

Draft

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

**Ravenna Army Ammunition Plant
Ravenna, Ohio**

September 8, 2008

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

Prepared for:



**US Army Corps
of Engineers®**

**United States Army Corps of Engineers
Louisville District**

Prepared by:



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

REPORT DOCUMENTATION PAGE

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14. ABSTRACT
This Proposed Planpresents the recommended alternative for soil and dry sediment at the Central Burn Pits.

15. SUBJECT TERMS
Human health risk, cleanup goals, remediation, ecological risk


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CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Science Applications International Corporation (SAIC) has completed the Draft 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

9/5/08

Date



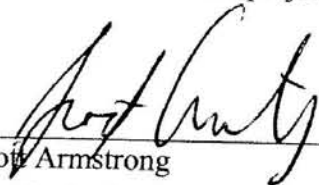
W. Kevin Jago
Independent Technical Review Team Leader

09/05/08

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

9/05/08

Date

Draft

**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
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Prepared for:

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

Prepared by:

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8866 Commons Boulevard, Suite 201
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September 8, 2008

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Ravenna, Ohio

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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 **1.0 INTRODUCTION**
2

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

23
24 The U.S. Army is issuing this Proposed Plan as
25 part of its public participation responsibilities
26 under Section 117(a) of the Comprehensive
27 Environmental Response, Compensation, and
28 Liability Act (CERCLA) of 1980, as amended
29 by the Superfund Amendments and
30 Reauthorization Act of 1986 and
31 Section 300.430(f)(2) of the National Oil and
32 Hazardous Substances Pollution Contingency
33 Plan (40 *Code of Federal Regulations* 300).
34 Selection and implementation of the remedy will
35 also satisfy the requirements of the Ohio EPA
36 Director’s Final Findings and Orders, June 10,
37 2004 (Ohio EPA 2004a).

38
39 The Proposed Plan summarizes information that
40 can be found in greater detail in the Remedial
41 Investigation (RI) Report (USACE 2005a), the
42 RI Addendum (USACE 2008), and other
43 documents contained in the Administrative
44 Record file for CBP. The U.S. Army encourages
45 the public to review these documents to gain a
46 more comprehensive understanding of the AOC
47 and activities that have been conducted to date.

Public Comment Period:

Month XX, 2008 to Month XX, 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, Month XX, 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
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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.

1 **2.0 RVAAP AND AREA OF CONCERN**
2 **BACKGROUND**

3
4 RVAAP is approximately 4.8 km (3 miles) east-
5 northeast of the city of Ravenna and
6 approximately 1.6 km (1 mile) northwest of the
7 city of Newton Falls. When the RVAAP
8 Installation Restoration Program (IRP) began in
9 1989, RVAAP was identified as a 21,419-acre
10 installation. The property boundary was
11 resurveyed by the Ohio Army National Guard
12 (OHARNG) over a 2-year period (2002 and 2003)
13 and the actual total acreage of the property was
14 found to be 21,683 acres. As of February 2006, a
15 total of 20,403 acres of the former RVAAP have
16 been transferred to the National Guard Bureau
17 (NGB) and subsequently licensed to OHARNG
18 for use as a military training site. The current
19 RVAAP consists of 1,280 acres scattered
20 throughout the Ravenna Training and Logistics
21 Site (RTLS). The current RVAAP portions of the
22 property are located within Portage County.

23
24 The RVAAP IRP includes investigation and
25 cleanup related to past activities over the entire
26 21,683 acres of the former RVAAP. References
27 to RVAAP in this document include the historical
28 extent of RVAAP, which is the combined
29 acreages of the current RTLS and RVAAP, unless
30 otherwise specifically stated.

31
32 RVAAP is approximately 17.7 km (11 miles)
33 long and 5.6 km (3.5 miles) wide bounded by
34 State Route 5, the Michael J. Kirwan Reservoir,
35 and the CSX System Railroad on the south;
36 Garret, McCormick, and Berry roads on the
37 west; the Norfolk Southern Railroad on the
38 north; and State Route 534 on the east (Figure
39 1). RVAAP is surrounded by several
40 communities: Windham on the north;
41 Garrettsville 9.6 km (6 miles) to the northwest;
42 Newton Falls 1.6 km (1 mile) to the southeast;
43 Charlestown to the southwest; and Wayland
44 4.8 km (3 miles) to the south.

