

**Final**

**Proposed Plan  
for Soil, Sediment, and Surface Water  
at RVAAP-46 Buildings F-15 and F-16**

**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:**



**Leidos  
8866 Commons Boulevard, Suite 201  
Twinsburg, Ohio 44087**

**April 1, 2019**

**REPORT DOCUMENTATION PAGE**

*Form Approved  
OMB No. 0704-0188*

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|  |                                    |   |
|--|------------------------------------|---|
| <b>1. REPORT DATE (DD-MM-YYYY)</b><br>01-04-2019 | <b>2. REPORT TYPE</b><br>Technical | <b>3. DATES COVERED (From - To)</b><br>Nov 1978 to Apr 2019 |
|--|------------------------------------|---|

|  |  |
|--|--|
| <b>4. TITLE AND SUBTITLE</b><br>Final<br>Proposed Plan for Soil, Sediment, and Surface Water<br>at RVAAP-46 Buildings F-15 and F-16<br>Former Ravenna Army Ammunition Plant<br>Portage and Trumbull Counties, Ohio | <b>5a. CONTRACT NUMBER</b><br>W912QR-15-C-0046 |
|  | <b>5b. GRANT NUMBER</b><br>NA                  |
|  | <b>5c. PROGRAM ELEMENT NUMBER</b><br>NA        |

|  |                                   |
|--|-----------------------------------|
| <b>6. AUTHOR(S)</b><br>Thomas, Jed, H. | <b>5d. PROJECT NUMBER</b><br>NA   |
|  | <b>5e. TASK NUMBER</b><br>NA      |
|  | <b>5f. WORK UNIT NUMBER</b><br>NA |

|   |   |
|---|---|
| <b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b><br>Leidos<br>8866 Commons Boulevard<br>Suite 201<br>Twinsburg, Ohio 44087 | <b>8. PERFORMING ORGANIZATION REPORT NUMBER</b><br>NA |
|---|---|

|  |   |
|--|---|
| <b>9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b><br>USACE - Louisville District<br>U.S. Army Corps of Engineers<br>600 Martin Luther King Jr., Place<br>PO Box 59<br>Louisville, Kentucky 40202-0059 | <b>10. SPONSOR/MONITOR'S ACRONYM(S)</b><br>USACE    |
|  | <b>11. SPONSOR/MONITOR'S REPORT NUMBER(S)</b><br>NA |

|  |
|--|
| <b>12. DISTRIBUTION/AVAILABILITY STATEMENT</b><br>Reference distribution page. |
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|   |
|---|
| <b>13. SUPPLEMENTARY NOTES</b><br>None. |
|---|

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| <b>14. ABSTRACT</b><br>This Proposed Plan for the Buildings F-15 and F-16 area of concern (AOC) presents to the public the physical characteristics, geology, and hydrogeology of the AOC; compiles historical and newly acquired environmental data; summarizes nature and extent of contamination in soil, sediment, and surface water; evaluates contaminant fate and transport; and provides human health and ecological risk assessments. These evaluations indicate there are no chemicals of concern (COCs) that pose unacceptable risk. Therefore, this plan presents to the public a recommendation of No Further Action (NFA) with respect to soil, sediment, and surface water to attain Unrestricted (Residential) Land Use. |
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| <b>15. SUBJECT TERMS</b><br>proposed plan, no further action, land use, chemicals of concern |
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|  |                         |                          |  |                                  |  |
|--|-------------------------|--------------------------|--|----------------------------------|--|
| <b>16. SECURITY CLASSIFICATION OF:</b> |                         |                          | <b>17. LIMITATION OF ABSTRACT</b><br>U | <b>18. NUMBER OF PAGES</b><br>38 | <b>19a. NAME OF RESPONSIBLE PERSON</b><br>Nathaniel Peters, II   |
| <b>a. REPORT</b><br>U                  | <b>b. ABSTRACT</b><br>U | <b>c. THIS PAGE</b><br>U |  |                                  | <b>19b. TELEPHONE NUMBER (Include area code)</b><br>502.315.2624 |



Mike DeWine, Governor  
Jon Husted, Lt. Governor  
Laurie A. Stevenson, Director

May 7, 2019

RE: US Army Ravenna Ammunition Plt RVAAP  
Remediation Response  
Project Records  
Remedial Response  
Portage County  
ID # 267000859111

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

**Subject: Final Proposed Plan (PP) for Soil, Sediment, and Surface Water at  
RVAAP-46 Buildings F-15 and F-16**

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 "Final Proposed Plan (PP) for Soil, Sediment, and Surface Water at RVAAP-46 Buildings F-15 and F-16," dated April 1, 2019. It was prepared by Leidos.

Ohio EPA has no comments on the "Final Proposed Plan (PP) for Soil, Sediment, and Surface Water at RVAAP-46 Buildings F-15 and F-16." Based on the information contained in the Final PP document, other investigation documents and reports, and Ohio EPA's oversight participation during the investigation, Ohio EPA concurs with the Final PP for RVAAP-46 Buildings F-15 and F-16 recommending No Further Action.

If you have any questions concerning this letter, please contact Megan Oravec at (330) 963-1168.

Sincerely,

A handwritten signature in blue ink, appearing to read "Melisa Witherspoon", is written over a light blue horizontal line.

Melisa Witherspoon, Chief  
Division of Environmental Response and Revitalization

MO/MW/sc

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Katie Tait, OHARNG, Camp James A. Garfield  
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Megan Oravec, Ohio EPA, NEDO, DERR

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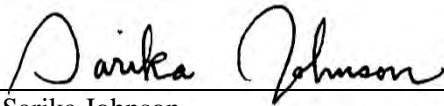
Leidos has completed the Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-46 Buildings F-15 and F-16 at the Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio. Notice is hereby given that an independent technical review has been conducted that is appropriate to the 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 United States Army Corps of Engineers (USACE) policy. In addition, an independent verification was performed to ensure all applicable changes were made per regulatory and Army comments.



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

\_\_\_\_\_  
April 1, 2019

Date



\_\_\_\_\_  
Sarika Johnson  
Independent Technical Review Team Leader

\_\_\_\_\_  
April 1, 2019

Date

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



\_\_\_\_\_  
Lisa Jones-Bateman REM, PMP  
Senior Program Manager

\_\_\_\_\_  
April 1, 2019

Date

**Final**

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for Soil, Sediment, and Surface Water  
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Former Ravenna Army Ammunition Plant  
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April 1, 2019

**DOCUMENT DISTRIBUTION**  
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**at RVAAP-46 Buildings F-15 and F-16**  
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ARNG = Army National Guard.  
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.

