Final

Proposed Plan
for Soil and Dry Sediment at the
RVAAP-49 Central Burn Pits

Ravenna Army Ammunition Plant
Ravenna, Ohio

October 24, 2008

GSA Contract No. GS-10F-0076J
Delivery Order No. W912QR-05-F-0033

Prepared for:

United States Army Corps of Engineers
Louisville District

Prepared by:

Science Applications International Corporation
8866 Commons Boulevard, Suite 201
Twinsburg, Ohio 44087

3833.20081024.001

REPORT DOCUMENTATION PAGE	Form Approved OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
24-10-2008	Technical	September 2005 to October 2008

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Final Proposed Plan for the Soil and Dry Sediment at the RVAAP-49 Central Burn Pits RavennaArmyAmmunitionPlant Ravenna,Ohio	GSA Contract No. GS-10F-0076J
	5b. GRANT NUMBER NA
	5c. PROGRAM ELEMENT NUMBER NA
6. AUTHOR(S) Science Applications International Corporation, Inc.	**5d. PROJECT NUMBER** Delivery Order W912QR-05-F-0033
	5e. TASK NUMBER NA
	5f. WORK UNIT NUMBER NA

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION REPORT NUMBER
Science Applications International Corporation, Inc. 8866Commons Boulevard, Suite201 Twinsburg, OH 44087	3833.20081024.001
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	**10. SPONSOR/MONITOR'S ACRONYM(S)**
USACE - LouisvilleDistrict U.S. Army Corps of Engineers, Louisville District 600 Martin Luther King, Jr. Place P.O. Box 59 Louisville, Kentucky 40202-0059	CELRL-ED-EE
	11. SPONSOR/MONITOR'S REPORT NUMBER(S) NA

12. DISTRIBUTION/AVAILABILITY STATEMENT

Reference Distribution Page.

13. SUPPLEMENTARY NOTES

None.

14. ABSTRACT

This Proposed Plan presents the recommended alternative for soil and dry sediment at the Central Burn Pits.

15. SUBJECT TERMS

Human health risk, cleanup goals, remediation, ecological risk

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			19b. TELEPHONE NUMBER *(Include area code)*

CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Science Applications International Corporation (SAIC) has completed the Final Proposed Plan for Soil and Dry Sediment for the RVAAP-49 Central Burn Pits at the Ravenna Army Ammunition Plant, Ravenna, Ohio. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of data quality objectives; technical assumptions; methods, procedures, and materials to be used; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing United States Army Corps of Engineers policy.

Jed Thomas, P.E.
Study/Design Team Leader

10/24/08
Date

W. Kevin Jago
Independent Technical Review Team Leader

10/24/08
Date

Significant concerns and the explanation of the resolution are as follows:

Internal SAIC Independent Technical Review comments are recorded on a Document Review Record per SAIC quality assurance procedure QAAP 3.1. This Document Review Record is maintained in the project file. Changes to the report addressing the comments have been verified by the Study/Design Team Leader. As noted above, all concerns resulting from independent technical review of the project have been considered.

Scott Armstrong
Principal w/ A-E firm

October 24, 2008
Date

Final

Proposed Plan for Soil and Dry Sediment at the RVAAP-49 Central Burn Pits

Volume One - Main Report
Version 1.0

Ravenna Army Ammunition Plant
Ravenna, Ohio

GSA Contract No. GS-10F-0076J
Delivery Order No. W912QR-05-F-0033

Prepared for:
U.S. Army Corps of Engineers
600 Martin Luther King, Jr. Place
Louisville, Kentucky 40202

Prepared by:
Science Applications International Corporation
8866 Commons Boulevard, Suite 201
Twinsburg, Ohio 44087

October 24, 2008

3833.20081024.001

DOCUMENT DISTRIBUTION
for the
Final Proposed Plan for Soil and Dry Sediment at the
RVAAP-49 Central Burn Pits
Ravenna Army Ammunition Plant
Ravenna, Ohio

Name/Organization	Number of Printed Copies	Number of Electronic Copies
William J. O'Donnell, II, BRACD	0	1
Todd Fisher, Ohio EPA-NEDO	1	1
Bonnie Buthker, Ohio EPA-SWDO	1	1
Katie Elgin, RTLS-ENV	1	1
Mark Patterson, RVAAP Facility Manager	1	1
Kevin Jago, SAIC	1	1
Glen Beckham, USACE – Louisville District	1	1
Tom Chanda, USACE – Louisville District	1	1
Mark Krivansky, USAEC	0	1
REIMS	0	1

BRACD = Base Realignment and Closure Division
Ohio EPA-NEDO = Ohio Environmental Protection Agency-Northeast District Office
Ohio EPA-SWDO = Ohio Environmental Protection Agency-Southwest District Office
REIMS = Ravenna Environmental Information Management System
RTLS-ENV = Ravenna Training and Logistics Site Environmental Specialists
RVAAP = Ravenna Army Ammunition Plant
SAIC = Science Applications International Corporation
USACE = United States Army Corps of Engineers
USAEC = Unites States Army Environmental Command

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
BGS	Below Ground Surface
CBP	Central Burn Pits
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Chemical of Concern
DERR	Division of Emergency and Remedial Response
EE/CA	Engineering Evaluation/Cost Analysis
EPC	Exposure Point Concentration
HHRA	Human Health Risk Assessment
IRP	Installation Restoration Program
NGB	National Guard Bureau
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
PCB	Polychlorinated Biphenyl
PRG	Preliminary Remediation Goal
RI	Remedial Investigation
ROD	Record of Decision
RTLS	Ravenna Training and Logistics Site
RVAAP	Ravenna Army Ammunition Plant
SVOC	Semivolatile Organic Compound
TCRA	Time Critical Removal Action
USACE	U.S. Army Corps of Engineers
VOC	Volatile Organic Compound

1.0 INTRODUCTION

This Proposed Plan presents conclusions of investigations and the recommendation for soil and dry sediment within the Central Burn Pits (CBP) at the Ravenna Army Ammunition Plant (RVAAP) in Ravenna, Ohio (Figure 1), and provides the rationale for the recommendation. The U.S. Army, in consultation with the Ohio Environmental Protection Agency (Ohio EPA), issues this Proposed Plan. The Proposed Plan provides the public with information to comment upon the selection of an appropriate remedial action and proposes the final remedy as recommended by the U.S. Army. The U.S. Army, in consultation with Ohio EPA, will select the remedy for the area of concern (AOC) after reviewing and considering all comments during the 30-day public comment period. Therefore, the public is encouraged to review and comment on all conclusions presented in this Proposed Plan.