45
46 RVAAP was constructed in 1940 and 1941 for
47 depot storage and ammunition assembly/loading
48 and placed on standby status in 1950. Production
49 activities were resumed from 1954 to 1957 and
50 1968 to 1972. Demilitarization activities,
51 including disassembly of munitions and

52 explosives melt-out and recovery, continued
53 until 1992. When RVAAP was operational, the
54 entire 21,683-acre parcel was a government-
55 owned, contractor-operated industrial facility.
56 The only activities still being carried out at
57 RVAAP are environmental restoration, ordnance
58 clearance and infrequent demolition of any
59 unexploded ordnance discovered during
60 investigation and remediation activities, and
61 building decontamination and demolition.

62
63 CBP, designated as AOC RVAAP-49, was
64 originally used as a lumber and building
65 materials storage area. CBP was later used for
66 open burning of non-explosive wastes, electrical
67 components, wooden boxes and other
68 combustible scrap. Operation of the burn pits is
69 believed to have started shortly after RVAAP
70 began operations and continued until the mid-
71 1970s, although actual dates are unknown. In
72 addition, disposal of non-hazardous waste
73 material (e.g., concrete, metal, excess fill dirt
74 and gravel) occurred at CBP; these materials
75 were placed in various piles and elongated berms
76 throughout the AOC.

77
78 CBP was identified as an AOC at RVAAP in the
79 Preliminary Assessment (USACE 1996). The
80 following environmental investigations have
81 been completed for CBP:

- 82
83 • Phase I RI (USACE 2005a);
84 • Supplemental Phase II RI (USACE 2005b);
85 and
86 • RI Addendum (USACE 2008).

87
88 CBP is currently licensed to the OHARNG and
89 is part of the RTLS. OHARNG has established
90 future land use for CBP as Dismounted Training,
91 No Digging based on anticipated training,
92 mission, and utilization of the RTLS. Future
93 land use may also include the development of
94 small arms ranges.

95
96 **3.0 AREA OF CONCERN**
97 **CHARACTERISTICS**

98
99 CBP is located in the east-central area at the
100 intersection of Paris-Windham Road and
101 Lumber Yard Road, and is approximately 20

1 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.,

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

6
7 To clean up contamination in Piles M and N, the
8 U.S. Army completed a separate Engineering
9 Evaluation/Cost Analysis (EE/CA) (USACE
10 2007a) and non-TCRA (USACE 2007b, 2007c).
11 The non-TCRA was conducted to protect human
12 health and the environment by minimizing the
13 potential for contaminant dispersal from the
14 debris piles to surrounding soil and dry sediment
15 at CBP.

16
17 Piles M and N were excavated and disposed at
18 off-site facilities. Confirmation sampling of soil
19 within the excavation footprints was completed.
20 Residual contaminant concentrations were equal
21 to or less than residential cleanup goals
22 established in the Action Memorandum (USACE
23 2007c). The confirmation samples showed
24 residual contaminant levels in soil beneath Piles
25 M and N less than the Ohio EPA target risk of
26 1E-05 (Ohio EPA 2004b) and well within the
27 range of values observed in surrounding soil and
28 dry sediment at CBP. As such, the residual
29 concentrations meet the criteria for unrestricted
30 use of the AOC, as documented in the RI
31 Addendum completed in 2008 (USACE 2008).

32 33 **5.0 SCOPE AND ROLE OF RESPONSE** 34 **ACTION**

35
36 CBP is currently licensed to the OHARNG and
37 is part of the RTLS. OHARNG plans to use
38 CBP for National Guard Dismounted Training,
39 No Digging. This training use includes troop
40 maneuvers on foot, bivouac training, as well as
41 tracked and wheeled vehicle operations in the
42 AOC. No digging below ground surface will be
43 allowed. Future land use may also include the
44 development of small arms ranges.

