



Ground-Based Midcourse Defense (GMD) Expanded Capability, Fort Greely Alaska



Final Environmental Assessment

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Department of Defense
Missile Defense Agency
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1.0 Purpose and Need for Proposed Action

1.1 Introduction

In compliance with the National Environmental Policy Act of 1969 (NEPA) as amended and the President's Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA, the Missile Defense Agency (MDA), in cooperation with the U.S. Army, prepared an Environmental Assessment (EA) to evaluate the potential environmental impacts from the proposed construction and operational activities for an additional Ground-based Interceptor (GBI) field, associated support facilities, utilities, and infrastructure at United States (U.S.) Army Garrison Fort Greely, Alaska (FGA) (Figure 1.1-1). If deployed, the interceptor field (IF) would expand the existing Ground-based Midcourse Defense (GMD) element of the Ballistic Missile Defense System (BMDS) to support the defense of the Homeland. The existing GBI sites at FGA and Vandenberg Air Force Base (AFB), California provide the capability to protect the U.S. from the current and projected North Korean intercontinental ballistic missile (ICBM) threat, as well as a future Iranian ICBM threat should it emerge. Deployment of additional GBIs at FGA would provide the Warfighter additional interceptor capability.

If the decision is made to proceed, the proposed construction activities would begin in spring 2018 and continue through 2021, with the site being operational by 2023.

1.2 Background

Within the Department of Defense (DoD), the MDA is responsible for developing, testing, and fielding an integrated BMDS to defend the U.S., its deployed forces, allies, and friends against all ranges of enemy ballistic missiles in all phases of flight. The BMDS provides a layered defense, consisting of various land-, sea-, and air-based weapon, sensor and communications, and command and control platforms that are used to defeat incoming ballistic missiles.

In 2000, the MDA completed the National Missile Defense (NMD) Environmental Impact Statement (EIS) for a fixed, land-based, non-nuclear missile defense system. The EIS evaluated deploying up to 100 GBIs in a footprint of approximately 600 acres.

In 2002, the MDA prepared the GMD Validation of Concept (VOC) EA which analyzed potential activities associated with validating the GMD operational concept. The MDA signed a Finding of No Significant Impact (FONSI) for construction and operation of six GBIs and supporting facilities at FGA.

Later in 2002, the MDA completed the GMD VOC Supplemental EA (SEA). The SEA evaluated security enhancements required to ensure adequate force protection, land security, air safety measures for FGA, and supplemental activities to validate the operational concept of the GMD system. The additional activities analyzed at FGA included, among other things, construction of security fences around the cantonment area, southern boundary area, and the Allen Army

Figure 1.1-1 Location Map of Fort Greely, Alaska



Airfield; and extension of the Allen Army Airfield south-north runway. The southern boundary area, including the MDA Missile Defense Complex (MDC), increased the MDA site to approximately 1,500 acres. A FONSI was issued in January 2003 for these proposed activities.

A Record of Decision (ROD) was issued in April 2003 based on the NMD EIS establishing an Initial Defensive Operations Capability at FGA. This ROD included construction of up to 40 silos with GBIs, In-Flight Interceptor Communication System Data Terminal (IDT), and support facilities and infrastructure.

1.3 Purpose and Need

Rapidly evolving threats require an accelerated deployment of additional GBI capability at FGA. Constructing an additional IF has been determined to be the best course of action to provide additional capability in a compressed timeframe. The U.S. has 40 GBIs distributed between three IFs at FGA. The current IF's configurations cannot accommodate additional GBIs in the existing fields without operational disruption. Constructing IF #4 to include an additional 20 GBIs, launch facilities, and a High Altitude Electromagnetic Pulse (HEMP) protected Mechanical/Electrical Building (MEB), and support infrastructure supports the BMDS at FGA.

1.4 Decisions to Be Made

The decision to be made is whether to deploy an additional IF, support facilities and infrastructure at FGA. This EA also considers and evaluates a No Action Alternative (no additional IF, support facilities, and infrastructure). A deployment decision, if made, would be based on the analysis of the ballistic missile threat to the U.S., system performance and operational effectiveness, and potential environmental impacts.

1.5 Scope of the Environmental Assessment

This EA assesses environmental impacts associated with the proposed construction and operation of additional silos with 20 GBIs in IF #4, HEMP protected MEB, utilities and infrastructure; reroute of portions of Landfill Road; expanded site security and MDC boundary fencing; contractor laydown areas; and potential construction of a temporary workers camp (TWC). Analysis will include potential impacts to air quality, biological resources, cultural resources, geology and soils, hazardous materials and hazardous waste management, health and safety, water resources, and wetlands.

This EA will incorporate by reference environmental impact analysis from the NMD Deployment EIS, GMD VOC EA, and GMD VOC SEA.

1.6 Cooperating Agencies

In accordance with 40 Code of Federal Regulations (CFR) Part 1501.6, FGA is a cooperating agency for consultation, review, and comment on the EA.

1.7 Federal Environmental Requirements

This Proposed Action constitutes a Federal action subject to the requirements of NEPA. The CEQ issued regulations (40 CFR 1500-1508) to implement NEPA that include provisions for both the content and procedural aspects of the required environmental analysis. Accordingly, MDA prepared this EA through adherence to procedures set forth in the CEQ regulations, MDA NEPA Implementing Procedures (79 Federal Register (FR) 153, Friday, August 8, 2014, Page 46410-46419), and 32 CFR Part 651, Army Regulation 200-2, Environmental Analysis of Army Actions, to evaluate alternatives, identify and evaluate potential environmental impacts, describe any mitigation measures or commitments required, and to communicate its findings to agency decision makers and the public. The scope of analysis presented in this EA is defined by the potential range of environmental impacts that would result from implementation of the Proposed Action.

1.8 Related Environmental Documentation

Following is a summary of related environmental documents:

- SMDC, 2000. National Missile Defense Deployment Final Environmental Impact Statement, U.S. Army Space and Missile Defense Command (SMDC), January 2000.
- SMDC, 2002. Ground-based Midcourse Defense Validation of Operational Concept Environmental Assessment, U.S. Army Space and Missile Defense Command (SMDC), March 2002.
- SMDC, 2002. Ground-based Midcourse Defense Validation of Operational Concept Supplemental Environmental Assessment, U.S. Army Space and Missile Defense Command (SMDC), December 2002.
- MDA, 2003. Ground-based Midcourse Defense Initial Defensive Operations Capability at Vandenberg AFB Environmental Assessment, Missile Defense Agency (MDA), July 2003.
- DoD, 2007. Ballistic Missile Defense System (BMDS) Programmatic Environmental Impact Statement, Department of Defense (DoD) Missile Defense Agency (MDA), January 2007.

A complete list of reference documents used to prepare this EA is provided in Chapter 5.0.

1.9 Interagency and Intergovernmental Coordination and Consultations

The purpose of the scoping process is to help determine the range of actions, alternatives and potential areas of impact that should be addressed in the environmental document. Scoping helps to identify pertinent issues that should be addressed, allowing the analyses to focus on important issues, and minimize discussion of other matters. Internal scoping consisted of discussion of relevant issues at FGA with MDA, FGA Garrison, U.S. Army Installation Management Command/Army Environmental Command, SMDC, U.S Army Corps of Engineers (USACE), Alaska representatives, and the preparers of this document.

Federal, state, and local agencies and Native Alaskan tribes with jurisdiction that could be affected by the proposed and alternative actions were notified and consulted during the development of this EA.

Appendix C contains the list of agencies consulted during this EA. Also included is the type of correspondence with each entity, responses, and concurrences (as applicable).

1.10 Summary of Public Participation

As part of the NEPA process for the EA, public participation is encouraged. Notification of the availability of the Proposed Final EA and unsigned FONSI has been published in local newspapers near FGA (Delta Junction and Fairbanks) and will be followed by a 30-day comment period.