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**LIST OF ACRONYMS**

|          |   |
|----------|---|
| amsl     | Above Mean Sea Level  |
| AOC      | Area of Concern   |
| ARNG     | Army National Guard   |
| AST      | Aboveground Storage Tank  |
| bgs      | Below Ground Surface  |
| CERCLA   | Comprehensive Environmental Response, Compensation, and Liability Act |
| CJAG     | Camp James A. Garfield  |
| CMCOC    | Contaminant Migration Chemical of Concern                             |
| CMCOPC   | Contaminant Migration Chemical of Potential Concern                   |
| COC      | Chemical of Concern   |
| COPEC    | Chemical of Potential Ecological Concern                              |
| DERP     | Defense Environmental Restoration Program                             |
| ERA      | Ecological Risk Assessment  |
| FWCUG    | Facility-wide Cleanup Goal  |
| HHRA     | Human Health Risk Assessment  |
| HMX      | Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine                      |
| HQ       | Hazard Quotient   |
| ISM      | Incremental Sampling Method   |
| NCP      | National Oil and Hazardous Substances Pollution Contingency Plan      |
| OHARNG   | Ohio Army National Guard  |
| Ohio EPA | Ohio Environmental Protection Agency                                  |
| PAH      | Polycyclic Aromatic Hydrocarbon                                       |
| PBA08    | 2008 Performance-based Acquisition                                    |
| PCB      | Polychlorinated Biphenyl  |
| PP       | Proposed Plan   |
| 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   |
| SL       | Screening Level   |
| SVOC     | Semi-volatile Organic Compound  |
| TAL      | Target Analyte List   |

TNT  
TR

2,4,6-Trinitrotoluene  
Target Risk

USACE  
VOC

U.S. Army Corps of Engineers  
Volatile Organic Compound



## 1.0 INTRODUCTION

This Proposed Plan (PP) presents the conclusions and recommendations for soil, sediment, and surface water within the Buildings F-15 and F-16 area of concern (AOC) at the former Ravenna Army Ammunition Plant (RVAAP). The former RVAAP is now known as Camp James A. Garfield (CJAG) Joint Military Training Center and is located in Portage and Trumbull counties, Ohio (Figure 1). Buildings F-15 and F-16 are designated as AOC RVAAP-46.

The Army National Guard (ARNG), in coordination with the Ohio Environmental Protection Agency (Ohio EPA), is issuing this PP to provide the public with information necessary to comment on the selection of an appropriate response action. The remedy will be selected for the Buildings F-15 and F-16 AOC after all comments submitted during the 30-day public comment period are considered. Therefore, the public is encouraged to review and comment on the preferred alternative presented in this PP.

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

This PP summarizes information that can be found in detail in the *Remedial Investigation Report for Soil, Sediment, and Surface Water at RVAAP-46 Buildings F-15 and F-16* (Leidos 2018) and other documents contained in the Administrative Record file for Buildings F-15 and F-16.

### **Public Comment Period:**

July 29, 2019 to August 27, 2019

### **Public Meeting:**

ARNG will hold an open house and public meeting to present the conclusions and additional details presented in the *Remedial Investigation Report for Soil, Sediment, and Surface Water at RVAAP-46 Buildings F-15 and F-16* (Leidos 2018). Oral and written comments will also be accepted at the meeting. The open house and public meeting are scheduled for 6:00PM, August 15, 2019, at the Shearer Community Center, 9355 Newton Falls Road, Ravenna, Ohio 44266.

### **Information Repositories:**

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

#### **Reed Memorial Library**

167 East Main Street  
Ravenna, Ohio 44266  
(330) 296-2827

Hours of operation:

9AM-9PM Monday-Thursday  
9AM-6PM Friday  
9AM-5PM Saturday  
1PM-5PM Sunday

#### **Newton Falls Public Library**

204 South Canal Street  
Newton Falls, Ohio 44444  
(330) 872-1282

Hours of operation:

9AM-8PM Monday-Thursday  
9AM-5PM Friday and Saturday

#### **Online**

<http://www.rvaap.org/>

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

#### **Camp James A. Garfield Joint Military Training Center (former Ravenna Army Ammunition Plant)**

Environmental Office  
1438 State Route 534 SW  
Newton Falls, Ohio 44444  
(614) 336-6136

*Note: Access is restricted to the facility, but the file can be obtained or viewed with prior notice.*

ARNG's preferred alternative at the AOC is no further action for soil, sediment, and surface water. ARNG encourages the public to review the site background documents to gain a more comprehensive understanding of the AOC, activities that have been conducted to date, and the rationale for the preferred alternative.

## 2.0 SITE BACKGROUND

The following subsections present the background of CJAG and the Buildings F-15 and F-16 AOC.

### 2.1 Facility Description and Background

The former RVAAP, now known as 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 (Figures 1 and 2). 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 and subsequently licensed to the Ohio Army National Guard (OHARNG) for use as a military training site (Camp James A. Garfield).

### 2.2 Buildings F-15 and F-16 AOC Background

Buildings F-15 and F-16 were used for surveillance testing on explosives and propellants and testing disassembly processes during World War II, the Korean War, and the Vietnam War (between 1941 and 1974). The number of tests conducted on miscellaneous explosives and propellants, the quantities of material tested, and the exact dates of testing are unknown. Figure 3 presents current site features.

Building F-15 was demolished in 2005 (MKM 2005). The floor slabs and foundations associated with Buildings F-15 and F-16 were removed and disposed of in 2009 (PIKA 2010). The exact date of the demolition of Building F-16 is unknown.

A visual survey conducted by ARNG in 2016 confirmed that all buildings and structures at the Buildings F-15 and F-16 AOC have been demolished, except for one former coal-powered boiler house (Building U-17).

The survey also noted that ceramic insulators and metal debris were observed south of the old abandoned Building U-17 in an adjacent fenced area that is most likely the location of the former electrical equipment area. In addition, an old metal platform (in place) and wooden debris were located north of former Building F-15. Several debris piles, including corrugated metal, concrete, brick, asphalt, and wood, also were observed throughout the AOC. The debris piles and metal platform and wooden debris were removed and properly disposed of in November 2018. The ceramic insulators and metal debris associated with Building U-17 will be removed and properly disposed of when Building U-17 is demolished.

### 2.3 Potential Contaminants

The 1978 Installation Assessment identified the major contaminants of the former RVAAP to be 2,4,6-trinitrotoluene (TNT); composition B (a combination of TNT and hexahydro-1,3,5-trinitro-1,3,5-triazine [also known as RDX]); sulfates; nitrates; lead styphnate; and lead azide (USATHAMA 1978).

Additional site-specific contaminants include mercury fulminate; tetryl; octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX); nitroglycerine; nitrocellulose; nitroguanidine; and heavy metals (lead, chromium, mercury, and arsenic) from testing munitions. Site-specific contaminants also include polycyclic aromatic hydrocarbons (PAHs) from coal storage and their use in the two boiler houses

(Buildings U-17 and U-18) and polychlorinated biphenyls (PCBs) from the on-site transformers at Building F-15.

In summary, potential contaminants at Buildings F-15 and F-16 include explosives and inorganic chemicals (e.g., metals). Other potential contaminants include PAHs and PCBs from previous site use at Buildings U-17 and U-18 (former coal-powered boiler houses).