The U.S. Army is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 and Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (40 *Code of Federal Regulations* 300). Selection and implementation of the remedy will also satisfy the requirements of the Ohio EPA Director's Final Findings and Orders, June 10, 2004 (Ohio EPA 2004a).

The Proposed Plan summarizes information that can be found in greater detail in the Remedial Investigation (RI) Report (USACE 2005a), the RI Addendum (USACE 2008), and other documents contained in the Administrative Record file for CBP. The U.S. Army encourages the public to review these documents to gain a more comprehensive understanding of the AOC and activities that have been conducted to date.

Public Comment Period:
December 8, 2008 to January 7, 2008

Public Meeting:
The U.S. Army will hold an open house and public meeting to explain the Proposed Plan. Oral and written comments will also be accepted at the meeting. The open house and public meeting is scheduled for 6:00 pm, December 16, 2008, at the Newton Falls Community Center, 52 East Quarry Street, Newton Falls, Ohio 44444.

Information Repositories:
Information used in selecting the conclusion is available for public review at the following locations:

Reed Memorial Library
167 East Main Street
Ravenna, Ohio 44266
(330) 296-2827
Hours of operation:
9AM – 9PM Monday – Friday
9AM – 5PM Saturday
1PM – 5PM Sunday (September – May)

Newton Falls Public Library
204 South Canal Street
Newton Falls, Ohio 44444
(330) 872-1282
Hours of operation:
9AM – 8PM Monday – Thursday
9AM – 5PM Friday and Saturday
12PM – 5PM Sunday (September – June)

The **Administrative Record File**, containing information used in selecting the conclusion, is available for public review at the following location:

RVAAP
Building 1037
8451 State Route 5
Ravenna, Ohio 44266-9297
(330) 358-7311
Fax: (330) 358-7314

Note: Access is restricted to the Ravenna Army Ammunition Plant (RVAAP), but the file can be obtained or viewed with prior notice to RVAAP.

2.0 RVAAP AND AREA OF CONCERN BACKGROUND

RVAAP is approximately 4.8 km (3 miles) east-northeast of the city of Ravenna and approximately 1.6 km (1 mile) northwest of the city of Newton Falls. When the RVAAP Installation Restoration Program (IRP) began in 1989, RVAAP was identified as a 21,419-acre installation. The property boundary was resurveyed by the Ohio Army National Guard (OHARNG) over a 2-year period (2002 and 2003) and the actual total acreage of the property was found to be 21,683 acres. As of February 2006, a total of 20,403 acres of the former RVAAP have been transferred to the National Guard Bureau (NGB) and subsequently licensed to OHARNG for use as a military training site. The current RVAAP consists of 1,280 acres scattered throughout the Ravenna Training and Logistics Site (RTLS). The current RVAAP portions of the property are located within Portage County.

The RVAAP IRP includes investigation and cleanup related to past activities over the entire 21,683 acres of the former RVAAP. References to RVAAP in this document include the historical extent of RVAAP, which is the combined acreages of the current RTLS and RVAAP, unless otherwise specifically stated.

RVAAP is approximately 17.7 km (11 miles) long and 5.6 km (3.5 miles) wide bounded by State Route 5, the Michael J. Kirwan Reservoir, and the CSX System Railroad on the south; Garret, McCormick, and Berry roads on the west; the Norfolk Southern Railroad on the north; and State Route 534 on the east (Figure 1). RVAAP is surrounded by several communities: Windham on the north; Garrettsville 9.6 km (6 miles) to the northwest; Newton Falls 1.6 km (1 mile) to the southeast; Charlestown to the southwest; and Wayland 4.8 km (3 miles) to the south.

RVAAP was constructed in 1940 and 1941 for depot storage and ammunition assembly/loading and placed on standby status in 1950. Production activities were resumed from 1954 to 1957 and 1968 to 1972. Demilitarization activities, including disassembly of munitions and explosives melt-out and recovery, continued until 1992. When RVAAP was operational, the entire 21,683-acre parcel was a government-owned, contractor-operated industrial facility. The only activities still being carried out at RVAAP are environmental restoration, ordnance clearance and infrequent demolition of any unexploded ordnance discovered during investigation and remediation activities, and building decontamination and demolition.

CBP, designated as AOC RVAAP-49, was originally used as a lumber and building materials storage area. CBP was later used for open burning of non-explosive wastes, electrical components, wooden boxes and other combustible scrap. Operation of the burn pits is believed to have started shortly after RVAAP began operations and continued until the mid-1970s, although actual dates are unknown. In addition, disposal of non-hazardous waste material (e.g., concrete, metal, excess fill dirt and gravel) occurred at CBP; these materials were placed in various piles and elongated berms throughout the AOC.

CBP was identified as an AOC at RVAAP in the Preliminary Assessment (USACE 1996). The following environmental investigations have been completed for CBP:

- Phase I RI (USACE 2005a);
- Supplemental Phase II RI (USACE 2005b); and
- RI Addendum (USACE 2008).

CBP is currently licensed to the OHARNG and is part of the RTLS. OHARNG has established future land use for CBP as Dismounted Training, No Digging based on anticipated training, mission, and utilization of the RTLS. Future land use may also include the development of small arms ranges.

3.0 AREA OF CONCERN CHARACTERISTICS

CBP is located in the east-central area at the intersection of Paris-Windham Road and Lumber Yard Road, and is approximately 20

acres in size (Figures 2 and 3). The AOC is bordered by former railroad tracks to the north (Track 39) and south (Track 33), and Sand Creek to the west-northwest. The topography across the majority of CBP is relatively flat due to historical grading and fill activities. Undisturbed topography is characterized by gently undulating contours.

