

Final

**ENVIRONMENTAL ASSESSMENT
FOR
RDX AND IMX CAPACITY EXPANSION
AT
HOLSTON ARMY AMMUNITION PLANT
KINGSPORT, TENNESSEE**

Prepared for

Commander, Holston Army Ammunition Plant

Prepared by

U.S. Army Corps of Engineers, Mobile District

With technical assistance from

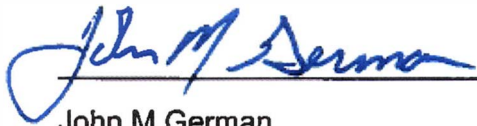
Tetra Tech, Inc.

April 2018

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Reviewed by:



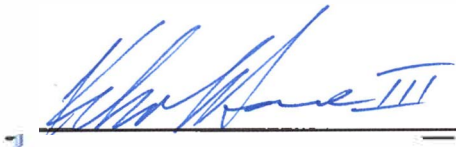
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SECTION 1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

This environmental assessment (EA) evaluates the socioeconomic and environmental impacts associated with doubling the explosives production capacity (research development explosives [RDX] and insensitive munitions explosives [IMX]) at Holston Army Ammunition Plant (HSAAP) in Kingsport, Tennessee. The Department of Defense (DoD) must increase the plant's production capacity to meet anticipated future demand. HSAAP has been producing explosives since it was constructed in the 1940s. The total amount after the increase in explosives production would be less than the amounts produced in the 1990s.

HSAAP, a U.S. Army government-owned, contractor-operated facility, is part of the U.S. Army Materiel Command (AMC) and the U.S. Army Joint Munitions Command (JMC). Operated by BAE Ordnance Systems Inc. (OSI) since 1999, HSAAP is an asset to the DoD Industrial Base as the production-scale manufacturer of explosives for almost all conventional military ordnance such as bombs, mortars, artillery shells, and missiles.

HSAAP consists of approximately 6,000 acres in Hawkins and Sullivan counties (Figure 1-1) and has approximately 495 buildings and 129 magazines with explosives storage capacity of approximately 200,000 square feet (ft²). HSAAP produces explosives in the Area B limited-access production area (production area), which consists of industrial facilities for nitration chemistry, acid handling and recovery, and other chemical processing operations.

The Army prepared this EA in accordance with requirements of Title 42 of the *United States Code* (U.S.C.) section 4321 *et seq.*, the National Environmental Policy Act (NEPA); Title 40 of the *Code of Federal Regulations* (CFR) parts 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (NEPA)*; 32 CFR part 651, *Environmental Analysis of Army Actions*; and AMC policy.

1.2 PURPOSE AND NEED

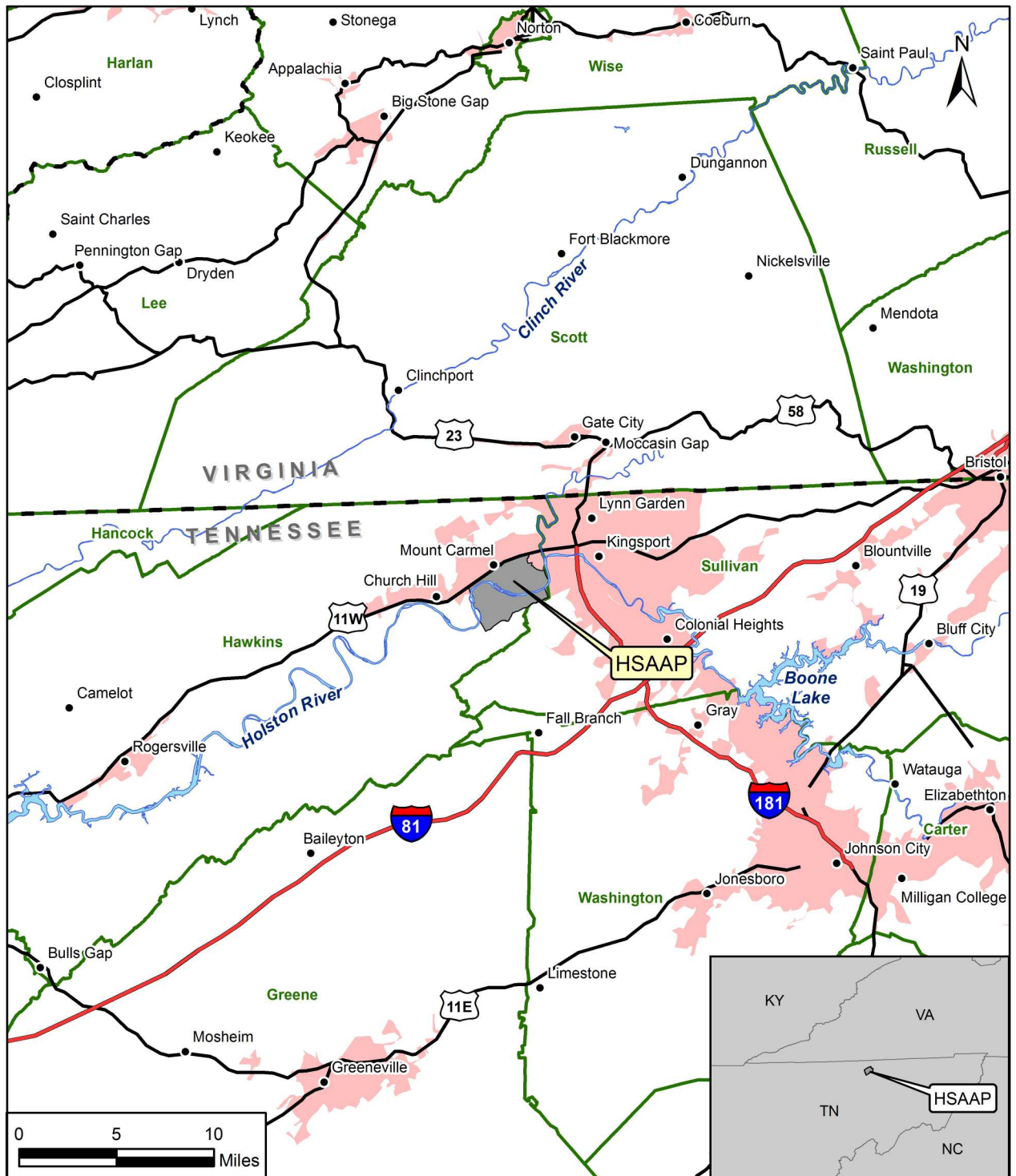
The purpose of the proposed action is to increase the explosives production capacity at HSAAP. The proposed action is needed because there is an urgent necessity to increase the amount of explosives HSAAP produces above the current production capacity in order to meet current DoD demands and likely surge requirements.

1.3 REGULATORY COMPLIANCE

NEPA requires federal agencies to consider the environmental consequences of proposed actions during the decision-making process. The intent of NEPA is to protect, restore, and enhance the environment through well-informed decision-making. NEPA established the Council on Environmental Quality (CEQ) to implement and oversee federal policy in that process. To this end, CEQ issued regulations to implement the procedural provisions of NEPA (40 CFR parts 1500–1508). The Army has supplemented the CEQ NEPA regulations by promulgating its own NEPA regulations (32 CFR part 651).

The Army considered applicable federal, state, and local regulations during analysis of the impact of the proposed action on individual environmental and socioeconomic resources as part of the EA. The Army gave particular consideration to the following legislation:

- Clean Air Act (CAA) (42 U.S.C. 7401 *et seq.*)
- Clean Water Act (CWA) (33 U.S.C. 1251 *et seq.*)



- LEGEND**
- Interstate Highway
 - U.S. Route
 - State Boundary
 - County Boundary
 - Urban Area
 - Surface Water

Installation Location

Figure 1-1

- Endangered Species Act (ESA) (16 U.S.C. 1531–1543)
- Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa *et seq.*)
- National Historic Preservation Act of 1966, as amended (NHPA) (16 U.S.C. 470 *et seq.*)
- Resource Conservation and Recovery Act (RCRA) (42 U.S.C. 6901)
- Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. 3001–3013)

1.4 DECISION TO BE MADE

The Army must decide whether the socioeconomic and environmental impacts of the selected alternative that best meets the purpose and need for the proposed action will support a finding of no significant impact (FNSI) or will require publishing in the *Federal Register* a notice of intent (NOI) to prepare an environmental impact statement (EIS). The Army will publish an NOI if the potential adverse environmental impacts associated with the selected alternative remain significant even after all reasonable mitigation measures have been implemented.

1.5 PUBLIC PARTICIPATION

The Army invites and strongly encourages public participation in the NEPA process. Consideration of the views and information of all interested parties promotes open communication and enables better decision-making. The Army specifically urges all agencies, organizations, and members of the public with a potential interest in the proposed action—including minority, low-income, disadvantaged, and Native American groups—to participate in the decision-making process.

Regulations in 32 CFR part 651 guide opportunities for public participation with respect to this EA and decision-making on the proposed action. The Army will make this EA, along with a draft FNSI, available to the public for 30 days, publishing a notice of availability of the EA and the draft FNSI in newspapers local to HSAAP and on the HSAAP Facebook page. Interested parties also will be able to access the documents on the official home page of the JMC (Holston Army Ammunition Plant) at <http://www.jmc.army.mil/Installations.aspx?id=HolstonProgress>. At the end of the 30-day public review period, the Army will consider any comments on the EA or the draft FNSI that individuals, agencies, and organizations have submitted. Then, as appropriate, the Army will execute a final FNSI and proceed with implementing the proposed action, publish a NOI to prepare an EIS, or take other actions consistent with NEPA and its implementing regulations.

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SECTION 2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The Army proposes to construct and operate new explosives manufacturing and ancillary support facilities at HSAAP that, together with existing explosives manufacturing facilities, will meet anticipated future and surge requirements. To meet those requirements, the Army would implement the proposed action to double current production capacities of RDX and IMX. The proposed action consists of constructing new facilities that would duplicate the production processes of existing facilities within the limited-access production area of the installation using the same materials for explosives production that are currently used at HSAAP (see Figure 2-1). The proposed action also includes the construction and operation of a new natural gas fired steam generation plant that would replace an existing coal-fired steam plant. The new steam plant would abut the production area.

The proposed action would involve constructing explosives production facilities; blast barricades, a laboratory; a change house (an employee shower facility); new nitration, filtration, recrystallization, and other ancillary facilities to support the new main production facility. These along with the new steam plant are collectively referred to as “facilities” throughout the rest of the EA. Section 2.4.2 provides further details on the proposed action.

2.2 SCREENING CRITERIA

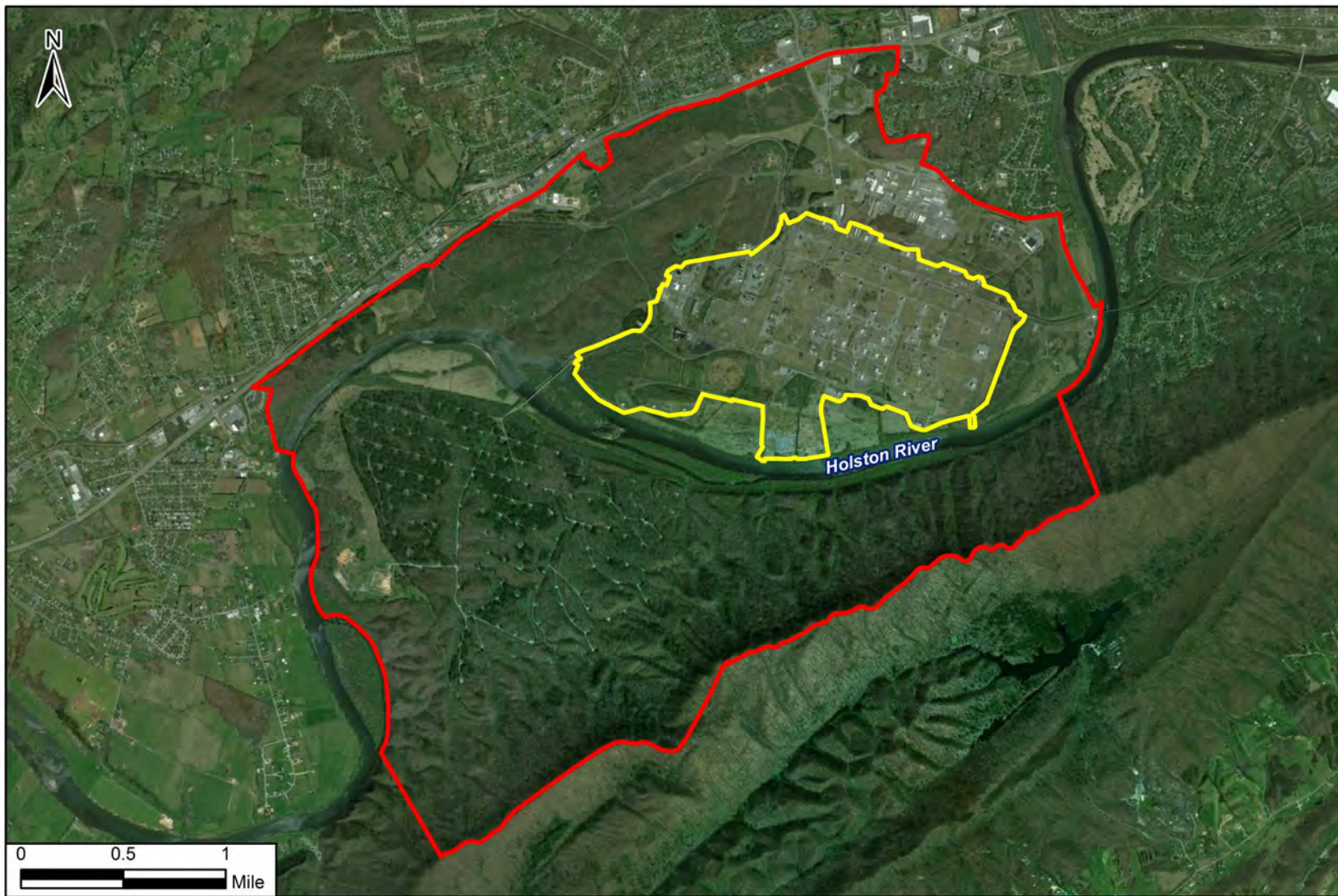
The Army conducted a rigorous screening process for selecting the proposed action. For an alternative to be considered viable, it must meet the purpose of, and need for, the proposed action as well as satisfy the screening criteria detailed in Table 2-1.

Table 2-1. Screening Criteria for RDX and IMX Capacity Expansion

Minimize linear square footage	Minimize the size of the new facilities and their distance from existing facilities while still meeting production needs and safety requirements.
Tie into existing infrastructure (e.g., pipelines)	Locate new facilities close enough to existing infrastructure to tie them into it to the maximum feasible extent.
Maintain existing production capacity	Allow HSAAP to maintain current production rates with limited interruption.
Have the capacity to meet surge requirements	Be able to produce up to two times the amount of RDX and IMX currently being produced.
Locate within Area B	Locate the new production facility and new ancillary facilities within or abutting the existing production area.

2.3 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

The Army considered other locations for a new explosives production facility at HSAAP as well as modernizing the existing production lines to meet DoD mission and surge requirements. After applying the screening criteria detailed in section 2.2, the Army eliminated from further consideration other potential locations for the new production facility because they were remotely located and would not be able to be tied into existing infrastructure. The Army also considered modernizing and upgrading the existing production lines as an alternative, but eliminated that alternative from further consideration because the potential for additional facility expansion would be limited by the age of the existing lines; it would not incorporate advantages associated with



LEGEND

- █ HSAAP Boundary
- █ Production Area Boundary

Installation Production Area

Figure 2-1

modern building design and construction. In addition, refurbished lines alone would not meet surge production requirements and the work on the existing lines would cause an unacceptable interruption to current production capacity, which would not meet the screening criteria.

2.4 ALTERNATIVES CONSIDERED

2.4.1 Alternative 1: No Action Alternative

CEQ regulations require analysis of a no action alternative to provide a benchmark against which decision-makers can compare the magnitude of the potential environmental effects caused by the proposed action and other alternative actions. The regulations do not require the no action alternative to be reasonable nor to meet the purpose and need. The no action alternative would maintain the present explosives production capabilities at HSAAP. As a result, the Army would lack the capability to meet current and anticipated demand for explosives.

2.4.2 Alternative 2: Construction of a New Explosives Production Facility and Ancillary Facilities (Preferred Alternative)

As described in section 2.1, the proposed action is the construction and operation of new explosives production facilities at HSAAP to double the Army's current RDX and IMX manufacturing capacity. Proposed construction and operation would take place in or abutting the limited production area of the installation.

The Army makes the following assumptions for this alternative:

1. For many of the existing facilities or functions in the explosives manufacturing process, the Army would construct a new facility of similar size and function in proximity to the existing facility that serves that process or function. Two exceptions would be combining three existing facilities that currently serve the explosives manufacturing process into one new facility and replacing the exiting coal-fired steam plant with a new natural gas stream plant. Use of the coal-fired steam plant will be discontinued. The disposition of the coal-fired plant after closure has not been determined by HSAAP/BAE.
2. Each new or renovated ancillary facility would operate more efficiently than the existing facility.
3. The Army would use the same raw materials currently used for explosives production in the existing facilities for the production processes in the new facilities.
4. HSAAP would produce twice as much RDX and IMX as is currently being produced, and would do so on a continuous basis. In reality, HSAAP would produce these explosives at the rates required by the Army at any given time, and the plant would not run at full capacity at all times. Assessing full-capacity production, however, allows the decision-maker and the public to understand the upper bounds of potential effects—or the *worst-case scenario*—that could result from implementing the proposed action.
5. Implementing the proposed action would increase the current utility and material consumption rates for production. It is likely that the new facilities will require less energy, be more efficient, and incorporate a myriad of modern advances in materials and construction practices and, therefore, have less of a utility footprint than the current facilities and process. To capture the upper bounds of potential effects, however, the EA assumes that current usage rates, emissions, and waste would be doubled for RDX and IMX.
6. The operating contractor (BAE OSI) would secure any required modifications for environmental permits (e.g., for air emission or wastewater) prior to increasing explosives production.

Following are details of the proposed action.

- *RDX Production Facility.* The new RDX production facility would duplicate functions that currently occur in existing buildings by combining those processes into one building. The facility would be a 3-story structure of approximately 5,000 ft² for each of the first two levels and 3,000 ft² on the third level. The construction footprint for the facility would be approximately 3 acres on previously disturbed land for the facility, laydown area, and parking.
- *RDX Recrystallization Facility.* An existing, inactive multistory building would be renovated to support additional recrystallization functions. All three stories of the approximately 12,000-ft² building would be renovated, and the construction footprint would be approximately 3 acres, including construction of blast barricades.
- *IMX Recrystallization Building.* The new IMX recrystallization facility would duplicate an existing IMX recrystallization facility at HSAAP. The facility would be a 3-story structure of approximately 12,000 ft², and the construction footprint would be approximately 3 acres, including construction of blast barricades.
- *IMX Melt Cast Facility.* An existing, inactive single-story building would be renovated to support IMX melt cast processes. The renovated building would be very similar to a previously modernized melt cast building at HSAAP. The single-story facility would be approximately 3,800 ft². The construction footprint would remain as currently developed.
- *Fluid Energy Mill (FEM).* A new FEM facility would also be constructed to support the production process. The FEM is used to grind RDX particles into a smaller size. The 3-story facility would consist of approximately 5,200 ft² for each floor, and the construction footprint would be approximately 4 acres, including construction of blast barricades on previously disturbed land.
- *Blast Barricades.* The recrystallization facilities and the FEM would require blast barricades on three sides of each building. The barricades would be constructed of precast concrete and filled with soil. The barricades would be approximately 45 feet high and sloped away from the facilities. Soil to fill the barricades would come from the HSAAP borrow pit or from an off-site source.
- *Acid Line.* Two additional acid lines would be required within the existing acid production area. The new acid lines would include a distillation column, weak acetic acid recovery, additional acid tanks, ammonium nitrate solution (ANSol) filtration, and acetic anhydride manufacturing line. The additional acid lines would occupy approximately 12,000 ft² and about 15,000 ft² (5,000 ft² per level) for the weak acetic acid recovery addition. The additions would be constructed on previously disturbed land. ANSol filtration would require modification only to an existing facility with no increase to the facility footprint.
- *Change House.* The new change house would be approximately 23,000 ft² in size, which is nearly four times larger than the existing change house. It would have 30 showers for men and 10 showers for women, 32 line offices, a shift changeover briefing room, a break room, and other spaces. It would also have about 225 parking spaces. The construction footprint for the change house would be about 4 acres on previously disturbed land for both the facility and parking lots. The existing change house is 6,100 ft² and would be demolished after the new change house is operational.
- *Analytical Lab.* The new analytical lab would be approximately 24,000 ft² in size. It would include about 65 parking spaces. The existing analytical lab is co-located with research

and development operations near the main gate. Upon completion, analytical laboratory functions would be relocated to the new building. Approximately 1,600 feet of an existing gravel road leading to the proposed parking area would be paved.

- *Workforce Increase.* About 250 employees would be added to the workforce to support the increase in explosives production. Manufacturing operations would operate 24 hours a day, 7 days a week, 365 days a year. The only downtime would be for occasional maintenance.
- *Utility Connections.* Small utility trunk lines that run between operating buildings and the main utility lines would be replaced. They are old and their replacement would ensure that utility services to the new facilities would not be interrupted by line failures or leaks. The trunk line connections would generally be located within 200 feet of the buildings. Weirs in noncontact cooling water diversion channels will be removed to allow additional flow. Utilities serving the expansion would include steam, filtered water, river water, potable water, sanitary sewer, wastewater discharge, natural gas, and electricity.
- *Storage Tank Facility.* A new storage tank facility for storage of materials used in the explosives production process would be constructed within a sealed concrete berm sized to hold 110 percent of the largest tank volume. All new storage tanks would be designed and fabricated in compliance with the latest codes and standards for their respective service.
- *Steam Plant.* A new steam plant that would replace the existing coal-fired plant would be constructed to support the energy requirements of increased production capacity. The new steam generation plant would be approximately 72,000 ft² on approximately 4.5 acres of wooded land abutting the production area (see Figure 3-1 in Section 3.0). The plant, as currently planned, is to be composed of four 250,000-pound-per-hour boilers that will operate on natural gas with the capability to operate on an alternate fuel (#2 fuel oil or liquefied natural gas). The new steam facility would tie into the existing main steam line that distributes to and supplies all the facilities and production lines across the production area. To tie into the existing natural gas supply line, a new trunk line of approximately 200 feet would be installed. An access road and a spur from the existing installation railroad would also be required.
- *Loading Dock Improvements.* Two loading docks where explosives are boxed, inspected for quality assurance, and loaded onto trucks for shipping would be renovated. One loading dock would be expanded by approximately 3,500 ft² and an additional 12,500 ft² of paved operational space. The other loading dock would be expanded by approximately 4,000 ft².
- *Rail Use.* The explosives manufacturing process would require twice as many railcar deliveries of anhydrous ammonia and nitric acid per year.
- *Waste Disposal.* HSAAP would recycle or dispose of by-products and waste from the explosives manufacturing process in the same manner as it does under current operations:
 - The dilute acetic acid stream generated from explosives manufacturing is processed into weak acetic acid, ANSol, and explosives. The resulting ANSol solution by-product stream is sent to a RCRA-permitted off-site disposal facility while an industrial outlet is being re-established. The explosives are returned to the explosives manufacturing process.

- Weak nitric acid (WNA) generated from explosives manufacturing is sent off-site for disposal; however, HSAAP is constructing a facility that will enable the reconcentration and recycling of WNA for use in the explosives production process and will reduce or eliminate WNA from the waste stream.
- The treatment of industrial wastewater (IWW) from the expansion of the on-site industrial wastewater plant is expected to increase biosludge generation. HSAAP is permitted to dispose of the biosludge in its on-site class II landfill. Biosludge will continue to be disposed of in the HSAAP class II landfill, but it could also be disposed of at an off-site landfill.
- Explosive waste, explosives-contaminated waste, and potentially contaminated waste from the manufacturing process would be managed through open burning in accordance with the installation's CAA and RCRA permits and other applicable DOD requirements. HSAAP is actively looking into alternative technologies to reduce the amount of waste requiring open burning.

SECTION 3.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

3.1 INTRODUCTION

The following sections discuss the affected environment and environmental impacts associated with the no action alternative as well as with construction and operations from implementing the proposed action.

The Army took context and intensity into consideration in determining a potential impact's significance, as defined in 40 CFR part 1508.27. The *intensity* of a potential impact is the impact's severity and includes consideration of beneficial and adverse effects; the level of controversy associated with a project's impacts on human health; whether the action establishes a precedent for future actions with significant effects; the level of uncertainty about project impacts; and whether the action threatens to violate federal, state, or local law requirements imposed for the protection of the environment. The severity of an environmental impact is characterized as none/negligible, minor, moderate, significant, or beneficial.

- **None/negligible**—No measurable impacts are expected to occur.
- **Minor**—Primarily short-term but measurable adverse impacts are expected. Impacts might have a slight impact on the resource.
- **Moderate**—Noticeable adverse impacts that would have a measurable effect on a resource and are not short term.
- **Significant**—Adverse impacts would be obvious, would be both short and long term, and would have serious impacts on a resource. These impacts would be considered significant unless mitigable to a less-than-significant level.
- **Beneficial**—Impacts would benefit the resource/issue.

The Army used quantitative and qualitative analyses, as appropriate, to determine the level of impact. Based on the results of the analyses, this EA identifies whether a particular potential impact would be adverse or beneficial, and to what extent.

CEQ regulations require that a proposed action's cumulative impact be addressed as part of a NEPA document. Cumulative impacts are effects on the environment that result from the incremental effect of a project in combination with other past, present, or reasonably foreseeable future actions, regardless of jurisdiction or entity. Cumulative impacts can result from individually minor, but collectively significant, actions occurring over time. Section 3.15 discusses cumulative impacts.

3.2 LAND USE

3.2.1 Affected Environment

HSAAP is divided into two separate areas known as Area A and Area B. Area A is located within the city of Kingsport; no part of the proposed action would occur in Area A. Area B (approximately 6,000 acres) is zoned for industrial use and is located just outside the Kingsport city limits. It comprises industrial sites and a large area of undeveloped land. Area B is west and south of the city of Kingsport and east of the city of Church Hill. It is bordered by a county park and Bays Mountain Park to the south, residential and commercial properties and the Holston River to the west, U.S. Highway 11 West (U.S. 11W) to the north, and the Holston River and residential and agricultural properties to the east.

The undeveloped portion of Area B accounts for approximately 88 percent of the whole, is largely forested, and contains the ammunition storage area, a landfill, a borrow pit, and the roads leading

to these facilities. It is divided into separate areas for natural resources management purposes. The new steam plant is proposed to be located within the Reservoir Area, named for the raw water reservoir in it that holds water from the Holston River for use upon demand in the production process (HSAAP 2015b). Because of the Reservoir Area's fairly distinct boundaries, extensive hardwood stands, and lack of development, deer hunting is permitted in the area.

The production area, or explosives manufacturing area, in Area B encompasses approximately 700 acres (12 percent of the total), has nearly 300 production facilities, and is classified as semi-improved grounds. Grounds surrounding the production facilities are primarily open fields that are generally mowed one to two times per year. Other than grass, vegetation on the area is limited to scattered mature trees and three small stands (measuring approximately 1 acre, 1.5 acres, and 4 acres) of upland hardwoods composed primarily of white oak (*Quercus alba*). White-tailed deer (*Odocoileus virginianus*) use the stands as bedding areas and feeding areas when the acorn crop is sufficient. For safety reasons, no hunting is allowed in the production area.

3.2.2 Impacts Associated with No Action Alternative

The no action alternative would have no effect on land use because no changes in zoning or land use on Area B would occur.

3.2.3 Impacts Associated with Proposed Action

3.2.3.1 Construction

Long-term minor adverse effects on land use would be expected from construction. Forest would be converted to industrial use at the site of the new steam plant and the site would no longer be available for deer hunting. No effects on land use would be expected from construction in the production area. The industrial land use and zoning of Area B would not change under the proposed action, and no new land-use conflicts with surrounding properties would be created.

3.2.3.2 Operations

No effects on land use would be expected from operations after construction activities are completed. Activities on and use of the production area would remain unchanged from before implementation of the proposed action. The area would continue to be zoned and used for industrial purposes, and post-construction operations in the production area would create no new land-use conflicts with surrounding areas.

3.2.3.3 Mitigation Measures and Best Management Practices

No mitigation measures or best management practices (BMPs) would be required for land use.

3.3 AESTHETICS AND VISUAL RESOURCES

3.3.1 Affected Environment

HSAAP no longer uses many of the nearly 300 facilities in the production area, and they have been allowed to deteriorate over time. Views from the interior of the production area are primarily of maintained grounds and old buildings, industrial facilities, and aboveground steam pipes running between the facilities. Views outward from the periphery of the area are of the Holston River and residential areas to the east, the river and Bays Mountain to the south, the forested part of Area B to the west, and residential areas to the north. The views are generally aesthetically natural or otherwise pleasing. The undeveloped portion of Area B has a natural, forested aesthetic.

3.3.2 Impacts Associated with No Action Alternative

The no action alternative would have no effect on aesthetics on HSAAP since no changes in the appearance of Area B would occur.

3.3.3 Impacts Associated with Proposed Action

3.3.3.1 Construction

Construction associated with the proposed action would result in short-term minor adverse and beneficial effects on aesthetics. Construction activities are generally considered unaesthetic, but they last only for a limited amount of time. The construction phase, therefore, would have a short-term adverse effect on aesthetics both because of the appearance of the area during construction activities and the noise associated with construction (section 3.5 discusses noise effects). The completion of each construction project would be expected to have a minor beneficial effect on the aesthetics of the production area because of the new appearance of renovated and new facilities. Replacement of forest with a steam plant outside the production area would alter views in that immediate area, but the location is within view of the production area. The overall effect of the multiple construction projects under the proposed action on the aesthetics of the production area would be expected to be minor because the industrial character of the area would remain unchanged.

3.3.3.2 Operations

No effects on aesthetics would be expected from operations in the production area after the completion of construction activities. No changes to the aesthetics of the production area would occur after construction was completed. Activities on the production area and use of the area would be largely the same as before the proposed action was implemented.

3.3.3.3 Mitigation Measures and BMPs

No mitigation measures for aesthetics would be required. BMPs for aesthetics would include normal construction site organization and cleanup during and upon completion of individual construction tasks and projects. HSAAP would set aside specific areas for construction staging, and the contractor would remove materials and equipment for specific phases of a construction project when no longer needed and stabilize and replant any disturbed ground upon the completion of each project. Section 3.5 discusses mitigation and BMPs for noise effects.

3.4 AIR QUALITY

Air pollution is the presence in the atmosphere of one or more contaminants (e.g., dust, fumes, gas, mist, odor, smoke, and vapor) that may be harmful to human, plant, or animal life. Air quality as a resource incorporates several components that describe the levels of overall air pollution within a region, sources of air emissions, and regulations governing air emissions.

3.4.1 Affected Environment

The following sections include a discussion of the National Ambient Air Quality Standards (NAAQS) and attainment status of the region, existing emissions at HSAAP, a regulatory overview, and a summary of climate and greenhouse gases (GHGs).

NAAQS and Attainment Status

U.S. Environmental Protection Agency (EPA) Region 4 and the Tennessee Department of Environment and Conservation (TDEC) regulate air quality in Tennessee. The CAA, as amended, assigns EPA the responsibility to establish primary and secondary NAAQS (40 CFR part 50) that specify acceptable concentration levels of six criteria pollutants: particulate matter (measured as

both particulate matter less than 10 microns [PM_{10}] in diameter and particulate matter less than 2.5 microns [$PM_{2.5}$] in diameter), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), and lead (Pb). Short-term NAAQS (1-, 8-, and 24-hour periods) have been established for pollutants contributing to acute health effects, while long-term NAAQS (annual averages) have been established for pollutants contributing to chronic health effects. Each state has the authority to adopt standards stricter than those established under the federal program; however, the state of Tennessee accepts the federal standards.

Federal regulations designate air quality control regions (AQCRs) in violation of the NAAQS as nonattainment areas. Federal regulations designate AQCRs with levels below the NAAQS as attainment areas. Hawkins County is located within the Eastern Tennessee-Southwestern Virginia Interstate AQCR (40 CFR 81.57). EPA has designated Hawkins County as being in full attainment for all criteria pollutants (USEPA 2017a). Because all areas associated with the proposed action are in attainment, the general conformity rules do not apply. EPA monitors levels of criteria pollutants at representative sites in each region throughout Tennessee. Table 3-1 shows the monitored concentrations of criteria pollutants at the monitoring location closest to HSAAP. SO_2 and PM_{10} are not considered pollutants of concern in this region; therefore, they are not monitored at nearby stations.

Table 3-1. Air Quality Standards and Monitored Data near HSAAP

Pollutant	Air Quality Standard		Monitored Concentrations		
	Level	Averaging Period	2014	2015	2016
CO					
1-hour (ppm)	35	Not to be exceeded more than once per year	1.2	1.4	1.3
8-hour (ppm)	9		0.9	1.0	0.9
NO_2					
1-hour (ppb)	100	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years	37	39	42
1-year (ppb)	53	Annual mean	7	8	9
O_3					
8-hour (ppm)	0.070	3-year average of the fourth highest daily maximum	0.065	0.066	0.068
SO_2					
1-hour (ppm)	75	98th percentile, averaged over 3 years	No Data	No Data	No Data
3-hour (ppb)	0.5	Not to be exceeded more than once per year	No Data	No Data	No Data
$PM_{2.5}$					
24-hour ($\mu g/m^3$)	35	98th percentile, averaged over 3 years	15	14	17
Annual mean ($\mu g/m^3$)	12	Averaged over 3 years	8.7	7.7	7.4
PM_{10}					
24-hour ($\mu g/m^3$)	150	Not to be exceeded more than once per year over 3 years	No Data	No Data	No Data
Lead (Pb)					
Rolling 3-month average ($\mu g/m^3$)	0.15	Not to be exceeded	0	0.01	0

Sources: 40 CFR 50.1-50.12; USEPA 2017b.

Notes: ppm = parts per million; ppb = parts per billion; $\mu g/m^3$ = micrograms per cubic meter.