## 2.4 Remedial Investigations

The AOC characteristics, nature and extent of contamination, and conceptual site model are based on investigations conducted from 1978–2014. The following environmental investigations have been conducted at Buildings F-15 and F-16:

- Installation Assessment (USATHAMA 1978);
- Relative Risk Site Evaluation for Newly Added Sites (USACHPPM 1998);
- 2004 Characterization of 14 AOCs (MKM 2007);
- 2009 Under Slab Sampling (URS 2010)
- 2009 U.S. Army Corps of Engineers (USACE) Incremental Sampling Method (ISM) Surface Soil Sampling (Prudent 2011); and
- 2008 Performance-based Acquisition (PBA08) Remedial Investigation (RI), as summarized in the *Remedial Investigation for Soil, Sediment, and Surface Water at the RVAAP-46 Buildings F-15 and F-16* (Leidos 2018).

Figure 4 presents sampling locations at the Buildings F-15 and F-16 AOC.

### 2.4.1 Surface and Subsurface Soil

In 2004, Characterization of 14 AOCs sampling was conducted at Buildings F-15 and F-16. Surface soil and sediment samples were collected from dry ditches and drainage pathways; surface water samples were collected from drainage pathways. Discrete

surface soil samples also were collected for volatile organic compounds (VOCs).

During the 2009 Under Slab Sampling, two surface soil ISM samples and three quality assurance/quality control samples were collected from the footprints of former Buildings F-15 and F-16. This investigation was performed after the buildings and structures at the AOC were demolished and removed (except Building U-17). These samples were collected from the footprints of former Buildings F-15 and F-16 to assess potential impact to surface soil. All ISM samples collected were analyzed for target analyte list (TAL) metals, explosives, and propellants. Eight discrete core samples (four from each building footprint) also were collected for field screening for TNT and RDX.

In the 2009 USACE ISM Surface Soil Sampling, surface soil ISM samples F15ss-040-0001-SO and F16ss-030-0001-SO were collected around the building footprints; samples were analyzed only for explosives. Surface soil ISM samples FWCss-007 and FWCss-008 were collected from the coal storage areas; samples were analyzed for TAL metals and semi-volatile organic compounds (SVOCs).

The results of the 2010 PBA08 RI sampling were combined with the results of the 2004 Characterization of 14 AOCs, 2009 Under Slab Sampling, and 2009 USACE ISM Surface Soil Sampling. The combined results were used to evaluate the nature and extent of contamination, assess potential future impacts to groundwater, conduct human health risk assessments (HHRAs) and ecological risk assessments (ERAs), and evaluate the need for remedial alternatives.

Ohio EPA identifies a target risk (TR) of 1E-05 as a cancer risk for carcinogens and an acceptable hazard quotient (HQ) of 1 for non-carcinogens. The evaluation summarized below was performed to assess which chemicals exceeded a TR of 1E-05 and an HQ of 1, and to establish which chemicals were

above their respective background concentrations.

### ***Building F-15 Results***

- No explosives, PCBs, or VOCs were detected in surface or subsurface soil samples.
- One propellant (nitrocellulose) was detected in one ISM surface soil sample (F15ss-006M) at a concentration below the screening level (SL). No propellants were detected in subsurface soil samples.
- Arsenic and cobalt were the only two inorganic chemicals to exceed their background concentrations and facility-wide cleanup goals (FWCUGs) of HQ of 0.1 or TR of 1E-06 in surface soil. Arsenic exceeded the background concentration of 15.4 mg/kg in two of the 2004 Characterization of 14 AOCs ISM surface samples; arsenic was not detected above background in subsurface soil samples.
- Benzo(a)pyrene at one location (F15ss-036M at 0.48 mg/kg) slightly exceeded the Resident Receptor (Adult and Child) FWCUG at a TR of 1E-05, HQ of 1 (0.221 mg/kg).
- PAHs were not detected in any subsurface soil samples. However, PAHs were identified as potential contaminants from previous site use at Building U-17, which was formerly used as a coal-powered boiler house. The concentrations in surface soil were less than SLs.

### ***Building F-16 Results***

- All explosive concentrations were below a TR of 1E-05, HQ of 1, or their respective background concentrations in surface or subsurface soil. Propellant concentrations were below their respective SLs in surface soil and were not detected in subsurface soil.
- Arsenic, cobalt, manganese, and thallium were the only four inorganic chemicals to exceed their background concentration and FWCUGs of HQ of 0.1 or TR of 1E-06 in surface soil.

- Cobalt and thallium did not exceed the FWCUGs of HQ of 1 or TR of 1E-05 and were not detected in subsurface soil samples.
- Arsenic exceeded the background concentration of 15.4 mg/kg in the 2004 Characterization of 14 AOCs ISM surface sample F16ss-004M (18 mg/kg) and in PBA08 RI sample location F16sb-021 (31.3 mg/kg).
- Arsenic also exceeded the background concentration of 19.8 mg/kg in subsurface soil at F16sb-021 (24.3J mg/kg from 4–7 ft below ground surface [bgs]).
- Manganese was detected above the background concentration (1,450 mg/kg) and FWCUG at a TR of 1E-05, HQ of 1 (2,927 mg/kg) in only one of the two discrete surface soil samples at a concentration of 2,140 mg/kg at PBA08 RI location F16sb-022. Manganese was detected at concentrations below the SL in all subsurface samples at these locations.
- Benzo(a)pyrene and benzo(b)fluoranthene, the only PAHs detected above the SLs, were detected below the FWCUG at a TR of 1E-05, HQ of 1 in all surface soil samples. PAHs were not detected in subsurface soil samples.
- The detected VOC, pesticide, and PCB concentrations in surface soil were all below the FWCUGs at a TR of 1E-05, HQ of 1. No VOCs, PCBs, or pesticides were detected in subsurface soil samples collected at Building F-16.

### ***2.4.2 Sediment and Surface Water***

Sediment and surface water are not considered media of concern at the Buildings F-15 and F-16 AOC, as surface water is only intermittent at the AOC. However, during the 2004 Characterization of 14 AOCs, two ISM sediment samples (F16sd-001M-SD and F16sd-002M-SD) and two surface water samples (F16sw-001 and F16sw-002) were collected.

Sediment sample F16sd-001M-SD was collected from the former coal storage area immediately south of former Building F-16. USACE collected sample FWCss-008-0001-SO in 2009 in that same area. The more recent sample collected (FWCss-008-0001-SO) is used in the risk assessment.

The 2004 sample F16sd-001M-SD was only analyzed for explosives and metals. No explosives were detected, and metal concentrations did not exceed the lowest FWCUG for the Resident Receptor (Adult and Child) and National Guard Trainee at a target HQ of 1 or TR of 1E-05.

Sediment sample F16sd-002M-SD was collected downstream from the Building F-16 aggregate in the unnamed tributary to Sand Creek. Only explosives and metals analyses were performed. No explosives were detected. Cobalt, detected at 11 mg/kg, was the only metal that exceeded the lowest FWCUG for the Resident Receptor (Adult and Child) and National Guard Trainee at a target HQ of 0.1 (2.3 mg/kg) but not at an HQ of 1 (23 mg/kg).

Surface water sample F16sw-002 was collected downstream from the Building F-16 aggregate in the unnamed tributary to Sand Creek. All surface water sample concentrations were below their background concentration or the lowest FWCUG for the Resident Receptor (Adult and Child) and National Guard Trainee at a target HQ of 1 or TR of 1E-05.

