Final

Record of Decision
for Soil and Dry Sediment at the
Erie Burning Grounds (RVAAP-02)

Ravenna Army Ammunition Plant
Ravenna, Ohio

September 2007

GSA 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:

SAIC
From Science to Solutions

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

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LIST OF ACRONYMS

AOC	Area of Concern
BRA	baseline risk assessment
BRACD	Base Realignment and Closure Division
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
COC	constituent of concern
COPC	constituent of potential concern
COPEC	constituent of potential ecological concern
DoD	U. S. Department of Defense
EBG	Erie Burning Grounds
EPC	exposure point concentration
IRP	Installation Restoration Program
MEC	munitions and explosives of concern
MMRP	Military Munitions Response Program
NCP	National Oil and Hazardous Pollution Contingency Plan
NGB	National Guard Bureau
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
RAB	Restoration Advisory Board
RI	Remedial Investigation
ROD	Record of Decision
RTLS	Ravenna Training and Logistics Site
RVAAP	Ravenna Army Ammunition Plant
SARA	Superfund Amendments and Reauthorization Act
SVOC	semivolatile organic compound
USACE	U. S. Army Corps of Engineers
UXO	Unexploded Ordnance
VOC	volatile organic compound
USEPA	U. S. Environmental Protection Agency

PART 1: THE DECLARATION

A. SITE NAME AND LOCATION

This Record of Decision (ROD) addresses soil and dry sediment contaminants at the Erie Burning Grounds (EBG), Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio (Figure 1). EBG is identified in the Army Environmental Database for Restoration as RVAAP-02. The RVAAP is located in east-central Portage County and southwestern Trumbull County, Ohio, 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. EBG is located in the northeast corner of the RVAAP. The U. S. Environmental Protection Agency (USEPA) Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Identifier for the RVAAP is OH5210020736.

B. STATEMENT OF BASIS AND PURPOSE

The US Army is the lead agency and presents the decision that No Further Action is required for soil and dry sediment at EBG. The No Further Action decision is selected in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the National Oil and Hazardous Pollution Contingency Plan (NCP). This decision is based on information contained in the Administrative Record file for EBG.

The Ohio Environmental Protection Agency (Ohio EPA), the lead regulatory agency, approved the *Addendum to the Phase II Remedial Investigation Report for Erie Burning Grounds at the Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2006) which recommended No Further Action for soil and dry sediment at EBG. The decision that No Further Action is required for soil and dry sediment at EBG will satisfy the requirements of the Ohio EPA Director's Final Findings and Orders (Ohio EPA 2004).

C. DESCRIPTION OF THE SELECTED REMEDY

No further action under CERCLA is necessary for soil and dry sediment at EBG. Groundwater and surface water at EBG will be addressed under future CERCLA decisions. Land use controls will not be implemented as part of this decision as no contaminants of concern (COCs) were identified in soil and dry sediment for the representative receptor (Hunter/Trapper and Fire/Dust Suppression Worker) and Resident Subsistence Farmer. However, land use controls may be implemented under the Military Munitions Response Program (MMRP), as part of future response actions for munitions and explosives of concern (MEC).

D. STATUTORY DETERMINATION

No further action for soil and dry sediment is protective of human health and the environment and meets the statutory requirements for cleanup standards established in Section 121 of CERCLA.

Because contamination present in soil and dry sediment at EBG does not pose a potential risk to human health or the environment, five-year reviews will not be required for soil and dry sediment.

E. AUTHORIZING SIGNATURES AND SUPPORT AGENCY ACCEPTANCE

Thomas E Lederle — 30 Oct 2007

Tom Lederle — Date

~~Division Chief~~ BRANCH Chief

Base Realignment and Closure Division (BRACD)

C. R. Korleski — 1/28/08

Christopher Korleski — Date

Director

Ohio Environmental Protection Agency

PART II: DECISION SUMMARY

A. SITE NAME, LOCATION, AND DESCRIPTION

EBG was identified as an AOC at the RVAAP in the Preliminary Assessment (USACE 1996). When the RVAAP Installation Restoration Program (IRP) began in 1989, the RVAAP (CERCLIS Identification Number OH5210020736) 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 21,683 acre 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 OHARNG Ravenna Training and Logistics Site (RTLS).

The RTLS is in northeastern Ohio within Portage and Trumbull counties, 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. The RVAAP portions of the property are solely located within Portage County. The RTLS/RVAAP is a parcel of property 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 (see Figures 1 and 2). The RTLS 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.

When the RVAAP was operational the RTLS did not exist and the entire 21,683-acre parcel was a government-owned, contractor-operated industrial facility. The RVAAP IRP encompasses investigation and cleanup of past activities over the entire 21,683 acres of the former RVAAP and therefore references to the RVAAP in this document include the historical extent of the RVAAP, consisting of the combined acreages of the current RTLS and RVAAP, unless otherwise specifically stated.

The only activities still being carried out at RVAAP are environmental restoration, ordnance clearance and infrequent demolition of any unexploded ordnance (UXO) discovered during investigation and remediation activities, and building decontamination and demolition.