The AOC characteristics, nature and extent of contamination, and conceptual site model are based on the RIs conducted (USACE 2005a, 2005b, and 2008).

Soil sampling during the Phase I RI identified low levels of explosives, propellants, pesticides, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and semivolatile compounds (SVOCs) in surface soil at concentrations less than U.S. EPA Region 9 preliminary remediation goals (PRGs). There were no detections of these chemicals in subsurface soil. Arsenic, chromium, manganese, iron, and lead were detected at concentrations greater than RVAAP Facility-wide background values and U.S. EPA Region 9 PRGs in surface and subsurface soil samples.

Soil samples were collected from twelve berms and piles at the AOC and analyzed for explosives and metals. Explosive concentrations in the berms and piles were either less than detectable levels, or had concentrations less than reporting limits. Analyses of the metal concentrations identified two piles (Piles M and N) that contained residues with elevated lead and hexavalent chromium, respectively. Piles M and N warranted a non-time critical removal action (non-TCRA). The non-TCRA was performed in 2008, as described in Section 4.0 of this Proposed Plan.

Seven wet sediment samples were collected at CBP. Explosives, pesticides, and PCBs were not detected in sediment samples. Propellants, SVOCs, VOCs, were detected at levels less than U.S EPA Region 9 PRGs. Only three metals (iron, arsenic, and manganese) in two samples exceeded both facility-wide background values and U.S. EPA Region 9 PRGs.

Three surface water samples were collected in Sand Creek. There were no chemical concentrations exceeding facility-wide background values and U.S. EPA Region 9 PRGs. One chemical (arsenic) had a concentration of 3.2 µg/L, which is equal to the Facility-wide background value.

Eight groundwater wells were installed at CBP during the Phase I RI. No explosives, propellants, cyanide, pesticides, PCBs, or SVOCs were detected in the groundwater samples. One VOC (acetone) was detected at concentrations less than U.S. EPA Region 9 PRGs. One groundwater sample had metals (arsenic, calcium, cobalt, iron and manganese) concentrations greater than facility-wide background values and U.S. EPA Region 9 PRGs.

The primary contaminant migration pathways of concern for contaminants at CBP are overland runoff and transport in surface drainage channels, including Sand Creek. However, the CBP RI Report (USACE 2005a) concluded that the overall significance of this migration pathway is minimized because of the flat topography of the site, heavy vegetation, and the low concentrations of contaminants in soil and sediment. Similarly, based on contamination concentrations found in soil, leaching from the soil is not a significant pathway. No organic chemicals were detected in the groundwater, indicating that leaching and migration within groundwater has not occurred to date.

4.0 PRIOR REMOVAL ACTIONS

The RI data showed that two of the 12 debris piles and berms on CBP, designated as Piles M and N, contained residues with elevated concentrations of lead and hexavalent chromium, respectively. Based on process knowledge and visual inspection, all debris piles at CBP contained mostly materials and residues from previous industrial operations at RVAAP. Therefore, the debris piles and berms were considered as placed waste materials rather than conventional environmental media. Also, the debris piles and berms are small in extent compared to typical risk exposure units (e.g.,

one-fourth acre or larger). Due to these two factors, the piles and berms were not considered as viable exposure units for risk characterization along with soil and dry sediment in the rest of CBP.

To clean up contamination in Piles M and N, the U.S. Army completed a separate Engineering Evaluation/Cost Analysis (EE/CA) (USACE 2007a) and non-TCRA (USACE 2007b, 2007c). The non-TCRA was conducted to protect human health and the environment by minimizing the potential for contaminant dispersal from the debris piles to surrounding soil and dry sediment at CBP.

Piles M and N were excavated and disposed at off-site facilities. Confirmation sampling of soil within the excavation footprints was completed. Residual contaminant concentrations were equal to or less than residential cleanup goals established in the Action Memorandum (USACE 2007c). The confirmation samples showed residual contaminant levels in soil beneath Piles M and N less than the Ohio EPA target risk of 1E-05 (Ohio EPA 2004b) and well within the range of values observed in surrounding soil and dry sediment at CBP. As such, the residual concentrations meet the criteria for unrestricted use of the AOC, as documented in the RI Addendum completed in 2008 (USACE 2008).

5.0 SCOPE AND ROLE OF RESPONSE ACTION

CBP is currently licensed to the OHARNG and is part of the RTLS. OHARNG plans to use CBP for National Guard Dismounted Training, No Digging. This training use includes troop maneuvers on foot, bivouac training, as well as tracked and wheeled vehicle operations in the AOC. Future land use may also include the development of small arms ranges.

This Proposed Plan addresses soil and dry sediment at CBP. Debris piles and berms were previously addressed under the 2008 non-TCRA, and no further remedial actions are required for these materials. Remediation of groundwater, surface water, and wet sediment is not included in the scope of the Proposed Plan. These media will be addressed under future actions. However, the selected remedy for soil and dry sediment at CBP must be protective of these other media. Groundwater at CBP may also be monitored under the RVAAP Facility-Wide Groundwater Monitoring Program conducted in accordance with the Ohio EPA Director's Findings and Orders. Monitoring of surface water may be conducted in the future if conditions warrant.

6.0 SUMMARY OF HUMAN AND ECOLOGICAL RISKS

A baseline human health risk assessment (HHRA) was performed during the RI (USACE 2005a) and RI Addendum (USACE 2008) to evaluate potential risks and hazards from current and predicted future exposures to contaminated media at CBP. A National Guard Trainee, National Guard resident/trainer, National Guard Dust/Fire Control Worker, Security Guard/Maintenance Worker, Hunter, Resident Subsistence Farmer (adult and child) and Trespasser (adult and juvenile) were evaluated to cover a range of possible land uses.

