

# **MILITARY CONTAINER PRODUCTION FACILITY AT BLUE GRASS ARMY DEPOT, RICHMOND, KENTUCKY**

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## **ENVIRONMENTAL ASSESSMENT**



MAY 2026

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May 2026

**Lead Agency:** Blue Grass Army Depot (BGAD)

**Title of Proposed Action:** Military Container Production Facility at Blue Grass Army Depot, Richmond, Kentucky

**Affected Jurisdiction:** Madison County, Kentucky

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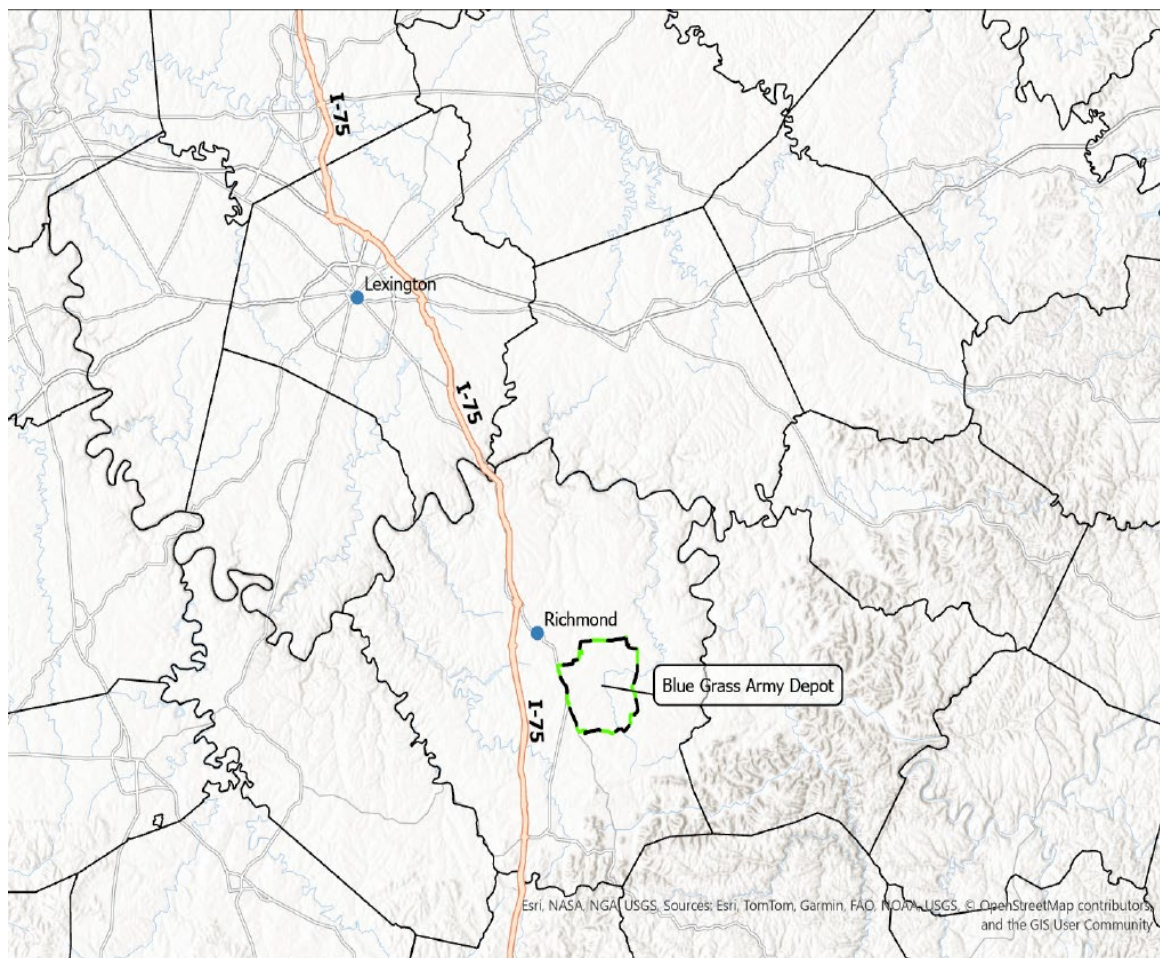
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## 1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

### 1.1 Introduction.

Blue Grass Army Depot (BGAD) is situated in Madison County, Kentucky, 6 miles southeast of the city of Richmond and 30 miles southeast of the city of Lexington. BGAD encompasses approximately 14,600 acres with numerous buildings, improved roads and an internal rail system. BGAD is a Joint Munitions Command (JMC), U.S. Army government-owned, government-operated facility under the U.S. Army Materiel Command (AMC). The present-day mission of BGAD is to provide munitions, chemical defense equipment, non-lethal combat equipment, and force provider sets, in support of the full spectrum of military operations. A worldwide shortage of shipping containers due to aging inventory presents an opportunity for BGAD to expand its capabilities and produce metal shipping containers for Department of War (DoW) use, which would reduce the risk posed by the current near-total reliance on Asian suppliers.



**BGAD Vicinity - Figure 1**

## 1.2 Purpose and Need.

The DoW relies on three sources for containers: DoW-owned containers, leased containers and commercial carrier containers. The Army maintains the largest fleet of DoW-owned containers. The average DoW-owned container is 16 years old, and the average container lifespan is approximately 19 years. As of 2023, DoW averaged approximately 19,000 purchases per year over the preceding 25 years; for the preceding 5 years, average purchases declined to 14,500 per year. A domestic container production facility would support replenishment of DoW owned containers, while meeting defense organic industrial base (OIB) or AMC needs and meeting OIB modernization efforts. Based on historical data, a container production facility with a capacity of 25,000 Twenty Foot Equivalent (TEU) annually would meet projected demand for DoW-owned containers with margin for demand surges that may occur.

## 1.3 Scope, Coordination, and Decision-making.

The U.S. Army has prepared this Environmental Assessment (EA) in order to ensure informed decision making and compliance with the National Environmental Policy Act (Title 42 United States Code (USC) § 4321 et seq.) (NEPA); U.S. Department of War NEPA Implementing Procedures issued 30 April 2026; Army Regulation (AR) 200-1, Environmental Protection and Enhancement; and applicable Army NEPA guidance. Per NEPA, this EA is a concise public document prepared to set forth the basis of the Army's finding of no significant impact or determination that an environmental impact statement is necessary. The resulting decision, to be made by the BGAD Commander, will take into consideration the analysis in this EA and, as applicable, associated comments received from the public and from agency coordination activities.