Surface water sample F16sw-001 was collected from the former coal storage area immediately south of former Building F-16. Effectively, this was a sample from accumulated, ponded water. The metal, SVOC, VOC, PCB, and pesticide concentrations were either non-detectable or had a concentration below the lowest FWCUG for the Resident Receptor (Adult and Child) and National Guard Trainee at a target HQ of 1 or TR of 1E-05. Nitroglycerin at 0.0021 mg/L exceeded the tap water regional screening level (RSL) of 0.0002 mg/L at HQ of 0.1 and 0.002 mg/kg at HQ of 1.

### 3.0 SITE CHARACTERISTICS

The AOC, which is the combined operational areas for both Buildings F-15 and F-16, is approximately 12.3 acres (6.6 and 5.7 acres, respectively) located west of Block D and east of Slagle Road in the west-central portion of RVAAP (Figure 2).

Historical facilities at the AOC included five process and support buildings. All buildings and structures at the AOC have been demolished, except for one former coal-powered boiler house (Building U-17).

Two former coal piles were located south of Buildings F-15 and F-16. These are addressed as a separate AOC (designated as CC-RVAAP-73). The historical records review produced documentation of a 1,100-gal aboveground storage tank (AST) near Building U-17 that contained #2 fuel oil (heating oil) and was surrounded by a 2-ft berm. The AST was managed under the *Spill Prevention Control & Counter Measures Plan for the Ravenna Army Ammunition Plant* (RAI 1992). It is estimated that the AST was removed between 1994 and 1996.

The AOC is relatively flat with drainage ditches beside access roads and at the western boundary of the AOC along Slagle Road. The Building F-15 area is currently a gravel- and grass-covered clearing with dense vegetation growing on the edges of the site (ARNG 2016). Gravel-lined roads lead to the site off of Slagle Road. The Building F-16 area is densely vegetated with trees and grass, with a gravel- and grass-covered clearing located in the southeastern portion of the site. Gravel roads lead to the clearing off of Slagle Road. A railroad track bed oriented in a north-south direction is located in the eastern portion of the AOC. This track bed only contains ballasts, as the tracks have been removed. No fences exist around the perimeter boundary of the AOC operational areas.

The topography within the AOC ranges from approximately 1,120 ft above mean sea level (amsl) near the southern and northern

boundaries of the AOC to 1,130 ft amsl in the center of the AOC (Figure 3).

Surface water follows topographic relief and drains into ditches that exit the AOC. Surface runoff from the Building F-15 operational area flows overland to the northwest to a tributary to Eagle Creek. Surface runoff from the Building F-16 operational area flows overland to the southeast to a tributary to Sand Creek.

Bedrock (shale) was encountered at the AOC from 30–37 ft bgs during groundwater well installation activities at Buildings U-17 and U-18 in the 1940s. Bedrock was not encountered during PBA08 RI activities where subsurface borings were drilled to a maximum depth of 13 ft bgs.

A mixture of yellowish-brown and gray, medium dense, silty clay tills with trace gravel overlies shale bedrock at Buildings F-15 and F-16, except where disturbed by former RVAAP activities.

Groundwater was encountered from 4.8 ft bgs in soil borings placed in ditches to approximately 10.8 ft bgs in soil borings at the Building F-16 operational area. Groundwater was not encountered in any subsurface soil borings at the Building F-15 operational area.

#### **4.0 SCOPE AND ROLE OF RESPONSE ACTION AND LAND USE**

ARNG, in coordination with Ohio EPA, is implementing the Installation Restoration Program with the overall program strategy of addressing the principal environmental threats at each site posing a risk to applicable receptors. This PP addresses soil, sediment, and surface water. The response action for these media at the Buildings F-15 and F-16 AOC is being conducted to meet this overall program strategy. Groundwater will be addressed under the RVAAP Facility-wide Groundwater AOC (RVAAP-66) as a separate decision. However, the selected remedy for soil at Buildings F-15 and F-16 must also be protective of groundwater.

The potential future uses for the Buildings F-15 and F-16 AOC are Military Training Land Use or Commercial/Industrial Land Use. Although residential use is not anticipated at CJAG or at the Buildings F-15 and F-16 AOC, Unrestricted (Residential) Land Use was evaluated in accordance with Defense Environmental Restoration Program (DERP) Manual 4715.20 (DoD 2012) in order to make appropriate risk management decisions.

Resident Receptor (Adult and Child) FWCUGs were used to conduct an Unrestricted (Residential) Land Use evaluation. Sites that meet the standards for Unrestricted (Residential) Land Use also are considered protective for Military Training and Commercial Industrial Land Uses.

No prior removal actions have been conducted at this site, and early or interim actions are not planned. The proposed response actions at the Buildings F-15 and F-16 AOC will be implemented under the authority of and in accordance with the requirements of the Ohio EPA *Director's Final Findings and Orders*, dated June 10, 2004 (Ohio EPA 2004).

## **5.0 SUMMARY OF SITE RISKS**

### **5.1 Human Health Risk Assessment**

Using information presented in Section 4.0, an HHRA was performed to identify chemicals of concern (COCs) and provide a risk management evaluation to determine if remediation is required under CERCLA based on potential risks to human receptors.

The media evaluated in the HHRA for the Resident Receptor (Adult and Child) were surface soil (0–1 ft bgs) and subsurface soil (1–13 ft bgs).

No COCs were identified in any of the media of concern for the Resident Receptor; therefore, the site is considered protective for Unrestricted (Residential) Land Use. Because the site is protective for Unrestricted (Residential) Land Use, it is also protective for

Commercial/Industrial Land Use and Military Training Land Use.

## 5.2 Ecological Risk Assessment

The ecological habitat at Buildings F-15 and F-16 is dry, early-successional, herbaceous field; dry, late-successional, cold-deciduous shrubland; *Acer rubrum* successional forest; mixed, cold-deciduous, successional forest; and a wetland. The defined AOC area does not include the forested area between the two buildings.

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. There are no other federally listed species or critical habitats on CJAG. Buildings F-15 and F-16 have not had a site-specific survey for federal- or state-listed species. However, surveys have been conducted throughout the facility and have not identified state-listed, federally listed, threatened, or endangered species at the AOC (OHARNG 2014).

The Level I ERA presents important ecological resources on or near the AOC and evaluates the potential for current contamination to impact ecological resources. Eighteen integrated soil chemicals of potential ecological concern (COPECs) were detected at the Buildings F-15 and F-16 AOC based on the soil data collected for the historical ERA and for the PBA08 RI. These COPECs consist of inorganic chemicals, explosives, PCBs, pesticides, and SVOCs. Thus, contamination is present at the AOC.

Ecological resources at the Buildings F-15 and F-16 AOC were compared to the list of important ecological places and resources. Only 1 of the 39 important places (wetlands) was present. Although the wetland is an important resource, it is not a significant resource, as soil sampling results in and around the wetland do not indicate chemicals are present at concentrations of concern for

ecological receptors. The ERA summarizes the chemicals and resources in detail to demonstrate that there is contamination at the Buildings F-15 and F-16 AOC, but no significant ecological resources are present.

The Buildings F-15 and F-16 AOC has contamination and an important resource, but there are no known significant ecological places or resources. Consequently, the ERA can conclude with a Level I Scoping Level Risk Assessment, with the recommendation that no further action is required to be protective of important ecological resources.

