Air National Guard. The entire site located within the Air National Guard Base at Hancock Field directly adjacent to the Syracuse Hancock Airport. The Air National Guard facility at Hancock Field is bordered by the Town of Dewitt to the east and south, the Town of Salina to the west, and the Town of Cicero to the north. Syracuse International Airport is located directly to the north of the Air National Guard facility.

Site 15 is approximately 2.5 acres in area consisting of brush vegetation, wooded vegetation in the southern portion adjacent to Molloy Road, a large concrete pad, a bermed area where a 215,000-gallon aboveground tank was formerly located, and two drainage swales. One drainage swale borders the site on its north-northeast side, and a second drainage swale is located along the west side of the site. The drainage swales contain water only intermittently following storm events. Water within the drainage swales does not appear to be hydraulically connected to underlying groundwater.

Several site structures were recently removed as part of a removal action for PCB-impacted soils. The foundation of the former pump house and associated underground structures, consisting of six underground tanks, three drainage sumps, and an oil-water separator were recently removed. Additionally, a transformer pad adjacent to the southeast side of the former

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pumphouse was removed. This removal action was performed in accordance with the *Work Plan for the Time Critical Removal Action* (Parsons, 2001), which was approved by the NYSDEC before the work was initiated.

## 2.3 SITE HISTORY

Site 15 was used to transfer and store JP-4 jet fuel until 1994. The petroleum storage area was constructed in 1951 and used until 1999 when it was decommissioned following completion of a new petroleum storage area. When the area was actively used, it was the site of the Jet Fuel Transfer Pumphouse (Building 602), a transformer pad, various storage tanks, and equipment for transferring jet fuel to the tanks. In 1999, the pumphouse was demolished, the aboveground storage tank was cleaned and removed, and the underground storage tanks were cleaned and filled in place.

Three spills at the site have been documented:

- Prior to the 1980s, PCBs were released, possibly from the transformers located in front of the pumphouse (M&E, 1995).
- In April 1990, 3,850 gallons of JP-4 jet fuel were released inside the pumphouse. Some of the fuel reportedly flowed out of the building before it could be recovered (Radian, 1994, and M&E, 1995).
- In June 1994, 150 gallons of JP-8 jet fuel overflowed onto the ground from beneath the northeast side of the building. The spill was reportedly contained with absorbent pads before it was able to exit through the drainage swale on the east side of the site (M&E, 1995, and Aneptek, 1999).

Following the April 1990 release, impacted surface soil was removed from the area around the pump house and staged on the concrete pad at Site 1. This soil was disposed offsite with the impacted soil from Site 15. The excavation area was then backfilled with crushed stone. During the cleanup, three area drainage sumps with PCB-contaminated sediment were discovered, and the sediment was removed. Spilled fuel had entered the sumps and mixed with the PCB-contaminated sediment, which is believed to have accumulated in the sumps before 1971. According to as-built drawings, an oil-water separator was supposedly installed in the 1950s, but one was never found during the soil excavation (Radian, 1994).

## 2.4 LOCAL GEOLOGY AND HYDROGEOLOGY

### 2.4.1 Local Geology

The surficial geology at Site 15 consists of glaciofluvial sediments deposited by glacial meltwater overlying poorly sorted till deposited directly by glaciers. The glaciofluvial sediments include silty clays, sands, and gravels, with thickness ranging from 45 to 55 feet. The underlying till consists of gravel, cobbles, and boulders entrained in a silty clay matrix and ranges in thickness from 30 to 100 feet (Lockheed, 1997).

Bedrock is encountered at depths ranging from 75 to 109 feet below ground surface, and is one of the Upper Silurian Vernon Formation. This formation consists of thinly bedded soft red shale with thin beds of green shale, gypsum, halite, and dolomite. Competence varies from soft

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and crumbly to dense and hard. The degree of competence appears to be proportional to the density of the fractures in the shale. The shale is characterized by enlarged fractures, joints, and bedding planes (Lockheed, 1997).

#### 2.4.2 Local Hydrogeology

The overburden at Site 15 consists of fine-grained sediments. The subgrade soils are fairly uniform, with the upper 10 to 15 feet of the soil characterized by relatively soft, dark yellowish-brown silt and silty clay. Towards the southeast, in the vicinity of wells MW-12S and MW-12D, the interval thins to approximately 5 feet. Beneath the silty clay are fine- to medium-grained sands, yellowish brown to dark brown with silt, and trace amounts of clay down to a depth of approximately 20 feet. Underlying these silty sands is a lens of stiff clayey silts (often called glacial till). Till was encountered at MW-4, MW-6D, and MW-12D, and was as much as 15 feet thick (Lockheed, 1997).

### 2.5 SITE AND REMEDIAL INVESTIGATIONS

Several investigations/studies and a removal action have taken place at Site 15 during the period from June 1990 to January 2001. The following reports have been prepared which describe the methods and findings of these investigations in detail.

Aneptek, 1999. *Draft Treatability Study/Technical Memorandum for Petroleum, Oil, and Lubricant Facility, Site 15.* 174<sup>th</sup> Fighter Wing, New York Air National Guard, Hancock Field, Syracuse, New York. Prepared by Aneptek Corporation for the Air National Guard Readiness Center, Andrews AFB, Maryland. December 1999.

Lockheed, 1997. *Final Remedial Investigation Report for Petroleum, Oil, and Lubricant Facility, Site 15.* Volumes I and II. Prepared by Lockheed Martin for the Air National Guard Readiness Center, Andrews AFB, Maryland. July 1997.

Metcalf & Eddy (M&E), 1995. *Final Technical Memorandum.* 174<sup>th</sup> Fighter Wing, New York Air National Guard, Hancock Field, Syracuse, New York. Prepared by Metcalf & Eddy for the Air National Guard Readiness Center, Andrews AFB, Maryland. February 1995.

Parsons ES, 2000. *Work Plan for Data Gap Investigation, Focused Feasibility Study, and Subsequent Pre-Design and Design Tasks for Site 15 at Hancock Field, Syracuse, NY.* Prepared for National Guard Bureau and Air National Guard. December 2000.

Parsons ES, 2001. *Work Plan for the Time Critical Removal Action at Site 15 at Hancock Field, Syracuse, NY.* Prepared for National Guard Bureau and Air National Guard. October 2001.

Parsons, 2002. Feasibility Study Report for Site 15 (includes Data Gap Investigation Report as Appendix A). Prepared for the Air National Guard Readiness Center, Andrews AFB, Maryland. February 2002.

Parsons, 2003. Remedial Action Report for the Hancock Air National Guard Site 15 and Site 1. Prepared for the Air National Guard Readiness Center, Andrews AFB, Maryland. June 2003.

Radian, 1994. *Management Action Plan*. 174<sup>th</sup> Fighter Wing, New York Air National Guard, Hancock Field, Syracuse, New York. Prepared by Radian Corporation for the Air National Guard Readiness Center, Andrews AFB, Maryland. July 1994.

A timeline that outlines the history of spills, investigations, and removal actions at Site 15 is presented in Table 2.1. Methods and results of these investigations/studies are summarized briefly below. Chemical concentrations in groundwater are reported in parts per billion (ppb). Concentrations in soils and sediments are reported in ppm.

### **2.5.1 Spill Investigation (June 1990)**

In June 1990, investigation of the spill that occurred in April 1990 consisted of the installation and sampling of four monitoring wells (MW-1, MW-2, MW-3, MW-4) and the collection of 15 soil samples. PCBs were detected at a maximum concentration of 23 ppm in the soil. No PCBs were detected in the groundwater samples, but benzene was found at a maximum concentration of 510 ppb (Radian, 1994).

### **2.5.2 First Site Investigation (November and December 1990)**

Further site investigations were conducted at Site 15 in November and December 1990. Six soil borings were drilled and completed as groundwater monitoring wells (MEMW-5 through MEMW-10, later referred to as MW-5 through MW-10), and groundwater samples were collected from these and the four previously-installed monitoring wells. Sixteen shallow soil, several sump seepage water, two surface water, and two sediment samples were also collected. The soil samples were taken from the west, south, and east sides of the pumphouse while the sump seepage water samples came from groundwater allowed to seep into a clean, dry sump in the pumphouse. Sediment and surface water samples were collected from the drainage swale located on the northeast side of the site. All of the samples were analyzed for PCBs and/or petroleum hydrocarbons (Radian, 1994, and M&E, 1995).

Soil and sump seepage water samples were analyzed for PCBs. PCB concentrations in soil samples from the area in front of (on the southeast side of) the pumphouse ranged from "not detectable" to 240 ppm. PCB concentrations in the sump seepage water were as high as 120 ppm for Aroclor-1260 and 15 ppm for Arclor-1254 (M&E, 1995).

Groundwater, sump seepage water, surface water, and sediment samples were analyzed for petroleum hydrocarbons. Groundwater samples at the site contained up to 700 ppm of benzene, 520 ppm of ethylbenzene, 1,800 ppm of xylenes, and 2.3 ppm of TPH. Hydrocarbons did not appear to be present beneath the pumphouse, based on results of the sump seepage water analysis. No BTEX or total petroleum hydrocarbon (TPH) compounds were detected in surface water or in sediment samples collected near the site (Radian, 1994).

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### 2.5.3 Second Site Investigation (June and July 1994)

In June and July of 1994, another site investigation was performed. Groundwater samples were collected from nine of the ten monitoring wells (MW-5 was damaged) and analyzed for VOCs, TPH, and PCBs. Concentrations in groundwater samples from the monitoring wells had not changed by more than a factor of 2 or 3 since 1990. Petroleum hydrocarbons were detected at increased levels at MW-7 and MW-2, but were not detected at the outermost monitoring wells (MW-8, MW-9, and MW-10). The detection of PCB, Aroclor-1260, in groundwater from MEMW-6 was consistent with the detection of PCBs in shallow soil samples that were collected from the area in front of the pumphouse during the previous investigation (M&E, 1995).

### 2.5.4 Remedial Investigation (1995 and 1996)

A remedial investigation (RI) was performed in 1995 and 1996 with the purpose of defining the nature and extent of PCB and jet fuel-related impacts on the soil and groundwater. During the course of the investigation, phenol was unexpectedly encountered, so the investigation was expanded to evaluate the potential sources of phenol (Lockheed, 1997).

Several new monitoring wells were installed during the RI:

- MW-5R was installed to replace MW-5, which had been found damaged. New shallow wells were installed: MW-11, MW-12S, and MW-13.
- Two deep monitoring wells were installed: one paired with MW-6S and one paired with MW-12S.

Groundwater samples were collected from all of the previously-installed, intact wells and all of the newly-installed wells. A total of 98 soil samples were collected from across the entire site and in areas around the site. Four sediment samples were also collected: three from the southwestern drainage swale and one from the northeastern drainage swale. Borings for the soil and sediment samples were advanced using a hand auger or a semi-portable drilling rig.

VOCs were observed in the soil at three areas: northeast, southwest, and in front of the pumphouse. VOCs extended from 2 feet below ground surface to the water table (at 10.5 to 16 feet). SVOCs were restricted mainly to an area on the northeast side of the pumphouse (Lockheed, 1997).

VOCs and SVOCs were also present in groundwater. The horizontal extent of the plume is in a downgradient direction extended to the wooded area approximately 100 feet southeast of the site. A localized area of free product, about six inches thick, was found at the leading edge of the plume. Based on samples from two deep wells, product in the groundwater did not appear to have migrated vertically (Lockheed, 1997).

PCBs were found in the soil in front of and on either side of the pumphouse. For the most part, the vertical extent of the PCBs was limited to the top four feet of soil. Groundwater, however, did not appear to have been impacted by PCBs (Lockheed, 1997).

During the RI, phenol was detected in many of the soil samples. The phenol impacts appeared to be random and unrelated to jet fuel; the highest concentrations were found in

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background samples. According to the RI report, the most likely source of the phenols is an herbicide application that took place in May 1995, three months before the RI sampling began (Lockheed, 1997).

Groundwater flow at the site was evaluated during the RI. Water levels in the wells were measured in August 1995, and ranged from 10.53 to 15.81 feet below ground surface. Groundwater flow is in a southeasterly direction. The average horizontal hydraulic gradient was 0.0049 ft/ft, and a downward vertical gradient of 0.01467 ft/ft was calculated at the MW-6S/MW-6D well pair.

As part of the field portion of the remedial investigation, *in situ* hydraulic conductivity measurements were conducted in four wells, two shallow and two deep, at the POL facility. An average hydraulic conductivity for the shallow unconfined aquifer was calculated to be 1.0057E-04 ft/min and an average hydraulic conductivity for the deep aquifer was calculated to be 2.8254E-04 ft/min (Lockheed, 1997).

### **2.5.5 Treatability Study (May 1998 and September-October 1999)**

The initial investigation for the treatability study was conducted primarily because of the presence of free product in MW-12S, which had been installed during the RI. Free product had been found during the RI and in August 1997, when MW-12S was checked again. The purpose of the investigation for the treatability study was to delineate the free product plume and to initiate a product recovery program. Four monitoring wells (MW-14 through MW-17) and one recovery well (RW-1) were installed, but no free product was found in any of these wells, in MW-12S, or in any of the pre-existing wells in the area of MW-12S. The recovery well and MW-12S were gauged five more times within a year, and no product was found. Based on these results, no product recovery pump was installed (Aneptek, 1999).

An investigation of BTEX in groundwater was conducted in May 1998. Groundwater samples were collected from the four new monitoring wells and analyzed for VOCs. Benzene and/or ethylbenzene were found in MW-14 and MW-15. In the fall of 1999, 24 temporary groundwater sampling points were installed to delineate the dissolved phase BTEX in the groundwater. Three permanent groundwater monitoring wells (MW-18, MW-19, MW-20) were also installed. Groundwater samples from 21 temporary points, 16 monitoring wells, and RW-1 were screened onsite for VOCs. BTEX compounds were found in 24 of the sample locations.

During the September-October 1999 sampling event, free product was recovered in bailers at three of the temporary sampling points and one of the wells. Product samples from these four locations were analyzed for PCBs, and PCBs were detected in two of the samples (Aneptek, 1999).

Also in September and October of 1999, two rounds of samples were collected from MW-18, MW-19, and MW-20 and were analyzed for VOCs, SVOCs, TPH, PCBs, and metals. The extent of the free product plume and the PCB plume were found to be nearly the same, covering an area from the pumphouse under the concrete pad to the area southeast of the former AST. BTEX compounds, however, were found in groundwater as far south as MW-19 (Aneptek, 1999).

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## 2.5.6 Data Gap Investigation (2000 and 2001)

A Data Gap Investigation was conducted at Site 15 during December 2000 and January-March 2001. Field work was conducted in accordance with the work plan for *Data Gap Investigation, Focused Feasibility Study, and Subsequent Pre-Design and Design Tasks for Site 15 at Hancock Field* (Parsons, 2000), as approved prior to investigation activities by the NYSDEC. The investigation included sampling and analysis of surface soil and groundwater water samples.

On December 18, 2000, six surface soil samples were collected southeast of the former pumphouse and concrete pad at Site 15. Surface soil samples were collected from 0 to 1 feet below ground surface. On December 18, 2000 and January 30, 2001, fourteen surface soil samples were collected from the two swales that originate north and northeast of the former pumphouse and concrete pad. These surface soil samples were collected from 0 to 1 feet below ground surface. Additionally, one soil sample at each location was collected from the bottom of the swale, and two grab samples were collected from the sidewalls of the swale and composited into one sample. All surface soil samples were submitted to Galson Laboratories of East Syracuse, NY for total PCB analysis using USEPA SW-846 Method 8082.

Twenty surface soil and seventeen groundwater samples were submitted for laboratory analysis as part of this investigation. The results of the investigation are described in detail in the report entitled *2001 Data Gap Investigation Results for Site 15* (Parsons, 2001). In general, PCBs were detected in 19 of the 20 soil samples collected during the Data Gap Investigation. Concentrations of PCBs within the soil ranged from 0.028 ppm at SS-01 (0 to 1 foot) and SS-15 (0 to 1 foot) to 1.6 ppm at SS-19 (0 to 1 foot).