The National Guard Trainee was identified as the most sensitive receptor under the intended future land use. The HHRA evaluated the Resident Farmer land use scenario to provide a full comparative range of risks under an unrestricted land use scenario. Receptors other than the National Guard Trainee are not anticipated at CBP due to intended future land use by the OHARNG. Therefore, this HHRA summary focuses on health effects for National Guard land use. Risk information for other land use scenarios and receptors is located in the RI and RI Addendum.

Because the National Guard Trainee is assumed to have the highest levels of exposure to contaminants among the four National Guard receptors, the preliminary cleanup goals established for the National Guard Trainee are also protective of other National Guard receptors. The National Guard Trainee is assumed to be exposed to deep surface soil (0-4 ft below ground surface [BGS]), surface water, sediment, and groundwater. Direct contact (e.g.,

ingestion, dermal contact, and inhalation) exposure pathways were evaluated.

Two chemicals of concern (COCs) were identified in soils and dry sediment for the National Guard Trainee. Neither of these COCs (arsenic and manganese) was identified for evaluation of remedial alternatives because the exposure point concentrations (EPCs) are less than background and/or National Guard Trainee preliminary cleanup goals developed for these chemicals. Additionally, two COCs [arsenic and benzo(a)pyrene] were identified in soils and dry sediment for the Resident Subsistence Farmer. These COCs were not identified for remedial alternatives because the EPCs in soil and dry sediment are less than background, and/or Resident Subsistence Farmer preliminary cleanup goals.

The twenty acres of habitat at CBP consist of many old-field communities with vegetation corridors and patches of forest vegetation. Sand Creek, which includes high quality aquatic habitat, forms the northwestern boundary of CBP. These habitats support a variety of wildlife, including small mammals, birds, insects, and fish. A number of State-listed species have been identified at RVAAP. However, no biological or ecological surveys have been conducted at CBP.

The ecological risk assessment for CBP evaluated risk to ecological receptors from contaminants in soil, surface water, and sediment. Some chemicals of ecological concern were identified, including metals, SVOCs, and one PCB. However, based on weight-of evidence factors, cleanup of soil and dry sediment to protect ecological receptors is not warranted. These weight-of-evidence factors are: (1) field observations and studies, (2) no ecological significant resources, (3) low levels of soil contamination, (4) no to low contaminant migration, (5) military training mission dominant land use, and (6) any habitat alteration for risk reduction outweighed by physical damage to habitat. The RI Addendum (USACE 2008) presents the weight-of-evidence evaluation and recommendation that no quantitative ecological preliminary cleanup goals be developed at CBP.

7.0 CONCLUSIONS AND RECOMMENDATIONS

As presented in the CBP RI Addendum (USACE 2008), no COCs in soil and dry sediment were identified for remediation for either a military land use (National Guard dismounted training – no digging) or for residential land use (Resident Subsistence Farmer). Also, there are no COCs in soil and dry sediment recommended for any ecological receptor. The U.S. Army, in consultation with Ohio EPA, is recommending no further action with respect to chemical contamination in soil and dry sediment at CBP. This recommendation is not a final decision. The U.S. Army, in consultation with Ohio EPA, will select the remedy for this AOC after reviewing and considering all comments submitted during the 30-day public comment period.

8.0 COMMUNITY PARTICIPATION

8.1 Community Participation

Public participation is an important component of remedy selection. The U.S. Army and Ohio EPA are soliciting input from the community on the preferred alternative. The comment period extends from December 8, 2008 to January 7, 2008. This period includes a public meeting at which the U.S. Army will present the Proposed Plan as agreed to by Ohio EPA. The U.S. Army will accept both oral and written comments at this meeting.

ADMINISTRATIVE RECORD FILE

RVAAP
Building 1037
8451 State Route 5
Ravenna, Ohio 44266-9297
(330) 358-7311
Fax: (330) 358-7314

Note: Access is restricted to the Ravenna Army Ammunition Plant (RVAAP), but the file can be obtained or viewed with prior notice to RVAAP.

8.2 Public Comment Period

The 30-day comment period is from December 8, 2008 to January 7, 2008, and provides an opportunity for public involvement in the decision-making process for the proposed action. All public comments will be considered by the U.S. Army and Ohio EPA before selecting the remedy. The public is encouraged to review and comment on this Proposed Plan. During the comment period, the public is encouraged to review documents pertinent to CBP. This information is available at the Information Repositories and online at: www.rvaap.org. To obtain further information, contact the RVAAP Facility Manager.

8.3 Written Comments

If the public would like to comment in writing on the Proposed Plan or other relevant issues, please deliver comments to the U.S. Army at the public meeting or mail written comments (postmarked no later than January 7, 2008).

POINT OF CONTACT FOR WRITTEN COMMENTS

Facility Manager
Ravenna Army Ammunition Plant
Building 1037
8451 State Route 5
Ravenna, Ohio 44266-9297
Office: (330) 358-7311
Fax: (330) 358-7314

8.4 Public Meeting

The U.S. Army will hold an open house and public meeting on this Proposed Plan on December 16, 2008, at 6:00pm, in the Newton Falls Community Center, 52 East Quarry Street, Newton Falls, Ohio, 44444, to accept comments. This meeting will provide an opportunity for the public to comment on the proposed action. Comments made at the meeting will be transcribed.

8.5 U.S. Army Review of Public Comments

The U.S. Army will review the public's comments as part of the process in reaching a final decision on the most appropriate action to be taken.

A Responsiveness Summary, a document that summarizes the U.S. Army's responses to comments received during the public comment period, will be included in the Record of Decision (ROD). The U.S. Army's final choice of action will be documented in the ROD. The ROD will be added to the RVAAP Administrative Record and Information Repositories.

