Final

Record of Decision
for Soil, Sediment, and Surface Water
at RVAAP-29 Upper and Lower Cobbs Ponds

Former Ravenna Army Ammunition Plant
Portage and Trumbull Counties, Ohio

Contract No. W912QR-15-C-0046

Prepared for:

US Army Corps of Engineers®

U.S. Army Corps of Engineers
Louisville District

Prepared by:

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8866 Commons Boulevard, Suite 201
Twinsburg, Ohio 44087

February 22, 2019

Final

Record of Decision for Soil, Sediment, and Surface Water at RVAAP-29 Upper and Lower Cobbs Ponds

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None.

14. ABSTRACT

This Record of Decision documents the selection of No Further Action (NFA) with respect to soil, sediment, and surface water to attain Unrestricted (Residential) Land Use at the Upper and Lower Cobbs Ponds AOC. In addition, this document presents the physical characteristics, geology, and hydrogeology of Upper and Lower Cobbs Pond. This document also summarizes the nature and extent of contamination in soil, sediment, and surface water; contaminant fate and transport; and human health and ecological risk assessments. These evaluations indicate there are no chemicals of concern (COCs) that pose unacceptable risk.

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Ohio Environmental Protection Agency

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March 28, 2019

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Re: US Army Ravenna Ammunition Plt RVAAP
Remediation Response
Project records
Remedial Response
Portage County
267000859028

Subject: Final Record of Decision (ROD) for "Soil, Sediment and Surface Water at RVAAP-29 Upper and Lower Cobbs Ponds"

Dear Mr. Connolly:

Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR) has received and reviewed the Final Record of Decision (ROD) for "Soil, Sediment, and Surface Water at RVAAP-29 Upper and Lower Cobbs Ponds". This document was received by Ohio EPA NEDO on February 22, 2019. It was prepared by Leidos.

Ohio EPA has no comments on the Final Record of Decision (ROD) for Soil, Sediment, and Surface Water at RVAAP-29 Upper and Lower Cobbs Ponds. Based on the information contained in the Final ROD document, other investigation documents and reports, and Ohio EPA's oversight participation during the investigation, Ohio EPA concurs with the Final ROD document for Upper and Lower Cobbs Ponds recommending No Further Action.

If you have any questions concerning this letter, please contact Nicholas Roope at (330) 963-1235 or by email at Nicholas.roope@epa.ohio.gov.

Sincerely,

James Sferra, Chief
Division of Environmental Response and Revitalization

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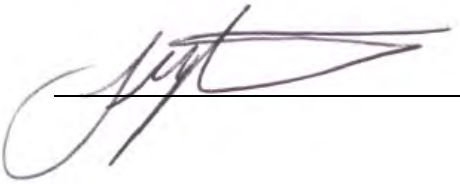
CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Leidos has completed the Record of Decision for Soil, Sediment, and Surface Water at RVAAP-29 Upper and Lower Cobbs Ponds at the Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, 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 U.S. Army Corps of Engineers policy. In addition, an independent verification was performed to ensure all applicable changes were made per regulatory and Army comments.

Richard Sprinzl, P.E. — February 22, 2019
Study/Design Team Leader — Date

Jed Thomas, P.E., PMP — February 22, 2019
Independent Technical Review Team Leader — Date

Significant concerns and the explanation of the resolution are documented within the project file. As noted above, all concerns resulting from independent technical review of the project have been considered.



February 22, 2019
Date

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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
Twinsburg, Ohio 44087

February 22, 2019

DOCUMENT DISTRIBUTION
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ARNG = Army National Guard.
CO = Central Office.
I&E = Installations & Environment.
NEDO = Northeast District Office.
OHARNG = Ohio Army National Guard.
Ohio EPA = Ohio Environmental Protection Agency.
REIMS = Ravenna Environmental Information Management System.
SWDO = Southwest District Office.
USACE = U.S. Army Corps of Engineers.

TABLE OF CONTENTS

LIST OF FIGURES ii
LIST OF APPENDICES ii
ACRONYMS AND ABBREVIATIONS iii

PART I: THE DECLARATION 1
A SITE NAME AND LOCATION 1
B STATEMENT OF BASIS AND PURPOSE 1
C DESCRIPTION OF THE SELECTED REMEDY 2
D STATUTORY DETERMINATIONS 2
E AUTHORIZING SIGNATURE AND APPROVAL 2

PART II: DECISION SUMMARY 3
A SITE NAME, LOCATION, AND DESCRIPTION 3
B SITE HISTORY AND ENFORCEMENT ACTIVITIES 4
B.1 Load Line 3 5
B.2 Load Line 12 6
C COMMUNITY PARTICIPATION 6
D SCOPE AND ROLE OF RESPONSE ACTIONS 7
E SITE CHARACTERISTICS 7
E.1 Physical Characteristics 8
E.1.1 Topography/Physiography 8
E.1.2 Geology 8
E.1.3 Hydrogeology 9
E.1.4 Ecology 9
E.2 Site Investigations 10
E.3 Nature and Extent of Contamination 11
E.3.1 Soil 11
E.3.2 Sediment and Surface Water 11
E.4 Conceptual Site Model 13
E.4.1 Primary and Secondary Contaminant Sources and Release Mechanisms 13
E.4.2 Contaminant Migration Pathways and Exit Points 13
E.4.3 Potential Human Receptors and Ecological Resources 14
F CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES 15
G SUMMARY OF SITE RISKS 16
G.1 Human Health Risk Assessment 16
G.2 Ecological Risk Assessment 16
H DOCUMENTATION OF NO SIGNIFICANT CHANGE 17

PART III: RESPONSIVENESS SUMMARY FOR PUBLIC COMMENTS ON THE ARMY PROPOSED PLAN FOR RVAAP-29 UPPER AND LOWER COBBS PONDS 19
A OVERVIEW 19
B STAKEHOLDER ISSUES AND LEAD AGENCY RESPONSES 19
B.1 Oral Comments from Public Meeting 19
B.2 Written Comments 20
C TECHNICAL AND LEGAL ISSUES 20

PART IV: REFERENCES 21

LIST OF FIGURES

Figure 1. General Location and Orientation of Camp James A. Garfield 25
Figure 2. Camp James A. Garfield Installation Map 26
Figure 3. Upper and Lower Cobbs Ponds Site Features 27
Figure 4. Geologic Map of Unconsolidated Deposits on Camp James A. Garfield 28
Figure 5. Geologic Bedrock Map and Stratigraphic Description of Units on Camp James A. Garfield 29
Figure 6. Natural Resources Inside and Near Habitat Area at Upper and Lower Cobbs Ponds 31
Figure 7. Upper and Lower Cobbs Ponds Sample Locations 33

LIST OF APPENDICES

Appendix A. Affidavits
Appendix B. Ohio EPA Correspondence

ACRONYMS AND ABBREVIATIONS

amsl	Above Mean Sea Level
AOC	Area of Concern
Army	U.S. Department of the Army
ARNG	Army National Guard
AT123D	Analytical Transient 1-, 2-, and 3-Dimensional
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CJAG	Camp James A. Garfield
CMCOPC	Contaminant Migration Chemical of Potential Concern
COC	Chemical of Concern
COPEC	Chemical of Potential Ecological Concern
EPC	Exposure Point Concentration
ERA	Ecological Risk Assessment
EU	Exposure Unit
FS	Feasibility Study
FWBWQS	Facility-wide Biological and Water Quality Study
FWCUG	Facility-wide Cleanup Goal
FWGWMP	Facility-wide Groundwater Monitoring Program
HHRA	Human Health Risk Assessment
HQ	Hazard Quotient
IRP	Installation Restoration Program
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
PBA08 RI	2008 Performance-based Acquisition Remedial Investigation
PCB	Polychlorinated Biphenyl
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
RI	Remedial Investigation
ROD	Record of Decision
RSL	Regional Screening Level
RVAAP	Ravenna Army Ammunition Plant
SEMS	Superfund Enterprise Management System
SRC	Site-related Contaminant
SVOC	Semi-volatile Organic Compound
TNT	2,4,6-Trinitrotoluene
TR	Target Risk
USEPA	U.S. Environmental Protection Agency
USP&FO	U.S. Property and Fiscal Officer
VOC	Volatile Organic Compound

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PART I: THE DECLARATION

A SITE NAME AND LOCATION

This Record of Decision (ROD) addresses soil, sediment, and surface water contaminants at Upper and Lower Cobbs Ponds, which is designated as area of concern (AOC) RVAAP-29 within the former Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio (Figures 1 and 2).

The former RVAAP, now known as Camp James A. Garfield (CJAG), located in northeastern Ohio within Portage and Trumbull counties, is approximately 3 miles east/northeast of the city of Ravenna and 1 mile north/northwest of the city of Newton Falls. The facility is approximately 11 miles long and 3.5 miles wide. The facility is bounded by State Route 5, the Michael J. Kirwan Reservoir, and the CSX System Railroad to the south; Garrett, McCormick, and Berry Roads to the west; the Norfolk Southern Railroad to the north; and State Route 534 to the east. In addition, the facility is surrounded by the communities of Windham, Garrettsville, Charlestown, and Wayland. The facility is federal property, which has had multiple accountability transfers amongst multiple Army agencies, making the property ownership and transfer history complex. The most recent administrative accountability transfer occurred in September 2013 when the remaining acreage (not previously transferred) was transferred to the U.S. Property and Fiscal Officer for Ohio (USP&FO) and subsequently licensed to the Ohio Army National Guard (OHARNG) for use as a military training site (Camp James A. Garfield).

The Upper and Lower Cobbs Ponds AOC is located in the east-central portion of CJAG. The Superfund Enterprise Management System (SEMS) Identifier for RVAAP is OH5210020736.

B STATEMENT OF BASIS AND PURPOSE

The Army National Guard (ARNG) is the lead agency and has chosen the selected remedy for the Upper and Lower Cobbs Ponds AOC in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on information contained in the Administrative Record file for the AOC.

The Ohio Environmental Protection Agency (Ohio EPA), the supporting state regulatory agency, concurred with the *Phase III Remedial Investigation Report for Soil, Sediment, and Surface Water at RVAAP-29 Upper and Lower Cobbs Ponds* (USACE 2017a; herein referred to as the Phase III Remedial Investigation [RI] Report) and *Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-29 Upper and Lower Cobbs Ponds* (USACE 2018; herein referred to as the Proposed Plan).

The Director's Final Findings and Orders (DFFO) (Ohio EPA 2004) was issued to the U.S. Department of the Army (Army) on June 10, 2004. The objective of the DFFO was for the Army and Ohio EPA to "contribute to the protection of public health, safety, and welfare and the environment from the disposal, discharge, or release of contaminants at or from the site, through implementation of

a CERCLA-based environmental remediation program. This program will include the development by respondent of an RI/FS for each AOC or appropriate group of AOCs at the site, and upon completion and publication of a Proposed Plan and ROD or other appropriate document for each AOC or appropriate group of AOCs, the design, construction, operation, and maintenance of the selected remedy as set forth in the ROD or other appropriate document for each AOC or appropriate group of AOCs."