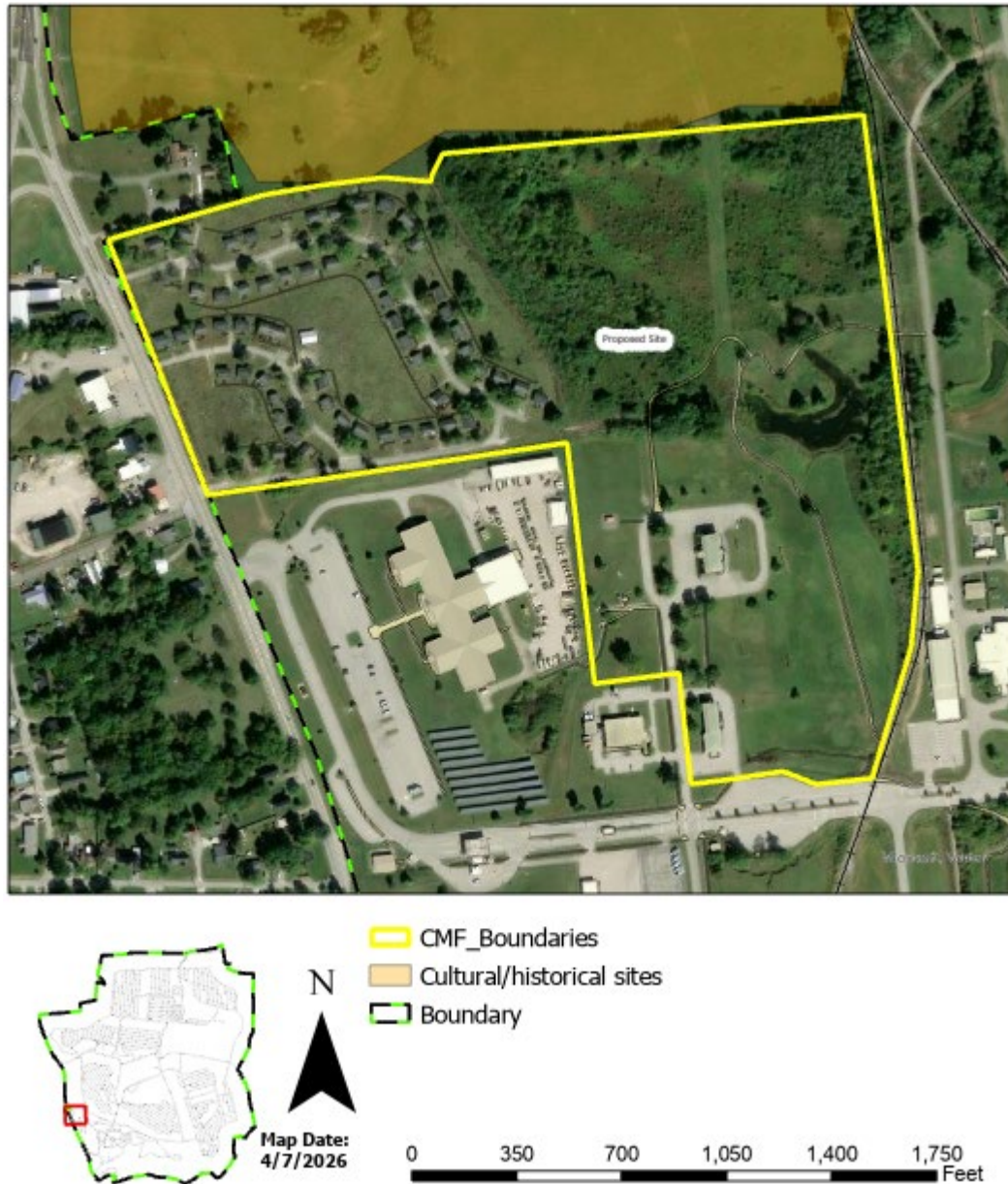
# 2.0 DESCRIPTION OF THE PROPOSED ACTION and ALTERNATIVES

## 2.1 Proposed Action

The proposed action is to construct a Military Container Production Facility at BGAD with two (2) production lines with two (2) shift operations. A 25,000 TEU facility with 2 production lines requires 650,000 sq ft under roof on 32 acres of land. The production lines are composed of two buildings: raw material and production (610,000 sq ft), and container maintenance shop (40,000 sq ft). An outdoor area for 30-day capacity of finished goods storage (310,000 sq ft) is estimated. With two lines and two shifts operating, an estimated 380 new permanent jobs would be created at BGAD. This facility would meet the annual demand requirements for DoW-owned containers with room for surge capacity if needed.



The proposed site location is on the former Wherry Housing Development and decommissioned Golf Course for a combined total of 50 acres of area. The available land at this site meets the size and dimensions required of a 25,000 TEU facility. The proposed location is shown in the figure below.



**Proposed Site - Figure 2**

## 2.2 Screening of Alternatives

For an alternative to the Proposed Action to be considered viable and carried forward for analysis, it must meet the following screening criteria and objectives, consistent with the purpose and need identified in section 1.2.

- 2-line facility: 25K TEUs assuming 2 shifts; third shift would meet annual demand in 23 of the past 25 years

A 2-line facility is desirable because its production capacity closely matches the DoW need for containers based on historical demand. A 1-line facility could meet the most current demand, but provides little capacity for surge (i.e., the ability to respond to a sharp increase in container demand); whereas the 2-line facility could be operated at lower throughput while retaining meaningful surge capacity by adding a third shift for an additional annual production of 12.5 K TEUs.

A 2-line facility will require 32 acres of land to accommodate the needed raw material storage, production line area, rework and maintenance area and 30-days' worth of finished goods storage area. Sites that can accommodate a 2-line facility based on land area are required.





**Proposed Site and Alternate Sites - Figure 3**

The utility requirements of the facility may require construction of a new electric substation or at a minimum installation of a transmission line from the closest power source. The requirement of an electric substation and/or the length of transmission line are part of utilities evaluation criteria for site selection. The facility will require water, sewer and natural gas service. The availability of these utilities and/or cost to connect are part of evaluation criteria for site selection.

Railroad access and/or cost to connect to existing railroad is an evaluation criterion for site selection.

One of BGAD's core mission capabilities is the storage of munitions. BGAD has numerous earthen covered magazines (ECMs) for munitions storage. A key site evaluation criterion of interest is whether existing explosive safety arcs are impacted by siting of the container production facility. Impacts can reduce capacity or eliminate use of certain ECMs. This is not desirable for BGAD and sites that minimize or avoid explosive safety arc impacts altogether are preferred.