Copies of the Proposed Final EA and unsigned FONSI were placed in the following local libraries:

Delta Community Library
Delta Junction, Alaska

Fairbanks North Star Borough Public Library
Noel Wien Library
Fairbanks, Alaska

Copies of the Proposed Final EA and unsigned FONSI have been posted on MDA's website at <http://mda.mil.www.news/environmental.reports.html>.

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2.0 Description of the Proposed Actions and Alternatives

2.1 Proposed Action

This section of the EA provides a description of the overall approach to the proposed actions:

- Construction and operation of up to 20 additional silos with GBIs in one IF (IF #4)
- Construction of a HEMP protected MEB
- Associated utilities
- Landfill Road Re-route
- Site security and MDC boundary fence expansion
- Contractor laydown areas
- Potential TWC

2.2 Overall Construction and Operational Concept

The proposed IF, supporting facilities, and associated infrastructure would be located within the boundaries of FGA, near current MDC (Figure 2.2-1).

All permanent facilities would be designed and constructed to meet the requirements of Unified Facility Criteria (UFC) 1-200-01, *General Building Requirements* and UFC 1-200-02 *High Performance and Sustainable Buildings*.

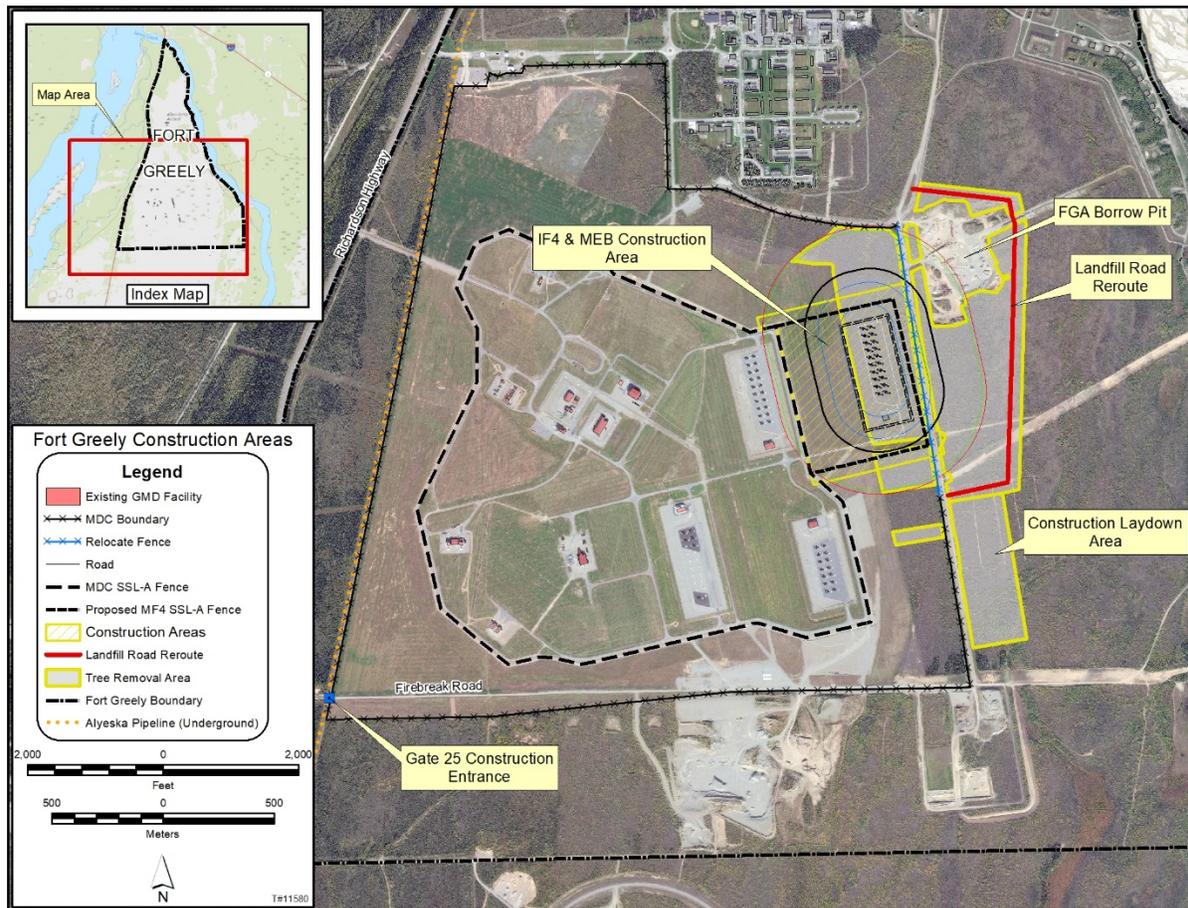
Construction

Approximately 245 acres would be needed for the construction of the IF, MEB, utilities and infrastructure, including site security components. An additional approximately 40 acres would be needed for laydown and staging areas.

Site preparation would include clearing, grubbing, and grading to level the site and establish positive drainage. If needed, fill material would come from an existing onsite borrow source. Site grading and drainage would be in accordance with UFC 3-201-01, Chapter 3, *Storm Drainage Systems*.

The IF development area would be designed to drain to existing drainage systems. All storm water would be retained in small swales, ditches, and shallow ponds until it infiltrates into the soil. A storm water management strategy would be included with the site grading and drainage design per the requirements of UFC 3-210-10, *Low Impact Development*.

Entrance to the construction site would be from the south end of FGA through Gate 25 (Figure 2.2-1), on an existing construction road. During the construction, existing roadways would be used to the extent possible.

Figure 2.2-1 FGA Expanded Capability Proposed Action

To keep present and future contractors from having to access the construction area daily through the MDC Entry Control Facility, a separate secure area (known as the Construction Free Zone (CFZ)) would be established around the construction area, but within the current MDC area. A temporary construction fence could be installed around the CFZ site. The CFZ would ensure only those needing access to the area are allowed. Once construction is complete, the temporary fence would be removed and the area returned to its pre-construction state or a state consistent with its reuse.

Laydown areas (see Figure 2.2-1) would be to the south of the construction site and would require clearing, grubbing, and some grading to provide positive drainage. The surface of the laydown areas could require placing aggregate surface material and compacting. Temporary power would be provided.

Construction activities at FGA would take approximately four years. Most ground-disturbing activities would occur during the first year. Construction and site activation personnel would average 155, with a maximum of 175 during peak construction activities.

Operation

Site operations would be similar to that as described in the NMD EIS. Once placed, the interceptors would remain underground in the silos, except for removal for maintenance or upgrades/modifications to the silos. Launches would only occur in defense of the Nation. There would be no flight testing of the GBIs from FGA.

Current estimates of additional manpower required to operate the additional IF #4 would be approximately 70 personnel, including additional security forces and maintenance staff.

2.2.1 Interceptor Field

The IF accommodates the launch site components consisting of launch silos, Silo Interface Vaults (SIV), silo closure mechanisms (SCMs), and silo headworks; the MEB; silo access roads; and underground interconnecting communications and utilities. The IF would be designed as a raised structure or terrace to minimize the accumulation of precipitation on its surface. The IF would be level enough to support missile support vehicles and maneuverability for inserting and removing interceptors into/from the launch silo(s). The surface of the raised structure would be paved to support vehicle operations. The IF would include a perimeter security fence to provide security and restrict access to the field and MEB. A schematic illustration of the overall proposed IF notional site layout and associated support facilities is provided for reference in Figure 2.2-2.

The launch silo excavation would be approximately 15 feet (ft.) in diameter with an approximate depth of 75 ft. A construction liner or casing would be installed for support. The launch silo, SIV, and SCMs are prefabricated pieces of equipment transported to FGA.

The SIV is located below grade and attaches to the silo. The SIV houses equipment to control and monitor both the silo and SIV environment and provides communications equipment linking the GBI to the launch station command and control equipment. Access to the silo is also provided through the SIV. Silo headworks serve as the foundation for SCMs and missile installation and crane operations, and are the final concrete grade for each launch silo.