HSAAP Operating Permit and Existing Emissions

Title V of the CAA requires the state of Tennessee to establish an air operating permit program (40 CFR part 70). Based on its potential to emit (PTE), HSAAP is a major source of air emissions, and its current operating contractor (BAE OSI) holds two Title V operating permits—No. 558407 for Area A and No. 558406 for Area B. HSAAP applied for permit renewals in 2013 and is currently operating under the existing permits while TDEC reviews the applications (BAE OSI 2013b). The proposed expansion is completely confined to Area B; therefore, Area A is not carried forward in this discussion.

Existing sources of air emissions at HSAAP's Area B include a coal-fired boiler (steam) plant, internal combustion engines such as generators and pumps. Other sources include natural gas combustion for steam generation, nitration, washing, RDX recrystallization processes, explosives fluid energy milling, IMX manufacturing processes, storage tanks, and open burning of contaminated materials. Engineering controls on existing sources include a flare with natural gas assist, water and caustic scrubbers, condensers, baghouses, electrostatic precipitators, and wetted material processing. As part of its Title V permit requirements, HSAAP submits a comprehensive emissions statement annually. Table 3-2 summarizes the 2016 HSAAP Area B emissions of criteria pollutants and from open burning activities.

Table 3-2. Facility Wide 2016 Emissions at HSAAP Area B

Pollutant	Facility Wide Emissions (tpy)		Open Burning Emissions (tpy)		
	Actual	Potential to Emit	Actual	Percent Facility Wide	Potential to Emit
CO	214	1,118	17.8	8.3%	31.3
NO _x	347	1,201	1.3	0.4%	2.9
VOC	49	1,701	6.2	12.7%	10.1
SO ₂	1,695	9,995	0.2	0.0%	0.3
PM ₁₀	94	257	3.4	3.6%	6.6
PM _{2.5}	59	163	3.4	5.8%	6.6

Sources: BAE OSI 2017a, 2017b, 2013b; HSAAP 2016.

Notes: NO_x = oxides of nitrogen; tpy = tons per year; VOC = volatile organic compound.

Regulatory Overview

TDEC oversees programs for permitting the construction and operation of new sources of air emissions in Tennessee, requiring air permitting for many industries and facilities that emit regulated pollutants. Based on the size of the emissions units and type of pollutants emitted, TDEC sets permit rules and standards for emissions sources (TDEC 1200-03: *Air Pollution Control Regulations*). This section outlines the primary federal and state permitting regulations that might apply to the proposed HSAAP expansion.

The air quality permitting process would begin with the application of one or more construction permits. Three types of construction permits are available through TDEC for construction and temporary operation of new emissions sources: Prevention of Significant Deterioration (PSD) permits in attainment areas; Major Source Construction permits in nonattainment areas (Nonattainment New Source Review [NNSR]); and Minor New Source Construction permits. Because HSAAP is already a major source in an attainment area, any new sources of air emissions at the installation would require either a Minor New Source Construction permit or a Major Modification to HSAAP's existing PSD permit (Table 3-3). These permits, and some of their requirements, are outlined in this section. TDEC requires a NNSR permit only for major new

sources in nonattainment areas. Because HSAAP is located in an attainment area, that permit would not apply.

Prevention of Significant Deterioration Permit. The PSD regulations specify that major new sources and major modifications to existing sources in attainment areas (such as HSAAP) must undergo PSD review. TDEC bases its permitting requirements for modifying existing stationary sources on their overall PTE criteria pollutants. Thresholds that determine the type of construction permit required depend on both the quantity and the type of emissions. Any net increase of pollutants that would exceed the major modification thresholds outlined in Table 3-3 would be subject to the PSD review requirements and would require the installation to obtain a major modification to their existing permit (40 CFR 52.21; TDEC 1200-03-09-.01).

Table 3-3. Major Modification Threshold for Existing PSD Sources

Pollutant	Major Modification Threshold for Existing PSD Sources (tpy)
CO	100
NO _x	40
SO ₂	40
PM	25
PM ₁₀	15
PM _{2.5}	10
VOCs	40
Pb	0.6

Sources: 40 CFR part 52.21; TDEC 1200-03-09-.01.

Notes: NO_x = oxides of nitrogen; tpy = tons per year; VOCs = volatile organic compounds.

The PSD process applies to all criteria pollutants for which the region is in attainment (i.e., all criteria pollutants). The PSD permitting process typically takes 12–24 months to complete. TDEC typically requires sources subject to PSD to complete the following:

- Best Available Control Technology (BACT) review for each criteria pollutant;
- Maximum Achievable Control Technology (MACT) review for regulated Hazardous Air Pollutants (HAPs) and designated categories;
- Predictive air dispersion modeling;
- Establishing procedures for measuring and recording emissions and/or process rates;
- Meeting the New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements; and
- A public involvement process.

In addition, PSD provides rigorous safeguards to prevent deterioration of the air quality in class I areas as specified in 40 CFR 51.166(e). The PSD program designates as EPA mandatory class I areas all international parks, all national wilderness areas, national memorial parks that exceed 5,000 acres, and national parks that exceed 6,000 acres. The class I areas closest to HSAAP are Great Smoky Mountains National Park and Joyce Kilmer-Slickrock Wilderness Area (USEPA 2017c), which are approximately 80–100 miles southeast of the installation.

Minor New Source Construction Permit. TDEC requires a Minor New Source Construction permit for construction of minor new sources, minor modifications of existing sources, and major sources not subject to PSD permit requirements. The Minor New Source permitting process

typically takes 6–8 months to complete after the application(s) are submitted to TDEC. The department could require sources subject to minor new source review to complete the following:

- BACT review for each criteria pollutant;
- MACT review for regulated HAPs and designated categories;
- Predictive air dispersion modeling as requested by TDEC; and
- Establishing procedures for measuring and recording emissions and/or process rates.

NSPS and NESHAP. In addition to the permitting requirements to construct and operate new emissions sources, NSPS and NESHAP set emissions control standards for categories of new stationary emissions sources of both criteria pollutants and HAPs. The NSPS process requires EPA to list categories of stationary sources that cause or contribute to air pollution that might reasonably be expected to endanger public health. The NSPS program sets uniform emissions limitations for many industrial sources. In addition, the CAA Amendments of 1990, under revisions to section 112, required EPA to list and promulgate NESHAP to reduce the emissions of HAPs such as benzene, formaldehyde, toluene, and xylene from categories of major and area sources (40 CFR parts 60, 61, 63).

GHGs and Climate

GHGs are gases that trap heat in the atmosphere. They contribute to an increase in the temperature of the Earth's atmosphere by allowing sunlight in, but not allowing its energy back out. Following are the principal GHGs that enter the atmosphere because of human activities:

- **Carbon Dioxide (CO₂).** CO₂ enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, and trees and wood products and as a result of other chemical reactions.
- **Methane.** Coal, natural gas, and oil production and transport activities emit methane. Livestock and other agricultural practices as well as the decay of organic waste in landfills also produce methane emissions.
- **Nitrous Oxide.** Agricultural and industrial activities emit nitrous oxide as does the combustion of fossil fuels and solid waste.

Carbon dioxide equivalent (CO₂e) is the amount of CO₂ emitted into the atmosphere that would produce the same greenhouse effects as a given amount of another GHG. CO₂e is computed by multiplying the weight of the gas being measured (e.g., methane) by its estimated global warming potential (which is 21 for methane).

EPA has promulgated two basic GHG regulations: (1) the Mandatory GHG Reporting Rule (MRR), which requires the reporting of GHG emissions annually, and (2) the GHG Tailoring Rule, which required BACT for GHGs to be addressed for major sources of GHG. The MRR final rule applies to fossil fuel suppliers and industrial gas suppliers, direct GHG emitters such as HSAAP, and manufacturers of heavy-duty and off-road vehicles and engines. The rule does not require control of GHGs, but requires that major GHG sources be monitored and the emissions reported. The GHG Tailoring Rule "tailored" the major source permitting regulations (i.e., Title V, PSD {XE "Prevention of Significant Deterioration (PSD)"}, and NNSR) to apply to GHGs. Based on a 2014 U.S. Supreme Court decision, the status of the GHG Tailoring Rule is uncertain, and PSD and Title V permitting of major sources of GHGs is not required at this time (Utility Air Regulatory Group v. EPA, 134 S. Ct. 2427 2014). The MRR is still in effect, however, and applies to HSAAP.

In addition, Executive Order (EO) 13693, *Planning for Federal Sustainability in the Next Decade*, outlines policies intended to ensure that federal agencies evaluate climate change risks and vulnerabilities and manage the short- and long-term effects of climate change on their operations and mission. The EO specifically requires agencies within the DoD to measure, report, and reduce their GHG emissions from both their direct and indirect activities. HSAAP currently emits approximately 168,000 tons of CO₂e each year, with a PTE of 551,117 tons per year (tpy) (BAE 2017a; HSAAP 2016). DoD has committed to reduce GHG emissions from noncombat activities by 34 percent by 2020 (U.S. Army 2016a).

Climate. Historically, Kingsport's average high temperature is 86.9 °F in the hottest month of July, and its average low temperature is 26.2 °F in the coldest month of January. Kingsport has average annual precipitation of 44.4 inches per year. The wettest month of the year is July, with an average rainfall of 4.6 inches (Idcide 2017).

3.4.2 Impacts Associated with No Action Alternative

No adverse effects on air quality would be expected under the no action alternative since no construction or changes in operations or personnel would occur at HSAAP. Ambient air quality would remain unchanged.

3.4.3 Impacts Associated with Proposed Action

Short-term minor and long-term moderate adverse effects on air quality would be expected under the proposed action. Fugitive dust and the use of heavy equipment during construction would result in short-term effects. Operating the proposed natural gas steam generation plant instead of the coal-fired plant would have long-term moderate beneficial effects to air quality from a reduction in criteria pollutants; however, additional industrial processes and increases in open burning of waste would result in long-term moderate adverse effects. Emissions would not exceed the general conformity rule *de minimis* threshold values, and the proposed action would not contribute to a violation of any federal, state, or local air regulation.

3.4.3.1 Construction

Short-term minor adverse effects would be expected from construction associated with the proposed action. Mobile and stationary equipment would be used to construct the proposed facilities. Construction would generate small amounts of emissions from combustion of diesel fuel and gasoline on- and off-road diesel equipment and vehicles, worker trips, architectural coatings, and paving off-gasses. In addition, site grading and construction activities would generate fugitive dust. Construction emissions would be localized and temporary. These effects would be minor.

TDEC Division of Air Pollution Control has established the Tennessee Air Pollution Control Regulations (Air Pollution Control Rule Chapter 1200-03-01 *et seq.*) implementing the Tennessee Air Quality Act (Tennessee Code Annotated section 53-3408 *et seq.*). The regulations establish emission standards for numerous sources of air pollutants. Developers must comply with these standards when constructing new facilities. All persons responsible for any operation, process, handling, transportation, or storage facility that could result in fugitive dust must take reasonable precautions to prevent that dust from becoming airborne. Reasonable precautions might include using water to control dust from building construction and demolition, road grading, or land clearing. In addition, construction must proceed in full compliance with current TDEC requirements with compliant practices and/or products. These requirements include the following:

- Rule Chapter 1200-03-04: Open Burning
- Rule Chapter 1200-03-05: Visible Emission
- Rule Chapter 1200-03-08: Fugitive Dust

- Rule Chapter 1200-03-18: Volatile Organic Compounds
- Rule Chapter 1200-03-23: Visibility Protection

This listing is not all inclusive; the Army and any contractors would comply with all applicable air pollution control regulations.

3.4.3.2 Operations

Long-term moderate adverse effects would be expected from operation of the proposed facilities. Operating the proposed natural gas steam generation plant instead of the coal-fired plant would have long-term moderate beneficial effects to air quality from a reduction in criteria pollutants; however, additional industrial processes and increases in open burning of waste would result in long-term moderate adverse effects. The assessment of effects on air quality from the proposed operations discussed in this section incorporates several components that include the applicability of the general conformity rule, the change in actual emissions, and a review for permitting of new sources of air emissions.

General Conformity. The project site is located completely within an attainment area; therefore, the general conformity requirements do not apply, and no formal conformity determination is required. In addition, the HSAAP expansion would be exempt from the general conformity requirements as it includes stationary sources that would be permitted under the PSD program (40 CFR 93-153(d)(1)). Appendix A provides a Record of Non-Applicability.

Operational Emissions. Emissions sources from the proposed expansion would be similar to existing sources on HSAAP, including combustion for steam generation; internal combustion engines such as generators and pumps, and storage tanks; additional RDX and IMX manufacturing processes; and additional open burning of contaminated materials. The proposed new natural gas boilers would have appreciably lower emissions than the existing coal-fired boilers which make up most of the existing installation-wide emissions. Table 3-4 lists the estimated overall operational emissions at the proposed facilities. The change in PTE have been added or subtracted from the existing actual emissions to estimate the future emissions under the proposed action.

General conformity was established with NEPA in mind and, although the area is in attainment and the general conformity rules do not apply, the *de minimis* threshold values were carried forward to determine the level of effects. The estimated emissions from the proposed expansion for all criteria pollutants would be below the *de minimis* thresholds. These effects would be less than significant. The emission estimates outlined in Table 3-4 are based on the best available information at this time, and since they are based on PTE, the actual increases and decreases in emissions would be less than those shown herein. As the design of the facilities and the air permitting process progresses, they are likely to change. However, moderate changes in facility siting or size would not change the level of effects under NEPA. Although Hawkins County is in full attainment for all NAAQS, Sullivan County is in partial non-attainment for SO₂. The proposed action would reduce PTE of SO₂ by more than 9,000 tpy, and reduce actual SO₂ emissions by more than 1,700 tpy. This would potentially have beneficial effects in these nearby areas.

Permitting for New Emissions Sources. Permitting scenarios might vary based on the final design, timing of the project, and types of controls ultimately selected. Permitting scenarios, design, timing, controls, and the estimated emissions might differ from the ones described in this EA. During the final design stage and the permitting process, however, either (1) the actual equipment, controls, or operating limitations would be selected to reduce the PTE below the major modification threshold, or (2) the PSD permitting process would ensure that the NAAQS are not exceeded, ensuring the project would not interfere with the ability of the state to maintain air

quality in accordance with the NAAQS. This permitting approach is inherent to federal and state air regulations and leads to a forced preservation of clean air in attainment regions. Therefore, regardless of the ultimate permitting scenario, effects would be less than significant.

Table 3-4. Emissions from the Proposed Action Compared to *De Minimis* Thresholds

Pollutant	Change in Emission (tpy)^a	<i>De Minimis</i> Threshold [tpy]	Exceeds <i>De Minimis</i> Thresholds? [Yes/No]
CO	-566.4	100	No
NO _x	-506.6	100	No
VOC	36.1	100	No
SO ₂	-9,919.8	100	No
PM ₁₀	-110.2	100	No
PM _{2.5}	-46.3	100	No
Pb	0.0	25	No

Sources: 40 CFR 93.153; BAE 2017a.

Notes: NO_x = oxides of nitrogen; VOC = volatile organic compound.

^a Emissions are based on the change in the facilities' PTE. The actual emissions would be expected to be somewhat less.

Table 3-5 shows the existing PTE for HSAAP and the estimated PTE with the proposed action. Due to the overall reductions in emissions, the proposed HSAAP expansion would not likely meet the definition of a major modification as outlined in the PSD regulations, because it would not produce PTE-regulated pollutants in amounts equal to or greater than those outlined in Table 3-3. Even though the estimates for pollutants are lower than the applicable thresholds, these estimates are based on the preliminary design phase.

The current permitting approach includes the Army taking a netting approach to emissions that would include the replacement of existing sources or the installation of emission controls on existing sources to make the PSD review process unnecessary. This approach may change with the final design; however, as outlined above and for similar reasons, regardless of the ultimate permitting scenario, effects from air quality permitting would be less than significant.

Table 3-5. Estimated Facility Wide PTE with the Proposed Action

Pollutant	PTE (tpy)		Change in PTE (tpy)	Major Modification Threshold (tpy)	Exceeds Major Modification Threshold?
	Existing	With Proposed Expansion			
CO	1,118	552	-566	100	No
NO _x	1,201	694	-507	40	No
VOC	1,420	1,456	36	40	No
SO ₂	9,995	75	-9,920	40	No
PM ₁₀	257	147	-110	15	No
PM _{2.5}	163	117	-46	10	No

Sources: BAE OSI 2017a, 2017b, 2013b, TDEC 2009a.

Note: VOC = volatile organic compound.

If it became required, the PSD permitting process would include all new sources of air emissions associated with the proposed expansion. The PSD review process would require the following:

- **Installation of BACT**, an emission limitation based on the maximum pollution control that can be achieved. BACT would vary based on the process being controlled and would be implemented in the new facilities and equipment. It could be add-on control equipment or modification of the production methods, or it could be design criteria, add-on equipment, work practice, or operational standard.
- **A detailed air quality analysis** to demonstrate that new emissions resulting from the HSAAP expansion would not cause or contribute to a violation of the NAAQS. The analysis would involve (1) an assessment of existing air quality, and (2) dispersion modeling to predict future concentrations of pollutants resulting from the proposed expansion.
- **A public involvement process** that would include a public comment period on the permit application and possibly informational meetings and hearings.

Both the minor new source review and the PSD permitting process would include all requirements outlined in section 3.4.1.

Because the activities described in this EA would ultimately be conducted entirely on Area B, TDEC would require all new stationary sources of emissions to be added to the HSAAP Area B Title V permit and would require HSAAP to submit an application for the modification of the permit within 1 year of the first operation of a new source.

Open Burning. Table 3-6 outlines the existing open burning emissions and the open burning emissions with the proposed action. No air pollution controls are used during opening burning activities. Although open burning constitutes only a small fraction of the facility wide emissions, the proposed action would result in a 25–31-percent increase in the open burning of waste and subsequent emissions. This increase would fall within the limits of the current RCRA subpart X and Title V permits. Notably, potential to emit from open burning would not increase since HSAAP would be staying within the existing RCRA subpart X permit restrictions. These effects would be moderately adverse.

Table 3-6. Open Burning Emissions with the Proposed Action

Pollutant	Actual Emissions (tpy)			PTE (tpy)
	Existing	With Proposed Expansion	Percent Increase	
CO	17.84	22.55	26%	31.3
NO _x	1.34	1.76	31%	2.9
VOC	6.19	7.73	25%	10.1
SO _x	0.20	0.26	30%	0.3
PM ₁₀	3.44	4.40	28%	6.6
PM _{2.5}	3.44	4.40	28%	6.6

Source: BAE 2017b.

Notes: NO_x = oxides of nitrogen; SO_x = oxides of sulfur; VOC = volatile organic compound.

RCRA subpart X permit conditions for on-site disposal and treatment of explosive waste limit the facility to daily burning, Monday through Friday, with a maximum of 5,000 pounds between the four burn pans located in the open burning area. The Army and its contractors have certified that open burning continues to be the only approved, safe method for disposal of these materials at the installation; however, HSAAP is actively looking into alternative technologies to reduce the amount of waste requiring open burning (BAE 2017c).

Climate Change and GHGs. Under the proposed expansion, HSAAP would emit approximately 675,343 tpy of CO₂e, about four times as much as under existing conditions. The PTE would increase by 208,471 tpy to 758,936 tpy. These increases would primarily be caused by the new natural gas steam generation plant, and heating and cooling the new facilities. Table 3-7 outlines GHG emissions resulting from the proposed action. The estimated GHG emissions from the HSAAP expansion are minor compared to global, countrywide, and statewide GHG emissions.

Table 3-7. GHG Emissions from the Proposed Action

Scale	CO ₂ e Emissions (MMT)	Change from Proposed Action
Global	43,125.0	0.00041%
United States	6,870.0	0.0009%
Tennessee	103.5	0.6%
Proposed Action	0.6	0.0%

Sources: BAE 2017a; USEIA 2017; USEPA 2017d, 2017e.

Note: MMT = million metric tons.

Although the proposed action would result in an increase in GHG emissions, it would be within the context of the Army wide effort to reduce GHG emissions. The Army has several initiatives to reduce its GHG emissions, including (1) increasing renewable and alternative energy power production to enhance mission capabilities and advance energy security, (2) improving its capabilities through better integration of operational energy considerations, (3) setting energy security and sustainability objectives, and (4) implementing a Net Zero initiative. These initiatives have reduced Army wide GHG emissions by 0.8 million metric tpy, an 8-percent reduction from 2008 levels.

Tennessee is in the Southeast climate region of the United States, an area that climate change leaves exceptionally vulnerable to extreme heat events, hurricanes, and decreased water availability. Average annual temperatures during the last century across the Southeast cycled between warm and cool periods, and temperatures increased from 1970 to the present by an average of 2 °F. The number of category 4 and 5 hurricanes has increased substantially since the early 1980s compared to the historical records that date back to the mid-1880s. This increase can be attributed to both natural variability and climate change (NCA 2014).

Table 3-8 lists climate stressors and their potential effects on post-construction operations at HSAAP. At this time, no future climate scenario or potential climate stressor would have appreciable effects on any element of the proposed action.

Table 3-8. Effects of Potential Climate Stressors on HSAAP Operations

Climate Stressor	Potential Effect on HSAAP Operations
More frequent and intense heat waves	Negligible
Longer fire seasons and more severe wildfires	Negligible
Changes in precipitation patterns	Negligible
Increased drought	Negligible
Harm to water resources, agriculture, wildlife, ecosystems	Negligible

Source: NCA 2014.

Although no climate stressor would have an appreciable effect on operations at the installation, the final siting and design of facilities and infrastructure would incorporate measures to avoid the

potential effects of climate change such as siting facilities away from areas that might be affected. The Army would not build facilities within the predicted future 500-year floodplain, for example.

3.4.3.3 Mitigation Measures, BMPs and Regulatory Requirements

No mitigation measures for air quality would be required because the effects would be less than significant. No activities other than compliance with existing regulations, permits, and plans would be required to reduce the level of impact to less than significant.

BMPs and other regulatory requirements would be followed during the construction and operation of the HSAAP expansion. Construction of the proposed facilities would proceed in full compliance with current TDEC requirements with compliant practices and/or products. These requirements include the following:

- Rule Chapter 1200-03-04: Open Burning
- Rule Chapter 1200-03-05: Visible Emission
- Rule Chapter 1200-03-08: Fugitive Dust
- Rule Chapter 1200-03-18: Volatile Organic Compounds
- Rule Chapter 1200-03-23: Visibility Protection

This is not an all-inclusive listing. The Army and its contractors would comply with all applicable air pollution control regulations. In addition, during construction, no person would handle, transport, or store any material in a manner that might allow unnecessary amounts of contaminants to become airborne. Reasonable measures might be required to reduce fugitive dust, including the following:

- Using water for control of dust, grading of roads, or clearing of land;
- Paving roadways and maintaining them in a clean condition;
- Covering open equipment for conveying or transporting material likely to create objectionable air pollution when airborne; and
- Promptly removing spilled or tracked dirt or other materials from paved streets.

As part of the new source review and the PSD permitting process for new stationary sources of emissions, requirements associated with permitting and operating the proposed facilities might include the following:

- BACT review for each criteria pollutant;
- MACT review for regulated HAPs;
- Predictive air dispersion modeling;
- Establishing procedures for measuring and recording emissions and/or process rates;
- Meeting the NSPS and NESHAP requirements; and
- A public involvement process.

3.5 NOISE

3.5.1 Affected Environment

Sound is a physical phenomenon consisting of vibrations that travel through a medium such as air and are sensed by the human ear. *Noise* is defined as any sound that is undesirable because it interferes with communication, intense enough to damage hearing, or otherwise intrusive. Human response to noise varies depending on the type and characteristics of the distance between the noise source and the receptor, receptor sensitivity, and time of day. Activities

essential to a community's daily life such as construction and vehicular traffic often generate noise.

Sound varies by both intensity and frequency. Sound pressure level, described in decibels (dB), is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. Hertz units of measure are used to quantify sound frequency. The human ear responds differently to different frequencies. "A-weighting," measured in A-weighted decibels (dBA), approximates a frequency response expressing the perception of sound by humans. Table 3-9 provides representative sounds encountered in daily life and their dBA levels.

Table 3-9. Common Sounds and Their Levels

Outdoor	Sound Level (dBA)	Indoor
Motorcycle	100	Subway train
Tractor	90	Garbage disposal
Noisy restaurant	85	Blender
Downtown (large city)	80	Ringling telephone
Freeway traffic	70	TV audio
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator
Quiet residential area	40	Library

Source: Harris 1998.

The dBA noise metric describes steady noise levels, although very few noises are, in fact, constant. Therefore, A-weighted day-night sound level (DNL) has been developed. *DNL* is defined as the average sound energy in a 24-hour period with a 10-dB penalty added to the nighttime levels (10 p.m. to 7 a.m.). *DNL* is a useful descriptor for noise because (1) it averages ongoing yet intermittent noise, and (2) it measures total sound energy over a 24-hour period. In addition, equivalent sound level (L_{eq}) is often used to describe the overall noise environment. L_{eq} is the average sound level in dB.

The Noise Control Act of 1972 (Public Law 92-574) directs federal agencies to comply with applicable federal, state, and local noise control regulations. In 1974, EPA provided information suggesting continuous and long-term noise levels in excess of *DNL* 65 dBA are normally unacceptable for noise-sensitive land uses such as residences, schools, churches, and hospitals. Tennessee does not have a statewide noise regulation. Neither Hawkins County nor Sullivan County maintain noise ordinances that set strict not-to-exceed sound levels.

Existing sources of noise at and around HSAAP include commercial and private aircraft overflights, railroad and vehicle traffic, lawn maintenance equipment, and construction. Other noise sources on the installation include operation of manufacturing facilities, munitions testing, and heavy equipment use. The vegetation surrounding the installation attenuates much of the already limited noise generated on the installation. However, small explosives demonstrations and research and development testing are conducted at two small sites adjacent to the burn pans approximately once per month. Occasional complaints are received about noise from these activities.

Mixed residential, other commercial, and light industrial areas surround HSAAP. Existing noise levels (L_{eq} and *DNL*) in the surrounding areas were estimated using the techniques specified in the American National Standards Institute's (ANSI's) *Quantities and Procedures for Description and Measurement of Environmental Sound Part 3: Short-term measurements with an observer*

present. Table 3-10 outlines the land-use category and the estimated background noise levels for nearby areas (ANSI 2013).

Table 3-10. Estimated Background Noise Levels

Direction	Land-Use Category	Background Noise (dBA)		
		L _{eq}		DNL
		Daytime	Nighttime	
West	Rural Quiet Residential	40	34	42
North	Light Industrial Commercial Quiet Residential	52	53	47
South				
East				

Source: ANSI 2013.

3.5.2 Impacts Associated with No Action Alternative

The no action alternative would have no effects on noise since no short- or long-term changes to the ambient noise environment would occur. The noise environment would remain unchanged.

3.5.3 Impacts Associated with Proposed Action

Short- and long-term minor adverse effects on the existing noise environments of areas surrounding HSAAP and on the installation itself would be expected from implementing the proposed action. Increases in traffic and heavy equipment noise during construction activities would result in short-term effects. An increase in traffic from approximately 250 additional personnel and shipping, receiving, and other processing-related vehicles associated with the HSAAP expansion would result in long-term effects. Railroad use would increase under the proposed action, with minor long-term adverse noise effects. These effects would not result in the violation of applicable federal noise regulations or create land-use incompatibilities.

3.5.3.1 Construction

Table 3-11 presents typical noise levels (dBA at 50 feet) that EPA has estimated for the main phases of outdoor construction. Individual pieces of construction equipment typically generate noise levels of 80 to 90 dBA at a distance of 50 feet. With multiple items of equipment operating concurrently, noise levels can be relatively high during daytime periods at locations within several hundred feet of active construction sites. The zone of relatively high levels of construction noise typically extends to distances of 400 to 800 feet from the site of major equipment operations.

Table 3-11. Noise Levels Associated with Outdoor Construction

Construction Phase	L _{eq} (dBA)
Ground clearing	84
Excavation, grading	89
Foundations	78
Structural	85
Finishing	89

Source: USEPA 1971.

All construction associated with the proposed action would occur within or abutting the production area in Area B on HSAAP. No off-installation areas are located within 800 feet of the production area. The zone of relatively high levels of construction noise, therefore, would be completely within the installation boundary. Noise levels attributable to construction activities would be relatively low in the residential areas surrounding the installation. These effects would be minor

given the temporary nature of proposed construction activities and the limited amount of noise the construction equipment would generate.

Truck and worker traffic would be associated with the proposed construction. Approximately 33,470 vehicles travel along U.S. 11W north of the installation daily (see section 3.11). Construction and worker trips added to the traffic on U.S. 11W would not constitute an appreciable increase in trips along the road, and the noise effects of traffic associated with the construction phase of the proposed action would be minor.

3.5.3.2 Operations

Noise from operational activities would be similar in nature and overall levels to current operational conditions. The associated increase in rail activities and commuter traffic would result in noise level increases. Approximately 115 more vehicles per hour would arrive at HSAAP during the peak traffic period once production on the installation is expanded, which would be a negligible increase in traffic on U.S. 11W. Changes in the noise environment off and on the installation from these activities would be indistinguishable from existing conditions. No military training activities, use of weaponry, or demolitions training are associated with the proposed action. There may be a small increase in the additional explosives testing or demonstration activities at the two small sites adjacent to the burn pans.

3.5.3.3 Mitigation Measures and BMPs

No mitigation measures for noise would be required under the proposed action. Although construction-related noise effects would be minor, the following BMPs would be implemented to further reduce any realized noise effects:

- Heavy equipment use would primarily occur during normal weekday business hours;
- Heavy equipment mufflers would be properly maintained and in good working order; and
- Personnel, particularly equipment operators, would wear adequate personal hearing protection to limit exposure and ensure compliance with federal health and safety regulations.

In the final design stages, all facilities and operational equipment would be designed and constructed so as not to generate intrusive noise beyond the property boundary.

3.6 GEOLOGY AND SOILS

3.6.1 Affected Environment

Geology. HSAAP is underlain by two major rock units, one of dolomite rock and one of shale (BAE OSI 2013a). The dolomite rock is the uppermost layer and consists generally of fine-grained dolomite and dolomitic limestone with limestone. The mineral dolomite, a major constituent of dolomite rock, dissolves in slightly acidic water, so areas of dolomite are important as aquifers and contribute to karst terrain formation. The shale layer has interspersed thin beds of limestone and is relatively resistant to weathering.

Topography. The main production area on HSAAP slopes gently downward from the north toward the Holston River. The highest points on the production area are about 1,230 feet above mean sea level and the lowest points near the river are about 1,170 feet above mean sea level (USGS 2016a, 2016b).

Soils. The primary soil type found at HSAAP is the Holston-Urban land complex soil type, which is found on 83 percent of the production area and nearly all areas within the production area where construction for the proposed action would occur (USDA-NRCS 2017b). Other soil types are found on the periphery of the production area. All areas proposed for construction have been

previously disturbed, have compacted soils, and have very low permeability and available water capacity. They are best suited to heavy industrial complexes and to lawn grasses, landscape shrubbery, and adapted trees. Table 3-12 provides pertinent information about the soils at the proposed construction sites. Complete details on the soils of HSAAP are available online on the Web Soil Survey page on the website of the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) (USDA-NRCS 2017b).

Prime Farmland. NRCS classifies 6 percent of the soils within the HSAAP production area as "prime farmland." Of the soil types listed as prime farmland in Table 3-12, only the Altavista silt loam (AT) soil type occurs on a proposed area of construction. The Taft silt loam (Ta) soil type occurs at the periphery of the gravel road that would be paved, and the Holston loam 2–5 percent slopes (HoB) soil type occurs at the borrow pit, which is not located within the production area. NRCS defines *prime farmland* as "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these land uses" (USDA-NRCS 2017a). The Farmland Policy Protection Act (7 U.S.C. 4208(b)) was passed to minimize the impact that federal programs have on the conversion of farmland to nonagricultural uses. Use of farmland by a federal agency for national defense purposes, however, is exempted from the provisions of the act.

Table 3-12. Soils at Proposed Action Facility Locations

Facility	Soil Type(s)	Suitability for Construction	Flooding/Ponding	Erodibility ^a	Prime Farmland
RDX Production	Hx	Not Rated	None/None	Not Rated	No
RDX Recrystallization	Hx				
IMX Recrystallization	Hx				
FEM	Hx				
Acid Line	Hx				
Change House	Hx				
Change House Demolition	Hx				
Analytic Lab	Hx				
Gravel Road	Hx	Very Limited	None/Occasional	0.37	Yes
	Ta				
New Steam Plant	Hx	Not Rated	None/None	Not Rated	No
	DaD	Very Limited	None/None	0.20	No
	DaE	Very Limited	None/None	0.20	No
Loading Docks	At	Somewhat Limited	None/None	0.37	Yes
Borrow Pit	HoB	Not Limited	None/None	0.32	Yes
	HoC	Not Limited	None/None	0.32	No

Source: USDA-NRCS 2017b.

Notes: At=Altavista silt loam; DaD=Dandridge shaly silty clay loam, 5–20% slopes; DaE=Dandridge shaly silty clay loam, 20–35 percent slopes; HoB=Holston loam 2–5% slopes; HoC=Holston loam 5–12% slopes; Hx=Holston Urban Land Complex; Ta=Taft silt loam.

^a Erodibility values range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

3.6.2 Impacts Associated with No Action Alternative

The no action alternative would have no direct or indirect impacts on geology, the local topography, or soils in the HSAAP production area since no changes would occur.

3.6.3 Impacts Associated with Proposed Action

3.6.3.1 Construction

No effects on geology or topography would be expected from construction activities associated with the proposed action.

Short-term minor adverse effects on soils would be expected from implementing the proposed action. TDEC requires operators of construction sites involving clearing, grading, or excavation that result in a cumulative (project total) area of disturbance of one or more acres to hold a National Pollutant Discharge Elimination System (NPDES) Stormwater Construction permit. The Army or its contractor for the proposed project would obtain the permit. A requirement for obtaining the permit is developing and implementing a site-specific stormwater pollution prevention plan (SWPPP), which would include measures to limit soil erosion and stormwater runoff from disturbed areas. It would cover all aspects of the proposed project, including facility demolition, refurbishment, and construction; laydown area(s); pipeline replacement; and the like. Any disturbed sites would be stabilized at the end of construction activities. The Army would require that contractors conducting the timber harvest on the proposed location of the new steam plant use Tennessee forestry BMPs to conserve soil, control erosion, and protect water quality.

During demolition activities associated with the proposed action, the Army or its contractor would implement applicable BMPs, as outlined in the *Tennessee Erosion and Sediment Control Handbook*. Following completion of the project, the contractor would leave each site in a stable, non-eroding condition and clean up any soil contaminated by construction equipment oil leaks that might have occurred during implementation of the proposed action. If soil was potentially impacted with explosives, it would be taken to the burning ground for decontamination. Otherwise, it would be disposed of in the on-site class II landfill as a special waste. Equipment would be cleaned before leaving a site to prevent the transfer of potential explosives-containing materials from one site to another.