EBG, designated as RVAAP-02, covers approximately 35 acres in the northeastern corner of the facility (Figures 2 and 3). In the 1990s, the area became inundated due to sedimentation, vegetation growth, and beaver activity, which plugged some drainage culverts and small streams that drained EBG. The resulting wetlands now cover approximately 60% of the AOC. The eastern end of the Track 49 embankment, the former burn area, the northern part of the gravel access road, and the T-Area are where most burning activities are known or suspected to have occurred.

The US Army is the lead agency for any remediation, decisions, and any applicable cleanup at the EBG. These activities are being conducted under the IRP. The Ohio EPA is the lead regulatory agency.

B. SITE HISTORY AND ENFORCEMENT ACTIVITIES

RVAAP was constructed in 1940 and 1941 for depot storage and ammunition assembly/loading and placed on standby status in 1950. Production activities resumed from 1954 to 1957 and 1968 to 1972. Demilitarization activities, including disassembly of munitions and explosives melt-out and recovery, continued until 1992.

The EBG area may have been used for brick manufacturing prior to its acquisition by the US Army in 1940. From 1941 to 1951, the AOC was used to perform open burning of propellants, bulk explosives, and explosives-contaminated materials, such as rags, paper, and sawdust. Metal items contaminated with explosives were also burned to make them safe for salvaging or recycling. Once burned, the metal items were recovered and processed as scrap. Ash residues were not removed. A wooden chute at the east end of Track 49 was used to move material to a burn area immediately north of the rail spur. A burning area, enclosed by water-filled ditches for fire control, was constructed south of Track 49. This area is informally called the T-Area. A borrow area between Tracks 49 and 10 may have also been used for open burning.

EBG was the subject of six previous investigations, the most recent of which include a Phase I Remedial Investigation (RI) (USACE 2001), a Phase II RI (USACE 2005), and a RI Addendum (USACE 2006). The purpose of the investigations was to confirm whether contamination was present at the AOC, to determine the nature and extent of chemicals of potential concern (COPCs), and to evaluate chemical risks and hazards to human and ecological receptors.

C. COMMUNITY PARTICIPATION

Using the RVAAP community relations program, the US Army and Ohio EPA have interacted with the public through news releases, public meetings, reading materials, direct mailings, an internet website, and receiving and responding to public comments. Specific items of the community relations program include the following:

Restoration Advisory Board: The US Army established a Restoration Advisory Board (RAB) in 1996 to promote community involvement in the U. S. Department of Defense (DoD) environmental clean-up activities and allow the public to review and discuss the progress with decision makers. RAB meetings are held every two months and are open to the public.

The RVAAP Community Relations Plan: The RVAAP Community Relations Plan (USACE 2003) was prepared to establish processes to keep the public informed of activities at the RVAAP. The plan is available in the Administrative Record at the RVAAP.

The RVAAP Internet Website: The US Army established an internet website in 2004 for the RVAAP. This internet website is accessible to the public at www.rvaap.org.

In accordance with Section 117(a) of CERCLA and Section 300.430(f)(2) of the NCP, the US Army released the *Proposed Plan for Soil and Dry Sediment at EBG* (USACE 2007) to the public on March 7, 2007. The Proposed Plan and other project-related documents were made available to the public in the Administrative Record maintained at the RVAAP and in the Information Repositories at Reed Memorial Library in Ravenna, Ohio and Newton Falls Public Library in Newton Falls, Ohio. A notice of availability for the Proposed Plan was sent to the media outlets; radio stations, television stations, and newspapers (*Newton Falls Press, Youngstown Vindicator, Warren Tribune Chronicle, Akron Beacon Journal, and Ravenna Record Courier*), as specified in the RVAAP Community Relations Plan (USACE 2003). The notice of availability initiated the 30-day public comment period beginning March 7, 2007 and ending April 5, 2007.

The US Army held a public meeting on March 13, 2007 at the Newton Falls Community Center to present the Proposed Plan to the public. At this meeting, representatives of the US Army provided information and answered questions about soil and dry sediment contamination at EBG. A transcript of the public meeting is available to the public and has been included in the Administrative Record. Responses to the verbal comments received at this meeting are included in the Responsiveness Summary, which is Part III of this ROD. No additional written comments were received during the public comment period.

The US Army considered public input on the Proposed Plan prior to selecting No Further Action for soil and dry sediment at EBG.

D. SCOPE AND ROLE OF RESPONSE ACTION

The overall program goal of the IRP at the RVAAP is to clean up previously contaminated lands to reduce contamination to concentrations that are not anticipated to cause risks, with primary emphasis on those areas that may impact human health and environment. EBG is one of 51 AOCs at RVAAP. This ROD addresses soil and dry sediment and does not address other potentially contaminated media in EBG. The selected remedy described in this ROD is consistent with the stated future action(s) to be performed at the RVAAP. Other contaminated media at EBG and other AOCs at the RVAAP will be managed by separate actions or decisions by the US Army and will be considered under separate RODs.

The contamination present in soil and dry sediment at EBG does not pose a potential risk to human health or the environment. Therefore these media are already within the acceptable level of risk for the intended land use, and the program goal of the IRP at RVAAP has been met for EBG.