## 2.5.7 Fall 2001 Investigation

Additional site investigations were performed during Fall 2001 (October and December) at Site 15. This additional work was performed in accordance with the work plan for the *Time Critical Removal Action at Site 15*, which was approved by the NYSDEC prior to commencement of investigation activities. The purpose of the additional groundwater investigation work was to further define the extent of groundwater impacted at the downgradient portion of Site 15 and also offsite across Molloy Road at the Brooklawn Golf Course. In addition, drainage swale sediment was investigated to assess the extent of PCBs within sediment west of the pump house. A detailed description of the sampling locations, methods, and findings is presented in a letter report submitted to the ANG from Parsons dated January 10, 2002 (Parsons, 2002). A brief discussion of the findings is provided below.

- Water levels measured during October 2001 show flow direction and gradient consistent with previous groundwater monitoring efforts at this site. Water levels were approximately 1.3 to 1.8 feet lower during the October 2001 monitoring than during January 2001. Measurable nonaqueous-phase liquid was found only at MW-6S at a thickness of 0.1 foot. Sheens were detected at MW-21 and MW-22 but not at any of the other monitoring wells.
- PCBs were found in groundwater from only one monitoring well sampled (MW-21) at 0.20 ppb of Aroclor-1260. Soil in the area of MW-21 is being removed as part of the time-critical removal action;

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- The magnitude of BTEX observed in groundwater at Hancock Site 15 is similar to what was monitored at Site 15 previously;
- Two of the 21 direct push locations (PARGP-3 and PARGP-5) where groundwater was sampled at the Brooklawn golf course across Molloy Road from Hancock (October and December 2001 sampling investigations) show BTEX concentrations exceeding State groundwater quality standards; and
- Two sediment samples collected from the swale and analyzed indicate that PCB concentrations are below 1 ppm.

### 2.5.8 Removal Action

A removal action has been completed at Site 15 by the ANG in accordance with the approved Work Plan for the *Time Critical Removal Action at Site 15 at Hancock Field* (Parsons, October 2001). The removal action commenced in November 2001. The objective of the removal action was to reduce the risk to potential receptors by excavation and removal of the PCB-impacted soil from Site 15. Supplemental objectives included removing the closed underground tanks and soil directly adjacent to the tanks, conducting additional investigation of groundwater conditions at and downgradient of Site 15, and providing selected monitoring well rehabilitation and abandonment.

Field work consisted of excavation and offsite disposal of 2,880 tons of PCB-impacted soil and 5,360 tons of BTEX-impacted soil, removal and offsite disposal of steel tanks and associated piping, monitoring well rehabilitation, abandonment of one monitoring well within the excavation area, and additional groundwater investigation work. Of the 2,880 tons of excavated soil, approximately 1,600 tons of soil contained over 50 ppm PCBs and were managed at Model City's facility in Niagara Falls, New York. The remaining 1,280 tons of PCB-impacted soil containing less than 50 ppm PCBs and the 5,360 tons of BTEX-impacted soil were disposed at High Acres Landfill near Rochester, New York. No groundwater was required to be removed and disposed. Steel tanks, associated piping and other metal debris were disposed properly offsite. Concrete, which was not impacted by PCBs, was crushed into pieces not exceeding three feet in size and placed onsite within the excavated area and covered with clean backfill. The closed tanks have been removed. Soil directly adjacent to the tanks containing BTEX has also been removed. A report is available that documents the methods and findings of the removal action (Parsons, 2003).

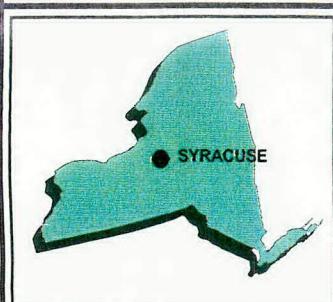
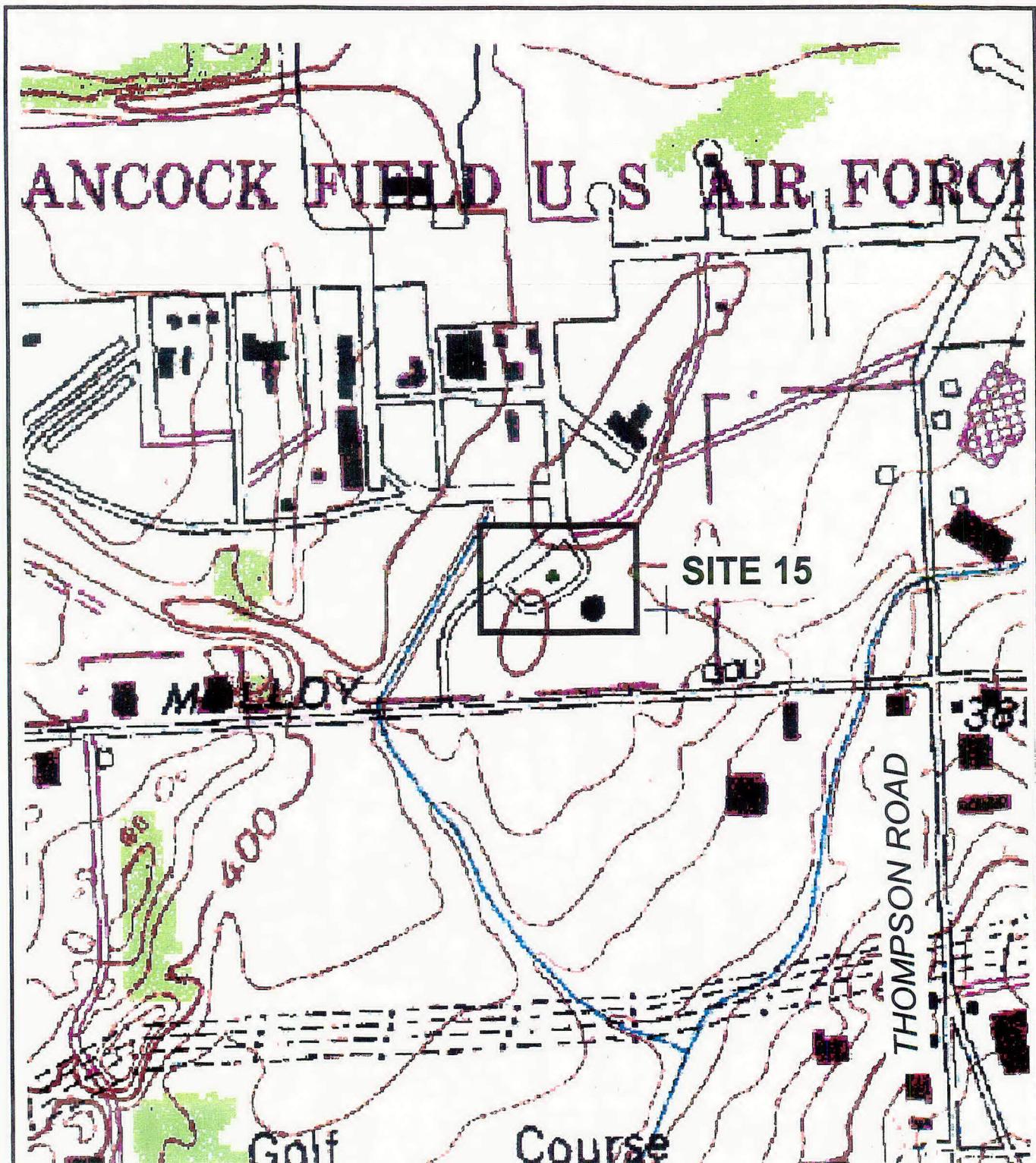
**TABLE 2.1**  
**TIMELINE FOR HANCOCK SITE 15**

<u>I. Spills</u>		
Before 1980s		PCBs in front of pump house, transformer oil
May 1990		JP-4 (3,850 gallons) inside pump house.
June 1994		JP-8 (150 gallons)
<u>II. Investigations</u>		
June 1990	(Spill Investigation)	MW-1 through MW-4 installed and sampled; PCBs, VOCs 15 soil samples; PCBs 23 ppm or less (no BTEX analyses)
December 1990	(First Site Investigation)	Pumphouse area surface soil and seepage water sampled
June 1992	(Second Site Investigation)	MW-5 through MW-10 installed MW-1 through MW-10 sampled for BTEX 16 shallow soil samples for PCBs (no BTEX analyses) Two surface water and two sediment samples for BTEX/TPH – none detected. No BTEX detected in groundwater at MW-4, 8, 9, or 10.
July 1994	(Third Site Investigation)	Groundwater from 9 of 10 MWs (all except MW-5) for VOCs, TPH, PCBs. No BTEX in groundwater at MW-4, 8, 9, or 10.
1996	(Remedial Investigation)	MW-6D and MW-11 through MW-13 installed. All MWs sampled. Four sediment samples. 98 soil samples – GP-6 (10-12 feet), GP-13 (0-2 feet), GP-22 (4-6 feet), GP-26 (10-12 feet) had above 10 ppm BTEX. None had total PAHs over 50 ppm.
May 1998 and Fall 1999	(Treatability)	MW-14 through MW-17 and RW-1 installed and sampled. No product found. 24 temporary groundwater sampling points placed. MW-18, 19, and 20 installed. Groundwater analyzed twice for VOCs, SVOCs, and metals. Product at four locations (two of four product samples had PCBs).

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**TABLE 2.1 (Continued)****TIMELINE FOR HANCOCK SITE 15**

December 2000 and January 2001	(Data Gap)	Selected locations for PCB analyses of soil and swale sediment. Groundwater sampled and analyzed for VOCs, PCBs, and natural attenuation parameters. MW-21, 22, and 23 installed. Baildown tests not conducted as planned, since no product was found.
October 2001	(Investigation)	Groundwater sampled onsite and at six temporary well points at the golf course south of the site across Molloy Road. Samples analyzed for BTEX and PCBs. No PCBs detected in groundwater. BTEX detected in groundwater onsite and at two of the six temporary well points at the golf course.
November 2001		Removal action initiated.
December 2001	(Investigation)	15 additional temporary well points installed and groundwater sampled at the golf course. Samples analyzed for BTEX. None of the additional well points showed BTEX in groundwater.
February 2002	(FS)	Feasibility Study completed by ANG.
May 2003	(Interim action)	Removal action completed. PCB and BTEX-impacted soil directly adjacent to the former tanks was properly removed offsite.
January 2004	(Proposed Plan)	Proposed Plan is completed by ANG following input from the NYSDEC and NYS Department of Health.



LATITUDE: N43° 05' 47"  
LONGITUDE: W76° 06' 06"



SOURCE: DeLORME 3-D  
TOPOQUAD PROGRAM

FIGURE 2.1

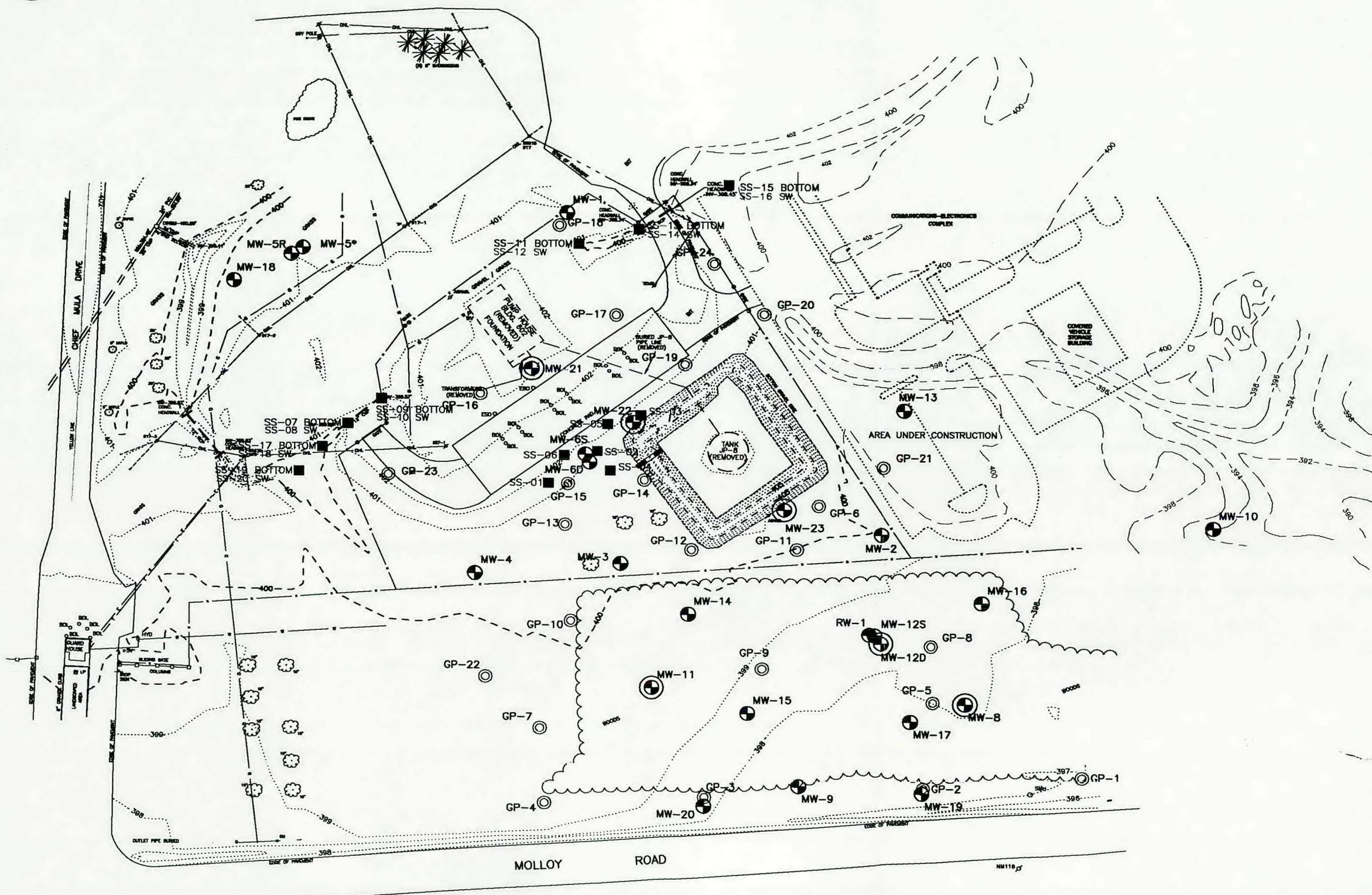
AIR NATIONAL GUARD  
HANCOCK FIELD SITE 15  
SYRACUSE, NEW YORK

## SITE LOCATION MAP

**PARSONS ENGINEERING SCIENCE, INC.**

DESIGN \* RESEARCH \* PLANNING  
290 Elwood Davis Road, Suite 312, Liverpool, New York 13088 \* (315) 451-9560  
Offices in Principal Cities

N



**LEGEND:**

- MW-1** EXISTING MONITORING WELL LOCATION
- MW-21** NEWLY INSTALLED AND/OR RE-INSTALLED MONITORING WELL LOCATION (JANUARY 2001)
- RW-1** EXISTING RECOVERY WELL LOCATION
- SS-01** SHALLOW SOIL OR SEDIMENT SAMPLE LOCATION (DEC 2000)
- GP-11** PREVIOUS DIRECT PUSH LOCATIONS
- SW** SIDE WALLS OF SWALE
- BOTTOM** BOTTOM OF SWALE
- MW-6S** SHALLOW MONITORING WELL
- MW-6D** DEEP MONITORING WELL
- \* NON-FUNCTIONAL MONITORING WELL (MW-5)

100 50 0 100 200  
SCALE: 1"=100'

FIGURE 2.2

HANCOCK AIR FIELD  
SITE 15  
SYRACUSE, NEW YORK

SITE PLAN

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## SECTION 3

### DEVELOPMENT OF REMEDIAL GOALS

#### 3.1 STANDARDS, CRITERIA, AND GUIDANCE VALUES

To evaluate which environmental media (soil, sediment, groundwater, etc.) are impacted at levels of concern, the investigation analytical data were compared to environmental standards, criteria, and guidance (SCG) values. The SCGs for groundwater at Site 15 are based on NYSDEC Ambient Water Quality Standards and Guidance Values. For soils, NYSDEC's Division of Environmental Remediation Technical Administrative Guidance Memorandum (TAGM) 4046 (NYSDEC, 1994) provides soil cleanup guidelines for the protection of groundwater and health-based exposure scenarios. In addition, site-specific background concentration levels can be considered for certain classes of environmental contaminants in soils. Guidance values for evaluating contamination in sediments are provided by the NYSDEC publication entitled "Technical Guidance for Screening Contaminated Sediments (NYSDEC, 1999)." A detailed description of chemical-specific, action-specific, and location-specific SCGs is presented in the Feasibility Study for Site 15 (Parsons, 2002).