3.6.3.2 Operations

No effects on geology, topography, or soils would be expected from operational activities associated with the proposed action. Once the Army has completed construction activities and stabilized disturbed soils, and the facilities are operational, no effects on geology, topography, or soils would be expected.

3.6.3.3 Mitigation Measures and BMPs

No mitigation measures would be required for geology, topography, and soils. The proposed action would not be expected to create any significant adverse impact on these resource areas.

Under the terms of the NPDES Stormwater Construction permit, the Army or its contractor would prepare a site-specific SWPPP that would provide details on the BMPs to be used to limit soil erosion and stormwater runoff resulting from the construction activities. BMPs typically used on relatively level sites like the production area include straw bale barriers, silt fences, diversion dikes or berms, and temporary sediment traps.

3.7 WATER RESOURCES

3.7.1 Affected Environment

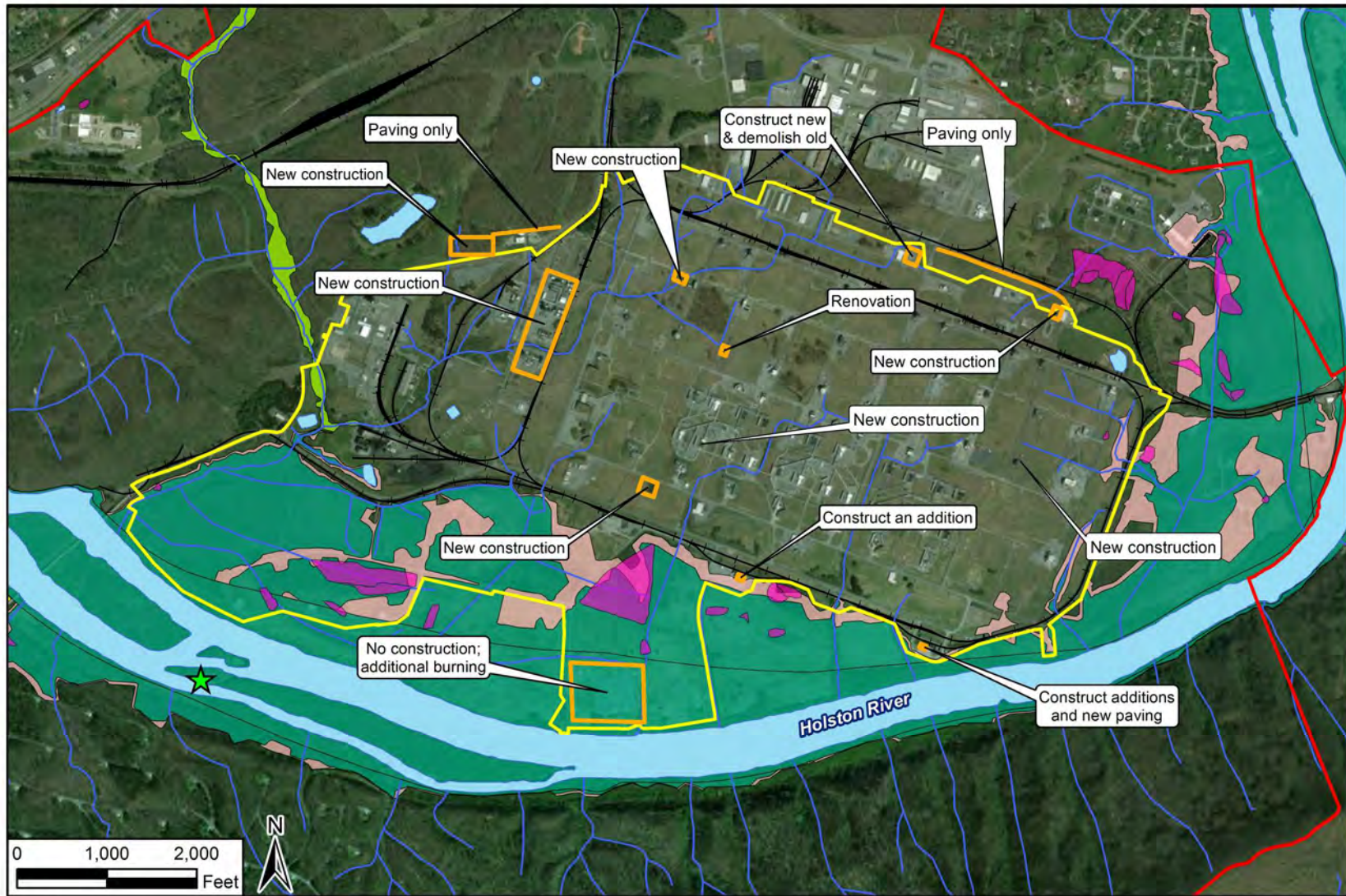
Surface Waters. HSAAP's Area B has two major flowing water bodies: the Holston River and Arnott Branch, a tributary of the Holston River at the west end of Area B. Approximately 4.5 miles of the Holston River flow through HSAAP. In addition to these principal waters, Area B has numerous unnamed ponds and drainage ditches that drain to the Holston River and Arnott Branch. West of the proposed location for the new steam plant is a raw water reservoir. The reservoir holds water from the Holston River for use as noncontact cooling water in the production process. HSAAP holds two NPDES permits that allow the discharge of stormwater, cooling water, treated IWW, and treated domestic wastewater to these water bodies through various outfalls.

Flow data for the Holston River at HSAAP is obtainable from upstream gages. A U.S. Geological Survey gage at Gate City, Virginia records discharge upstream of HSAAP on the North Fork Holston River. Historical data is available from April 2012 through January 2018 (USGS 2018). Flow at the gage varied between 80 cfs in autumn of 2016 to 20,000 cfs in spring of 2017. Mean flows for 2014, 2015, and 2016 at the gage were 751 cfs, 1,077 cfs, and 791 cfs, respectively. The Tennessee Valley Authority records flow out of the dam on the South Fork Holston River at the Fort Patrick Henry Reservoir. Discharge at the reservoir is reported for the previous 48 hours. Average hourly discharge for January 3, 2018 through January 5, 2018 was 1,109 cfs (TVA 2018). These are the recorded discharges upstream from HSAAP nearest to the installation and the data from them serve as an estimate of flow on the Holston River at HSAAP. Flow at HSAAP is estimated at the combined flow from the North Fork and South Fork of the Holston River, as recorded at the locations noted above. The average combined flow was 991 cfs, or 7,413 gallons per second, or approximately 640 MGD. Obviously, daily flow varies greatly with season and rainfall.

HSAAP uses 40–50 million gallons per day (MGD) of water from the Holston River as noncontact cooling water to support production processes. The river water is not treated and passes through production facilities without contacting materials and chemicals used in explosives production processes. Approximately 15 surface acres of relatively fast-moving, shallow waterways that crisscross the production area return the water to the Holston River via multiple outfalls. Under CWA section 303d and HSAAP's NPDES permit, the water temperature in the Arnott Branch, where noncontact cooling water is returned to the stream, must not exceed 30.5 degrees Celsius (°C) and there can be no more than a 3 °C difference in the water at points upstream and downstream of the discharge location.

Floodplains. Generally, the 100-year floodplain on HSAAP is limited to low-lying areas along the Holston River south of the 1,172-foot elevation railroad berm at the south end of the plant. Most of the production area lies outside the 100- and 500-year floodplains of the Holston River and Arnott Branch (Figure 3-1) (HSAAP GIS 2017). Small areas of the 500-year flood zone extend into the periphery of the production area, primarily along drainage ditches. Except for buildings 409 and 410 (discussed below), none of the locations for the proposed new and refurbished facilities are within a flood zone. Portions of paved areas around buildings 409 and 410 and a small portion of building 410 lie within the 500-year floodplain of the Holston River. Of the three modifications proposed for building 409, only one of them—the proposed extension (widening) of the road surrounding the facility on the south—would lie in the 500-year floodplain. The other two proposed modifications are not located within floodplain areas. The open burn area is within the 100-year floodplain.

Wetlands. The U.S. Fish and Wildlife Service (USFWS) has completed National Wetlands Inventory mapping for all of HSAAP. Results of this inventory are available in the HSAAP Natural



LEGEND

HSAAP Boundary	Streams	FloodZone 0.2 PCT
Production Area Boundary	Ponds/River	FloodZone A
Project Site	Wetland	FloodZone AE
Railroad	Bald Eagle Nest	

Natural Resources

Figure 3-1

Source: HSAAP GIS 2017. Note: Proposed locations are approximate.

Resources Office. There are no jurisdictional wetlands found on any of the proposed project areas (Figure 3-1).

3.7.2 Impacts Associated with No Action Alternative

The no action alternative would have no effects on water resources since no construction activities would occur and current operations would be unaffected.

3.7.3 Impacts Associated with Proposed Action

3.7.3.1 Construction

Short-term minor adverse effects on surface waters and no adverse effects on floodplains would be expected from construction activities associated with the proposed action. Ground disturbance associated with construction activities would be expected to result in some soil erosion and sediment-laden stormwater runoff. Stormwater runoff would also be expected to contain minor amounts of pollutants leaked from construction vehicles (e.g., lubricants). The Army or its contractor would minimize these impacts by implementing BMPs outlined in the SWPPP developed for the project (see section 3.6.3.1) and stabilize all disturbed areas upon completion of construction activities. Some of the construction activities on the production area could also require rerouting some drainage ditches. HSAAP would consult with TDEC for any disturbances to ditches that could require a permit.

HSAAP would continue to use water from the Holston River for noncontact cooling in the production process and adhere to the requirements of its NPDES permit for the use of that water.

No adverse effects on floodplain areas would be expected from construction activities associated with the proposed action. No effect on the floodplain at building 410 would be expected because the footprint of the facility, including paved areas, would not be increased or altered. The extension (widening) of the road on the south side of building 409 would lie in the 500-year floodplain of the Holston River. No building would be situated within the floodplain area, so any flooding that occurs would be expected to partially inundate the road surface only.

No adverse effects on floodplains would be expected from implementing the proposed action. EO 11988, *Floodplain Management*, requires that federal agencies avoid to the maximum extent possible adverse effects associated with occupying or modifying the 100-year floodplain. No part of the proposed action would occur within a 100-year floodplain.

No effects on wetlands would be expected from construction activities associated with the proposed action.

3.7.3.2 Operations

Long-term minor adverse effects on water quality in the Holston River would be expected from operational activities associated with the proposed action. Three adverse effects on water resources would be expected once the new production facilities are operational: an increased amount of RDX discharged to the river, an increased amount of nitrates discharged to the river, and an increased amount of (warmed) noncontact cooling water returned to surface waters.

The amount of RDX discharged to the Holston River is conservatively estimated to double from the current 5.18 lbs/day¹ to about 10.36 lbs/day with increased explosives production. Regardless of the actual amount of RDX in the waste stream once production capacity has been increased, HSAAP would ensure that the amount discharged to the river would be below the permitted maximum discharge of 12.2 lbs/day, which is required to maintain aquatic life water quality criteria. Similarly, HSAAP would ensure that the amount of nitrates discharged to the Holston River

¹ 5.18 lbs/day is the average from January 2017–January 2018.

associated with IMX production would not exceed the permitted amount. Compliance with the NPDES permits would be accomplished by segregating nitrates from wastewater streams to prevent increased loading at the upgraded IWWTP or through some other method that would improve wastewater treatment efficiency.

Under HSAAP's current NPDES permit, the installation is not limited in the amount of water it can withdraw from the Holston River utilizing the existing intake and pump infrastructure. Because the existing equipment can handle the projected increase in cooling water withdrawal (see section 3.12, Utilities), the permit will not require modification for this increase. HSAAP will submit a revised permit application to TDEC to account for the changes in production, including the processes, production frequency, and associated flow rates, as a revision to the permit application the installation submitted to TDEC in 2013.

HSAAP anticipates that the noncontact cooling water to be returned to the Arnett Branch will be warmer than it currently is once the new production facilities are operational. As noted above, there can be no more than a 3 °C difference in water temperature at points upstream and downstream of the discharge location. The temperature of the noncontact cooling water exiting the expanded production facilities cannot be calculated until a more detailed design is finalized. As design details of the expanded facilities are finalized, HSAAP will determine whether additional temperature controls are needed to comply with the 3 °C difference limitation. HSAAP will incorporate engineering controls into the final design to ensure compliance with CWA section 303d and the installation's NPDES permit.

No effects on floodplains or wetlands would be expected from operational activities associated with the proposed action.

3.7.3.3 Mitigation Measures and BMPs

No mitigation measures would be required for water resources. The proposed action would not be expected to create any significant adverse impact on water resources.

BMPs to protect water resources are the same as those discussed for geology and soils (section 3.6.3.3). Under the terms of the NPDES Stormwater Construction permit, the Army or its contractor would prepare a site-specific SWPPP that would provide details on BMPs to limit soil erosion and pollution in stormwater runoff resulting from construction activities. BMPs typically used on relatively level sites like the production area include straw bale barriers, silt fences, diversion dikes or berms, and temporary sediment traps.

3.8 BIOLOGICAL RESOURCES

3.8.1 Affected Environment

The production area is classified as semi-improved grounds, consisting, for the most part, of open fields that are generally mowed one or two times per year. Scattered mature trees are located on the production area and three stands of upland hardwoods on the production area are composed primarily of white oak. Deer use these stands as bedding areas and as primary feeding areas when the mast crop is sufficient. Because manufacturing work is conducted in the production area and for safety reasons, natural resources management activities in the production area are restricted to installing and maintaining nest boxes for cavity-nesting birds such as the eastern bluebird (*Sialia sialis*) and American kestrel (*Falco sparverius*). The mowed open fields of the production area are the preferred habitat type of these two species. No hunting is allowed in the production area for safety reasons.

The proposed location for the new steam plant is hardwood forest bordered by an access road, a powerline right-of-way, and developed areas. Oak (*Quercus* sp.), beech (*Fagus grandifolia*),

hickory (*Carya* sp.), and yellow poplar (*Liriodendron tulipifera*) are the dominant species in the area (HSAAP 2015b). A variety of wintering waterfowl use the reservoir. Osprey (*Pandion haliaetus*) have been observed feeding at the reservoir. The hardwoods in the area provide an important source of mast to species such as the southern fox squirrel (*Sciurus niger*), white-tailed deer (*Odocoileus virginianus*), and wild turkey (*Meleagris gallopavo*).

Protected Species. The USFWS indicates that four federally listed threatened or endangered (T/E) species could potentially be present on HSAAP: gray bat (*Myotis grisescens*), Indiana bat (*M. sodalis*), northern long-eared bat (*M. septentrionalis*), and spotfin chub (*Erimonax monachus*) (USFWS 2017a). The only T/E species verified to occur on the installation have been the gray bat and the northern long-eared bat. A gray bat was captured during a 2001 survey, but biologists monitored two caves that could serve as roosting habitat for the bats and observed no presence at either site. The installation lacks the types of caves the bats typically use for roosting, so it is doubtful that the gray bat roosts on the installation. Northern long-eared bats also were captured during the 2001 survey on the installation, but none were captured during a survey done in 2015. The fact that northern long-eared bats were captured during HSAAP's 2001 bat survey but were not captured during the 2015 survey would indicate that the population on the installation has declined. This decline would be reflective of the recent listing of this species as federally threatened because of an overall reduction in its numbers across its entire range. The Indiana bat has the potential to occur on HSAAP because the forested areas on the installation provide suitable summer roosting habitat for the species, but it has never been identified on the installation.

The federally endangered spotfin chub is known to occur in the Holston River approximately 1 mile upstream from the installation's northeastern boundary. A survey for the spotfin chub on the installation was done in September 2015, but none were found in the portion of the river flowing through the installation. USFWS considers the spotfin chub to be a potential transient in the Holston River at HSAAP, but not a resident in the installation's waters. No T/E fish species have been found through any of the surveys conducted on the installation.

Two species of mollusk, the Cumberland bean, or pearlymussel (*Villosa trabalis*), and the purple bean (*V. perpurpurea*) are listed by USFWS as potentially occurring in the Holston River and its tributaries on HSAAP (USFWS 2017a). Surveys of the HSAAP portion of the Holston River, however, have failed to identify these species. The mollusk species are believed to no longer inhabit that portion of the river.

A pair of bald eagles (*Haliaeetus leucocephalus*) has nested on the installation since 2005. A second pair of bald eagles began nesting on the plant in 2017 but the nest was not discovered until January 2018. The second nest is one-half mile or more from the nearest project site. Federal protection for the species under the ESA has been removed, but the species is still protected under the Bald and Golden Eagle Protection Act. The bald eagle nest on HSAAP is approximately three-quarters of a mile from the closest proposed project area.

USFWS listed the rusty patched bumble bee (*Bombus affinis*) as endangered under the ESA effective March 21, 2017. The species was formerly distributed from Minnesota to North Carolina and Maine. Its current distribution is about one-sixth of its original distribution. Reasons for its decline are uncertain, but likely include habitat loss and degradation, intensive farming, disease contracted from commercially raised populations, pesticides, and global climate change.

USFWS categorizes the current distribution of the rusty patched bumble bee as zones of low and high potential for the species to occur. Under section 7 of the ESA, presence of the species should be presumed only in zones of high potential (USFWS 2017b). There are no high potential zones

in Tennessee. The low potential zone closest to Hawkins County and, therefore, to HSAAP, is in Sevier County, Tennessee, located three counties southwest of the installation.

Migratory birds are protected under the Migratory Bird Treaty Act. Some species nest on HSAAP, although the majority of migrating birds pass through HSAAP during migration, but generally do not nest on the installation.

HSAAP sent a coordination letter to USFWS in November 2017 requesting a not likely to adversely affect concurrence regarding T/E species. USFWS responded that it would wait to review the EA before concurring (see appendix C). HSAAP sent another letter in February 2018 regarding the location of the proposed new steam plant. Copies of the letters sent and responses received are in appendix C.

3.8.2 Impacts Associated with No Action Alternative

The no action alternative would have no direct or indirect impacts on biological resources because no new construction would occur at HSAAP.

3.8.3 Impacts Associated with Proposed Action

3.8.3.1 Construction

Long-term minor adverse effects on vegetation communities or fish and wildlife would be expected from construction associated with the proposed action. The Army would remove 4.5 acres of hardwood forest at the proposed site of the new steam plant, isolated trees on the production area, and trees along the eastern edge of the 4-acre hardwood stand on the production area to construct other proposed facilities. Construction of the new steam plant would reduce local habitat for deer, turkey, squirrel, and other animals. Abundant similar habitat is available in the same area, but the conversion from forest to development would likely result in small reductions in the populations of these animals. Deer and other animals that use the hardwood stands in the production area are accustomed to human activity, and the deer are primarily active from dusk to dawn, when little to no construction activities would be conducted. Removal of trees from the eastern edge 4-acre hardwood stand would be expected to alter the vegetation along that edge and animal use of the stand until the completion of construction. Construction activities would disturb only a small portion of the production area, so birds and other small animals would be relatively unaffected.

Protected Species. A maximum of approximately 25 scattered mature trees and 26 mature trees from the 4-acre hardwood stand, and an unknown number of mature trees from the 4.5-acre construction site for the steam plant would need to be removed for the proposed action construction (Bruce Cole, HSAAP Natural Resources Manager, personal communication, February 2018). Of those trees, some are potentially suitable as summer roosting sites for the Indiana and northern long-eared bats, exhibiting either exfoliating bark, or being dead snags with cavities or crevices that could be suitable summer roost sites. One or more of the trees are potentially suitable for a maternity colony. There is no roosting habitat for the gray bat on the proposed construction sites; no adverse impacts on the gray bat would be expected. Construction would not affect the 1-acre and 1.5-acre stands of upland hardwoods within the production area.

Vacant buildings are proposed for demolition or renovation as part of the proposed action, which would be implemented over a period of 4–5 years. The HSAAP Natural Resources Manager would inspect each building approximately 3 months before its demolition or renovation to determine whether it was being used by roosting bats or nesting migratory birds. If either was present, he would coordinate with USFWS for guidance and mitigation requirements before the demolition or renovation would be allowed to proceed.

No adverse effects on aquatic species (mollusks or the spotfin chub) would be expected. No construction associated with the proposed project would actively occur in the Holston River, and the mollusk species and spotfin chub are not believed to inhabit the Holston River near HSAAP.

No adverse effects on the rusty patched bumble bee would be expected because there are no zones of high potential for occurrence of the species in Hawkins County.

3.8.3.2 Operations

No adverse effects on vegetation communities, fish and wildlife, or protected species would be expected from operations associated with the proposed action. Other than some increased truck and rail activity, the production area would function very much the same as it does now after the proposed action was implemented, with all activities occurring within the production facilities.

Protected Species. No adverse effects on any T/E species would be expected from operational activities related to the proposed action. Operational activities would not affect forested areas, trees in the production area, or karst features on HSAAP. No adverse effects on the spotfin chub or mollusk species in the Holston River from operational activities would be expected because the permitted discharges to the river from the explosives production process are anticipated to remain the same despite the increase in explosives production. Up to twice as much river water would be removed from the Holston River for cooling and filter water use, but HSAAP would not exceed its permitted water removals, and the water that is returned to the river would either have no contact with production chemicals or have been treated before being returned to the river. Water quality in the river, therefore, would not be expected to be affected by operational activities after implementation of the proposed action, and no adverse effects on aquatic species would be expected. No adverse effects on the rusty patched bumble bee would be expected.

3.8.3.3 Mitigation Measures and BMPs

The Army would mitigate potential adverse effects of the proposed action on federally protected bats and birds. The Army will limit any harvesting or removal of trees suitable for bat roosting to the period between October 15 and March 31 of any year associated with the proposed action. HSAAP personnel will visually survey each building 3 months prior to its demolition or renovation to determine whether any roosting bats or nesting birds are present. If either is present, HSAAP will coordinate with USFWS for guidance and mitigation requirements before the demolition or renovation will be allowed to proceed.

3.9 CULTURAL RESOURCES

3.9.1 Affected Environment

Cultural resources include archaeological sites, architectural historic resources in the built environment such as buildings and structures 50 years or older (or otherwise potentially eligible for the National Register of Historic Places [NRHP]), Native American traditional cultural properties (TCPs), and other historic resources (e.g., cemeteries and historic sites or districts). Section 106 of the NHPA requires federal agencies to consider the impact of their actions on historic properties and to consult with the State Historic Preservation Office (SHPO) as required.

The nature and location of cultural resources on HSAAP cannot be disclosed to the public unless the federal land manager determines that such disclosures would provide further protection and there is no risk of harm to the site or resource. Section 304 of the NHPA, as amended, and section 9(a) of the Archaeological Resources Protection Act of 1979 provide the legal authority to restrict dissemination of cultural resources information. In compliance with these laws, this section discusses only the general types of cultural resources present at HSAAP.

Except for the proposed steam plant, the proposed action will occur in HSAAP's Area B production area. The Area B production area was considered potentially eligible for listing as an historic district on the NRHP by the Tennessee SHPO; however, in 2006, the Advisory Council on Historic Preservation (ACHP) signed into effect the *Program Comment for World War II and Cold War Era (1939-1974) Army Ammunition Production Facilities and Plants*. Under this Program Comment, any structure on U.S. Army ammunition plants constructed between 1939 and 1974 may be modified or demolished without any additional NHPA section 106 coordination with the SHPO. The Program Comment also allows new construction adjacent to buildings constructed during that time frame (see appendix B for a copy of this Program Comment and HSAAP's October 2010 letter to the SHPO regarding this Program Comment).

As part of this proposed action, HSAAP would demolish an existing change house, renovate the structures proposed for RDX recrystallization and IMX melt cast functions, and construct additions to existing loading dock facilities. The Program Comment covers each of these structures.

The proposed steam plant site abuts the production area and has been surveyed for cultural resources. No sites have been identified near the site. Nine known archeological sites have been identified at HSAAP. They are situated along the Holston River and are separated from all components of the proposed action, including the two loading docks, by a chain link fence and the proposed steam plant by distance, and therefore, are inaccessible or remote to any personnel who would be working on the proposed action.

Additionally, no TCPs or Native American sacred places are known to exist at HSAAP. One cemetery is located on HSAAP, but it is not located near the project area.

HSAAP sent coordination letters to the Tennessee SHPO and three Native American tribes (Cherokee Nation, Eastern Band of Cherokee Indians, and United Keetoowah Band of Cherokee Indians in Oklahoma) in November 2017 and again in February 2018 (see appendix C). The Tennessee SHPO and Cherokee Nation responded. The Tennessee SHPO provided its concurrence with HSAAP's opinion that the proposed action would have no adverse effect on any archaeological site on the installation and that it had no objection to the implementation of the project as described in section 2.4.2. The Cherokee Nation requested HSAAP's Phase I Cultural Resources Survey with related comments from the SHPO and a map of the area of potential effect. They also requested consultation with HSAAP concerning the project. HSAAP sent requested information on November 29, 2017, and scheduled a telephone call to discuss the project. In response to the furnished information and the telephone call, the Cherokee Nation, by letter dated December 1, 2017, concluded that the Cherokee Nation does not object to the project as long as stipulations are observed. Those stipulations were to protect known archeological sites from direct or indirect construction impacts, that their office be contacted if there are any changes to the activities or scope of the area of potential effect, to halt project activities and contact their office if items of cultural significance are discovered, and to conduct inquiries with other Native American tribes. HSAAP sent additional letters to the Tennessee SHPO and the tribes in February 2018 concerning the location of the proposed new steam plant. No coordination with the Tennessee SHPO is required for demolition or refurbishment of structures within the production area of Area B. Copies of the letters sent and responses received are in appendix C.

3.9.2 Impacts Associated with No Action Alternative

The no action alternative would have no effects on cultural resources because existing conditions would remain unchanged.

3.9.3 Impacts Associated with Proposed Action

3.9.3.1 Construction

No effects on cultural resources would be expected from construction related to the proposed action. The demolition, construction, and renovation of structures within the production area are covered under the 2006 Program Comment, which allows such activities, and no known archeological sites are located within the project area.

The possibility exists that previously unrecorded archaeological deposits could be encountered during construction. If that would occur, disturbance at the site would cease and, in accordance with the inadvertent discovery protocols of the HSAAP Integrated Cultural Resources Management Plan (ICRMP), an evaluation would be performed in compliance with federal statutes before construction would resume. In the event that human remains were discovered, all work would stop and Native American tribes would be informed of the discovery. In all cases in which a cultural resource was discovered during project implementation, the HSAAP Cultural Resources Manager would be informed and proper authorities would be consulted immediately.

3.9.3.2 Operations

No effects on cultural resources would be expected from operations. No ground-disturbing activities would be associated with operations on or abutting the Area B production area after construction was completed.

3.9.3.3 Mitigation Measures and BMPs

No mitigation measures would be required for cultural resources. The proposed action would not be expected to create any adverse impact on cultural resources. BMPs for cultural resources would include adhering to the protocols in the HSAAP ICRMP for inadvertent discoveries of cultural resources during ground-disturbing activities and ensuring proper communication with the SHPO and potentially affected Native American tribes before and during project implementation.

3.10 SOCIOECONOMICS

3.10.1 Affected Environment

This section describes the economy and sociological environment of the region of influence (ROI) surrounding HSAAP. The socioeconomic ROI is defined as Hawkins and Sullivan counties, Tennessee. The ROI covers an area of about 900 square miles in northeast Tennessee. Data for Tennessee and the United States are provided for comparative purposes.

3.10.1.1 Population

The 2016 population for the ROI was 213,230 (Table 3-13). The population increased approximately 3 percent between 2000 and 2016. That growth rate was lower than the rates for the state (17 percent) and the nation (15 percent) during the same time period. This population growth in the ROI occurred between 2000 and 2010; between 2010 and 2016, the population in both counties in the ROI declined slightly. The ROI's population is projected to grow to about 228,000 by 2030, which would be a 7-percent increase from 2016 (UTK CBER 2015).

On the basis of population, Sullivan County ranks as the ninth largest and Hawkins County as the 24th largest of the 95 counties in Tennessee (Cubit 2017). Sullivan County has about three times the population of Hawkins County, with a higher population density of 379 persons per square mile than the 116 persons per square mile in Hawkins County. For comparison, the Tennessee population density is 161 persons per square mile and the nation's is 91 (U.S. Census Bureau 2017a).

Table 3-13. Population Trends

Location	2000 Population	2010 Population	2016 Population	Change in Population, 2000–2016	People per square mile, 2016
Hawkins County	53,563	56,829	56,563	5.6%	116
Sullivan County	153,048	156,806	156,667	2.4%	379
ROI	206,611	213,635	213,230	3.2%	237
Tennessee	5,689,283	6,346,298	6,651,194	16.9%	161
United States	281,421,906	308,758,105	323,127,513	14.8%	91

Sources: U.S. Census Bureau 2000, 2017a.

3.10.1.2 Employment, Industry, and Income

The top five industries in the ROI (on the basis of employment by industry) in 2015 were manufacturing, retail trade, government and government enterprises (e.g., federal civilian, military, and state and local government), construction, and accommodation and food services. Together, these five industry sectors accounted for about 50 percent of the ROI's total employment. The largest industry was manufacturing, which provided 14 percent of the county's total employment. Of the employees within the government industry sector, 89 percent were state and local government employees, 5 percent were federal civilians, and 6 percent were military personnel. Farming accounted for about 2 percent of total ROI employment (BEA 2016). HSAAP, which is in the government industry sector, has a government staff of about 20 federal civilian employees and a payroll budget of \$2.1 million. Contractor employee information for HSAAP is considered proprietary and, therefore, is not available (HSAAP 2017).

Table 3-14 shows civilian labor force data. The ROI's labor force decreased by about 6 percent between 2010 and 2016. Hawkins County declined by about 7 percent and Sullivan County by about 5 percent. During the same time period, Tennessee's labor force increased by about 1 percent and the nation's labor force increased by about 3 percent. A decline in labor force can indicate a loss of population with workers moving out of an area; and the ROI's population did decline slightly between 2010 and 2016 (Table 3-13). Labor force declines also can be attributed to job losses because of economic recessions (e.g., the recession of 2008–2009) and people leaving the workforce.

The national, state, and county unemployment rates all decreased from 2010 to 2016 (Table 3-14). The ROI 2016 annual unemployment rate was about 5 percent, about the same as the state and national unemployment rates.

ROI income levels were lower than state and national averages (Table 3-15). The ROI per capita personal income (PCPI) of \$22,441 was 89 percent of the state PCPI of \$25,227 and 78 percent of the national PCPI of \$28,930. The ROI median household income of \$38,637 was 85 percent of the state median household income of \$45,219 and 72 percent of the national median household income of \$53,889. Within the ROI, income levels in Sullivan County were higher than in Hawkins County.

Table 3-14. Labor Force and Unemployment

Location	2010 Civilian Labor Force	2016 Civilian Labor Force	Change in Labor Force, 2010–2016	2010 Annual Unemployment Rate	2016 Annual Unemployment Rate
Hawkins County	25,559	23,655	-7.4%	10.9%	5.5%
Sullivan County	73,637	69,786	-5.2%	9.0%	5.3%
ROI	99,196	93,441	-5.8%	9.5%	5.4%
Tennessee	3,090,795	3,135,102	1.4%	9.7%	4.8%
United States	153,889,000	159,187,000	3.4%	9.6%	4.9%

Source: BLS 2017.

Table 3-15. Income, 2011–2015 5-year Estimates

Location	PCPI	Median Household Income
Hawkins County	\$20,338	\$36,927
Sullivan County	\$24,544	\$40,346
ROI	\$22,441	\$38,637
Tennessee	\$25,227	\$45,219
United States	\$28,930	\$53,889

Source: U.S. Census Bureau 2017a.

Note: Income reported in 2015 dollars.

3.10.1.3 Housing

Table 3-16 presents housing data. ROI housing costs (mortgage and rent) are lower than state and national levels. The ROI homeowner vacancy rate (about 2 percent) is about the same as the rates for the state and the nation. The ROI rental vacancy rate (about 6 percent) is nearly the same as the state and national rates. The ROI has about 11,250 vacant housing units (U.S. Census Bureau 2017b). There are no residential areas on HSAAP (USACE 2007).

Table 3-16. Housing Data, 2011-2015 5-Year Estimates

Location	Number of Housing Units	Vacant Housing Units	Homeowner Vacancy Rate ^a	Rental Vacancy Rate ^b	Median Selected Monthly Owner Costs for Housing Units with a Mortgage	Median Monthly Gross Rent
Hawkins County	26,834	3,667	3.3%	5.8%	\$939	\$598
Sullivan County	74,004	7,583	1.6%	5.5%	\$1,006	\$602
ROI	100,838	11,250	2.4%	5.6%	\$973	\$600
Tennessee	2,854,542	349,986	2.0%	7.6%	\$1,181	\$764
United States	133,351,840	16,425,535	1.9%	6.4%	\$1,492	\$928

Source: U.S. Census Bureau 2017b.

Notes:

a The homeowner vacancy rate is the proportion of the homeowner housing inventory that is vacant for sale.

b The rental vacancy rate is the proportion of the rental inventory that is vacant for rent.

3.10.1.4 Law Enforcement, Fire Protection, Medical Services

HSAAP has its own fire department and provides for its own physical security. HSAAP has mutual aid agreements with the city of Kingsport Fire Department and the Hawkins County Fire Department. The nearest off-post fire station is the Mount Carmel Volunteer Fire Department in Hawkins County on Hammond Avenue near the intersection with U.S. 11W, less than 1 mile from HSAAP. ROI law enforcement is provided by the Hawkins and Sullivan county sheriffs along with municipal police departments (e.g., from Mount Carmel and Kingsport) and Tennessee state police law enforcement officers.

HSAAP does not have a hospital on the installation. The Holston Valley Medical Center hospital, with a level I trauma center, is located in Kingsport about 5 miles east of HSAAP.

3.10.1.5 Schools

The ROI has five public school districts (two in Hawkins County and three in Sullivan County) with a total of 63 public schools and a student enrollment of almost 29,700 students. Sullivan County also has eight private schools with a student enrollment of about 880 students (NCES 2017). There are no primary or secondary schools on HSAAP. The public schools located closest to HSAAP are George Washington and Mount Carmel elementary schools (about 2 miles north), John Sevier Middle School (about 5 miles east), and Dobyns-Bennett High School (about 7 miles east).