INFORMATION REPOSITORIES

Reed Memorial Library
167 East Main Street
Ravenna, Ohio 44266
(330) 296-2827
Hours of operation:
9AM – 9PM Monday – Friday
9AM – 5PM Saturday
1PM – 5PM Sunday (September – May)

Newton Falls Public Library
204 South Canal Street
Newton Falls, Ohio 44444
(330) 872-1282
Hours of operation:
9AM – 8PM Monday – Thursday
9AM – 5PM Friday and Saturday
12PM – 5PM Sunday (September – June)

9.0 GLOSSARY OF TERMS

Administrative Record: A collection of documents, typically reports and correspondence, generated during site investigation and remedial activities. Information in the Administrative Record represents the information used to select the preferred alternative. It is available for public review at RVAAP, Building 1037; call (330) 358-7311 for an appointment.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law passed in 1980, commonly referred to as the Superfund Program. It provides liability, compensation, cleanup, and emergency response in connection with the cleanup of inactive hazardous substance release sites that endanger public health or the environment.

Chemical of Concern (COC): Site-specific chemical substance that potentially poses significant human health or ecological risks. COCs are typically further evaluated for remedial action.

Dry Sediment: Unconsolidated inorganic and organic material on the surface of the ground that occasionally may be covered with water, usually following a precipitation event. Dry sediments are not covered with water for extended periods and typically are dry within seven days. Dry sediments do not function as permanent habitat for aquatic organisms although they may serve as a natural medium for the growth of terrestrial organisms. These sediments are essentially soil that due to its location may be covered with water occasionally.

Ecological Receptor: A hypothetical plant, animal, or ecosystem exposed to an adverse condition.

Exposure Point Concentration (EPC): The EPC is used in the human health and ecological risk assessments to quantify exposures for all or part of an area of concern. The EPC is the smaller value between the maximum detected concentration and the calculated 95% upper confidence limit (UCL_{95}) of the average concentration for the area.

Human Receptor: A hypothetical person, based on current or potential future land use, who may be exposed to an adverse condition. For example, a National Guard Trainee is considered as a representative human receptor in this Proposed Plan.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): Abbreviation for the National Oil and Hazardous Substances Pollution Contingency Plan. It is the set of regulations that implement CERCLA and address responses to hazardous substances and pollutants or contaminants.

Record of Decision (ROD): Legal record signed by the U.S. Army and Ohio EPA. It describes the cleanup action or remedy selected for a site, the basis for selecting that remedy, public comments, responses to comments, and the estimated cost of the remedy.

Remedial Investigation (RI): CERCLA investigation that involves sampling environmental media, such as air, soil, and water, to determine the nature and extent of contamination and to calculate human health and environmental risks that result from the contamination.

Responsiveness Summary: A section of the ROD where the U.S. Army documents and responds to written and oral comments received from the public about the Proposed Plan.

Risk Assessment: An evaluation that determines potential harmful effects, or lack thereof, posed to human health and the environment due to exposure to chemicals found at a CERCLA site.

Target Risk: The Ohio EPA identifies 1E-05 as a target for cancer risk for carcinogens and an acceptable target hazard index of 1 for non-carcinogens (Ohio EPA 2004b).

Weight-of-Evidence: A procedure for identifying, organizing, and evaluating or

weighing various types, quantities, and qualities of information about natural resources, ecological risk from chemicals, and likely consequences of any remediation on those plants, animals, and ecological systems.

Wet Sediment: Unconsolidated inorganic and organic material that is suspended in and being transported by surface water or has settled out and deposited under surface waters. Wet sediment includes: materials below a body of surface water, materials at or below normal pool elevation for reservoirs, materials within the federal jurisdictional boundaries of wetlands, and materials below ponds and lagoons. Wet sediments may function as permanent habitat for aquatic organisms.

10.0 REFERENCES

Ohio Environmental Protection Agency (Ohio EPA) 2004a. *Director's Final Findings and Orders in the matter of U.S. Department of the Army, Ravenna Army Ammunitions Plant.* June 2004.

Ohio EPA 2004b. Division of Emergency and Remedial Response (DERR). *Technical Decision Compendium: Human Health Cumulative Carcinogenic Risk and Noncarcinogenic Hazard Goals for DERR Remedial Response and Office of Federal Facility Facilities Oversight,* April 28, 2004.

USACE (U.S. Army Corp of Engineers) 1996. *Preliminary Assessment for the Ravenna Army Ammunition Plant, Ravenna, Ohio.* February 1996.

USACE 2005a. *Final Remedial Investigation Report for the Central Burn Pits (RVAAP-49) at the Ravenna Army Ammunition Plant, Ravenna, Ohio.* September 2005.

USACE 2005b. *Final Sampling and Analysis Plan Addendum No. 1 Supplemental Phase II Remedial Investigations for Open Demolition Area #2 (RVAAP-02), Fuze and Booster Quarry Landfill/Ponds (RVAAP-16), and Central Burn Pits (RVAAP-49).* November 2005.

USACE 2007a. *Final Engineering Evaluation/Cost Analysis for Central Burn Pits at Ravenna Army Ammunition Plant in Ravenna, Ohio.* January 2007.

USACE 2007b. *Final Removal Action Work Plan for the Central Burn Pits at Ravenna Army Ammunition Plant in Ravenna, Ohio.* September 2007.

USACE 2007c. *Final Action Memorandum for Central Burn Pits at Ravenna Army Ammunition Plant in Ravenna, Ohio.* June 2007.

USACE 2008. *Final Remedial Investigation Report Addendum No. 1 for the RVAAP-49 Central Burn Pits at Ravenna Army Ammunition Plant in Ravenna, Ohio.* June 2008.

United States Environmental Protection Agency (USEPA) 2000. *Use of Non-Time Critical Removal Authority in Superfund Response Actions under CERLCA.* February 2000.

USEPA 2004. 2004 Region 9 Preliminary Remediation Goal Table, available at: http://www.epa.gov/region09/waste/sfund/prg/files/04prgtable.pdf, October 2004.