45
46 This Proposed Plan addresses soil and dry
47 sediment at CBP. Debris piles and berms were
48 previously addressed under the 2008 non-TCRA,
49 and no further remedial actions are required for
50 these materials. Remediation of groundwater,
51 surface water, and wet sediment is not included

52 in the scope of the Proposed Plan. These media
53 will be addressed under future actions. However,
54 the selected remedy for soil and dry sediment at
55 CBP must be protective of these other media.
56 Groundwater at CBP may also be monitored
57 under the RVAAP Facility-Wide Groundwater
58 Monitoring Program conducted in accordance
59 with the Ohio EPA Director's Findings and
60 Orders. Monitoring of surface water may be
61 conducted in the future if conditions warrant.

62 63 **6.0 SUMMARY OF HUMAN AND** 64 **ECOLOGICAL RISKS**

65
66 A baseline human health risk assessment
67 (HHRA) was performed during the RI (USACE
68 2005a) and RI Addendum (USACE 2008) to
69 evaluate potential risks and hazards from current
70 and predicted future exposures to contaminated
71 media at CBP. A National Guard Trainee,
72 National Guard resident/trainer, National Guard
73 Dust/Fire Control Worker, Security
74 Guard/Maintenance Worker, Hunter, Resident
75 Subsistence Farmer (adult and child) and
76 Trespasser (adult and juvenile) were evaluated to
77 cover a range of possible land uses.

78
79 The National Guard Trainee was identified as
80 the most sensitive receptor under the intended
81 future land use. The HHRA evaluated the
82 Resident Farmer land use scenario to provide a
83 full comparative range of risks under an
84 unrestricted land use scenario. Receptors other
85 than the National Guard Trainee are not
86 anticipated at CBP due to intended future land
87 use by the OHARNG. Therefore, this HHRA
88 summary focuses on health effects for National
89 Guard land use. Risk information for other land
90 use scenarios and receptors is located in the RI
91 and RI Addendum.

92
93 Because the National Guard Trainee is assumed
94 to have the highest levels of exposure to
95 contaminants among the four National Guard
96 receptors, the preliminary cleanup goals
97 established for the National Guard Trainee are
98 also protective of other National Guard
99 receptors. The National Guard Trainee is
100 assumed to be exposed to deep surface soil (0-4
101 ft below ground surface [BGS]), surface water,
102 sediment, and groundwater. Direct contact (e.g.,

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

3
4 Two chemicals of concern (COCs) were
5 identified in soils and dry sediment for the
6 National Guard Trainee. Neither of these COCs
7 (arsenic and manganese) was identified for
8 evaluation of remedial alternatives because the
9 exposure point concentrations (EPCs) are less
10 than background and/or National Guard Trainee
11 preliminary cleanup goals developed for these
12 chemicals. Additionally, two COCs [arsenic and
13 benzo(a)pyrene] were identified in soils and dry
14 sediment for the Resident Subsistence Farmer.
15 These COCs were not identified for remedial
16 alternatives because the EPCs in soil and dry
17 sediment are less than background, and/or
18 Resident Subsistence Farmer preliminary
19 cleanup goals.

20
21 The twenty acres of habitat at CBP consist of
22 many old-field communities with vegetation
23 corridors and patches of forest vegetation. Sand
24 Creek, which includes high quality aquatic
25 habitat, forms the northwestern boundary of
26 CBP. These habitats support a variety of
27 wildlife, including small mammals, birds,
28 insects, and fish. There are a few state-
29 threatened species and state-listed species of
30 concern at RVAAP, but none have been
31 documented at CBP.

32
33 The ecological risk assessment for CBP
34 evaluated risk to ecological receptors from
35 contaminants in soil, surface water, and
36 sediment. Some chemicals of ecological
37 concern were identified, including metals,
38 SVOCs, and one PCB. However, based on
39 weight-of-evidence factors, cleanup of soil and
40 dry sediment to protect ecological receptors is
41 not warranted. These weight-of-evidence factors
42 are: (1) field observations and studies, (2) no
43 ecological significant resources, (3) low levels of
44 soil contamination, (4) no to low contaminant
45 migration, (5) military training mission dominant
46 land use, and (6) any habitat alteration for risk
47 reduction outweighed by physical damage to
48 habitat. The RI Addendum (USACE 2008)
49 presents the weight-of-evidence evaluation and
50 recommendation that no quantitative ecological
51 preliminary cleanup goals be developed at CBP.