The Phase III RI Report evaluated contaminated soil, sediment, and surface water at the Upper and Lower Cobbs Ponds AOC and recommended no further action for these media.

The decision that no further action is required for soil, sediment, and surface water satisfies the requirements of the DFFO, as the Army and Ohio EPA completed the CERCLA RI/Feasibility Study (FS) phase of investigation at Upper and Lower Cobbs Ponds. ARNG is publishing this ROD to select no further action for this site. Part II, Section G explains how the human health and ecological risks were assessed and how this no further action conclusion was made.

C DESCRIPTION OF THE SELECTED REMEDY

No further action is necessary for soil, sediment, and surface water at the Upper and Lower Cobbs Ponds AOC for Unrestricted (Residential) Land Use. Consequently, no further action is necessary for the future use of the site (military training). Groundwater will be addressed under future CERCLA decisions. Land use controls will not be implemented as part of this decision, as no CERCLA-related chemicals of concern (COCs) were identified in soil, sediment, or surface water for the Resident Receptor.

D STATUTORY DETERMINATIONS

The recommendation of no further action for soil, sediment, and surface water is protective of human health and the environment and meets the statutory requirements for cleanup standards established in Section 121 of CERCLA. Because the CERCLA-related contamination present in soil, sediment, and surface water at the Upper and Lower Cobbs Ponds AOC does not pose a potential risk to human health or the environment, five-year reviews will not be required. No other remedial action is necessary to ensure protection of human health and the environment for these media.

E AUTHORIZING SIGNATURE AND APPROVAL

William M. Myer
COL, GS
I&E, Army National Guard

7 June 2019
Date

PART II: DECISION SUMMARY

A SITE NAME, LOCATION, AND DESCRIPTION

When the RVAAP Installation Restoration Program (IRP) began in 1989, RVAAP (SEMS Identification Number OH5210020736) was identified as a 21,419-acre installation. In 2002 and 2003, OHARNG surveyed the property and the total acreage of the property was found to be 21,683 acres. The RVAAP IRP encompasses investigation and cleanup of past activities over the entire 21,683-acre former RVAAP.

As of September 2013, administrative accountability for the entire acreage of the facility has been transferred to the USP&FO for Ohio and subsequently licensed to OHARNG for use as a military training site. ARNG is the lead agency for any remediation, decisions, and applicable cleanup at the Upper and Lower Cobbs Ponds AOC. These activities are being funded and conducted under the IRP. Ohio EPA is the supporting state regulatory agency.

CJAG is located 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. References in this document to RVAAP relate to previous activities at the facility as related to former munitions production activities or to activities being conducted under the restoration/cleanup program.

CJAG 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 and the CSX System Railroad on the south; Garrett, 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). CJAG is surrounded by several communities: Windham 11.2 km (7 miles) to the north, Garrettsville 9.6 km (6 miles) to the north, Newton Falls 1.6 km (1 mile) to the southeast, Charlestown 3.6 km (6 miles) to the southwest, and Wayland 4.8 km (3 miles) to the south.

The Upper and Lower Cobbs Ponds AOC is approximately 39 acres and is located east of Paris-Windham Road and south of Remalia Road, north of Load Line 12, northwest of Load Line 3, in the east-central portion of CJAG (Figure 2). The AOC includes approximately 18 acres of pond banks, the 5.2-acre Backwater Area, the 9.4-acre Upper Cobbs Pond, and the 6.4-acre Lower Cobbs Pond (Figure 3). The distinct surface features of the AOC, shown in Figure 3, include two sedimentation basins (ponds), primary drainage conveyances, flow control structures (e.g., dam overflow spillway), and three railroad trackbeds (the railroad tracks have been removed) that dissect the site and separate the ponds from the Backwater Area. No fences or perimeter boundaries exist at the AOC.

Perennial surface water is present within Upper Cobbs Pond, Lower Cobbs Pond, and the Backwater Area. Surface water flows south to north, originating from drainage ditches from Load Line 3 and Load Line 12. Surface water flows through the Backwater Area to Upper Cobbs Pond then to Lower Cobbs Pond. Surface water ultimately exits the AOC through a dam overflow spillway located near the intersection of Remalia and Paris-Windham Roads. The spillway then enters an unnamed tributary

that discharges into Sand Creek, northwest of the AOC. Three planning-level survey wetlands and wetland complexes are located at the AOC.

Remaining site features at the AOC include the dam overflow spillway; the three railroad trackbeds; and a picnic area, pavilion, and playground. The picnic area, pavilion, and playground are located approximately 100 ft from the edge of the eastern bank of Upper Cobbs Pond.

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. The primary purpose of the former RVAAP was to load medium and major caliber artillery ammunition (i.e., bombs, mines, fuzes and boosters, primers, and percussion elements) and store finished components. Load Lines 5 through 11 produced fuzes, boosters, primers, detonators, and percussion elements.

In June 2004, the DFFO was issued to the Army (Ohio EPA 2004). The objective of the DFFO was for the Army and Ohio EPA to "contribute to the protection of public health, safety, and welfare and the environment from the disposal, discharge, or release of contaminants at or from the site, through implementation of a CERCLA-based environmental remediation program. This program will include the development by respondent of an RI/FS for each AOC or appropriate group of AOCs at the site, and upon completion and publication of a Proposed Plan and ROD or other appropriate document for each AOC or appropriate group of AOCs, the design, construction, operation and maintenance of the selected remedy as set forth in the ROD or other appropriate document for each AOC or appropriate group of AOCs."

The 39-acre Upper and Lower Cobbs Ponds AOC is located east of Paris-Windham Road and south of Remalia Road (Figure 2) in the east-central portion of CJAG, north of Load Line 12, and northwest of Load Line 3. The historical operations at Upper and Lower Cobbs Ponds are summarized below:

- Upper Cobbs Pond and Lower Cobbs Pond were constructed in 1940–1941, expanding a natural drainage conveyance to receive effluent discharge and to serve as the unlined sedimentation basins for Load Lines 3 and 12. The surface water conveyance is depicted in Figure 3. The ponds were utilized as unlined sedimentation basins after improvements, such as flow control structures, were constructed throughout the complex. The Backwater Area did not exist when the facility was operational, rather it is a product of beaver dam construction activity (Jacobs 1989).
- From 1941–1971, the ponds received effluent from the Load Lines 3 and 12 sawdust filtration units, wash water, storm water runoff, and surface water runoff. Rinsate from demilitarization operations at Load Lines 3 and 12 was initially allowed to flow out of buildings and directly onto the ground or to drainage ditches, which ultimately discharged to Upper Cobbs Pond and Lower Cobbs Pond.
- From 1965–1967, Hercules Alcor, Inc. leased Building FF-19 in Load Line 12 for producing aluminum chloride. On November 15, 1966, a fish kill occurred at Lower Cobbs Pond as a result of improper handling of aluminum chloride during manufacturing operations. The bulk

of the aluminum chloride was collected and disposed of at Ramsdell Quarry Landfill (RVAAP-01). The pond, receiving the contaminated waste from drainage ditches, was settled, drained, and the contaminants were removed to Ramsdell Quarry. Contaminated metals were thermally treated at a burning ground to a condition considered safe for release to the public (USATHAMA 1978 and 1982, RVAAP 2000). The Army terminated the lease early on December 3, 1967 due to environmental concerns related to air emissions and wastewater discharges to Upper and Lower Cobbs Ponds.

No historical information exists to indicate Upper and Lower Cobbs Ponds were used for any other processes other than what is presented above. No CERCLA enforcement actions have occurred related to Upper and Lower Cobbs Ponds.

The following subsections present site histories, a description of discharge and drainage to Upper and Lower Cobbs Ponds, and remedial activities at the upstream sites Load Lines 3 and 12.

B.1 Load Line 3

Load Line 3 is upstream and southeast of Upper and Lower Cobbs Ponds. Load Line 3 operated from 1941–1945, from 1951–1957, and again from 1969–1971. Load Line 3 was primarily used to melt bulk explosives and load composition B (a combination of 2,4,6-trinitrotoluene [TNT] and hexahydro-1,3,5-trinitro-1,3,5-triazine [RDX]) into large-caliber shells and bombs. Demilitarization activities were conducted between 1951 and 1957, during which time approximately 228,000 munitions were processed at the load line. Building wash-down water and wastewater from the load line operations were collected in concrete sumps, pumped through sawdust filtration units, and ultimately discharged to a drainage ditch leading to a settling pond (Upper Cobbs Pond and, ultimately, Lower Cobbs Pond). During the operation of Load Line 3, approximately 304,800 liters (79,248 gallons) of pink water were generated each month (Jacobs 1989).

Multiple remedial activities have been conducted at Load Line 3 to address contaminated media. From August to November 2007, 893 tons of polychlorinated biphenyl (PCB)-contaminated soil and 2,538 tons of non-hazardous soil were removed from Load Line 3 (Shaw 2007). In 2010, 1,602 cubic yards of soil were excavated from five distinct areas at Load Line 3 (URS 2010).

The Army re-evaluated the chemical concentrations in soil, sediment, and surface water at Load Line 3 to determine if these media met the standards required for either Commercial/Industrial Land Use or Unrestricted (Residential) Land Use. This evaluation is summarized in the *Feasibility Study Addendum for Soil, Sediment, and Surface Water at RVAAP Load Lines 1, 2, 3, 4, and 12* (USACE 2017b). This evaluation concluded that no sediment and surface water COCs required remediation at Load Line 3.

B.2 Load Line 12

Load Line 12 is upstream and south of Upper and Lower Cobbs Ponds. Load Line 12 was formerly utilized for producing ammonium nitrate from 1941–1943 and 1946–1950. From 1951–1961, explosives melt-out and demilitarization activities occurred at Load Line 12. From 1941–1971, the ponds received effluent from the Load Line 12 sawdust filtration units, wash water, storm water runoff, and surface water runoff. Rinsate from demilitarization operations at Load Line 12 was initially allowed to flow out of buildings and directly onto the ground or to drainage ditches, which ultimately discharged to Upper Cobbs Pond and Lower Cobbs Pond. Since no wash water collection tanks or settling ponds were located at Load Line 12 during these operations, all residues, dusts, and spills were washed into the drainage system that eventually discharged into Upper Cobbs Pond.

From 1965–1967, Hercules Alcor, Inc. leased Building FF-19 in Load Line 12 for producing aluminum chloride. On November 15, 1966, a fish kill occurred at Lower Cobbs Pond as a result of improper handling of aluminum chloride during manufacturing operations. The pond that received the contaminated waste from drainage ditches was settled, drained, and the contaminants were removed to Ramsdell Quarry.