FIGURES

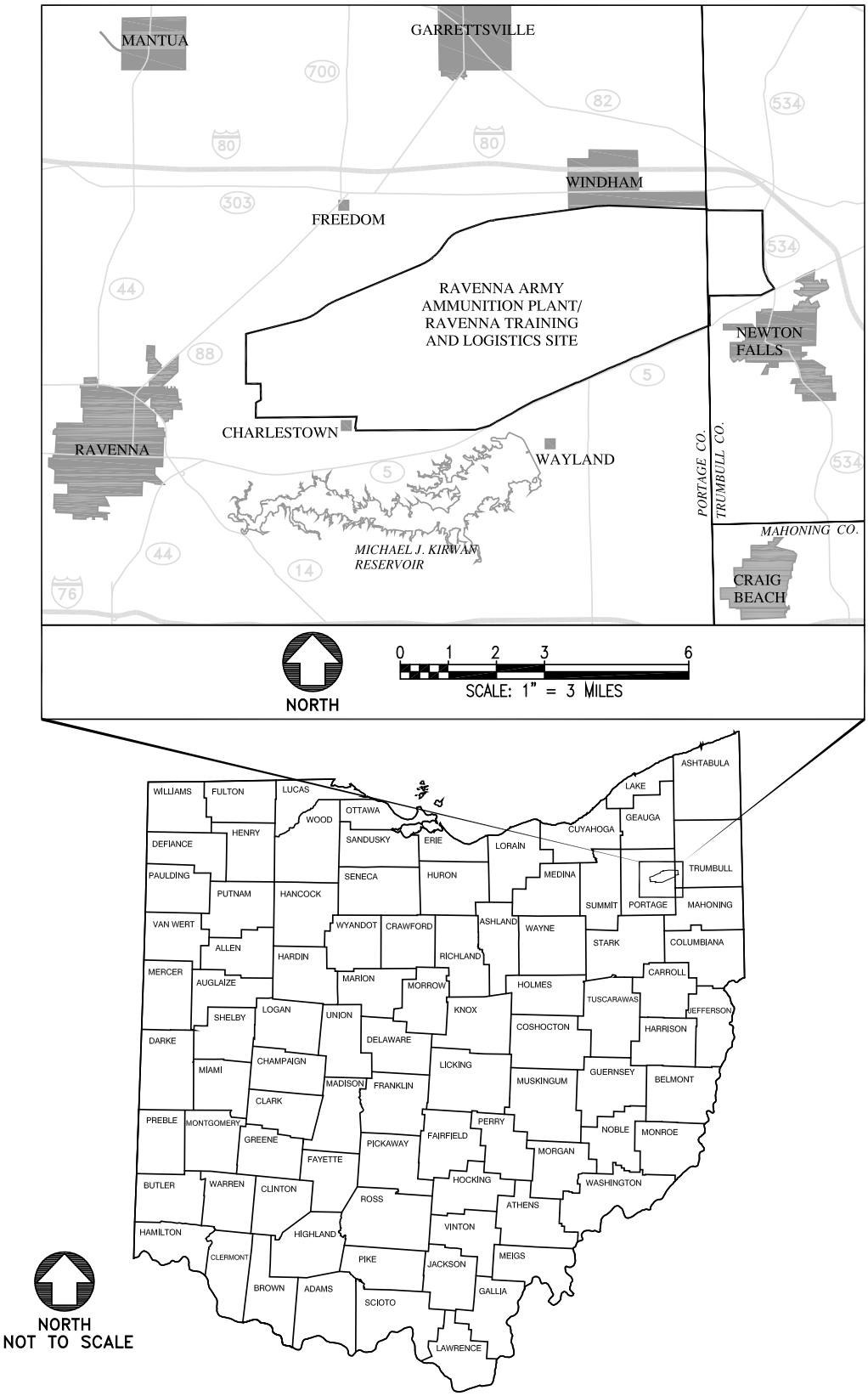
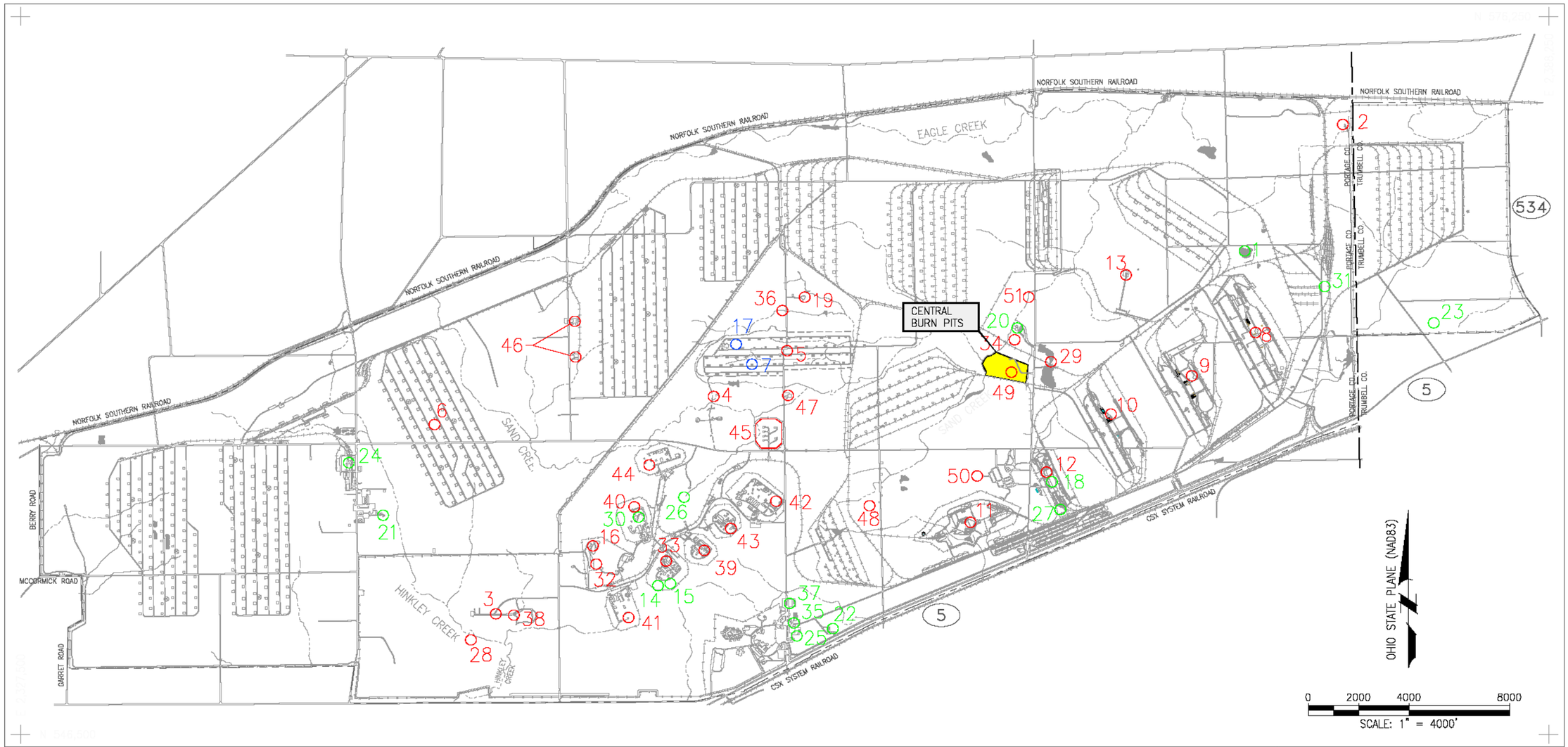