2.2.2 Mechanical Electrical Building

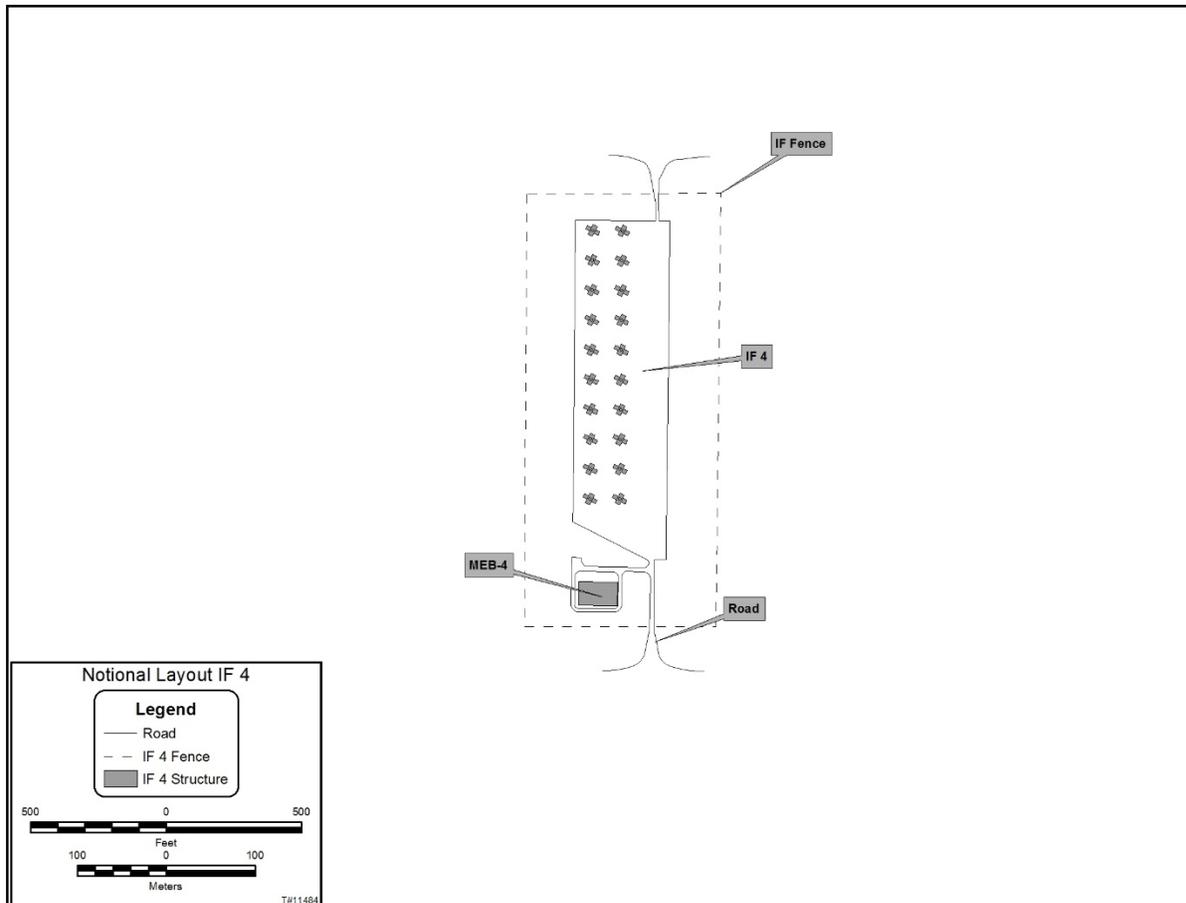
The MEB would consist of an approximately 11,800-square foot (sf) facility to house the auxiliary mechanical and electrical equipment for support of the launch site components.

2.2.3 Associated Utilities

Current MDC utility corridors would be extended to accommodate the proposed IF #4. Existing water wells, water pumping systems, water treatment systems, water storage system for potable water supply, and water distribution systems would serve the proposed IF facilities. A septic tank would be required for domestic wastewater near the MEB.

Primary power to the site would be provided by Golden Valley Electric Authority (GVEA). Existing emergency power generators located in the MDC Power Plant would supply backup power to the proposed mission facilities.

Figure 2.2-2 Interceptor Field Notional Layout



2.2.4 Landfill Road Re-Route

The construction of IF #4 would require rerouting of a portion of Landfill Road (Figure 2.2-1). Landfill Road runs north/south providing access from the cantonment area to the FGA landfill. The reroute could include clearing, grubbing, grading, compacting the exposed subgrade, and placing aggregate surface material and compacting.

2.2.5 Site Security Expansion and MDC Boundary Fence

Components of security would include fencing, clear zone, lighting, intrusion detection system, and security patrol roads.

The restricted area boundary (Site Security Level – A (SSL-A)) fence would be expanded around the IF and would contain a 30 ft. clear zone on both sides. The MDC boundary fence would be expanded a minimum of 330 ft. from the SSL-A fence. A clear line of site, requiring

complete tree clearing, would be required to a minimum of 330 ft. This clear zone would incorporate a gravel roadway that would serve as the perimeter security road.

2.2.6 Temporary Workers Camp

A TWC for up to 140 construction workers may be required. The TWC would provide office space, housing units, and dining facilities.

The TWC would be located off FGA in the surrounding community on previously disturbed land or on already established TWC areas. Minor site preparation could be required including hauling of gravel fill, leveling, and compacting. If required, roads and parking area would be created with gravel fill. Utility services would be provided by commercial sources.

The TWC would be installed prior to the start of construction and expanded as necessary should additional personnel be needed at the construction site. The TWC units would be temporary structures and would be removed when no longer needed.

2.3 No-Action Alternative

Under the No Action Alternative, additional GBIs, IF #4, MEB, and associated infrastructure would not be constructed at FGA to enhance the defense of the U.S. from a ballistic missile attack.

2.4 Siting Alternatives

The existing GBI sites at FGA and Vandenberg AFB provide the capability to protect the U.S. from the current and projected North Korean ICBM threat, as well as a future Iranian ICBM threat should it emerge. Additional GBIs will provide the Warfighter with increased capability. Expanding the GBI capability at FGA has been determined to be the current best course for an accelerated deployment and compressed timeframe.

No additional site specific alternatives are viable at FGA as no other configurations meet facility requirements. Explosive Safety Quantity Distances (ESQD) must remain within the FGA installation boundaries. Placing facilities to the south of the MDC would encroach on private property and the Cold Region Test Facilities. Additionally, the current IF's configurations cannot accommodate additional GBIs in the existing fields without operational disruption.