In June 2010, 1,181 tons of contaminated sediment were removed from the Main Ditch within Load Line 12. No future impacts to Upper and Lower Cobbs Ponds from Load Line 12 sediment or surface water are expected, as the *Phase III Remedial Investigation Report for Wet Sediment and Surface Water at RVAAP-12 Load Line 12* (USACE 2017c) recommended no further action to attain Unrestricted (Residential) Land Use for these media.

C COMMUNITY PARTICIPATION

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

- **Restoration Advisory Board –** The Army established a Restoration Advisory Board in 1996 to promote community involvement in U.S. Department of Defense environmental cleanup activities and allow the public to review and discuss the progress with decision makers. Board meetings are generally held two to three times per year and are open to the public.
- **Community Relations Plan –** The *Community Relations Plan* (Vista 2017) is maintained to establish processes to keep the public informed of activities at RVAAP. The plan is available in the Administrative Record at CJAG.
- **Internet Website –** The Army established an internet website in 2004 for RVAAP. It is accessible to the public at www.rvaap.org.

In accordance with CERCLA Section 117(a) and NCP Section 300.430(f)(2), the Army released the Proposed Plan (USACE 2018) to the public on June 6, 2018. The Proposed Plan and other project-related documents were made available to the public in the Administrative Record maintained at

CJAG 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 radio stations, television stations, and newspapers (e.g., *Warren Tribune-Chronicle* and *Ravenna Record Courier*), as specified in the Community Relations Plan. The notice of availability initiated the 30-day public comment period beginning June 6, 2018 and ending July 6, 2018.

The Army held a public meeting on June 21, 2018 at the Shearer Community Center, 9355 Newton Falls Road, Ravenna, Ohio 44266 to present the Proposed Plan. At this meeting, representatives of the Army provided information and were available to answer any questions. A transcript of the public meeting is available to the public and has been included in the Administrative Record. Responses to any comments received at this meeting and during the public notification period are included in the Responsiveness Summary, which is Part III of this ROD.

The Army considered public input from the public meeting on the Proposed Plan when selecting the remedy.

D SCOPE AND ROLE OF RESPONSE ACTIONS

The overall program goal of the IRP at the former RVAAP is to clean up previously contaminated lands to reduce contamination to concentrations that are not anticipated to cause risks to human health or the environment.

This ROD addresses soil, sediment, and surface water. The concentrations of CERCLA-related contamination at the Upper and Lower Cobbs Ponds AOC are considered protective of human health and do not represent a risk to the environment. Therefore, these media are already protective for Unrestricted (Residential) Land Use, and the program goal of the IRP at RVAAP has been met for the AOC.

Potential impacts to groundwater from soil (e.g., contaminant leaching) were evaluated in the RI Report, as protectiveness to groundwater was included in the fate and transport analysis. However, groundwater will be evaluated as an individual AOC for the entire facility (designated as RVAAP-66) under the Facility-wide Groundwater Monitoring Program (FWGWMP).

E SITE CHARACTERISTICS

This section presents site characteristics, nature and extent of contamination, and the conceptual site model for the Upper and Lower Cobbs Ponds AOC. These characteristics and findings are based on investigations conducted from 1978–2010 and are further summarized in the Phase III RI Report (USACE 2017a).

E.1 Physical Characteristics

This section describes the topography/physiology, geology, hydrogeology, and ecological characteristics of CJAG and the Upper and Lower Cobbs Ponds AOC that were key factors in identifying the potential contaminant transport pathways, receptor populations, and exposure scenarios to evaluate human health and ecological risks.

E.1.1 Topography/Physiography

The topography of CJAG is gently undulating with an overall decrease in ground elevation from a topographic high of approximately 1,220 ft above mean sea level (amsl) in the far western portion of the facility to low areas at approximately 930 ft amsl in the far eastern portion. The topography at the AOC is dominated by the ponds and their associated drainage conveyances. The pond banks are characterized by mild to steep contours, surrounded by relatively flat land surface. The ground elevation varies from 960–980 ft amsl, with a slight topographic high located near the southeastern portion of the AOC and a topographic low west of the dam overflow spillway in the northwestern portion of the AOC.

Upper and Lower Cobbs Ponds is located east of Paris-Windham Road and south of Remalia Road, north of Load Line 12, and northwest of Load Line 3, in the east-central portion of CJAG (Figure 2). No fences or perimeter boundaries exist at the AOC. Remaining site features include the dam overflow spillway; the three railroad trackbeds; and a picnic area, pavilion, and playground are located near the eastern bank of Upper Cobbs Pond.

Perennial surface water is present within Upper Cobbs Pond, Lower Cobbs Pond, and the Backwater Area. Surface water flows through the Backwater Area to Upper Cobbs Pond then to Lower Cobbs Pond, ultimately exiting the AOC through a dam overflow spillway located near the intersection of Remalia and Paris-Windham Roads. Surface water then enters an unnamed tributary that discharges into Sand Creek, northwest of the AOC.

E.1.2 Geology

The soil types observed surrounding the ponds and Backwater Area are the Mahoning silt loam (2–6% slopes) and the Trumbull silt loam (0–2% slopes). Mahoning silt loam is a gently sloping, poorly drained soil formed in silty clay loam or clay loam glacial till, generally where bedrock is greater than 6 ft below ground surface (bgs). The Mahoning silt loam has low permeability, with rapid runoff and seasonal wetness and is present primarily around 85% of the water at the AOC (USDA 2010). The Trumbull silt loam covers the remaining 15% of the pond banks at the AOC, primarily in the southeastern portion within the Backwater Area. The Trumbull silt loam is poorly drained soil formed in silty clay till, generally where bedrock is greater than 6 ft bgs. The Trumbull silt loam is typically formed in depressions with a moderate water capacity with groundwater existing near ground surface (USDA 2010).

As shown in Figure 4, the Upper and Lower Cobbs Ponds AOC is located within Hiram Till glacial deposits. As observed in 2008 Performance-based Acquisition Remedial Investigation (PBA08 RI) soil borings, the composition of unconsolidated deposits at the AOC generally consist of yellowish-brown to gray, medium dense clay to sand-rich silt tills with interbedded sands scattered throughout (USACE 2017a).

As shown in Figure 5, the bedrock formation at Upper and Lower Cobbs Ponds, as inferred from existing geologic data, is the Pennsylvanian age Pottsville Formation, Sharon Sandstone Member, informally referred to as the Sharon Conglomerate (Winslow and White 1966). The Sharon Sandstone Member, the lowest unit of the Pottsville Formation, is a highly porous, loosely cemented, permeable, cross-bedded, frequently fractured and weathered orthoquartzite sandstone, which is locally conglomeratic. The Sharon Conglomerate exhibits locally occurring thin shale lenses in the upper portion of the unit. Upper members of the Pottsville Formation are not present at the AOC. Bedrock was not encountered at the Upper and Lower Cobbs Pond AOC during the PBA08 RI (USACE 2017a), or previous characterization activities.

E.1.3 Hydrogeology

Six monitoring wells are present at the AOC that were installed in 2001 during the Phase II RI (MKM 2005). Initial depths to groundwater encountered during well installation ranged from 5.75–39.75 ft bgs. All monitoring wells at the AOC were screened in the unconsolidated overburden. Monitoring well groundwater elevations are collected under the FWGWMP. The groundwater flow pattern at the AOC is to the northwest toward Sand Creek.

E.1.4 Ecology

Surface water at the AOC is present perennially within Upper Cobbs Pond, Lower Cobbs Pond, and Backwater Area. The flow of surface water begins with the drainage channels from Load Line 3 and Load Line 12 that enter the AOC from the south and flows through the Backwater Area. Surface water flows north through Upper Cobbs Pond to Lower Cobbs Pond.

Flow from the Backwater Area into Upper Cobbs Pond and, subsequently, into Lower Cobbs Pond is through culverts beneath railroad trackbeds and roads that cross the AOC. Lower Cobbs Pond surface water discharges into a dam overflow spillway adjacent to the intersection of Remalia and Paris-Windham Roads, entering an unnamed tributary to Sand Creek. These surface water features are sufficient to maintain aquatic habitat.

Several large planning wetlands exist within the AOC boundary (OHARNG 2008), generally along the pond banks, which may receive overland surface water flow or runoff from ponds when water levels within the AOC are elevated.

A field survey conducted by Leidos field biologists at the AOC in May 2010 identified four forest community types, one shrub community type and three herbaceous community types, as presented in Figure 6. The dominant forest community at the AOC is the red maple (*Acer rubrum*) successional

forest (Figure 6). This community surrounds nearly all of Lower Cobbs Pond and a large portion of Upper Cobbs Pond. Other forest communities present include a small area of green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), and hackberry (*Celtis occidentalis* and *laevigata*) temporarily flooded forest alliance at the extreme northern end of Lower Cobbs Pond. At Upper Cobbs Pond, other forest communities include small areas of mixed, needle-leaved evergreen, cold-deciduous forest dominated by Norway spruce (*Picea abies*) and red maple and mixed, cold-deciduous, hardwood forest dominated by white ash (*Fraxinus americana*), wild black cherry (*Prunus serotina*), red maple, black locust (*Robinia pseudoacacia*), quaking aspen (*Populus tremuloides*), and bigtooth aspen (*Populus grandidentata*). Dry, mid-successional, cold-deciduous shrubland habitat occurs on both sides of Upper Cobbs Pond and includes various willows (*Salix spp*.), gray dogwood (*Cornus racemosa*), autumn olive (*Elaeagnus umbellata*), blackberry (*Rubus allegheniensis*), hawthorn (*Crataegus spp.*), and multiflora rose (*Rosa multiflora*) (Figure 6). Herbaceous communities at the AOC include dry, early-successional field; intermittently flooded, early-successional field; and permanently flooded, herbaceous alliance (Figure 6).

The northern long-eared bat (*Myotis septentrionalis*; endangered species) exists at CJAG. No other federally listed species or critical habitats exist on CJAG. Upper and Lower Cobbs Ponds has not had a site-specific survey for federally or state-listed species. However, surveys have been conducted throughout the facility and one sighting of a state-threatened species at the AOC, the Least Bittern (*Ixobrychus exilis*), has occurred (OHARNG 2014).

E.2 Site Investigations

In 1978, the U.S. Army Toxic and Hazardous Materials Agency conducted an Installation Assessment of RVAAP to review the potential for contaminant releases at multiple former operations areas, as documented in *Installation Assessment of Ravenna Army Ammunition Plant* (USATHAMA 1978). This assessment indicated pink wastewater (containing secondary explosives such as TNT and RDX) and washout of residue, dusts, and spills from explosives melt-out and demilitarization at Load Lines 3 and 12 and ammonium nitrate and aluminum chloride from Load Line 12, which were discharged through surface drainage channels toward Upper Cobbs Pond. TNT and RDX were detected in the sediment samples collected during the 1982 Soil and Sediment Analysis (Mogul 1982).