7.0 CONCLUSIONS AND RECOMMENDATIONS

52
53
54
55 As presented in the CBP RI Addendum
56 (USACE 2008), no COCs in soil and dry
57 sediment were identified for remediation for
58 either a military land use (National Guard
59 dismounted training – no digging) or for
60 residential land use (Resident Subsistence
61 Farmer). Also, there are no COCs in soil and dry
62 sediment recommended for any ecological
63 receptor. The U.S. Army, in consultation with
64 Ohio EPA, is recommending no further action
65 with respect to chemical contamination in soil
66 and dry sediment at CBP. This recommendation
67 is not a final decision. The U.S. Army, in
68 consultation with Ohio EPA, will select the
69 remedy for this AOC after reviewing and
70 considering all comments submitted during the
71 30-day public comment period.

8.0 COMMUNITY PARTICIPATION

8.1 Community Participation

72
73
74
75
76
77 Public participation is an important component of
78 remedy selection. The U.S. Army and Ohio EPA
79 are soliciting input from the community on the
80 preferred alternative. The comment period
81 extends from **Month XX, 2008 to Month XX,**
82 **2008.** This period includes a public meeting at
83 which the U.S. Army will present the Proposed
84 Plan as agreed to by Ohio EPA. The U.S. Army
85 will accept both oral and written comments at this
86 meeting.

87

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.

88
89 **8.2**

1 **8.2 Public Comment Period**

2
3 The 30-day comment period is from **Month XX,**
4 **2008 to Month XX, 2008**, and provides an
5 opportunity for public involvement in the
6 decision-making process for the proposed action.
7 All public comments will be considered by the
8 U.S. Army and Ohio EPA before selecting the
9 remedy. The public is encouraged to review and
10 comment on this Proposed Plan. During the
11 comment period, the public is encouraged to
12 review documents pertinent to CBP. This
13 information is available at the Information
14 Repositories and online at: www.rvaap.org. To
15 obtain further information, contact the RVAAP
16 Facility Manager.

17
18 **8.3 Written Comments**

19
20 If the public would like to comment in writing
21 on the Proposed Plan or other relevant issues,
22 please deliver comments to the U.S. Army at the
23 public meeting or mail written comments
24 (postmarked no later than **Month XX, 2008**).
25

**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

26
27

28 **8.4 Public Meeting**

29
30 The U.S. Army will hold an open house and
31 public meeting on this Proposed Plan on **Month**
32 **XX, 2008**, at 6:00pm, in the Newton Falls
33 Community Center, 52 East Quarry Street,
34 Newton Falls, Ohio, 44444, to accept comments.
35 This meeting will provide an opportunity for the
36 public to comment on the proposed action.
37 Comments made at the meeting will be
38 transcribed.

39 **8.5 U.S. Army Review of Public**
40 **Comments**

41
42 The U.S. Army will review the public's
43 comments as part of the process in reaching a
44 final decision on the most appropriate action to
45 be taken.
46
47 A Responsiveness Summary, a document that
48 summarizes the U.S. Army's responses to
49 comments received during the public comment
50 period, will be included in the Record of
51 Decision (ROD). The U.S. Army's final choice
52 of action will be documented in the ROD. The
53 ROD will be added to the RVAAP
54 Administrative Record and Information
55 Repositories.
56

57
58

INFORMATION REPOSITORIES

Reed Memorial Library
167 East Main Street
Ravenna, Ohio 44266
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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)

1 **GLOSSARY OF TERMS**

2
3 **Administrative Record:** A collection of
4 documents, typically reports and
5 correspondence, generated during site
6 investigation and remedial activities.
7 Information in the Administrative Record
8 represents the information used to select the
9 preferred alternative. It is available for public
10 review at RVAAP, Building 1037; call (330)
11 358-7311 for an appointment.

12
13 **Comprehensive Environmental Response,**
14 **Compensation, and Liability Act (CERCLA):**
15 A federal law passed in 1980, commonly
16 referred to as the Superfund Program. It provides
17 liability, compensation, cleanup, and emergency
18 response in connection with the cleanup of
19 inactive hazardous substance release sites that
20 endanger public health or the environment.

