



**US Army Corps
of Engineers®**

Engineering and Support Center, Huntsville

**TIME CRITICAL REMOVAL ACTION (TCRA)
ACTION MEMORANDUM**

for

**Fort Jackson National Cemetery
Columbia, South Carolina
Military Munitions Response Program**

15 July 2019

EXECUTIVE SUMMARY

ES.1 A Time Critical Removal Action (TCRA) is required for a 30.84 acres portion of the 583.77 acres Fort Jackson National Cemetery (FJNC) located in Columbia, South Carolina.

ES.2 FJNC was established following issuance of a permit by the U.S. Army to the Department of Veterans Affairs (VA) on 19 February 2008 for the construction, operation, and maintenance of a national cemetery. The Army subsequently transferred 583.77 acres of land that make up FJNC to the VA on 16 April 2010.

The Army historically used the transferred land, which is on the Fort Jackson north border, for field training exercises. Portions of FJNC overlap with former safety fans of 1950's era mortar ranges and small arms range fans. FJNC is not on the National Priorities List (NPL).

The Army will, to the extent practicable, conduct the TCRA in compliance with the provisions of 40 CFR 300.415(b) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Executive Order 12580, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 U.S.C.A. §§9601 et. seq.), as amended, and the DOD Environmental Restoration Program (DERP) which provides the authority to respond to potential threats of a release at FJNC.

ES.3 The FJNC munitions response site (MRS) consists of a 30.84 acres portion of the 583.77 acres that makes up the FJNC. The FJNC MRS is undeveloped land that will be developed during Phase II for use as part of the FJNC. The VA National Cemetery Administration (NCA) constructed a portion of the FJNC, which is already in use, during Phase I. During the Phase I construction, DoD military munitions (munitions) (e.g., unexploded ordnance (UXO) and discarded military munitions (DMM)) were encountered and removed. During Phase II, construction workers will have unrestricted access to the FJNC MRS. Following completion of Phase II, access to developed portions of the site will be unrestricted and cemetery employees and visitors will regularly access these portions of the FJNC MRS.

ES.4 As indicated, military munitions were encountered during construction (Phase I) of the FJNC. 45 landmines, 24 landmine fuzes, 38 flares, 48 grenades, 2 illuminating candles, and one 75mm projectile were encountered and removed during the Phase I construction. The munitions were recovered from depths ranging from 1 inch to 38 inches below ground surface (bgs). Given the previous recovery of munitions, which qualified personnel determined were munitions and explosives of concern (MEC), an imminent threat to public health or welfare exists within the acreage of the FJNC to be developed during Phase II. Failure to implement a removal action prior to the Phase II construction for the FJNC poses an unacceptable risk to construction workers and the public. The Army proposes to conduct a TCRA in order to significantly reduce, mitigate or eliminate the threat to construction workers and the public at the FJNC MRS.

ES.5 Under this TCRA, the Army will remove munitions from the site. After removing munitions from the surface, the Army will conduct a geophysical survey to identify subsurface anomalies, investigate those selected (i.e., anomalies that are determined by data analysis to most likely be munitions) to depths of 4 to 6 feet below the ground surface (bgs), remove and properly dispose of munitions within the 30.84 acres that make up the

FJNC MRS. The TCRA's primary objective is to mitigate and minimize the potential for construction workers, cemetery employees and visitors to encounter military munitions.

ES.6 Given the probable presence of munitions, some of which may be MEC, at the FJNC MRS and the risk posed to construction workers, cemetery employees and the public, the Army has determined a TCRA is necessary to protect human health and the environment. There is a moderate to high probability that munitions, some of which may be MEC, may be encountered within the FJNC MRS to be developed during Phase II construction. If not removed, munitions pose an unacceptable risk if not addressed through a response (removal) action. The Army estimates this TCRA will cost approximately \$1,200,000.

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1.0 PURPOSE

The purpose of this Action Memorandum is to request and document approval of the selected removal action described herein for a 30.84 acres portion of the Fort Jackson National Cemetery (FJNC) located in Columbia, South Carolina.

2.0 SITE CONDITIONS AND BACKGROUND

The FJNC munitions response site (MRS) consists of a 30.84 acres portion of the 583.77 acres that makes up the FJNC. The FJNC was established following issuance of a permit by the U.S. Army to the Department of Veterans Affairs (VA) on 19 February 2008 for the construction, operation, and maintenance of a national cemetery. The Army subsequently transferred 583.77 acres of land that make up FJNC to the VA on 16 April 2010. The Army historically used the transferred land, which is on the Fort Jackson north border, for field training exercises. Portions of FJNC overlap with former safety fans of 1950's era mortar ranges and small arms range fans.