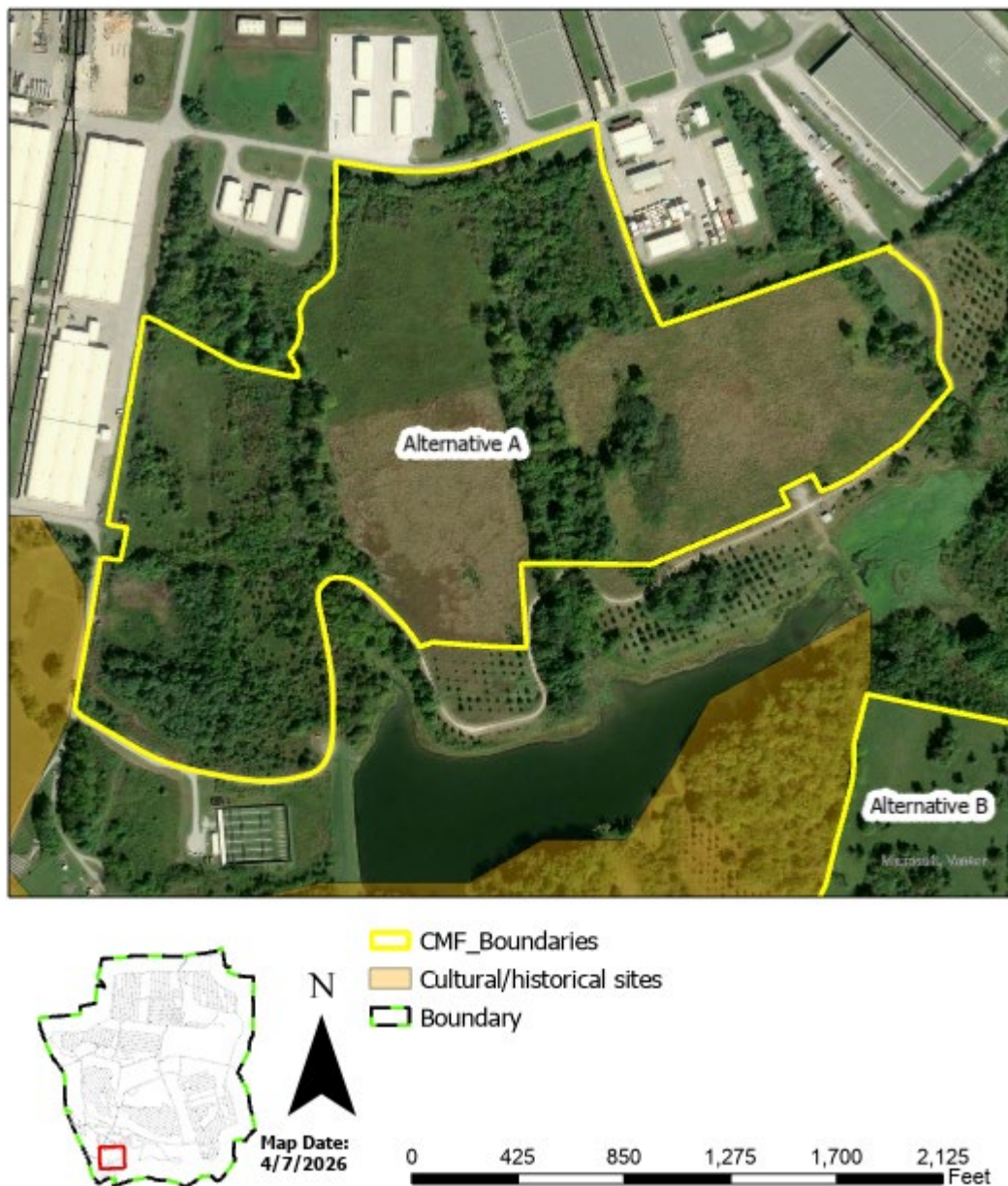
Sites that are in or near munition storage areas will require additional security requirements as compared to sites that are in administrative areas. Sites in administrative areas are preferred. Sites that can utilize existing roads and security checkpoints are preferred over sites that require construction of new roads and security checkpoints.

### 2.3 Alternative A.

Alternative A is to construct a Military Container Production Facility north of Lake Gem and adjacent to the existing Container Rail and Maintenance facility. At 67.34 acres, this site accommodates a 2-line production facility capable of producing 25,000 TEUs annually and has advantages of existing rail access and proximity to the current container maintenance facility. This site includes undisturbed land and would potentially need a survey and environmental study for further suitability analysis. This site has the advantage of being in the BGAD administrative area, but the container production workforce would be required to transit the BGAD administrative area to access the location. Expansion or upgrade of the BGAD South Gate entrance would likely be required to accommodate a facility in this location.

Alternative A location is shown in the figure below.

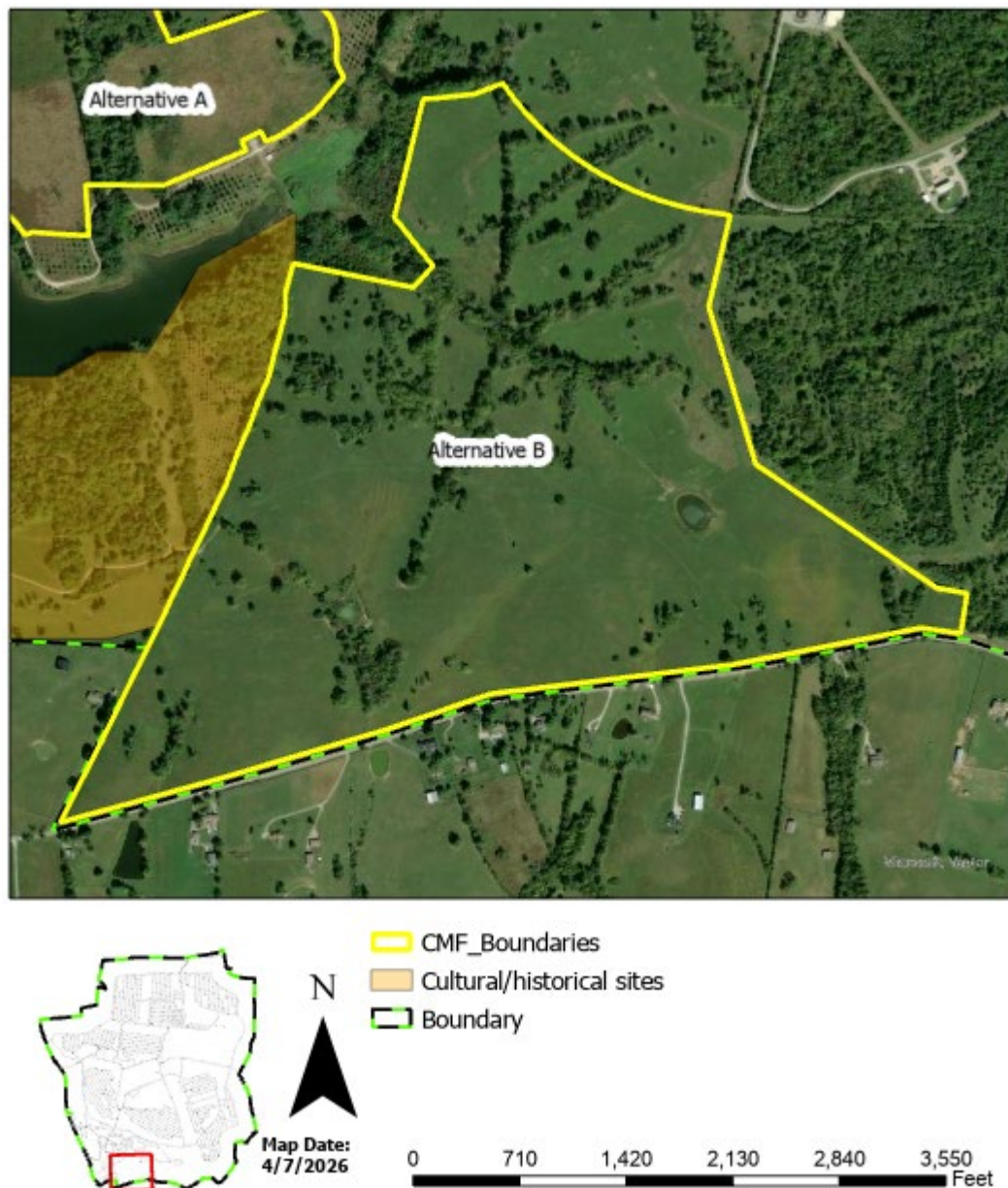


**Alternative A - Figure 4**

## 2.4 Alternative B.

Alternative B is to construct a Military Container Production Facility within a 178.33-acre tract located on BGAD's southern border. At 178.33 acres this site accommodates a 2-line production facility with annual production capacity of 25,000 TEUs with ample acreage for future expansion. This site includes undisturbed land and would potentially need a survey and environmental study for further suitability analysis. This parcel is bordered by KY 499 to the south. Similar to Alternative A, the BGAD

Administrative Area would likely need to be transited to access the site with expansion/upgrade of the South Gate being a potential option.