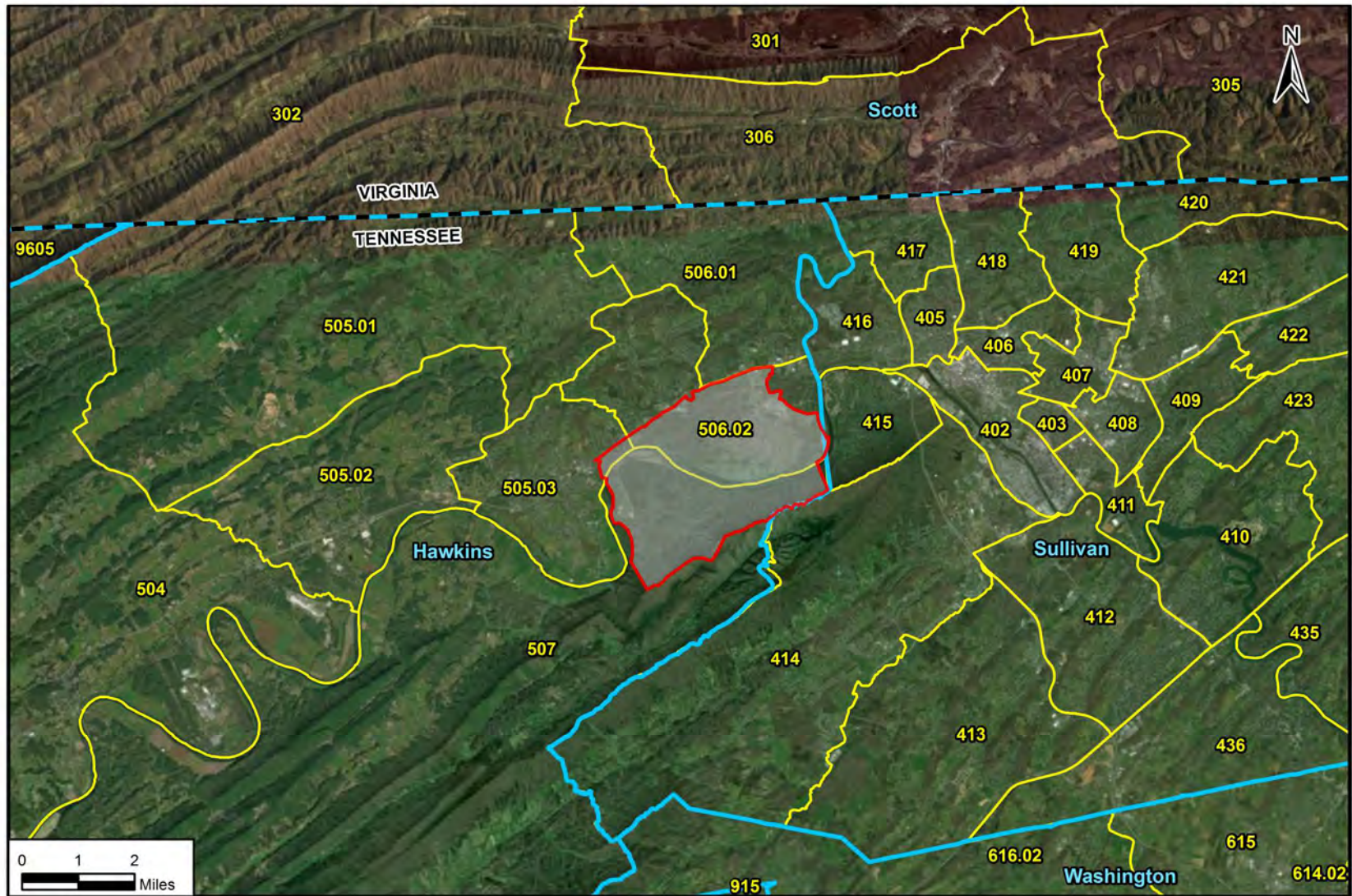
3.10.1.6 Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, was issued by President Clinton on February 11, 1994. The EO requires that federal agencies take into consideration disproportionately high and adverse human health or environmental effects of federal government decisions, policies, projects, and programs on minority and low-income populations and that the agencies identify alternatives that could mitigate those effects.

To identify potential environmental-justice populations, researchers collected minority and low-income census data on census tracts in the ROI. Census tracts are subdivisions of a county.² Figure 3-2 shows the tracts that correspond to HSAAP and the tracts that are contiguous with the boundaries of the installation. Portions of HSAAP are located in three census tracts: 505.03, 506.02, and 507. These three census tracts also include property outside of the installation's boundaries. The proposed action site is located in census tract 506.02.

CEQ guidance on environmental justice states that minority populations should be identified in areas in which either the minority population exceeds 50 percent or the minority population percentage is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (CEQ 1997). Analysts used the latter guidance for this project, identifying census tracts with minority or low-income population percentages exceeding those for Tennessee and the United States, which both have lower thresholds than the 50-percent threshold (i.e., 26 percent for the state and 39 percent nationally). Minority populations included in the census are identified as Black or African American, American Indian, Alaska Native, Asian, Native Hawaiian, Pacific Islander, Hispanic or Latino, or persons of two or more races.

² The U.S. Census Bureau defines *census tracts* as small, relatively permanent statistical subdivisions of a county or equivalent entity that are updated by local participants prior to each decennial census. The primary purpose of census tracts is to provide a stable set of geographic units for the presentation of statistical data. Census tracts generally have a population between 1,200 and 8,000.



LEGEND

- HSAAP
- State Boundary
- County Boundary
- Census Tract

Census Tracts

Figure 3-2

Poverty thresholds established by the U.S. Census Bureau are used to identify low-income populations (CEQ 1997). Per CEQ guidance, low-income populations in an affected area should be identified with the annual statistical poverty thresholds from Census Bureau reports on income and poverty. The Census Bureau reports poverty status as the number of people or families with income below a defined threshold level, defining the poverty threshold level as annual income of \$12,082 or less for an individual and \$24,036 or less for a family of four (U.S. Census Bureau 2015). The percentage of people below the poverty level is 17 percent for the state of Tennessee and 14 percent for the nation.

Table 3-17 lists minority population and low-income statistics for the census tracts as well as for Tennessee and the United States. Of the eight census tracts identified in the HSAAP area, none of them had a higher percentage of minority residents than Tennessee or the United States. One of the tracts (506.02) had a higher percentage of low-income residents than Tennessee and three of the tracts (506.01, 506.02, and 507) had a higher percentage of low-income residents than the United States as a whole.

Table 3-17. Minority and Low-Income Population Data

Location	Minority	Low Income
Census tract 414	5%	11%
Census tract 415	3%	2%
Census tract 416	7%	12%
Census tract 505.01	1%	12%
Census tract 505.03	6%	11%
Census tract 506.01	10%	15%
Census tract 506.02	4%	18%
Census tract 507	2%	16%
Tennessee	26%	17%
United States	39%	14%

Source: U.S. Census Bureau 2017a, 2017b.

3.10.1.7 Protection of Children

President Clinton issued EO 13045, *Protection of Children from Environmental Health and Safety Risks*, on April 21, 1997. It seeks to protect children from disproportionately incurring environmental health or safety risks that might arise as a result of federal policies, programs, activities, and standards. The EO recognizes a growing body of scientific knowledge that demonstrates that children might suffer disproportionately from environmental health and safety risks. These risks arise because children's bodily systems are not fully developed; children eat, drink, and breathe more in proportion to their body weight; their size and weight might diminish protection from standard safety features; and their behavior patterns might make them more susceptible to accidents. EO 13045 requires federal agencies, to the maximum extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children.

The proposed HSAAP action would be located within the installation's secure boundary and within the restricted production area on the installation in proximity to the existing RDX and IMX manufacturing and support facilities. There are no residential areas or other types of facilities where children are typically present (e.g., day care centers, schools, churches, libraries, playgrounds, or shopping centers) on or off the installation that would be adjacent to or near the proposed RDX and IMX facilities.

3.10.2 Impacts Associated with No Action Alternative

The no action alternative would have no effects on socioeconomics, environmental justice, or the protection of children. No changes would be made to the existing condition of regional socioeconomic resources.

3.10.3 Impacts Associated with Proposed Action

3.10.3.1 Construction

IMPLAN Economic Model

Modelers developed a quantitative estimate of economic effects on the ROI (i.e., Hawkins and Sullivan counties, Tennessee) from the proposed action using the Impact Analysis for Planning (IMPLAN) model. IMPLAN is an economic model originally developed in 1976 by the U.S. Forest Service for natural resources planning, and later updated and adapted by other government agencies and private sector analysts to use in economic impact analysis. It is now owned by the IMPLAN Group, LLC. IMPLAN is a regional input-output model derived by using local data combined with national input-output accounts. The model uses the most currently available data obtained from the Department of Commerce, Bureau of Labor Statistics, and other federal and state agencies. IMPLAN uses trade flow characteristics to trace economic changes in a regional economy arising from fluctuations in the level of activity in one or more identified industry sectors.

IMPLAN estimates economic changes (direct, indirect, and induced) for a defined region. *Direct effects* are the initial production changes or expenditures made by producers/consumers as a result of an activity or policy; *indirect effects* are secondary effects of local industries buying goods and services from other local industries (business-to-business transactions); and *induced effects* are the tertiary effects from spending of labor income (consumer spending by the workforce for housing, food, gas, healthcare, and entertainment). The IMPLAN model estimates changes in regional employment, labor income, value added, and output as a result of a proposed action. *Employment* is the annual average number of monthly jobs in an industry (full-time or part-time). *Labor income* is all forms of employment income, including employee compensation (wages and benefits) and proprietor's income. *Value added* is the difference between an industry's or establishment's total output and the cost of its intermediate inputs. *Output* is the value of industry production (i.e., business sales dollars) (IMPLAN 2015).

The IMPLAN model estimates the total multiplier effect on the ROI's economy from increased expenditures associated with a proposed action. For this proposed action, modelers estimated impacts on an annual basis for the approximately 4-year design and construction period, and then for the first year of operation when full build-out and employment levels would be expected to be reached. Table 3-18 lists the input variables for the IMPLAN model. The estimated total construction cost of \$700 million was divided evenly across the approximately 4-year build-out period (\$175 million per year) and was entered into the IMPLAN model as the construction industry change for 1 year (the IMPLAN model is designed to evaluate on an annual basis). Section 2.4.2 discusses this cost, which includes construction, renovation, and demolition actions. Operations employment of an estimated 250 jobs represents the number of direct jobs to be generated by the proposed action to increase the RDX and IMX explosives production capacity at HSAAP. The magnitude and duration of regional economic impacts of the project would differ across the construction and operation phases and are discussed separately. This section addresses construction impacts, and section 3.10.3.2 addresses operations impacts.

Table 3-18. IMPLAN Model Input

Input Variable	
Construction, Renovation, and Demolition Cost	\$175,000,000
Operational Employment	250

Employment, Industry, and Income

Short-term minor beneficial economic effects would be expected as a result of implementing the proposed action. The economic benefits of construction would be short-term and diminish as the project reaches completion. The project is estimated to employ about 1,651 direct workers during peak construction and to generate additional indirect and induced employment in associated sectors (see Table 3-19). The direct employment numbers were based on the project's estimated construction expenditures and IMPLAN's estimate of construction workers employed per dollar of expenditure. Total annual direct, indirect, and induced employment created during the construction phase is estimated to be about 2,226 jobs per year, with indirect jobs being created in sectors such as wholesale trade, truck transportation, architectural and engineering and related services, and commercial and industrial machinery equipment rental and leasing businesses. Induced jobs would be created in the retail, food and beverage, and health services sectors. The increase in employment would be modest relative to the size of the ROI's economy and workforce. Total annual labor force in the ROI was about 93,440 in 2016, so the direct construction-generated employment would represent about a 1.8-percent increase over that baseline. About 8,600 people are employed in the construction industry in the ROI (BEA 2016). On the basis of the resident workforce data, the model estimated that the regional labor force would fill many of the construction jobs and, if necessary, construction workers could commute from surrounding communities without moving their place of residence, as the construction jobs would be temporary.

Population

No adverse effects on population change would be expected as a result of implementing the proposed action. Because it is anticipated that construction workers would be drawn from the ROI or commute from surrounding communities, there would be no effect on population growth.

Table 3-19. IMPLAN Model Output—Annual Construction Economic Impacts

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	1,651	\$74,612,076	\$80,359,228	\$174,999,991
Indirect Effect	152	\$7,084,589	\$11,412,671	\$23,266,335
Induced Effect	423	\$16,059,109	\$27,314,917	\$51,103,212
Total Effect	2,226	\$97,755,774	\$119,086,816	\$249,369,538

Source: IMPLAN model.

Housing

No adverse effects on the housing market would be expected as a result of implementing the proposed action because population would remain unchanged from baseline conditions.

Law Enforcement, Fire Protection, and Medical Services

No adverse effects on emergency or medical services would be expected from the proposed construction action. The construction site would be in a restricted area on HSAAP that is closed to public access and would be served by HSAAP's own fire and security departments, which would continue to respond to emergencies on the installation and would not be overextended by the construction action.

Schools

No adverse effects on schools would be expected from the proposed construction action. The population would remain unchanged from baseline conditions and would not change the demand for public school services.

Environmental Justice

No adverse effects on environmental justice would be expected from implementing the proposed construction action. The proposed construction site would be in a restricted area on HSAAP that is closed to public access. Constructing the new RDX and IMX facilities would not result in disproportionate adverse environmental or health effects on low-income or minority populations. This action has no potential to substantially affect human health or the environment by excluding anyone, denying anyone benefits, or subjecting anyone to discrimination or disproportionately high environmental health or safety risks.

Protection of Children

No adverse effects would be expected as a result of implementing the proposed action. The proposed construction site would be in a restricted area on HSAAP that is closed to public access. There are no residential areas or other types of facilities where children are typically present (e.g., day care centers, schools, churches, libraries, recreational facilities, or shopping centers) adjacent to or near the proposed construction site.

3.10.3.2 Operations

Employment, Industry, and Income

Long-term minor beneficial economic effects would be expected (see Table 3-20). The IMPLAN model was used to calculate the estimated economic impact of the operation of the proposed RDX and IMX facilities. Section 3.10.3.1 discusses the IMPLAN model. It is estimated that the operation of the expanded RDX and IMX facilities at HSAAP would create about 250 permanent, direct jobs. A total of about 544 jobs (direct, indirect, and induced) would be created by operations activity. The indirect jobs would be in sectors such as building services, maintenance and repair, and the wholesale trade, and induced jobs would be in sectors such as the retail trade, restaurants, and health care. New jobs would have a long-term beneficial effect on the regional economy, increasing the tax base, personal income, and expenditures at local businesses.

Population

No adverse effects on population would be expected as a result of implementing the proposed action. To evaluate the potential maximum effect of the proposed operations, analysts assumed that the estimated 250 new permanent jobs created by the operation of the HSAAP RDX and IMX facilities would move into the ROI. Using the U.S. average household size of 2.64 (U.S. Census Bureau 2017b), the estimated total increase in population would be about 660 persons, a minor increase (less than 0.5 percent) compared to the ROI baseline population of more than 213,000.

Table 3-20. IMPLAN Model Output—Operation Economic Impacts

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	250	\$28,221,722	\$35,333,953	\$105,490,998
Indirect Effect	119	\$5,419,814	\$8,530,490	\$20,848,136
Induced Effect	175	\$6,611,757	\$11,242,412	\$21,056,694
Total Effect	544	\$40,253,293	\$55,106,854	\$147,395,829

Source: IMPLAN model.

Housing

No adverse effects on housing would be expected from implementing the proposed action. The proposed operations action would create a demand for 250 additional housing units in the ROI (assuming one housing unit per employee). The ROI should have sufficient housing units to accommodate the incoming population on the basis of the number of vacant housing units and homeowner and rental vacancy rates in the ROI (see section 3.10.1.3); the proposed action would not be expected to create a housing shortage.

Law Enforcement, Fire Protection, and Medical Services

No adverse effects on emergency or medical services would be expected from implementing the proposed action. The new facilities would be in a restricted area closed to public access and would be served by HSAAP's own fire and security departments, which would continue to respond to emergencies on the installation and would not be overextended by the operation of the new facilities.

Schools

No adverse effects on schools would be expected as a result of implementing the proposed action. To evaluate the potential maximum effect of the proposed operations action, analysts assumed that the 250 new HSAAP RDX and IMX facility employees would move into the ROI, representing 250 new households. Based on about one-third of U.S. households having one or more children (people under the age of 18) and an average of 1.8 children per family (U.S. Census Bureau 2016, 2017b), the result would be an estimated increase of about 145 children in the ROI. This would be a minor increase (less than 0.5 percent) compared to the ROI baseline school enrollment of about 30,580.

Environmental Justice

No adverse effects on environmental justice would be expected from implementing the proposed action. The proposed RDX and IMX facilities on HSAAP would be located within the installation's secure boundary and within its secure production area. Operating the new RDX and IMX facilities would not result in disproportionately adverse environmental or health effects on low-income or minority populations. It is not an action with the potential to substantially affect human health or the environment by excluding anyone, denying anyone benefits, or subjecting anyone to discrimination or disproportionately high environmental health or safety risks. The new facilities would be in a restricted area closed to public access. The new RDX and IMX facilities and processes would be more efficient than the current facilities and would be designed to meet all regulatory requirements and DoD design policies. The operating contractor (BAE OSI) would be

required to obtain and comply with the necessary environmental permits (e.g., air emission and wastewater) for operating the new facilities. See sections 3.4, 3.7, and 3.12 for further discussion of impacts to air, water, and wastewater.

Protection of Children

No adverse effects would be expected as a result of implementing the proposed action. The proposed RDX and IMX facilities on HSAAP would be located within the installation's secure boundary and within its secure production area. There are no residential areas or other types of facilities where children are typically present (e.g., day care centers, schools, churches, libraries, recreational facilities, or shopping centers) adjacent to or near the proposed RDX and IMX facilities. The new facilities would be in a restricted area closed to public access.

3.10.3.3 Mitigation Measures and BMPs

Mitigation measures are used to reduce, avoid, or compensate for significant adverse effects. No significant adverse effects or the need for any mitigation measures were identified. No BMPs would be required because identified socioeconomic effects are beneficial.

3.11 TRANSPORTATION

3.11.1 Affected Environment

Road and street networks and pedestrian walkways provide most of the transportation near HSAAP. Interstate (I-) 26 provides regional access. State routes that provide access to the production area include U.S. 11W and U.S. Route 23 North, while University Boulevard provides direct access to the installation. HSAAP Area B is bound on the north by U.S. 11W, an east-west highway from Bristol to Knoxville, Tennessee. U.S. 11W connects to I-26 approximately 2 miles east of HSAAP Area B traveling south to Asheville, North Carolina, and Charleston, South Carolina. I-26 also connects to I-81 approximately 10 miles south of HSAAP. I-81 is a major north-south highway traveling south to Dandridge, Tennessee (where it connects to I-40) and north to the Canadian border north of Syracuse, New York.

Level of service (LOS) is a measure of the operational conditions on a roadway or at an intersection. LOS ranges from A to F, with "A" representing the best operating conditions (free flow, little delay) and "F" the worst (congestion, long delays). LOSs A, B, and C are typically considered good operating conditions. Table 3-21 outlines the routes near Area B, their annual average daily traffic (AADT) counts, and their estimated existing LOS. Notably, U.S. 11W is currently congested during peak traffic periods (i.e., LOS D).

Table 3-21. Existing AADT and LOS on Nearby Roadways

Roadway Segment	Number of Lanes	AADT ^a	Peak Hour Volume per Lane [vph]	Volume to Capacity [V/C] Ratio ^b	LOS
I-26	4	26,899	1,009	0.59	C
U.S. 11W	4	33,468	1,255	0.73	D
U.S. Route 23 North	4	13,797	517	0.30	B
University Boulevard	2	3,760	188	0.17	A

^a Source: TDOT 2017a.

^b Volume-to-capacity ratio (V/C) = 15 percent of the daily traffic, divided by the number of lanes, divided by a capacity of 1,700 vehicles per hour.

Air, Rail, and Public Transportation

The Tri-Cities Regional Airport is approximately 15 miles southeast of HSAAP off I-81. The closest international airport is Charlotte Douglas International Airport (CLT), which is 168 miles away and has 1,498 operations per day (AirNav 2017). Other nearby airports include Elizabethton Municipal Airport and Hawkins County Airport, both approximately 25 miles away.

CSX Transportation and Norfolk Southern Railroad freight systems provide rail service in the area (CSX 2017). HSAAP has several tenants that include the Appalachian Rail Service with spurs connecting areas A and B by an interplant railroad (U.S. Army 2016a; HSAAP 2015a). Area A and the Eastman Chemical transfer station are approximately 5 miles east of HSAAP. The closest Amtrak station is 115 miles away in Spartanburg, South Carolina (Amtrak 2017).

Public transportation is provided to the Kingsport area by NET Trans for rural public transit servicing seven counties in the region (NET Trans 2017). HSAAP is outside the city limits of Kingsport, and NET Trans does not provide direct bus service to the installation.

3.11.2 Impacts Associated with No Action Alternative

The no action alternative would have no effect on transportation resources. No construction or changes in operations would occur, and no long-term changes in transportation would take place. Traffic and transportation conditions would remain unchanged.

3.11.3 Impacts Associated with Proposed Action

Short- and long-term minor adverse effects on existing transportation conditions would be expected from implementing the proposed action. Temporary increases in heavy equipment and delivery of materials and supplies during construction activities would cause short-term effects. An increase in traffic from approximately 250 additional personnel and increases in both rail and truck traffic from shipping and receiving materials associated with expanded RDX and IMX production would cause long-term effects. The proposed action would have no appreciable effect on air traffic or public transportation.

3.11.3.1 Construction

Short-term minor adverse effects on transportation and traffic would be expected from construction activities. These effects would be primarily the result of worker commutes and delivery of equipment and materials to and from the sites. Congestion could increase in the immediate area of construction activities because of additional vehicles and traffic delays near the site. Road closures or detours to accommodate utility system work might be required. In addition to regular material deliveries for building construction, it would take approximately 3,500–4,500 truckloads of soil to complete the blast barricades. This would equate to 10–20 truckloads per day, or 2–3 truckloads per hour, over a 6–12-month period. These effects would be temporary and would end with the construction phase. The existing transportation infrastructure would be sufficient to support the increase in construction vehicle traffic. These effects would be minor.

3.11.3.2 Operations

Operation of the proposed facilities and the addition of approximately 250 employees would introduce additional vehicles onto nearby roadways and increase traffic volumes on roadways and at intersections on, and adjacent to, the installation. There would be an increase of approximately 115 vehicles per hour during the peak traffic period (ITE 2003). Table 3-22 lists the estimated LOS for the existing and operational conditions with the new trips from all the facilities. This worst-case assessment assumes that, at any given time, all the new traffic would be on a single roadway during the peak period. The nature and overall levels of traffic on other roadways, both on- and off-post, would experience minor changes in traffic similar to those outlined in Table

3-22. There could be some additional queuing at the gate and at intersections near the new facilities during peak traffic periods. In addition, there would be increases in both rail and truck traffic from shipping and receiving materials associated with the expanded RDX and IMX production. These effects would be long-term minor adverse effects.

As outlined in section 2.4.2, the proposed action would include the reconfiguration and addition of parking areas throughout HSAAP. Adequate parking would be provided, and it is estimated that 284 additional spaces would be required to meet peak parking demand (ITE 2010). Access to the new facilities would be provided from all surface parking lots by sidewalks, curb ramps, and crosswalks. All additional parking would be within a reasonable walking distance of the proposed facilities. These effects would be minor.

Table 3-22. Comparison of LOS with and without the Proposed Action

Roadway Segment	Existing			Proposed Action		
	Peak Hour Volume per Lane [vph]	V/C Ratio ^b	LOS	Peak Hour Volume per Lane [vph]	V/C Ratio ^b	LOS
I-26	1,009	0.59	C	1,038	0.61	C
U.S. 11W	1,255	0.73	D	1,284	0.75	D
U.S. Route 23	517	0.30	B	546	0.32	B
University Boulevard	188	0.12	A	245	0.14	A

^a Source: TDOT 2017a.

^b Volume-to-capacity ratio = 15 percent of the daily traffic, divided by the number of lanes, divided by a capacity of 1,700 vehicles per hour.

3.11.3.3 Mitigation Measures and BMPs

No mitigation measures would be required for transportation. The proposed action would not be expected to create a significant adverse effect on the transportation system. During construction, contractors would route and schedule heavy equipment and other vehicles to minimize conflicts with traffic and strategically place staging areas to minimize traffic effects. All construction vehicles would be equipped with backing alarms, two-way radios, and Slow Moving Vehicle signs when appropriate. All temporary detours and road closures would be posted with proper signage.

3.12 UTILITIES

3.12.1 Affected Environment

Potable Water. The city of Kingsport Public Works Department supplies HSAAP with potable water at HSAAP, overseeing drinking water services and operating a 29-MGD treatment plant on the South Fork of the Holston River. The plant and water intake are located on the river about 1 mile downstream of the Patrick Henry Dam, which is about 9 miles upstream of HSAAP Area B. The city of Kingsport complies with EPA Office of Water and TDEC drinking water standards. The city's drinking water quality exceeds those standards (City of Kingsport 2017a, 2017b). HSAAP uses approximately 105,000 gallons of potable water per day and has a storage capacity of approximately 450,000 gallons in two storage tanks. The potable water is not used in the explosives production process (HSAAP/BAE OSI 2017).

Wastewater. Domestic wastewater generated at HSAAP is treated at the installation's sewage treatment plant (STP). The STP has a designed maximum capacity of 0.5 MGD and includes an ultraviolet backup to assist with peak flow. Sludge generated from anaerobic digestion during pretreatment is disposed of at the HSAAP landfill annually. Typical domestic wastewater generation is between 80,000–120,000 gallons per day, leaving between 0.38–0.42 MGD of

available capacity. All treated effluent from the STP is discharged to Holston River outfall 025 under HSAAP's NPDES permit (HSAAP/BAE email communication 2017).

HSAAP also operates an IWW pretreatment facility and an industrial wastewater treatment plant (IWWTP). The pretreatment facility filters explosives from the waste that is later treated at the burn pans. Catch basins located at production buildings are part of the IWW collection system. The basins allow explosives to settle out before the water proceeds to the pretreatment facility and the IWWTP. The IWWTP uses multiple systems to treat explosives production waste such as wastewater containing acetic acid, anhydrous ammonia, nitrates, nitric acid, residual explosives, and residual solvents. The acetic acid, anhydrous ammonia, nitrates, nitric acid, and residual solvents separated from the waste stream undergo biological digestion during treatment and are collectively referred to as *biosludge*. The biosludge is combined with cinders from HSAAP's coal-fired steam plant and disposed of in the plant's class II industrial landfill. The IWWTP has a maximum design flow capacity of 6.2–6.5 MGD, but that treatment capacity will be increased to accept additional flow once the facility's modernization project, which is currently underway, is complete. The IWWTP currently treats about 4.5 MGD with approximately 855,000 gallons per day of the treated IWW coming from RDX production and approximately 308,000 gallons per day coming from IMX production.³ The IWWTP operates under an NPDES permit and discharges its treated water to the Holston River at outfall 020. Under the NPDES permit, the IWWTP is permitted to discharge 12.2 pounds per day of RDX in its effluent to the Holston River.⁴ From January 2017 to January 2018, HSAAP has averaged 5.18 pounds per day of RDX discharged in its effluent. Low concentrations of nitric acid from the production of IMX is drained to the IWWTP at a controlled rate. Through the treatment process, the nitric acid is broken down and residual nitrates are discharged to the Holston River per permit limits (HSAAP/BAE email communication 2017). To manage higher concentrations of WNA, HSAAP is constructing a NAC/SAC facility that will enable the reconcentration and recycling of WNA for use in the explosives production process. The NAC/SAC facility will reduce or eliminate the need for off-site disposal.

River Water. HSAAP uses 40–50 MGD of water from the Holston River as single-pass, untreated, noncontact cooling water and treated filtered water to support the explosives production process, primarily for RDX. The untreated water is directed through dedicated piping that passes through production facilities before being returned to the Holston River through multiple outfalls and the Arnott Branch through one outfall. The untreated water does not contact materials and chemicals used in the explosives production process. About 3.5–4 MGD of the river water is treated and used as filter water in the production process. After use, the filter water is treated at the IWWTP and then discharged to the Holston River. The river water pumping capacity is approximately 106 MGD; if needed, up to 126 MGD could be supplied. HSAAP also has a 12.5-million-gallon river water reservoir to supply noncontact cooling water (HSAAP/BAE email communication 2017).

Stormwater. HSAAP has a multisector stormwater NPDES permit number for the installation's discharges of stormwater. Storm drainage structures for surface runoff include a combination of open drainage channels, flumes, spillways, curb and gutter, and drop inlets. The principal drainage channel in the Area B administrative area is an open, man-made ditch vegetated with

³ This number is based on an initial study conducted as part of a federal consent order. The number assumes all batch operations are sending water to the sewer at maximum rates at the same time. An event as such is unlikely to occur at HSAAP.

⁴ The number is based on drinking water health limiting criteria, which is a 5-year/30-day criterion average that results in a 2-ppb concentration (the health advisory level).

fescue that follows a natural drainage line, channeling surface runoff from the administrative area toward the production area, and then to the Holston River (BAE 2012).

Energy. Electricity purchased from Appalachian Power and steam generated on-site using coal and natural gas-fired boilers supply HSAAP's power needs. HSAAP is installing a cogeneration (CoGen) facility that will provide additional steam and electricity to the site. Natural gas used by HSAAP is purchased from Tenngasco (HSAAP/BAE email communication 2017).

3.12.2 Impacts Associated with No Action Alternative

The no action alternative would have no effects on utilities because the increase in explosives production at HSAAP would not occur. Utility usage would remain at current levels.

3.12.3 Impacts Associated with Proposed Action

Short- and long-term minor adverse effects would be expected from implementing the proposed action. An increase in the use of utilities and an increased discharge of wastewater during both construction and operation would result in adverse impacts.

3.12.3.1 Construction

Short-term minor adverse effects on the demand for potable water, electricity, and natural gas would be expected from construction, and wastewater generation would increase during construction. The existing HSAAP utility infrastructure is adequate to meet the expected construction needs. Contractors supplying their own equipment, water, and portable toilets would like offset some of the construction demand for utility usage.

No adverse effects on river water use or stormwater infrastructure would be expected. Construction operations would not require the use of river water. Section 3.6.3.1 addresses construction impacts on stormwater quality.

3.12.3.2 Operations

Long-term minor adverse effects on utilities demand and infrastructure would be expected from operations associated with the proposed action. Expanded operations would increase the volume of domestic wastewater and IWW treated as well as the amounts of river water, potable water, electricity, and natural gas used. The utility infrastructure would be expected to have the capacity to meet the projected demands once the proposed facilities are operational.

Potable Water. Long-term minor adverse effects on potable water demand would be expected from operating the proposed facilities. The additional 250 personnel required to support the increased production could increase potable water demand by about 12,500 gallons per day (USGS 2016c).⁵ It is expected that the city of Kingsport would have sufficient supply to meet this increased demand. New facilities would be connected to the existing potable water infrastructure, which is adequate to handle the increased demand.

Wastewater. Long-term minor adverse effects on wastewater treatment capacity would be expected from operating the proposed facilities. Additional wastewater would be discharged to the STP after the new facilities were operational, but the available treatment capacity of 0.38–0.42 MGD at the STP would be adequate to handle the increased load. Section 3.14.3.2 describes the impacts associated with the resulting increase in the amount of pretreatment waste sludge requiring disposal.

Long-term minor adverse effects on IWW treatment capacity would be expected. Increased explosives production would increase the amount of IWW requiring treatment, but will remain

⁵ 250 new personnel at 100 gal/day = 25,000 gallons, divided by 2 = 12,500 based on a 12-hour day.

within the available treatment capacity of the modernized IWWTP. Upon completion of the IWWTP modernization project, the available treatment capacity will be doubled and will provide a designed maximum peak day flow capacity of 10 MGD. Section 3.14.3.2 describes the impacts associated with disposal of increased amounts of pretreatment waste.

River Water. Long-term minor adverse effects on HSAAP's river water pumping capacity would be expected. The increase in explosives production could double the amount of river water used from 40–50 MGD to 80–100 MGD. Such an increase in demand, if required, would decrease available pumping capacity but still be within HSAAP's total river water pumping capacity of approximately 121 to 126 MGD.

Stormwater. No adverse effects on the stormwater infrastructure would be expected from operational activities associated with the proposed action. The stormwater infrastructure at HSAAP would adequately handle any increase in the amount of stormwater runoff from the additional impervious area created by the proposed facilities. All new and renovated facilities would be designed to maintain stormwater generation at preconstruction levels in accordance with federal policies.

Energy. Long-term minor adverse effects would be expected from operational activities associated with the proposed action. There would be an increased demand for power and natural gas; however, the existing power and natural gas supply is expected to be adequate to meet the additional demand. The use of coal to generate steam for production needs would be discontinued with implementation of the proposed action.

3.12.3.3 Mitigation Measures and BMPs

No mitigation measures would be required for utilities. The proposed action would not be expected to create any significant adverse impact on utilities, and no activities outside compliance with existing regulations, permits, and plans would be required.

In accordance with the Energy Independence and Security Act of 2007—under which federal agencies are required to reduce stormwater runoff from federal development and redevelopment projects to protect water resources—facilities would be designed to limit the impact on stormwater generation and stormwater impacts on surface waters. BMPs such as low impact development stormwater management practices would be incorporated into the design to ensure that the amount of post-construction runoff from the site would not be more than the amount of preconstruction runoff and that it would not exceed the receiving capacity of ditches and streams to which it flows. BMPs to steady the flow and deliver it to the stormwater drainage system would maintain stormwater flow at the site at preconstruction conditions. Additionally, the Army or its contractor would prepare a site-specific SWPPP that would provide details on BMPs to be used to limit soil erosion and pollution in stormwater runoff resulting from construction activities.

3.13 HAZARDOUS AND TOXIC MATERIALS

3.13.1 Affected Environment

HSAAP uses hazardous and toxic materials throughout construction activities and the explosives production process. The installation manages these materials in accordance with local, state, and federal regulations and in accordance with established installation standard operating procedures (SOPs).

Raw materials used in the explosives production process (acetic acid, acetic anhydride, anhydrous ammonia, hexamine, and nitric acid) are brought onto HSAAP either by rail or by truck. These raw materials are then distributed to the appropriate areas for use in the explosives production process. In addition, solvents used during the recrystallization process (acetone,

cyclohexanone, ethyl acetate, methyl ethyl ketone, n-octane, and toluene) and other various hazardous and toxic materials (e.g., batteries, plasticizers, and rubber) are also brought onto HSAAP.