21
22 **Chemical of Concern (COC):** Site-specific
23 chemical substance that potentially poses
24 significant human health or ecological risks.
25 COCs are typically further evaluated for
26 remedial action.

27
28 **Dry Sediment:** Unconsolidated inorganic and
29 organic material on the surface of the ground
30 that occasionally may be covered with water,
31 usually following a precipitation event. Dry
32 sediments are not covered with water for
33 extended periods and typically are dry within
34 seven days. Dry sediments do not function as
35 permanent habitat for aquatic organisms
36 although they may serve as a natural medium for
37 the growth of terrestrial organisms. These
38 sediments are essentially soil that due to its
39 location may be covered with water
40 occasionally.

41
42 **Ecological Receptor:** A hypothetical plant,
43 animal, or ecosystem exposed to an adverse
44 condition.

45
46 **Exposure Point Concentration (EPC):** The
47 EPC is used in the human health and ecological
48 risk assessments to quantify exposures for all or
49 part of an area of concern. The EPC is the
50 smaller value between the maximum detected
51 concentration and the calculated 95% upper

52 confidence limit (UCL₉₅) of the average
53 concentration for the area.

54
55 **Human Receptor:** A hypothetical person, based
56 on current or potential future land use, who may
57 be exposed to an adverse condition. For example,
58 a National Guard Trainee is considered as a
59 representative human receptor in this Proposed
60 Plan.

61
62 **National Oil and Hazardous Substances**
63 **Pollution Contingency Plan (NCP):**
64 Abbreviation for the National Oil and Hazardous
65 Substances Pollution Contingency Plan. It is the
66 set of regulations that implement CERCLA and
67 address responses to hazardous substances and
68 pollutants or contaminants.

69
70 **Record of Decision (ROD):** Legal record signed
71 by the U.S. Army and Ohio EPA. It describes the
72 cleanup action or remedy selected for a site, the
73 basis for selecting that remedy, public comments,
74 responses to comments, and the estimated cost of
75 the remedy.

76
77 **Remedial Investigation (RI):** CERCLA
78 investigation that involves sampling
79 environmental media, such as air, soil, and
80 water, to determine the nature and extent of
81 contamination and to calculate human health and
82 environmental risks that result from the
83 contamination.

84
85 **Responsiveness Summary:** A section of the
86 ROD where the U.S. Army documents and
87 responds to written and oral comments received
88 from the public about the Proposed Plan.

89
90 **Risk Assessment:** An evaluation that
91 determines potential harmful effects, or lack
92 thereof, posed to human health and the
93 environment due to exposure to chemicals found
94 at a CERCLA site.

95
96 **Target Risk:** The Ohio EPA identifies 1E-05 as
97 a target for cancer risk for carcinogens and an
98 acceptable target hazard index of 1 for non-
99 carcinogens (Ohio EPA 2004b).

100
101 **Weight-of-Evidence:** A procedure for
102 identifying, organizing, and evaluating or

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

6
7 **Wet Sediment:** Unconsolidated inorganic and
8 organic material that is suspended in and being
9 transported by surface water or has settled out
10 and deposited under surface waters. Wet
11 sediment includes: materials below a body of
12 surface water, materials at or below normal pool
13 elevation for reservoirs, materials within the
14 federal jurisdictional boundaries of wetlands,
15 and materials below ponds and lagoons. Wet
16 sediments may function as permanent habitat for
17 aquatic organisms.