Since 1978, the AOC has been included in various historical assessments and investigations conducted at the former RVAAP. The following environmental investigations have been completed:

- Installation Assessment of Ravenna Army Ammunition Plant (USATHAMA 1978),
- 1982 Soil and Sediment Analysis (Mogul 1982),
- 1996 Preliminary Assessment for the Characterization of Areas of Contamination (USACE 1996),
- 1996 Phase I RI Report for High-Priority Areas of Concern (USACE 1998),
- 2001 Phase II RI Report for Upper and Lower Cobbs Ponds (MKM 2005),
- 2003 Facility-wide Biological and Water Quality Study (FWBWQS) (USACE 2005), and
- 2010 PBA08 RI.

The results of the PBA08 RI sampling were combined with applicable results of previous sampling events to evaluate the nature and extent of contamination, examine contaminant fate and transport, and conduct risk assessments, as summarized in the Phase III RI Report (USACE 2017a).

E.3 Nature and Extent of Contamination

Data from the 2001 Phase II RI, 2003 FWBWQS, and 2010 PBA08 RI were used to identify remaining site-related contaminants (SRCs). Analytical results from the RIs effectively characterized the nature and extent of contamination at the AOC (USACE 2017a). Figure 7 presents the RI sample locations. Based on previous information and the summary below, it can be concluded that the vertical and horizontal extent of contamination is defined, and no further sampling is needed to evaluate the AOC.

E.3.1 Soil

Surface soil and subsurface soil were collected from the Pond Bank Aggregate. A total of 18 inorganic chemicals (16 metals, cyanide, and nitrate/nitrite) were identified as potential inorganic SRCs and potentially related to previous Load Line 3 and Load Line 12 operations. Of these chemicals, only aluminum, arsenic, cobalt, and cyanide are considered chemicals of potential concern in surface soil at the Pond Bank Aggregate (USACE 2017a).

Arsenic was the only metal to exceed the Resident Receptor (Adult and Child) facility-wide cleanup goal (FWCUG) at a target risk (TR) of 1E-05, hazard quotient (HQ) of 1 and its facility-wide background concentration in soil. However, only 1 of 30 soil samples exceeded the subsurface soil background concentration of 19.8 mg/kg. Arsenic was detected at 28.4 mg/kg in sample ULCPsd-010 (classified as a soil sample). Along with other factors considered in the human health risk assessment (HHRA), the arsenic exposure point concentration (EPC) was below the Resident Receptor (Adult and Child) FWCUG; therefore, the Phase III RI Report concluded that arsenic was not considered a COC requiring remediation (USACE 2017a).

None of the detected concentrations of semi-volatile organic compounds (SVOCs), volatile organic compounds (VOCs), pesticides, PCBs, explosives, or propellants in surface or subsurface soil were above the Resident Receptor (Adult and Child) FWCUG at a TR of 1E-05, HQ of 1.

E.3.2 Sediment and Surface Water

Sediment and surface water samples were collected from the AOC's three main surface water features: the Backwater Area, Upper Cobbs Pond, and Lower Cobbs Pond. The only metals that exceeded a TR of 1E-05, HQ of 1 and background concentrations are arsenic, manganese, and cobalt.

Arsenic was detected at 34.3 mg/kg at ULCPsd-026 and 20.2 mg/kg at ULCPsd-021 in two sediment samples in Lower Cobbs Pond. No surface water samples exceeded a TR of 1E-05, HQ of 1 and background concentrations for arsenic. The EPC of arsenic in sediment at Lower Cobbs Pond (26.9 mg/kg) exceeded the FWCUG for the Resident Receptor Adult of 4.25 mg/kg, the facility-wide

background concentration of 19.5 mg/kg, and the Ohio EPA sediment reference value of 25 mg/kg. The maximum detected concentration of arsenic (34.3 mg/kg) at ULCPsd-026, collected in 2001, is the only sample concentration greater than the facility-wide background concentration and Ohio EPA sediment reference value. Reported arsenic concentrations in the other Lower Cobbs Pond samples ranged from 5.1–20.2 mg/kg. The Phase III RI Report concluded arsenic was not considered a COC requiring remediation because the reported concentrations appear to represent naturally occurring levels in sediment (USACE 2017a).

Manganese was detected at 15.8 mg/L at ULCPsw-002 and 8.59 mg/L at ULCPsw-001 in two surface water samples in the Backwater Area. The EPC of manganese in surface water at the Backwater Area exposure unit (EU) exceeds the FWCUG for the Resident Receptor (Adult and Child) of 6.326 mg/L. The EPC is strongly influenced by the elevated concentration reported in a single sample collected in 2001. The manganese concentrations in all samples collected in 2010 are below the facility-wide background concentration of 0.391 mg/L. Because recent sample data indicate manganese is present at naturally occurring background concentrations, the Phase III RI Report concluded that manganese was not considered a COC requiring remediation (USACE 2017a). None of the sediment samples exceeded a TR of 1E-05, HQ of 1 and the background concentration for manganese.

Cobalt was detected at 0.0107 mg/L at ULCPsw-001 in one surface water sample in the Backwater Area. None of the sediment samples exceeded a TR of 1E-05, HQ of 1 and the background concentration for cobalt. The EPC of cobalt (0.01 mg/L) is less than two times the tap water regional screening level (RSL) of 0.006 mg/L. The Backwater Area is a shallow pond created through beaver dam construction activity upstream of Upper Cobbs Pond. This limited shallow surface water is not a potential source of residential drinking water; therefore, the Phase III RI Report concluded that this low exceedance of the tap water RSL does not require remediation (USACE 2017a).

The only SVOC that exceeded a Resident Receptor (Adult and Child) FWCUG (0.221 mg/kg) at a TR of 1E-05, HQ of 1 is benzo(a)pyrene in the Backwater Area. Two of the exceedances were in sediment samples (ULCPsd-015 and ULCPsd-047) at locations between the two railroad beds with a maximum concentration of 0.89J mg/kg. However, these samples had concentrations below the 2017 U.S. Environmental Protection Agency (USEPA) resident soil RSL of 1.1 mg/kg.

The only pesticide that exceeded a TR of 1E-05, HQ of 1 is delta-hexachlorocyclohexane in Upper Cobbs Pond. This exceedance was at an estimated concentration of 0.0018J mg/kg in the 0.5–2 ft bgs interval. Delta-hexachlorocyclohexane was not detected in other sediment samples collected in sediment or surface water, including the co-located 0–0.5 ft bgs interval.

Explosives, propellants, PCBs, or VOCs were not detected in surface water samples at concentrations that exceeded a TR of 1E-05, HQ of 1.

E.4 Conceptual Site Model

Conceptual site model elements are discussed in this section, including primary and secondary contaminant sources and release mechanisms, contaminant migration pathways and discharge or exit points, and potential human receptors and ecological resources.

E.4.1 Primary and Secondary Contaminant Sources and Release Mechanisms

No primary contaminant sources (e.g., operational facilities) were located at the AOC. The ponds themselves functioned as sedimentation basins receiving storm water runoff and effluent discharges during historical operations at Load Lines 3 and 12. The Installation Assessment identified the pink wastewater and washout of residue, dusts, and spills at Load Lines 3 and 12, which were discharged through surface drainage channels toward the AOC (USATHAMA 1978). Remnant contamination in Pond Bank Aggregate soil and sediment within the AOC is considered a secondary source of contamination.

A fish kill occurred on November 15, 1966 at Lower Cobbs Pond as a result of improper handling of aluminum chloride during manufacturing operations. The bulk of the aluminum chloride at Load Line 12 was removed and disposed of in Ramsdell Quarry. The pond was settled and drained, and the contaminated sediment was moved to Ramsdell Quarry.

In soil collected from the pond banks and surface water, contamination is not evident. Remnant contamination in sediment within the AOC is considered a secondary source of contamination. RI evaluations indicate sediment contamination is present in the Backwater Area, Upper Cobbs Pond, and Lower Cobbs Pond. Shallow sediment (0–0.5 ft bgs) in the Backwater Area and Upper Cobbs Pond contained generally higher chemical concentrations than the deeper sediment interval (0.5–2 ft bgs).

The potential mechanisms for contaminant releases from secondary sources at the AOC include:

- Eroding soil with sorbed contaminants and mobilization in turbulent surface water flow under storm conditions,
- Dissolving soluble contaminants and transport in perennial surface water conveyances and intermittent surface water runoff,
- Re-suspending contaminated sediment during periods of high flow with downstream transport within the surface water system, and
- Contaminant leaching to groundwater.

E.4.2 Contaminant Migration Pathways and Exit Points

The potential for soil and sediment contaminants to impact groundwater was evaluated in a fate and transport evaluation presented in the Phase III RI Report (USACE 2017a). Contaminants in surface soil may migrate to surface water via drainage ditches in the dissolved phase following a storm event, or as particulates in storm water runoff.

Maximum SRC concentrations identified in surface soil, subsurface soil, and sediment were evaluated using a series of generic screening steps to identify initial contaminant migration chemicals of potential concern (CMCOPCs). These CMCOPCs for soil were further evaluated using the Seasonal Soil Compartment model to predict leaching concentrations and identify final CMCOPCs based on RVAAP facility-wide background criteria and the lowest risk-based screening criteria among USEPA maximum contaminant levels, USEPA tap water RSLs, or RVAAP groundwater FWCUGs for the Resident Receptor Adult. Final CMCOPCs were evaluated using the Analytical Transient 1-, 2-, and 3-Dimensional (AT123D) model to predict groundwater mixing concentrations beneath source areas and concentrations at the nearest downgradient groundwater receptor to the AOC (e.g., stream). Maximum SRC concentrations in sediment were evaluated using an analytical solution to identify final CMCOPCs for evaluation using the AT123D model. The AT123D modeling results were evaluated with respect to AOC groundwater monitoring data and model limitations and assumptions to identify chemicals to be retained as contaminant migration COCs. Inorganic and organic SRCs exist in surface soil, subsurface soil, and sediment at the AOC. These SRCs include chemicals that were identified as potential contaminants from previous site usage and chemicals that were identified from the SRC screening process using available data. All SRCs were further evaluated to determine if residual concentrations in soil and sediment may potentially impact groundwater quality and warrant evaluation in an FS.

Conclusions of the soil and sediment screening, leachate modeling, and groundwater modeling are as follows:

- Arsenic, nickel, selenium, and thallium in soil were predicted to exceed the screening criteria in groundwater beneath the source area; arsenic was predicted to exceed the screening criteria in groundwater at the downgradient receptor location.
- Hexavalent chromium in sediment was predicted to exceed the screening criteria in groundwater beneath the source areas.

All SRCs identified in surface soil, subsurface soil, and sediment were evaluated through the stepwise fate and transport evaluation. All SRCs were eliminated as posing future impacts to groundwater, and no further action is necessary for surface soil, subsurface soil, and sediment to protect groundwater. Groundwater will be further evaluated under the FWGWMP.