E. SITE CHARACTERISTICS

The AOC characteristics, nature and extent of contamination, and conceptual site model are based on the RIs conducted at EBG (USACE 2001 and USACE 2005).

E.1 Topography/Physiology

Elevations at EBG range from approximately 285.9 to 287.2 m (938.1 to 942.4 ft) above mean sea level. Extensive beaver damming has turned approximately 60% of the AOC into wetlands (ponds with no emergent vegetation as well as vegetated areas). There are four main surface water basins occupying the lowlands. The largest pond, the North Surface Water Basin, has a depth of 5 ft in the former drainage channel, but is less than 1 ft in other areas. Surface water enters EBG through several culverts on the eastern and northern sides of the AOC. Water flows from north to south through the wetlands and exits EBG at the southwest corner through a large concrete culvert. There are no buildings and no historical evidence of permanent buildings. Wooden frame debris in the vicinity of the former burn area at the end of Track 49 was observed during low water conditions at the time of the Phase I RI and is believed to be remnants of the wooden chute used to offload materials for burning.

E.2 Geology

The regional geology at the RVAAP consists of horizontal to gently dipping bedrock strata of Mississippian and Pennsylvanian age overlain by varying thicknesses of unconsolidated glacial deposits. EBG is situated within a band of glacial outwash deposits (ODNR 1982). These deposits extend due westward approximately 4.8 km (3 mi) from EBG and southeastward beyond the property boundary.

At EBG, soils of the Sebring series silt loams are dominant. These soil types are associated with level to gently sloping, poorly drained soil of lacustrine or floodplain alluvial origin (USDA 1978). Soil types in the areas that were substantially reworked to prepare the area for use as an open burning ground (i.e., Track 49 area, borrow area, and access road) are sandy fill, sand, ballast material, and slag.

E.3 Hydrogeology

The water table at EBG is shallow, typically less than 10 ft, and groundwater flow is generally from north to south across the AOC consistent with surface drainage patterns. Because of the extensive wetland areas within the AOC, a high degree of interaction exists between groundwater and surface water. Results of slug tests performed during the Phase II RI reveal moderately high horizontal hydraulic conductivities in the unconsolidated material underlying EBG. The wells at EBG generally show conductivities ranging from 2.89×10^{-1} to 8.13×10^{-4} cm/sec.

E.4 Ecology

The dominant cover types at the RVAAP are forests and old fields of various ages. Much of the land at the RVAAP was cleared for agriculture before government acquisition of the property in the 1940s. Over 80 percent of the RVAAP is now in forest. Non-inundated portions of EBG are forested (southeastern and northwestern corners of the AOC) or covered with extremely dense scrub vegetation as in the T-Area and Track 49 right of way (Figure 3). Wetland vegetation and open water habitat are also present at EBG. This habitat covers approximately 60% of the site.

Both terrestrial and aquatic flora and fauna are found at EBG, including a few state-listed species (e.g., Marsh Wren) and unique natural resources (e.g., swamp forest along Blackberry Lane) (USACE 2006). Wetlands occupy a large part of the 35 acres of EBG. The wetlands constitute a high-quality habitat (Category 3) as shown by the Ohio Rapid Assessment Method (USACE 2005).

E.5 Nature and Extent

The nature and extent of contamination at EBG was determined based on the evaluation of the Phase I and II RI data (USACE 2001 and USACE 2005a). Contamination of other media and other AOCs are known to be present at the RVAAP. However, those media and AOCs are being addressed separately from this ROD.

Soil sampling during the RI phase identified contaminants in soil that included low levels of explosives, metals, and semivolatile organic compounds (SVOCs) along the Track 49 embankment, near the former burn area, and in the T-Area. Explosives were primarily detected along the north and south embankment of Track 49. The Track 49 embankment, gravel access road, and T-Area were the primary areas of metals contamination.

E.6 Contaminant Fate and Transport

The fate and transport analysis concluded that soil contaminants at EBG are not predicted to leach to groundwater beneath the AOC at concentrations above risk-based criteria or migrate beyond the AOC (USACE 2006). Therefore, soil remediation for protection of groundwater is not required at EBG.

F. CURRENT AND POTENTIAL FUTURE LAND USES

EBG is currently managed as “Restricted Access”. The AOC is considered environmentally valuable and the US Army intends to preserve the high quality wetlands at EBG. Additionally, there is a potential presence of MEC, although minimal MEC has been found. OHARNG plans to maintain EBG as a restricted access area in the future. Restricted access means that EBG will not be used for training purposes. Surveying, environmental sampling, and other essential security, safety, and natural resources management activities may be conducted only after personnel are properly briefed on potential hazards/sensitive areas. Individuals unfamiliar with the hazards/restrictions are escorted by authorized personnel at all times while in the restricted area (USACE 2006).

EBG is suspected to contain MEC based on operational history and field observations. Because of the unique hazards associated with MEC, response actions are regulated separately from environmental hazards at the federal level. The USEPA Military Munitions Rule (40 CFR Part 266) addresses the management and response for MEC. The Department of Defense implements the regulations through the MMRP, which is separate from IRP. MEC investigation and response at EBG, and land use controls as applicable, will be addressed under the MMRP.