The site soil cleanup objectives for VOCs and polycyclic aromatic hydrocarbons (PAHs) are based on NYSDEC's Technical and Administrative Guidance Memorandum (TAGM) 4046 (NYSDEC, 1994). Individual VOC and PAH concentrations need to be compared to their respective cleanup criteria as documented in TAGM 4046. The soil cleanup objectives specified in TAGM 4046 for VOCs are: benzene 0.06 ppm, toluene 1.5 ppm, ethylbenzene 5.5 ppm, and xylene 1.2 ppm. Similarly, total PCB concentrations of 1 ppm and 10 ppm are soil cleanup objectives for surface soil (0 to 1 foot deep) and subsurface soil (deeper than 1 foot), respectively.

Based on the investigation results, in comparison to the SCGs and the potential public health and environmental exposure routes, certain media and areas of the Site require remediation. These areas are summarized in Section 3.2. More complete information can be found in the investigation reports. Where subsurface soils remain in place at less than 10 ppm total PCBs but more than 1 ppm total PCBs, access will be restricted in accordance with the Land Use Control Assurance Plan for Hancock ANG Base (presented as an attachment to this proposed plan). The purpose of the Land Use Control Assurance Plan is to prevent unwarranted exposure.

#### 3.2 NATURE AND EXTENT OF IMPACTED MEDIA

##### 3.2.1 Soil

Surface (0 to 2 feet in depth) and subsurface soil (over 2 feet deep) impacted with PCBs and BTEX were identified at Site 15 and subsequently removed as part of the removal action completed in May 2003. Figures 3.1 through 3.3 show areas that have been identified during previous investigations as containing soil impacted with PCB and/or BTEX. The areas in and around the pumphouse foundation and concrete pad were addressed by the removal action completed in May 2003 (see Figure 3.4). Four soil sampling locations in two distinct areas

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contained BTEX above a soil cleanup objective of 10 ppm. Three of these locations were four to 12 feet below ground surface west of the former pump house, and the fourth location was soil down to 2 feet below ground surface east of the former pump house. PAHs had also been detected at Site 15; however, PAH concentrations in the soil did not exceed 50 ppm in any of the samples.

PCB concentrations in soil above 50 ppm were located primarily south and adjacent to the former pump house based on available investigation data (see Figures 3.1 and 3.2). Some of the areas beneath the concrete pad also contained PCBs, based on the locations of surface impacted soil north and south of the pad. These soils adjacent to and beneath the concrete pad containing PCBs were removed during the soil removal action completed in May 2003.

BTEX are relatively mobile and non-persistent in many shallow soil environments, but tend to be more persistent in deeper soils and groundwater. BTEX constituents tend to volatilize relatively rapidly from shallow soil. Half-lives in shallow soil range from several days to several weeks. Persistence in deeper soil and groundwater tends to be much longer, with half-lives ranging from several days to two years (Howard, 1990). BTEX has limited ability to adsorb to soils.

PCBs on the other hand, unlike BTEX, are persistent and not readily mobile in soil. PCBs adsorb onto soil particles and can persist for many years in soil. There is evidence that PCBs can biodegrade, but usually in anaerobic conditions. Site 15 soil results indicating PCBs are not being transported significantly through the subsurface matches scientific information about PCB movement within the environment. However, PCBs are more mobile within a carrier fluid such as oil than they are in water; in fact, PCBs are most often associated with the past use of transformer or hydraulic oil.

### 3.2.2 Groundwater

The groundwater plume at Site 15 extends from the north-northwest at the former pump house to the south-southeast onto the golf course located south of Site 15. Total BTEX concentrations at MW-19 adjacent to Molloy Road vary and have ranged from 1,040 ppb to 109 ppb. Shallow groundwater from MW-8, 13, 16, and 20 has not shown any BTEX based on sampling from 1996 - 1999, and from 2001. A summary of the analytical results generated during 1995, 1999, and 2001 monitoring events and the approximate extent of the BTEX plume in 1995 and 2001 is presented in Figure 3.5. The two deep monitoring wells at the site screened within the deeper silty-sand layer below the clayey silt do not show any impact from site spills. Till underlying these glaciated sediments is reported to be at least 45 feet below ground surface.

PCBs are not seen within site groundwater at significant distances beyond where they were observed in association with nonaqueous phase liquid. The conclusion that PCBs do not move significantly in groundwater matches scientific information about PCB movement. PCBs can migrate within nonaqueous phase liquid but not within groundwater to a significant extent. PCBs are insoluble in water, and they readily adsorb onto soil particles rather than solubilizing within groundwater.

Similar to the groundwater plume, the extent of nonaqueous phase liquid in site monitoring wells has declined since 1995. As of 1995, product was measured as far from the pump house as

the southern side of the former JP-8 tank berm. However, in 2001, when three new monitoring wells were installed within the previous product plume for the purpose of conducting product baildown tests, no product was observed in any of the wells based on multiple measurements over several months, including MW-6S where product was observed previously.

### **3.3 SUMMARY OF HUMAN EXPOSURE PATHWAYS**

This section describes the types of human exposures that could present added health risks to persons at or around the site. An exposure pathway is the manner by which an individual may come in contact with a contaminant. Five elements are required for a pathway to be considered "complete" (that is, for humans to become exposed to site contaminants), as follows:

- 1) A source of contamination
- 2) Environmental media and transport mechanisms
- 3) A point of exposure
- 4) A route of exposure
- 5) A receptor population

A complete exposure pathway is considered if it may have existed in the past, might exist now, or could exist in the future. Surface and subsurface soils at Site 15 were contaminated with PCBs and BTEX compounds in the past and individuals working at the site may have been exposed by direct contact with contaminated soils. Much of the contaminated soil has been removed so the potential for exposure has been greatly reduced. Groundwater at Site 15 and in downgradient areas is contaminated with BTEX compounds at levels greater than drinking water SCGs, however, no one is consuming the groundwater in this area. Proposed Land Use Controls will eliminate the potential for future exposure to contaminated groundwater.

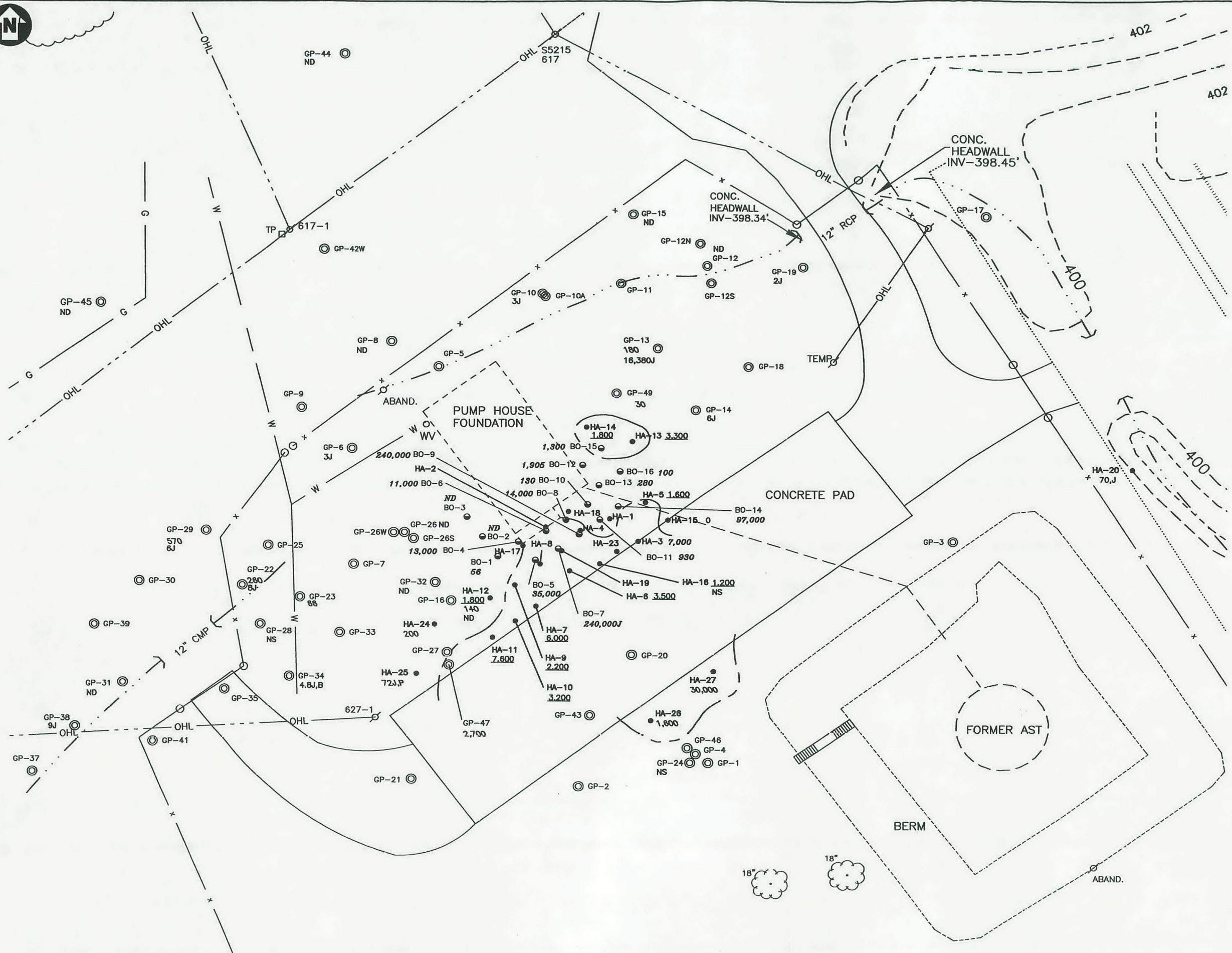
### **3.4 SUMMARY OF REMEDIATION GOALS**

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to restore the site to pre-release conditions to the extent feasible and required by law. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the environmental contaminants through the proper application of scientific and engineering principles. The goals selected for this site are:

- Maintain the current land use of the property for the foreseeable future and restrict use of the Site to the intended future military use;
- Eliminate and/or mitigate exposures to chemical constituents present in the different media at the site;
- Remove or control identified sources of potentially significant impacts;
- Control groundwater as needed to reduce or eliminate further migration of site constituents above remediation goals; and
- Monitor groundwater to evaluate long-term groundwater quality.

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NOTE:  
SOURCE MAP FROM HAZWRAP, JULY,1997.

LEGEND:

(C) GP-49 GEOPROBE LOCATION (1995, 1996)  
 ● HA-13 HAND AUGER BORING LOCATION (1995 1996)  
 ● BO-15 HAND AUGER BORING LOCATION (1990)  
 SW SIDE WALLS OF SWALE  
 BOTTOM BOTTOM OF SWALE  
 - - - - - FENCE LINE  
 - - - - - INTERMITTENT DRAINAGE SWALES  
 - - - - - APPROXIMATE OUTLINE OF AREA OF SURFICIAL  
 (0-2') PCB CONTAMINATION EXCEEDING  
 NYSDEC ACTION LEVEL OF 1000 ug/Kg

B ONE OR MORE BTEX CONCENTRATIONS  
 FOUND IN BLANK  
 D BTEX COMPOUND IDENTIFIED AT A  
 SECONDARY DILUTION FACTOR  
 ND NON DETECT  
 NS NOT SAMPLED  
 6J\* TOTAL BTEX CONCENTRATION  
 RI (1995/1996) IN ug/kg  
 250 FIXED BASE LAB AROCLOR 1260  
 CONCENTRATION, SI (1992) IN ug/Kg  
 570 FIXED BASE LAB AROCLOR 1260  
 CONCENTRATION, RI (1995/1996) IN ug/Kg  
 3,500 FIELD SCREEN LAB AROCLOR 1260  
 CONCENTRATION, RI (1995) IN ug/Kg

A horizontal number line with tick marks at 40, 20, 0, 40, and 80. The segment of the line between 0 and 40 is shaded in dark gray, representing the interval  $[0, 40]$ .

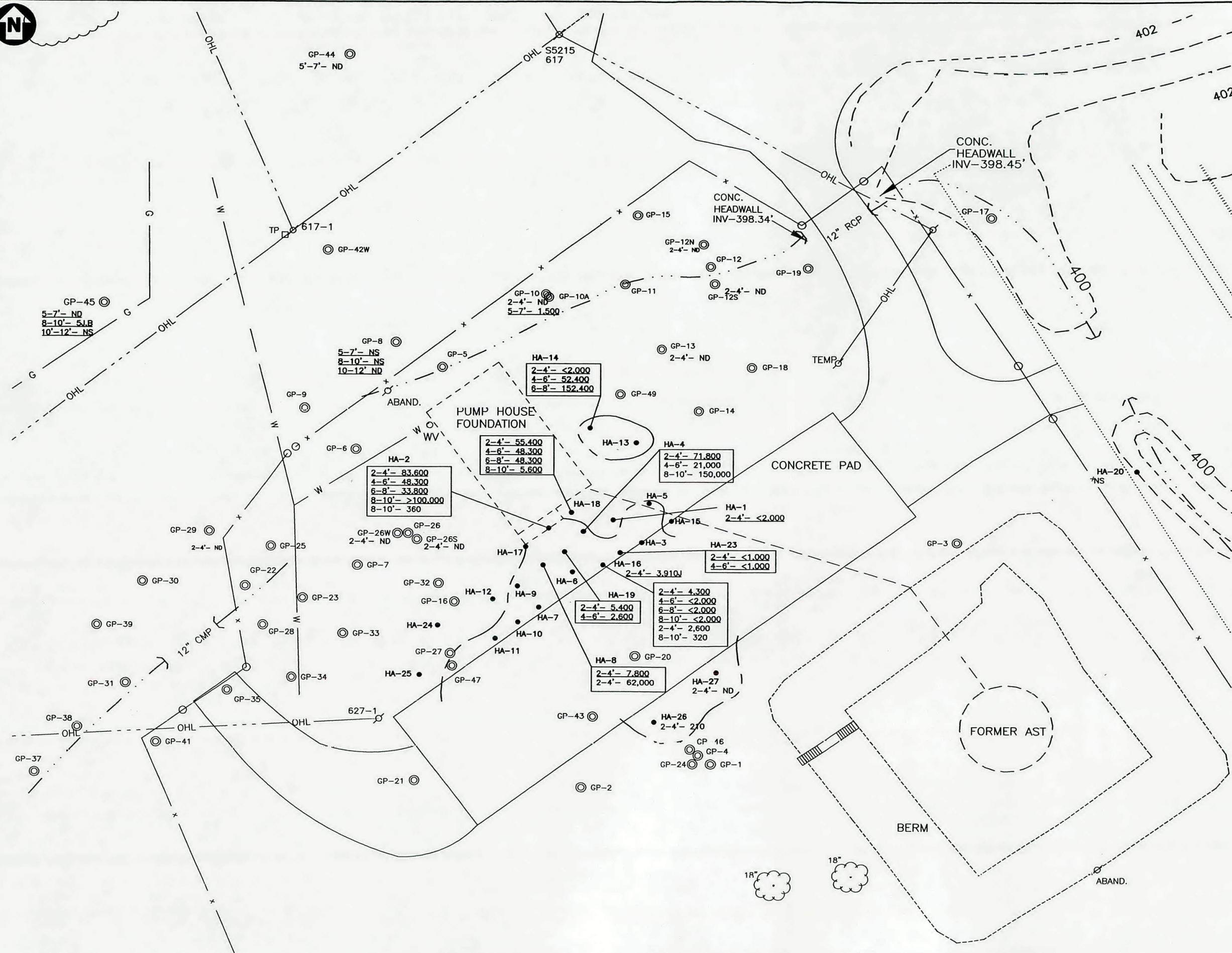
FIGURE 3.1

HANCOCK AIR FIELD  
SITE 15  
SYRACUSE, NEW YORK

SURFACE SOIL (0 TO 2 FEET)  
ANALYTICAL MAP  
(BTEX AND PCBs PRIOR TO SOIL REMOVAL  
ACTION)

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NOTE:  
SOURCE MAP FROM HAZWRAP, JULY,1997.