3.13.2 Impacts Associated with No Action Alternative

The no action alternative would have no effect on hazardous or toxic materials at HSAAP. Hazardous and toxic material use at HSAAP would not change.

3.13.3 Impacts Associated with Proposed Action

3.13.3.1 Construction

Short-term minor adverse effects on hazardous and toxic materials would be expected from construction because additional quantities of these materials would be used during the construction process. The effects would be seen from having an increased amount of materials on-site.

Petroleum products and hazardous materials would be used, and wastes, including hazardous wastes, would be generated during construction activities. Construction contractors would be responsible for complying with applicable laws and regulations for hazardous waste handling, use, storage, and disposal. They would prevent spills by implementing proper storage and handling procedures and by following installation procedures. If a spill did occur, the contractors would be responsible for responding to it and cleaning it up in consultation with installation personnel.

Contamination is not expected to be encountered during construction activities; however, contractors will contact HSAAP environmental staff for guidance and to obtain necessary authorization before commencing any ground-disturbing activities. If any contamination is encountered during construction activities, work in that area will cease, and contractors will notify HSAAP environmental staff to determine appropriate management procedures.

3.13.3.2 Operations

Implementing the proposed action would result in a long-term increase in the use of hazardous and toxic materials at HSAAP, increasing the number of deliveries of hazardous and toxic materials to the installation and the amount of hazardous materials stored on-site.

Long-term minor adverse effects on hazardous and toxic materials would be expected from increased management and shipping of such materials because of increased operations associated with the proposed action. Currently, 13–15 railcars of anhydrous ammonia per year are delivered to HSAAP. A single railcar delivers anhydrous ammonia to HSAAP approximately every 2 weeks. Under the proposed action, anhydrous ammonia deliveries would increase to approximately 1 per week, or to 26–30 railcars per year.

Approximately 60–65 railcars of nitric acid per year are delivered to HSAAP, occurring in shipments of two to three railcars per week. Under the proposed action, this number would increase to about 120–130 railcars per year, or approximately four to six railcars per week.

Approximately, 104 truck deliveries of hexamine (a white, crystalline powder) per year are made to HSAAP, or approximately two trucks per week. Under the proposed action, this number would increase to approximately 208 truckloads per year, or approximately four deliveries per week.

In addition, long-term minor adverse effects would be expected from additional deliveries of batteries, plasticizers, rubber, and the like to HSAAP. Under the proposed action, shipments of these hazardous and toxic materials would double over their current rates.

3.13.3.3 Mitigation Measures and BMPs

No mitigation measures would be required for hazardous and toxic materials. BMPs are in place to manage these materials used at HSAAP. The Army follows strict SOPs for managing hazardous materials; therefore, no new procedures would need to be implemented. All hazardous materials would be handled and managed in accordance with local, state, and federal regulations and in accordance with established installation procedures.

3.14 SOLID AND HAZARDOUS WASTE

3.14.1 Affected Environment

Solid and hazardous wastes are managed and generated at HSAAP throughout the explosives production process. These wastes are managed through a network of regulated on-site facilities, SOPs, and management plans.

HSAAP operates an on-site class II industrial landfill permitted by the state of Tennessee. The landfill is permitted to accept solid waste in the forms of general trash, construction debris, asbestos, flyash generated by the coal-fired steam plant, and biosludge generated from the IWWTP. On average, the landfill accepts approximately 20,000–30,000 cubic yards (yd³) of solid waste per year, with flyash and cinders from the site's coal-fired steam plant making up at least one-half of the total. The landfill has a permitted capacity of 322,400 yd³ and is to be expanded by approximately 400,000 yd³. If needed, HSAAP can use area landfills for disposal of some types of solid wastes.

HSAAP operates a burning ground facility that includes four burn pans, two burn cages, two burn pile areas, and the Burning Ground Office. The four burn pans are operated under a RCRA subpart X permit and are used for the disposal of explosive waste K044 and D003. K044 and D003 are RDX and IMX based materials that either do not meet product specifications or have become contaminated through contact with the production facility floors and catch basins. The waste disposed of on the burn pans is typically wet when delivered to the pans, which are used to dry the material before it is burned. The burn cages and burn piles are both operated under a Title V permit issued by the state of Tennessee. The burn cages are used to burn explosives-contaminated material such as bagged items, cotton, and plastics that can float away, and the burn piles are used to dispose of heavier explosives-contaminated material such as metal and wood. Open burning is used at HSAAP to safely eliminate the potential for unintentional detonation or deflagration from and residual explosives trapped in confined areas of waste items. U.S. Army policy requires materials that may have come in contact with explosives to be decontaminated before sale as a recyclable material or before land disposal as a solid waste.

HSAAP's IWWTP treats production wastes that are generated on-site such as wastewater containing acetic acid, anhydrous ammonia, nitrates, nitric acid, residual explosives, and residual solvents. Residual explosives in solid form are collected during IWW pretreatment processes and are sent to the RCRA subpart X burn pans for disposal, as described above. The biosludge from the IWWTP is combined with flyash/cinders and disposed of in the class II industrial landfill.

Sludge generated at the HSAAP STP is treated by anaerobic digestion and disposed of at the on-site landfill once per year.

HSAAP is not an EPA National Priorities List site. Thirty-two sites under DoD's Installation Restoration Program (IRP) are located on HSAAP and overseen by TDEC; 23 of the IRP sites have been closed. The remaining nine sites have been investigated and are in long-term monitoring. These remaining sites include landfills, surface disposal areas, and contaminated groundwater. Contaminants of concern in soil, sediment and/or groundwater include explosives, metals, pesticides, polycyclic aromatic hydrocarbons, semi-volatiles, and volatiles.

In addition to wastes being treated and disposed of on-site at HSAAP, some wastes are disposed of at licensed off-site permitted facilities. These wastes are managed in accordance with RCRA, the Toxic Substances Control Act (TSCA), the Occupational Safety and Health Act (OSHA), Army regulations, and the HSAAP Solid and Hazardous Waste Management Plan (SHWMP) (February 15, 2017). The wastes disposed of at licensed off-site permitted facilities include spent acids, ANSol (a by-product of RDX production), test vials, labpacks, solvents, and products for recycling such as used aerosol cans, batteries, cardboard, light ballasts, light bulbs, and used tires. The ANSol is disposed of by diluting it with water by 50 percent and then shipping it off-site by tanker truck to a permitted disposal facility. HSAAP is currently working with related industries to re-establish a commercial outlet for ANSol.

3.14.2 Impacts Associated with No Action Alternative

The no action alternative would have no effect on solid and hazardous waste at HSAAP. No construction activities would occur and current operations would be unaffected.

3.14.3 Impacts Associated with Proposed Action

Short- and long-term minor adverse effects would be expected under the proposed action because of the increase in the amount of solid and hazardous waste generated during construction and operation of the new facilities.

3.14.3.1 Construction

Short-term minor adverse effects would be expected from construction because of the increase in solid waste generation and disposal. The effects would result from adding debris to the on-site class II industrial landfill from a combination of new construction, demolition, and renovation. It is estimated that the construction of the RDX production facility, IMX recrystallization building, FEM, change house, analytical lab, acid line and the new steam plant would amount to a total construction footprint of about 186,600 ft². Demolition of the old change house once construction of the new one is completed is estimated to be 6,100 ft². Renovation of existing buildings to create the RDX recrystallization facility, IMX melt cast facility, and loading dock improvements is estimated to be 23,300 ft².

Expanding explosives production could generate about 1,022 tons of construction, demolition, and renovation debris (Table 3-23). Approximately 50 percent of the debris would be recycled, which would result in about 511 tons of nonhazardous debris for disposal in the on-site class II industrial landfill.

3.14.3.2 Operations

Long-term minor adverse effects would be expected from the proposed action because of the additional amount of solid and hazardous waste that would be generated and managed from operating the proposed facilities. These effects would be seen in the additional waste sent to the landfill, additional wastewater treatment sludge, additional industrial wastewater needing treatment, increase in wastes needing disposal at licensed off-site facilities, increase in explosive waste disposed of at the RCRA subpart X burn pans, and increase in explosives-contaminated waste disposed of at the burn cages and burn piles regulated under the Title V permit.

Long-term minor adverse effects would be expected from the operations in the proposed action because of the additional solid waste that would be disposed of in the on-site landfill. The mixing of fly ash/cinders from the coal-fired plant with biosludge from the IWWTP on a 1:1 basis will be substituted by another binding material using similar quantities. Similarly, the mixture is expected to make up approximately 40 percent of the total volume of waste disposed of in the landfill. The

Table 3-23. Summary of Construction and Demolition Debris

Type	Debris Generation Rate (lb/ft ²)	Debris Generated (tons)	Quantity Recycled (50% ^b) (tons)	Total Quantity Disposed of in Landfill (tons)
Construction				
186,600 ft ^{2a} Nonresidential	4.4	411	205.5	205.5
Demolition				
6,100 ft ² Nonresidential	158	482	241	241
Renovation				
23,300 ft ² Nonresidential	11	129	64.5	64.5
Total		1,022	511	511

Source: USEPA 2003.

Notes: ft² = square feet/square foot; lb/ft² = pounds per square foot.

^a Square footage does not include utility connections, blast barricades, or storage tank facility. Tonnage is approximate.

^b HSAAP will make an effort to reach this percentage during construction and demolition efforts; however, because some material could be contaminated, recycled tonnage might be less.

landfill currently has a life expectancy of approximately 4.8 years without implementing the proposed action, which would increase the amount of general trash by only a small percentage and the amount of biosludge by approximately 30 percent over the current rate. The increase in waste generation along with the disposal of construction and demolition debris will decrease the life of the existing landfill. If needed, HSAAP can use area landfills to extend the life of the on-site landfill until completion of the HSAAP landfill expansion.

Long-term minor adverse effects would be expected from the proposed action because of the increase in the amount of IWW treated at the IWWTP. The additional IWW will create more biosludge and, therefore, increase disposal amounts in the landfill by 30 percent over current rates.

Long-term minor adverse effects would be expected from the increase in the amount of pretreatment waste created and needing to be processed at the STP as a result of the increase in the number of personnel under the proposed action. The STP can accommodate the increase in the amount waste to be processed without needing modification, but the increase in the amount of sludge will have long-term minor adverse effects because of its disposal in the landfill and increased production from the STP.

Long-term minor adverse effects would be expected from the proposed action as seen in the amount of solid and hazardous waste disposed of at licensed off-site permitted facilities. While there will be an increase in the amount of solid and hazardous waste generated and disposed of, the wastes will continue to be disposed of at licensed permitted facilities and at amounts within allowable limits. These effects will be lessened once the NAC/SAC facility comes online, which will recycle and reuse the WNA that is currently being disposed of off-site. These effects would be lessened further by finding an industrial outlet for ANSol.

Long-term minor adverse effects would be expected from the increase in explosives production because of the increased amount of K044 and D003 that will need to be disposed of on the burn pans. In 2017, HSAAP disposed of 135,191 pounds of K044 and 207,890 pounds of D003, for a total of 343,081 pounds of the explosive wastes. This amount is approximately 27.4 percent of the annual allowable amount under the RCRA subpart X permit limit. Under the proposed action, approximately 686,162 total pounds of K044 and D003 would be disposed of on the burn pans,

or approximately 54.9 percent of the annual allowable amount under the RCRA subpart X permit limit.

Long-term minor adverse effects would be expected from the increase in explosives production because of the increased amount of explosives-contaminated material that would need to be decontaminated in the burn cages and burn piles. Under the Title V permit, burning is limited to 1,300 hours per year and restricted to the hours of 12:00 p.m. through 4:00 p.m. The burn cages are currently used 1–2 times a month, and the burn piles are used quarterly. If the proposed action is implemented, the additional explosives-contaminated material decontaminated at the burn cages and burn piles would not exceed the Title V or RCRA subpart X permit limits.

3.14.3.3 Mitigation Measures and BMPs

No mitigation measures would be required for solid and hazardous waste. BMPs are in place to manage these materials produced at HSAAP. BAE OSI operates the installation's solid and hazardous waste management program in accordance with RCRA, TSCA, OSHA, Army regulations, and the HSAAP SHWMP (February 15, 2017). As part of the SHWMP, BAE OSI has provided an overview of all managed wastes, their stored location, and location of SOPs and permits associated with particular waste streams. The plan addresses the management of solid waste (landfills, cinders/flyash, special wastes, pollution prevention, parts cleaners, potentially explosives-contaminated items, Installation Restoration Support, transformers, and asbestos) and hazardous waste (satellite accumulation areas, waste explosives, RCRA subpart X permit, annual reporting, sampling and reporting, 90-day container storage area/tanks, and training).

3.15 CUMULATIVE EFFECTS

CEQ regulations implementing NEPA define a *cumulative impact* as follows:

Cumulative impact is the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

Current projects at HSAAP include the A2B, NAC/SAC, CoGen, and IWWTP modernization projects that support mission needs. Additional projects still in the planning stages include expansion of the HSAAP landfill and demolition of unneeded buildings. The A2B project involves relocating acid production from Area A to Area B and is nearing completion. The modern acid production facilities being constructed in Area B will increase the efficiency of the acid production process. Construction of the NAC/SAC facility is ongoing and, once completed, will enable reconcentration and recycling of WNA for use in the explosives production process. The NEPA analysis of the NAC/SAC project resulted in minor adverse impacts to air quality and water resources and beneficial impacts to solid and hazardous waste. The CoGen is a turbine that burns natural gas to generate steam and electricity. The modernization of the IWWTP required under a federal consent order is also nearing completion. The design of the landfill expansion project at HSAAP began in 2017 and construction is expected to be completed in 2023. It will increase capacity by about 400,000 yd³. Lastly, HSAAP is planning to demolish several old structures that are no longer needed to support mission requirements. Environmental impacts associated with demolition were assessed in the AMC building demolition program programmatic EA, which concluded that the demolition would have short-term minor adverse effects and long-term beneficial effects; however, HSAAP will need to prepare supplemental NEPA documentation to assess potential installation specific impacts, if any.

Table 3-24 presents off-post projects identified in Hawkins and Sullivan counties.

Table 3-24. Identified Projects in Hawkins and Sullivan Counties

Company	City/County	Project	Jobs	Investment
Homeland Vinyl–vinyl deck, fencing, and railing manufacturer	Surgoinsville/ Hawkins	50,000-ft ² facility expansion	50	NA
Miyake Forging–bearing parts manufacturer	Surgoinsville/ Hawkins	New 45,000-ft ² facility	60	\$13.7 million
Cooper Standard–coolant tube hose assemblies, and fuel and brake line manufacturer	Surgoinsville/ Hawkins	New equipment	98	\$1 million
Eastman–specialty chemical producer	Kingsport/Sullivan	Building more chemical production capacity	NA	NA

Sources: Hawkins County 2017; Networks 2017.

For the purposes of this EA, a significant cumulative impact on a resource area would occur if the incremental impacts of the proposed action added to the environmental impacts of past, present, and reasonably foreseeable actions would exceed the significance threshold for the resource area. It is expected that the projects discussed in this section, including the proposed action, primarily would have a localized effect on most resources and would not result in significant adverse cumulative effects. Individual construction projects would not occur simultaneously and would be executed over several years. Although some cumulative effects, however minimal, could be identified for virtually any resource or condition, the effects described below are believed to be the most pertinent and representative of those associated with the proposed action.

Land Use. The adverse effect on land use of converting forested area to developed land and reducing the amount of land on HSAAP on which hunting is allowed would be insignificant in local and regional contexts. Forested land and areas for deer hunting are abundant in the area and are not being lost to development at a significant rate. No significant adverse cumulative effects on land use, therefore, would be expected.

Aesthetics and Visual Resources. The adverse effects that the proposed action would have on aesthetics and visual resources would be confined to the construction phase of the proposed project. No significant adverse cumulative effects on aesthetics and visual resources, therefore, would be expected.

Air Quality. Tennessee directly inventories all emissions in nonattainment regions and monitors concentrations of criteria pollutants in attainment regions. By doing so, the state takes into account the effects of all past and present emissions in the state and limits air emissions through permitting processes to ensure that air quality is maintained or improved. The state's air quality rules and regulations are part of its state implementation plan (SIP). A SIP comprises the regulations and other materials for meeting clean air standards and associated CAA requirements, and includes the following:

- State regulations that EPA has approved;
- State-issued, EPA-approved orders requiring pollution control at individual companies; and
- Planning documents such as area-specific compilations of emissions estimates and modeling analyses demonstrating that regulatory limits ensure that air quality standards are met.

The process of implementing the SIP applies either specifically or indirectly to all activities in the region. No projects have been identified that, when combined with the proposed action, would threaten the region's attainment status; produce substantial GHG emissions; or lead to a violation of any federal, state, or local air regulation. Because the proposed expansion would, in and of itself, have moderate adverse effects, cumulative effects on air quality are considered moderately adverse.

Noise. No other projects have been identified that, when combined with the proposed action, would substantially alter the noise environment near HSAAP. Each project would produce localized effects on the noise environment, but the projects and their noise effects would be geographically isolated. The future noise environment in the area immediately surrounding HSAAP would be similar to existing conditions. Cumulative effects on the noise environment would be considered negligible.

Soils. The adverse effects that the proposed action would have on soils would be confined to the construction phase of the proposed project, which would occur within the production area of HSAAP. NPDES Stormwater Construction permits for soil disturbance over 1 acre and SWPPPs, which would include measures to limit soil erosion and stormwater runoff from disturbed areas, would be required. No significant adverse cumulative effects on soils, therefore, would be expected.

Surface Waters. Increases in the discharge of RDX and nitrates to the Holston River would remain within the installation's permitted discharge limits. All dischargers of pollutants to the river must be permitted under the NPDES program. Permitted discharge limits of all individual dischargers are set by the issuing authority to ensure that water quality in the receiving waterbody is maintained for its designated uses. Thus, total concentrations of pollutants in the Holston River might increase depending on the actions of HSAAP and other dischargers to the river, but water quality in the river would not degrade to the point at which a regulatory violation would occur. Cumulative effects on surface waters would be considered negligible.

Biological Resources. The adverse effects that the proposed action would have on biological resources (loss of forest, impacts on animal populations) would be insignificant in the context of biological resources on HSAAP, and would have even less significance in a regional context. The region has abundant forest that is not being lost rapidly to regional development. Cumulative effects on biological resources would be less than significant.

Socioeconomics. Development projects in the region can have beneficial effects on the local economy by increasing employment, income, and business sales volume. In addition to the HSAAP proposed action analyzed in this EA, other recent or planned projects that would economically benefit the region include off-post actions listed in Table 3-24 and on-post activities that include HSAAP's constructing and operating NAC/SAC and CoGen facilities, upgrading the HSAAP IWWTP, and expanding the HSAAP class II landfill. Therefore, cumulative effects on socioeconomics would be beneficial.

Transportation. No other projects have been identified that, when combined with the proposed action, would substantially affect traffic levels or the transportation system near HSAAP. As with noise, each project would produce localized effects, but the projects and their effects on the transportation system would be geographically isolated. Cumulative effects on the transportation system would be considered negligible.

Utilities. The cumulative effects on potable water, electricity, and natural gas would be considered negligible. While the demand from the proposed action and other development projects in the area would increase, it is expected that the utility infrastructure would be able to accommodate the increased demand. No cumulative adverse effects would be expected on

HSAAP's wastewater or river water infrastructure or capacity because those utilities are confined to the installation and are not available to off-post users.

Hazardous and Toxic Materials. The adverse effects from the increased use of hazardous and toxic materials would be confined to the production area of HSAAP. These materials are managed in accordance with local, state, and federal regulations and in accordance with established installation SOPs, which would continue under the proposed action. Since the use of such materials would be confined to HSAAP, no cumulative effects would be expected.

Solid and Hazardous Wastes. The cumulative effects on solid and hazardous waste generation would be considered minor. While most solid waste generated at HSAAP is disposed at the on-post landfill, the use of off-post permitted landfill facilities would likely be needed in the short-term. The use of off-post landfills would result in lasting effects on the rate at which these facilities reach their permitted waste capacities; however, upon completion of HSAAP's landfill expansion, most on-post generated waste would be diverted back the on-post landfill. The generation and off-post disposal of hazardous waste would increase; however, such waste would continue to be disposed at licensed permitted facilities at amounts within allowable limits. The completion of the NAC/SAC facility will lessen such adverse effects because waste currently being disposed off-post would be recycled and reused. Further reductions of off-post disposal would be realized when HSAAP finds an industrial outlet for ANSol.

SECTION 4.0 FINDINGS AND CONCLUSIONS

4.1 FINDINGS

The Army has prepared this EA to evaluate the potential effects on the natural and human environment from activities associated with the no action alternative and implementing the proposed action.

Under the no action alternative, the Army would not implement the proposed action—constructing and operating a new explosives production facility, steam plant, and ancillary facilities. There would be no facility construction, renovation, or demolition or increase in explosive production, which would result in no effects on the resource areas analyzed in this document. Baseline conditions at HSAAP would remain the same.

Evaluation of the proposed action assumed that HSAAP would produce twice as much RDX and IMX as is currently being produced and would do so on a continuous basis. In reality, HSAAP would produce these explosives at the rates required by the Army at any given time, but the plant would not run at full capacity at all times. The analysis, however, assesses full-capacity production to identify the upper bounds of potential effects—or the *worst-case scenario*—that could result from implementing the proposed action.

On the basis of the analysis, the physical and socioeconomic environments would not be significantly affected by the proposed action singularly or through any combination of direct, indirect, or cumulative effects. Table 4-1 presents the potential consequences that could result from implementing the proposed action—construction and operations—and the no action alternative. Section 3.0 of this EA provides detailed analysis for each resource area.

Table 4-1. Summary of Potential Environmental and Socioeconomic Consequences

Resource	Environmental and Socioeconomic Effects		
	No Action	Proposed Action	
		Construction	Operations
Land Use	No effects	Long-term minor adverse and no effects	No effects
Aesthetics and Visual Resources	No effects	Short-term minor adverse and beneficial	No effects
Air Quality	No effects	Short-term minor adverse	Long-term moderate adverse
Noise	No effects	Short-term minor adverse	Long-term minor adverse
Geology and Soils			
Geology/Topography	No effects	No effects	No effects
Soils	No effects	Short-term minor adverse	No effects
Water Resources			
Surface water	No effects	Short-term minor adverse	Long-term minor adverse
Floodplains	No effects	No effects	No effects
Wetlands	No effects	No effects	No effects

Table 4-1. Summary of Potential Environmental and Socioeconomic Consequences

Resource	Environmental and Socioeconomic Effects		
	No Action	Proposed Action	
		Construction	Operations
Biological Resources			
Vegetation	No effects	Long-term minor adverse	No effects
Wildlife	No effects	Long-term minor adverse	No effects
Threatened and Endangered Species	No effects	No effects	No effects
Cultural Resources	No effects	No effects	No effects
Socioeconomics			
Construction Impacts on Employment, Industry, and Income	No effects	Short-term minor beneficial	NA
Operations Impacts on Employment, Industry, and Income	No effects	NA	Long-term minor beneficial
Population	No effects	No effects	No effects
Housing	No effects	No effects	No effects
Law Enforcement, Fire Protection, and Medical Services	No effects	No effects	No effects
Schools	No effects	No effects	No effects
Environmental Justice	No effects	No effects	No effects
Protection of Children	No effects	No effects	No effects
Traffic and Transportation	No effects	Short-term minor adverse	Long-term minor adverse
Utilities			
Potable Water	No effects	Short-term minor adverse	Long-term minor adverse
Wastewater	No effects	Short-term minor adverse	Long-term minor adverse
River Water	No effects	No effects	Long-term minor adverse
Stormwater	No effects	No effects	No effects
Energy (Electricity and Natural Gas)	No effects	Short-term minor adverse	Long-term minor adverse
Hazardous and Toxic Materials	No effects	Short-term minor adverse	Long-term minor adverse
Solid and Hazardous Waste	No effects	Short-term minor adverse	Long-term minor adverse

4.2 MITIGATION MEASURES AND BMPs

The Army would implement mitigation measures as identified in the EA and BMPs specified in federal, state, and local regulations and policies as required. Table 4-2 summarizes the mitigation measures and BMPs identified for each resource area in section 3.0 of the EA.

Table 4-2. Summary of Mitigation Measures and BMPs

Resource Area	Mitigation Measures
Biological Resources	Remove any trees suitable for bat roosting that need to be removed to allow for the proposed construction between October 15 and March 31 of any year associated with the proposed action. Visually inspect each building 3 months prior to its demolition or renovation. If roosting bats or nesting birds are present, consult with USFWS for guidance and mitigation requirements before proceeding with demolition or renovation.
Resource Area	BMPs
Aesthetics	Organize and clean up construction sites during and upon completion of individual projects. Specific areas for construction staging. Remove materials and equipment when no longer needed. Stabilize and replant disturbed ground upon individual project completion.
Air Quality	Do not handle, transport, or store any material in a manner that would allow contaminants to become airborne. Employ reasonable measures to minimize fugitive dust. Employ BMPs for permitting and operating the proposed facilities.
Noise	Employ BMPs to further reduce any realized noise effects: <ul style="list-style-type: none"> • Use heavy equipment primarily during normal weekday business hours. • Properly maintain heavy equipment mufflers. • Ensure personnel use adequate personal hearing protection. Design and construct all facilities and operational equipment not to generate intrusive noise beyond the property boundary.
Soils	Obtain coverage under the TN NPDES Stormwater Construction General permit and prepare a site-specific SWPPP with details on the BMPs to be used to limit soil erosion.
Water Resources	Obtain coverage under the TN NPDES Stormwater Construction General permit and prepare a site-specific SWPPP with details on the BMPs to be used to limit stormwater runoff.
Cultural Resources	Adhere to the protocols in the HSAAP integrated cultural resources management plan for inadvertent discoveries of cultural resources during ground-disturbing activities. Ensure proper communication with the SHPO and potentially affected Native American tribes before and during project implementation.
Transportation	Route and schedule heavy equipment and other vehicles to minimize conflicts with traffic. Place staging areas to minimize traffic effects. Equip all construction vehicles with backing alarms, two-way radios, and Slow Moving Vehicle signs. Install proper signage for all temporary detours and road closures.

Table 4-2. Summary of Mitigation Measures and BMPs

Utilities	Design facilities to limit the impact on stormwater generation and stormwater impacts on surface waters. Incorporate low impact development stormwater management practices in facility construction. Steady stormwater flow and delivery to the stormwater drainage system to maintain stormwater flow at the site at preconstruction conditions. Implement a site-specific SWPPP to limit soil erosion and pollution in stormwater runoff due to construction activities.
Hazardous and Toxic Materials	Employ BMPs that are in place at HSAAP to manage the hazardous and toxic materials.
Solid and Hazardous Waste	Employ the BMPs that are in place at HSAAP to manage the solid and hazardous waste produced.

4.3 CONCLUSION

Based on the findings of this assessment, the Army does not expect that implementing the proposed action would result in significant adverse environmental impacts on the natural or human environment. Preparation of an EIS, therefore, is not anticipated, and a draft FNSI will be available for review in accordance with 32 CFR part 651, *Environmental Effects of Army Actions*, and NEPA (42 U.S.C. §§ 4321–4347).

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MS, Environmental Management, University of San Francisco
BA, Art and Art History, Duke University
Years of Experience: 13

Greg Hippert, Tetra Tech, Inc.
BS, Earth Science, University of North Carolina at Charlotte
Years of Experience: 22

Jennifer Jarvis, Tetra Tech, Inc.
BS, Environmental Resource Management, Virginia Tech
Years of Experience: 18

Michelle Cannella, Tetra Tech, Inc.
BS, Mineral Economics, Penn State University
Years of Experience: 20

Richard Arnseth, PhD, Tetra Tech, Inc.
PhD, Geological Sciences, Northwestern University
MS, Geological Sciences, Northwestern University
BA, Chemistry, Gustavus Adolphus College
Years of Experience: 34

Sam Pett, Tetra Tech, Inc.
MS, Environmental Science and Policy, University of Massachusetts/Boston
BS, Wildlife Biology and Zoology, Michigan State University
Years of Experience: 25

Timothy Lavallee, PE, LPES, Inc.
MS, Civil and Environmental Engineering, Tufts University
BS, Mechanical Engineering, Northeastern University
Years of Experience: 25

Daniel Ward, Tetra Tech, Inc.
BS, Geosciences, Tennessee Tech University
Years of Experience: 8

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SECTION 8.0 DISTRIBUTION LIST

Agencies

U.S. Fish and Wildlife Service Tennessee Ecological Services Field Office, Cookeville, TN

Tennessee Department of Environment and Conservation, Nashville, TN

Tennessee Wildlife Resources Agency, Region 4 Office, Morristown, TN

Native American Tribes

Eastern Band of Cherokee Indians

United Keetoowah Band of Cherokee Indians in Oklahoma

Libraries

Kingsport Public Library, Kingsport, TN

Mt. Carmel Public Library, Mt. Carmel, TN

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
µg/m ³	micrograms per cubic meter
AADT	annual average daily traffic
ACHP	Advisory Council on Historic Preservation
AMC	U.S. Army Materiel Command
ANSI	American National Standards Institute
ANSol	ammonium nitrate solution
AQCR	air quality control region
BACT	best available control technology
BAE OSI	BAE Ordnance Systems Inc.
BMP	best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalent
dB	decibel
dBA	A-weighted decibel
de minimis	of minimal importance
DNL	day-night sound level
DoD	Department of Defense
EIS	environmental impact statement
EO	executive order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEM	fluid energy mill
FNSI	finding of no significant impact
ft ²	square foot, square feet
GHG	greenhouse gas
HAP	hazardous air pollutant
HSAAP	Holston Army Ammunition Plant
I	interstate
IRP	Installation Restoration Program
IMPLAN	Impact Analysis for Planning
IWW	industrial wastewater
IWWTP	industrial wastewater treatment plant
JMC	US. Army Joint Munitions Command
L _{eq}	equivalent sound level
LOS	level of service
MACT	maximum achievable control technology
MGD	million gallons per day
MRR	mandatory reporting rule
NAAQS	National Ambient Air Quality Standards
NAC/SAC	nitric acid concentration/sulfuric acid concentration
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act

NNSR	Nonattainment New Source Review
NO ₂	nitrogen dioxide
NOI	notice of intent
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSPS	New Source Performance Standards
O ₃	ozone
OSHA	Occupational Safety and Health Act
PCPI	per capita personal income
PM ₁₀	particulate matter less than 10 microns
PM _{2.5}	particulate matter less than 2.5 microns
PSD	prevention of significant deterioration
PTE	potential to emit
RCRA	Resource Conservation and Recovery Act
ROI	region of influence
SHPO	State Historic Preservation Office/Officer
SHWMP	solid and hazardous waste management plan
SIP	state implementation plan
SO ₂	sulfur dioxide
SOP	standard operating procedure
STP	sewage treatment plant
SWPPP	stormwater pollution prevention plan
T/E	threatened or endangered
TCP	traditional cultural property
TDEC	Tennessee Department of Environment and Conservation
tpy	tons per year
TSCA	Toxic Substances Control Act
U.S. 11W	U.S. Highway 11 West
USFWS	U.S. Fish and Wildlife Service
V/C	volume-to-capacity ratio
WNA	weak nitric acid
yd ³	cubic yard

APPENDIX A
Record of Non-applicability

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RECORD OF NON-APPLICABILITY (RONA)
Holston Army Ammunition Plant Explosives Production Capacity Expansion
Kingsport, Tennessee


The U.S. Army proposes to increase production capacity of explosives at Holston Army Ammunition Plant (HSAAP) in Kingsport, Tennessee, and upgrade steam generation facilities and support structures. As a result of the action, the proposed facilities would generate new direct and indirect emissions from the construction and operations of the proposed facilities. General conformity under the Clean Air Act, section 176 has been evaluated according to the requirements of Title 40 of the *Code of Federal Regulations* (CFR) part 93, subpart B. The requirements of this rule are not applicable to the action because:

The proposed action is completely within an area that has been designated in full attainment for the NAAQS, and includes stationary sources that would be permitted under the PSD program (40 CFR 93-153(d)(1)).

Supported documentation and emission estimates:

- Are attached
- Appear in the National Environmental Policy Act documentation
- Other (not necessary)


NAME


DATE

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Appendix B

Tennessee SHPO and ACHP

*Program Comment for World War II and Cold War Era (1939-1974) Army Ammunition
Production Facilities and Plants*

and

2006 SHPO Correspondence

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REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660

October 14, 2010

Natural Resources Office

Mr. E. Patrick McIntyre, Jr.
Tennessee Historical Commission
2941 Lebanon Road
Nashville, TN 37243-0442

Dear Mr. McIntyre:

At this time we are providing notification that Holston Army Ammunition Plant (HSAAP) wishes to utilize the guidance contained in Enclosure 1, "Program Comment for World War II and Cold War Era (1939-1974) Army Ammunition Production Facilities and Plants" in order to meet our Section 106 requirements for actions affecting real property on the installation. Per Paragraph V of the enclosure, "The Army has met its responsibilities for compliance under section 106." As a result we are no longer required to coordinate with your office and follow the case by case Section 106 review process in order to perform the following activities to real property on the plant: ongoing operations, maintenance and repair, rehabilitation, renovation, mothballing, cessation of maintenance activities, new construction, demolition, deconstruction and salvage, remedial activities, and transfer, sale, lease and/or closure of such facilities.

We do understand that the Program Comment does not address potential impacts to other historic properties such as archaeological sites on the installation. Therefore, in the event that a proposed action has the potential to affect archaeological sites on the installation, we will continue to follow the case-by-case Section 106 review process and coordinate with your office in order to insure that we do not adversely impact these resources.

In the event that you feel we have not interpreted the enclosure correctly, please do not hesitate to provide us with the appropriate guidance on how we should proceed under this Program Comment. The point of contact on my staff is Mr. Bruce Cole at (423) 578-6276 or bruce.cole@us.army.mil.

Sincerely,


JOSEPH R. KENNEDY
Commander's Representative

Enclosure
Program Comment



Preserving America's Heritage

**PROGRAM COMMENT FOR
WORLD WAR II AND COLD WAR ERA (1939 – 1974)
ARMY AMMUNITION PRODUCTION FACILITIES AND PLANTS**

I. Introduction

This Program Comment provides the Department of the Army (Army) with an alternative way to comply with its responsibilities under Section 106 of the National Historic Preservation Act with regard to the effect of the following management actions on World War II (WWII) and Cold War Era Army Ammunition Production Facilities and Plants that may be eligible for listing on the National Register of Historic Places (Facilities and Plants): ongoing operations, maintenance and repair, rehabilitation, renovation, mothballing, cessation of maintenance, new construction, demolition, deconstruction and salvage, remediation activities, and transfer, sale, lease, and closure of such facilities.