## 5.3 Impacts to Groundwater

The potential for soil and sediment contaminants to impact groundwater was evaluated in a fate and transport evaluation presented in the RI Report (Leidos 2018). The fate and transport evaluation included an analysis of leaching and migration from soil and sediment to groundwater. The modeling evaluated the potential for contaminants to leach from soil and sediment and impact groundwater beneath the AOC.

Modeling results indicated the contaminant migration chemicals of concern (CMCOCs) naphthalene at the Building F-15 aggregate and naphthalene, nitroglycerin, and selenium at the Building F-16 aggregate could potentially leach from soil and mix with groundwater beneath Buildings F-15 and F-16, resulting in concentrations above maximum contaminant levels, U.S. Environmental Protection Agency RSLs, and RVAAP groundwater FWCUGs. No sediment contaminant migration chemicals of potential concern (CMCOPCs) were identified during the evaluation.

A qualitative evaluation of these modeling results with respect to anticipated peak concentrations (compared to historical use dates and screening criteria) and model limitations/conservatism was performed. This evaluation concluded that soil site-related contaminants (including selenium and naphthalene) are not currently influencing groundwater beneath the source areas and that

predicted future impacts would be mitigated by factors such as chemical and biological degradation and lateral dispersivity. Based on the fate and transport evaluation, no CMCOs for soil or sediment were identified as impacting groundwater. The groundwater will be further evaluated as part of the Facility-wide Groundwater AOC RVAAP-66.

## 6.0 CONCLUSIONS

The HHRA determined that no remediation is required to be protective for the Resident Receptor (Adult and Child). The ERA concluded that no chemicals require remediation or further evaluation to protect the environment. The fate and transport assessment determined chemicals in soil and sediment will not impact groundwater. Groundwater will be further evaluated under the Facility-wide Groundwater AOC RVAAP-66. Accordingly, ARNG, in coordination with Ohio EPA, is recommending no further action to attain Unrestricted (Residential) Land Use for soil, sediment, and surface water at Buildings F-15 and F-16.

This recommendation is not a final decision. ARNG, in coordination with Ohio EPA, will select the remedy for Buildings F-15 and F-16 after reviewing and considering all comments submitted during the 30-day public comment period.

## 7.0 COMMUNITY PARTICIPATION

### 7.1 Community Participation

Public participation is an important component of the remedy selection. ARNG, in coordination with Ohio EPA, is soliciting input from the community on the preferred alternative.

The comment period extends from July 29, 2019 to August 27, 2019. This period includes a public meeting at which ARNG will present this PP. ARNG will accept oral and written comments at this meeting.

### 7.2 Public Comment Period

The 30-day comment period is from July 29, 2019 to August 27, 2019, and provides an opportunity for public involvement in the decision-making process for the proposed action. The public is encouraged to review and comment on this PP.

ARNG and Ohio EPA will consider all public comments before selecting a remedy. During the comment period, the public is encouraged to review documents pertinent to Buildings F-15 and F-16.

This information is available at the Information Repository and online at [www.rvaap.org](http://www.rvaap.org). To obtain further information, contact Kathryn Tait of the CJAG Environmental Office at [kathryn.s.tait.nfg@mail.mil](mailto:kathryn.s.tait.nfg@mail.mil).

### 7.3 Written Comments

If the public would like to comment in writing on this PP or other relevant issues, please deliver comments to ARNG at the public meeting or mail written comments (postmarked no later than August 27, 2019).

#### POINT OF CONTACT FOR WRITTEN COMMENTS

**Mailing Address:**

**Camp James A. Garfield Joint Military  
Training Center**

Environmental Office

Attn: Kathryn Tait

1438 State Route 534 SW

Newton Falls, Ohio 44444

**E-mail Address:**

[kathryn.s.tait.nfg@mail.mil](mailto:kathryn.s.tait.nfg@mail.mil)

### 7.4 Public Meeting

ARNG will hold an open house and public meeting on this PP on August 15, 2019, at 6:00PM, in the Shearer Community Center, 9355 Newton Falls Road Ravenna, Ohio 44266 to accept comments.



This meeting will provide an opportunity for the public to comment on the proposed action. Comments made at the meeting will be transcribed.

### 7.5 Review of Public Comments

ARNG will review the public's comments as part of the process in reaching a final decision for the most appropriate action to be taken.

The Responsiveness Summary, a document that summarizes ARNG's responses to comments received during the public comment period, will be included in the Record of Decision (ROD). ARNG's final choice of action will be documented in the ROD.

The ROD will be added to the RVAAP Restoration Program Administrative Record and Information Repositories.

#### ADMINISTRATIVE RECORD FILE

##### **Camp James A. Garfield Joint Military Training Center (former Ravenna Army Ammunition Plant)**

Environmental Office  
1438 State Route 534 SW  
Newton Falls, Ohio 44444  
(614) 336-6136

*Note: Access is restricted to Camp James A Garfield, but the file can be obtained or viewed with prior notice.*

#### GLOSSARY OF TERMS

**Administrative Record:** a collection of documents, typically reports and correspondence, generated during site investigation and remedial activities. Information in the Administrative Record represents the information used to select the preferred alternative.

#### INFORMATION REPOSITORIES

##### **Reed Memorial Library**

167 East Main Street  
Ravenna, Ohio 44266  
(330) 296-2827

Hours of operation:  
9AM-9PM Monday-Thursday  
9AM-6PM Friday  
9AM-5PM Saturday  
1PM-5PM Sunday

##### **Newton Falls Public Library**

204 South Canal Street  
Newton Falls, Ohio 44444  
(330) 872-1282

Hours of operation:  
9AM-8PM Monday-Thursday  
9AM-5PM Friday and Saturday

##### **Online**

<http://www.rvaap.org/>

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

**Contaminant Migration Chemical of Concern (CMCOC):** a chemical substance specific to an area of concern (AOC) that potentially poses significant potential to leach to groundwater at a concentration above human health risks goals. CMCOCs are typically further evaluated for remedial action.

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

**Chemical of Potential Concern (COPC):** a chemical substance specific to an AOC that potentially poses human health risks and requires further evaluation in the RI. COPCs are typically not evaluated for remedial action.

**Chemical of Potential Ecological Concern (COPEC):** a chemical substance specific to an AOC that potentially poses ecological risks and requires further evaluation in the RI. COPECs are typically not evaluated for remedial action.

**Ecological Receptor:** a plant, animal, or habitat exposed to an adverse condition.

**Human Receptor:** a hypothetical person, based on current or potential future land use, who may be exposed to an adverse condition. For example, the National Guard Trainee is considered the hypothetical person when evaluating Military Training Land Use at the former RVAAP.

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

**Record of Decision (ROD):** a signed legal record that describes the cleanup action or remedy selected for a site, the basis for selecting that remedy, public comments, and responses to comments.

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

**Responsiveness Summary:** a section of the ROD that documents and responds to written and oral comments received from the public about the Proposed Plan.

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

**Target Risk:** the Ohio EPA (2009) identifies 1E-05 as a target for cancer risk for carcinogens and an acceptable target HQ of 1 for non-carcinogens.