LEGEND:

○ GP-49 GEOPROBE LOCATION (1995, 1996)

● HA-13 HAND AUGER BORING LOCATION (1995 1996)

SW SIDE WALLS OF SWALE

BOTTOM BOTTOM OF SWALE

— — — — — FENCE LINE

— — — — — INTERMITTENT DRAINAGE SWALES

— — — — — APPROXIMATE OUTLINE OF AREA OF  
SUBSURFACE (2'-10') PCB CONTAMINATION  
EXCEEDING NYSDEC ACTION LEVEL OF  
10,000 ug/Kg

B ONE OR MORE BTEX CONCENTRATIONS  
FOUND IN BLANK

D BTEX COMPOUND IDENTIFIED AT A  
SECONDARY DILUTION FACTOR

ND NON DETECT

NS NOT SAMPLED

(2'-4') DEPTH OF SAMPLE

-4')- 2600 DEPTH INTERVAL AND FIXED BASE LAB  
AROCLOL 1260 CONCENTRATION IN ug/Kg

-4')- 2600 DEPTH INTERVAL AND FIXED SCREENED  
AROCLOL 1260 CONCENTRATION IN ug/Kg

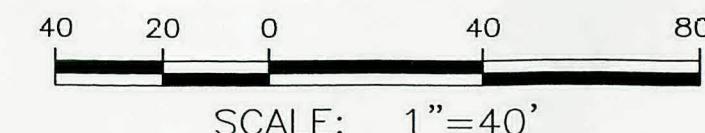


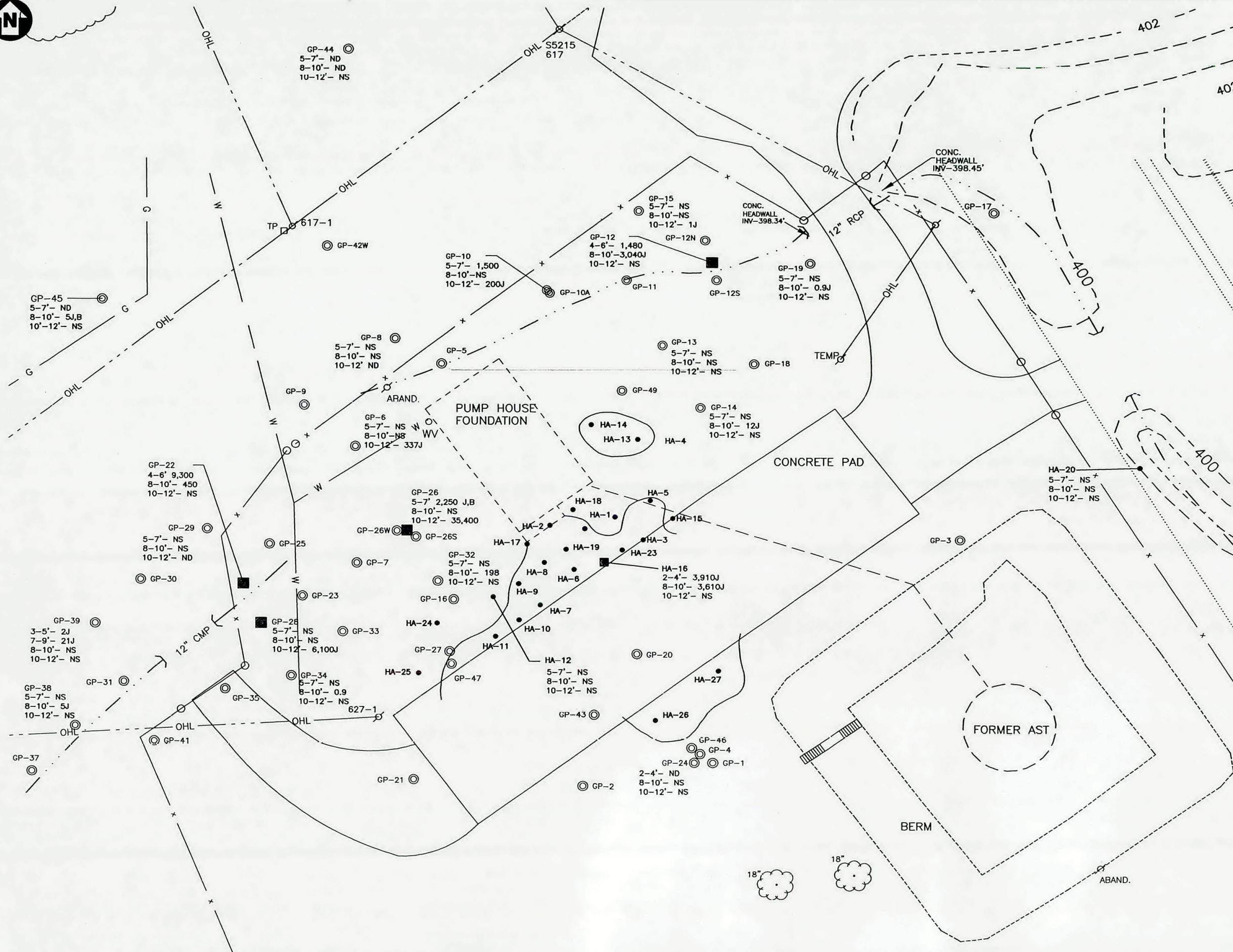
FIGURE 3.2

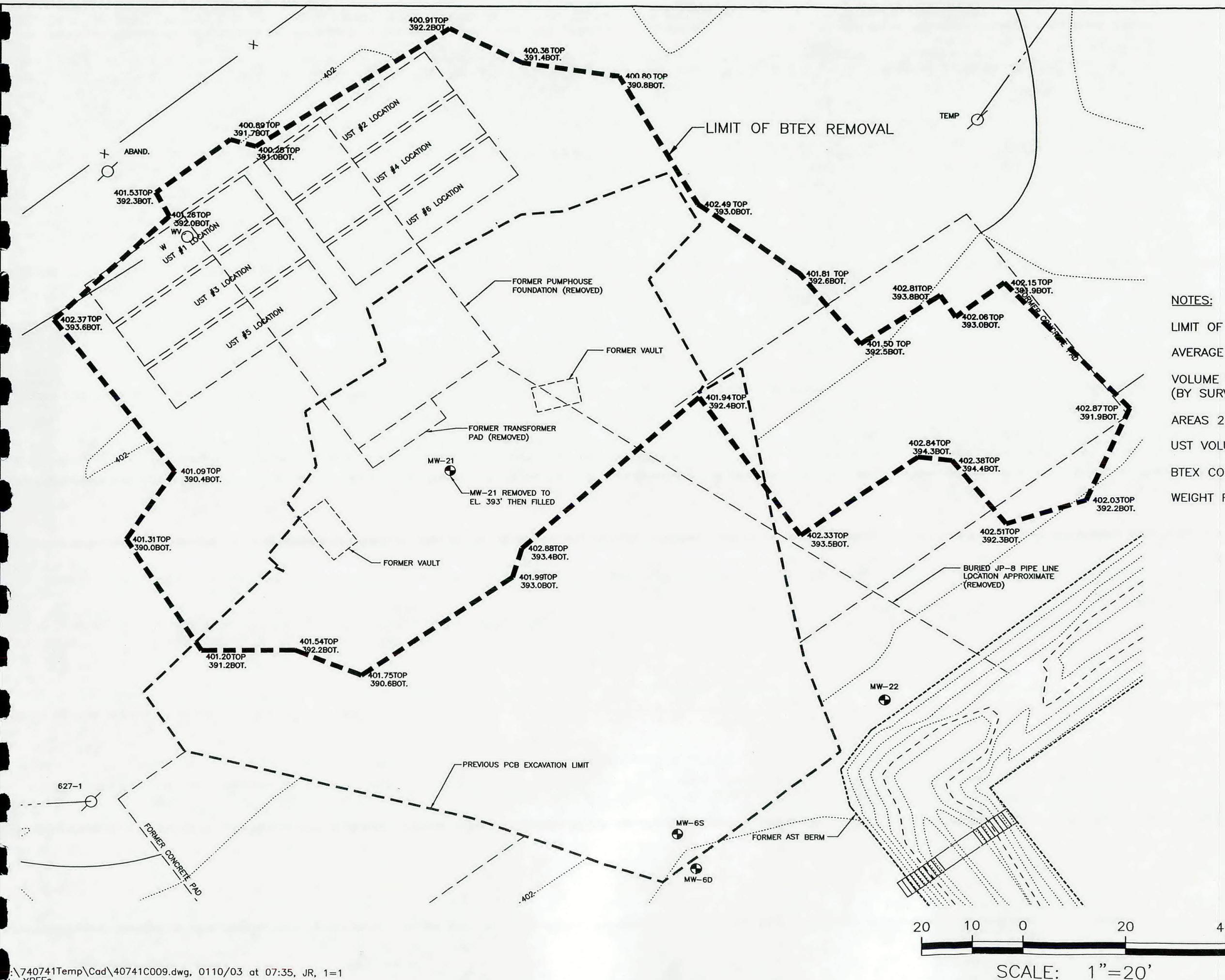
HANCOCK AIR FIELD  
SITE 15  
SYRACUSE, NEW YORK

SUBSURFACE SOIL (2 TO 10 FEET)  
ANALYTICAL MAP PRIOR TO SOIL  
REMOVAL ACTION

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## NOTES

LIMIT OF BTEX CONT'D SOIL EXCAVATION - 14,861 SF

AVERAGE DEPTH OF EXCAVATION - 9.5 FT.

VOLUME WITHIN LIMIT OF BTEX CONT'D SOIL EXCAVATED  
(BY SURVEY) - 5,226 CY

AREAS 2, 3, 4 PREVIOUSLY REMOVED (FIGURE 3.1) - 1,050 CY

UST VOLUME - 742 CY

BTEX CONT'D VOLUME REMOVED (5226-1050-742) - 3,434 CY

WEIGHT REMOVED - 5,361 TONS

## LEGEND

**EXISTING FENCE**

#### MONITORING WELL

402.11 SURVEY POINT ELEVATION  
(FEET ABOVE MEAN SEA LEVEL)

UST LOCATION

FIGURE 3.4

HANCOCK AIR NATIONAL GUARD  
SITE 15 REMOVAL ACTION  
SYRACUSE, NEW YORK

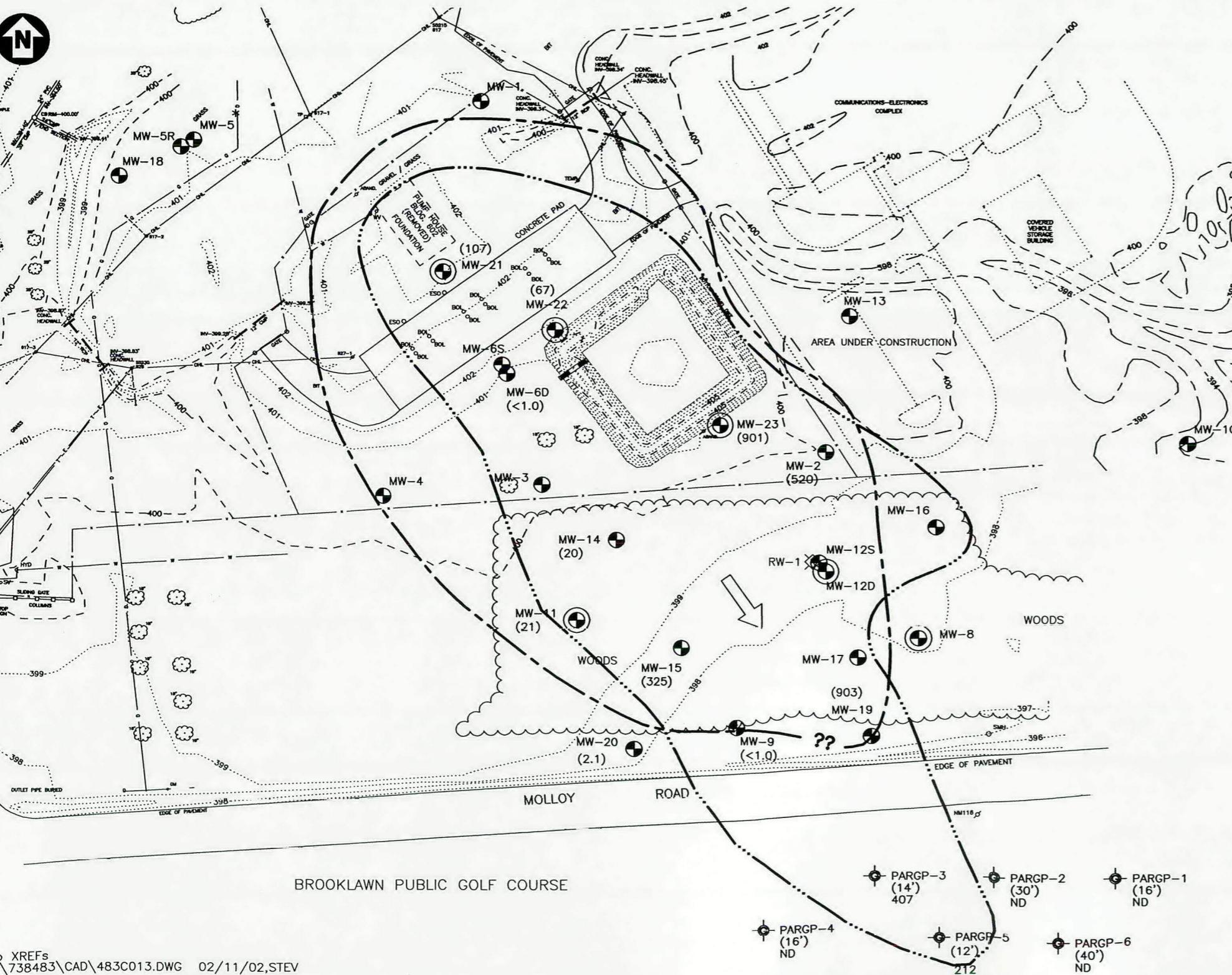
#### SOIL REMOVAL LOCATIONS

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290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088. PHONE: 315-451-9560

DATE	MW-1		MW-2		MW-3		MW-4		MW-5R		MW-6S		MW-6D		MW-8		MW-9		MW-10		MW-11		MW-12S													
	1995	1999	JAN. 2001	1995	1999	JAN. 2001 (*)	FALL 2001	1995	1999	JAN. 2001	1995	1999	JAN. 2001	1995	1999	JAN. 2001	1995	1999	JAN. 2001 (*)	FALL 2001	1995	1999	JAN. 2001	1995	1999	JAN. 2001 (*)	FALL 2001	1995	1999	JAN. 2001	1995	1999	JAN. 2001			
BENZENE ug/L	ND*	NA	<1.0	ND*	<50.0	<1.0	<1.0	130	62	NA	ND*	<1.0	<1.0	48	NA	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	NA	ND*	NA	NA	NA	220	250	<1.0	18	<500.0	93			
TOLUENE ug/L	ND*	NA	<1.0	ND*	<50.0	<1.0	<1.0	ND*	ND*	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	NA	ND*	NA	NA	NA	1J	<10.0	<1.0	<1.0	<500.0	13			
ETHYLBENZENE ug/L	ND*	NA	<1.0	400	230	320	180	42	5.0	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	NA	ND*	NA	NA	NA	84	53	<1.0	3.2	NA	1,500	360		
TOTAL XYLEMES ug/L	ND*	NA	<1.0	1,200	630	900	340	62	5.0	NA	ND*	<1.0	<1.0	240	NA	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	NA	ND*	NA	NA	NA	140	170	<1.0	1.0	NA	5,900	1,720		
TOTAL BTEX ug/L	ND*	NA	<1.0	1,600	860	1,220	520	178J	62	NA	ND*	<1.0	<1.0	369	NA	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	NA	ND*	NA	NA	NA	445J	473	<1.0	21	NA	7,400	2,186		
TOTAL PCBs ug/L	ND*	NA	NA	ND*	0.062	NA	<0.05	NA	NA	NA	ND*	NA	NA	NA	810	NA	NA	<0.05	NA	ND*	NA	<0.05	NA	ND*	NA	NA	NA	NA	NA	NA	<0.05	NA	NA	NA	NA	<0.05

DATE	MW-12D		MW-13		MW-14		MW-15		MW-16		MW-17		MW-18		MW-19		MW-20		MW-21, 22, 23		MW-21		MW-22		MW-23										
	1995	1999	JAN. 2001	1995	1999	JAN. 2001	FALL 2001	1995	1999	JAN. 2001	FALL 2001	1995	1999	JAN. 2001	FALL 2001	1995	1999	JAN. 2001 (*)	FALL 2001	1995	1999	JAN. 2001	FALL 2001	1995	1999	JAN. 2001	FALL 2001	1995	1999	JAN. 2001					
BENZENE ug/L	ND*	<1.0	ND*	<50.0	<1.0	<1.0	ND*	<5.0	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	NA	ND*	NA	NA	NA	220	250	<1.0	18	<500.0	93			
TOLUENE ug/L	ND*	<1.0	ND*	<50.0	<1.0	<1.0	ND*	3.1	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	NA	ND*	NA	NA	NA	1J	<10.0	<1.0	<1.0	<500.0	13			
ETHYLBENZENE ug/L	ND*	<1.0	ND*	<1.0	<1.0	<1.0	ND*	1.5	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	NA	ND*	NA	NA	NA	1J	53	<1.0	3.2	NA	1,500	360		
TOTAL XYLENES ug/L	ND*	<1.0	ND*	1,200	630	900	340	62	5.0	NA	ND*	<1.0	<1.0	240	NA	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	NA	ND*	NA	NA	NA	140	170	<1.0	1.0	NA	5,900	1,720	
TOTAL BTEX ug/L	ND*	<1.0	ND*	1,600	860	1,220	520	178J	62	NA	ND*	<1.0	<1.0	369	NA	NA	ND*	<1.0	<1.0	ND*	<1.0	NA	NA	ND*	NA	NA	NA	445J	473	<1.0	21	NA	7,400	2,186	
TOTAL PCBs ug/L	ND*	NA	NA	ND*	0.062	NA	<0.05	NA	NA	NA	ND*	NA	NA	NA	810	NA	NA	<0.05	NA	ND*	NA	<0.05	NA	ND*	NA	NA	NA	NA	NA	<0.05	NA	NA	NA	NA	<0.05



## SECTION 4

### REMEDIAL ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost effective, comply with other statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for Site 15 were identified, screened and evaluated in the report entitled *Feasibility Study for Hancock Air National Guard Site 15* (Parsons, 2002). A summary of the detailed evaluation of remedial alternatives follows.