In order to take into account the effects on Facilities and Plants, the Army will conduct documentation in accordance with The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.

II. Treatment of Properties

A. Army Mitigation

1. The Army has an existing context study, Historic Context for the World War II Ordnance Department's Government-Owned Contractor-Operated (GOCO) Industrial Facilities 1939-1945 as well as documentation of nine World War II GOCO Plants.

2. The Army will prepare a supplemental volume that revises and expands the existing context to include the Cold War Era (1946-1974). The updated context study will:

focus on the changes that the plants underwent to address changing weapons technology and defense needs; and

identify prominent architect-engineer firms that may have designed architecturally significant buildings for Army Ammunition Plants.

3. The Army will prepare documentation that generally comports with the appropriate HABS/HAER standards for documentation for selected architecturally significant Facilities and Plants at two installations. This documentation will be similar to and follow the format of the existing documentation described in section II.A.1, above.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

1100 Pennsylvania Avenue NW, Suite 809 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov

4. Upon completion of the documentation, the Army will then make the existing documentation of the nine WWII GOCO Army Ammunition Plants and the WWII GOCO context and the new documentation, to the extent possible under security concerns, available in electronic format to Federal and State agencies that request it.

5. In addition, as a result of on-going consultations with stakeholders, the Army will provide a list of properties covered by the Program Comment, by state, to the National Conference of State Historic Preservation Officers and the Advisory Council on Historic Preservation.

6. The Army will also develop additional public information on the Army ammunition process, from production through storage, to include:

a display that can be loaned to one of the Army's museums, such as the Ordnance Museum at Aberdeen Proving Ground, or used at conferences; and

a popular publication on the ammunition process to accompany the display.

Copies of this information will be available electronically, to the extent possible under security concerns, and hard copies will be placed in a permanent repository, such as the Center for Military History.

7. The Army will encourage adaptive reuse of the properties as well as the use of historic tax credits by private developers under lease arrangements. The Army should also incorporate adaptive reuse and preservation principles into master planning documents and activities.

The above actions satisfy the Army's requirement to take into account the effects of the following management actions on Facilities and Plants: ongoing operations, maintenance and repair, rehabilitation, renovation, mothballing, cessation of maintenance activities, new construction, demolition, deconstruction and salvage, remedial activities, and transfer, sale, lease and/or closure of such facilities.

III. Applicability

A. This Program Comment applies solely to Facilities and Plants. The Program Comment does not apply to the following properties that are listed, or eligible for listing, on the National Register of Historic Places: (1) archeological properties, (2) properties of traditional religious and cultural significance to federally recognized Indian tribes or Native Hawaiian organizations, and/or (3) Facilities and Plants listed or eligible National Register of Historic Places districts where the ammunition production facility is a contributing element of the district and the proposed undertaking has a potential to adversely affect such historic district. This third exclusion does not apply to ammunition production related historic districts that are entirely within the boundaries of an ammunition production plant. In those cases the Program Comment would be applicable to such districts.

B. An installation with an existing Section 106 agreement document that addresses Facilities and Plants can choose to:

1. continue to follow the stipulations in the existing agreement document for the remaining period of the agreement; or

2. seek to amend the existing agreement document to incorporate, in whole or in part, the terms of this Program Comment; or

3. terminate the existing agreement document and re-initiate consultation informed by this Program Comment, if necessary.

C. All future Section 106 agreement documents developed by Army installations related to undertakings and properties addressed in this Program Comment shall include appropriate provisions detailing whether and how the terms of the Program Comment apply to such undertakings.

IV. Completion Schedule

On or before 60 days following issuance of the Program Comment, the Army and ACHP will establish a schedule for completion of the treatments outlined above.

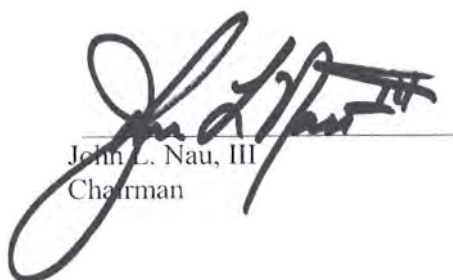
V. Effect of the Program Comment

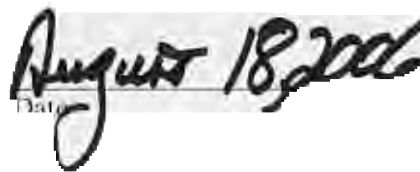
By following this Program Comment, the Army has met its responsibilities for compliance under Section 106 regarding the effect of the following management actions on WWII and Cold War Era Army Ammunition Production Facilities and Plants that may be eligible for listing on the National Register of Historic Places: ongoing operations, maintenance and repair, rehabilitation, renovation, mothballing, cessation of maintenance, new construction, demolition, deconstruction and salvage, remediation activities, and transfer, sale, lease, and closure of such facilities. Accordingly, the Army will no longer be required to follow the case-by-case Section 106 review process for such effects.

VI. Duration and Review of the Program Comment

This Program Comment will remain in effect until such time as Headquarters, Department of the Army determines that such comments are no longer needed and notifies ACHP in writing, or ACHP withdraws the comments in accordance with 36 CFR § 800.14(e)(6). Following such withdrawal, the Army would be required to comply with the requirements of 36 CFR §§ 800.3 through 800.7 regarding the effects under this Program Comments' scope.

Headquarters, Department of the Army and ACHP will review the implementation of the Program Comment seven years after its issuance and determine whether to take action to terminate the Program Comment as detailed in the preceding paragraph.


John L. Nau, III
Chairman


Date



REPLY TO:
ATTENTION OF

Production Engineering Division

DEPARTMENT OF THE ARMY

Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660

February 3, 2006

Mr. Joe Garrison
Tennessee Historical Commission
2941 Lebanon Pike
Nashville, TN 37243-0442

Dear Mr. Garrison:

Holston would like to have the State agree that the attached list of items do not need to be coordinated with your office in the future. Justification for this request is that Holston has established precedents for these types of items in the past as not having historical impacts to the installation and that we've identified the Comp B Production Line 2 as a representative line for historical preservation.

Your concurrence is requested.

If additional information is needed, please contact Mike Mills at (423) 578-6244.

Sincerely,

Original Signed By

Eddie C. Brickey
Commander's Representative

Enclosure

CF:
OSI/Todd Hayes, Bob Winstead

ACTIVITIES THAT NEED NOT BE REVIEWED BY THE SHPO

- A. Ground disturbing activities in Area A in the previously disturbed area shown in Enclosure 1; or within the boundary of the production area, maintenance, and administration areas of Area B in the previously disturbed area shown in Enclosure 2.
- B. Maintenance work on existing features such as roads, fire lanes, disposal areas, ditch lines, fence line right-of-ways, and buried utility lines such as gas or water lines.
- C. Energetics disposal (open burning of waste explosives).
- D. Leasing of agriculture and grazing areas that will either:
 - 1. Take place within areas previously surveyed and determined not to contain any archaeological sites, or
 - 2. Involve no tilling or other activities that will disturb the ground below the current level of disturbance and/or plow zone
- E. Hunting and fishing actions.
- F. Use of land for training exercises, when such training involves no off-road vehicle use or ground disturbance, and when camping occurs in areas previously surveyed for historic properties.
- G. Activity on any ground locations where prior archeological studies have been previously completed indicating no historical findings. New construction activities will need to be coordinated at these locations.
- H. Outgrants and contracting actions when the proposed use involves no disturbance of the ground surface.
- I. Reviews, reports, studies, undertakings for planning purposes and decision making including reports of excess provided that no lands are physically laid away or disposed of by sale, or transfer, without appropriate documentation or coordination.

Note: The above list of activities is a partial list of those activities that, in February 2006, the SHPO indicated would not impact listed or eligible properties when described conditions exist. Exemptions and guidance related to buildings on the installation have been removed from the original list that the SHPO approved because guidance of this nature is no longer applicable to HSAAP. The "*Program Comment for World War II and Cold War ERA (1939-1974) Army Ammunition Production Facilities and Plants*" (PC) eliminates any requirement to coordinate with the SHPO with regard to buildings, bridges, and other real property on the installation that are covered by the PC. HSAAP notified the SHPO in October 2012 that it would utilize the PC for all actions impacting any real property (buildings, etc.) on the installation.



N ↑

Enclosure 2
Holston AAP Area B



TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

February 7, 2006

Mr. Eddie Brickey
Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, Tennessee 37660

RE: DOD, HAAP/MINOR PROJECTS & MAINTENANCE, KINGSPORT, SULLIVAN COUNTY

Dear Mr. Brickey:

The Tennessee State Historic Preservation Office has reviewed the above-referenced undertaking received on Monday, February 6, 2006 for compliance by the participating federal agency or applicant for federal assistance with Section 106 of the National Historic Preservation Act. The Procedures for implementing Section 106 of the Act are codified at 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

After considering the documentation submitted, it is our opinion that there are no National Register of Historic Places listed or eligible properties affected by the types of undertakings listed in your correspondence, with one qualification. Activity D, "Leasing of agricultural and grazing areas" should be limited to only those agricultural activities that will either; a) take place within areas previous surveyed and determined not to contain any archaeological sites, or b) involve no tilling or other activities that will disturb the ground below the current level of disturbance and/or plow zone.

You may direct questions or comments to Jennifer M. Barnett (615) 741-1588, ext. 17. This office appreciates your cooperation.

Sincerely,

Herbert L. Harper
Executive Director and
Deputy State Historic
Preservation Officer

HLH/jmb

Appendix C
Agency and Tribal Coordination

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DEPARTMENT OF THE ARMY
HOLSTON ARMY AMMUNITION PLANT
4509 WEST STONE DRIVE
KINGSPORT, TN 37660-1048

REPLY TO
ATTENTION OF:

November 7, 2017

Natural Resources Office

Mary Jennings
Field Supervisor
U.S. Fish and Wildlife Service Field Office
446 Neal Street
Cookeville, Tennessee 38501

Dear Ms. Jennings:

Holston Army Ammunition Plant (HSAAP) requests that your office review the proposed action to increase the installation's capacity to produce explosives (Research Development Explosives [RDX] and Insensitive Munitions [IMX]) for any potential impacts on federally listed threatened and endangered species (T/Es).

The anticipated start of the project is March 2018, and the expected duration is approximately 5 years. We are developing an environmental assessment (EA) for this project, but would like to obtain your written concurrence on this project, if possible, as well as any mitigation requirements you might have for inclusion in the EA. Upon completion of the EA for the proposed action (anticipated during the first quarter of 2018), a copy of the document will be sent to your office for review.

The construction (including renovation and demolition) activities associated with this action are depicted on the enclosed map. In addition to construction activities, increasing the production capacity of explosives at HSAAP would require the following relevant operational changes:

- a. The quantity of water used for cooling purposes would increase. The precise amount of the increase is not known, but for the sake of analysis in the EA it is assumed that twice as much water would be used. HSAAP currently extracts 40–50 million gallons per day (MGD) of water from the Holston River for cooling purposes and the water is returned to the river at multiple outfalls. The installation is required to ensure there is no more than a 3 degree Celsius ($^{\circ}\text{C}$) water temperature change between the intake and discharge locations, and that the water temperature at the discharge point does not exceed 30.5 $^{\circ}\text{C}$. The Army would continue to meet these water quality criteria, and would install a cooling tower to do so if necessary.
- b. The increase in RDX production would likely lead to an increase in the amount of RDX discharged into the Holston River. HSAAP is presently upgrading its

wastewater treatment facility, and those upgrades will be completed before explosives production would be increased. The quantity of RDX in river water is currently limited to 12.2 pounds per day (lb/day) (average 5-year/30-day criterion) - a 93 percent reduction from historic discharge levels - to meet the drinking water criteria of 2 parts per billion. HSAAP has made numerous improvements to its production process to decrease the amount of RDX discharged to the river. In 2012 the monthly average of RDX discharged was 175 lb/day. Various improvements reduced that to 60 lb/day, and further improvements reduced it further. In 2016 the monthly average was 6.1 lb/day and in January 2017 it was 1.84 lb/day. Recently the monthly average discharge rate has been less than 1 lb/day. The discharge level is expected to remain this low or drop even lower once the wastewater facility upgrades are completed, and it is anticipated that even with increased explosives production, the quantity of explosives entering the river will be well below the permitted level, and minimal compared to historic levels. With regard to the proposed increase in IMX production, we anticipate that the improved treatment at our wastewater facility also will keep the quantity of nitrates discharged to the river within our NPDES permit limits.

Records indicate the historic presence of T/E mussel species in the Holston River, but those species are believed to be extirpated. A mussel survey conducted on the installation in 1996 failed to verify the presence of any T/Es. In 2015, Conservation Fisheries, Inc. conducted a survey for the Spottfin Chub (*Cyprinella monacha*) on the installation but the species was not identified. A copy of that report is enclosed. Similarly, we never identified any T/E fish species on the installation in surveys prior to 2015 and do not anticipate that this project will adversely affect any fish species. No aspect of the proposed project would occur in the Holston River, and no changes to HSAAP's permitted discharges to the river are anticipated once the new facilities are operational.

We do not anticipate that this project will impact any terrestrial T/Es such as the gray bat (*Myotis grisescens*), which is known to forage on the installation; the Indiana bat (*M. sodalis*), which has never been identified as occurring on the installation but for which suitable summer roosting habitat is present; or the northern long-eared bat (*M. septentrionalis*), which was identified approximately 15 years ago as occurring on the installation and for which suitable summer roosting habitat is present. An installation-wide survey for T/E bat species conducted in July 2015 using USFWS survey protocols failed to identify either the Indiana bat or the northern long-eared bat on the plant. The proposed action will result in a maximum of 25 scattered, mature trees being removed from the Area B production area. Based on a survey by Bruce Cole, the HSAAP Natural Resources Manager, in October 2017, of those 25 trees, six are potentially suitable for summer roosting sites. Two of the six trees are living and exhibit exfoliating

bark, and could be used as roost sites. The remaining four trees are large (approximately 20 inches dbh), dead snags with cavities/crevices that would be suitable summer roost sites, and one of these trees may potentially be suitable for a maternity colony. All trees that are removed as a result of this action will be cut down prior to April 1, 2018 to ensure that there are no direct impacts on summer roosting bats or nesting migratory bird species. The dead trees are approximately 1,500 feet from a large (approximately 350-acre) area of mature hardwood forest that is considered suitable habitat for summer roosting bats. The large forested area will not be affected by the project. No trees would be removed from the approximately 1 acre stands of oaks on the production area, which serve as bedding areas for deer (*Odocoileus virginianus*) and harborage for other animals.

Four vacant buildings are proposed for demolition or renovation as part of this action. Because this action might occur over a period of four to five years, surveying these buildings at the present time would not accurately portray wildlife that might occupy them when the demolition or renovation work on each begins. Therefore Mr. Cole will inspect each building approximately three months in advance of its demolition or renovation to verify that it is not being used by roosting bats or nesting migratory birds. If either is present, he will coordinate with your office for guidance and mitigation requirements before the demolition or renovation is allowed to proceed.

With these considerations in mind, we request your written concurrence, if possible, that the proposed action as currently conceived is not likely to adversely affect federally listed T/Es. If the proposed project is changed in any substantial way so that HSAAP thinks an effect on a federally listed T/E might occur, your office will be immediately informed of the change. If you do not feel that our determination of "not likely to adversely affect" is appropriate, or if we need to provide additional information to enable you to make a determination, feel free to contact Mr. Bruce Cole of my staff by phone at 423-578-6276 or by email at bruce.g.cole.civ@mail.mil.

Sincerely,


JOSEPH R. KENNEDY
Commander's Representative

Enclosures

The map mentioned in this letter is not included.

To see proposed construction locations, please see EA Figure 3-1.

**BIOLOGICAL SURVEY FOR THE SPOTFIN CHUB, *ERIMONAX MONACHUS*,
IN THE HOLSTON RIVER
AT HOLSTON ARMY AMMUNITION PLANT (HSAAP)**

*Final Report to: BAE Systems, Ordnance Systems, Inc.
Prepared by: P. L. Rakes, J. R. Shute, C. L. Ruble, and M. A. Petty
Conservation Fisheries, Inc.
October 30, 2015*

INTRODUCTION

The Spotfin Chub (SFC), *Erimonax monachus* (formerly *Hybopsis monacha* and *Cyprinella monacha*) is endemic to the Tennessee River drainage in Georgia, Tennessee, North Carolina, and Virginia (Jenkins and Burkhead 1994, 1984). In the Holston River system it is recently known only from the North Fork Holston River (NFHR) in Scott, Washington, and Smyth County and Middle Fork Holston River (MFHR) in Washington County in Virginia and the NFHR and Holston River in Hawkins and Sullivan County in Tennessee (Tennessee Valley Authority and Virginia Natural Heritage and Conservation Fisheries, Inc. data). Recent surveys by Conservation Fisheries Inc. (CFI) have been unable to locate any specimens in the MFHR (Petty et al. 2015).

The Spotfin Chub is federally threatened and currently restricted to only four populations, with the Holston River system population's distribution greatly reduced relative to probable historical extent (USFWS 1983). Seven or more populations have been eradicated by human activities. CFI is currently involved in attempted restoration of three populations, with two (Tellico and Cheoah River) exhibiting early signs of success. The U. S. Fish and Wildlife Service recommended that BAE Systems, Ordnance Systems, Inc. (BAE) employ CFI to efficiently survey for the species in the Holston River at HSAAP, due to CFI's extended experience and expertise with the species.

METHODS

Spotfin Chubs are specialized minnows, usually confined to very specific habitats, particularly clean bedrock substrate in moderate to swiftly flowing shallow water (typically < 1 meter depth). Extensive bedrock substrates, particularly those forming flat "floors" with ledges and/or boulders provide required crevices for spawning substrates and feeding surfaces for specialized benthic predation on blackfly and other aquatic insect larvae. The very young juveniles are often also found on clean swept sandy and/or bedrock shallows along the stream's edge. CFI work with Spotfin Chubs in several other river systems has shown that, if present, these unique minnows can often be detected efficiently by snorkeling in and near such preferred habitat, visibility conditions permitting.

Suitable habitat was surveyed by snorkeling, with the survey area plotted using GPS, USGS maps and Google Earth. Habitats—both above and below water—were noted and photographed. Records of relative abundance for all species observed were recorded. Fish identifications were

made on site and no fish were taken from the stream. Many species were photographed, but flow conditions prevented successfully capturing quality images of most. Total time snorkeling was recorded to potentially generate “observations per unit effort” (OPUE), much like standard “catch per unit effort” (CPUE) for any target fish observed and counted.

RESULTS

A reconnaissance visit to the HSAAP property on 11 August 2015 was provided by Bruce Cole, Natural Resources Manager, and BAE’s Amy Crawford, driving to several access points along the Holston River. All but one reach of the river was too deep and/or slow and/or silty for Spotfin Chubs. The reach of islands, shoals, and bedrock riffles and runs below the bridge at Clay Islands (Holston River Mile [HRM] 137.5+) appeared to have excellent habitat and was thus selected for an extensive snorkel survey effort performed on 24 September 2015. CFI returned with a crew of four experienced snorkelers to visually survey the site to determine presence or absence of Spotfin Chubs. Conditions were as close to ideal as can be expected in a larger river, although swift flows made holding stable positions difficult in many areas, particularly when attempting underwater photography. Water temperature was still warm for the season (75°F); discharge was relatively low with only a modest generation release from Fort Patrick Henry Lake. Visibility was more than a meter and sufficient to locate and visually identify all fish encountered. All four snorkelers were highly experienced, having surveyed for Spotfin Chubs in nearly all known portions of their range. Approximately 8.0 person-hours of snorkel effort were spent searching in both adult and juvenile habitats, as well as adjacent areas. Figure 1 (Appendix) illustrates the area covered by snorkelers.

No Spotfin Chubs were observed despite extensive excellent habitats with bedrock in swift shallow riffles and runs. The diversity of fishes was high (28 species observed). Numbers of most species observed were within expected values. See Table 1 (Appendix) for a list of species and relative numbers. Darters and minnows were well represented, usually indicating good water quality and diverse habitat. Photographs of habitats and some of the species observed are found in the Appendix. A video sampling of many of the fish and habitats observed can be viewed at <https://vimeo.com/143897019> (password: holsfc2015CFI). Several species often seen in association with Spotfin Chubs were present in abundance. However several others, most notably Whitetail Shiners (*Cyprinella galactura*), were far less abundant than expected. Whitetail Shiners are perhaps the species most similar to Spotfin Chubs and the two were once considered closely related. Both species spawn in similar habitats and often overlap in nonbreeding season habitats as well.

DISCUSSION/CONCLUSIONS

Overall fish diversity and abundance was greater than expected in a tailwater setting, and comparable to those observed in other recent survey studies with differences attributable to the different sampling techniques (i.e., snorkeling versus electrofishing). We observed much larger numbers of many species than did Evans and Beverly (2010) in a survey just above our site, but snorkeling often reveals far more fish than might be collected by most standard fish sampling

techniques. Results reported in their study as well as those in a longer-running and wider range Academy of Natural Sciences report (2012) largely replicated our species diversity observations with the addition of many larger species (sunfish, suckers) susceptible to their electrofishing methods.

The Spotfin Chub is known from the Holston River system upstream of HSAAP, particularly in the lower North Fork Holston River. It has also been collected on a few occasions in the river downstream of the plant [TVA and Natural Heritage data: Cox Island, Surgoinsville, HRM 118 – 1992, 2001, 2009; Phipps Bend, HRM 122 – 2003; Terrill Creek, HRM 119.5 - 2004], but usually only single specimens. It was not collected in the Evans and Beverly (2010) study. Since Spotfin Chubs occur upstream and are at least occasionally collected downstream of the plant, we must assume that they sometimes pass through HSAAP waters. Spotfin Chubs are very mobile fish. For example, at least one juvenile chub that CFI stocked in Shoal Creek in south-central Tennessee as a part of a rare fish restoration project made it downstream to north Alabama in a little more than a year, a distance of more than 10 stream miles!

We know of no other site where Spotfin Chubs persist in a tailwater situation, where water levels and (presumably) temperatures vary with releases from the upstream dam. This is precisely the condition in the Holston River at this site. Our supposition is that the Chubs are highly prone to predation in deeper waters. We rarely encounter them in water as deep as 1m. Typically, they are found in water less than a half meter deep. Spotfin Chubs in our hatchery are affected by subtle temperature changes, even more than most of the species we work with. Our observations suggest that the fish will cease spawning, at least temporarily, if the water temperature drops more than a few degrees.

Our conclusion is that while the occasional Spotfin Chub passes through HSAAP waters, there is no resident population. Spotfin Chub collections from below the plant have only once yielded more than one specimen in the modern era (N=15 at Cox Island in 2001; see above). These all likely represent waifs from the North Fork Holston, where stable populations exist.

LITERATURE CITED

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- Evans, J. A. and J. Beverly. 2010. An exploratory survey for the threatened Spotfin Chub (*Cyprinella monacha*) for the proposed demolition of bridge #20 at Holston Army Ammunition Plant, Hawkins County, Tennessee. Report to BAE Systems & Holston Army Ammunition Plant, Kingsport, Tennessee. September 2010. 11 pp.
- Jenkins, R. E. and N. M. Burkhead. 1994. Freshwater fishes of Virginia. American Fisheries Society, Bethesda, Maryland. 1079 p.

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Petty, M. A., Rakes, P. L. Shute, J. R. and C. L. Ruble. 2015. Surveys for Spotfin Chubs, *Erimonax monachus*, and their habitat in the North Fork and Middle Fork Holston Rivers, Virginia. Final Report to the Virginia Department of Game and Inland Fisheries (Contract #2012-13706), January 8, 2015. 15 pp.

U.S. Fish and Wildlife Service (USFWS). 1983. Recovery Plan for Spotfin Chub *Hybopsis monacha*. U.S. Fish and Wildlife Service, Atlanta, Georgia. 46 pp.

APPENDIX:



Figure 1. Approximate area snorkel surveyed (shaded yellow) by CFI, Holston River Mile 137.5, 24 September 2015.

Scientific Name:	Common Name:	
<i>Campostoma oligolepis</i>	Largescale Stoneroller	C/A
<i>Cyprinella galactura</i>	Whitetail Shiner	S
<i>Cyprinella spiloptera</i>	Spotfin Shiner	S
<i>Erimonax monachus</i>	Spotfin Chub	0
<i>Erimystax dissimilis</i>	Streamline Chub	AA
<i>Hybopsis amblops</i>	Bigeye Chub	C
<i>Luxilus chrysocephalus</i>	Striped Shiner	F
<i>Luxilus coccogenis</i>	Warpaint Shiner	F
<i>Nocomis micropogon</i>	River Chub	S/C
<i>Notropis leuciodus</i>	Tennessee Shiner	F
<i>Notropis micropteryx</i>	Highland Shiner	C
<i>Notropis photogenis</i>	Silver Shiner	S
<i>Notropis telescopus</i>	Telescope Shiner	A
<i>Notropis volucellus</i>	Mimic Shiner	AA
<i>Notropis</i> sp. "sawfin shiner"	Sawfin Shiner	F?
<i>Phenacobius uranops</i>	Stargazing Minnow	AA
<i>Hypentelium nigricans</i>	Northern Hogsucker	C
<i>Moxostoma</i> sp.	Redhorse species	S
<i>Micropterus dolomieu</i>	Smallmouth Bass	S
<i>Micropterus punctulatus</i>	Spotted Bass	F
<i>Micropterus salmoides</i>	Largemouth Bass	1
<i>Etheostoma blennioides</i>	Greenside Darter	A
<i>Etheostoma camurum</i>	Bluebreast Darter	C
<i>Etheostoma jessiae</i>	Blueside Darter	F
<i>Etheostoma rufilineatum</i>	Redline Darter	C
<i>Etheostoma simoterum</i>	Snubnose Darter	AA
<i>Etheostoma zonale</i>	Banded Darter	C
<i>Percina burtoni</i>	Blotchside Logperch	1
<i>Percina evides</i>	Gilt Darter	C
TOTAL # SPECIES OBSERVED:		28

Key: F (few) ≤5; S (several) 6-15; C (common) 16-30; A (abundant) >30; AA (very abundant) >100

Table 1. Species observed by CFI snorkeling, Holston River Mile 137.5, 24 September 2015.



**Bedrock riffle between lower island and left descending shore.
Patches of suitable Spotfin Chub habitat are above and below riffle.
Note snorkeler standing beyond island.**



**Bedrock riffles between lower island and left descending shore.
Patches of suitable Spotfin Chub habitat are above, below, and between riffles.**



**Riffle complex between upper island and left descending shore.
Patches of suitable Spottfin Chub bedrock habitat scattered throughout.
Note snorkeler to left in water.**



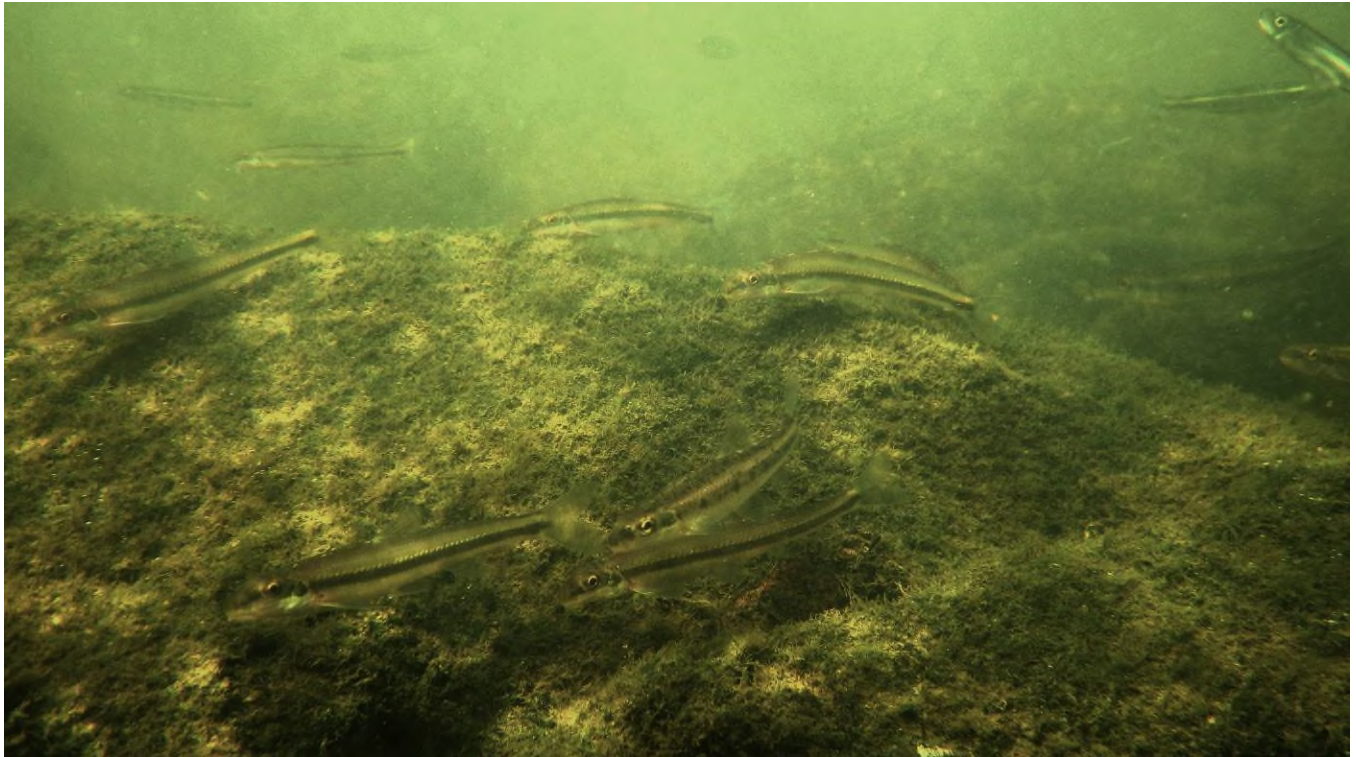
**Cyprinids in lee of lower island: Mimic Shiner (top center) and Bigeye Chubs.
Not ideal Spottfin Chub habitat—too slow with no bedrock.**



Streamline Chub (above) and Gilt Darter (below)



Banded Darter



**Stargazing Minnows and Streamline Chub (center with lateral spots)
feeding on bedrock with riverweed—excellent Spottfin Chub habitat between upper islands.**



**Blueside Darter on sandy bottom
(sometimes frequented by juvenile Spottfin Chubs if shallow near bedrock)**

USFWS Email Response 12192017.txt

-----Original Message-----

From: Robbie Sykes [mailto:robbie_sykes@fws.gov]
Sent: Tuesday, December 19, 2017 1:05 PM
To: Cole, Bruce G CIV (US) <bruce.g.cole.civ@mail.mil>
Subject: [Non-DoD Source] RE: project letter for explosive production increase at HSAAP

Bruce,

I was talking with some others in the office about the letter and they thought it would be best to wait until we receive the actual EA before we concurring with NLAA. Based on the information provided and negative results from past surveys, we would have no issues with NLAA, but it should be based on the information provided in the EA.

Thanks,

Robbie Sykes
Supervisory Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
446 Neal Street
Cookeville, TN 38501
(tele. 931/525-4979)
(fax. 931/528-7075)

-----Original Message-----

From: Cole, Bruce G CIV (US) [mailto:bruce.g.cole.civ@mail.mil]
Sent: Wednesday, November 8, 2017 2:03 PM
To: Robbie Sykes <robbie_sykes@fws.gov>
Subject: project letter for explosive production increase at HSAAP

Robbie,

Please find attached the letter regarding the proposed expansion of production at Holston AAP, a portion of which we had previously discussed. We have also mailed an "official" hard copy to the USFWS office. This is a massive project that will occur over a period of approximately five years.

We've tried to anticipate and address as many questions as possible, but if you need any additional information, please let me know.

Bruce Cole
Natural Resources Specialist
Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660
423-578-6276



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660

February 7, 2018

Natural Resources

SUBJECT: Conditional concurrence of not likely to adversely affect federally protected bat species from the expansion of explosives production capacity on Holston Army Ammunition Plant, Kingsport, Tennessee.

Mary Jennings
Field Supervisor
U.S. Fish and Wildlife Service Field Office
446 Neal Street
Cookeville, Tennessee 38501

Dear Ms. Jennings:

Holston Army Ammunition Plant (HSAAP) corresponded with your office on November 7, 2017 regarding the subject project requesting a *not likely to adversely affect* (NLAA) determination on federally listed threatened and endangered (T/E) species. The proposed project as detailed in that letter has changed in two respects with regards to potential impacts on federally protected bat species (Indiana bat [*Myotis sodalis*] and northern long-eared bat [*M. septentrionalis*]).

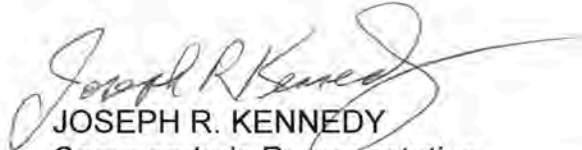
The natural gas-fired steam plant is now proposed to be constructed on undisturbed, wooded land outside the production area. Plant construction would require removal of an unknown number of hardwood trees on approximately 4.5 acres. Additionally, design modifications to the proposed new recrystallization building (G3) on the production area would result in the removal of 26 trees from the stand of trees northeast of the proposed building. These trees would be in addition to the 25 trees mentioned in our previous correspondence, resulting in a total of 51 trees to be removed in the production area. The construction sites that will require tree removal and areas of tree removal are depicted on the enclosed figure.

The Army is committed to ensuring that tree removal for the proposed project will not have any adverse effects on federally protected bat species. To that end, the Army would ensure that no trees would be removed in the production area or at the new site of the proposed steam plant to accomplish this project except between October 15 and March 31 of any year during the project's anticipated 5-year implementation.

The Department of Defense considers the above referenced project at HSAAP to be of high priority for national security purposes. It is for this reason that the Army respectfully requests a conditional concurrence of a not likely to adversely affect federally protected bat species due to tree removal provided the Army complies with the above time frame for tree removal. Rest assured that a copy of the final Environmental Assessment will be provided to your office for your full review and official comments upon its release to the public. I would also like to note that the Environmental Assessment will specifically include as mitigation for this proposed project the Army's commitment to limit any harvesting or removal of trees suitable for bat roosting to the period between October 15 and March 31 of any year associated with the proposed action. Your response is respectfully requested by no later than 30 days from receipt of this letter (March 8, 2018).