The FJNC MRS is undeveloped land that will be developed during Phase II for use as part of the FJNC. The Department of Veterans Affairs National Cemetery Administration (NCA) constructed a portion of the FJNC, which is already in use, during Phase I. During the Phase I construction, DoD military munitions (munitions) (e.g., unexploded ordnance (UXO) and discarded military munitions (DMM)) were encountered and removed.

During Phase II, construction workers will have unrestricted access to the FJNC MRS. Given the previous recovery of munitions, which qualified personnel determined were munitions and explosives of concern (MEC), an imminent threat to public health or welfare exists within the acreage of the FJNC to be developed during Phase II. There is a moderate to high probability that munitions, some of which may be MEC, may be encountered within the FJNC MRS to be developed during Phase II construction. Following completion of Phase II, access to developed portions of the site will be unrestricted and cemetery employees and visitors will regularly access these portions of the FJNC MRS. If not removed, munitions pose an unacceptable risk if not addressed through a response (removal) action.

2.1 Site Description

2.1.1 Removal Site Evaluation

During Phase I construction of the FJNC in 2009 by the VA NCA, three landmines were unearthed. As a result, a Removal Action was conducted between December 2009 and February 2010. A total of 157 munitions and explosives of concern (MEC) were encountered in the 120 acres that were surveyed, including 44 landmines, 24 landmine fuzes, 38 flares, 48 grenades, 2 illuminating candles, and one 75mm projectile. The depth range for items found ranged from 1 inch to 38 inches below ground surface (bgs). An additional removal action was performed in September 2010 to provide construction support in additional areas totaling 4 acres. During this removal, one MEC item was encountered (M7B1 Box Mine) at a depth of 4 inches bgs.

Given the previous recovery of munitions, which qualified personnel determined were munitions and explosives of concern (MEC), an imminent threat to public health or welfare exists within the acreage of the FJNC to be developed during Phase II. Failure to implement a removal action prior to the Phase II construction for the FJNC poses an unacceptable risk to construction workers and the public. The Army proposes to conduct a TCRA in order to significantly reduce, mitigate or eliminate the threat to construction workers and the public at the FJNC MRS.

2.1.2 Physical Location

FJNC consists of 583.77 acres located in Richland County, South Carolina, within the City of Columbia, South Carolina. FJNC, as shown in Figure 1, is bounded to the north by Percival Road (located off Fort Jackson), to the east by Spears Creek Church Road, partially on the south by a portion of North Tower Road, and to the west by a portion of Wildcat Road, within Fort Jackson. The FJNC MRS consists of a 30.84 acres portion of the FJNC and is identified in Figure 2.

2.1.3 Site Characteristics

Since the purchase of this land in the early 1940's by the Army, FJNC has remained undeveloped, primarily with pines, some hardwoods, and wetland areas, and has been used for military field exercises. East-west fire breaks constructed in 1956 are spaced 600 feet apart in the undeveloped portions of the FJNC. FJNC contains approximately 92 acres of wetlands and a 7 acre beaver pond; however, no wetlands are within the Phase II MRS development area that is subject to this TCRA. There are no known threatened or endangered species within FJNC. Eight archaeological sites have been found within FJNC; five have been determined to be ineligible for inclusion into the National Register of Historic Places (NRHP) and three sites are recommended to be eligible. However, none of these sites are within the Phase II MRS development area that is subject to the TCRA. The eastern half of the FJNC site contains a part of the Colonels Creek Federal Emergency Management Agency (FEMA)-designated floodplain, however this area is not within the Phase II MRS development area that is subject to the TCRA.

2.1.4 Release or Threatened Release into the Environment of a Hazardous Substance, Pollutant, or Contaminant

As indicated, military munitions were encountered during construction (Phase I) of the FJNC. 45 landmines, 24 landmine fuzes, 38 flares, 48 grenades, 2 illuminating candles, and one 75mm projectile were encountered and removed during the Phase I construction. The munitions were recovered from depths ranging from 1 inch to 38 inches below ground surface (bgs). Given the previous recovery of munitions, which qualified personnel determined were munitions and explosives of concern (MEC), an imminent threat to public health or welfare exists within the acreage of the FJNC to be developed during Phase II. Failure to implement a removal action prior to the Phase II construction for the FJNC poses an unacceptable risk to construction workers and the public. The Army proposes to conduct a TCRA in order to significantly reduce, mitigate or eliminate the threat to construction workers and the public at the FJNC MRS.