2.5 Relevant Environmental Resources Analyzed in Detail

Through the NEPA process relevant environmental resources were identified. This list of resources was derived from the potential for impacts based on an understanding of local conditions and the nature of the proposed work. They include:

- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils

2.0 Description of Proposed Action and Alternative

- Hazardous Materials and Hazardous Waste Management
- Health and Safety
- Water Resources
- Wetlands

2.6 Environmental Resources Eliminated From Detailed Analysis

Based on internal discussions during the scoping process, previous studies conducted at FGA, no significant changes at FGA, and additional analysis conducted by the interdisciplinary team, the following environmental areas are summarized in Appendix B and are not considered further in this EA:

- Airspace
- Environmental Justice
- Land Use
- Noise
- Socioeconomics
- Transportation
- Utilities
- Visual Resources

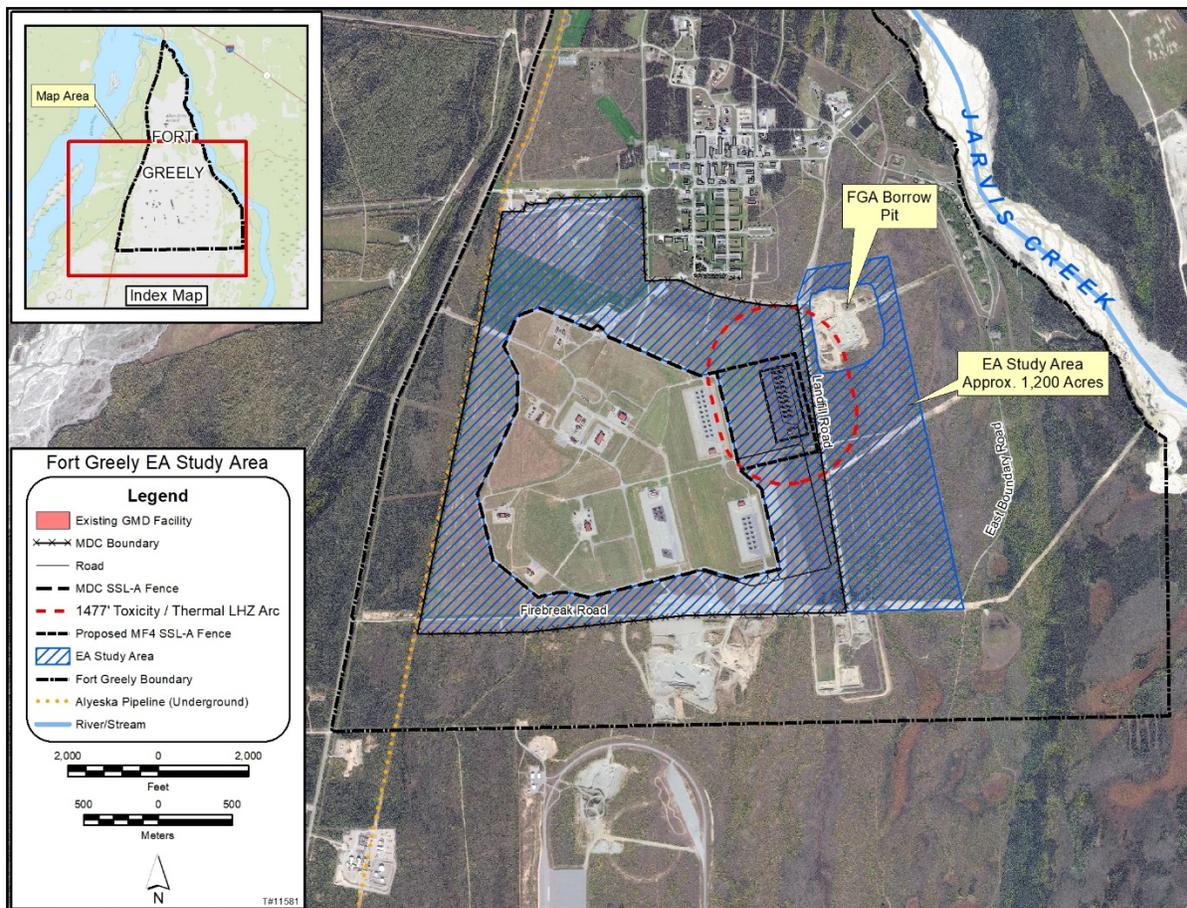
These resources have been analyzed extensively in the referenced NEPA documents and the summaries of the environmental areas not considered further in this EA reflect the conclusions of those earlier documents.

3.0 Affected Environment

3.1 Introduction

This section describes the natural and human environment that may be affected by the Proposed Action. It provides a baseline for understanding any potential impacts from individual or cumulative environmental changes likely to result from the implementation of the Proposed Action. Available reference materials, including EAs, EISs, installation plans, and scientific articles were reviewed. Site visits were conducted, which included discussions with site personnel and to gather baseline data. Figure 3.1-1 shows the study area that was analyzed in this EA.

Figure 3.1-1 FGA Expanded Capability EA Study Area



FGA is located in the region of Alaska commonly called the “Interior,” approximately 110 miles southeast of Fairbanks, and just south of Delta Junction. FGA is located within the Donnelly Training Area, is approximately 6,840 acres (Figure 1.1-1), and is bounded on the east by Jarvis Creek and the west by the Richardson Highway. Allen Army Airfield is located on the northern part of FGA. The GMD MDC in located on the southern end of FGA and consists of approximately 1,500 acres. The Donnelly Training Area lies within the central valley and hill

area, bordered by the Yukon Tanana Uplands to the north and the Alaska Range to the south. The entire region lies within the Tanana River Valley.

3.2 Air Quality

Under the Clean Air Act, the U.S. Environmental Protection Agency (USEPA) establishes National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. Federal ambient air quality standards have been established for six criteria pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, and lead particles. Of these, ozone, carbon monoxide, and particulate matter are generally the greatest concern. The significance of a pollutant concentration is determined by comparison with the NAAQS and State of Alaska Ambient Air Quality Standards (AAAQS). Areas that comply with these established standards are designated as 'attainment areas'. Areas that violate air quality standards are designated as 'non-attainment' areas for the relevant pollutants. Table 3.2-1 presents the current NAAQS and AAAQS for the six criteria pollutants.

Climate

FGA is located in interior Alaska and experiences seasonal extremes. The area is characterized by wide annual temperature ranges, short moderate summers, long cold winters, large variations in seasonal sunlight periods, low humidity, and low precipitation. June through August are typically the wettest months with average precipitation of approximately 2.5 inches. October and November receive the most snowfall with an average of approximately 11 inches. The average low temperature in January is -10 degrees Fahrenheit (°F), with the average high temperature in July of 70 °F. Average monthly temperature extremes ranging from a low of -63 to a high of 92 °F have been recorded (Weather Company, 2017). Wind speeds average approximately 11 miles per hour and are generally southerly along the Delta River in the summer, the main construction season (SMDC, 2004).

Regional Air Quality

Air quality in Alaska is generally very good. The FGA area is in attainment for all NAAQS and AAAQS. The closest air quality monitor in the region is in North Pole located 95 miles northwest of FGA along the Richardson Highway. Due to FGA being in an attainment area, no conformity analysis is required under general conformity regulations for the Proposed Action-related emissions.

Principal sources of air pollution in the FGA area are from vehicle traffic and fuels burned for heat and/or power. Pollutants from mobile sources, such as automobiles and construction equipment, include hydrocarbons, carbon monoxide, nitrogen oxides, and particulate emissions. Cold starts during moderately cold weather, prolonged idling periods, and low-level temperature inversions all contribute to pronounced air quality impacts from motor vehicle emissions in cold climates.

Table 3.2-1 Federal and State Ambient Air Quality Standards

Pollutant	Averaging Period	Federal NAAQS		State AAAQS
		Primary	Secondary	
Carbon Monoxide (CO)	1-hour ¹	35 ppm	--	40 mg/m ³
	8-hour ¹	9 ppm	--	10 mg/m ³
Lead (Pb)	3-month rolling	0.15 µg/m ³	0.15 µg/m ³	0.15 µg/m ³
Nitrogen Dioxide (NO ₂)	1-hour ²	100 ppb	--	188 µg/m ³
	Annual	53 ppb	53 ppb	100 µg/m ³
Particulate Matter < 10 microns (PM10)	24-hour ¹	150 µg/m ³	150 µg/m ³	150 µg/m ³
Particulate Matter ≤ 2.5 microns (PM2.5)	24-hour ²	35 µg/m ³	35 µg/m ³	35 µg/m ³
	Annual	12 µg/m ³	15 µg/m ³	12 µg/m ³
Ozone (O ₃)	8-hour ³	0.07 ppm	0.07 ppm	0.07 ppm
Sulfur Dioxide (SO ₂)	1-hour ⁴	75 ppb	--	196 µg/m ³
	3-hour ¹	--	0.5 ppm	1,300 µg/m ³
	24-hour ¹	--	--	365 µg/m ³
	Annual	--	--	80 µg/m ³
Ammonia	8-hour ¹	--	--	2.1 mg/m ³
	Sources: USEPA, 2017 and ADEC, 2017a Notes: 1) Second-highest average concentration not to be exceeded more than once in a year. 2) Standard is attained when the 3-year average of the 98 th percentile of the distribution of daily maximum values is less than the standard. 3) Three-year average of the annual fourth-highest daily maximum 8-hour average O ₃ concentration. 4) Standard is attained when the 3-year average of the 99 th percentile of the distribution of daily maximum values is less than 75 parts per billion (ppb), or 196 micrograms per cubic meter (µg/m ³). 5) ppm-parts per million 6) mg/m ³ –milligrams per cubic meter			

Existing Emissions Sources

Existing air emission sources at FGA include boilers, generators, storage tanks, aircraft, and prescribed burning/firefighter training. In addition, un-vegetated areas, dirt roads, and exposed river/stream beds result in fugitive dust during high wind periods.