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80

FIGURES

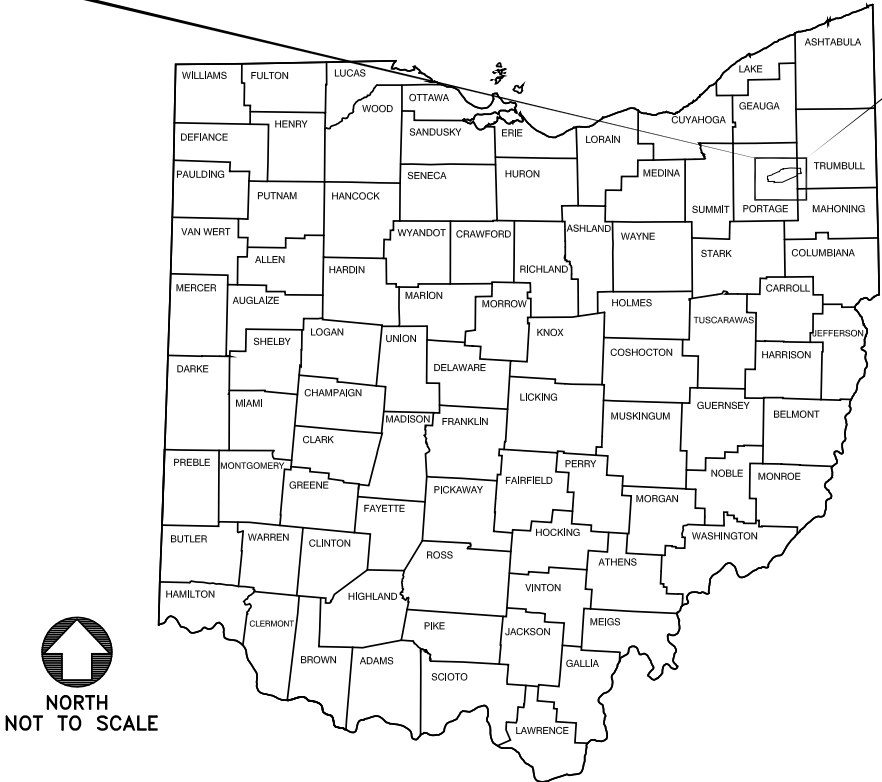