2.1.5 NPL Status

FJNC is not on the National Priorities List (NPL) nor proposed to the NPL. The Army will, to the extent practicable, conduct the TCRA in compliance with the provisions of 40 CFR 300.415(b) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Executive Order 12580, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 U.S.C.A. §§9601 et. seq.), as amended, and the DOD Environmental Restoration Program (DERP) which provides the authority to respond to potential threats of a release at FJNC.

2.2 Other Actions to Date

During Phase I construction of FJNC in 2009, three landmines were unearthed. As a result, a Removal Action was conducted between December 2009 and February 2010. A total of 157 munitions and explosives of concern (MEC) were encountered in the 120 acres that were surveyed, including 44 landmines, 24 landmine fuzes, 38 flares, 48 grenades, 2 illuminating candles, and one 75mm projectile. The depth range for items found ranged from 1 inch to 38 inches below ground surface (bgs). An additional removal action was performed in September 2010 to provide construction support in additional areas totaling 4 acres. During this removal, one MEC item was encountered (M7B1 Box Mine) at a depth of 4 inches.

2.3 State and Local Authorities' Roles

The Memorandum of Agreement, which was made part of the Property Transfer between the Army and the Department of Veterans Affairs, states that the Army will provide for restoration funding of any cemetery land contaminated by the Army. The Army (through lead agency authority under CERCLA) proposes to conduct a TCRA in order to significantly reduce, mitigate or eliminate the threat to construction workers and the public at the FJNC MRS. The South Carolina Department of Health and Environmental Control (SCDHEC) is a state support agency and represents the State of South Carolina in this action. SCDHEC supports performing the TCRA.

As required under 40 CFR § 300.415(n)(2), the Army will publish a notice of availability of the administrative record, provide a 30-day public comment period, and respond to all significant comments.

3.0 THREATS TO PUBLIC HEALTH OF WELFARE AND STATUTORY AND REGULATORY AUTHORITIES

The probable presence of MEC at the site constitutes an imminent and substantial endangerment to public health and safety because munitions located near the surface of the soil present the threat of explosion. An imminent and substantial danger to the public health or welfare exists at the site due to the likelihood of munitions located on or near the surface. The FJNC MRS will be developed as a national cemetery and once developed, the site will be open to the public and there are no controls that could otherwise eliminate exposure to public users. The site meets conditions set forth in 40 CFR 300.415(b)(2) authorizing a removal action to abate, prevent, minimize,

stabilize, mitigate, or eliminate the release or threat of release because of the following factors:

- * 40 CFR 300.415(b)(2)(i): Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants, and
- * 40 CFR 300.415(b)(2)(vi): Threat of fire or explosion.

4.0 ENDANGERMENT DETERMINATION

The Army conducted an endangerment determination for the FJNC MRS. The site was analyzed for likelihood of encounter, severity of a potential incident, sensitivity of ordnance, and potential energy input of receptors. Given the previous recovery of munitions, which qualified personnel determined were munitions and explosives of concern (MEC), an imminent threat to public health or welfare exists within the acreage of the FJNC to be developed during Phase II construction. There is a moderate to high probability that munitions, some of which may be MEC, may be encountered within the FJNC MRS to be developed during Phase II construction. If not removed, munitions pose an unacceptable risk if not addressed through a response (removal) action. It has been demonstrated that military munitions exist at FJNC that pose a potential safety hazard to individuals if not addressed through the response action described in this Action Memorandum. Actual or threatened releases from this MRS may present an imminent and substantial endangerment to public health, or welfare, or the environment.

5.0 PROPOSED ACTIONS AND ESTIMATED COSTS

The TCRA's primary objective is to mitigate and minimize the potential for construction workers, cemetery employees and visitors to encounter military munitions. Under this TCRA, the Army will remove munitions from the MRS. After removing munitions from the surface, the Army will conduct a geophysical survey to identify subsurface anomalies, investigate those selected (i.e., anomalies that are determined by data analysis to most likely be munitions) to depths of 4 to 6 feet below the ground surface (bgs), remove and properly dispose of munitions within the 30.84 acres that make up the FJNC MRS. Educational awareness training for munitions and explosives of concern (MEC) on the 3 R's (Recognize, Retreat, and Report) and reporting procedures will also be provided to the cemetery employees. No Applicable or Relevant and Appropriate Requirements (ARARs) have been identified in this action. Field work the TCRA must begin within six months of the signing of this Action Memo.