**Alternative B - Figure 5**

## 2.5 No Action Alternative.

The no-action alternative would be to not construct a container manufacturing facility at BGAD. The DoW, due to compelling logistics and cost considerations with sourcing the containers from Asian-based suppliers, would likely pursue construction of a domestic military container manufacturing facility at another OIB or AMC installation.

The no-action alternative is included and analyzed and serves as a baseline against which to assess the environmental impacts of the Proposed Action.

## 2.6 Alternatives Eliminated from Further Consideration.

Construction of a Military Container Production Facility at the existing Blue Grass Chemical Agent Destruction Pilot Plant (BGCAPP) site was considered. Utilities at the site have sufficient capacity and there is existing road infrastructure at the site. Due to explosive safety arcs overlapping this site, the site has only 16 acres available without reducing explosive storage capacity in the surrounding ECMs. Because of failure to meet the acreage requirements, the BGCAAP site was eliminated from further consideration.

## 3.0 AFFECTED ENVIRONMENT

### 3.1 General

This section describes the existing environmental conditions potentially affected by the proposed project locations.

### 3.2 Terrestrial

The vegetation in Eastern Kentucky can be considered transitional in nature, ranging from grassland species to forest tree species representative of the Cumberland Mountains. The majority of the BGAD site is maintained as fescue-dominated pastures that are mowed periodically, with interspersed shrubs and trees.

Forest encompasses roughly 3,760 acres of the BGAD site, of which approximately 75 percent has been impacted by cattle grazing and browsing by deer. The three main forest types on the BGAD site are upland, riparian, and flatwood. In general, the locations of different forest types on BGAD are based on soil type, moisture, and aspect. Upland locations that are well-drained contain bluegrass mesophytic cane forest, bluegrass savannah woodland, and forests characteristic of calcareous soils. Bottomlands along Muddy Creek, Viny Fork Creek, tributaries of Little Muddy Creek, and the headwaters of Otter Creek support riparian forests. (See Section 3.7 for a discussion of surface water resources at BGAD.) The flatwood forest (bottomland forest) is restricted to poorly drained soils on the northern portion of the BGAD site (BGAD 2023).



### 3.3 Wetlands and Aquatic Resources

There are wetlands scattered throughout the installation according to the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory. Environmental Protection Agency lists Muddy Creek as a 303(d) priority one impaired stream. Simply stated, Muddy Creek has been determined to not support at least one of its designated uses, being swimming. The impairment is listed as pathogens from agriculture and sedimentation. The priority listing states the order, within the watershed, that mitigation measures will be implemented.

The most common fish species found in Muddy Creek are Creek Chub (*Semotilus*), Bluntnose Minnow (*Pimephales notatus*), Silverjaw Minnow (*Notropis buccatus*), Central Stoneroller (*Campostoma anomalum*), Rosefin Shiner (*Lythrurus ardens*), Green Sunfish (*Lepomis cyanellus*), Longear Sunfish (*Lepomis megalotis*), Greenside Darter (*Etheostoma blennioides*), Faintail Darter (*Etheostoma flabellare*), Johnny Darter (*Etheostoma nigrum*), Rainbow Darter (*Etheostoma caeruleum*) and Kentucky Bass (*Micropterus punctulatus*). Three species of freshwater mussels documented in the creek are Giant floater (*Pyganodon grandis*), Fatmucket (*Lampsilis siliquoidea*) and Creeper (*Strophitus undulatus*). The predominant crayfish is *Orconectes* juveniles. Muddy Creek has a variety of other aquatic invertebrates including species of Mayflies (Ephemeroptera), Caddisflies (Trichoptera), Stoneflies (Plecoptera), Damselflies (Zygoptera) and Water Pennies (Psephenidae).

### 3.4 Cultural Resources

The area of potential effects (APE) for this project includes; sections of the old golf course, the recently demolished Wherry Housing units, Buildings S-1 and S-2. The area of the proposed construction falls within areas that have been subjected to Phase I archaeological surveys for cultural resources. The APE was reviewed for any cultural resources significance. There are no properties eligible or potentially eligible for the National Register of Historic Places (NRHP). The proposed action would result in the demolition of buildings S-1 and S-2. These buildings were determined to be ineligible for the NRHP. The cultural resources impact of the Wherry housing demolition and termination of utilities were addressed under a previous NEPA Record of Environmental Consideration (REC). Overall, there are no properties eligible or potentially eligible for the National Register of Historic Places (NRHP) in the project area. Any determinations regarding potential impacts to cultural resources will be made in consultation with applicable federally-recognized Native American Tribal Nations and in accordance with the *PROGRAM COMMENT FOR ARMY WARFIGHTING READINESS AND ASSOCIATED INFRASTRUCTURE* between the U.S. Army and the Advisory Council on Historic Preservation (ACHP). The current project area was surveyed for cultural resources impact via the "Phase 1 Cultural Resources Survey In Support of 2005 BRAC Activities at the Blue Grass Army Depot, Contract No. W91278-06-D-0014" by Brockington and Associates, Inc and "Phase 1 Cultural Resources Survey of 30 acres at



the Blue Grass Army Depot, Contract No. W519TC25FA255.” by New South Associates in 2026.



**Phase I Archaeological Investigations Survey Map – Figure 6**

### 3.5 Threatened and Endangered species

The Integrated Natural Resource Management Plan (INRMP) (BGAD 2023) addresses threatened, endangered, and special species. Three federally listed threatened or endangered species have been documented to occur or could occur on BGAD: the northern long-eared bat (*Myotis septentrionalis*) (federally listed as threatened and state listed as endangered), and the Indiana bat (*Myotis sodalist*) (federally and state listed as endangered).

The two federally protected bats (the northern long-eared bat and Indiana bat) and a special species bat (the gray bat) occur or could occur at BGAD. The northern long-eared bat is considered endangered due to diseases that affect this particular species, though this disease has not been identified in bats in Madison County. Foraging habitat for bats exists along the Muddy Creek corridor and at a number of lakes on BGAD. None of the proposed sites contain foraging habitat for bats. Although BGAD contains wooded areas that are potential maternity and summer roosting areas for bats, there are no trees identified on the proposed sites that may provide potential roosting habitat. Therefore, it is concluded that the federally protected species and special species bats would not be affected by the proposed action.

The bald eagle (*Haliaeetus leucocephalus*) is listed as threatened by the Kentucky State Nature Preserves Commission (KSNPC 2012). This species frequents Lake Vega and other water bodies at BGAD. There is one nesting bald eagle pair on BGAD, approximately 2.4 miles southeast from the proposed site. Considering other operations on BGAD, it is concluded that the bald eagle's nest would not likely be affected by the proposed action.

The INRMP (BGAD 2023) provides a list of fauna with known occurrence records for BGAD. This list includes a number of other species listed by the Kentucky State Nature Preserves Commission as threatened, endangered, or special concern. However, the site for the proposed Military Container Production Facility provides either no or extremely limited habitat for these additional species. Habitat viable for these species is found elsewhere on BGAD.