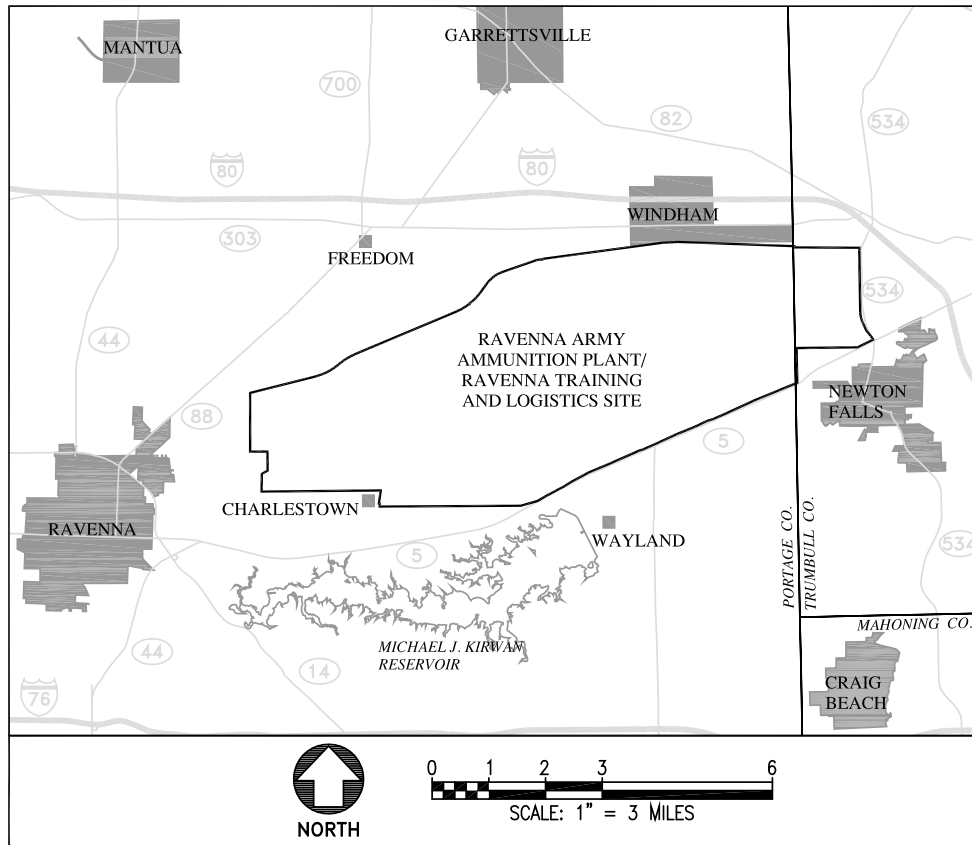
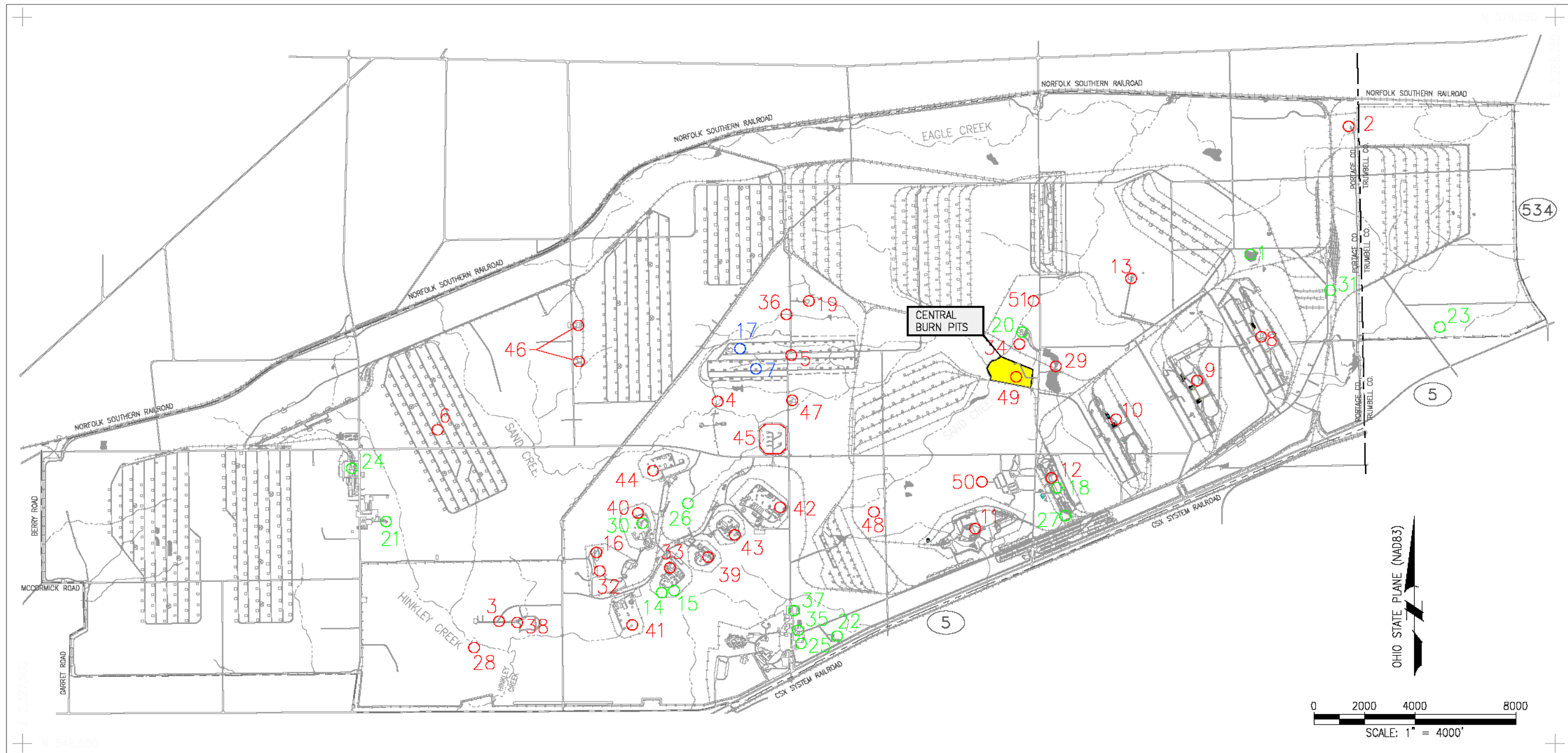