G. SUMMARY OF SITE RISKS

The Baseline Risk Assessment (BRA) estimates risks that EBG potentially poses to both human and ecological receptors under current conditions. The BRA identifies the exposure pathways, contaminants of concern, if any, and provides a basis for the remedial decisions. This section of the ROD summarizes the results of the BRA for EBG, specifically for soil and dry sediment, as presented in detail in the following documents located in the Administrative Record and Information Repositories:

- *Phase II Remedial Investigation Report for the Erie Burning Grounds (RVAAP-02) at the Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2005).

- *Addendum to the Phase II Remedial Investigation Report for Erie Burning Grounds (RVAAP-02) at the Ravenna Army Ammunition Plant, Ravenna, Ohio* (USACE 2006).

G.1 Human Health Risk Assessment

The human health risk assessment at EBG evaluated risks and hazards for two potential human receptors (Hunter/Trapper and Fire/Dust Suppression Worker). Three media were evaluated: shallow surface soil (0 to 1 ft below ground surface), sediment, and surface water. Although they are not reasonably anticipated future land uses by OHARNG due to physical constraints (e.g., wetlands and MEC), a National Guard Trainee, Security Guard/Maintenance Worker, Resident Subsistence Farmer (adult and child), and Trespasser (adult and juvenile) were evaluated for exposure to soil, groundwater, wet sediment, and surface water. Because of these considerations, the Hunter/Trapper and Fire/Dust Suppression Worker are considered as representative receptors for reasonably anticipated land uses for EBG. The Resident Subsistence Farmer provides a baseline comparison to the Hunter/Trapper and Fire/Dust Suppression Worker.

No shallow surface soil (0 to 1-ft depth range) constituents of concern (COCs) were identified for the Hunter/Trapper and Fire/Dust Suppression Worker at EBG. Two COCs [arsenic and benzo(a)pyrene] were identified in surface soil and subsurface soil for the Resident Subsistence Farmer. Neither of these COCs requires remediation because the exposure point concentrations (EPCs) in surface and subsurface soil are less than the cleanup goals developed for these chemicals for a Resident Subsistence Farmer. Also, COC distribution in soil was limited to isolated occurrences (e.g., no definite areas or hotspots of contamination).

G.2 Ecological Risk Assessment Summary

The ecological risk assessment for EBG evaluated risk to plants and animals from contaminants in soil, surface water, and sediment. Chemicals of ecological concern identified for these media include metals, one explosive chemical, SVOCs, one volatile organic compound (VOC), and one pesticide. The RI Addendum (USACE 2006) presents a weight-of-evidence evaluation that no quantitative ecological cleanup goals are required at EBG. This weight-of- evidence includes discussion that reducing ecological risk from chemicals (i.e., by extensive soil excavation) could result in destruction of much high-quality wetland and other ecological habitat.

H. DOCUMENTATION OF NO SIGNIFICANT CHANGE

The *Proposed Plan for Soil and Dry Sediments at EBG* (USACE 2007) was released for public comment in March 2007. The Proposed Plan recommends No Further Action for soil and dry sediment at EBG. No significant changes, as originally identified in the Proposed Plan, were necessary or appropriate following the conclusion of the public comment period.

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PART III: RESPONSIVENESS SUMMARY FOR PUBLIC COMMENTS ON THE US ARMY PROPOSED PLAN FOR THE EBG AT RAVENNA ARMY AMMUNITION PLANT, RAVENNA, OH

A. OVERVIEW

On March 7, 2007, the US Army released the *Proposed Plan for Soil and Dry Sediment at Erie Burning Grounds (RVAAP-02) at the Ravenna Army Ammunition Plant* (USACE 2007) for public comment. A 30-day public comment period was held from March 7, 2007 to April 5, 2007. The US Army hosted a public meeting on March 13, 2007 to present the Proposed Plan and take questions and comments from the public for the record. The US Army recommended No Further Action for soil and dry sediment at EBG. During the public meeting, Ohio EPA concurred with the recommendation of No Further Action. Several oral comments were received at the public meeting and are addressed under Section B.

Based on comments received, the community voiced few objections to the No Further Action recommendation. All public input was considered during the selection of the final decision.

B. SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSES

Comments were received verbally during the public meeting. No written comments were received during the 30-day public comment period.

B.1 Oral Comments from Public Meeting

Oral comments received during the public meeting are grouped together in the following general topic categories: document availability, acreage, contaminant fate and transport, wetlands, MEC, land use, contaminants, cleanup levels, ecological risk assessment, location of AOC, drought conditions, and sample depths. The transcript from the meeting was incorporated into the Administrative Record. Oral comments and responses are paraphrased, as required for brevity and presentation in this section.

1. Document Availability:
   Comment: One commenter indicated they could not access the EBG Proposed Plan at the Newton Falls Library as stated in the Notice of Document Availability published in *The Villager*. The commenter also said the documents were not available online.

   Response: Following the public meeting, availability of the documents in the Administrative Record, Information Repositories, and on the website was verified.