### 3.6 Air Quality

The Kentucky Division of Air Quality 2025 Annual Report (KYDAQ 2025) indicates that all areas of Kentucky are meeting the National Ambient Air Quality Standards (NAAQS) except for exceedance of ozone in Bullitt, Jefferson and Oldham counties and partial exceedance of sulfur dioxide in Henderson and Webster counties. Considering that the two counties (Fayette and Jessamine) near Madison County are complying, this provides indication that BGAD in Madison County is likely to be in compliance with the NAAQS. Temporary emissions during the site preparation for the Military Container Production Facility would be associated with land clearing, ground excavation, cut and fill operations (i.e., earth moving), and construction of the facility itself. BGAD's current Title V air permit has the following emission limits for carbon monoxide (CO), nitrogen oxides (NOX), volatile organic compounds (VOCs) and hazardous air pollutants (HAPs).

Table 3-6 - BGAD Title V Air Permit Source Wide Emission Limits

| Pollutant       | Emission Limit (tons per 12-month rolling total) |
|-----------------|--------------------------------------------------|
| CO              | 225                                              |
| NO <sub>x</sub> | 225                                              |
| VOCs            | 90                                               |
| Combined HAPs   | 22.5                                             |
| Single HAP      | 9.0                                              |

### 3.7 Water Resources

No surface-water bodies are in the immediate vicinity of the proposed site. No surface water would be diverted or affected by the proposed action. All surface water resources at BGAD are described in the INRMP (BGAD 2023). BGAD is located within the Kentucky River basin and is drained by headwater tributaries of Big Muddy Creek, Otter Creek, and Silver Creek. Most streams on BGAD flow intermittently and are dry during late summer and early fall. Many pools are present throughout BGAD. Four streams drain the majority of BGAD: (1) Muddy Creek enters the depot at its southeastern corner, flows in a northerly direction, and then exits at the depot's eastern boundary; (2) an unnamed tributary of Hays Fork Creek flows in a southwesterly direction into Silver Creek outside BGAD boundaries; (3) Little Muddy Creek flows in an easterly direction and flows into Muddy Creek within depot boundaries; and (4) Viny Fork flows in a northerly direction parallel to and east of Muddy Creek and flows into Big Muddy Creek (BGAD 2023).

Otter Creek and Silver Creek tributaries are second-order streams within BGAD, and Muddy Creek is a third-order stream. These streams generally are shallow (i.e., less than 3 feet deep), have a maximum width of 15 to 30 feet, and are characterized by short, shallow riffles and long pools. Muddy Creek is a first-priority impaired stream; hence, it cannot support swimming due to pathogens from suspected grazing-related sources. The impaired stream segment of Muddy Creek includes portions flowing through BGAD (BGAD, 2023).

The largest surface water feature at BGAD is Lake Vega, a 135-acre impoundment of Little Muddy Creek (located upstream from the confluence of Little Muddy Creek and Muddy Creek). Lake Vega is located in approximately the center of the depot and is wholly contained within the depot boundaries. Two other large water bodies are located wholly within BGAD boundaries: Lake Gem (35 acres) and Lake Buck (15 acres), both of which are in the southwestern portion of the depot and both of which were created by impoundment of Silver Creek tributaries (BGAD 2023).

No groundwater will be consumed, diverted, or affected by the proposed project. Withdrawal of groundwater at BGAD is negligible, since it is conducted only as part of the well monitoring program.

The proposed site is not located in a flood plain or wetland area.

### 3.8 Noise

BGAD is located in a rural area primarily occupied by residential, light industrial/commercial, and ranching/farming activities. The major, nearby off-post sources of noise include the vehicle traffic on U.S. Highway 421/25 and the railroad freight line, both of which lie along the western boundary of the depot. Noise-producing activities at BGAD include small arms operations, demolition and explosive operations. Noise is managed in accordance with the BGAD Installation Compatible Use Zone Study (ICUZ) (Defense Center for Public Health 2025).

Noise – in the form of sound pressure levels – typically occurs over a wide spectrum of frequencies. For many types of sound management, these frequencies are weighted (some contribute more, and some contribute less) to determine the decibel level. The so-called “A weighted” was developed to approximate the way in which the human ear responds to sound, and this decibel weighting – expressed as dB(A) – applies to the values used in the following analysis.

Ambient noise for BGAD and surrounding areas is described in BGAD Installation Operation Noise Management Plan (IONMP) (U.S. Army Public Health Command 2014) as being low. Noise sources in rural environments are predominantly natural in origin, including insects, birds, wind, and weather. Background noise levels in such rural areas typically range between 35 and 45 dB(A), with 45 dB(A) value being representative of agricultural cropland with equipment operating (EPA 1978).

The Noise Control Act of 1972, along with its subsequent amendments (Quiet Communities Act of 1978, United States Code, Title 42, Parts 4901 – 4918), delegates to the states the authority to regulate environmental noise and directs government agencies to comply with local community noise statutes and regulations. Neither the Commonwealth of Kentucky nor Madison County has established any quantitative noise-limit regulations.

Summary of Noise Levels that are Protective of Public Health and Welfare with a Margin of Safety are shown in Table 3-8 below.



Table 3-8 - Noise Levels that are Protective of Public Health and Welfare

| Effect                                      | Noise Level               | Applicable Area or Zone                                                                                                                                               |
|---------------------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hearing loss or impairment                  | $\leq 70 \text{ dB(A)}^a$ | All                                                                                                                                                                   |
| Outdoor activity interference and annoyance | $\leq 55 \text{ dB(A)}^b$ | Outdoors in residential areas and farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use. |
|                                             | $\leq 55 \text{ dB(A)}^c$ | Outdoor areas where people spend limited amounts of time, such as school yards, playgrounds, etc.                                                                     |
| Indoor activity interference and annoyance  | $\leq 45 \text{ dB(A)}^b$ | Indoor residential areas                                                                                                                                              |
|                                             | $\leq 45 \text{ dB(A)}^c$ | Other indoor areas with human activities, such as schools, etc.                                                                                                       |

## Notes:

- a To protect against hearing damage, one's 24-hour noise exposure at the ear should not exceed 70 dB(A).
- b The stated decibel (DB) value is the day-night sound level, which includes a 10 dB nighttime weighting.
- c The stated decibel value applies to the sound energy averaged over a 24-hour period.

## 4.0 ENVIRONMENTAL CONSEQUENCES

### 4.1 Terrestrial

Impacts to wildlife present would normally include potential for injuries or death from collision with vehicles and equipment used during site preparation and installation activities, and increased road traffic accessing the facilities during operations. Indirect impacts would normally include displacement from noise and equipment disturbance during site preparation and installation activities, and routine noise, traffic, and human disturbance during operations. However, because of the very limited habitat in the proposed areas, such impacts would be minimal for the proposed action.

Given the relative percentage of undisturbed area, Alternative B site would be anticipated to have the highest terrestrial impacts, with other sites have lower impacts.

## 4.2 Wetlands and Aquatic Resources

The November 2018 Wetland delineation report for BGAD prepared by Tetra Tech, Inc. was reviewed, and the proposed location is not sited near any designated wetland areas. Best management practices to minimize the impacts of erosion and/or sedimentation as described in Section 4.6 and will negate any impact on wetlands and aquatic resources.

Alternative A Site would be the least favorable site for potential impacts to aquatic resources given the proximity to Lake Gem. Other sites would be anticipated to have less potential of impacting aquatic resources.