This situation meets the criteria for a TCRA since there is a significant possibility that military munitions exist at the property that pose an imminent threat to individuals if not addressed through the Response Action described in this Action Memorandum. The cost of this TCRA is estimated at \$1,200,000 US Dollars.

6.0 EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If not removed, munitions pose an unacceptable risk if not addressed through a response (removal) action. If no action is taken, future threat to receptors is considered to be the same or greater than at the current time since the site continues to be further developed, increasing the potential for interaction during construction, providing easier access to more of the site, and increasing the number of receptors at the site. Failure to implement a removal action prior to the Phase II construction for the FJNC poses an unacceptable risk to construction workers and the public.

7.0 RECOMMENDATION

This decision document represents the selected removal action for the FJNC MRS in Columbia, South Carolina, developed in accordance with CERCLA and is not inconsistent with the NCP, or the DERP Manual (DoDM 4715.20). This decision is based on the administrative record for the site.

8.0 AUTHORIZING SIGNATURE

This Action Memorandum presents the selected response action at the 30.84 acres FJNC MRS, wherein the Army proposes to conduct a TCRA in order to significantly reduce, mitigate or eliminate the threat to construction workers and the public. The Army is the lead agency under the Defense Environmental Restoration Program (DERP) at the FJNC MRS, and has developed this Action Memorandum consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision document will be incorporated into the Administrative Record file for the FJNC site. This document, presenting a selected remedy with a present worth cost estimate of \$1,200,000, is approved by the undersigned.

APPROVED:



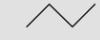
William C. Arnold
COL, LG
Acting Director, Installation Services