Figure 1. General Location and Orientation of RVAAP/RTLS



LEGEND:

1 ..... RAMSDELL QUARRY LANDFILL
2 ..... ERIE BURNING GROUNDS
3 ..... DEMOLITIONS AREA #1
4 ..... OPEN DEMOLITIONS AREA #2
5 ..... WINKLEPECK BURNING GROUNDS
6 ..... C BLOCK QUARRY
7 ..... BUILDING 1601 HAZARDOUS WASTE STORAGE
8 ..... LOAD LINE 1 AND DILUTION/SETTLING POND
9 .. LOAD LINE 2 AND DILUTION/SETTLING POND
10. LOAD LINE 3 AND DILUTION/SETTLING POND
11 . LOAD LINE 4 AND DILUTION/SETTLING POND
12 ..... LOAD LINE 12
13 ..... BUILDING 1200 AND DILUTION/SETTLING POND
14 ..... LOAD LINE 6, EVAPORATION UNIT
15 ..... LOAD LINE 6, TREATMENT PLANT
16 ..... FUZE AND BOOSTER QUARRY LANDFILL/PONDS
17 ..... DEACTIVATION FURNACE
18 ..... LOAD LINE 12 PINK WASTEWATER TREATMENT
19 ... LANDFILL NORTH OF WINKLEPECK BURNING GROUND
20 ..... SAND CREEK SEWAGE TREATMENT PLANT
21 ..... DEPOT SEWAGE TREATMENT PLANT
22 ..... GEORGE ROAD SEWAGE TREATMENT PLANT
23 ..... UNIT TRAINING SITE WASTE OIL TANK
24 ... RESERVE UNIT MAINTENANCE AREA WASTE OIL TANK
25 .... BUILDING 1034 MOTOR POOL WASTE OIL TANK
26 ..... FUZE BOOSTER AREA SETTLING TANKS
27 ..... BUILDING 854 PCB STORAGE
28 ..... MUSTARD AGENT BURIAL SITE
29 ..... UPPER AND LOWER COBB'S POND COMPLEX
30 ... LOAD LINE 7 PINK WASTEWATER TREATMENT PLANT
31 ..... ORE PILE RETENTION POND
32 ..... 40- AND 60-MM FIRING RANGE
33 ..... FIRESTONE TEST FACILITY
34 ..... SAND CREEK DISPOSAL ROAD LANDFILL
35 ..... BUILDING 1037 LAUNDRY WASTEWATER SUMP
36 ..... PISTOL RANGE
37 ..... PESTICIDE STORAGE BUILDING T-4452
38 ..... NACA TEST AREA
39 ..... LOAD LINE 5/FUZE LINE 1
40 ..... LOAD LINE 7/BOOSTER LINE 1
41 ..... LOAD LINE 8/BOOSTER LINE 2
42 ..... LOAD LINE 9/DETONATOR LINE
43 ..... LOAD LINE 10/PERCUSSION ELEMENT
44 ..... LOAD LINE 11/ARTILLERY PRIMER
45 ..... WET STORAGE AREA
46 ..... BUILDINGS F-15 AND F-16
47 ..... BUILDING T-5301 DECONTAMINATION
48 ..... ANCHOR TEST AREA
49 ..... CENTRAL BURN PITS
50 ..... ATLAS SCRAP YARD
51 ..... DUMP ALONG PARIS-WINDHAM ROAD
..... CERCLA
..... RCRA
..... OTHER REGULATORY
..... RAILROAD TRACKS
..... FENCE LINE
..... PROPERTY BOUNDARY
..... STREAM OR CREEK

US Army Corps of Engineers Louisville District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
LOUISVILLE, KENTUCKY

RVAAP/RTLS
RAVENNA, OHIO

DRAWN BY:	REV. NO./DATE:	CAD FILE:
P.H. / S.D.	REV. 2 / 07-27-04	/00064/DWGS/R73SITE2

File: W:\CAD Gov\Ravenna\PBC 2005\Location Map\RVAAP Site.dwg Layout: Central Burn User: williamsbe Jun 20, 2007 - 10:01am