## 4.3 Cultural Resources Changes

The BGAD Cultural Resource Manager will monitor the project during construction in case of inadvertent discovery of archaeological materials. Any inadvertent discovery of archaeological materials will be dealt with in consultation with federally-recognized Native American Tribal Nations. All cultural resource work will meet obligations under the National Environmental Policy Act of 1969 (Public Law 91-190), National Historic Preservation Act of 1966, as amended (Public Law 89-665), title 36 of the Code of Federal Regulations (Parts 60, 66, and 800, as appropriate) Army Regulation 200-1, and the *PROGRAM COMMENT FOR ARMY WARFIGHTING READINESS AND ASSOCIATED INFRASTRUCTURE* between the U.S. Army and the Advisory Council on Historic Preservation (ACHP). Any human remains encountered during the survey or during construction will be reported and dealt with in accordance with the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001 et seq.)

## 4.4 Endangered Species

Based on the limited habitat, the potential for impacts to federally- and state-listed threatened, endangered, and special concern species during site preparation, installation, and operation of the proposed new Military Container Production Facility is negligible. Alternative A and B sites would be anticipated to be more likely to impact endangered species due to the relatively large amounts of undisturbed area at these locations.

## 4.5 Air Quality

Fugitive dust emissions from construction activities will be managed in agreement with Kentucky Administrative Regulation (KAR) 63:010 Fugitive Emissions so as to prevent visible fugitive dust emissions beyond the BGAD property line.

Reasonable precautions will be taken to prevent particulate matter from becoming airborne to include use of water for control of dust; maintenance of paved roadways in a clean condition; prompt removal of earth or other material from a paved street to which earth or other material has been transported by trucking or earth moving equipment or erosion by water; and covering at all times while in motion, open bodied trucks transporting materials likely to become airborne. Vehicular emissions from operation of the proposed Military Container Production Facility are expected to have a negligible difference from the no action alternative. Fugitive particulate matter emissions from construction activities are estimated at 138.24 tons assuming a 24-month construction duration using the following equation (U.S. EPA AP-42 Chapters 13.2.2 and 13.2.3):

$$E = 1.2 \text{ tons/acre/month of activity} \times (1-CE)$$

Where E = Emissions of Total Suspended Particulate and

CE = control efficiency from wet suppression with water sprays

$$E = 1.2 \text{ tons} \times 32 \text{ acres} \times 24 \text{ months} \times (1-0.85) = 138.24 \text{ tons}$$

Particulate Matter 10 microns or less (PM<sub>10</sub>) fraction of fugitive dust is estimated at 35 percent, or  $138.24 \times (0.35) = 48.4$  tons.

Particulate Matter 2.5 microns or less (PM<sub>2.5</sub>) fraction of fugitive dust is estimated 50 percent of the PM<sub>10</sub> value or  $48.4 \times (0.50) = 24.2$  tons.

BGAD will comply with the generally applicable requirements of 401 KAR 63:010 detailed above to mitigate fugitive dust emissions. The following mitigation measures will be used as needed to reduce impact from fugitive dust during construction:

- Watering and dust suppressants on regularly exposed surfaces, such as soil piles, graded areas, and unpaved roads.
- Covering and enclosing haul trucks transporting soil, sand, or other loose materials. Covering stockpiles of materials with tarps or other wind-impervious fabric.
- Limiting vehicle speeds on unpaved roads to 15 mph or less. Restricting the number of vehicles accessing unpaved areas and establishing designated haul routes.
- Installing temporary or permanent windbreaks to reduce wind speeds and airborne dust.

Air emissions from the Container Production facility will primarily be from painting of the TEUs. TEUs will typically require base and primer coating with paints that meet military

specifications. Air pollutants from painting operations are anticipated to be Volatile Organic Compounds (VOCs), certain Hazardous Air Pollutants (HAPs) (e.g. Chromium compounds) and particulate matter 10 microns or less (PM<sub>10</sub>). Based on a two-production line scenario, and 25,000 TEU annual production, it is anticipated that VOC and HAP emissions from painting operations will be controlled with an after burner or thermal oxidizer that achieves 99.0 percent destruction efficiency. Paint booths will be equipped with filters for control of PM<sub>10</sub> emissions. Additional emissions sources will include natural gas combustion for burners in cure ovens and after burners/oxidizers for VOC/HAP control. A significant revision to BGAD's Title V Air permit will be required for permitting the Container Production Facility paint booths and associated equipment. BGAD Calendar year 2023 (representative of BGCAPP operations) emissions and projected BGAD emissions including the Container Production Facility in operation are shown below. As can be seen BGAD emissions are anticipated to increase slightly from 2023 levels but still remain well below Title V permit emission limits. Based on the anticipated emissions increase, the proposed action would produce no significant impacts on ambient air quality at the BGAD boundary during site operation.

*Table 4-5 – Analysis of Projected Actual Emissions from Container Production Facility*

| Pollutant       | BGAD 2023 Actual Emissions (tons/year) | BGAD 2030 Emissions with Military Container Production Facility (tons/year) | BGAD Title V Emission Limit (tons/year) |
|-----------------|----------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------|
| CO              | 12.47                                  | 16.48                                                                       | 225                                     |
| NO <sub>x</sub> | 18.60                                  | 23.32                                                                       | 225                                     |
| VOC             | 2.93                                   | 7.42                                                                        | 90                                      |
| Combined HAPs   | 2.02                                   | 2.66                                                                        | 22.5                                    |
| Single HAPs     | 0.675                                  | 1.29                                                                        | 9.0                                     |

## 4.6 Water Resources

Potential impacts to water resources during site preparation and installation of the new Military Container Production Facility are minimized or mitigated through implementation of the Ground Water Protection Plan (GWPP, BGAD 2024) and adherence to the Best Management Practices Plan (BMP, BGAD 2024). Storm water discharges associated with any construction activity that disturbs one acre or more of land at BGAD must be permitted under the general permit. Coverage under the general permit is obtained by submitting a Notice-of-Intent (NOI) to the Kentucky Division of Water. Coverage under the general permit requires a site-specific Stormwater BMP Plan for each construction project of one acre or more.

The use of best management practices minimizes the impacts of erosion and/or sedimentation by diverting flows from exposed soil, detaining stormwater runoff, and



reducing runoff and the discharge of pollutants from exposed areas of the project. Stormwater detention basins, check dams, and other best management practices are intended to trap sediment on site and are constructed as one of the first steps during site preparation activities. Perimeter best management practices are to be installed before land-disturbing activities begin. These perimeter controls may include physical structures (such as fencing) or temporary structures (such as silt fences) to control the area where construction activities will occur.