If the proposed project is changed in any substantial way so that HSAAP thinks an effect on a federally listed T/E might occur, your office will be immediately informed of the change. Should you have any questions, feel free to contact Mr. Bruce Cole of my staff by phone at 423-578-6276 or by email: bruce.g.cole.civ@mail.mil.

Sincerely,


JOSEPH R. KENNEDY
Commander's Representative

Enclosure

New Steam Plant Location



Access Road

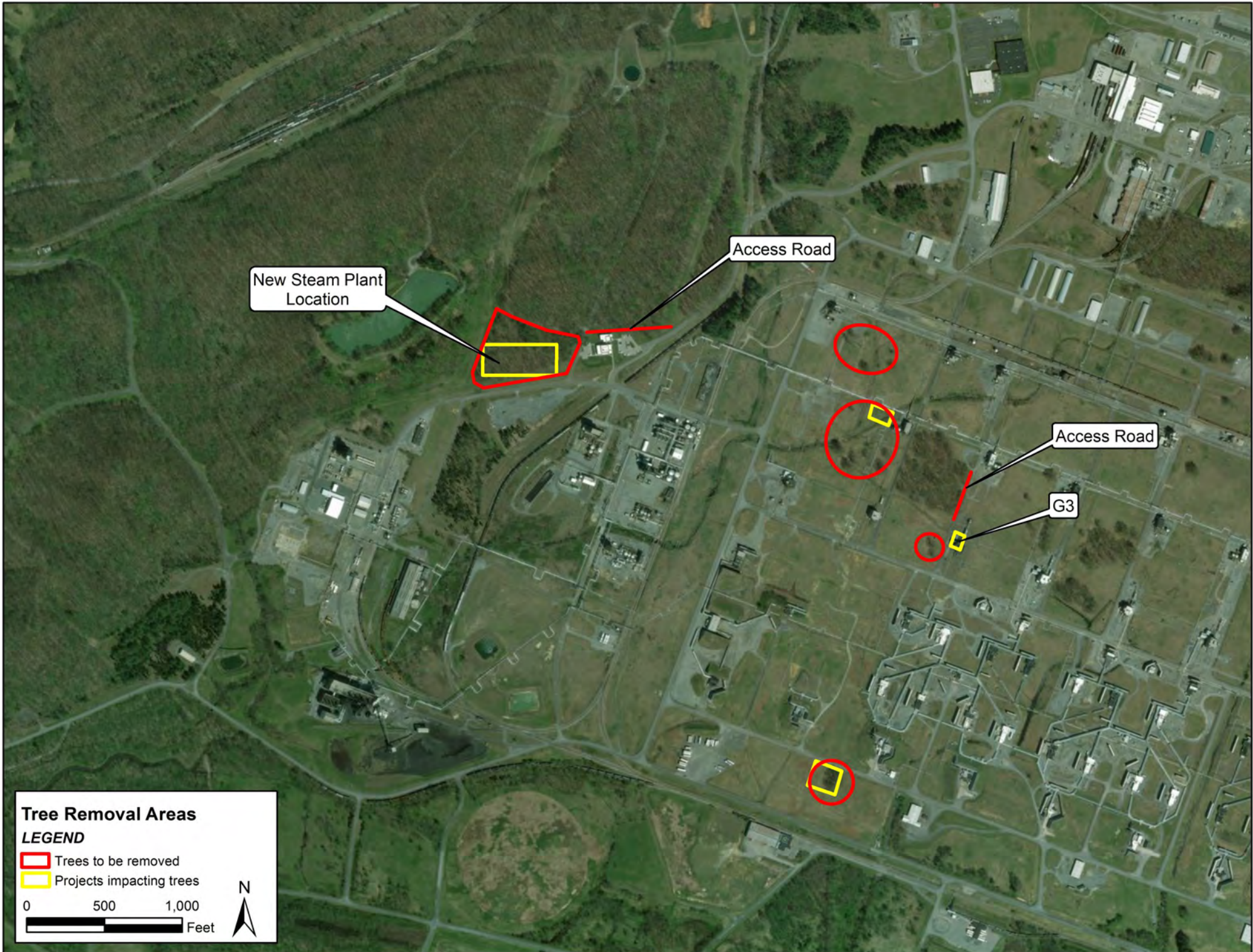
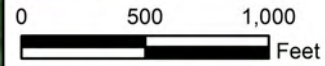
Access Road

G3

Tree Removal Areas

LEGEND

-  Trees to be removed
-  Projects impacting trees





REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660

November 14, 2017

Natural Resources Office

E. Patrick McIntyre, Jr.
State Historic Preservation Officer
Tennessee Historical Commission
2941 Lebanon Road
Nashville, TN 37243-0442

Dear Mr. McIntyre:

In compliance with section 106 of the National Historic Preservation Act, Holston Army Ammunition Plant (HSAAP), located in Hawkins and Sullivan counties, Tennessee, requests your concurrence with HSAAP's opinion, if possible, that activities associated with increasing the installation's capacity to produce explosives (Research Development Explosives and Insensitive Munitions) will not adversely affect archaeological resources on the installation. Components of the proposed action will include construction of approximately eight new facilities as well as renovation or demolition of others. With two exceptions, all activities/projects associated with the proposed action will occur within the boundary indicated on the enclosed topographic map. You can locate the project area on U.S. Geological Survey 7.5-minute topographic maps for the Church Hill and Kingsport quadrangles. We are developing an environmental assessment (EA) for this project, for which the anticipated start of the project is March 2018, and the expected duration is approximately five years.

As indicated in the second enclosure, we have previously notified your office of our intention to apply the *Program Comment for World War II and Cold War Era (1939-1974) Army Ammunition Production Facilities and Plants* to all activities on the installation that would affect any real property (e.g., buildings, barricades, or bridges). Activities covered by the Program Comment include maintenance and repair, rehabilitation, renovation, new construction, and demolition. Since all buildings that will be impacted by the proposed action were constructed during the time frame covered by the Program Comment, the Army has met its section 106 responsibilities as long as the proposed action impacts no other historic resources (e.g., archaeological sites).

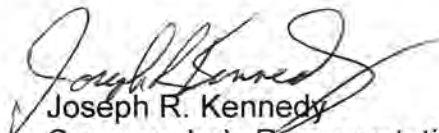
Enclosure 3 depicts an area within which, because of previous disturbance, your office indicated during prior coordination in 2006 that ground-disturbing activities would not impact historic properties eligible for listing on the National Register of Historic Places (NRHP) and do not need to be reviewed by the Tennessee Historical Commission. As indicated on the project map, however, two components of the proposed action will occur outside the area that was exempted from coordination.

These components entail construction of an addition to each of two existing buildings. Construction will occur within existing paved areas around each building. In addition, at the easternmost building, an existing road will be widened and paved. Although these two buildings are located outside of the area for which your office made a determination in 2006, undoubtedly each site was heavily disturbed during initial construction of the building, access roads, and parking areas and, therefore, there is no anticipated impact to archaeological resources at either site.

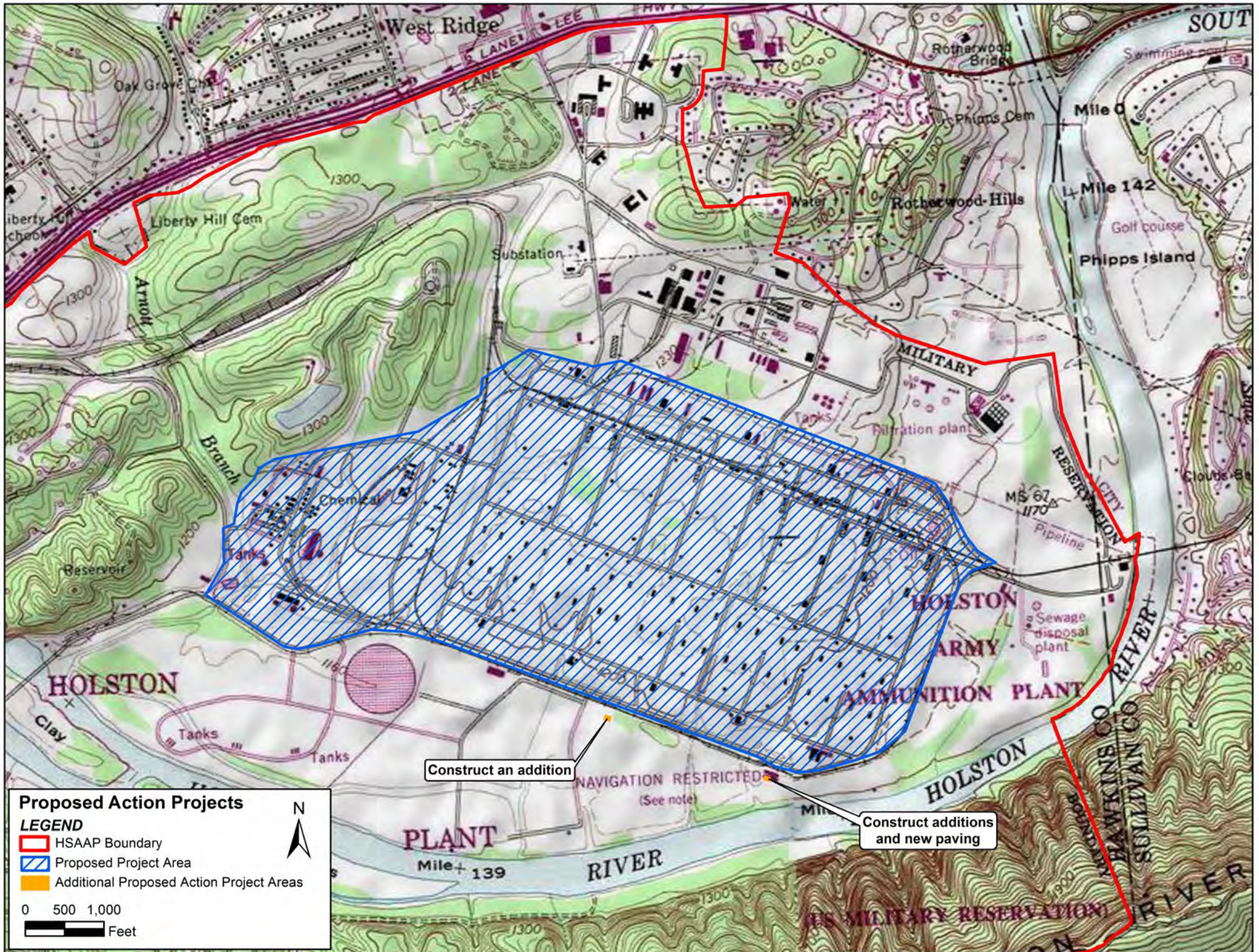
HSAAP completed a survey of the installation for archaeological sites in 1998 (*Phase I Historic Resources Survey in Portions of Plant B, Holston Army Ammunition Plant, Hawkins County, Tennessee*), during which nine sites were identified that are potentially eligible for listing on the NRHP. The proposed action will not impact any of those sites. Site 40HW78 is the known archaeological site located closest to any part of the project area that will involve new construction. It is located approximately 1,800 feet away from the new construction site located at latitude 36.530183 longitude - 82.636188. In addition, site 40HW78 and the eight remaining archaeological sites are separated from all components of the proposed action, including the two buildings mentioned above, by a chain link fence and, therefore, are inaccessible to any personnel working on the proposed action.

In light of the above factors, we request your concurrence with our opinion, if possible, that the proposed action in its entirety will have no adverse effect on archaeological sites on the installation. If you require additional information, contact Mr. Bruce Cole of my staff at bruce.g.cole.civ@mail.mil or (423) 578-6276.

Sincerely,


Joseph R. Kennedy
Commander's Representative

Enclosures



Proposed Action Projects

LEGEND

- HSAAP Boundary
- Proposed Project Area
- Additional Proposed Action Project Areas

0 500 1,000
 Feet

N

Construct an addition

Construct additions and new paving



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660

October 14, 2010

Natural Resources Office

Mr. E. Patrick McIntyre, Jr.
Tennessee Historical Commission
2941 Lebanon Road
Nashville, TN 37243-0442

Dear Mr. McIntyre:

At this time we are providing notification that Holston Army Ammunition Plant (HSAAP) wishes to utilize the guidance contained in Enclosure 1, "Program Comment for World War II and Cold War Era (1939-1974) Army Ammunition Production Facilities and Plants" in order to meet our Section 106 requirements for actions affecting real property on the installation. Per Paragraph V of the enclosure, "The Army has met its responsibilities for compliance under section 106." As a result we are no longer required to coordinate with your office and follow the case by case Section 106 review process in order to perform the following activities to real property on the plant: ongoing operations, maintenance and repair, rehabilitation, renovation, mothballing, cessation of maintenance activities, new construction, demolition, deconstruction and salvage, remedial activities, and transfer, sale, lease and/or closure of such facilities.

We do understand that the Program Comment does not address potential impacts to other historic properties such as archaeological sites on the installation. Therefore, in the event that a proposed action has the potential to affect archaeological sites on the installation, we will continue to follow the case-by-case Section 106 review process and coordinate with your office in order to insure that we do not adversely impact these resources.

In the event that you feel we have not interpreted the enclosure correctly, please do not hesitate to provide us with the appropriate guidance on how we should proceed under this Program Comment. The point of contact on my staff is Mr. Bruce Cole at (423) 578-6276 or bruce.cole@us.army.mil.

Sincerely,


JOSEPH R. KENNEDY
Commander's Representative

Enclosure
Program Comment



Preserving America's Heritage

**PROGRAM COMMENT FOR
WORLD WAR II AND COLD WAR ERA (1939 – 1974)
ARMY AMMUNITION PRODUCTION FACILITIES AND PLANTS**

I. Introduction

This Program Comment provides the Department of the Army (Army) with an alternative way to comply with its responsibilities under Section 106 of the National Historic Preservation Act with regard to the effect of the following management actions on World War II (WWII) and Cold War Era Army Ammunition Production Facilities and Plants that may be eligible for listing on the National Register of Historic Places (Facilities and Plants): ongoing operations, maintenance and repair, rehabilitation, renovation, mothballing, cessation of maintenance, new construction, demolition, deconstruction and salvage, remediation activities, and transfer, sale, lease, and closure of such facilities.

In order to take into account the effects on Facilities and Plants, the Army will conduct documentation in accordance with The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.

II. Treatment of Properties

A. Army Mitigation

1. The Army has an existing context study, Historic Context for the World War II Ordnance Department's Government-Owned Contractor-Operated (GOCO) Industrial Facilities 1939-1945 as well as documentation of nine World War II GOCO Plants.

2. The Army will prepare a supplemental volume that revises and expands the existing context to include the Cold War Era (1946-1974). The updated context study will:

focus on the changes that the plants underwent to address changing weapons technology and defense needs; and

identify prominent architect-engineer firms that may have designed architecturally significant buildings for Army Ammunition Plants.

3. The Army will prepare documentation that generally comports with the appropriate HABS/HAER standards for documentation for selected architecturally significant Facilities and Plants at two installations. This documentation will be similar to and follow the format of the existing documentation described in section II.A.1, above.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

1100 Pennsylvania Avenue NW, Suite 809 • Washington, DC 20004
Phone: 202-606-8503 • Fax: 202-606-8647 • achp@achp.gov • www.achp.gov

4. Upon completion of the documentation, the Army will then make the existing documentation of the nine WWII GOCO Army Ammunition Plants and the WWII GOCO context and the new documentation, to the extent possible under security concerns, available in electronic format to Federal and State agencies that request it.

5. In addition, as a result of on-going consultations with stakeholders, the Army will provide a list of properties covered by the Program Comment, by state, to the National Conference of State Historic Preservation Officers and the Advisory Council on Historic Preservation.

6. The Army will also develop additional public information on the Army ammunition process, from production through storage, to include:

a display that can be loaned to one of the Army's museums, such as the Ordnance Museum at Aberdeen Proving Ground, or used at conferences; and

a popular publication on the ammunition process to accompany the display.

Copies of this information will be available electronically, to the extent possible under security concerns, and hard copies will be placed in a permanent repository, such as the Center for Military History.

7. The Army will encourage adaptive reuse of the properties as well as the use of historic tax credits by private developers under lease arrangements. The Army should also incorporate adaptive reuse and preservation principles into master planning documents and activities.

The above actions satisfy the Army's requirement to take into account the effects of the following management actions on Facilities and Plants: ongoing operations, maintenance and repair, rehabilitation, renovation, mothballing, cessation of maintenance activities, new construction, demolition, deconstruction and salvage, remedial activities, and transfer, sale, lease and/or closure of such facilities.

III. Applicability

A. This Program Comment applies solely to Facilities and Plants. The Program Comment does not apply to the following properties that are listed, or eligible for listing, on the National Register of Historic Places: (1) archeological properties, (2) properties of traditional religious and cultural significance to federally recognized Indian tribes or Native Hawaiian organizations, and/or (3) Facilities and Plants listed or eligible National Register of Historic Places districts where the ammunition production facility is a contributing element of the district and the proposed undertaking has a potential to adversely affect such historic district. This third exclusion does not apply to ammunition production related historic districts that are entirely within the boundaries of an ammunition production plant. In those cases the Program Comment would be applicable to such districts.

B. An installation with an existing Section 106 agreement document that addresses Facilities and Plants can choose to:

1. continue to follow the stipulations in the existing agreement document for the remaining period of the agreement; or

2. seek to amend the existing agreement document to incorporate, in whole or in part, the terms of this Program Comment; or

3. terminate the existing agreement document and re-initiate consultation informed by this Program Comment, if necessary.

C. All future Section 106 agreement documents developed by Army installations related to undertakings and properties addressed in this Program Comment shall include appropriate provisions detailing whether and how the terms of the Program Comment apply to such undertakings.

IV. Completion Schedule

On or before 60 days following issuance of the Program Comment, the Army and ACHP will establish a schedule for completion of the treatments outlined above.

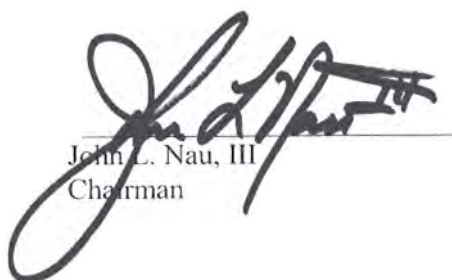
V. Effect of the Program Comment

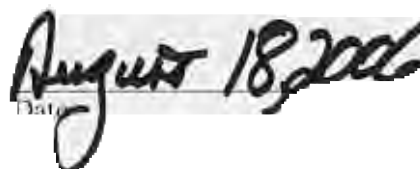
By following this Program Comment, the Army has met its responsibilities for compliance under Section 106 regarding the effect of the following management actions on WWII and Cold War Era Army Ammunition Production Facilities and Plants that may be eligible for listing on the National Register of Historic Places: ongoing operations, maintenance and repair, rehabilitation, renovation, mothballing, cessation of maintenance, new construction, demolition, deconstruction and salvage, remediation activities, and transfer, sale, lease, and closure of such facilities. Accordingly, the Army will no longer be required to follow the case-by-case Section 106 review process for such effects.

VI. Duration and Review of the Program Comment

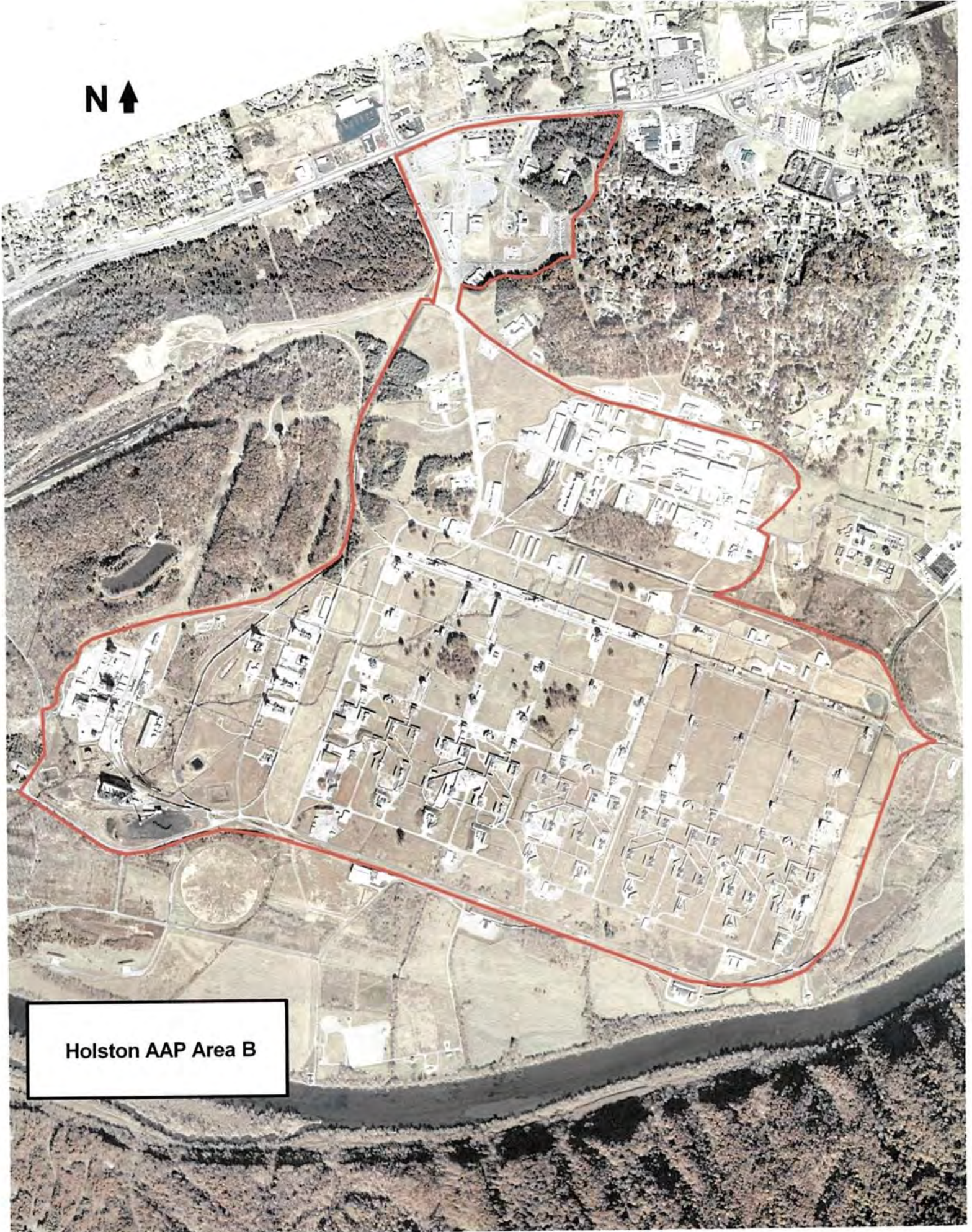
This Program Comment will remain in effect until such time as Headquarters, Department of the Army determines that such comments are no longer needed and notifies ACHP in writing, or ACHP withdraws the comments in accordance with 36 CFR § 800.14(e)(6). Following such withdrawal, the Army would be required to comply with the requirements of 36 CFR §§ 800.3 through 800.7 regarding the effects under this Program Comments' scope.

Headquarters, Department of the Army and ACHP will review the implementation of the Program Comment seven years after its issuance and determine whether to take action to terminate the Program Comment as detailed in the preceding paragraph.


John L. Nau, III
Chairman


Date

N ↑



Holston AAP Area B



TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

November 28, 2017

Mr. Joseph R. Kennedy
Department of the Army
Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660

RE: DOD / Department of Defense, Holston Army Ammunition Plant, 2 Building Additions, World War II and Cold War Era Facilities, Kingsport, Hawkins County, TN

Dear Mr. Kennedy:

Pursuant to your request, this office has reviewed documentation concerning the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Based on the information provided, we concur that the project area contains a cultural resource eligible for listing in the National Register of Historic Places. We further find that the project as currently proposed will not adversely affect this historic property.

This office has no objection to the implementation of this project as currently planned. If project plans are changed or previously unevaluated archaeological resources are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Questions and comments may be directed to Jennifer M. Barnett (615) 687-4780. We appreciate your cooperation.

Sincerely,

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/jmb



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660

February 15, 2018

Natural Resources Office

E. Patrick McIntyre, Jr.
State Historic Preservation Officer
Tennessee Historical Commission
2941 Lebanon Road
Nashville, TN 37243-0442

Dear Mr. McIntyre:

Holston Army Ammunition Plant (HSAAP) initially corresponded with your office on November 14, 2017 for concurrence that the installation's proposed effort to increase its explosives production capacity would have no adverse effect on archaeological resources on the installation. We received your concurrence regarding this effort on November 28, 2017. However, per guidance contained in your concurrence letter, we are notifying you because the proposed project as detailed in that letter has changed in one respect.

The natural gas fired steam plant, originally sited to be built in the production area, is now proposed to be constructed on undisturbed, wooded land outside the production area and project boundary that you initially reviewed. Steam plant construction would require ground disturbance and removal of trees on approximately 4.5 acres. The proposed location of the new steam plant is depicted on an enclosed aerial photograph and on the U.S. Geological Survey 7.5-minute topographic map for the Church Hill quadrangle.

As indicated in our initial correspondence, HSAAP completed a survey of the installation for archaeological sites in 1998 (*Phase I Historic Resources Survey in Portions of Plant B, Holston Army Ammunition Plant, Hawkins County, Tennessee*), during which nine sites were identified that are potentially eligible for listing on the NRHP. However, there were no archaeological sites identified either on, or near, the proposed site for the steam plant. Also, the proposed site for the new steam plant, relative to the other projects associated with the proposed production expansion, is the farthest project site away from the known archaeological sites, which are located along the Holston River.

The Army is committed to ensuring that the expansion of explosives production capacity on HSAAP will not have any adverse effects on archaeological resources. To that end, the HSAAP Commander will ensure compliance with the Native American

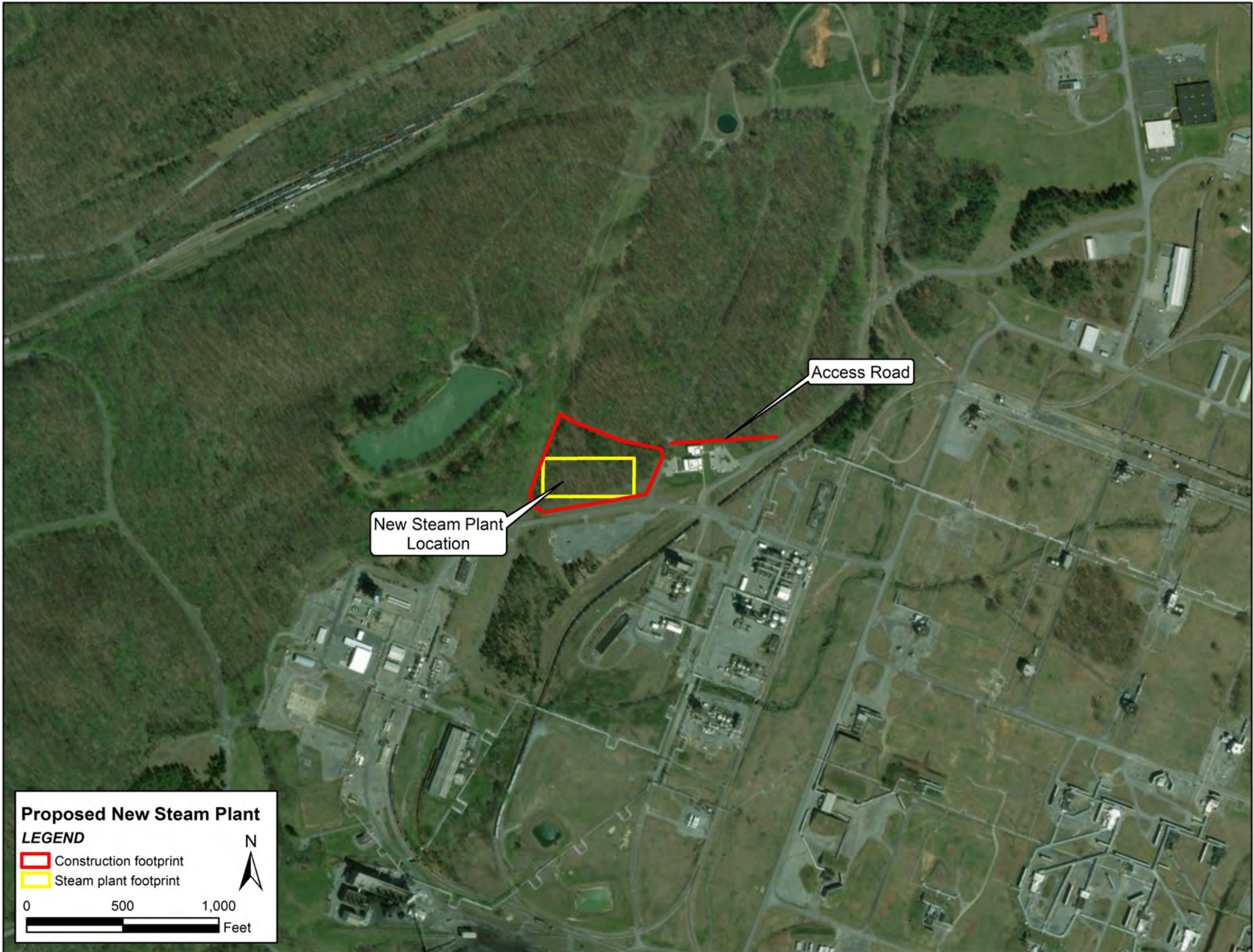
Graves Protection and Repatriation Act (25 USC 3001 *et seq.*) and its implementing regulation (43 CFR Part 10). The Army will adhere to standard operating procedures in the event of an inadvertent discovery, including notifications, cessation of the activity for 30 days in the area of the discovery, protection of the discovery, consultation with Indian tribes affiliated with the discovery in accordance with 43 CFR Section 10.5, and preparation of a written Plan of Action.

In light of the above factors, we request your concurrence with our opinion, if possible, that the proposed change to HSAAP's production expansion effort will have no adverse effect on archaeological resources on the installation. Your response is respectfully requested no later than 30 days from receipt of this letter (March 15, 2018). If you require additional information, please contact Mr. Bruce Cole of my staff at bruce.g.cole.civ@mail.mil or (423) 578-6276.

Sincerely,


JOSEPH R. KENNEDY
Commander's Representative



Enclosures




New Steam Plant Location

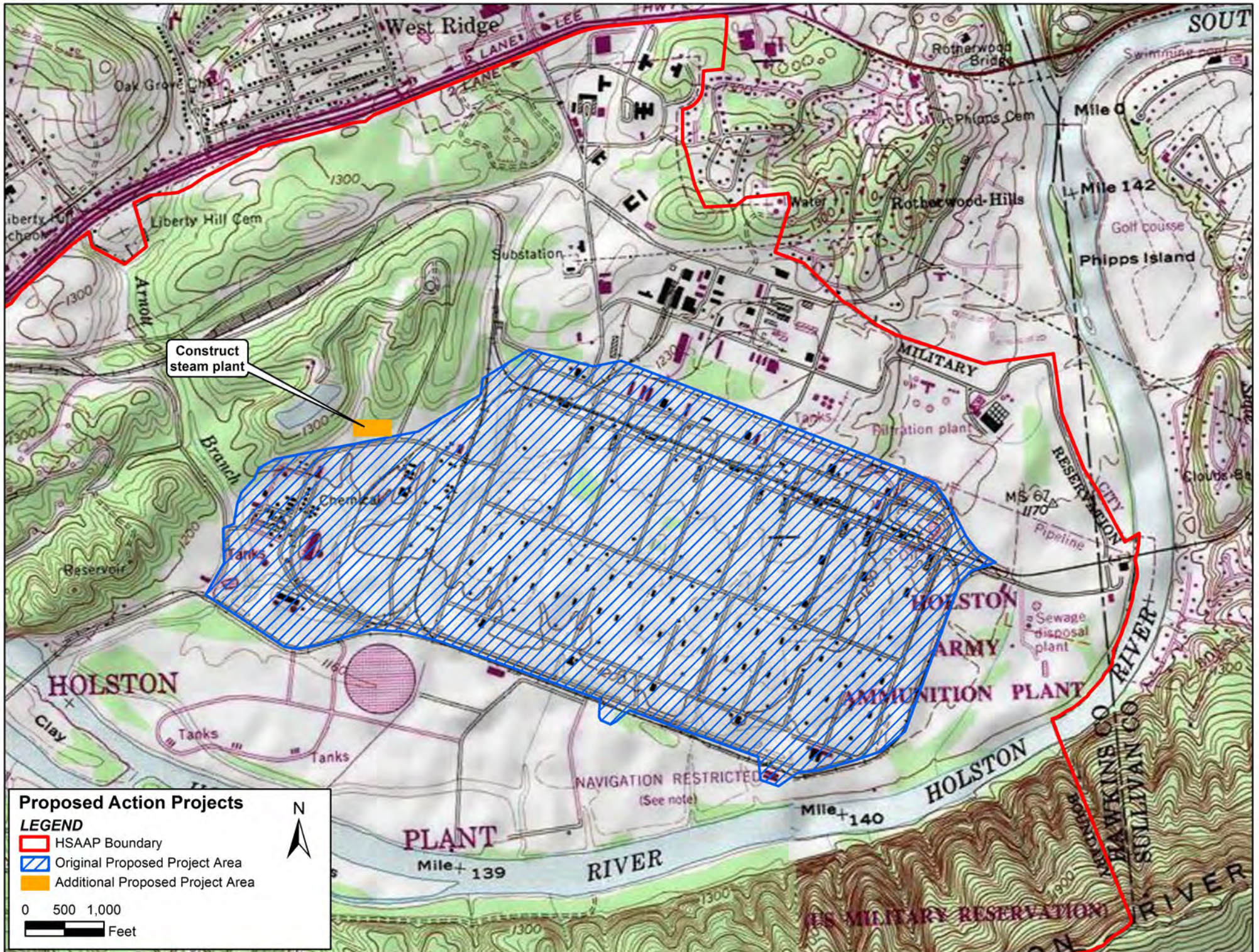
Access Road

Proposed New Steam Plant
LEGEND

-  Construction footprint
-  Steam plant footprint

0 500 1,000
Feet





Proposed Action Projects

LEGEND

- ▭ HSAAP Boundary
- ▭ Original Proposed Project Area
- ▭ Additional Proposed Project Area



0 500 1,000
 Feet



TENNESSEE HISTORICAL COMMISSION
STATE HISTORIC PRESERVATION OFFICE
2941 LEBANON PIKE
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

March 1, 2018

Mr. Joseph R. Kennedy
Department of the Army
Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660

RE: DOD / Department of Defense, HSAAP, Natural Gas Fired Steam Plant, Kingsport,
Hawkins County, TN

Dear Mr. Kennedy:

In response to your request, we have reviewed the archaeological review documentation submitted by you regarding the above-referenced undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicants for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering the information provided, we concur that no archaeological resources eligible for listing in the National Register of Historic Places will be affected by this undertaking. If project plans are changed or archaeological remains are discovered during project construction, please contact this office to determine what further action, if any, will be necessary to comply with Section 106 of the National Historic Preservation Act. Complete and/or updated Tennessee Site Survey Forms should be submitted to the Tennessee Division of Archaeology for all sites recorded and/or revisited during the current investigation. Questions or comments may be directed to Jennifer Barnett (615) 687-4780.