E.4.3 Potential Human Receptors and Ecological Resources

In February 2014, the Army and Ohio EPA amended the risk assessment process to address changes in the RVAAP restoration program.

The *Final Technical Memorandum: Land Uses and Revised Risk Assessment Process for the RVAAP Installation Restoration Program* (ARNG 2014) identified the following three Categorical Land Uses and Representative Receptors to be considered during the RI phase of the CERCLA process.

1. Unrestricted (Residential) Land Use – Resident Receptor (Adult and Child) (formerly called Resident Farmer).

2. Military Training Land Use – National Guard Trainee.
3. Commercial/Industrial Land Use – Industrial Receptor (USEPA Composite Worker).

An evaluation using Resident Receptor (Adult and Child) FWCUGs was used to provide an Unrestricted (Residential) Land Use evaluation. If a site meets the standards for Unrestricted (Residential) Land Use, it can be used for all categories of Land Use at CJAG. No COCs were identified as requiring remediation to be protective for the Resident Receptor or Unrestricted (Residential) Land Use. The receptor is assumed to be exposed to surface soil from 0–1 ft bgs and subsurface soil from 1–13 bgs.

The Level I Scoping Level ecological risk assessment (ERA) presents important ecological resources on or near the AOC and evaluates the potential for current contamination to impact ecological resources at the Upper and Lower Cobbs Ponds AOC. Because contamination is at or near the important resources, these findings invoked a requirement for a Level II Screening Level ERA. The Level II ERA incorporated available data to identify integrated chemicals of potential ecological concern (COPECs). Twelve integrated soil COPECs, 40 integrated sediment COPECs, and 8 integrated surface water COPECs were identified in the Level II ERA. The soil, sediment, and surface water COPECs were further evaluated with technical and refinement factors agreed upon by the Army and Ohio EPA. The Level II ERA concluded that no chemicals require remediation or further evaluation to be conducted to protect the environment. Per the *Guidance for Conducting Ecological Risk Assessments* (Ohio EPA 2008), once the Level II assessment eliminates COPECs from further ecological evaluation, the ERA can be completed. No further action is recommended to be protective from an ecological perspective (USACE 2017a).

Groundwater is not considered an exposure medium for ecological receptors on the AOC given its depth and occurrence within bedrock, and no discharge points (e.g., springs, seeps) exist that would represent potential exposure points.

F CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

Upper and Lower Cobbs Ponds are currently managed by ARNG/OHARNG and are currently used for recreational purposes. The AOC is not currently being utilized for training purposes. The future use of the AOC (which includes the ponds and their associated sediment and banks) includes recreational use, dam maintenance, wildlife management activities, and military training. Surrounding adjacent areas may be used for recreational activities as well as maneuver and multipurpose military training operations. The Resident Receptor (Adult and Child) was evaluated in the HHRA to assess an Unrestricted (Residential) Land Use scenario. This ROD discusses future Land Use as it pertains to soil, sediment, and surface water and how it impacts human health, the environment, and groundwater.

G SUMMARY OF SITE RISKS

The HHRA and ERA estimated risks to human receptors and ecological resources; identified exposure pathways; presented COCs and COPECs, if any; and provided a basis for remedial decisions. This section of the ROD summarizes the results of the HHRA and ERA, which are presented in detail in the Phase III RI Report (USACE 2017a) and Proposed Plan (USACE 2018) located in the Administrative Record and Information Repositories.

G.1 Human Health Risk Assessment

The HHRA identified COCs and conducted risk management analysis to determine if COCs pose unacceptable risk to the Resident Receptor. If no unacceptable risk exists to the Resident Receptor, it can be concluded that no unacceptable risk exists to the National Guard Trainee and Industrial Receptor.

Media of concern at the AOC are surface soil, subsurface soil, surface water, and sediment. Soil data were aggregated into surface and subsurface soil. Surface water and sediment data were aggregated into three EUs (Backwater Area, Upper Cobbs Pond, and Lower Cobbs Pond).

No COCs were identified in soil. Sediment and surface water COCs were identified. As indicated in Section E.3.2, arsenic concentrations appear to represent naturally occurring levels in sediment. The EPC of cobalt (0.01 mg/L) is less than two times the tap water RSL. Although the EPC of manganese in surface water at the Backwater Area EU (15.1 mg/L) exceeds the FWCUG for the Resident Receptor (Adult and Child) (6.326 mg/L), it is strongly influenced by the maximum concentration of 15.8 mg/L in sample ULCPsw-002 collected in 2001. Manganese was detected at 7.36 mg/L in the field duplicate of this sample. The manganese concentrations in all samples collected in 2010 are below the facility-wide background concentration of 0.391 mg/L.

No COCs were identified to be carried forth in an FS for the Resident Receptor (Adult and Child) in any of the media of concern; therefore, no other receptors were evaluated, and no further action is recommended from a human health risk perspective.

G.2 Ecological Risk Assessment

The three surface water features (Upper Cobbs Pond, Lower Cobbs Pond, and the Backwater Area) are the predominant features at the AOC. Surface water originates from a series of drainage ditches from Load Lines 3 and 12, flows into the Backwater Area, through a culvert to Upper Cobbs Pond, then to Lower Cobbs Pond. Surface water in Lower Cobbs Pond discharges to a dam overflow spillway that flows into an unnamed tributary that discharges into Sand Creek, northwest of the AOC. These surface water features are sufficient to maintain aquatic habitat.

Although the ponds constitute much of the AOC, the terrestrial vegetation provides a habitat for birds, mammals, insects, and other organisms. Red maple successional forest; dry, mid-successional

cold-deciduous shrubland; three types of herbaceous communities; and three additional types of forests were observed. The AOC also contains numerous wetlands that cover multiple AOCs.

The vegetation provides a habitat for birds, mammals, insects, and other organisms that typically require approximately 1 acre of habitat. The northern long-eared bat (*Myotis septentrionalis*; federally threatened) exists at CJAG. No other federally listed species or critical habitats are found on CJAG. Upper and Lower Cobbs Ponds has not had a site-specific survey for federally or state-listed species. However, surveys have been conducted throughout the facility and one sighting of a state-threatened species at the AOC, the Least Bittern (*Ixobrychus exilis*), has occurred (OHARNG 2014).

The Level I Scoping Level ERA presents important ecological resources on or near the AOC and evaluates the potential for current contamination to impact ecological resources. Chemical contamination is present in soil, sediment, and surface water at the AOC. This contamination was identified using RI data. Ecological resources at and near the AOC were compared to the list of important ecological places and resources (USACE 2017a). Based on the 39 criteria defining important places as identified by the Army and Ohio EPA, the wetlands and surface water are important and significant ecological resources (USACE 2017a). Because contamination is at or near important resources, these findings invoked a requirement for a Level II ERA. The Level II ERA incorporated available data to identify integrated COPECs. Twelve integrated soil COPECs, 40 integrated sediment COPECs, and 8 integrated surface water COPECs were identified in the Level II ERA.

The soil, sediment, and surface water COPECs were further evaluated with technical and refinement factors agreed upon by the Army and Ohio EPA. The Level II ERA concluded that no chemicals required remediation or further evaluation to be conducted to protect the environment. Per the *Guidance for Conducting Ecological Risk Assessments* (Ohio EPA 2008), once the Level II assessment eliminates COPECs from further ecological evaluation, the ERA can be completed. No further action is recommended to be protective from an ecological perspective.

H DOCUMENTATION OF NO SIGNIFICANT CHANGE

The Proposed Plan (USACE 2018) was released for public comment on June 6, 2018. The Proposed Plan recommends no further action for soil, sediment, and surface water at the Upper and Lower Cobbs Ponds AOC. No significant changes 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 ARMY PROPOSED PLAN FOR RVAAP-29 UPPER AND LOWER COBBS PONDS

A OVERVIEW

On June 6, 2018, the Army released the Proposed Plan (USACE 2018) for public comment. A 30-day public comment period was held from June 6, 2018 to July 6, 2018. The Army hosted a public meeting on June 21, 2018 to present the Proposed Plan and take questions and comments from the public for the record. This public comment period and public meeting also included Proposed Plans for Load Lines 7, 9, and 12, and Wet Storage Area.

For soil, surface water, and sediment at the Upper and Lower Cobbs Ponds AOC, the Army recommended no further action. During the public meeting, Ohio EPA concurred with the recommendation of no further action. Comments provided during the public comment period and public meeting are summarized in the following section.

The community voiced no objections to the no further action recommendation. All public input was considered during the selection of the final remedy for soil, surface water, and sediment in this ROD.

B STAKEHOLDER ISSUES AND LEAD AGENCY RESPONSES

The following subsections summarize the oral and written comments provided during the public comment period and public meeting. ARNG's responses provided below are considered final upon approval of the Final ROD.

B.1 Oral Comments from Public Meeting

Comment 1: What impacts or what will occur when you excavate the contaminated soil? Is there any testing that is done to monitor airborne contaminants?

Response: The recommended alternative to Upper and Lower Cobbs Ponds is "No Further Action," as soil, sediment, and surface water were determined to not require a remedial action. Consequently, no excavation activities will be conducted at this site. Generally, excavation of contaminated soil includes the use of engineering controls to mitigate risk from airborne contaminants to workers and the community. These controls include constant visual inspections to verify that excessive dust is not created in excavation or transport, wetting of the contaminated soil if dust is created, and ensuring the contaminated soil is covered when in the haul trucks prior to exiting the site.

If contaminated media are at concentrations that airborne particulates can pose unacceptable risk to workers or the community via an airborne pathway, the Remedial Design will specify that air monitoring equipment will be onsite and continually monitored.

B.2 Written Comments

Comment 1: What happens to Sand Creek after the exit from the arsenal area into Windham?

Response: Sand Creek flows through the center of the former RVAAP (CJAG), generally in a northeast direction to its confluence with the South Fork Eagle Creek. This confluence is just inside the CJAG perimeter fence. After the confluence, South Fork Eagle Creek exits CJAG between Windham Road and Snow Road and continues in a northerly direction for approximately 3 miles to its confluence with Eagle Creek.

C TECHNICAL AND LEGAL ISSUES

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

PART IV: REFERENCES

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Winslow, J.D. and G.W. White 1966.. *Geology and Ground-water Resources of Portage County, Ohio*. Geological Survey Professional Paper 511. 1966.