2. Acreage
   Comment: One commenter voiced uncertainty as to the accuracy of the acreage quoted in the 2006 report.

Response: Following the public meeting, the acreage in the EBG RI Addendum (USACE 2006) was verified as correct.

3. Contaminant Fate and Transport

Comment: One commenter asked for further clarification of the phrase "contaminant fate and transport" and if it identified where contaminants were going and how they will get there.

Response: Contaminant fate and transport assesses the stability of chemicals in soils, (i.e., would the chemicals move or bind in soils). The assessment takes into account the chemical and physical aspects of the soil, and the chemistry of the compounds. An evaluation is performed by computer models to assess the movement and final destination (fate and transport) of these contaminants.

4. Wetlands

Comment: One commenter asked how the wetlands were delineated—whether it was based on wetland soils or because the introduction of beavers (and beaver dams) had created a wetland environment. The commenter also asked which is protected under our federal law.

Response: As part of the previous investigations, scientists went to EBG and surveyed the area. The scientists looked for wetland vegetation, wetland hydrology, and wetland soils. All three of these indicators must be present to qualify the area as a wetland. The scientists determined which portions of the site were considered wetland areas. A report was completed in 2005 assessing the quality of the wetland at EBG using the Ohio Rapid Assessment Method, which is a method established by the State of Ohio to help determine the ecological quality of a wetland.

5. Wetlands

Comment: The same commenter as above asked for confirmation that "wetland soils" were present in addition to a wetland habitat.

Response: Wetland soils, as well as wetland hydrology and vegetation, were present at Erie Burning Grounds, as identified as part of the wetland area investigation.

6. MEC

Comment: One commenter asked if the magnetometers that are to be used for testing (under future MMRP activities) will be able to detect ferrous and nonferrous MC and MEC, since 40 millimeter grenade rounds are primarily nonferrous material.

Response: Different types of magnetometers would be used. These types include those that detect ferrous munitions and ones that detect nonferrous munitions.

7. Land Use

Comment: One commenter asked whether a mechanism is in place to ensure EBG will remain under restricted use unless the areas are cleaned up to a higher level for another use. The

commenter asked if there are safeguards against it being forgotten or the documentation being lost that the site is only acceptable for restricted use.

Response: This is a government to government transfer. The federal government will maintain a property management plan, wherein these restrictions and so forth will be documented, and, will include provisions to go along with the property. If in the future the property is sold to private ownership, land use controls would be institutionalized legally so that necessary restrictions would be maintained.

8. Contaminants

Comment: One commenter asked why arsenic is not a concern at EBG even though it is identified at elevated levels.

Response: The risk-based cleanup goals were developed that are conservative and applicable to the intended future land use. At EBG, the detected chemicals (including arsenic) were less than the human health risk based cleanup goals. Therefore, No Further Action was recommended for soil and dry sediment.

9. Cleanup Levels

Comment: One commenter wanted to confirm that cleanup levels were based on expected use—that higher levels of contaminants are acceptable under a restricted use scenario than a residential land use scenario.

Response: The cleanup goals were based on the land use scenario. Generally, higher levels of contaminants are acceptable under a restricted land use scenario than a residential land use scenario.

10. MEC

Comment: One commenter asked why EBG was going to be released to the OHARNG with No Further Action even though the Proposed Plan states that MEC may exist throughout the AOC.

Response: EBG will be released to the OHARNG after the MMRP response is complete.

11. Contaminants

Comment: One commenter asked for clarification of how EBG can be released with No Further Action when two COCs, arsenic and benzopyrene, have been identified in surface soils.

Response: Risk-based cleanup goals were calculated for the COCs identified, arsenic and benzo(a)pyrene. The EPC of arsenic and benzo(a)pyrene are less than the cleanup goals for these COCs for the Resident Subsistence Farmer Scenario; therefore No Further Action is appropriate.

12. Ecological Risk Assessment

Comment: One commenter asked for clarification regarding the EBG Phase II RI Addendum which states there is a potential for contaminant migration to surrounding soils, surface water, sediment or groundwater, and the fact that no quantitative ecological preliminary cleanup goals have been developed under the no action alternative of the Proposed Plan for EBG.

Response: One of several specific purposes of the Remedial Investigation phase of the CERCLA process is to evaluate the potential for contaminant migration. This evaluation includes defining the current conditions (e.g., nature and extent of contaminants at the present time) and predictive analyses as to the possibility of movement in the future. These evaluations were conducted for EBG. A low likelihood exists for contaminant movement from soil to either surface water or to groundwater in the future.

No quantitative ecological cleanup goals were required for EBG based on weight-of-evidence that: (1) field surveys show the ecosystem at EBG is healthy and functioning well; (2) overall ecological risk is relatively low; (3) low likelihood of contaminant movement from soil to adjacent wetland; (4) an abundance of surrounding high-quality habitat so that animals are likely to move about widely and not reside solely at EBG (reduced exposures); and (5) soil remediation to eliminate already low ecological risk could potentially result in more habitat damage than caused by the chemical risk.

13. Ecological Risk Assessment

Comment: One commenter asked if no fish samples were collected for EBG because of shallow water or because of another reason.