The FGA Garrison and the MDA MDC each have separate Title V Air Permits issued by the Alaska Department of Environmental Conservation (ADEC). For ambient air quality analysis all emission sources (FGA Garrison and the MDA MDC) were considered. Table 3.2-2 lists the existing combined stationary air emission sources at FGA.

FGA is not classified as a Prevention of Significant Deterioration (PSD) major source. To maintain this status, the current permit requires FGA to limit emissions of all criteria pollutants to 250 tons each per year. Construction activities anticipated for the Proposed Action would fall within this parameter.

Table 3.2-2 FGA Air Emission Sources

Emission Unit (EU) ID	EU Name/ Facility No.	EU Description	Rating/Size	Installation Date
Missile Defense Complex				
Liquid Fuel Fired Boilers				
MDC-BF01	Boiler / 3102	Bryan Boiler RV800-W-FD	8.00 MMBtu/hr	2003
MDC-BF02	Boiler / 3102	Bryan Boiler RV800-W-FD	8.00 MMBtu/hr	2003
MDC-BF03	Boiler / 3102	Bryan Boiler RV800-W-FD	8.37 MMBtu/hr	2004/2005
Liquid Fuel Fired Emergency Generator Sets				
MDC-IC07	Genset / 3301	Genset / 3301 Caterpillar 3456DITA	691 Hp	2004
MDC-IC08	Genset / 3301	Genset / 3301 Caterpillar 3456DITA	691 Hp	2004
MDC-IC09	Genset / 3106	Caterpillar 3516BDITA	2636 Hp	2004
MDC-IC10	Genset / 3106	Caterpillar 3516BDITA	2636 Hp	2004
MDC-IC11	Genset / 3106	Caterpillar 3516BDITA	2636 Hp	2004
MDC-IC12	Genset / 3106	Caterpillar 3516BDITA	2636 Hp	2004
MDC-IC13	Genset / 3107	Caterpillar 3516BDITA	2695 Hp	2009
MDC-IC14	Genset / 3107	Caterpillar 3516BDITA	2695 Hp	2009
MDC-IC15	Genset / 3107	Caterpillar 3516BDITA	2695 Hp	2009
MDC-IC16	Genset / 3107	Caterpillar 3516BDITA	2695 Hp	2009
MDC-IC17	Genset / 3107	Caterpillar 3516BDITA	2695 Hp	2009
Garrison				
Liquid Fuel Fired Boilers				
FGBF01,02	Bldg 101	Cleaver-Brooks CB100-200	8.37 MMBtu/hr	1983
FGBF04	Boiler / 319	Burnham Hydronic, V8H	0.299 MMBtu/hr	2010
FGBF05,06	Boiler / 320	Buderus, G315/5	0.433 MMBtu/hr	2012
FGBF07,08	Furnace	Powermatic UH140	140,000 Btu/hr	unknown
FGBF09	Furnace	Shenandoah, WO-F300	300,000 Btu/hr	unknown
FGBF11	Furnace	Miller, CMF800-PO	160,000 Btu/hr	unknown
FGBF12	Furnace	McClellan	130,000 Btu/hr	unknown

FGBF14	Bldg 606	English Tube 92-193A	57.9 MMBtu/hr	1993
FGBF15	Bldg 606	English Tube 92-193B	57.9 MMBtu/hr	1993
FGBF16	Bldg 606	Erie Iron City	67.3 MMBtu/hr	1954
FGBF21	Furnace	Armstrong-Lennox, L83HFD84/95E12-1(A)	95,000 Btu/hr	unknown
FGBF22	Furnace	Modine, POR100		unknown
FGBF23,24	Boiler	Weil-McClain, A/B-WTGO-8	290,000 Btu/hr	unknown
FGBF25	Boiler / 637	Burnham Hydronic, V8H	0.299 MMBtu/hr	2003
FGBF27	Boiler / 643	Weil-McClain, A/B-WTGO-8	0.29 MMBtu/hr	2010
FGBF28	Furnace / 347	Modine, POR185B0101	0.185 MMBtu/hr	unknown
FGBF29	Boiler / 675	Burnham, MPO-IQ/MPO- 11Q231	0.406 MMBtu/hr	2017
FGBF30	Boiler / 601	Riello Light Oil Burner	5.1 MMBtu/hr	2017
FGBF31	Boiler / 513	Buderus G315/8	1.99 MMBtu/hr	2017
Liquid Fuel Fired Emergency Generator Sets				
FGIC01	Genset / FAA	Detroit 6063HK35	635 hp	unknown
FGIC02	Pump / Bldg 133	Cummings CFP83-F20	227 hp	2005
FGIC03	Genset / Bldg 501	Cummings 100D34	310 hp	Pre-1977
FGIC04	Genset / Bldg 501	Kohler 100R02	160 hp	1989
FGIC08,09	Bldg 606	Enterprise DSQ38	1765 hp	1962
FGIC11	Bldg 606	Mitsubishi 4D31-T	101 hp	1985
FGIC12	Bldg 606	Clarke JU4HUF40	105 hp	2005
FGIC14	Genset /	John Deere, 250REOZJE	385 hp	unknown
FGIC17	Genset / Fuel Depot	Magnum, MMG150	180 hp	2010
FGIC18,19	Genset	Caterpillar, C175-16	4,423 hp	2010
FGIC22	Genset	Caterpillar, D680	130.1 hp	2009
FGIC29	Emergency Genset	Caterpillar, C15 DITA	619 hp	2013
FGOB01	Burn Pit / Mid-post	NA	NA	Pre 1960

Note: MMBtu/hr – million British Thermal Units per hour; hp – horsepower

3.3 Biological Resources

Native or naturalized vegetation, wildlife, and the habitats in which they occur are collectively referred to as biological resources. Existing information on plant and animal species and habitat types in the vicinity of the Proposed Action was reviewed. Special emphasis was placed on the presence of any species listed as threatened or endangered by Federal or state agencies to assess their sensitivity to the effects of the Proposed Action. For the purpose of discussion, biological resources have been divided into the areas of vegetation, wildlife, threatened and endangered species, and environmentally sensitive habitat.

Region of Influence

The region of influence for biological resources includes the area within and adjacent to the EA Study Area (Figure 3.1-1) at FGA that could potentially be affected by the proposed activities.

Vegetation

In June 1999, the Donnelly Flats fire burned approximately 18,000 acres in the vicinity of the project area in less than two weeks; including about 67% of FGA (4,400 acres). Consequently, the fire reverted the vegetation succession to the pioneering stage. Recurring fires encourage fast growing species like quaking aspen and paper birch, as well as fire resistant species like black spruce.

The vegetation on FGA is largely composed of mature or regenerating white spruce (*Picea glauca*), aspen (*Populus tremuloides*) and birch (*Betula papyrifera*) forests. These forest types occur on warm, well-drained soils (Salcha-Delta Soil & Water Conservation District (SDSWCD, 2011). On wetter sites species such as bog birch (*Betula nana*), black spruce (*Picea glauca*), and sedge (*Carex sp.*) can be found (Figure 3.3-1).