Other potential best management practices include the following activities and measures:

- Mark clearing limits in order to preserve existing vegetation
- Minimizing off-site vehicle tracking of sediments
- Using a stormwater detention basin to capture sediment during construction activities
- Constructing check dams at appropriate intervals within ditches or swales that drain disturbed areas
- Using silt fences, erosion logs, and straw bale barriers around disturbed areas
- Protecting storm drain inlets to reduce sediment accumulation
- Stabilizing soil (after final grading) with gravel, compactable soil, mulch, seeding, or chemical stabilizers to control dust and to reduce sediment runoff
- Using dust control measures (such as application of water to disturbed areas)
- Stabilizing slopes and using slope drains
- Implementing post-site preparation erosion and sediment controls

## 4.7 Noise

The noise levels anticipated from the site preparation, installation, and operation of the proposed action are compared to EPA protective levels using the following equation:

$$SPL_2 = SPL_1 + 20 \log_{10} (D_1/D_2)$$

Where:

$SPL_1$  is the sound pressure level (i.e., noise level) at the source [in dB(A)],

$SPL_2$  is the sound pressure level at the distant location of interest [in dB(A)],

$D_1$  is the distance [in feet] from the source where the sound level was measured,

and

$D_2$  is the distance [in feet] to the location where an estimate of  $SPL_2$  is desired.

Standard commercial and industrial practices for excavation, moving earth, and erecting concrete and steel structures would be followed during site preparation and installation activities for the new Container Production Facility. These activities would include noise generated due to the operation of vehicles and heavy equipment. Such equipment typically produces noise levels in the range of 77 to 90 dB(A) at a distance of about 50 feet from the source (EPA 1978). The dominant sources of noise would be generated by the engines of the vehicles and by the alarms that activate when those vehicles are shifted into reverse gear. The nearest resident is assumed to be at the closest boundary to Container Production Facility. Noise estimates were calculated using the typical noise levels given in Section 3.8 and the equations discussed above. The noise estimate at the BGAD boundary for site preparation and installation is estimated as follows:

$$\begin{aligned}D_1 &= 50 \text{ feet} \\D_2 &= 500 \text{ feet} \\SPL_1 &= 90 \text{ dB(A)} \\SPL_2 &= 70 \text{ dB(A)}\end{aligned}$$

Because the noise level results ( $SPL_2$ ) are estimated to be greater than the (70 > 55 ) dB(A) established as protective for outdoor noise in residential areas (See Section 3.8), mitigation measures will be required to ensure that noise at the installation boundary will not cause interference or annoyance (EPA 1978). The use of a commercially available acoustic barrier can reasonably achieve a reduction of 30 decibels. The application of an acoustic barrier at the construction site boundary results in a  $SPL_2$  value of  $70 - 30 = 40$  dB(A) and will meet the noise level requirement for residential areas.

## 4.8 Utilities

The following site utilities will be required to support the proposed action: natural gas, electric, potable water and sanitary sewer connections, and communications connections. A 138 kilovolt (kV) electric substation is conservatively assumed to be required, but a smaller substation may suffice depending on the level of automation utilized in the Container Production Facility. Water main and sewer lines are available near the proposed site. The existing BGAD Water Treatment Plant and Wastewater Treatment Plant have sufficient capacity to support the Container Production Facility. No significant impacts were identified associated with utilities requirements for the proposed project.

## 4.9 Hazardous and Toxic Materials

The container production facility will generate hazardous waste streams in the form of used paint filters, paint waste and facility maintenance wastes

(greases/solvents). These waste streams are currently generated by BGAD ammunition maintenance operations and are documented waste streams in BGAD's current Resource Conservation Recovery Act (RCRA) permit. BGAD is already classified as a Large Quantity Generator (LQG) under RCRA regulations, generating in any calendar month, 1,000 kg/month (2,200 lb/month) or more of non-acute hazardous waste. The Container Production Facility will require RCRA permitted storage for hazardous waste. The management and storage of hazardous waste will occur on the footprint of the Container Production Facility. The hazardous waste will be packaged and transported off-site to appropriately permitted Treatment Storage and Disposal Facilities (TSDFs). BGAD's net quantity of hazardous waste generated is anticipated to decrease as a result of BGCAPP closure. BGAD calendar year 2025 hazardous waste generation data and projected data with the Container Production Facility in operation are shown below.

*Table 4-9 – Analysis of Projected Hazardous Waste Generation*

| Solid hazardous waste generated and destined for disposal off site (2025) | Liquid Hazardous waste generated and destined for disposal off site (2025) | Solid hazardous waste generated and destined for disposal off site with Container Production Facility (2030) | Liquid hazardous waste generated and destined for disposal off site with Container Production Facility (2030) |
|---------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| 2,138,244 lb                                                              | 739,957 lb                                                                 | 1,798,630 lb                                                                                                 | 82,062 lb                                                                                                     |

#### 4.10 Socioeconomic Resources

For socioeconomic resources, the affected environment is Madison County because most of BGAD's existing workforce resides in the county. There will likely be some in-migration of construction workers to the area for the project, estimated at 200 - 250 workers. This in-migration of workers is anticipated to have minimal impact on population, housing or public services due to decreases in workers associated with tenant activity at Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) occurring through the end of 2027. As of February 2026, BGCAPP still employed 648 workers and BGCAPP employment will drop to zero by the end of 2027. Regarding operation of the proposed project, a potential increase of up to 380 new jobs will be created. Minimal impacts to traffic entering BGAD off of U.S. Highway 421 are expected as this entrance was sized to accommodate the BGAD and BGCA workforces and the BGCA workforce will have dropped from over 186 employees to less than 40 by the summer of 2026.

The BGAD main entrance is located on the facility's southwestern boundary on U.S. Highway 421 (Battlefield Memorial Highway). It is possible this existing entrance could be used for accessing the Container Manufacturing facility; however, it may be advantageous to build a separate entrance northwest of the existing entrance to the

container manufacturing facility if the labor force is contracted rather than government employees. In either case, the entrance for the proposed facility will be on U.S. Highway 421. The following traffic parameters were obtained or derived from the Kentucky Transportation Cabinet data for this section of U.S. Highway 421:

*Table 4-10 – U.S. Highway 421 Traffic Parameters at Proposed Site Entrance*

| Parameter                           | Value             |
|-------------------------------------|-------------------|
| Annual Average Daily Traffic (AADT) | 6,326             |
| Peak Hour Volume                    | 645 vehicles/hour |
| Directional Design Hourly Volume    | 355 vehicles/hour |
| Heavy Vehicle Percentage            | 6.189%            |
| Peak Hour Truck Percentage          | 0.799%            |
| K Factor                            | 10.2              |
| D Factor                            | 55                |

With an Annual Average Daily Traffic (AADT) of 6,326, this section of U.S. Highway 421 has a Level of Service (LOS) C range. From the Highway Performance Monitoring System Field Manual (U.S. Department of Transportation) for a two-lane rural highway, the capacity will not exceed 3,200 passenger cars per hour. The current volume to capacity ratio is approximately 0.21 which indicates traffic congestion is not currently an issue in this area. The workers associated with the Container Manufacturing Facility action will increase traffic in the vicinity of the U.S. Highway 25 (Berea Road) and U.S. Highway 421 (Battlefield Memorial Highway) split. There could be up to 250 workers on site for up to 24 months to construct the facility and install production equipment. For the purposes of the 2-shift facility operation, it is assumed there would be 199 workers per shift, and 380 workers total, therefore, for traffic impact analysis, the operating scenario is bounding. The workers operating the facility could generate an additional 380 one-way trips each morning and afternoon, for a total of 760 additional round trips each day on U.S. Highway 421. According to the Kentucky Transportation Center Research Report (KTCR 2015), the VSF ratio is estimated based on a combination of several input factors such as AADT, peak hour volume as a percentage of AADT (K Factor), percentage of peak hour volume flowing in the peak direction (D Factor), and type of highway. While the calculation is complex, this reference also includes charts of sensitivity analysis to indicate how a change in input factors would alter, for example, the peak capacity of a route (which affects the VSF). A 10 percent change in the above factors (AADT, K Factor, D Factor, etc.) would result in 0.5 percent change in the peak capacity. Considering the increase in traffic on U.S. Highway 421 (760 additional vehicles ÷ 6,326 = 12.0 percent), this change would not have a significant impact on the peak capacity or the VSF of U.S. Highway 421. However, to mitigate any minor impacts, the Container Manufacturing Facility could stagger shift changes so as not to overlap BGAD shift changes.