A soil removal was completed in 2003 that addressed most of the impacted soil. The soil removed included all of the soil containing PCBs above the statewide soil cleanup objectives and all of the soil exceeding state requirements for BTEX based on field determinations consistent with communications from a NYSDEC Region 7 spill control specialist. Soil that was removed was disposed at permitted offsite landfills located near Rochester, NY and at Niagara Falls, NY.

It is important for the reader to understand that the evaluation of alternatives presented in this section was prepared prior to and independent of the soil removal completed in 2003. Hence, the evaluation presented in this section is independent of the completed soil removal action but should be understood with the realization that most of the impacted soil has been removed from Site 15.

#### 4.1 SUMMARY OF THE EVALUATION OF ALTERNATIVES

Each of the three alternatives is analyzed using the seven evaluation criteria outlined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Section 300.430, the USEPA *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA*, (USEPA, 1988), the NYSDEC TAGM 4030, *Selection of Remedial Actions at Inactive Hazardous Waste Sites*, and the Final Air National Guard Installation Restoration Program Investigation Protocol (ANG, 1998).

Each alternative is assessed to determine if it meets the following criteria:

##### Threshold Criteria

- Overall protection of human health and the environment
- Compliance with SCGs

##### Primary Balancing Criteria

- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume through treatment
- Short-term effectiveness

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- Implementability
- Cost

The criterion of cost is assessed using relative costs for the alternatives. The modifying criteria of state acceptance and community input are being evaluated as this Plan is being reviewed.

For an alternative to be eligible for selection, the NCP requires that it meet the threshold criteria. If these criteria are met, the primary balancing criteria are evaluated to provide the best balance of trade-offs among alternatives. In addition, consideration is given to principal threats and practicable remediation (see 40 CFR Section 300.430(a)(1)(iii)). USEPA defines the term "principal threats" as one of two conditions: (1) toxic concentrations several orders of magnitude above levels for unrestricted use or (2) wastes that are both highly mobile and unable to be contained (USEPA, 1992). The term "practicable" is a site-specific, subjective term. The USEPA has defined practicability for specific sites based on cost effectiveness, impacts, implementability, and the extent of SCG compliance.

## **4.2 EVALUATION OF ALTERNATIVE 1 – MONITORED NATURAL ATTENUATION**

### **4.2.1 Description**

**Monitored natural attenuation** or "MNA" is the process by which a natural system's ability to attenuate contaminant(s) at a specific site is confirmed, monitored and quantified. Contaminant concentrations may attenuate in natural systems through biodegradation; sorption; volatilization; radioactive decay; chemical or biological stabilization; transformation; dispersion; dilution; or the destruction of contaminants.

Alternative 1 consists of the following elements:

- Continue to restrict site access. Prevent use of onsite groundwater.
- Conduct groundwater monitoring onsite, and directly southeast of the site to better quantify natural attenuation and monitor its performance.
- Conduct soil sampling onsite in the area where the levels of BTEX in soils are below 10 ppm.
- Measure the success of this process by the rate at which the groundwater approaches groundwater quality standards and the reduction of BTEX in soils.

### **4.2.2 Overall Protection of Human Health and the Environment**

Protection of human health and the environmental can be achieved if both of the major elements of Alternative 1 – continuing to restrict site access and natural attenuation – can be successfully implemented. Site 15 is part of a controlled facility. Restricting access to the site would continue to reduce contact with site soil and groundwater, while the natural attenuation process would reduce, or may eliminate, the risk of exposure by breaking down the BTEX compounds and reducing their concentrations.

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Evidence indicates that natural attenuation may already be occurring at Site 15 (see the 2001 Data Gap Investigation report attached to the 2002 Feasibility Study Report [Parsons, 2002]). Based on the conservative parameters used in USEPA's BIOSCREEN model, the estimated greatest extent of the plume is 600 feet south of Molloy Road. In fact, based on late 2001 data, the plume appears to be currently within the site itself. However, groundwater quality offsite to the South has been impacted in the past, so use of groundwater, for instance for irrigation purposes at the nearby golf course, would need to be evaluated.

#### **4.2.3 Compliance with SCGs**

Soil exceeding remediation goals for BTEX and/or PCBs would not be eliminated, but the volume of groundwater exceeding remediation goals for BTEX would most likely be reduced, especially given the evidence showing that this may already be occurring. The areal extent of BTEX-impacted groundwater appears to have decreased from 1997 to 2001 (see the Data Gap Investigation report in Appendix A of the Feasibility Study Report [Parsons, 2002]). This alternative would not address soil near the former pumphouse, which exceeded remediation goals for PCBs and/or VOCs. Soil exceeding remediation goals for PCBs and much of the BTEX impacted soil were removed as a time-critical removal action completed in May 2003.

#### **4.2.4 Long-Term Effectiveness and Permanence**

Under Alternative 1, the magnitude of risk could be significantly reduced. Continuing to restrict site access would provide short-term control of risk, while natural attenuation processes would help to control BTEX compounds and thereby reduce long-term impacts to groundwater.

#### **4.2.5 Reduction of Toxicity, Mobility, or Volume Through Treatment**

Natural attenuation is a gradual treatment process. However, sufficient data exist to demonstrate that natural attenuation is already occurring at Site 15. BTEX compounds, in the groundwater and saturated soil, are degrading via oxygen, nitrate, ferric iron, and sulfate reduction and methane fermentation. Evidence indicates that, under Alternative 1, the toxicity and volume of BTEX-contaminated soil and groundwater would continue to decrease gradually over approximately a two-to-ten-year timeframe.

#### **4.2.6 Short-Term Effectiveness**

No construction work would be involved in Alternative 1, unless some kind of enhancement of site conditions, such as nutrient or carbon injection, would be utilized, which is beyond the scope of natural attenuation. However, even this type of work would not involve the disturbance of soil, and site workers and the local community would not be impacted. The time for remedial objectives to be achieved would likely be a few years, except that existing control of land use in turn controls site soil and groundwater use right away.

#### **4.2.7 Implementability**

Natural attenuation can be a reliable approach to remediation and appears to already be occurring at the site based on the shrinking BTEX plume and other results from the 2001 Data Gap Investigation. The technology requires little or no construction and/or operation and only minimal monitoring. Vendors and equipment for enhancement techniques, such as nutrient injection, are available, and field staff with natural attenuation monitoring experience are readily

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available. Under Alternative 1, it would be very easy to undertake additional remedial actions if necessary.

#### 4.2.8 Cost

The estimated present worth of Alternative 1 would be \$43,000, including costs for monitoring groundwater annually for five years. This cost does not include the delivery of a limiting nutrient or other amendments to the subsurface to enhance the degradation of VOCs.

### 4.3 EVALUATION OF ALTERNATIVE 2 – ADDITIONAL SOIL REMOVAL

#### 4.3.1 Description

Alternative 2 consists of two options with the following components:

Option 2A - Soil Removal Based on Soil PCB Concentrations (This option was completed in May 2003 as a soil removal action.)

- Remove approximately 2,000 cubic yards (cy) of soil exceeding 1 ppm PCBs in site surface soil and 10 ppm PCBs in site subsurface soil over one foot below ground surface. Most of the excavation areas are around the pumphouse, under the concrete pad, and southeast of the concrete pad (see Figure 4.1). The removal also included a pile of Site 15 soil stored temporarily on a pad at Site 1.
- Dewater saturated soil in place, as needed, prior to excavating below the water table. Treat extracted water as needed.
- Transport excavated soil and sediment and manage at an offsite facility.
- Replace excavated material with clean fill to pre-excavation grade. Provide proper drainage and seed or pave area.

Option 2B - Soil Removal Based on PCB and BTEX Concentrations (much of this removal was completed in May 2003)

- Remove of soil exceeding 1 ppm PCBs in surface soil, 10 ppm PCBs in subsurface soil deeper than one foot below ground surface, and BTEX above NYSDEC TAGM 4046 soil cleanup objectives. The excavation areas would be similar to those of Option A, with additional areas around the pumphouse and south of the concrete pad. Areas around the pumphouse are based on BTEX exceedances in soil. The inclusion of the area south of the concrete pad is based on evidence of BTEX-impacted groundwater. The removal also included the soil pile at Site 1.
- Dewater saturated soil in place, as needed, prior to excavating below the water table. Treat extracted water as needed.
- EITHER: Treat excavated material via thermal desorption, and replace onsite. OR Transport and manage excavated material offsite (Model City or other hazardous waste management facility).
- Replace excavated material with clean fill to pre-excavation grade. Provide proper drainage and seed or pave area.

### **4.3.2 Overall Protection of Human Health and the Environment**

This alternative would provide overall protection of human health and the environment by eliminating the identified volumes of contaminated soil. Any migration of contaminants from impacted areas into downgradient groundwater and sediment moving downstream into Ley Creek from the drainage swale would be reduced to the maximum extent possible. Onsite soil treatment processes would be controlled, as needed, to limit human exposure to soil, water, and air.

### **4.3.3 Compliance with SCGs**

Soil exceeding remediation goals for BTEX (Option A) or remediation goals for both BTEX and PCBs (Option B) would be excavated and treated, and the potential for future impacts on groundwater would be eliminated. Air emissions from thermal treatment would also be properly controlled.

### **4.3.4 Long-term Effectiveness and Permanence**

Removal of the identified volumes of contaminated soil would be a permanent remedy and would significantly reduce the magnitude of risk remaining after remediation. Treatment of the excavated soil would be permanent, and treated soil would be managed at an offsite landfill or returned to the site if BTEX and PCB concentrations were below remediation goals.

### **4.3.5 Reduction of Toxicity, Mobility, or Volume**

Removal and treatment of the contaminated soil would nearly eliminate the toxicity, mobility, and volume of onsite impacted material. The extent of toxicity reduction would depend on the type of treatment used, but could exceed 99 percent with thermal desorption. Treatment of the soil would be irreversible.

### **4.3.6 Short-Term Effectiveness**

Excavation, treatment, and disposal of the impacted material could be conducted within a time period of approximately two to four months. Mobilization of an onsite treatment unit, such as a thermal desorber, or transport of the treated material to an offsite facility could be the schedule-limiting components of the alternative.

Short-term risks to site workers would be minimized with the use of controls, such as personal protective equipment, dust suppression (e.g., watering of soils), and odor controls (e.g., applying plastic covering over the stockpiled soil). Air emission controls, as needed, and ambient air monitoring would be performed to monitor volatile and particulate emissions during remediation, and an existing fence surrounding the site would be maintained to control access.

### **4.3.7 Implementability**

Because the site is no longer used as a POL facility, no operations or equipment would have to be re-located prior to excavation work. Alternative 2 does, however, consist of excavation of soil below the water table and would require the excavation of side slopes, dewatering of the excavation, and offsite treatment of the removed water. These types of deep excavations are common, and the location of existing closed underground tanks and other underground structures

can be obtained from the base. Based on an initial review of existing utilities at the base, no short-term bypasses would be needed.

Thermal desorption could be implemented as long as the necessary approvals under RCRA and TSCA are obtained. A soil treatment unit pre-approved for remediating RCRA and TSCA materials would be used. At least one such unit has already undergone extensive evaluation of treatment efficiency and control of other impacts, such as air emissions. Transport of treated material could require significant time and coordination, but can be avoided if treated material can be returned to the site. Re-vegetation and paving of the site would be easily implementable.

#### 4.3.8 Cost

The estimated present worth of Alternative 2, Option A, would be \$889,000 with offsite disposal. The estimated present worth of Alternative 2, Option B, would be \$2.2 million with onsite treatment and \$4.6 million with offsite disposal.

### 4.4 EVALUATION OF ALTERNATIVE 3 – ACTIVE GROUNDWATER CONTROL

#### 4.4.1 Description

Alternative 3 consists of two options with the following components:

##### Option 3A – *In Situ* Treatment

- Install soil vapor extraction and air sparging well pairs connected to a common vapor treatment location with a knockout tank to collect incidental water, OR
- Install a subsurface activated carbon barrier wall perpendicular to groundwater flow within the southeastern (downgradient) portion of the site to treat groundwater as it migrates through the wall. The activated carbon would be replaced as its capacity to provide adequate treatment is exhausted.

##### Option 3B – *Ex Situ* Groundwater Control

- Install extraction wells or collection trench within the southeastern (downgradient) portion of the site not allowing impacted groundwater to leave the site.
- Treat collected groundwater to meet discharge requirements.
- Discharge treated groundwater directly to Ley Creek or to the nearest sanitary sewer. State discharge requirements would need to be met for a discharge to Ley Creek. County pretreatment requirements would need to be met for a discharge to the local sanitary sewer system.

Option 3A. For Option 3A, the number of soil vapor extraction and air sparging wells would be approximately 30 to 50, or the length of the subsurface activated carbon barrier wall would be approximately 500 feet. The soil vapor extraction and air sparging wells would be installed throughout the impacted groundwater area downgradient of the area being treated. A subsurface barrier wall would be installed perpendicular to the direction of groundwater flow in the southeast portion of the site (see Figure 4.1).

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Option 3B. For Option 3B, the number of groundwater extraction wells would be two to four, or the length of the groundwater collection trench would be approximately 200 feet. Extraction wells or a collection trench would be installed, like a subsurface barrier wall, in a line perpendicular to the direction of groundwater flow (in approximately an east-west orientation) within the southeast portion of Site 15. Based on hydraulic analyses summarized in Appendix A of the Feasibility Study Report, the flow of groundwater collected from either extraction wells or the collection trench would be approximately 30 to 100 gallons per minute (gpm).

The analytic element method of Strack (1989), as implemented in the computer program WinFlow (Rumbaugh, 1996), was used to evaluate groundwater capture zones in the overburden. Strack's analytic element solves the groundwater flow equations for the volume of groundwater flowing through a cross-section of unit width, based on the following assumptions:

- The aquifer is unconfined.
- The aquifer is homogeneous, isotropic (no preferred orientation to hydraulic conductivity), and uniform thickness.
- The pre-pumping water table is nearly horizontal.
- Water is released instantly from storage with increasing drawdown.
- The wells are screened across the fully saturated thickness of the aquifer.
- The wells are pumped at a constant rate.
- There are no well storage effects.