Approximately 640 acres of the EA study area has been previously cleared and is now in upland grasses and maintained by mowing; the remaining approximately 560 acres is in tall shrub-sapling post fire regeneration.

Four vascular plant species identified on FGA are being tracked by the Alaska Natural Heritage Program's (AKNHP) Biological Conservation Database for interior Alaska. Other state listed species may occur on FGA, but that will not be known until a survey is done specifically for FGA. The following table (Table 3.3-1) is based on the AKNHP's Vascular Plant Tracking List, which was last updated April 2006 by Robert Lipkin (AKNHP, 2006).

Of these rare plants, kidneyshap sedge (*Carex atratiformis*) and mountain blue-eyed grass (*Sisyrinchium montanum*) are facultative wetland plants and Mackenzie Valley mannagrass (*Glyceria pulchella*) is an obligate wetland plant and not found in the EA study area. The facultative upland species bristle-leaf sedge (*Carex eburnea*) is a small sedge with slender culms, usually found in coniferous or mixed woodlands. It prefers sandy or gravelly soils with neutral to alkaline pH. The EA Study area does not likely provide suitable habitat for the bristle-leaf sedge due to its requirement for shade or partial shade and alkaline soils. The Donnelly Flats fire burned most of the evergreen trees that could provide year-round shade and the presence of several inches of partially decomposed organics indicates acidic soil conditions are likely to be present.

Within the project area, an abundance of snags remain upright in the 18 years since the Donnelly Flats fire (Figure 3.3-2). The area is slowly regenerating with aspens, willows, and spruce saplings. The area burned by the Donnelly Flats fire has been colonized by typical Interior Alaska Ericaceous plants like lingonberry (*Vaccinium vitis-idaea*), Labrador tea (*Rhododendron groenlandicum*), and crowberry (*Empetrum nigrum*). Graminoids, likely *Calamagrostis sp.* have also become established in areas where they likely were previously excluded by canopy shading.

Figure 3.3-1 FGA Vegetation Map

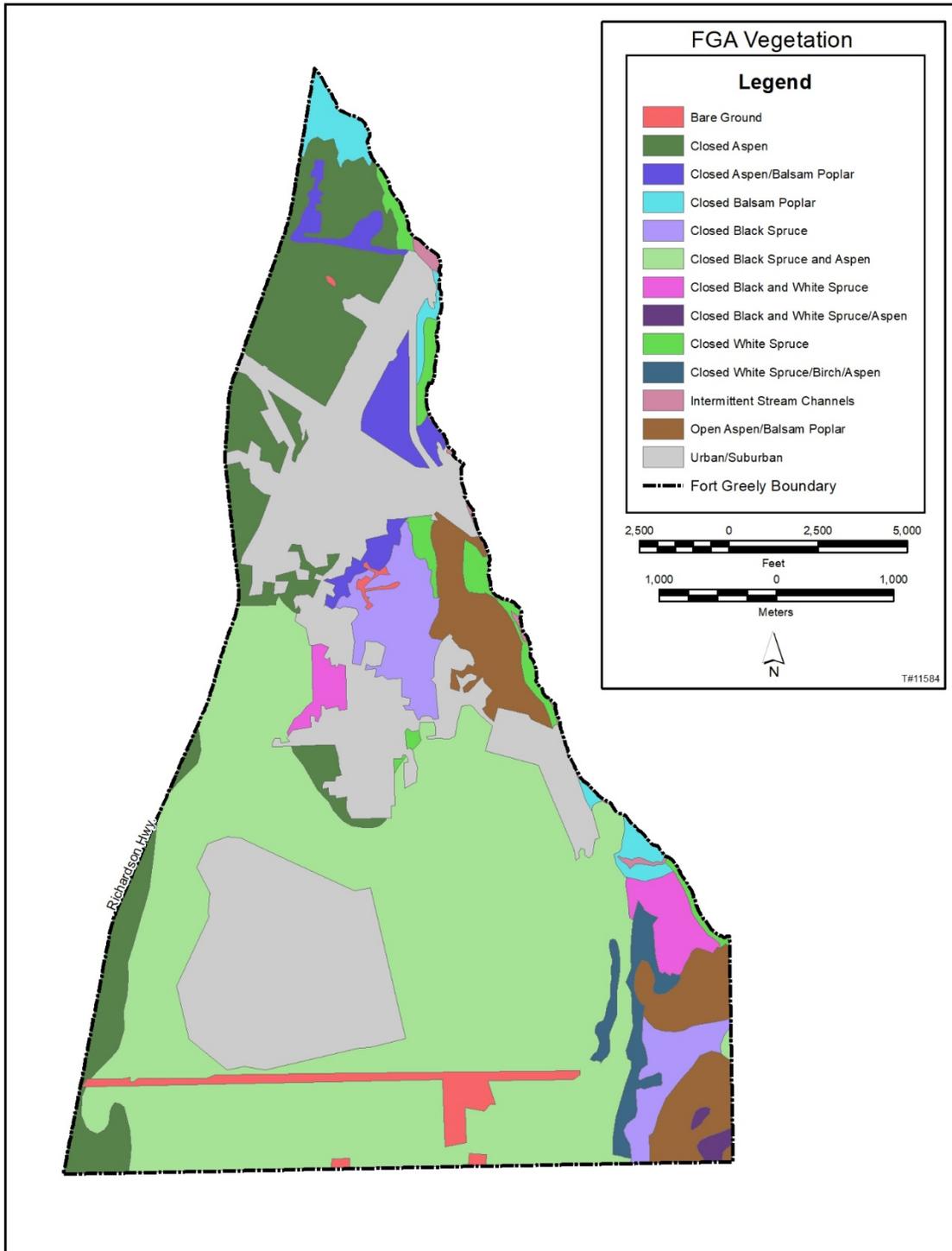


Table 3.3-1 Alaska Natural Heritage Program Listed Rare Plants

Species	Alaska Natural Heritage Program Rankings in 2006	
	Global*	State**
Kidneyshape sedge (<i>Carex atratiformis</i>)	G5	S2
Bristle-leaf sedge (<i>Carex eburnean</i>)	G5	S3
Mackenzie Valley Mannagrass (<i>Glyceria pulchella</i>)	G5	S2S3
Mountain blue-eyed grass (<i>Sisyrinchium montanum</i>)	G5	S2

Source: U.S. Army Garrison Fort Greely, 2007a

*Alaska Natural Heritage Program Rare Species Global Rankings

G5 Demonstrably secure globally

**Alaska Natural Heritage Program Rare Species State Rankings

S1: Critically imperiled in state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state (typically 5 or fewer occurrences, or few remaining individuals or acres)

S2: Imperiled in state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state (typically 6 to 20 occurrences, or few remaining individuals or acres)

S3: Rare or uncommon in the state (typically 21–100 occurrences)

S#S#: State rank of species uncertain; best described between the two ranks

Figure 3.3-2 Interceptor Field Proposed Site



Wildlife

Mammals.

Multiple security fences around FGA are likely to preclude large mammals (other than moose) within the FGA boundaries. Moose are particularly difficult to exclude due to their height and ability to leap over a six foot tall fence. However, large predators including grizzly and black bears, and wolves may be found outside the fenced areas. Other predators such as, fox, coyotes, and marten can be found both inside and outside of the fenced areas. Small mammals (snowshoe hares, shrews, squirrels, and other rodents) are also present (U.S. Army Garrison Fort Greely, 2007a). The most common big game species include black bear, grizzly bear, wolf, moose, bison, and barren ground caribou.