Response: The animals within the surface water environment of EBG were evaluated in a separate facility-wide investigation of surface water throughout the Ravenna facility, which looked at index organisms which live in the sediment layers, as well as any aquatic life. This assessment was done for the entire installation and is addressed in a separate report.

14. Location of AOC

Comment: One commenter asked if the EBG was in the northeastern quadrant.

Response: That is correct.

15. Drought Conditions

Comment: One commenter asked what would happen if a drought occurred and the water in the beaver-created wetlands was to recede and expose the drainage. The commenter asked what would be done if the soils, which contain chemicals of concern and explosive constituents, were to become airborne and potentially be carried into populated areas. The commenter indicated that the vegetation would no longer be present in drought conditions.

Response: Sediments that are under water will be part of the scope of the future actions and decisions related to surface water. This particular scope just addresses the soils that currently that lie above the waterline.

17. Drought Conditions

Comment: The commenter asked if there was a contingency currently in place for drought conditions at EBG.

Response: A contingency would be evaluated as part of the future surface water action.

18. MEC

Comment: One commenter asked if munitions were buried at 4 feet below ground surface and exploded as was common practice at ODA 2.

Response: No available information indicates that munitions were buried at four feet bgs at EBG.

19. Sample Depths

Comment: One commenter asked for clarification about the intervals of soil sampling at EBG.

Response: The EBG soil testing went to three foot depths. The soil investigations at EBG that were historically done from 1999 to 2005 evaluated both surface soils, 0 to 1, and subsurface soils, 1 to 3 feet. The detections that we saw in those soil samples were primarily within the 0 to 1 foot interval of the soils.

B.2 Written Comments

No written comments were received for EBG during the public comment period.

C. TECHNICAL AND LEGAL ISSUES

There were no technical or legal issues raised during the public comment period.

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REFERENCES

ODNR (Ohio Department of Natural Resources) 1982. "Glacial Geology of Northeastern Ohio. ODNR Division of Geology," Geological Survey Bulletin No. 68, 77 pp. 1982.

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

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

USACE 2001. *Phase I Remedial Investigation Report for the Erie Burning Grounds at the Ravenna Army Ammunitions Plant, Ravenna, Ohio*, DACA62-94-D-0029, Delivery Order 0072, Final, December 2001.

USACE 2003. *Ravenna Army Ammunition Plant, Ravenna, Ohio, Community Relations Plan*. September 2003.

USACE 2005. *Phase II Remedial Investigation Report for the Erie Burning Grounds (RVAAP-02) at the Ravenna Army Ammunition Plant, Ravenna, Ohio*, GS-10F-0076J, Delivery Order W912QR-05-F-0033, Final, September 2005.

USACE 2006. *Addendum to the Phase II Remedial Investigation Report for Erie Burning Grounds at the Ravenna Army Ammunition Plant, Ravenna, Ohio*, GS-10F-0076J, Delivery Order W912QR-05-F-0033, Final, September 2006.

USACE 2007. *Proposed Plan for Soil and Dry Sediment at Erie Burning Grounds (RVAAP-02), Ravenna Army Ammunition Plant, Ravenna, Ohio*, GS-10F-0076J, Delivery Order W912QR-05-F-0033, Final, February 2007.

USDA (U.S. Department of Agriculture) 1978. Soil Survey of Portage County, Ohio. June 1978.