The capture zone of a well is the area of the aquifer where all water enters the well. Capture zones for groundwater extraction wells included in this alternative were delineated by employing reverse-particle tracking. Particles were placed in a circle around each extraction well and allowed to move opposite the hydraulic gradient, that is, upgradient. The pumping rates and locations for the extraction wells were then adjusted until overlapping capture zones are achieved. Based on this evaluation, three wells pumping at a combined rate of 30 to 100 gpm would be needed to maintain hydraulic control at the Site 15.

As noted in Section 3, trenches are generally preferred if the groundwater to be collected extends within an elongated plume and is less than 20 to 25 feet deep. Wells are generally preferred if the groundwater to be collected is in multiple spots, if the area is broad laterally in both dimensions, or if the groundwater is deeper than 20 to 25 feet. Because the plume is somewhat elongated and groundwater impacts appear to be restricted to the shallow groundwater (down to 20 to 25 feet below ground surface), as observed in the investigation results, a collection trench would be more practical than extraction wells.

#### **4.4.2 Overall Protection of Human Health and the Environment**

This alternative would reduce potential risks to human health and the environment by addressing impacted groundwater thereby controlling potential impacts to downgradient, offsite groundwater and impacts to Ley Creek. Implementing this alternative would not, by itself, reduce potential risks associated with impacted soil. However, the soil removal action was completed largely to reduce risks from impacted site soil.

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#### **4.4.3 Compliance with SCGs**

Under this alternative, and in combination with the completed soil removal action, the site would meet remediation goals. Most of the impacted soil has been removed from the site. Groundwater remediation goals would be met as a result of either *in-situ* (in ground) treatment or *ex-situ* (out of ground) groundwater control. As the site groundwater is addressed, groundwater quality standards would be met to the extent practical.

#### **4.4.4 Long-Term Effectiveness and Permanence**

Contaminants within groundwater would be removed and treated. Permanent control would result from the combination of this alternative and the completed soil removal action. Under Option A, an air sparging and soil vapor extraction system could address remaining impacts associated with soils as well as impacts on groundwater.

#### **4.4.5 Reduction of Toxicity, Mobility, or Volume**

Toxicity, mobility, and volume of the impacted groundwater would be reduced. Toxicity would be gradually reduced as a result of treating groundwater. The mobility of impacted groundwater would be restricted with a barrier wall, extraction wells, or collection trench, but not with an air sparging and soil vapor extraction system. The volume of groundwater intercepted by the wells or trench would be reduced via pumping.

Some additional reduction in the toxicity, mobility, or volume of the impacted site soil would also occur with the removal of soil prior to installation of the barrier wall or collection trench under Option B.

#### **4.4.6 Short-Term Effectiveness**

No significant short-term impacts on site workers or the community would be expected under this alternative. Some disturbance of the soil would have to be done, but appropriate controls for personal safety and dust and odor suppression. Installation of any one of the groundwater controls would require up to several weeks of site work.

#### **4.4.7 Implementability**

An air sparging and soil vapor extraction system would require a pilot test and installation of 30 to 50 wells. The subsurface activated carbon barrier wall would require some excavation. Under Option B, two to four extraction wells or one collection trench would need to be installed. Based on the hydraulic analysis presented in Appendix A of the Feasibility Study Report, three wells pumping at a combined rate of 30 to 100 gpm would be needed to maintain hydraulic control at the site.

#### **4.4.8 Cost**

The estimated present worth of the options under Alternative 3 would be as follows:

- Option A (air sparging and soil vapor extraction system) - \$495,000
- Option A (Activated Carbon Barrier Wall) - \$1,750,000
- Option B (Collection Trench) - \$1,020,000

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## **4.5 COMPARISON OF ALTERNATIVES**

A comparison of alternatives is presented below. In addition, a summary of comparisons is provided in Table 4.1.

### **4.5.1 Overall Protection of Human Health and the Environment**

Potential exposure to chemical constituents would be substantially reduced with Alternatives 2 and 3. Alternative 2 is most protective because the sources impacting soil and groundwater would be controlled. Both Alternatives 1 and 3 would leave impacted soil essentially unchanged and would not reduce the exposure to site soils.

### **4.5.2 Compliance with SCGs**

Alternative 2 would eliminate onsite soil remediation goal exceedances and meet the objective of removing or controlling sources of significant impacts. Soil remediation goal exceedances are found around the pumphouse, at the western drainage swale, and southeast of the concrete pad. Additional areas, such as under and further southeast of the concrete pad are included in the excavation area due to evidence of product and BTEX in groundwater. Although Alternatives 1 and 3 address the groundwater remediation goal exceedances to varying degrees, they do not address the soil remediation goal exceedances, which are impacting the groundwater.

### **4.5.3 Long-term Effectiveness and Permanence**

Alternative 1 would not be effective in the long term. The natural attenuation process could be made ineffective by its relatively slow rate and by the fact that impacted soil would continue to be in contact with onsite groundwater. Alternative 2 would be the most effective means of ensuring long-term protection because the source of impacts would be controlled. However, there is also a disadvantage of increased liability associated with disposing soil at an offsite location. Landfill companies are insured, but each of the parties is potentially liable under CERCLA with no regard to fault. Alternative 3 would result in groundwater control.

### **4.5.4 Reduction of Toxicity, Mobility, or Volume**

Alternative 1 would reduce the toxicity and volume of impacted groundwater, but would not reduce the toxicity, mobility, or volume of impacts on soil. Alternative 2 would eliminate the toxicity, mobility, and volume of impacted soil and would reduce the impacts from soil on groundwater. Alternative 3 would reduce the toxicity and mobility of constituents in impacted groundwater.

### **4.5.5 Short-Term Effectiveness**

There would be no significant short-term risks to the community, the environment, or site workers associated with any of these alternatives, as long as there is proper handling and monitoring of excavated materials and any potential air emissions.

### **4.5.6 Implementability**

Alternative 1 would be very easy to implement. Alternatives 2 and 3 are also implementable, but would require a significant amount of construction in the form of excavation

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and dewatering for Alternative 2 and a groundwater control and/or treatment system for Alternative 3. Use of the onsite treatment unit would need to be scheduled in advance.

#### 4.5.7 Cost

The estimated present worth of each alternative is presented below:

• Alternative 1, monitored natural attenuation	\$43,000
• Alternative 2, Option A, offsite disposal	\$889,000
• Alternative 2, Option B, onsite treatment	\$2,200,000
• Alternative 2, Option B, offsite disposal	\$4,600,000
• Alternative 3, Option A (air sparging and soil vapor extraction)	\$495,000
• Alternative 3, Option A (barrier wall)	\$1,750,000
• Alternative 3, Option B (collection trench)	\$1,020,000

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**TABLE 4.1**  
**SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES**

Alternative	Protection of Human Health and Environment	Compliance with ARARs	Long-term Effectiveness and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implement.	Cost
1	Can reduce impacts from BTEX-impacted groundwater. No other impacted media is addressed.	Soil exceeding remediation goals for BTEX and PCBs would not be eliminated, but would likely be reduced.	Long-term risk can be significantly reduced.	Toxicity and volume of BTEX-impacted groundwater would decrease	Short-term risk is relatively low.	Yes	\$43,000
2A	Identified volumes of PCB-impacted soil would be eliminated. (PCB-impacted soil and most BTEX-impacted soil have been removed as an interim action.)	PCB-impacted soil exceeding remediation goals would be (and now has been) removed. (BTEX-impacted soil has also largely been removed.)	Removal of soil is a permanent remedy.	Removal of PCB-impacted soil has eliminated toxicity, mobility, and volume of respective soil.	Short-term risk would be minimized with use of safety controls.	Yes	\$889,000 (offsite management)
2B	Identified volumes of BTEX- and PCB-impacted soil would be (and now largely have been) eliminated.	Soil exceeding remediation goals for BTEX and PCBs would be (and now largely have been) removed.	Removal of impacted soil is a permanent remedy.	Removal of most soil contamination would nearly eliminate toxicity, mobility, and volume of impacted soil.	Short-term risk would be minimized with use of safety controls.	Yes	\$2.2 million (onsite treatment) \$4.6 million (offsite management)
3A	Impacts from site groundwater on downgradient areas and Ley Creek would be reduced.	State groundwater quality standards would be met to the extent practical.	Impacted groundwater would be treated; however, not a permanent remedy because impacted soils remain in place.	Toxicity, mobility, and volume of impacted groundwater would be reduced.	Short-term risk would be minimized with use of safety controls.	Yes	\$495,000 (AS/SVE) \$1,750,000 (Activated Carbon Barrier Wall)
3B	Impacts from site groundwater on downgradient areas and Ley Creek would be reduced.	State groundwater quality standards would be met to the extent practical.	Impacted groundwater would be treated.	Toxicity, mobility, and volume of impacted groundwater would be reduced.	Short-term risk would be minimized with use of safety controls.	Yes	\$1,020,000 (Collection Trench)

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N

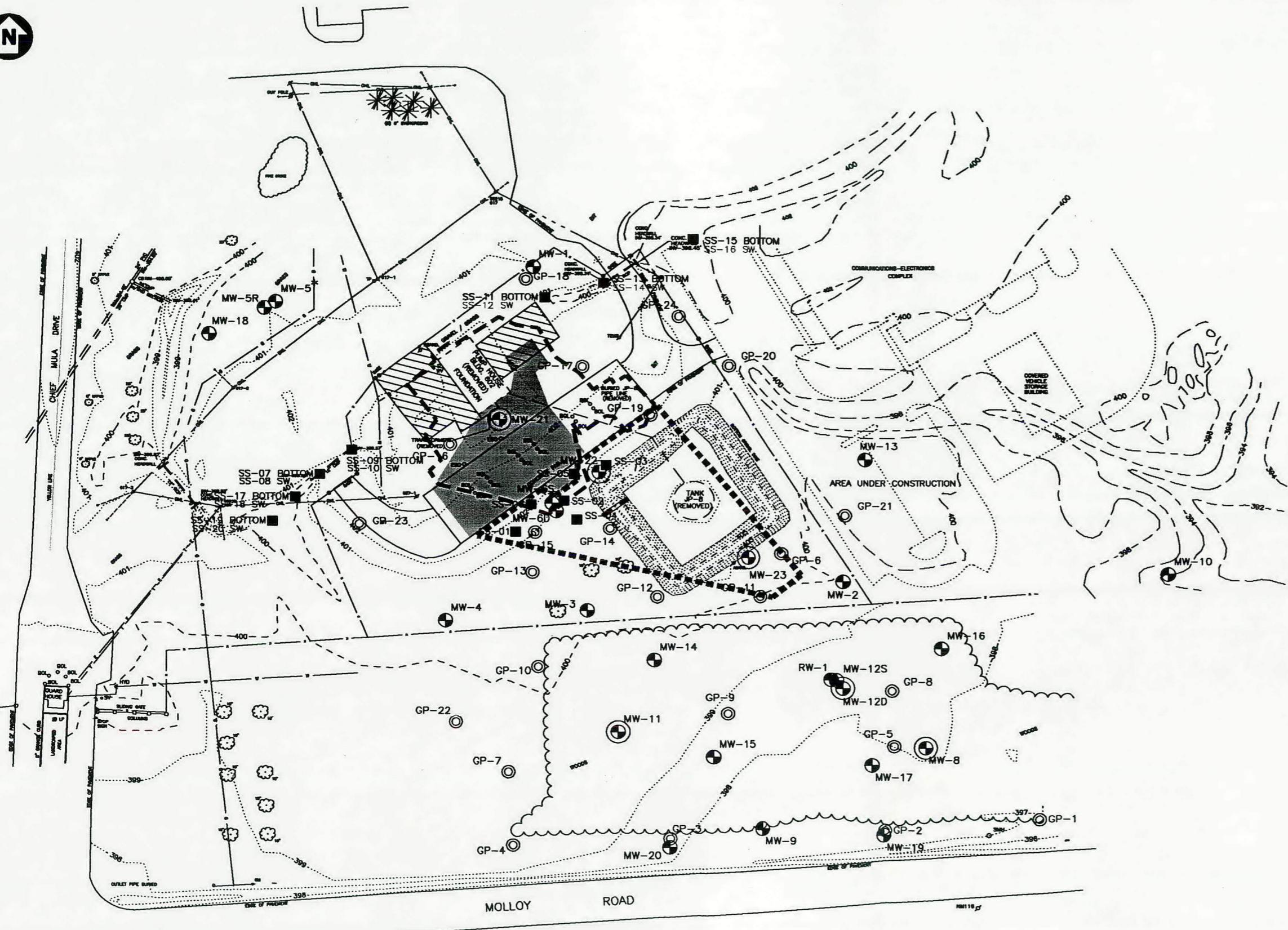


FIGURE 4.1

HANCOCK AIR FIELD  
SITE 15  
SYRACUSE, NEW YORKMOST SIGNIFICANTLY  
IMPACTED SOILS

PARSONS

290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-9580

## SECTION 5

### RECOMMENDED REMEDIAL ALTERNATIVE

#### 5.1 DESCRIPTION OF RECOMMENDED ALTERNATIVE

Based upon the results of previous investigations, FS and the evaluation presented in Section 4, the recommended alternative consists of the following components, a combination of Alternative 1; Alternative 2, Option A; and Alternative 3, Option A. Alternative 2, Option A has been completed by the ANG as part of an interim soil removal action that had NYSDEC oversight and direction.

##### Alternative 1 – Monitored Natural Attenuation

- Continue to restrict use of the site including restricting access to site subsurface soils and groundwater.
- Conduct groundwater monitoring semi-annually to further assess natural attenuation within the groundwater plume outside the area where the soils contain levels of BTEX above 10 ppm. Reassess after a minimum of three years and a maximum of five years.
- Conduct soil sampling to assess the reduction over time of BTEX compounds in Site 15 soils that contain low levels of BTEX (e.g., outer areas of impacted soil and groundwater).
- If natural attenuation alone is not considered sufficient in the outer areas over a three-year timeframe, implement additional remedial measures (e.g., air sparging, delivery of a limiting nutrient or other amendments to the subsurface) to enhance the attenuation of BTEX.

##### Alternative 2, Option A - Soil Removal Based on Soil PCB Concentrations (Completed May 2003)

- Removed 2,880 tons of soil exceeding 1 ppm PCBs in site surface soil and sediment and 10 ppm PCBs in site subsurface soil over one foot below ground surface. Additionally, removed the closed underground tanks and most significantly impacted 5,360 tons of soil containing BTEX adjacent to the tanks as specified by the NYSDEC Region 7 spill program site representative. Most of the excavation areas were around the pumphouse, under the concrete pad, and southeast of the concrete pad, (see Figure 4.1).
- Removed closed underground tanks and soil directly adjacent to the tanks most significantly impacted by BTEX compounds.
- Drained saturated soil in place, as needed, prior to excavating below the water table.
- Transported excavated soil and sediment and managed the soil at a permitted offsite facility.

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- Replaced excavated material with clean fill to pre-excavation grade. Provided proper drainage and seeded area.

#### Alternative 3, Option A – *In Situ* Removal of BTEX

- Install air sparging and soil vapor extraction system within the portion of Site 15 showing significant residual BTEX levels and at the northernmost portion of the Brooklawn Golf Course adjacent to Site 15. Connect the air sparging and soil vapor extraction system to a common vapor treatment location with a knockout tank to collect incidental water. Operate and reassess annually.
- Conduct quarterly monitoring of the groundwater for eight quarters to monitor performance of the AS/SVE system. After eight quarters of monitoring the frequency of sampling will be reassessed.

The recommended alternative incorporates source control, soil management, BTEX removal from soil via excavation and soil vapor extraction, BTEX removal from groundwater via air sparging, soil vapor extraction, and natural attenuation, and long-term groundwater assessment. A summary of the 'pros' and 'cons' evaluated is presented in Table 5.1.

## **5.2 ASSESSMENT OF RECOMMENDED ALTERNATIVE USING EVALUATION CRITERIA**

### **5.2.1 Overall Protection of Human Health and the Environment**

The recommended alternative would provide overall protection of human health and the environment. PCB-contaminated soil has been removed as part of the completed soil removal action. Much of the soil that was removed included BTEX-impacted soil as well. Any migration of constituents from impacted areas into downgradient groundwater and Ley Creek was reduced in the long term by removing the PCB and BTEX sources. The air sparging and soil vapor extraction system would help treat BTEX-impacted soil and groundwater remaining in place and could also enhance natural attenuation.