**Unrestricted (Residential) Land Use:** A land use defined for the former RVAAP restoration that is considered protective for all three Land Uses at Camp James A. Garfield Joint Military Training Center. If an AOC meets the requirements for Unrestricted (Residential) Land Use, then the AOC can also be used for Military Training and Commercial/Industrial purposes.

## REFERENCES

ARNG (U.S. Army National Guard) 2016. *Draft Visual Assessment Survey Report, Evaluation, Identification, and Management of Potential Solid Waste Disposal Sites, Former Ravenna Army Ammunition Plant/Camp Ravenna Joint Military Training Center, Portage and Trumbull Counties, Ohio.* Prepared by AECOM Technical Services, Inc. November 2016.

DoD (U.S. Department of Defense) 2012. *Defense Environmental Restoration Program (DERP) Management Manual.* Number 4715.20. March 2012.

Leidos 2018. *Remedial Investigation Report for Soil, Sediment, and Surface Water at RVAAP-46 Buildings F-15 and F-16.* April 2018.

MKM (MKM Engineers, Inc.) 2005. *Thermal Decomposition and Demolition of Load Line 11 and Buildings F15, 1200, S-4605 and T-4602.* December 2005.

MKM 2007. *Characterization of 14 AOCs at Ravenna Army Ammunition Plant.* March 2007.

OHARNG (Ohio Army National Guard) 2014. *Integrated Natural Resources Management Plan at the Camp Ravenna Joint Military Training Center, Portage and Trumbull Counties, Ohio*. December 2014.

Ohio EPA (Ohio Environmental Protection Agency) 2004. *Director's Final Findings and Orders for the Ravenna Army Ammunition Plant*. June 2004.

PIKA (PIKA International, Inc.) 2010. *Final Construction Completion Report – Removal of Buildings and Concrete Floor Slabs at RVAAP – 08 Load Line 1, & Other Miscellaneous Buildings and Removal & Disposal of Pallets*. July 2010.

Prudent (Prudent Technologies) 2011. *Final Sampling Report of Surface and Subsurface Incremental Sampling Methodology at Load Lines 1, 2, 3, and 4 (RVAAP-08, 09, 10, and 11)*. Prepared for USACE Louisville District. March 2011.

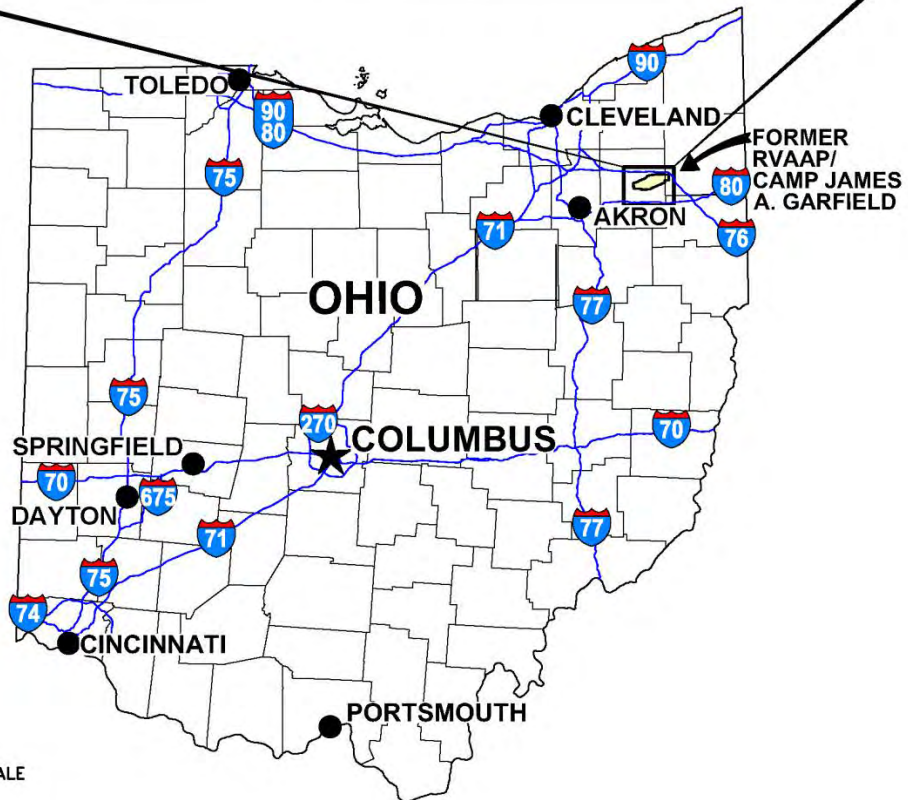
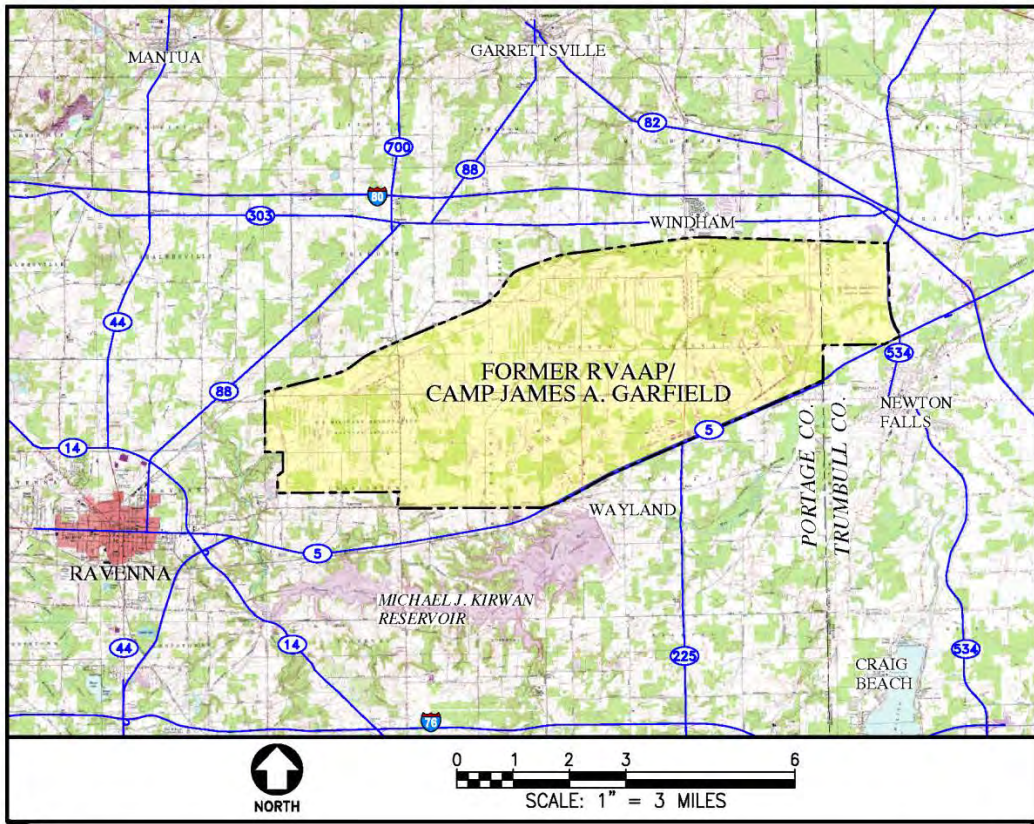
RAI (Ravenna Arsenal, Inc.) 1992. *Spill Prevention Control & Counter Measures Plan for the Ravenna Army Ammunition Plant, August 14, 1990, revised July 15, 1992*. July 1992.