Moose. The most visible wildlife species on Fort Greely is the moose, *Alces alces*. FGA is within the southwest portion of Alaska Department of Fish & Game (ADF&G) Game Management Unit (GMU) 20D. There are estimated to be about 16,000 moose in GMU 20D, with a preseason target population of 8,000-10,000 moose. A relatively high proportion of the southwest portion of the unit has been disturbed by human activity and wildland fires, which combined with low predation has contributed to the current high population density in the Fort Greely/Delta Junction area. The ADF&G is intensively managing this area. Moose in the area are demonstrating evidence of nutritional stress, which is often manifested by lower twinning rates. When moose populations exceed carrying capacity, they can over-browse forage plants and become more vulnerable to severe weather and disease.

Limited hunting is allowed on FGA. FGA hosts a Purple Heart Hunt yearly in selected areas of FGA. At an average of 4.65 (~5) moose per square mile on the installation (U.S. Army Garrison Fort Greely, 2012c), moose are the most visible wildlife species. An aerial moose survey completed by ADF&G staff in 2006 inside the FGA boundary documented 23 moose with 10 moose inside the MDC boundary fenced area (ADF&G, 2006).

Birds.

Several species of small game birds are found on the installation, including spruce grouse (*Falcipennis canadensis*), sharp-tailed grouse (*Tympanuchus phasianellus*), ruffed grouse (*Bonasa umbellus*), and willow ptarmigan (*Lagopus lagopus*). The area is also well within the breeding range of several sensitive raptor species, such as peregrine falcon (*Falco peregrinus*), bald eagle (*Haliaeetus leucocephalus*), and golden eagle (*Aquila chrysaetos*).

Cumulatively, surveys and observations have identified seventy bird species on FGA. However, in the 2012 Wildlife Planning Land Survey (PLS), only 34 bird species were documented during the spring and summer (Table 3.3-2). Twelve of the 34 bird species identified in the 2012 PLS are likely to find suitable nesting habitat in the tall shrub-sapling stage of succession of the EA Study area, all of which are protected by the Migratory Bird Treaty Act (MBTA). The EA Study area does not contain likely raptor nesting habitat.

Table 3.3-2 Bird Species Observed During Wildlife PLS, 2012

Common Name	Scientific Name	MBTA	Preferred Nesting Site¹
Alder Flycatcher ²	<i>Empidonax alnorum</i>	Yes	Low in deciduous brush or trees; rarely in forbs or grass
American Robin	<i>Turdus migratorius</i>	Yes	Tree, on secure branch or fork with overhead foliage cover
American Wigeon ³	<i>Anas americana</i>	Yes	Dry ground, well concealed in tall grass or mixed cover, often away from water
Black-capped	<i>Poecile atricapillus</i>	Yes	Tree cavity
Blackpoll	<i>Setophaga striata</i>	Yes	Tree (spruce, fir), less often on ground
Canada Goose ³	<i>Branta canadensis</i>	Yes	Variable; typically on drier, slightly elevated sites with good visibility
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	Yes	Mud nest built on vertical rock or masonry surfaces, preferably under an overhang
Common Goldeneye ³	<i>Bucephala clangula</i>	Yes	Tree cavity > 19 cm in diameter, within 1.3 km of water
Common Raven	<i>Corvus corax</i>	Yes	Variable; cliffs, trees, structures, etc.
Dark-eyed Junco ²	<i>Junco hyemalis</i>	Yes	Variable; cavity in earth or rock bank, root-ball, under fallen trees
Gray Jay	<i>Perisoreus canadensis</i>	Yes	Tree (conifers)
Hermit Thrush ²	<i>Catharus guttatus</i>	Yes	Ground, concealed by vegetation; less often in trees
Herring Gull	<i>Larus argentatus</i>	Yes	Ground, in location offering clear field of view
Horned Grebe ³	<i>Podiceps auritus</i>	Yes	Low vegetation adjacent to pond or marsh
Lapland Longspur ²	<i>Calcarius lapponicus</i>	Yes	Ground, concealed by vegetation where possible
Lesser Yellowlegs ²	<i>Tringa flavipes</i>	Yes	Ground, next to hummocks, fallen branches and logs, under low shrubs and trees
Lincoln's Sparrow ²	<i>Melospiza lincolnii</i>	Yes	Ground, concealed in low shrub
Magnolia	<i>Setophaga magnolia</i>	Yes	Tree (dense conifers)
Mew Gull	<i>Larus canus</i>	Yes	Variable; tree or ground
Northern Flicker	<i>Colaptes auratus</i>	Yes	Tree cavity > 30 cm in diameter, in open
Northern Harrier ³	<i>Circus cyaneus</i>	Yes	Ground, usually in dense grass or other low vegetation, in treeless habitat
Orange-crowned Warbler ²	<i>Oreothlypis celata</i>	Yes	Ground, in small depressions sheltered by overhanging vegetation
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Yes	Variable; Tree crowns or structures near open space

Sandhill Crane (Lesser) ³	<i>Grus canadensis canadensis</i>	Yes	Ground, building mound nest generally in or near water
Savannah Sparrow ²	<i>Passerculus sandwichensis</i>	Yes	Ground, well hidden in tall vegetation
Scaup sp. ³	<i>Aythya</i> sp.	Yes	Ground, usually in tall vegetation within a few meters of water
Spruce Grouse ³	<i>Falci pennis canadensis</i>	No	Ground, in a depression at the base of a conifer
Swainson's Thrush ²	<i>Catharus ustulatus</i>	Yes	Low/understory vegetation, in thickets of deciduous shrubs or conifer saplings
Townsend's Warbler	<i>Setophaga townsendi</i>	Yes	Tree, almost exclusively conifers
Townsend's Solitaire ²	<i>Myadestes townsendi</i>	Yes	Ground, in cavities under logs, tree roots, rocks
Tree Swallow	<i>Tachycineta bicolor</i>	Yes	Tree cavity or artificial void
White-crowned Sparrow ²	<i>Zonotrichia leucophrys</i>	Yes	Areas with three components of grass, bare ground, and shrubbery
Yellow Warbler ²	<i>Setophaga petechia</i>	Yes	Upright fork of bush, sapling, or tree
Yellow-rumped Warbler	<i>Setophaga coronata</i>	Yes	Horizontal branch of mature tree

Notes: ¹ The Cornell Laboratory of Ornithology, 2017

² Species with preferred nesting conditions in the project area.

³ Incidental Observation

Source: U.S. Army Garrison Fort Greely, 2012c

The dark-eyed junco, alder flycatcher, hermit thrush, and Swainson's thrush are state species of concern observed during the 2012 PLS and are likely to find suitable nesting habitat in the project area. As of August 15, 2011, the ADF&G no longer maintains a Species of Special Concern list. The list has not been reviewed and revised since 1998 and is no longer considered valid. Since that time, the ADF&G has completed Alaska's Wildlife Action Plan, 2015 which is supported through the State Wildlife Grant program. The plan identifies species of special concern via nomination from resource agencies such as the U.S. Fish and Wildlife Service (USFWS).

The Birds of Conservation Concern that might be affected by the proposed project are listed in Table 3.3-3. This list supersedes the now-defunct ADF&G Species of Special Concern list. The PLS identified potential rusty blackbird nesting habitat within the vicinity of the EA Study Area. Rusty blackbirds breed in forested wetlands, including isolated coniferous wetlands and coniferous or mixed forest at the edge of beaver ponds, open wetlands, streams, and lakes. This species often nests in spruce trees, but has been documented to predominately use willow shrubs near FGA at the Tanana Flats Training Area of Fort Wainwright, Alaska (U.S. Army Garrison Fort Greely, 2012c). Proximity of dense coniferous or willow vegetation to water is key habitat criteria. Documented population declines of the rusty blackbird have caused concern among biologists, resulting in the species being listed by various organizations as a species of concern. The rusty blackbird is the only bird species that potentially nests on FGA that is listed as a species at risk in the FGA INRMP.