### **5.2.2 Compliance with SCGs**

Soil and sediment exceeding remediation goals for PCBs, as well as soil exceeding remediation goals for BTEX, were excavated and disposed of properly at an offsite facility. By doing so, the potential for future impacts on groundwater was significantly reduced. Removal of the soil and sediment containing PRG exceedances would comply with the chemical-specific SCGs. Any residual in-place soil with significant BTEX levels would be treated by the air sparging and soil vapor extraction system. Soils remaining in place with BTEX levels less than 10 ppm would be monitored to evaluate the success of natural attenuation to reduce the BTEX. If natural attenuation does not reduce the levels of VOCs, additional measures would be evaluated and then implemented to ensure remediation (e.g. expanding the air sparging and soil vapor extraction system).

### **5.2.3 Long-Term Effectiveness and Permanence**

Removal and proper disposal of the identified volumes of PCB and BTEX-contaminated soil was a permanent remedy that significantly reduced the magnitude of risk remaining after remediation. Impacts from soil on groundwater and the potential for migration of impacts along

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the drainage swale downstream of the site were significantly reduced. The excavated soil was transported directly to an offsite landfill for proper management. Soils with PCB levels greater than 50 ppm were transported to a TSCA-approved facility, such as Chemical Waste Management's Model City Landfill in Niagara Falls, New York. Non-hazardous soil with PCBs concentrations less than 50 ppm was transported to a non-hazardous waste landfill (either Ontario County or High Acres Landfill).

#### **5.2.4 Reduction of Toxicity, Mobility, or Volume**

Removal and disposal of the contaminated soil significantly lowered the volume of impacted soil at Site 15. The toxicity of impacted groundwater would be reduced by air sparging and soil vapor extraction system.

#### **5.2.5 Short-Term Effectiveness**

Excavation and disposal of the impacted material was effectively completed. Very little soil disturbance is anticipated for installation of the air sparging and soil vapor extraction system and could be conducted after excavation of the PCB-impacted soils.

Short-term risks to site workers were minimized during the interim removal action with the use of controls, such as personal protective equipment, dust suppression (e.g., watering of soils), and odor controls (e.g., tarping of stockpiled soil). The same controls can be implemented as part of future site remedial efforts. An existing fence surrounding the site was maintained during the removal action to control access. Trucks used to transport the soil for offsite management possessed the necessary controls to prevent spillage.

#### **5.2.6 Implementability**

Because the site is no longer in use, no operations or equipment needed to be re-located prior to excavation work. The removal action does, however, consist of excavation of soil below the water table and would require the excavation of side slopes. No dewatering of the excavation or offsite treatment of the removed water was needed during the removal action. These types of deep excavations are common. In addition, the site is not located within a flood zone, and the location of existing USTs and other underground structures were obtained from the base beforehand.

Transport of excavated material to an offsite facility did require significant time and coordination, but was implementable without significant problems. Re-vegetation and paving of the site was also easily implementable.

The air sparging and soil vapor extraction system would require a short-term pilot test and installation of 30 to 50 wells. However, testing and installation of such systems is fairly common and easily implementable.

#### **5.2.7 Cost**

The estimated present worth of the recommended alternative would be \$1.4 million with offsite disposal. The \$1.4 million estimated cost does not include removing soil directly adjacent to the formerly closed tanks that contains BTEX compounds. The NYSDEC regional staff

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responsible for spill control requested that these soils be removed while the removal action was ongoing, so these soils were removed.

Given that soil BTEX data are several years old, and most of the BTEX-in Site 15 soil was removed as part of the interim removal action, the extent of soil with BTEX levels over 10 ppm is significantly lower now than when the soil was most recently sampled and analyzed for BTEX. Depending on the assessment of BTEX impacts remaining at the site after soil removal, natural attenuation alone could be considered sufficient for addressing BTEX. However, costs are based on the assumption that a complete air sparging and soil vapor extraction system would be installed.

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**TABLE 5.1**  
**SUMMARY COMPARISON OF SOIL DISPOSAL OPTIONS**

OPTION	PROS	CONS
Onsite Thermal Desorption	Avoids potential offsite liability associated with landfill disposal	Requires extended schedule due to testing and additional State and potentially public input  More costly than offsite disposal and not often implemented  Requires national TSCA permit for PCB management  Uncertain demonstration test scope, air monitoring, NYSDEC approval, and public input
Onsite Chemical Extraction	Minimizes air emissions	Same as for onsite thermal treatment and less common.
Offsite Thermal Treatment or Chemical Extraction	Treatment done in an area approved in advance for soil treatment	More costly than onsite treatment or offsite disposal
Offsite Landfill Disposal	Least cost option based on soil quantity requiring disposal as hazardous waste and present market value of disposal for non-hazardous and hazardous waste.  Most expedient option to implement	ANG policy discourages offsite disposal to limit Federal government liability.

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ATTACHMENT

**ATTACHMENT**

**LAND USE CONTROL ASSURANCE PLAN**

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## ATTACHMENT

### Land Use Control Assurance Plan

For

### 174<sup>th</sup> Fighter Wing, Hancock Air National Guard Base Syracuse, New York

#### 1.0 Introduction

Land Use Controls (LUCs) may be a component of, or enhancement to, cleanup actions covered by an installation's Environmental Restoration Program (ERP). Reasonably anticipated future land use assumptions are typically made during the ERP process. The application of reasonably anticipated future land use assumptions may result in a Decision Document and/or remedial or removal action that does not require a physical action to be taken. Such decision or action may require restrictions on the use of the property, implemented by LUCs, to ensure that future activity remains consistent with the reasonably anticipated future land use.

LUCs are defined by the Department of Defense (DoD) as: the physical, legal, and/or administrative instruments that restrict the use of, or limit access to, real property to prevent or reduce risk to human health and the environment. LUCs, for the purposes of environmental protection and cleanup, can be any one or combination of actions that restrict the use of real property.

This Land Use Control Assurance Plan (LUCAP) is an installation-wide plan that defines procedures to ensure that the LUCs will remain effective over the long term. Implementation of the LUCs will need to continue for a number of years, in most cases.

#### 2.0 Purpose

The purpose of this Plan is to:

- Serve as the primary facility-wide source documenting all LUCs and to integrate all site remedies that include LUCs into the Base Master Plan;
- Implement a process to ensure the long-term maintenance of LUCs that are already in place or those which may be selected as a part of a remedy in the future;
- Elevate the general level of awareness among the 174<sup>th</sup> Fighter Wing (hereafter referred to as Hancock ANGB or the base) personnel of the need to maintain LUCs to provide long-term protection of human health and the environment;

- Implement a process for Hancock ANGB to advise the New York State Department of Environmental Conservation (NYSDEC) periodically of the continued compliance with the particular LUCs and objectives set out in the site-specific Land Use Control Implementation Plan (LUCIP) for the installation and to notify the state of any anticipated changes in land use which might impact the LUCs established for the base; and
- Ensure, via implementation of this LUCAP, the minimization or elimination of risks to human health, until it is determined that LUCs are no longer needed.

### **3.0 Background**

The investigation of areas of potential environmental concern at Hancock ANGB has resulted in, or may in the future result in, the identification of areas of environmental contamination (hereafter referred to as a "site"). A site is an area where hazardous substances (defined under the Comprehensive Environmental Response, Compensation, and Liability Act), and/or hazardous wastes or other hazardous constituents (defined under the Resource Conservation and Recovery Act) may have been released. Sixteen such sites have been identified at the base. These sites can be categorized generally as follows:

- Those that have been fully investigated and for which approval has been received for No Further Response Action Planned (NFRAP) from the New York State Department of Environmental Conservation (NYSDEC);
- Those that have undergone site investigations and at which removal actions have been conducted;
- Those that have undergone site investigations but may still require additional study and/or action; and
- Those that are in need of initial investigation before the appropriate action can be selected and implemented.

Chemical-specific criteria to evaluate potential risks posed by sites at the base are based on the NYSDEC's Division of Environmental Remediation Technical Administrative Guidance Memorandum (TAGM) #HWR-94-4046 (NYSDEC, 1994) for soil, NYSDEC Ambient Water Quality Standards and Guidance values (NYSDEC, 1998) for groundwater and surface water, and the NYSDEC Technical Guidance for Screening Contaminated Sediments (NYSDEC, 1999). Sampling results have shown that contaminants in the groundwater exceed the NYSDEC criteria. Potential exposure to this contamination exists via groundwater since contaminants from impacted areas may migrate into downgradient groundwater and sediment moving downstream from the drainage swale into Ley Creek.

Actions will be taken to eliminate and/or minimize the exposure route hazards posed by the contaminants present in different media at the site. In addition, restrictions on the use of groundwater by the base will be included in the Base Master Plan. LUCs are being implemented at the base to ensure that restrictions on the use of groundwater

remain in place and are effective for as long as necessary to be protective of human health and the environment.

A current and complete copy of this document and any LUCIP will be maintained by the base Environmental Manager (EM); copies of the same set of documents will be maintained by the base Facilities Manager. The Headquarters ANG/CEVR in coordination with the base will ensure compliance with all aspects of the LUCs that are deemed necessary components of any cleanup actions on the base.

#### 4.0 Definitions

**Decision Document** or DD is a document containing the decision and statutory determinations of the lead agency concerning selection of the remedial or removal actions at a site or a group of sites. Specific types of DDs include: Closure Letters, Records of Decisions (RODs), Remedial Action Plans (RAPs), and No Further Response Action Planned (NFRAP) documents.

**Environmental Restoration Program** or ERP is a program designed to clean up contamination associated with Department of Defense facilities. This program includes identification, investigation, and cleanup of hazardous substances, pollutants and contaminants as defined by CERCLA. The ERP is also known as the Installation Restoration Program (IRP).

**Land Use Control** or LUC means any restriction or control, arising from the need to protect human health and the environment, that limits the use of and/or exposure to, environmentally contaminated media (e.g. soils, sediments, groundwater, or surface water) at any site at Hancock ANGB.

**Land Use Control Assurance Plan** or LUCAP is the installation-wide document that establishes procedures to ensure that LUCs will remain effective over the long-term.

**Land Use Control Implementation Plan** or LUCIP is site-specific plan that serves as a surveillance tool to specify each LUC for a site and the actions that must be taken to achieve those LUCs.

**Remedial Action** is the CERCLA phase in which the permanent or final selected cleanup technology and/or action are constructed, installed, implemented, and/or operated until confirmatory sampling and analysis indicate that cleanup levels, and/or performance standards, have been reached.

**Removal Action** is part of the CERCLA response process for, and often the first accelerated response to, an actual or threatened contaminant release. A Removal Action can employ any means necessary to abate, minimize, stabilize, mitigate, or eliminate the release or threat of release.

## **5.0 Implementation**

Within 14 days after promulgation of a LUC(s) in a DD for further action, the base EM will forward this information to the proper points of contact on base so that the LUC(s) will be incorporated into the Base Master Plan. The EM will provide written notification to NYSDEC when the LUC(s) has been incorporated.

Within 45 days after promulgation of a LUC(s) in a DD for further action, the base EM will incorporate appropriate information into Appendices A, B, and C (described below) and will send the revised appendices to NYSDEC for its review.

Appendix A: Land Use Control Site Listing. This list is the sites covered by the terms of this Plan and includes each site number and name, site description, and site location, and the name and date of the DD for further action for each site.

Appendix B: This attachment contains the LUCIP developed for sites at the base to date. LUCIPs for other sites will be added in the future as needed.

Appendix C: Appropriate Points of Contact. This appendix contains the names, addresses, telephone numbers, fax numbers, and e-mail addresses of the points of contact that are pertinent to the development and implementation of this document. Contacts listed include the Base Commander, the Base Environmental Manager, the Base Facilities Manager, the ANG/CEVR Program Manager, and the NYSDEC representative who is assigned to Hancock Air National Guard Base.

## **6.0 Site Inspection/Review/Certification**

Periodic reviews and site inspections will be conducted by base personnel of all sites listed in Appendix A to this LUCAP. The inspections will be conducted in accordance with the monitoring regime that is described in the LUCIP(s) for site(s) on the installation. The reviews will be conducted by the base EM and reviewed by the Base Commander for the purpose of verifying that all LUCs are being properly implemented and maintained and that any deficiencies are documented and corrected.

On an annual basis, the base EM, in coordination with the ANG/CEVR Program Manager, will report to NYSDEC on the continued implementation of the LUCs. Any deficiencies and their resolutions will be noted in the annual report. Submission of the report will constitute certification that the LUCs continue to be in place at the installation. The report will be due each year in the same calendar month of the anniversary date of the first report.

## **7.0 Agency Coordination**

The following agency notification procedures shall apply whenever a major land use change is proposed:

At least 60 days, except in emergency situations, prior to the implementation of any proposed major change in land use at any site subject to a LUC, the base shall provide notification of such proposed change to NYSDEC. Notifications will be provided for the purpose of obtaining NYSDEC concurrence with the base's determination as to whether the proposed change will impact the existing LUCs and their implementation. No major land use change should be made until state comments are received (a response from NYSDEC is expected in a reasonable timeframe prior to such land use change, but no later than thirty days after such notification). Each notification/request for concurrence will include:

- An evaluation of whether the anticipated land use change will pose unacceptable risks to human health and the environment, or negatively impact the effectiveness of the selected remedial or removal action;
- An evaluation of the need for any additional remedial action or removal action or new LUCs as a result of implementing of the proposed major change in land use; and
- A proposal for any necessary changes in the removal or remedial action; as it is described in the DD.

For purposes of this document, it is agreed that the following constitute a major change in land use:

1. Any change in land use (e.g., from industrial to recreational or residential) that would be inconsistent with those specific exposure assumptions in the human health and/or ecological risk assessment or in the DD that served as the basis for implementation of a LUC at the site.
2. Any activity that would violate or that may disrupt the effectiveness of an implemented LUC (e.g., the excavation of soil in a contaminated area, or the permanent removal of a fence or warning signs).
3. Any activity intended to alter or negate the need for the specific LUC(s) implemented at the site (e.g., extending a runway over a contaminated area and suggesting that the location of that contaminated area no longer needs to be indicated in property records since it is estimated that the runway will be in place for more than 50 years).

The base also shall notify the NYSDEC as soon as practicable in the event of an emergency situation that necessitates an action that would be considered a major change in land use or if, despite the base's best efforts to ensure compliance with notification procedures described above, a major change in land use is discovered that had not been reviewed and agreed to by NYSDEC. Such notifications will describe the nature and extent of the change and describe any measures implemented or proposed to be implemented (and a timetable for completion), to reduce or prevent impacts to human health and/or the environment.

## **8.0 Funding Commitment**

The base will use its best efforts to obtain all necessary funding through the appropriate authorities or source(s) to ensure the continued maintenance of all LUCs under this LUCAP and, where necessary, the timely reimplementation of any LUCs and/or completion of site restoration activities necessitated by any major changes in land use to an implemented LUC. Nothing in this paragraph shall be construed in any way to limit the rights found in paragraph 14.0 of this Plan.

## **9.0 Future Property Conveyance**

If the title holder to the property at the base, where a site subject to LUCs is involved, plans to transfer the property to another agency or private party, then:

- Each LUC is reviewed and incorporated into those property disposal procedures required to meet CERCLA and 40 CFR 373 notice requirements so that the transferee(s) is given adequate notice of existing site condition(s);
- The base will provide notice to the property transferee(s) of site conditions, the requirement to continue to implement LUCs at the site, and their right to re-evaluate the appropriateness of existing LUCs; and
- The base will delete the site(s) from the installation's LUCAP upon finalization of the transfer of the property.

## **10.0 Change in Applicable Standards**

Nothing in this document shall preclude the base, NYSDEC, or any other appropriate party, from deleting any site from this LUCAP. Proposal for deletion or agreeing to a proposal for deletion may be based on either a change in applicable federal or state requirements, or a change in the concentration of contaminants of concern at a site.

## **11.0 Future Communications**

Within thirty days after changes in personnel, or any other change resulting in a new or different point of contact, the base, the ANG, NYSDEC and any other interested party listed in Appendix C will provide to the others listed in Appendix C the names, addresses, telephone and fax numbers, and e-mail addresses of the representative(s) who will receive all correspondence and communications pertaining to all matters falling under the terms of this LUCAP. A list of representatives and their respective contact information is in Appendix C and shall be updated by interested parties as appropriate.