URS (URS Group, Inc.) 2010. *Sampling and Analysis of Soils Below Floor Slabs at RVAAP-08 Load Line 1 and Other Building Locations, Ravenna Army Ammunition Plant, Ravenna, Ohio*. September 2010.

USACHPPM (U.S. Army Center for Health Promotion and Preventive Medicine) 1998. *Relative Risk Site Evaluation for Newly Added Sites at the Ravenna Army Ammunition Plant, Ravenna, Ohio*. Hazardous and Medical Waste Study No. 37-EF-5360-99. October 1998.

USATHAMA (U.S. Army Toxic and Hazardous Materials Agency) 1978. *Installation Assessment of Ravenna Army Ammunition Plant, Records Evaluation Report No. 132*. 1978.

## **FIGURES**



1/18/19 C:\080042\DWG\S\085F15F16-FIG1

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

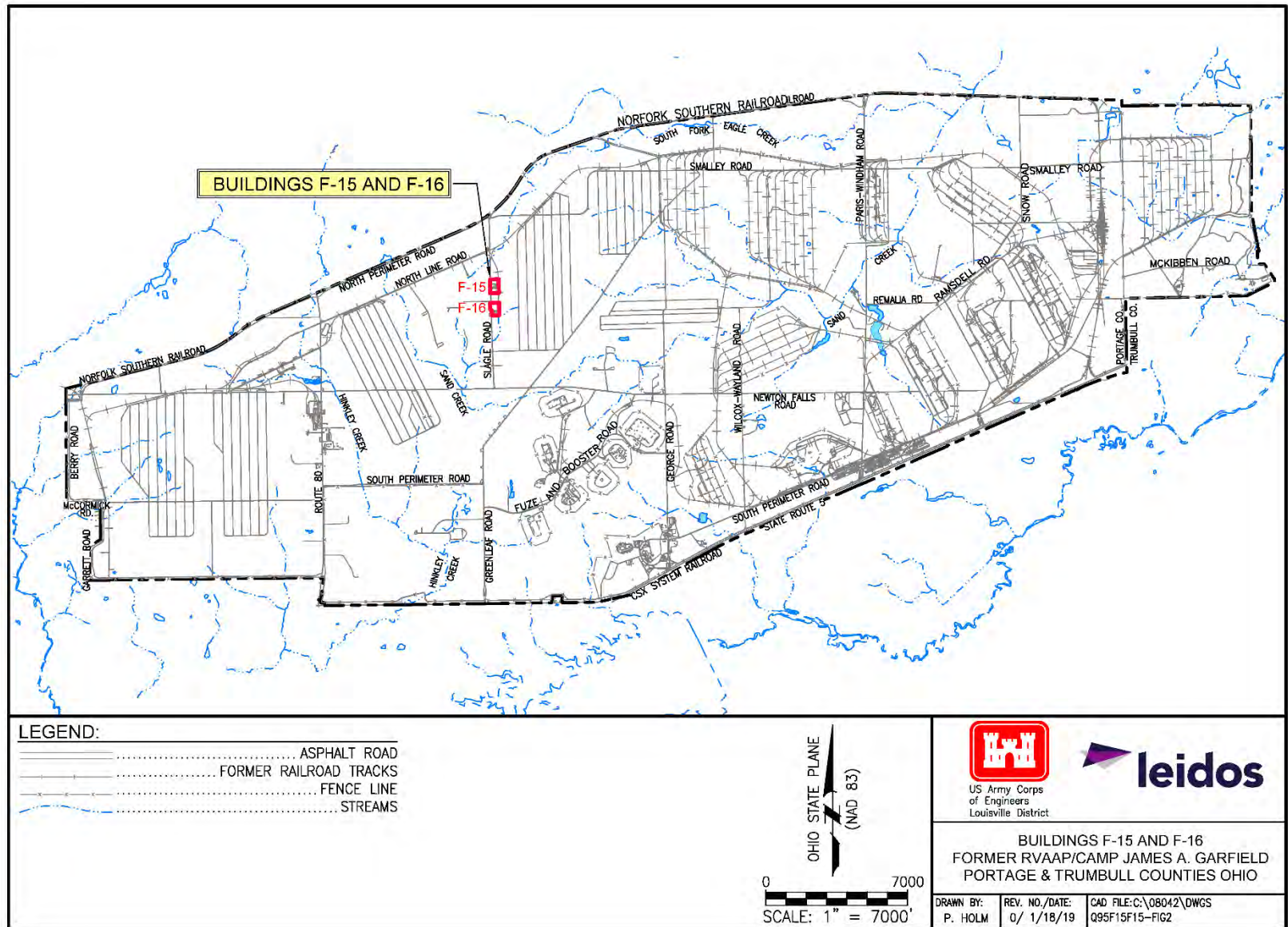


Figure 2. Location of Buildings F-15 and F-16 at Camp James A. Garfield

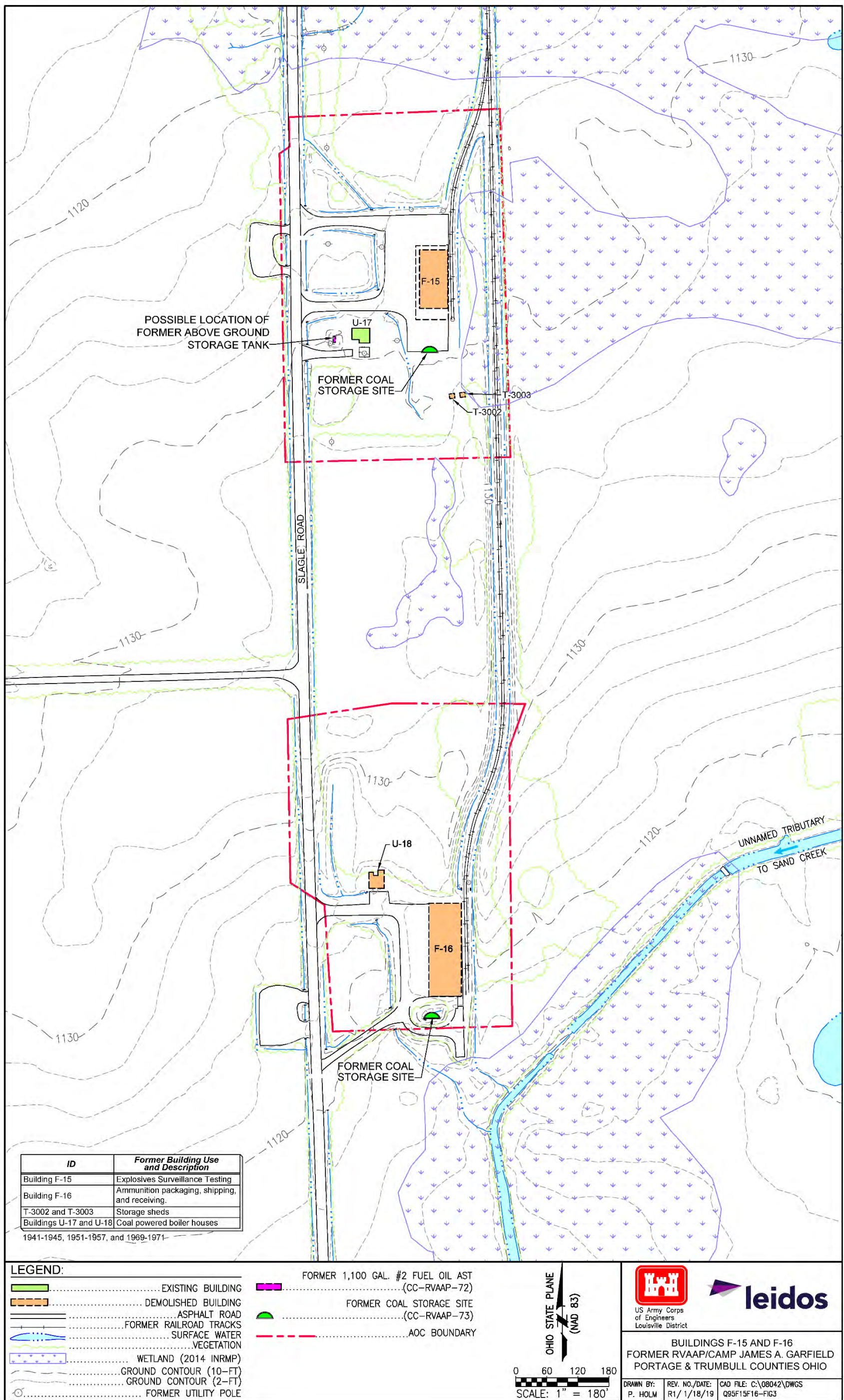


Figure 3. Buildings F-15 and F-16 Site Features

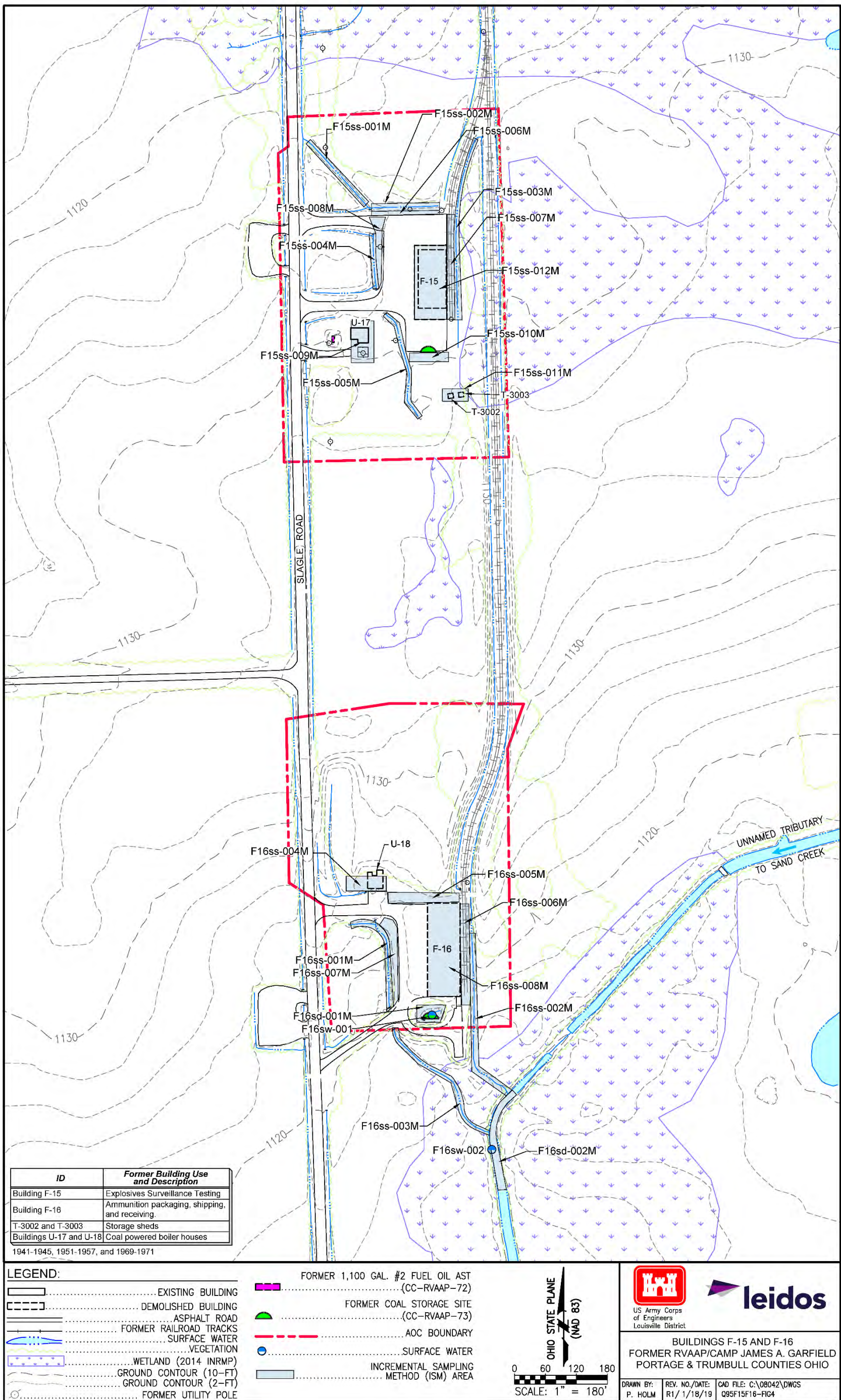


Figure 4. Buildings F-15 and F-16 Sample Locations



**ATTACHMENT A**

**Ohio EPA Correspondence**



Mike DeWine, Governor  
Jon Husted, Lt. Governor  
Laurie A. Stevenson, Director

March 21, 2019

RE: US Army Ravenna Ammunition Plt RVAAP  
Remediation Response  
Project Records  
Remedial Response  
Portage County  
ID #267000859104

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

**Subject: Draft Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-46  
Buildings F-15 and F-16**

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 "Draft Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-46 Buildings F-15 and F-16," dated February 6, 2019. This document was received by Ohio EPA, NEDO on February 11, 2019. It was prepared by Leidos.

Ohio EPA has no comments on the "Draft Proposed Plan (PP) for Soil, Sediment, and Surface Water at RVAAP-46 Buildings F-15 and F-16." As stated in the Draft PP, the Army will offer a public comment period and hold a public meeting to present the conclusions and investigative findings for Buildings F-15 and F-16. Please submit the Final PP to Ohio EPA.

If you have any questions concerning this letter, please contact Megan Oravec at (330) 963-1168.

Sincerely,

  
Megan Oravec  
Site Coordinator  
Division of Environmental Response and Revitalization

MO/sc

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

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