FIGURES

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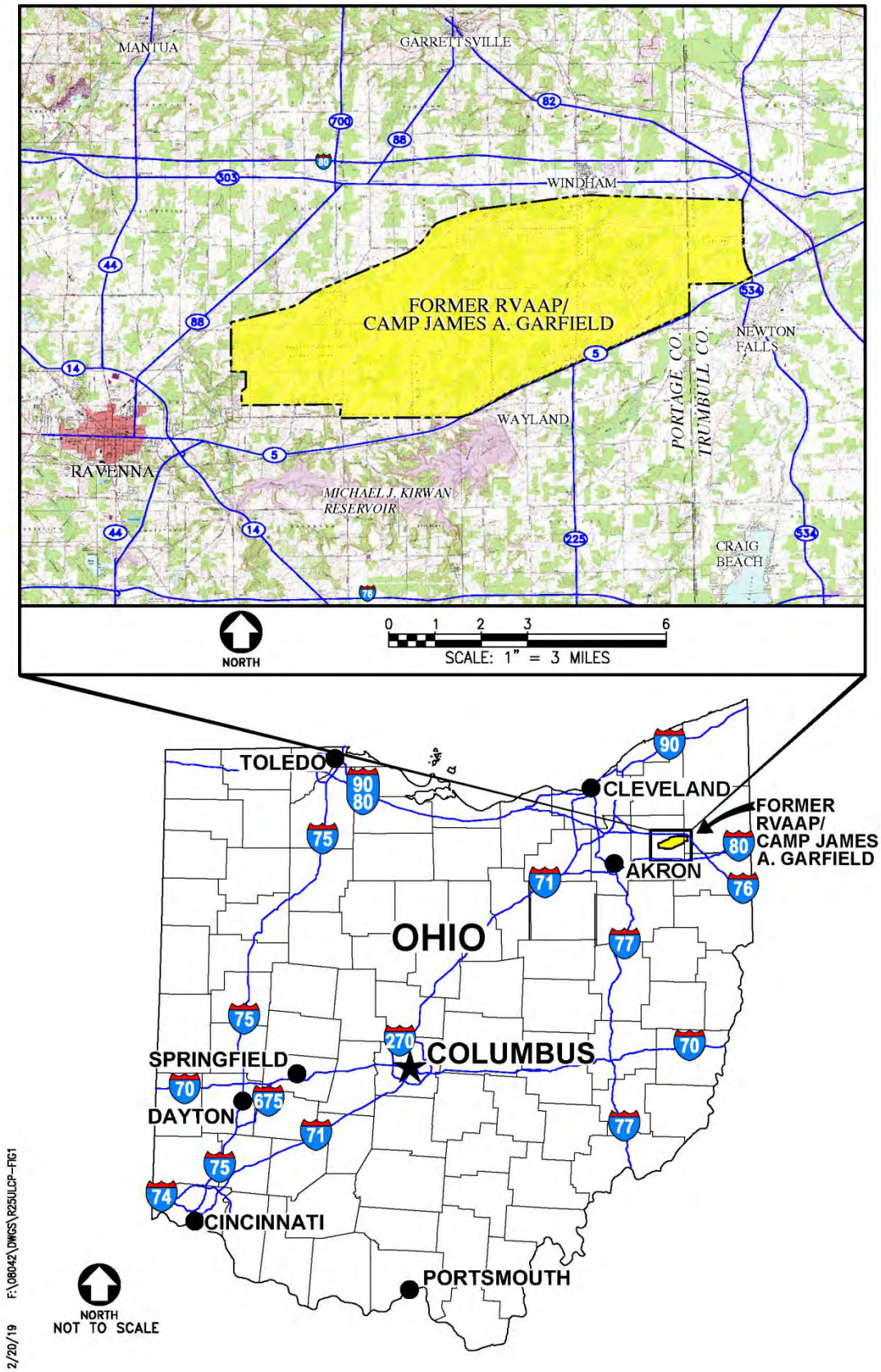