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FIGURES

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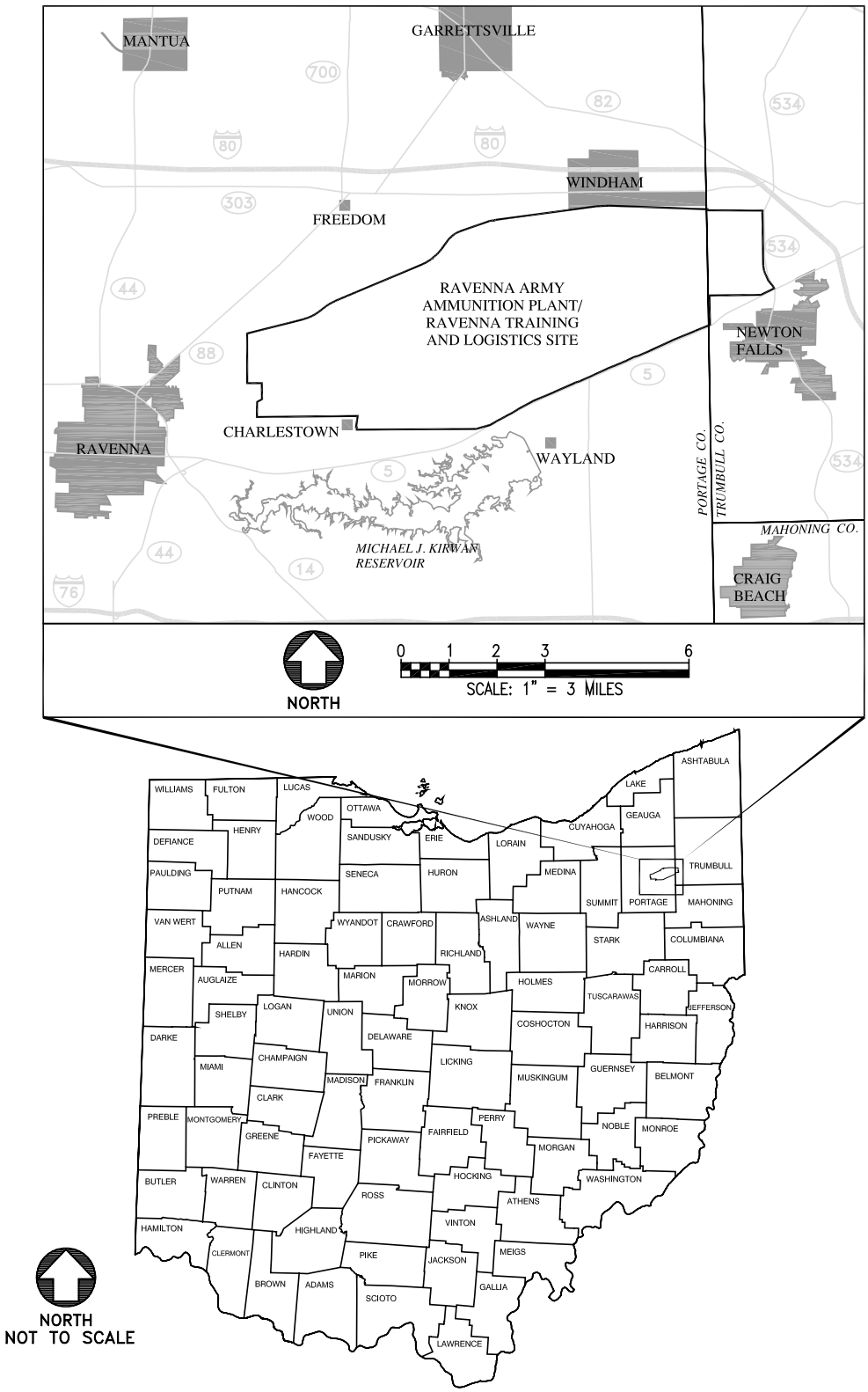

Figure 1. General Location and Orientation of RVAAP/RTLS

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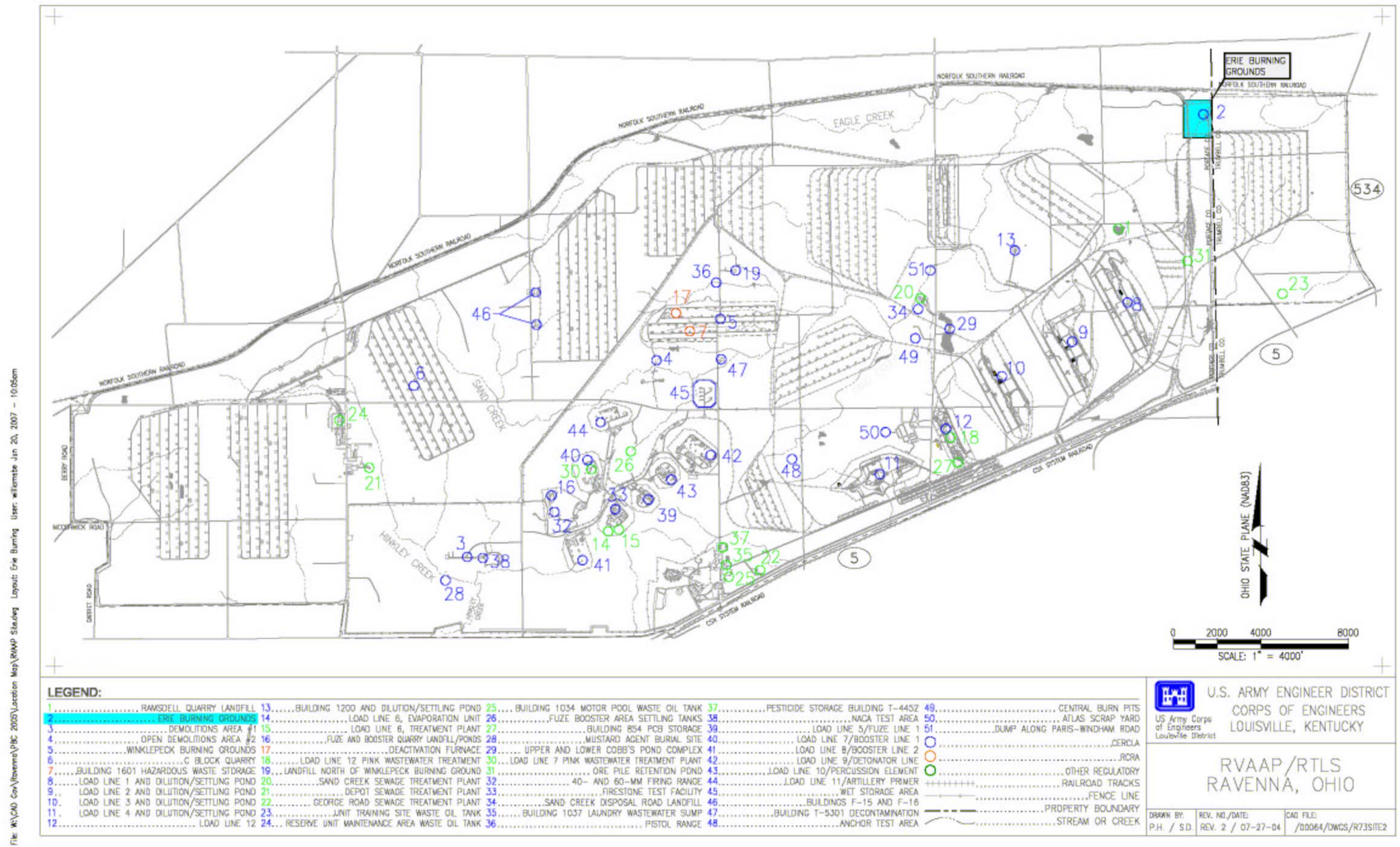