Figure 1. RVAAP/RTLS Installation Map

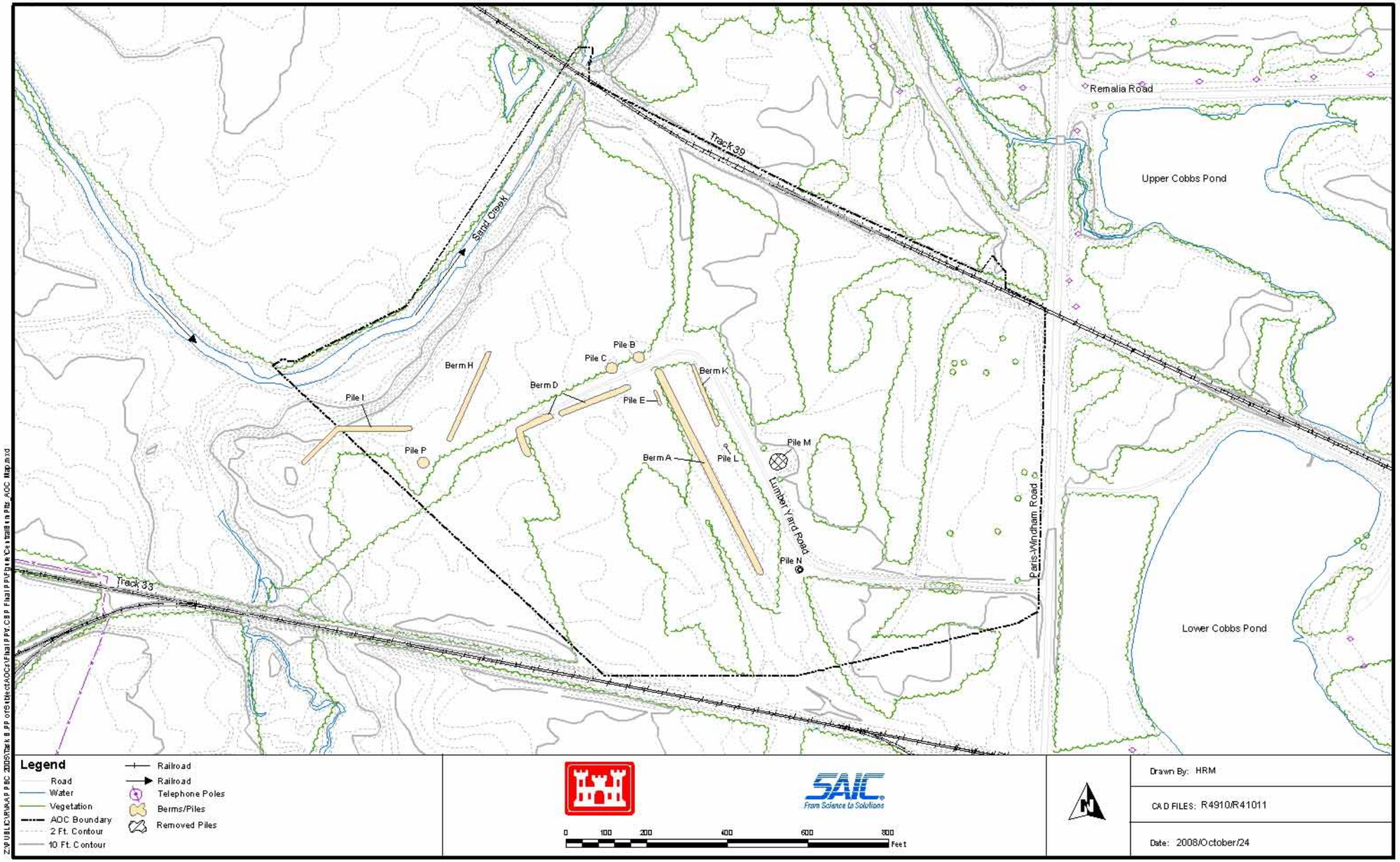


Figure 3. Central Burn Pits Area of Concern Map

DRAFT PROPOSED PLAN FOR SOIL AND DRY SEDIMENT AT THE RVAAP-49 CENTRAL BURN PITS
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
OCTOBER 15, 2008

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
Ohio EPA (T. Fisher)					
O-1.	Document Distribution List	Document Distribution List	The Document Distribution list incorrectly identifies Base Realignment and Closure Office as an organization for distribution.	Please change "Base Realignment and Closure Office" to "Base Realignment and Closure Division"	Agree. The text has been revised in the document distribution list, as recommended.
O-2.	Document Distribution List	Document Distribution List	The Document Distribution list incorrectly identifies Army Environmental Center as an organization for distribution.	Please change "Army Environmental Center" to "Army Environmental Command"	Agree. The text has been revised in the document distribution list, as recommended.
O-3.	Page 12, Figure 3	Page 12, Figure 3	This figure contains purple circles with lines through their centers. There is no corresponding symbol in legend.	Please add symbol to legend.	Agree. The purple circles will be identified in the legend as "Telephone Poles".
RTLS-Environmental (K. Elgin)					
R-1.	Pg 4, Line 36-43	Page 4, third paragraph	"CBP is currently licensed to the OHARNG and is part of the RTLS. OHARNG plans to use CBP for National Guard Dismounted training, No Digging. This training use includes troop maneuvers on foot, bivouac training as well as tracked and wheeled vehicle operations in the AOC. No digging below ground surface will be allowed. Future land use may also include the development of small arms ranges." We will be able to disturb (dig) to 4 feet bgs. Therefore, the above statement is inaccurate. Delete "No digging below ground surface will be allowed" as this site was cleaned up to residential use.	Delete "No digging below ground surface will be allowed" as this site was cleaned up to residential use.	Agree. The text has been deleted from Page 4, Line 36-43, as recommended.

DRAFT PROPOSED PLAN FOR SOIL AND DRY SEDIMENT AT THE RVAAP-49 CENTRAL BURN PITS
RAVENNA ARMY AMMUNITION PLANT, RAVENNA OHIO
COMMENT RESPONSE TABLE
OCTOBER 15, 2008

Comment Number	Page or Sheet	New Page or Sheet	Comment	Recommendation	Response
R-2.	Pg 5, Line 28-31	Page 5, second paragraph	"There are a few state-threatened species and state-listed species of concern at RVAAP, but none have been documented at CBP." This statement is inaccurate as a few implies 2 or 3 species have been identified. Additionally, there are not just State-threatened and State-listed Species of concern. There are also State endangered, State potentially threatened, and State special interest. species. Change to "A number of State-listed species have been identified at RVAAP. However, no biological or ecological surveys have been conducted at CBP."	Change to "A number of State-listed species have been identified at RVAAP. However, no biological or ecological surveys have been conducted at CBP."	Agree. The text on Page 5, Line 28-31, has been revised, as recommended.