Figure 1. General Location and Orientation of Camp James A. Garfield

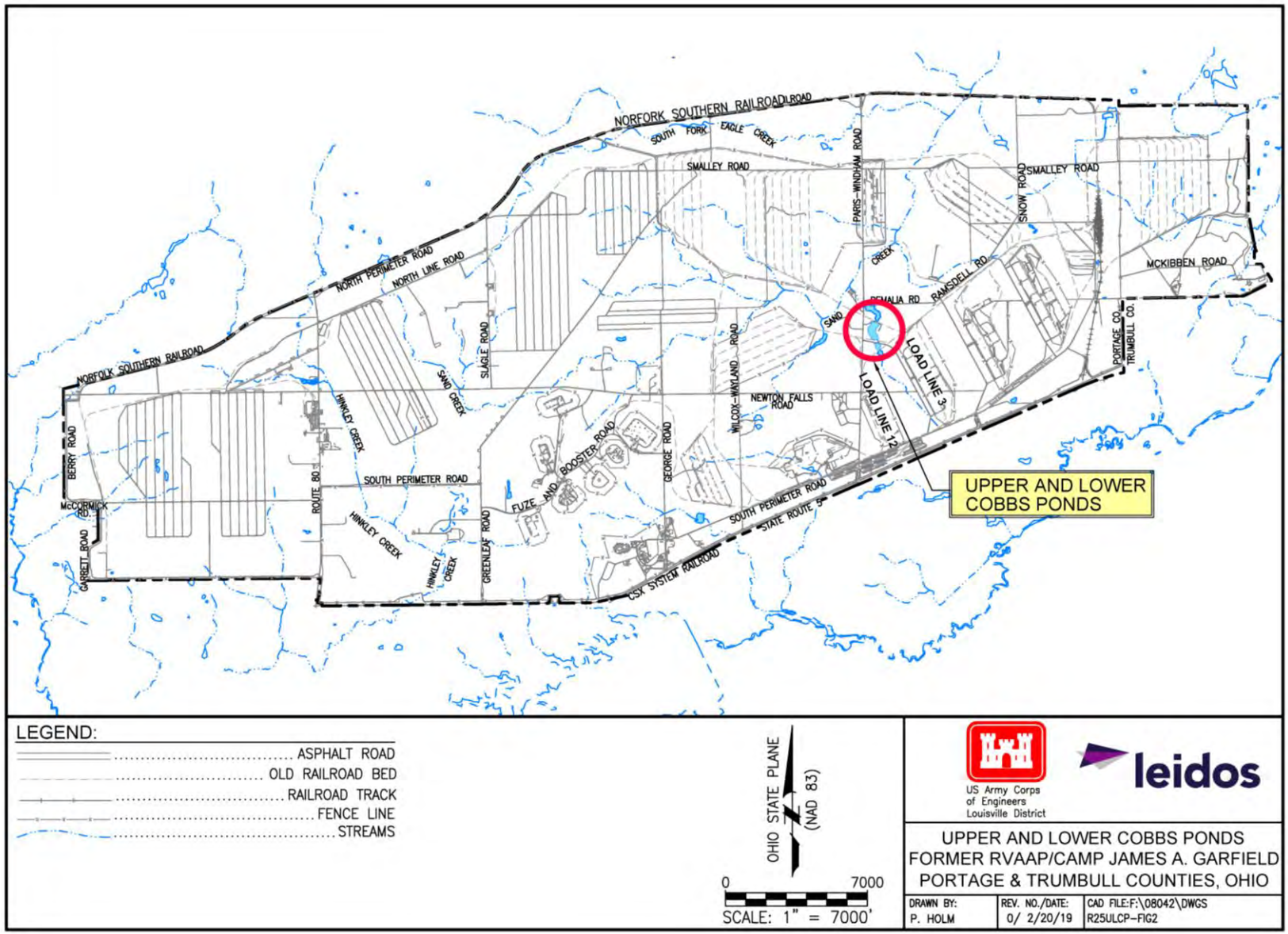

Figure 2. Camp James A. Garfield Installation Map

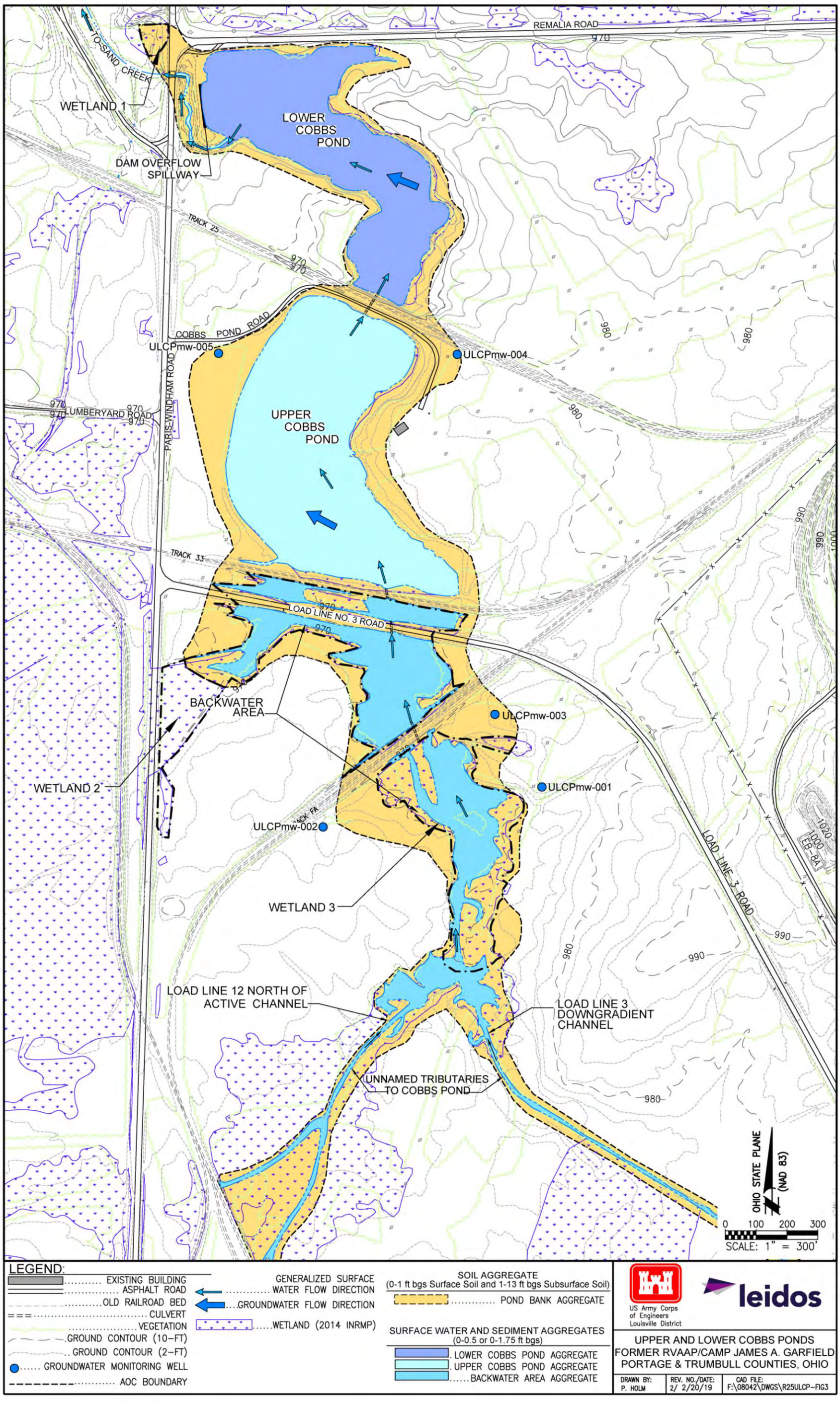

Figure 3. Upper and Lower Cobbs Ponds Site Features

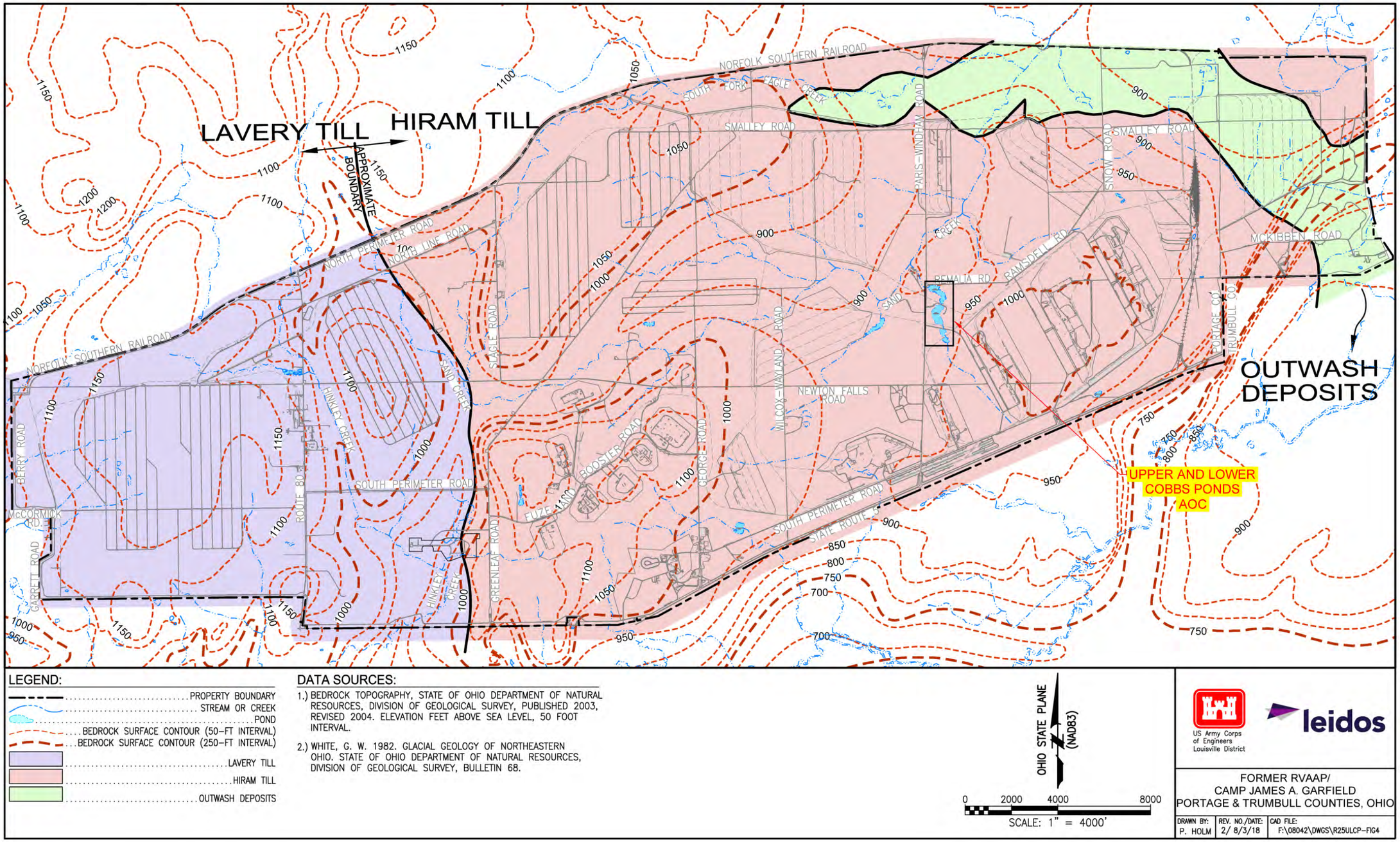

Figure 4. Geologic Map of Unconsolidated Deposits on Camp James A. Garfield

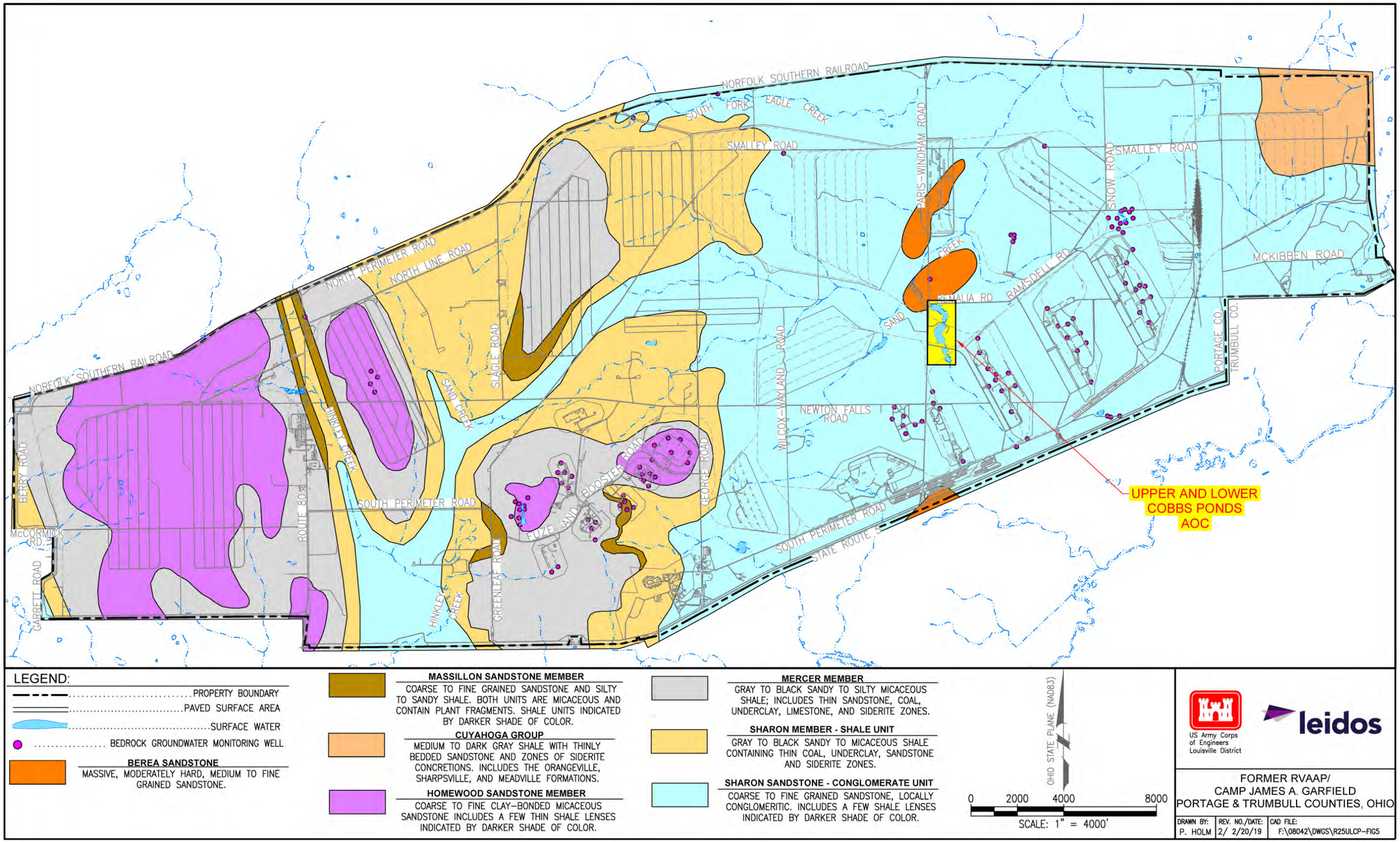

Figure 5. Geologic Bedrock Map and Stratigraphic Description of Units on Camp James A. Garfield

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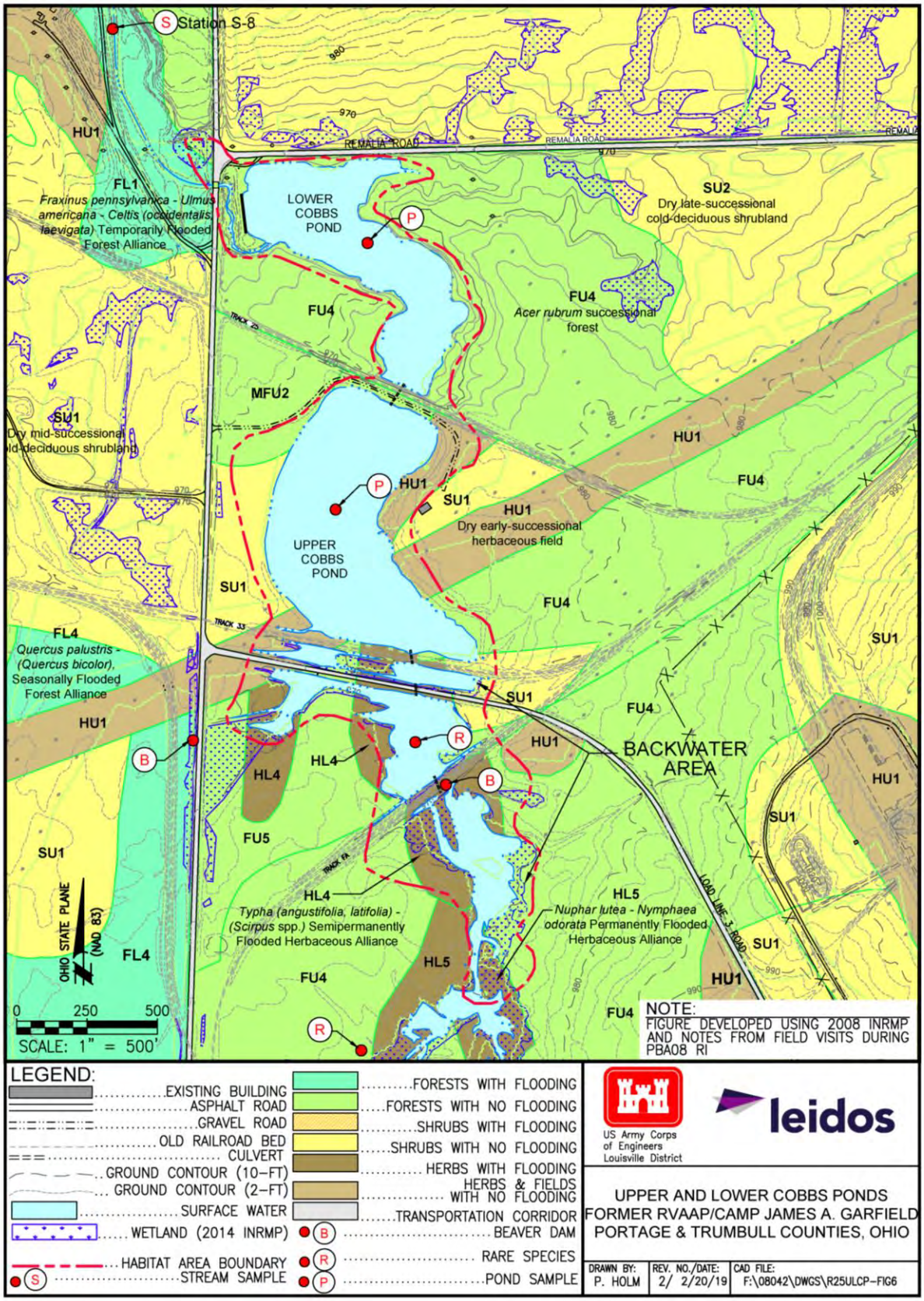