LEGEND:

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 ..... FUZE BOOSTER AREA SETTLING TANKS
39 ..... BUILDING 854 PCB STORAGE
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

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Figure 2. RVAAP/RTLS Installation Map

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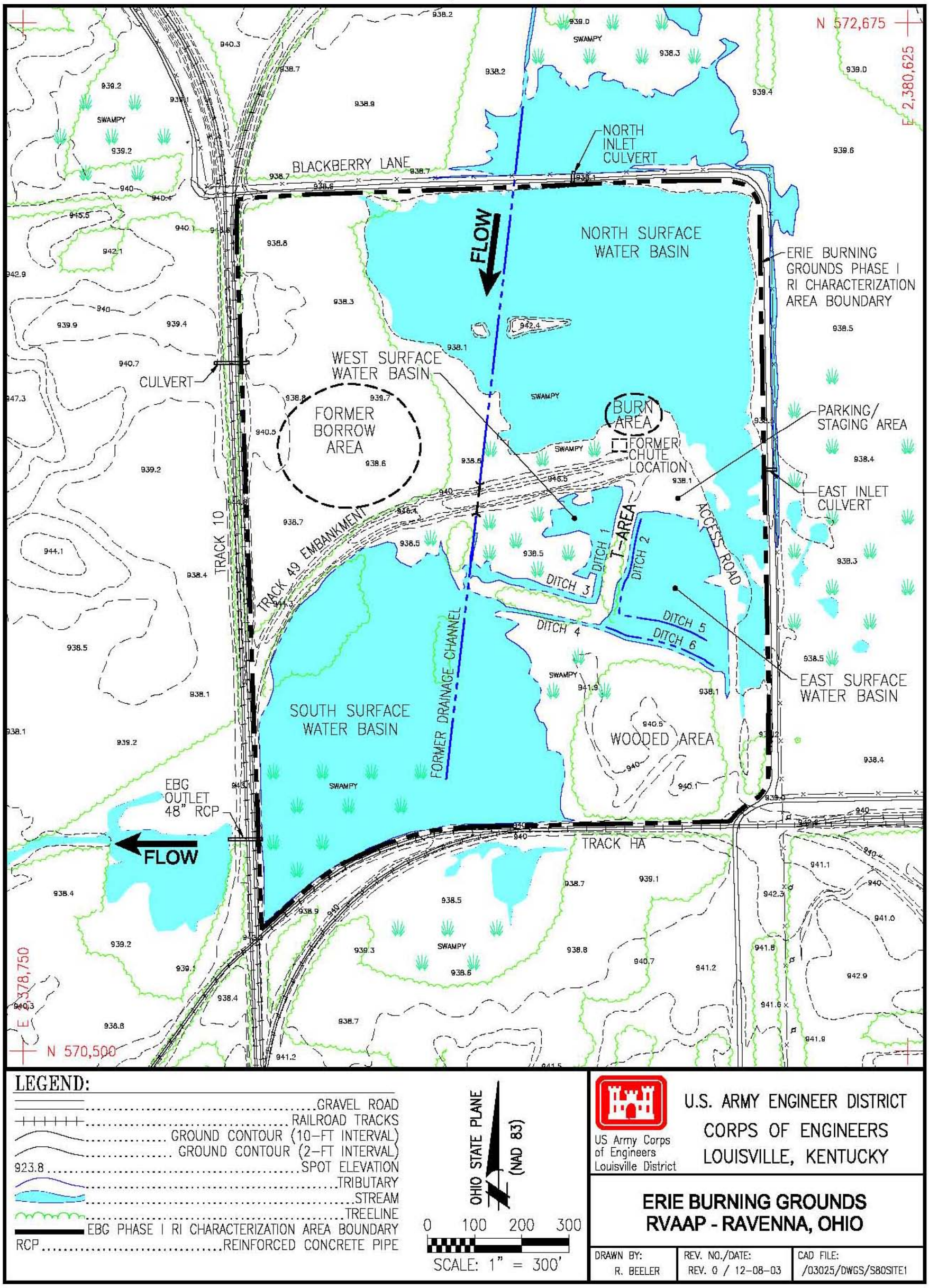

Figure 3. Erie Burning Grounds Area of Concern Map

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