## 4.11 Reasonably Foreseeable Effects

A review of projects that would potentially coincide geographical and temporally with the Proposed Action were evaluated. For this EA, the geographic extent of the reasonably foreseeable effects analysis is BGAD property and surrounding roadways. Table 4-11 identifies possible projects occurring within the same general time frame at BGAD and the immediate vicinity, and whose effects, when added to those of the Proposed Action may result in reasonably foreseeable effects.

*Table 4-11a Actions At/Surrounding BGAD Potentially Causing Reasonably Foreseeable Effects*

| Project                                       | Description                                                                                                                                                    |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BGAD – SAA Magazine                           | Construct a 170,000 sq ft Small Arms Ammunition Magazine in the restricted area of BGAD.                                                                       |
| BGAD – Energetic Production                   | Create an Energetic Center of Excellence. Construct an energetic materials manufacturing facility on the former BGCAPP site.                                   |
| BGAD – Data Center                            | Construct a Data Center in the administration area of BGAD with onsite power provided by natural gas fired combined cycle turbines.                            |
| BGAD- Raw Water Line Replacement              | Replace the 10-inch raw water line from Lake Vega to the Water Treatment Plant. The line replacement would be in the same location as the existing water line. |
| BGAD – Modernize Existing Production Facility | Modernize existing production facility building for upgraded munitions renovation and maintenance capabilities                                                 |

The following analysis examines the reasonably foreseeable impacts on the natural and human-made environment that would result from the impacts of the Proposed Action, in combination with the other actions described above. Based on the assessment of past, present, and reasonably foreseeable future actions at and in the vicinity of the Proposed Action at BGAD, a limited number of resource topics analyzed in this EA would be reasonably expected to experience foreseeable impacts. These include stormwater, air quality, noise, soil, and utilities.

Together, the Proposed Action, in combination with other construction projects listed in the table above could result in air pollution; noise; and soil degradation such as compaction and erosion. However, implementation of the Proposed Action would be consistent with existing designated NAAQs regulations, noise regulations, and stormwater regulations.

The Proposed Action would increase impervious areas within the area. This may lead to detrimental impacts on stormwater retention capabilities. However, the contractor would obtain all necessary stormwater management permits prior to

construction to account for increased impervious surface and include stormwater management features to adequately and appropriately capture stormwater on the Proposed Action area.

Soil erosion from the Proposed Action and other development projects would be temporary and confined to the construction phase of the projects. Soil compaction would have minor, direct, long-term adverse effects.

Vegetation could incur minor, adverse, direct, reasonably foreseeable impacts. It can be assumed that some sites would include the removal of vegetation. Vegetation removal would be in accordance with the BGAD INRMP.

There would be no long-term adverse impacts on the remaining resource areas. Thus, all other environmental resource topics were omitted from impact analysis because temporary, negligible, or no environmental impacts would occur when considered on an aggregated basis. No significant adverse effects on any resource area would be expected from the combined effects of the proposed action and local projects.

The No Action Alternative would result in no impacts. The Proposed Action area would continue to be used for agricultural purposes; therefore, it would continue to be farmed in the manner it is currently maintained with no changes to any resources.

*Table 4-11b Environmental Analysis Summary of the Military Container  
Production Facility Magazine at BGAD*

| Resource                                                                                   | Construction                                                                                                                                                                                                                                                                                                | Operation                                                                                                                                                                                                                                                        | No Action |
|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Land Use                                                                                   | Short- and long-term direct, moderate, adverse impact on land use due to construction staging and conversion of agricultural fields to developed land.                                                                                                                                                      | Long-term, minor, direct adverse effects on land use from the conversion of agricultural land to developed land.                                                                                                                                                 | No impact |
| Water Resource (Surface Water, Stormwater, Floodplains, Wetlands, and Groundwater)         | Short-term, minor, direct, adverse impacts to surface water and stormwater from sediment deposition, and conversion of permeable to impervious surface. Short-term, minor, indirect, negligible, adverse impacts to groundwater from potential accidental releases of petroleum. No impacts to floodplains. | Long-term, direct, negligible, adverse impacts to surface water due to conversion of permeable land to impervious. Long-term, direct, minor, adverse impacts to stormwater due to potential increased runoff. No impacts to wetlands. No impacts to floodplains. | No impact |
| Biological Resources (Vegetation, Wildlife, Rare, Threatened and Endangered Species [RTE]) | Overall, short- and long-term, minor, direct, adverse impacts to vegetation and wildlife due to removal and/or trampling, noise from construction and habitat removal. No impact to RTE.                                                                                                                    | Overall, long-term, minor, direct, adverse impacts to vegetation. Long-term, negligible, direct, adverse impacts to wildlife and from operational noises. No impact to RTE.                                                                                      | No impact |

*Table 4-11b Environmental Analysis Summary of the Military Container Production Facility Magazine at BGAD (continued)*

| Resource                                                                                            | Construction                                                                                                                           | Operation                                                                                                                  | No Action |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------|
| Cultural Resources                                                                                  | No impacts to cultural resources as no eligible properties for listing in the National Registry of Historic Places (NHRP) are present. | No impact                                                                                                                  | No impact |
| Utilities (Potable Water, Wastewater, Energy Sources, Natural Gas, Communications, and Solid Waste) | Long-term, minor, direct, adverse impacts due to increased demands on existing utility structures.                                     | Long-term, minor, direct, adverse impacts due to increased utility usage.                                                  | No impact |
| Transportation and Traffic                                                                          | Short-term, minor, direct, adverse impacts due to additional traffic during construction.                                              | Long-term, minor, direct, adverse impacts due to additional traffic supporting facility operation.                         | No impact |
| Noise                                                                                               | Short-term, minor, direct, adverse impacts due to increase in noise during construction.                                               | Long-term, minor, direct, adverse impacts due to operational noises.                                                       | No impact |
| Air Quality                                                                                         | Short-term, minor, direct, adverse impacts from construction emissions.                                                                | Long-term, minor, direct adverse impacts from operating emissions.                                                         | No impact |
| Socioeconomics                                                                                      | Short-term, minor, direct, beneficial impacts to socioeconomics due to job creation during construction.                               | Long-term, minor, direct, beneficial impacts to socioeconomics due to job creation supporting facility operation.          | No impact |
| Reasonably Foreseeable Impacts                                                                      | No impact                                                                                                                              | Long-term, minor, indirect, adverse impacts from increased air emissions, impervious surface, noise and vegetation removal | No impact |

## 5.0 LISTING OF AGENCIES COORDINATION

- U.S. Fish and Wildlife Service
- Kentucky Energy and Environment Cabinet - Department for Environmental Protection

This EA will be provided, for comments, to pertinent agencies, public officials, and interested individuals.

## 6.0 REFERENCES

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