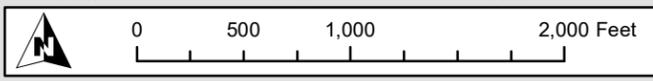
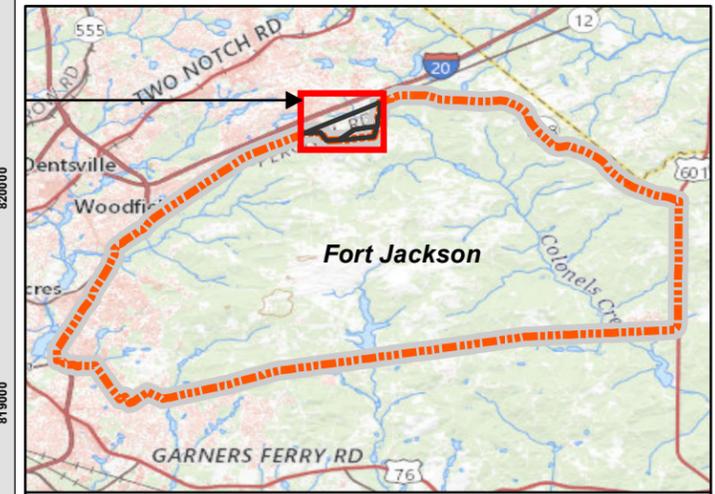
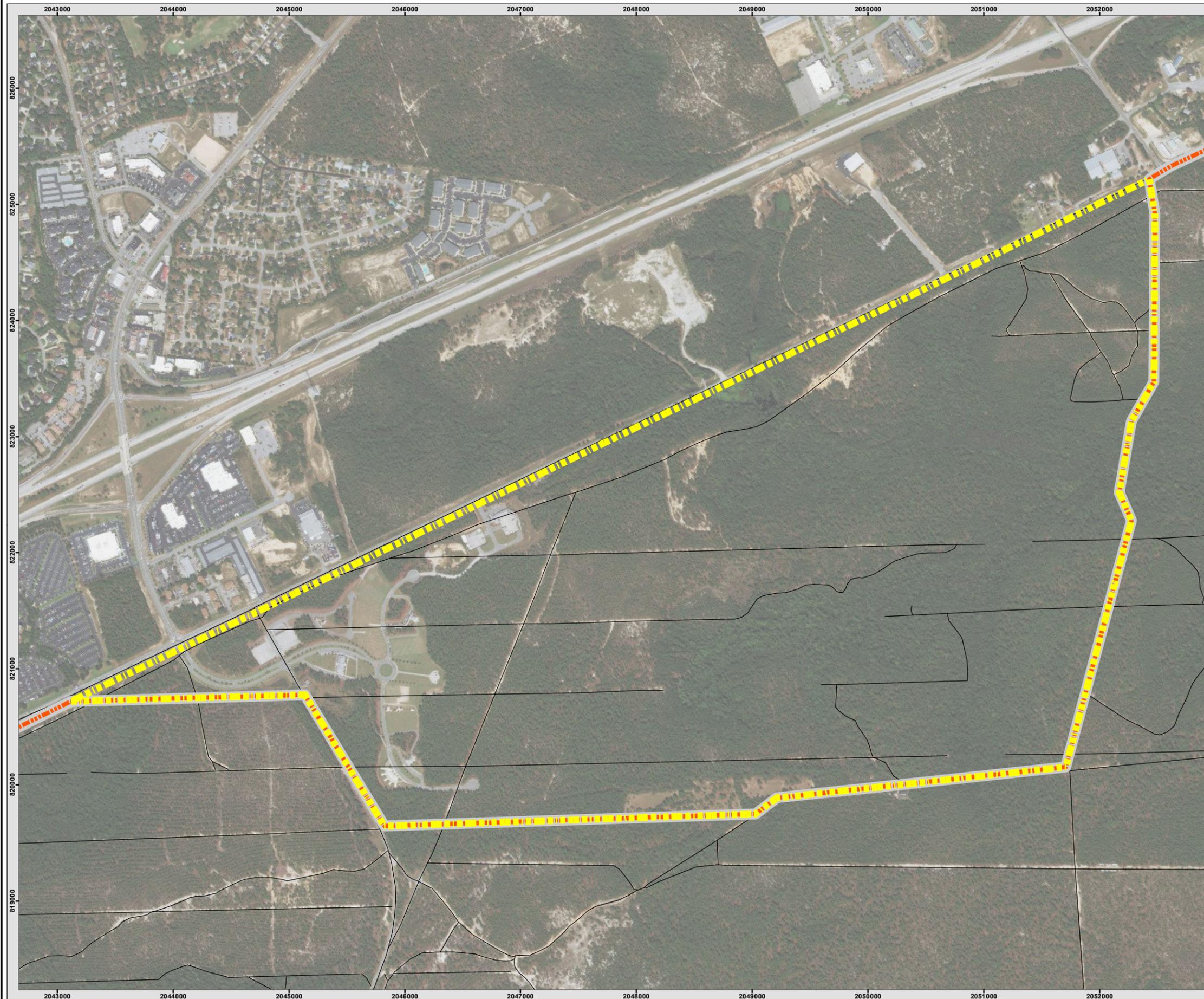
25 Feb 2020
Date

Figure 1

Fort Jackson National Cemetery Site

Legend

-  National Cemetery Boundary
-  Roads
-  Installation Boundary



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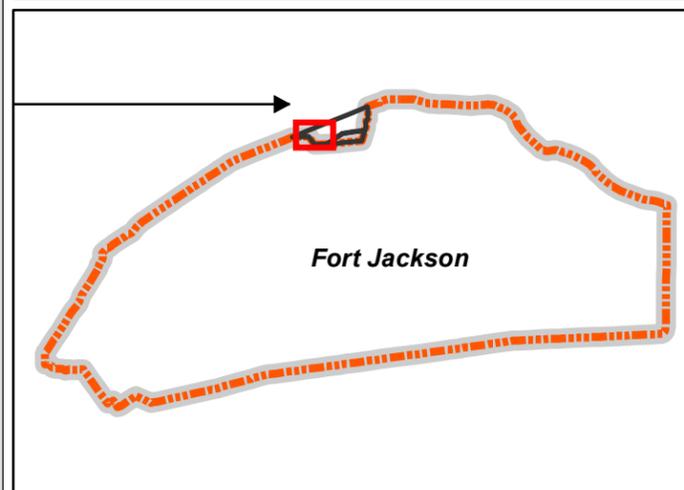
Figure 2