Your cooperation is appreciated.

Sincerely,

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/jmb



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
HOLSTON ARMY AMMUNITION PLANT
4509 WEST STONE DRIVE
KINGSPORT, TN 37660-1048

November 1, 2017

Natural Resources Office

Cherokee Nation
Chief Bill John Baker
Tribal Historic Preservation Officer
P.O. Box 948
Tahlequah, OK 74465-0948

Dear Chief Baker:

The U.S. Army proposes to expand its production capacity of explosives at Holston Army Ammunition Plant (HSAAP) in Kingsport, Tennessee. HSAAP is located in Hawkins and Sullivan counties in the northeastern corner of the state. The action will entail constructing new facilities and renovating and demolishing existing facilities on the installation. All activities related to the proposed action will occur within the production area of Area B, an area that was heavily disturbed during construction of the installation in 1942. Construction is scheduled to start in March 2018. An environmental assessment of the proposed action is being prepared pursuant to the requirements of the National Environmental Policy Act (NEPA).

In accordance with Title 36 of the *Code of Federal Regulations* (CFR) Part 800, the National Historic Preservation Act, and NEPA, this letter is an invitation to initiate government-to-government consultation between the U.S. Army and the Cherokee Nation to discuss any effects the proposed action might have on your tribe and/or its resources. The Army is inviting the Cherokee Nation and other federally recognized tribes who historically used this region and/or continue to use the area around HSAAP to consult with the Army.


HSAAP conducted a Phase I survey of the installation in 1997, which resulted in the identification of nine prehistoric archaeological sites on the property. The proposed action will not impact any of the known archaeological sites as the site closest to any area of new construction is approximately 1,800 feet away. In addition, this archaeological site, as well as the remaining sites, are separated from all components of the proposed action by a chain link fence and are in areas inaccessible to personnel working on this project. Consultation with the Tennessee State Historical Commission also is being initiated for this action. This and all actions that potentially affect cultural resources are covered under HSAAP's integrated cultural resources management plan, which outlines U.S. Army policies, procedures, and responsibilities for meeting cultural

resources compliance and management requirements on the facility.

If you wish to initiate consultation with the Army, we request that you respond to this letter within 30 days of receipt to enable us to identify available dates for a meeting between you and your tribal council and/or cultural resource, Native American Graves Protection and Repatriation Act personnel, and the Army. If we do not receive a response from you within 30 days, we will assume that you have no interest in consultation and will consider our requirements to consult to have been met. If you need more than 30 days to respond, please advise the contact identified below.

The point of contact for this matter is Mr. Bruce Cole, HSAAP's Native American Affairs Coordinator, who you can reach by phone at 423-578-6276 or by email at bruce.g.cole.civ@mail.mil.

Sincerely,


JOSEPH R. KENNEDY
Commander's Representative



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CHEROKEE NATION®
P.O. Box 948 • Tahlequah, OK 74465-0948 • 918-453-5000 • cherokee.org

Office of the Chief

Bill John Baker
Principal Chief
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S. Joe Crittenden
Deputy Principal Chief
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November 20, 2017

Bruce Cole
Department of the Army
Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660-1048

Re: Hoston Army Ammunitions Plant, Kinsport, TN

Mr. Bruce Cole:

The Cherokee Nation (CN) is in receipt of your correspondence about **Hoston Army Ammunitions Plant, Kinsport, TN**, and appreciates the opportunity to provide comment upon this project. Please allow this letter to serve as the CN's interest in acting as a consulting party to this project.

This Office requests a copy of the *Phase I* survey with any related comments from the State Historic Preservation Office for our review in addition to a map of the Area of Potential Effect. We look forward to discuss this project with you.

Additionally, the CN requests that the Department of the Army conduct appropriate inquiries with other pertinent Tribal and Historic Preservation Offices regarding historic and prehistoric resources not included in the CN databases or records.

Also, please contact this Office to determine an amenable day and time for consultation. If you require additional information or have any questions, please contact me at your convenience. Thank you for your time and attention to this matter.

Wado,

Elizabeth Toombs, Special Projects Officer
Cherokee Nation Tribal Historic Preservation Office
elizabeth-toombs@cherokee.org
918.453.5389



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P.O. Box 948 • Tahlequah, OK 74465-0948 • 918-453-5000 • cherokee.org

Office of the Chief

Bill John Baker
Principal Chief
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S. Joe Crittenden
Deputy Principal Chief
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December 1, 2017

Bruce Cole
Department of the Army
Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660-1048

Re: Holston Army Ammunitions Plant, Kingsport, TN

Mr. Bruce Cole:

The Cherokee Nation (CN) is in receipt of your correspondence about **Holston Army Ammunitions Plant, Kingsport, TN**, and appreciates the opportunity to provide comment upon this project.

The CN maintains databases and records of cultural, historic, and pre-historic resources in this area. Our Historic Preservation Office reviewed this project, cross referenced the project's legal description against our information, and found instances where this project intersects or adjoins such resources. However, the CN does not object to the project proceeding as long as the following stipulations are observed:

- The CN concurs with the provided work plan to maximize buffers to protect known archeological sites from direct and indirect construction impacts;
- The CN requests that the Department of the Army (Army) re-contact our Offices if there are any changes to the activities or scope of the Area of Potential Effect;
- The CN requests that the Department of the Army halt all project activities immediately and re-contact our Offices for further consultation if items of cultural significance are discovered during the course of this project; and

Holston Army Ammunitions Plant, Kingsport, TN

December 1, 2017

Page 2 of 2

- The CN requests that the Department of the Army conduct appropriate inquiries with other pertinent Tribal and Historic Preservation Offices regarding historic and prehistoric resources not included in the CN databases or records.

If you require additional information or have any questions, please contact me at your convenience. Thank you for your time and attention to this matter.

Wado,



Elizabeth Toombs, Special Projects Officer
Cherokee Nation Tribal Historic Preservation Office
elizabeth-toombs@cherokee.org
918.453.5389



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660

February 15, 2018

Natural Resources Office

Cherokee Nation
Elizabeth Toombs, Special Projects Officer
Tribal Historic Preservation Office
P.O. Box 948
Tahlequah, OK 74465-0948

Dear Ms. Toombs:

Holston Army Ammunition Plant (HSAAP) initially corresponded with the Cherokee Nation on November 1, 2017 regarding the installation's proposed project to increase its explosives production capacity. Upon your request, we consulted with you regarding this effort, and received your response dated December 1, 2017. Per guidance contained in your letter, we are re-contacting your office because there has been a change in the scope of the Area of Potential Effect.

The natural gas fired steam plant, originally sited to be built in the production area, is now proposed to be constructed on undisturbed, wooded land outside the production area and project boundary that you initially reviewed. Steam plant construction would require ground disturbance and removal of trees on approximately 4.5 acres. The proposed location of the new steam plant, relative to the original project boundary, is depicted on the enclosed figure.


As indicated in our previous correspondence, HSAAP completed a survey of the installation for archaeological sites in 1998 (*Phase I Historic Resources Survey in Portions of Plant B, Holston Army Ammunition Plant, Hawkins County, Tennessee*), during which nine sites were identified that are potentially eligible for listing on the NRHP. However, there were no archaeological sites identified either on, or near, the proposed site for the steam plant. Also, the proposed site for the new steam plant, relative to the other projects associated with the proposed production expansion, is the farthest project site away from the known archaeological sites, which are located along the Holston River.

The Army is committed to ensuring that the expansion of explosives production capacity on HSAAP will not have any adverse effects on the Cherokee Nation or its resources. To that end, the HSAAP Commander will ensure compliance with the Native American Graves Protection and Repatriation Act (25 USC 3001 *et seq.*) and its implementing regulation (43 CFR Part 10). The Army will adhere to standard operating

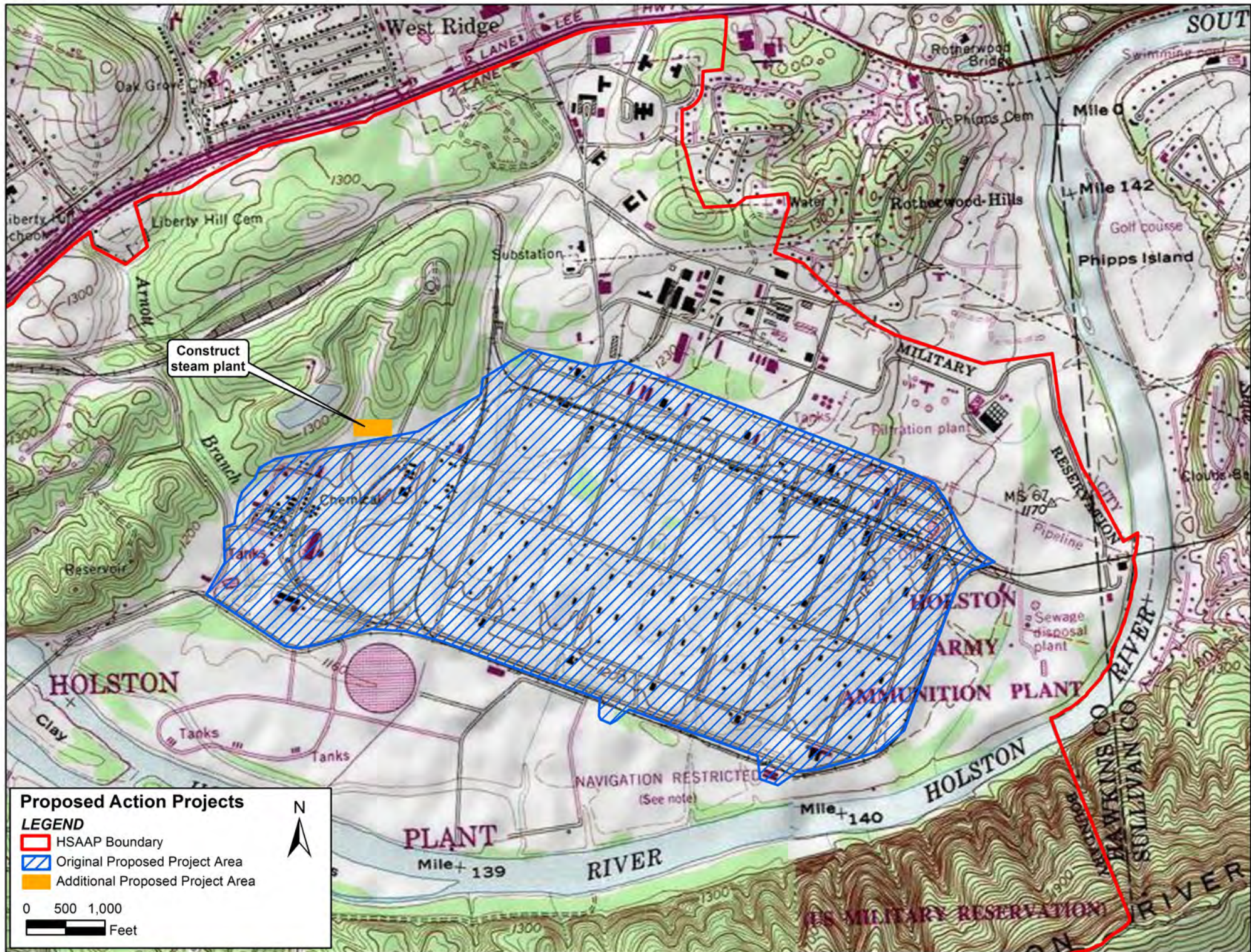
procedures in the event of an inadvertent discovery, including notifications, cessation of the activity for 30 days in the area of the discovery, protection of the discovery, consultation with Indian tribes affiliated with the discovery in accordance with 43 CFR Section 10.5, and preparation of a written Plan of Action.

In light of the above factors, we request your concurrence with the proposed change to HSAAP's production expansion effort. Your response is respectfully requested no later than 30 days from receipt of this letter (March 15, 2018). If you require additional information, please contact Mr. Bruce Cole, HSAAP's Native American Affairs Coordinator, at bruce.g.cole.civ@mail.mil or (423) 578-6276.

Sincerely,


JOSEPH R. KENNEDY
Commander's Representative

Enclosure



Subject: APP C3e Cherokee Nation Correspondence Steam site
FW: Holston Army Ammunition

From: Cole, Bruce G CIV (US)
Sent: Wednesday, March 14, 2018 3:47 PM
To: 'Elizabeth Toombs' <elizabeth-toombs@cherokee.org>
Subject: FW: Holston Army Ammunition

Ms. Toombs,

Since we are approaching a thirty day time frame since I touched base with you regarding a project change to the proposed production expansion effort at Holston Army Ammunition Plant and we have not received a response, I wanted to touch base once again to insure that you had no issues or comments regarding the change in the Area of Potential Effect. I am resending the attachments containing the information regarding the project change for your convenience. Thanks!

-----Original Message-----

From: Cole, Bruce G CIV (US)
Sent: Thursday, February 15, 2018 3:58 PM
To: 'Elizabeth Toombs' <elizabeth-toombs@cherokee.org>
Subject: RE: Holston Army Ammunition

Ms. Toombs,

Please find attached information regarding the proposed change in our production expansion project at Holston AAP. I have included a topo map as referenced in the letter indicating the new location of the steam plant relative to the project area that you previously reviewed. Also, I am resending a map showing the location of the known archaeological sites on an aerial photo. If you need additional information or have any questions, please don't hesitate to touch base.

Many thanks!

-----Original Message-----

From: Elizabeth Toombs [mailto:elizabeth-toombs@cherokee.org]
Sent: Thursday, February 15, 2018 9:00 AM
To: Cole, Bruce G CIV (US) <bruce.g.cole.civ@mail.mil>
Subject: [Non-DoD Source] RE: Holston Army Ammunition

Many thanks for your e-mail and update, Mr. Cole. E-mail is fine.

Wado,

Elizabeth Toombs, Tribal Historic Preservation Officer Cherokee Nation Tribal
Historic Preservation
Office PO Box 948 Tahlquah, OK 74465-0948
918.453.5389

-----Original Message-----

From: Cole, Bruce G CIV (US) [mailto:bruce.g.cole.civ@mail.mil]
Sent: Thursday, February 15, 2018 6:08 AM
To: Elizabeth Toombs <elizabeth-toombs@cherokee.org>
Subject: <EXTERNAL> RE: Holston Army Ammunition

Ms. Toombs,

APP C3e Cherokee Nation Correspondence Steam site

We have had a change in the Area of Potential Effect regarding the project on which we have previously consulted with you. We have prepared a letter discussing that change with a map of the project location. I just wanted to touch base with you and see if it is ok to send the letter to you via email for your review or if you prefer it to be sent by regular mail, as I can do either.

Respectfully,

-----Original Message-----

From: Elizabeth Toombs [mailto:elizabeth-toombs@cherokee.org]

Sent: Friday, December 01, 2017 2:41 PM

To: Cole, Bruce G CIV (US) <bruce.g.cole.civ@mail.mil>

Subject: [Non-DoD Source] Holston Army Ammunition

Good Afternoon, Mr. Cole:

Many thanks for your time and conversation this afternoon. Attached is Cherokee Nation's response to the review request for Holston Army Ammunition Plant. Please let me know if there are any questions or concerns.

Wado,

Elizabeth Toombs, Special Projects Officer

Cherokee Nation

Tribal Historic Preservation Office

PO Box 948

Tahlequah, OK 74465-0948

918.453.5389



DEPARTMENT OF THE ARMY
HOLSTON ARMY AMMUNITION PLANT
4509 WEST STONE DRIVE
KINGSPORT, TN 37660-1048

REPLY TO
ATTENTION OF:

November 1, 2017

Natural Resources Office

Eastern Band of Cherokee Indians
Russell Townsend, THPO
Qualla Boundary Reservation
P.O. Box 455
Cherokee, NC 28719-0455

Dear Mr. Townsend:

The U.S. Army proposes to expand its production capacity of explosives at Holston Army Ammunition Plant (HSAAP) in Kingsport, Tennessee. HSAAP is located in Hawkins and Sullivan counties in the northeastern corner of the state. The action will entail constructing new facilities and renovating and demolishing existing facilities on the installation. All activities related to the proposed action will occur within the production area of Area B, an area that was heavily disturbed during construction of the installation in 1942. Construction is scheduled to start in March 2018. An environmental assessment of the proposed action is being prepared pursuant to the requirements of the National Environmental Policy Act (NEPA).

In accordance with Title 36 of the *Code of Federal Regulations* (CFR) Part 800, the National Historic Preservation Act, and NEPA, this letter is an invitation to initiate government-to-government consultation between the U.S. Army and the Eastern Band of Cherokee Indians to discuss any effects the proposed action might have on your tribe and/or its resources. The Army is inviting the Eastern Band of Cherokee Indians and other federally recognized tribes who historically used this region and/or continue to use the area around HSAAP to consult with the Army.


HSAAP conducted a Phase I survey of the installation in 1997, which resulted in the identification of nine prehistoric archaeological sites on the property. The proposed action will not impact any of the known archaeological sites as the site closest to any area of new construction is approximately 1,800 feet away. In addition, this archaeological site, as well as the remaining sites, are separated from all components of the proposed action by a chain link fence and are in areas inaccessible to personnel working on this project. Consultation with the Tennessee State Historical Commission also is being initiated for this action. This and all actions that potentially affect cultural resources are covered under HSAAP's integrated cultural resources management plan,

which outlines U.S. Army policies, procedures, and responsibilities for meeting cultural resources compliance and management requirements on the facility.

If you wish to initiate consultation with the Army, we request that you respond to this letter within 30 days of receipt to enable us to identify available dates for a meeting between you and your tribal council and/or cultural resource, Native American Graves Protection and Repatriation Act personnel, and the Army. If we do not receive a response from you within 30 days, we will assume that you have no interest in consultation and will consider our requirements to consult to have been met. If you need more than 30 days to respond, please advise the contact identified below.

The point of contact for this matter is Mr. Bruce Cole, HSAAP's Native American Affairs Coordinator, who you can reach by phone at 423-578-6276 or by email at bruce.g.cole.civ@mail.mil.

Sincerely,


JOSEPH R. KENNEDY
Commander's Representative



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660

February 15, 2018

Natural Resources Office

Eastern Band of Cherokee Indians
Russell Townsend, THPO
Qualla Boundary Reservation
P.O. Box 455
Cherokee, NC 28719-0455

Dear Mr. Townsend:

The U.S. Army proposes to expand its production capacity of explosives at Holston Army Ammunition Plant (HSAAP), in Kingsport, Tennessee. HSAAP is in Hawkins and Sullivan counties in the northeastern corner of the state. The action will entail constructing new facilities and renovating and demolishing existing facilities on the installation. Most activities related to the proposed action will occur within the production area of Area B, an area that was heavily disturbed during construction of the installation in 1942. One project, a new steam plant, will occur outside the production area and require ground disturbance and tree removal on about 4.5 acres of undisturbed land. Construction is scheduled to start in May 2018. An environmental assessment of the proposed action is being prepared pursuant to the requirements of the National Environmental Policy Act (NEPA).

In accordance with Title 36 of the *Code of Federal Regulations* (CFR) Part 800, the National Historic Preservation Act, and NEPA, this letter is an invitation to initiate government-to-government consultation between the U.S. Army and the Eastern Band of Cherokee Indians to discuss any effects the proposed action might have on your tribe and/or its resources. The Army is inviting the Eastern Band of Cherokee Indians and other federally recognized tribes who historically used this region and/or continue to use the area around HSAAP to consult with the Army.

HSAAP completed a survey of the installation for archaeological sites in 1998 (*Phase I Historic Resources Survey in Portions of Plant B, Holston Army Ammunition Plant, Hawkins County, Tennessee*), during which nine prehistoric sites were identified that are potentially eligible for listing on the NRHP. The proposed action will not impact any of the known archaeological sites as the site closest to any area of new construction is approximately 1,800 feet away. In addition, this archaeological site, as well as the remaining sites, are separated from all components of the proposed action by a chain link fence and are in areas inaccessible to personnel working on this project.

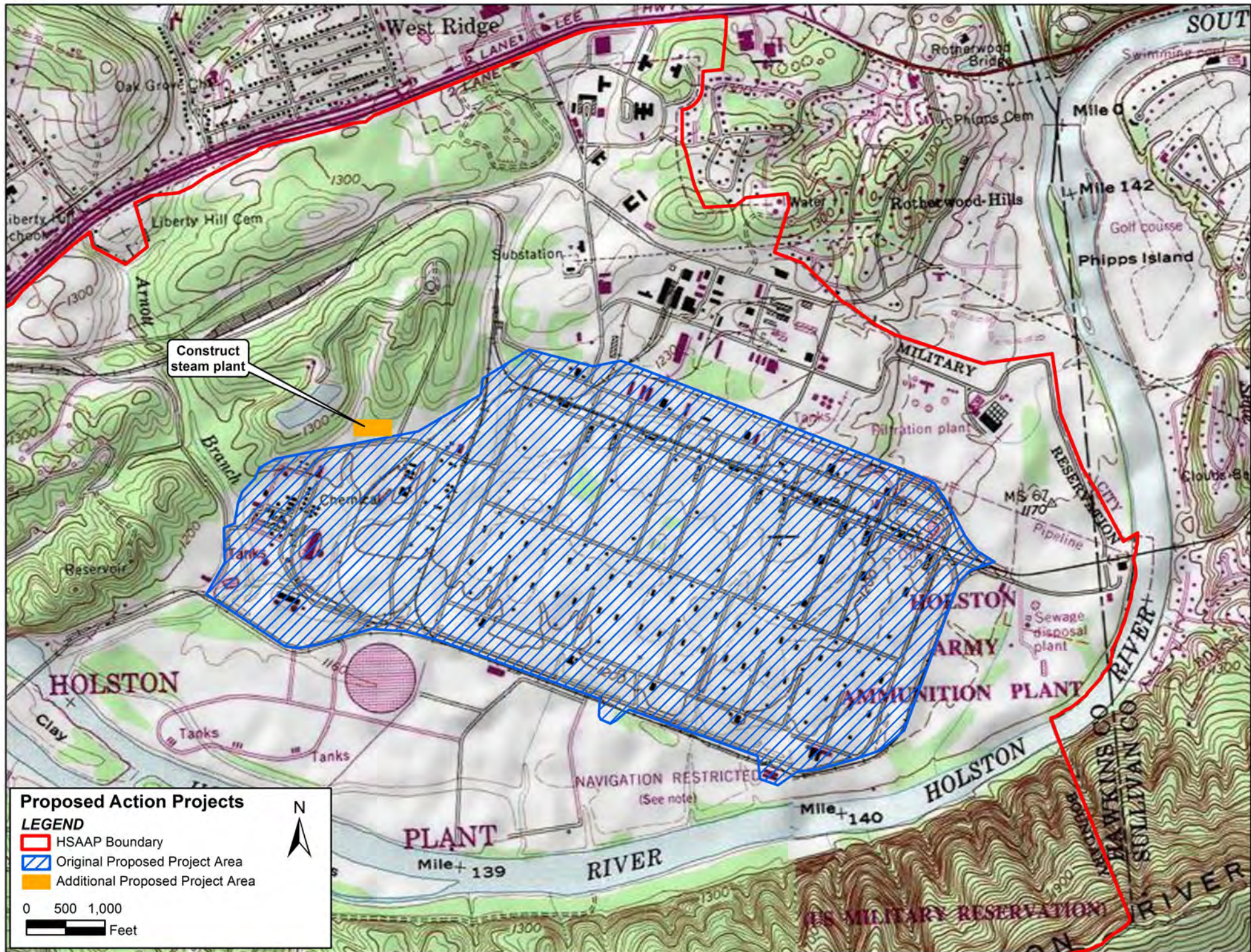
Consultation with the Tennessee State Historical Commission also is being initiated for this action. This and all actions that potentially affect cultural resources are covered under HSAAP's integrated cultural resources management plan, which outlines U.S. Army policies, procedures, and responsibilities for meeting cultural resources compliance and management requirements on the facility.

If you wish to initiate consultation with the Army, we request that you respond to this letter within 30 days of receipt to enable us to identify available dates for consultation between you and your tribal council and/or cultural resource, Native American Graves Protection and Repatriation Act personnel, and the Army. If we do not receive a response from you within 30 days, we will assume that you have no interest in consultation and will consider our requirements to consult to have been met. If you need more than 30 days to respond, please advise the contact identified below.

The point of contact for this matter is Mr. Bruce Cole, HSAAP's Native American Affairs Coordinator, who you can reach by phone at 423-578-6276 or by email at bruce.g.cole.civ@mail.mil.

Sincerely,


JOSEPH R. KENNEDY
Commander's Representative





DEPARTMENT OF THE ARMY
HOLSTON ARMY AMMUNITION PLANT
4509 WEST STONE DRIVE
KINGSPORT, TN 37660-1048

REPLY TO
ATTENTION OF:

November 1, 2017

Natural Resources Office

Eric Oosahwee-Voss
Tribal Historic Preservation Officer
United Keetoowah Band of Cherokee Indians in Oklahoma
P.O. Box 746
Tahlequah, OK 74465-0746

Dear Mr. Oosahwee-Voss:

The U.S. Army proposes to expand its production capacity of explosives at Holston Army Ammunition Plant (HSAAP) in Kingsport, Tennessee. HSAAP is located in Hawkins and Sullivan counties in the northeastern corner of the state. The action will entail constructing new facilities and renovating and demolishing existing facilities on the installation. All activities related to the proposed action will occur within the production area of Area B, an area that was heavily disturbed during construction of the installation in 1942. Construction is scheduled to start in March 2018. An environmental assessment of the proposed action is being prepared pursuant to the requirements of the National Environmental Policy Act (NEPA).

In accordance with Title 36 of the *Code of Federal Regulations* (CFR) Part 800, the National Historic Preservation Act, and NEPA, this letter is an invitation to initiate government-to-government consultation between the U.S. Army and the United Keetoowah Band of Cherokee Indians in Oklahoma to discuss any effects the proposed action might have on your tribe and/or its resources. The Army is inviting the United Keetoowah Band of Cherokee Indians in Oklahoma and other federally recognized tribes who historically used this region and/or continue to use the area around HSAAP to consult with the Army.


HSAAP conducted a Phase I survey of the installation in 1997, which resulted in the identification of nine prehistoric archaeological sites on the property. The proposed action will not impact any of the known archaeological sites as the site closest to any area of new construction is approximately 1,800 feet away. In addition, this archaeological site, as well as the remaining sites, are separated from all components of the proposed action by a chain link fence and are in areas inaccessible to personnel working on this project. Consultation with the Tennessee State Historical Commission also is being initiated for this action. This and all actions that potentially affect cultural resources are covered under HSAAP's integrated cultural resources management plan,

which outlines U.S. Army policies, procedures, and responsibilities for meeting cultural resources compliance and management requirements on the facility.

If you wish to initiate consultation with the Army, we request that you respond to this letter within 30 days of receipt to enable us to identify available dates for a meeting between you and your tribal council and/or cultural resource, Native American Graves Protection and Repatriation Act personnel, and the Army. If we do not receive a response from you within 30 days, we will assume that you have no interest in consultation and will consider our requirements to consult to have been met. If you need more than 30 days to respond, please advise the contact identified below.

The point of contact for this matter is Mr. Bruce Cole, HSAAP's Native American Affairs Coordinator, who you can reach by phone at 423-578-6276 or by email at bruce.g.cole.civ@mail.mil.

Sincerely,


JOSEPH R. KENNEDY
Commander's Representative



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660

February 15, 2018

Natural Resources Office

Eric Oosahwee-Voss
Tribal Historic Preservation Officer
United Keetoowah Band of Cherokee Indians in Oklahoma
P.O. Box 746
Tahlequah, OK 74465-0746

Dear Mr. Oosahwee-Voss:

The U.S. Army proposes to expand its production capacity of explosives at Holston Army Ammunition Plant (HSAAP), in Kingsport, Tennessee. HSAAP is in Hawkins and Sullivan counties in the northeastern corner of the state. The action will entail constructing new facilities and renovating and demolishing existing facilities on the installation. Most activities related to the proposed action will occur within the production area of Area B, an area that was heavily disturbed during construction of the installation in 1942. One project, a new steam plant, will occur outside the production area and require ground disturbance and tree removal on about 4.5 acres of undisturbed land. Construction is scheduled to start in May 2018. An environmental assessment of the proposed action is being prepared pursuant to the requirements of the National Environmental Policy Act (NEPA).

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HSAAP completed a survey of the installation for archaeological sites in 1998 (*Phase I Historic Resources Survey in Portions of Plant B, Holston Army Ammunition Plant, Hawkins County, Tennessee*), during which nine prehistoric sites were identified that are potentially eligible for listing on the NRHP. The proposed action will not impact any of the known archaeological sites as the site closest to any area of new construction is approximately 1,800 feet away. In addition, this archaeological site, as well as the remaining sites, are separated from all components of the proposed action by a chain link fence and are in areas inaccessible to personnel working on this project. Consultation with the Tennessee State Historical Commission also is being initiated for

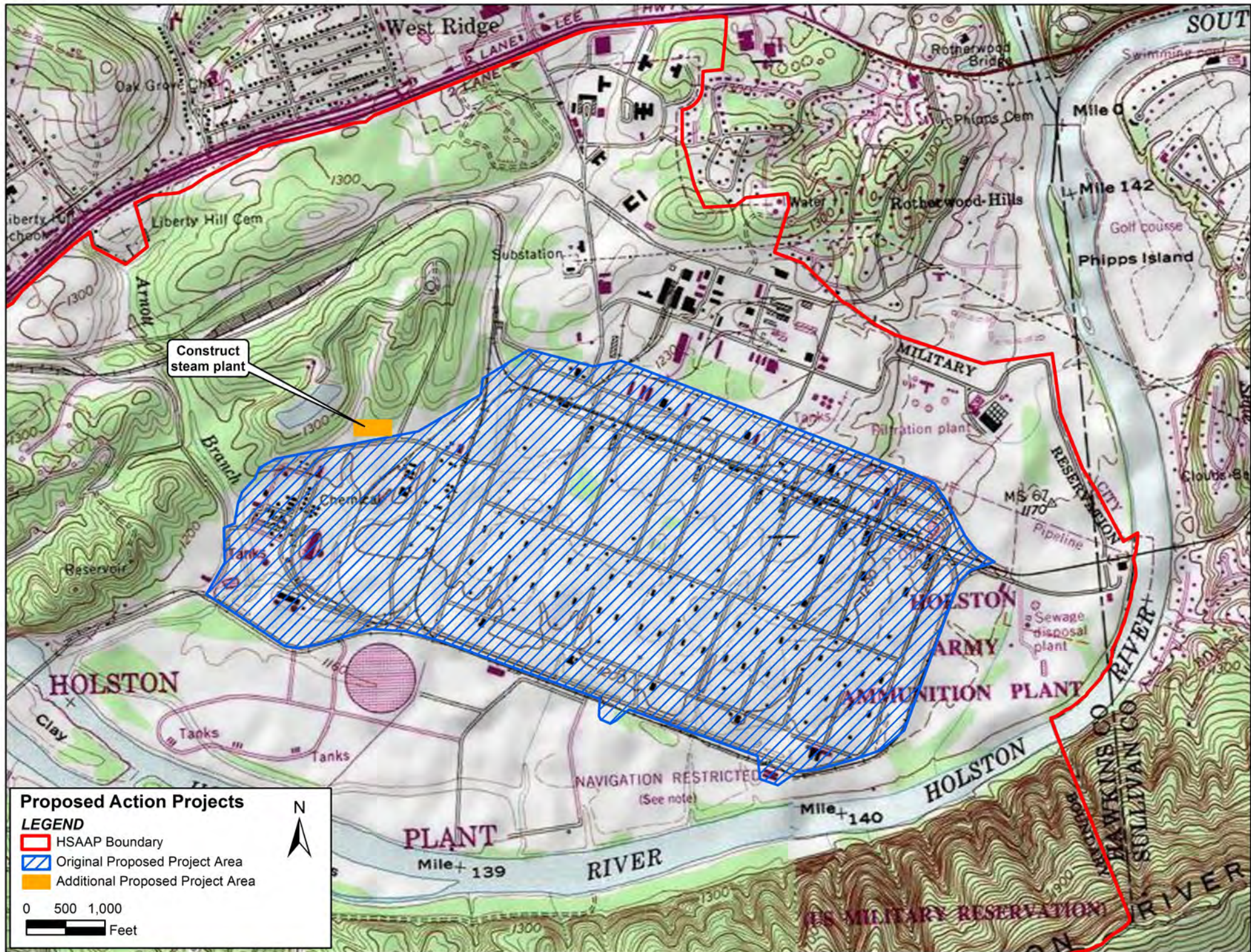
this action. This and all actions that potentially affect cultural resources are covered under HSAAP's integrated cultural resources management plan, which outlines U.S. Army policies, procedures, and responsibilities for meeting cultural resources compliance and management requirements on the facility.

If you wish to initiate consultation with the Army, we request that you respond to this letter within 30 days of receipt to enable us to identify available dates for consultation between you and your tribal council and/or cultural resource, Native American Graves Protection and Repatriation Act personnel, and the Army. If we do not receive a response from you within 30 days, we will assume that you have no interest in consultation and will consider our requirements to consult to have been met. If you need more than 30 days to respond, please advise the contact identified below.

The point of contact for this matter is Mr. Bruce Cole, HSAAP's Native American Affairs Coordinator, who you can reach by phone at 423-578-6276 or by email at bruce.g.cole.civ@mail.mil.

Sincerely,


JOSEPH R. KENNEDY
Commander's Representative



Proposed Action Projects

LEGEND

- ▭ HSAAP Boundary
- ▭ Original Proposed Project Area
- ▭ Additional Proposed Project Area



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