Figure 1. General Location and Orientation of RVAAP/RTLS

file: W:\CAD_Cov\Ravenna\PRC 2005\Location Map\RAAP Site.dwg Layout: Central Burn User: williamsb Jun 20, 2007 - 10:01am



LEGEND:

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


U.S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 LOUISVILLE, KENTUCKY
 US Army Corps of Engineers
 Louisville District

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

Figure 2. RVAAP/RTLS Installation Map

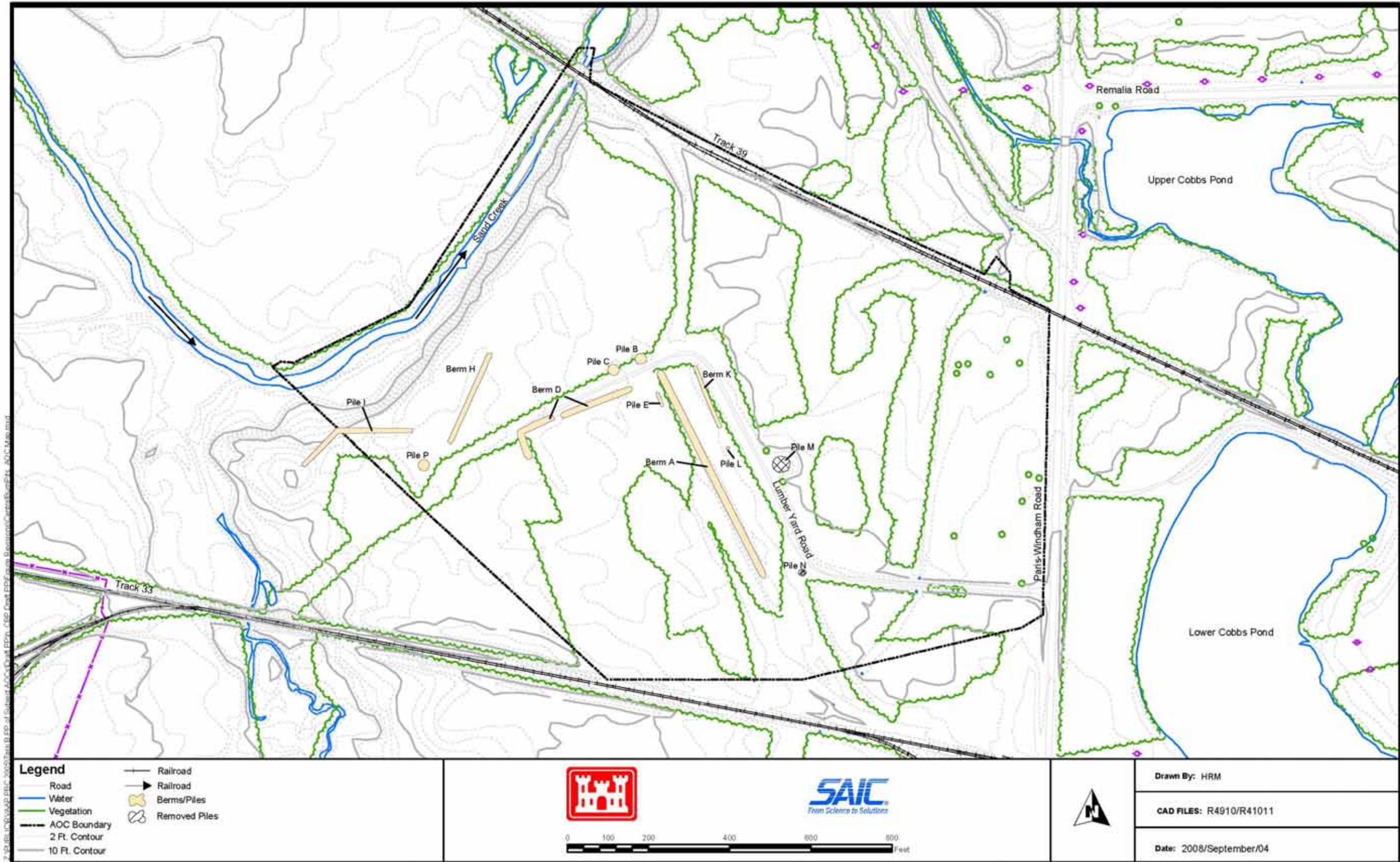


Figure 3. Central Burn Pits Area of Concern Map