Fort Jackson National Cemetery Phase II Construction Area

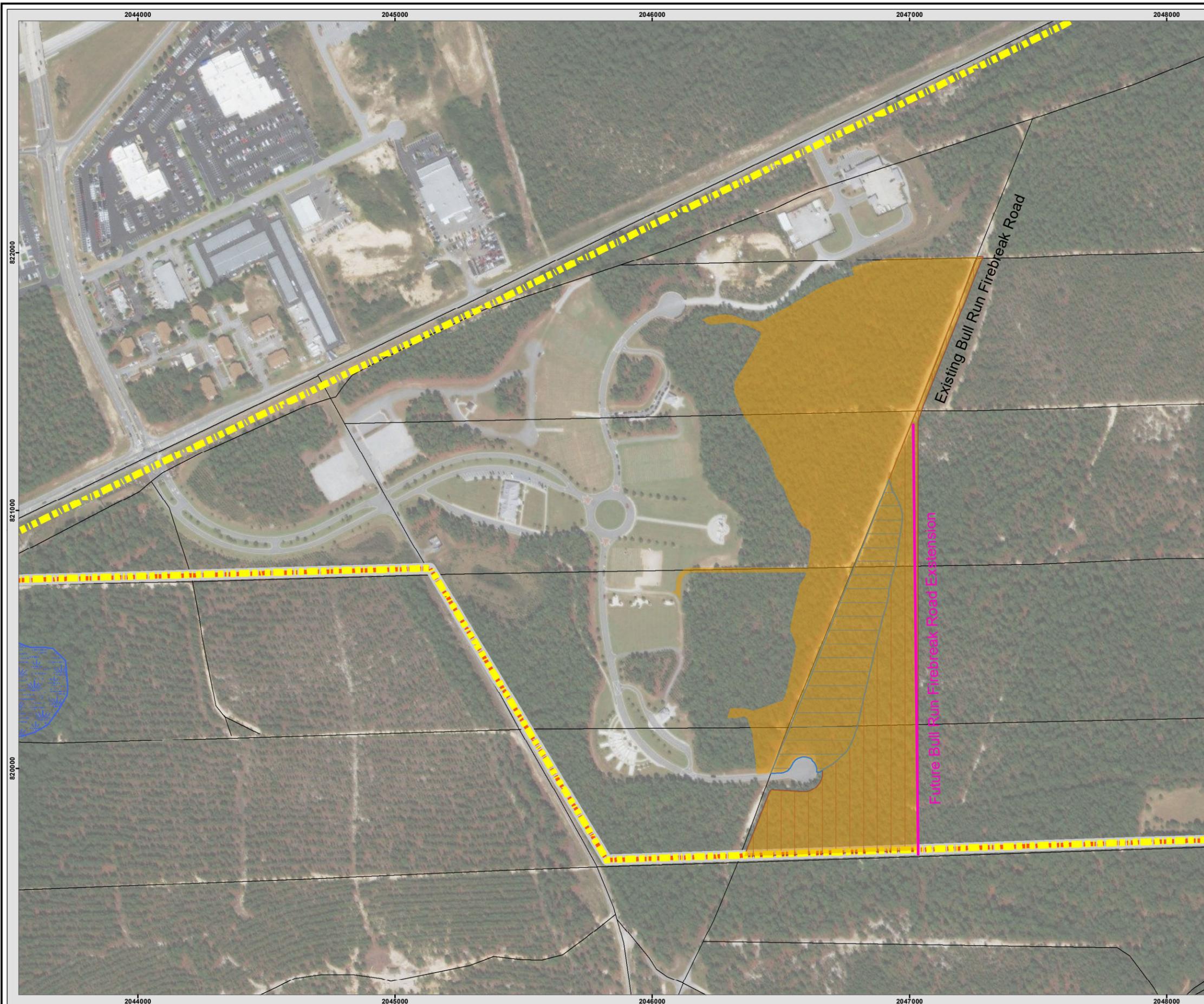
Legend

-  Phase II Cemetery Construction Area (30.8 acres)
-  Construction Support - Clear Cut
-  Construction Support - Thinning
-  Wetlands
-  Roads
-  National Cemetery Boundary
-  Installation Boundary

1. Total UXO Clearance is approximately 30.8 acres.
2. UXO Construction Support will be required for timbering operations in the areas not previously cleared during the Phase I UXO removal. This includes the areas on the East side of Bull Run Firebreak Road. Timbering in this area will comprise 4.63 acres of clear cutting in the 'Cemetery Construction Area' and 8.81 acres of thinning in the 'Wooded Area'.



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