## **12.0 Site Access**

Hancock ANGB will provide NYSDEC and its representatives (e.g., contractors or consultants) access to all sites covered by this document at reasonable times consistent with military mission, national security, and health and safety requirements. The base

EM (or his/her designee) will coordinate access and escort such visitors who have presented the proper credentials to the restricted areas of interest. Nothing in this document is intended or shall be construed to limit in any way the right of entry or inspection that the NYSDEC or other appropriate authorities may have.

### **13.0 Disputes**

It is agreed and understood that the ANG in coordination with the base and NYSDEC will act in good-faith to resolve any and all disputes that may arise related to LUCs, their implementation, major changes in land use, or any other matter related to this document.

### **14.0 Reservation of Rights**

It is also understood that the Base Commander reserves those rights and authorities granted to the Department of Defense (DoD) by federal or state law, regulation, or executive order. On behalf of the Air National Guard, the Base Commander further reserves the right to put all property under his cognizance to those uses deemed necessary in his discretion for mission accomplishment or otherwise deemed necessary by appropriate military authority to meet the needs of the DoD.

### **15.0 Anti-Deficiency Act**

Nothing in this document shall be construed as obligating the ANG, its officers, employees, or agents to expend any funds in excess of appropriations authorized for such purposes in violation of the federal Anti-Deficiency Act (31 U.S.C. Section 1341).

### **16.0 Amendment of the LUCAP**

Any amendments to this document shall be in writing and will be coordinated with NYSDEC prior to execution. Amendments shall be attached to this original LUCAP.

### **17.0 Termination**

The assurances provided under this document will be terminated when the objectives of the LUCs have been met (due to changes in federal or state risk-based cleanup standards or changes in the concentration of contaminants at the site(s), or for some other reason that would indicate that the LUCs are no longer necessary). The LUCAP cannot be terminated until NYSDEC has been notified in writing and provided an opportunity to comment on such termination. If a notice of termination has been provided to NYSDEC and no response has been received within 6 months of such notice, it is the presumption of the ANG that NYSDEC has concurred with such termination.

## APPENDIX A

### LAND USE CONTROL SITE LISTING

Date of last update: 14 November 03

1. **Site Number and Name:** Site 15, Petroleum, Oil, Lubricant (POL) Area

**Site Description:** Site 15 is approximately 2.5 acres in size. The site consists of grassed area in the north, brush vegetation, and small-to-mid-sized trees in the southern portion adjacent to Molloy Road. Two drainage swales carry surface runoff; one is along the east side of the site and the other is along the west side. Site structures removed as part of the soil removal action completed in May 2003 included a large concrete pad, a former pump house concrete foundation slab, six previously closed underground storage tanks and associated piping adjacent to the pump house foundation, and a bermed area where a JP-8 aboveground tank was formerly located. No structures remain at this site.

Polychlorinated biphenyls (PCBs) and volatile organic compounds (benzene, toluene, ethylbenzene, and xylenes – BTEX) contained in jet fuel were identified as the chemicals of concern at this site. The sources of PCBs and BTEX in soil and groundwater were three historical spills in the vicinity of the pump house. PCBs were removed as part of the soil removal action completed in May 2003. Soils within and adjacent to the spill area that were most impacted with BTEX were also removed as part of the same soil removal action. Groundwater residually impacted primarily with BTEX remains at the site and has migrated primarily to the south toward Molloy Road. Addressing this impacted groundwater is the subject of the future long-term remedial action for which the Decision Document should be available by late 2003 or early 2004.

**Site Location:** Located within the Air National Guard Base at Hancock Field directly adjacent to the Syracuse Hancock Airport in Onondaga County, NY.

**Name and Date of Decision Document for further action for the site:** The Record of Decision will become the Decision Document for Site 15. No Decision Document for Site 15 exists at this time.

## APPENDIX B

### Land Use Control Implementation Plan for Site 15 for the 174<sup>th</sup> Fighter Wing, Hancock Air National Guard Base Syracuse, New York

#### B.1 Introduction to Land Use Controls

Land Use Controls (LUCs) may be a component of, or enhancement to, cleanup actions covered by an installation's Environmental Restoration Program (ERP). Reasonably anticipated future land use assumptions are typically made during the ERP process. The application of reasonably anticipated future land use assumptions may result in a Decision Document and/or remedial or removal action that does not require a physical action to be taken. Such decision or action may require restrictions on the use of the property, implemented by LUCs, to ensure that future activity remains consistent with the reasonably anticipated future land use.

LUCs are defined by the Department of Defense (DoD) as: the physical, legal, and/or administrative instruments that restrict the use of, or limit access to, real property to prevent or reduce risk to human health and the environment. LUCs, for the purposes of environmental protection and cleanup, can be any one or combination of actions that restrict the use of real property.

A Land Use Control Implementation Plan (LUCIP) is site specific and serves as a surveillance tool to specify each LUC for that site and the actions that must be taken to achieve those LUCs. Implementation of the LUCs will need to continue for, in most cases, a number of years.

#### B.2 Conditions Leading to the Utilization of Land Use Controls

LUCs are a component of the selected remedy for Site 15, POL Area, at the 174th Fighter Wing, Hancock Air National Guard Base (hereafter referred to as Hancock ANGB or the base). *At this time, no Decision Document (DD) for further action has been issued, however, it is anticipated that LUCs will be a component of the remedy for this site.*

Site 15 is approximately 2.5 acres in size. The site consists of grassed area in the north, brush vegetation, and small-to-mid-sized trees in the southern portion adjacent to Molloy Road. Two drainage swales carry surface runoff; one is along the east side of the site and the other is along the west side. Site structures removed as part of the soil removal action completed in May 2003 included a large concrete pad, a former pump house concrete foundation slab, six previously closed underground storage tanks and associated piping adjacent to the pump house foundation, and a bermed area where a JP-8 aboveground tank was formerly located. No structures remain at this site.

Polychlorinated biphenyls (PCBs) and volatile organic compounds (benzene, toluene, ethylbenzene, and xylenes – BTEX) contained in jet fuel were identified as the chemicals of concern at this site. The sources of PCBs and BTEX in soil and groundwater were three historical spills in the vicinity of the pump house. PCBs were removed as part of the soil removal action completed in May 2003. Soils within and adjacent to the spill area that were most impacted with BTEX were also removed as part of the same soil removal action. Groundwater residually impacted primarily with BTEX remains at the site and has migrated primarily to the south toward Molloy Road.

### **B.3 Description of the Setting in Which the Land Use Controls Will be Implemented**

The 174th Fighter Wing, Hancock Air National Guard Base is located two miles north-northeast of the city of Syracuse in Onondaga County, New York. Hancock ANGB occupies approximately 359 acres, and is bordered on the east and south by the Town of Dewitt, to the north by the town of Cicero and to the west by the town of Salina. The Hancock-Syracuse International Airport borders the Base to the northeast.

*At this time, no Decision Document (DD) for further action has been issued, however, it is anticipated that LUCs will be a component of the remedy for this site.* The DD for further action at Site 15, POL Area, is anticipated to be issued by the first quarter of calendar year 2004. The selected remedy, as outlined in the Proposed Remedial Action Plan, is a combination of monitored natural attenuation, soil removal based on soil PCB concentrations, and in-situ removal of BTEX (This is based on Alternative 1; Alternative 2, Option A; and Alternative 3, Option A as they appear in the Final Feasibility Study Report for the 174th Fighter Wing, Hancock Air National Guard Base (ANGB), Syracuse New York, February 2002). A removal action has been implemented at Site 15 and PCB impacted soil is no longer present at the site. Details of the removal action are contained in Removal Action Report for the Hancock Air National Guard Site 15 and Site 1, (Parsons, June 2003).

The remedial action objectives for the groundwater at Site 15 are to:

Prevent human exposure to groundwater where COC concentrations exceed the NYSDEC's developed standards and guidance values to protect groundwater based on Part 703 of Title 6 of the New York State Code of Rules and Regulations; and Monitor the effectiveness of natural attenuation on groundwater impacted by COC levels exceeding the NYSDEC Class GA Water Quality Standards and Guidance Values (NYSDEC, 1998). *(Remedial action objectives were discussed in more detail in the Final Feasibility Study Report for the 174th Fighter Wing, Hancock Air National Guard Base (ANGB), Syracuse New York, February 2002).*

The remedy calls for:

The implementations of LUCs to limit the future uses of groundwater until COCs degrade to concentrations below the remedial action objectives;

Presentation of the results of up to five years of groundwater monitoring results showing that natural attenuation has successfully brought the levels of COCs in the groundwater below remedial action objectives to NYSDEC in a closure plan; and Performance of risk-based closure analysis for groundwater.

The current land use at the site is categorized as industrial and is expected to remain industrial in the future.

#### **B.4 Terms of the Land Use Controls for Site 15**

(The terms below are based on Alternative 1; Alternative 2, Option A; and Alternative 3, Option A as they appear in the Final Feasibility Study Report for the 174th Fighter Wing, Hancock Air National Guard Base (ANGB), Syracuse New York, February 2002.)

A written notice of these LUCs will be recorded in the Syracuse Recording and Real Estate Offices, and the Base Master Plan for Hancock ANGB. A series of maps showing the vicinity around the base, the location of the site on the base, the sampling locations, and a survey plat showing the boundaries of the site are presented in the Proposed Remedial Action Plan for Site 15. The DD will be developed as a follow-up to the Proposed Remedial Action Plan following opportunity for public input.

##### **B.4.1 Prohibited Activities**

In accordance with the terms of the November 2003 Proposed Plan, the following prohibitions are issued for the land described as Site 15, POL Area:

- Land uses other than industrial activities;
- Use of groundwater supply wells within the defined plume; and
- Excavation activities conducted on or near the site, unless it is an allowed activity specified in Section 4.2 below.

##### **B.4.2 Allowed Activities**

In accordance with the terms of the November 2003 Proposed Plan, the following actions are allowed on the land described as Site 15, POL Area:

- Continuation of current and expected industrial activities associated with the operation and maintenance of the base;
- Construction and digging/excavation activities on or near the site require the base Environmental Manager (EM) approval, qualified supervision, and health and safety precautions; and
- Sampling in accordance with the sampling plan to monitor natural attenuation provided in the DD for further action for Site 15, POL Area.

#### **B.4.3 Inspections**

The base EM will inspect each site no less than annually to ensure compliance with this LUCIP.

#### **B.4.4 Sampling and Analysis**

Confirmation samples will be collected to monitor the progress of natural attenuation and to ensure that the LUCs continue to be necessary. Samples will be collected annually until concentrations are below remedial action objectives and the site is closed.

#### **B.4.5 Contact Persons**

Contact persons for coordination and reporting are:

- (first point of contact) Hancock ANG Public Affairs Office, Lt Anthony Bucci (315) 454-6651, e-mail: [anthony.bucci@nysyra.ang.af.mil](mailto:anthony.bucci@nysyra.ang.af.mil)
- Hancock ANG Base Commander, Colonel Anthony Basile DSN: 489-9599 (315) 454-6599, e-mail: [anthony.basile@nysyra.ang.af.mil](mailto:anthony.basile@nysyra.ang.af.mil)
- Hancock ANG Base Facility Manager, Master Sergeant James DelPrato DSN: (315) 454-6450, Fax 6439, Email: [james.delprato@nysyra.ang.af.mil](mailto:james.delprato@nysyra.ang.af.mil)
- Hancock ANG Base Environmental Manager, Mr. Timothy Sager (315) 454-6111, Email: [tim.sager@nysyra.ang.af.mil](mailto:tim.sager@nysyra.ang.af.mil)
- ANG/CEVR Program Manager, Mr. Modupe Babalola, (301) 836-8148, Email: [modupe.babalola@ang.af.mil](mailto:modupe.babalola@ang.af.mil)
- New York State Department of Environmental Conservation Point of Contact, Mr. Dan Eaton (518) 402-9621, Email: [djeaton@gw.dec.state.ny.us](mailto:djeaton@gw.dec.state.ny.us)

#### **B.4.6 Reporting**

The base EM shall report annually to the ANG and NYSDEC on: the results of annual inspections; any work that the EM approved to be conducted at the site during the preceding year; and all items specified in Sections 4.7 and 4.8 of this document. In addition, the following will be reported on an as needed basis:

- Any occurrence of an activity prohibited under Section 4.1 of this LUCIP must be reported via the base EM to the ANG and NYSDEC.
- Any violation of a LUC restriction on activities (e.g., failure to conduct sampling in accordance with the sampling plan) must be reported immediately via the base EM to the ANG and NYSDEC.

- Any groundwater sampling that indicates contamination that was previously unknown must be reported via the base EM to the ANG and NYSDEC.

The results of groundwater monitoring will be submitted with annual inspection report via the base EM to the ANG and NYSDEC. The groundwater monitoring report will include a description of the then current and any planned future uses of groundwater supply wells in the site area subject to LUCs.

#### **B.4.7 Matters Requiring Approval**

Any proposed, permanent construction plans of any kind, including the installation of new water supply wells, which would occur on or near the site subject to LUCs must be coordinated with the ANG and the NYSDEC.

Any proposed changes to the number, location, or frequency of the groundwater sampling must be coordinated with the ANG and the NYSDEC.

#### **B.4.8 Public Awareness Training**

Base personnel that work in and around the area subject to the LUCs (or make decisions impacting the LUCs, such as facility engineering staff) will be provided awareness training within 45 days after the adoption of LUCs for Site 15, POL Area. The awareness training will provide personnel with a clear understanding of what the restrictions are, a delineation of the property subject to the LUCs, and who to contact for more information if any questions or concerns arise.

New personnel, and personnel newly assigned to work in areas at or near the site subject to LUCs will be given the information described above as part of their orientation or within 7 days after starting their new position.

A component of the annual report will be a brief discussion of the awareness training provided during the preceding year (e.g., the date it was given and the number of people attending) and a determination as to whether a general training session is needed in the upcoming year (e.g., due to known changes in operations that would bring in a large number of new personnel) or if employee-specific training during orientation is sufficient. At this time, the applicability of the training materials and whether it is up-to-date will also be evaluated and the materials will be amended as necessary.

## APPENDIX C

### APPROPRIATE POINTS OF CONTACT (POCs)

#### **C.1 Base POCs:**

Name: 2<sup>nd</sup> Lieutenant Anthony Bucci (first point of contact)

Address: Public Affairs Office

174th Fighter Wing, Hancock Air National Guard  
6001 E. Molloy Road  
Syracuse, New York 13211-7099

Commercial: (315) 454-6651

E-mail: [anthony.bucci@nysra.ang.af.mil](mailto:anthony.bucci@nysra.ang.af.mil)

Name: Colonel Anthony Basile

Address: Colonel Anthony Basile

Base Commander  
174th Fighter Wing, Hancock Air National Guard  
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Telephone: DSN: 489-9599

Commercial: (315) 454-6599

E-mail: [Anthony.basile@nysra.ang.af.mil](mailto:Anthony.basile@nysra.ang.af.mil)

Fax (DSN): 489-9145

Name: Master Sargeant James Del Prato

Address: Master Sargeant James Del Prato

Base Facility Manager  
174th Fighter Wing, Hancock Air National Guard  
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E-mail: [James.delprato@nysra.ang.af.mil](mailto:James.delprato@nysra.ang.af.mil)

Fax (DSN): 489-9439

Name: Mr. Timothy Sager  
Address: Mr. Timothy Sager  
Base Environmental Manager  
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**C.2 ANG/CEVR POC:**

Name: Mr. Modupe A. Babalola  
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Restoration  
3500 Fetchet Avenue  
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E-mail: [modupe.babalola@ang.af.mil](mailto:modupe.babalola@ang.af.mil)  
Fax: (301) 836-8121

**C.3 NYSDEC POC:**

Name: Mr. Dan Eaton  
Address: Mr. Dan Eaton  
New York State Department of Environmental Conservation  
625 Broadway, 11th Floor  
Albany, NY 12233-7015  
Telephone: (518) 402-9621  
E-mail: [djeatcn@gw.dec.state.ny.us](mailto:djeatcn@gw.dec.state.ny.us)  
Fax: (518) 402-9022