Figure 6. Natural Resources Inside and Near Habitat Area at Upper and Lower Cobbs Ponds

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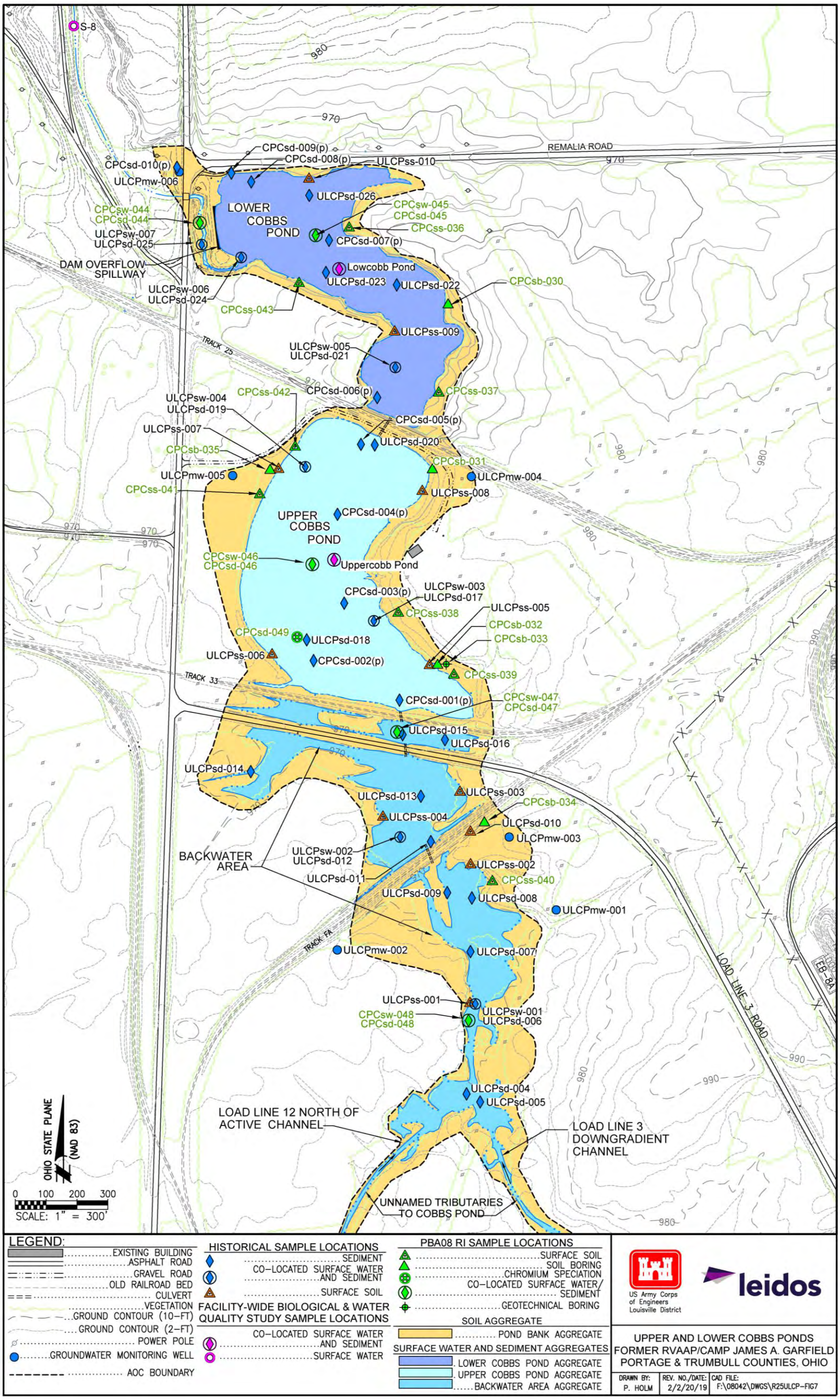

Figure 7. Upper and Lower Cobbs Ponds Sample Locations

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APPENDIX A

Affidavits

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Affidavit of Publication, Tribune Chronicle, June 6, 2018

NOTICE OF DOCUMENT AVAILABILITY
Proposed Plans for Load Line 7, Load Line 9, Load Line 12, Wet Storage Area and Upper and Lower Cobbs Ponds at the Former Ravenna Army Ammunition Plant (RVAAP)

The Proposed Plans for Load Line 7, Load Line 12, and Upper and Lower Cobbs Ponds each present a recommendation of No Further Action and provide the rationale for this recommendation. The Proposed Plans for Load Line 9 and Wet Storage Area present the preferred alternative, Ex-situ Thermal Treatment. These Proposed Plans are now available for public review for 30 days from June 6, 2018 to July 6, 2018.

The Proposed Plans are available at:

Newton Falls Public Library	Reed Memorial Library
204 South Canal Street	167 East Main Street
Newton Falls, Ohio 44444	Ravenna, Ohio 44266

The Proposed Plans are also available at www.rvaap.org

Please join us for an OPEN HOUSE and PUBLIC MEETING.

The Army will host an informational open house and a public meeting to explain the recommendations in the Proposed Plans. Oral and written comments will be accepted at the meeting. Written comments may be mailed to the Camp Ravenna Environmental Office, 1438 State Route 534 SW, Newton Falls, OH 44444. Comments will be accepted during the public comment period from June 6, 2018 to July 6, 2018.

The public meeting is scheduled for:	at:
Thursday, June 21, 2018	Shearer Community Center
6:00 pm Open House	(Paris Township Hall)
6:30 pm Public Meeting	9355 Newton Falls Road
	Ravenna, OH 44266

For more information or if you need special accommodations to attend, please contact Katie Tait at 614-336-6136.
#157-1T-June 6, 2018 #3674

PROOF OF PUBLICATION

STATE OF OHIO
TRUMBULL COUNTY SS. PAMELA EAZOR

BEING DULY SWORN, UPON OATH STATES THAT SHE IS AN AUTHORIZED REPRESENTATIVE OF THE TRIBUNE CHRONICLE, (A DIVISION OF EASTERN OHIO NEWSPAPERS INC) A DAILY NEWSPAPER PRINTED IN THE CITY OF WARREN, COUNTY OF TRUMBULL, STATE OF OHIO AND OF GENERAL CIRCULATION IN THE CITY OF WARREN, TRUMBULL COUNTY, OHIO AND IS INDEPENDENT IN POLITICS.

THAT THE ATTACHED ADVERTISEMENT WAS PUBLISHED IN THE TRIBUNE CHRONICLE EVERY WEDNESDAY FOR (1) ONE CONSECUTIVE WEEKS AND THAT THE FIRST INSERTION WAS ON WEDNESDAY THE 6th DAY OF JUNE 2018.

Pamela Eazor

SWORN TO BEFORE ME AND SUBSCRIBED IN MY PRESENCE ON THIS 6th DAY OF JUNE 2018

Constance A. Pacek
NOTARY PUBLIC

NOTARY PUBLIC STATE OF OHIO

CONSTANCE A. PACEK
Notary Public, State of Ohio
My Commission Expires
March 7, 2021

ADVERTISING COST $ 283.32

Affidavit of Publication, Record Courier, June 6, 2018

~~3119393~~
3119393

Proof of Publication
Record Publishing Company
1050 W. Main Street,
Kent, OH 44240
Phone (330) 541-9400
Fax (330) 673-6363

I, [illegible] being first duly sworn depose and say that I am Advertising Clerk of
Record Publishing Company

30 Record-Courier a newspaper printed and published in the city of Kent, and of General circulation in the County of Portage, State of Ohio, and personal knowledge of the facts herein stated and that the notice hereto annexed was Published in said newspapers for 1 insertions on the same day of the week from and after the 6th day of June, 2018 and that the fees charged are legal.

Name of Account: Leidos
Ad Number: 12454540
No. of Lines: 28

Day(s) Published: 06/06.
Printers Fee: $115.20

Sworn to and subscribed before this 6th day of June, 2018.

Elizabeth McDaniel
Notary Public
Commission Expires June 19, 2021

Notice of Document Availability

Proposed Plans for Load Line 7, Load Line 9, Load Line 12, Wet Storage Area and Upper and Lower Cobbs Ponds at the Former Ravenna Army Ammunition Plant (RVAAP)

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For more information or if you need special accommodations to attend, please contact Katie Tait at 614-336-6136.

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APPENDIX B

Ohio EPA Correspondence

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Ohio Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

January 8, 2019

Mr. David Connolly
Army National Guard Directorate
Environmental Programs Division
ARNG-ILE-CR
111 South George Mason Drive
Arlington, VA 22204

Re: US Army Ravenna Ammunition Plt RVAAP
Remediation Response
Plans
Remedial Response
Portage County
267000859028

Subject: Review of the "Draft Record of Decision for Soil, Sediment, and Surface Water at RVAAP-29 Upper and Lower Cobbs Ponds" Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio: Dated November 29, 2018 (Work Activity No. 267-000859-028)

Dear Mr. Connolly:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR) has received and reviewed the document entitled, "*Draft Record of Decision for Soil, Sediment, and Surface Water at RVAAP-29 Upper and Lower Cobbs Ponds*" dated November 29, 2018. This document, received by Ohio EPA's NEDO on November 30, 2018, was prepared by Leidos.

The draft Record of Decision (ROD) document provided to Ohio EPA is satisfactory. Please submit the ROD in its final format. If you have any questions or concerns, please do not hesitate to contact me at (330) 963-1235.

Sincerely,

Nicholas Roope, Site Coordinator
Division of Environmental Response and Revitalization

NCR/nvp

RECEIVED
JAN 09 2019

ec: Nat Peters, USACE
Katie Tait/Kevin Sedlak, OHARNG RTLS
Craig Coombs, USACE
Rebecca Shreffler, Chenega
Mark Johnson, Ohio EPA, NEDO, DERR
Bob Princic, Ohio EPA, NEDO, DERR
Tom Schneider, Ohio EPA, SWDO, DERR

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