Table 3.3-3 Birds of Conservation Concern Potentially Affected by the Proposed Action

Common Name	Species Name	Breeding Season	Preferred Nesting Site
American Golden-plover	<i>Pluvialis dominica</i>	May 20 - Aug 15	Dry, open tundra
Gray-headed Chickadee	<i>Poecile cinctus lathamii</i>	May 1 - Aug 10	Holes in trees
Hudsonian Godwit	<i>Limosa haemastica</i>	May 15 - Jul 31	Hummocks in wetlands
Lesser Yellowlegs	<i>Tringa flavipes</i>	May 1 - Aug 15	Ground, next to hummocks, fallen branches and logs, under low shrubs and trees
Olive-sided Flycatcher	<i>Contopus cooperi</i>	May 20 - Aug 31	Open cup structures in trees
Rusty Blackbird	<i>Euphagus carolinus</i>	May 10 - Jul 20	Dense trees and shrubs, within 75m of standing water
Semipalmated Sandpiper	<i>Calidris pusilla</i>	Breeds elsewhere	Ground, near water under shrubs
Whimbrel	<i>Numenius phaeopus</i>	May 10 to Aug 20	Ground, near shrubs

Threatened and Endangered Species

No federally proposed or listed threatened, endangered, or candidate plant species are found in Interior Alaska and no known threatened or endangered wildlife species occur on FGA.

Environmentally Sensitive Habitat

No federally designated critical habitat has been identified on FGA.

3.4 Cultural Resources

Cultural resources include prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or any other reason.

Cultural resources are limited, nonrenewable resources whose potential for scientific research (or value as a traditional resource) may be easily diminished by actions impacting their integrity. Numerous laws and regulations require that possible effects to cultural resources be considered during the planning and execution of Federal undertakings. These laws and regulations stipulate a process of compliance, define the responsibilities of the Federal agency proposing the action, and prescribe the relationship among other involved agencies (e.g., State Historic Preservation Office (SHPO), the Advisory Council on Historic Preservation). In addition to NEPA, the primary laws that pertain to the treatment of cultural resources during environmental analysis are the National Historic Preservation Act (NHPA) (especially Sections 106 and 110), the Archaeological Resources Protection Act, the Antiquities Act of 1906, the American Indian Religious Freedom Act, and the Native American Graves Protection and Repatriation Act.

Area of Potential Effect

The area of potential effects (APE) includes any areas that will be used for the purposes of the project. It is defined in the regulations (36 CFR 800.16(d)) as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. This generally includes: construction site, access routes, staging areas, worker camp locations, monitoring wells, etc. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

The APE for this action includes those areas that could potentially be disturbed by proposed construction, infrastructure improvement, and/or operation projects in and around the MDC and is the same as the EA study area (Figure 3.1-1).

Fort Greely

Prehistoric habitation of FGA began about 11,000 years ago and ended about 150 years ago. The historic period began with the arrival of Russian traders in the 1810s and English traders in the 1840s. With the U.S. purchase of Alaska in 1867, American traders and prospectors entered the region. Gold discoveries in the 1880s brought a large influx of people to the area. The Army entered the region at this time to conduct a series of explorations. Responding to the need for better communications, the Army constructed the Washington-Alaska Military Cable Telegraph System during 1899-1906.

FGA's original designation, Station 17 Alaskan Wing, Air Transportation Command, was later changed to Allen Army Airfield. Allen Army Airfield was occupied by the Army between 1942 and 1945, and served as a rest and refueling stop for American pilots on their way to Ladd Army Airfield (Center for Environmental Management of Military Lands (CEMML), 2000). In 1945,

Allen Army Airfield was placed on inactive status. Between 1945 and 1947, the Civil Aeronautics Administration and a small contingent of Army soldiers maintained the airfield (CEMML, 2011). In 1948, the Army reactivated Allen Army Airfield redesignating it as U.S. Troops - Big Delta airfield where the first large-scale mock battle between large Army units in Alaska took place during the Cold War (CEMML, 2011). Following reactivation, Big Delta served as an Arctic training center. A permanent post, located one mile from the airfield was constructed between 1953 and 1954 (Denfeld, 1994). Facilities included a post headquarters, post engineer facilities, auditorium, fire station, power plant, warehouses, photographic laboratory, maintenance shops, and the Cold Weather and Mountain School training facilities. In 1955, Big Delta was renamed FGA, in conjunction with the construction of facilities to support the Army's Arctic research mission and training area known as the Black Rapids Training Area, a 3,807-acre area 30 miles south of Delta Junction (Denfeld, 1994; CEMML, 2000, 2011; JPARC, 2012).

FGA was host to a number of training activities between 1955 and the 1960s, eventually leading to the establishment of the Northern Warfare Training Center in 1963 (Denfeld, 1994; CEMML, 2000). Between 1962 and 1972, the Army operated a Stationary Medium Range Nuclear Reactor at FGA (CEMML, 2000). Between 1986 and 1989, construction at FGA updated many of the facilities built during the 1950s and expanded housing to accommodate an influx of personnel from the 172nd Infantry Brigade in 1974 and the 6th Light Infantry Division in 1986 (CEMML, 2000; U.S. Army, 2014). In 2001, FGA was designated as the location for a missile defense site, and construction of the facility commenced in 2002. Currently FGA serves as an integral part of the BMDS with a mission to employ mid-course defense against any missiles launched against the U.S. (U.S. Army, 2014).

Seven archaeological surveys have been conducted on FGA over the past 28 years. There are no recorded archaeological or historic sites within the APE.

3.5 Geology and Soils

Geology and soils include those aspects of the natural environment related to the earth, which may affect or be affected by the Proposed Action. These features include physiography, geologic units and their structure, soil condition and capabilities, and the potential for natural hazards.

Physiography

FGA encompasses a portion of Tanana–Kuskokwim Lowlands physiographic province. The region is bound on the north by the Brooks Range and on the south by the Alaska Range. FGA lies within the foothills of the Alaska Range and consists of rolling hills and river deltas. Elevations range from 1,200 to 1,400 ft above mean sea level. Streams flowing through the foothills generally originate in the Alaska Range and flow north in rugged V-shaped canyons and across broad terraced valleys. FGA is situated between two significant drainages originating in the foothills — the Delta River to the west and Jarvis Creek to the east. The site

vicinity has a northeast surface gradient of about 60 feet per 1 mile (U.S. Army Garrison Fort Greely, 2005).

Geology

FGA is located on a low alluvial terrace that has a gently undulating surface. The terrace is composed of glacial outwash deposits that are underlain by till, which in turn is underlain by stratified gravel. Glacial moraine features to the east and south of the cantonment are composed of coarse, unstratified, unsorted till ranging from silty gravel with sand to sandy silt with gravel. Wind-blown loess of glacial origin forms a mantle over much of the FGA area, ranging from several inches thick to greater than 128 ft thick (U.S. Army Garrison Fort Greely, 2007a). The Proposed Action would occur within the areas defined as an alluvial terrace. Figure 3.5-1 shows the geomorphic classes of FGA.

Soils

A comprehensive soil survey for FGA was completed in 2005. In general, soils are derived from glacial actions and modified by streams and discontinuous permafrost. Shallow, well-drained silt loams with sandy to gravelly underlying material occupy most of the rolling uplands on the surface of the glacial moraines and alluvium east of the Delta River. Soils in the river flood plains consist of alternate layers of sand, silt loam, and gravelly sand (U.S. Army Garrison Fort Greely, 2007a). Figure 3.5-2 has a complete description of the soils on FGA. The current MDC area and proposed location for IF #4 primarily consists of Nenana, silt loam soil, with a small area of Butchlake-Southpaw soils. These soils have a low water-holding capacity with a low probability of flooding or ponding (U.S. Department of Agriculture (USDA), 2005). However, during spring break-up when the accumulated snow/ice melt but the ground remains frozen, surface runoff and localized flash flooding have occurred in the undeveloped area east of Landfill Road.

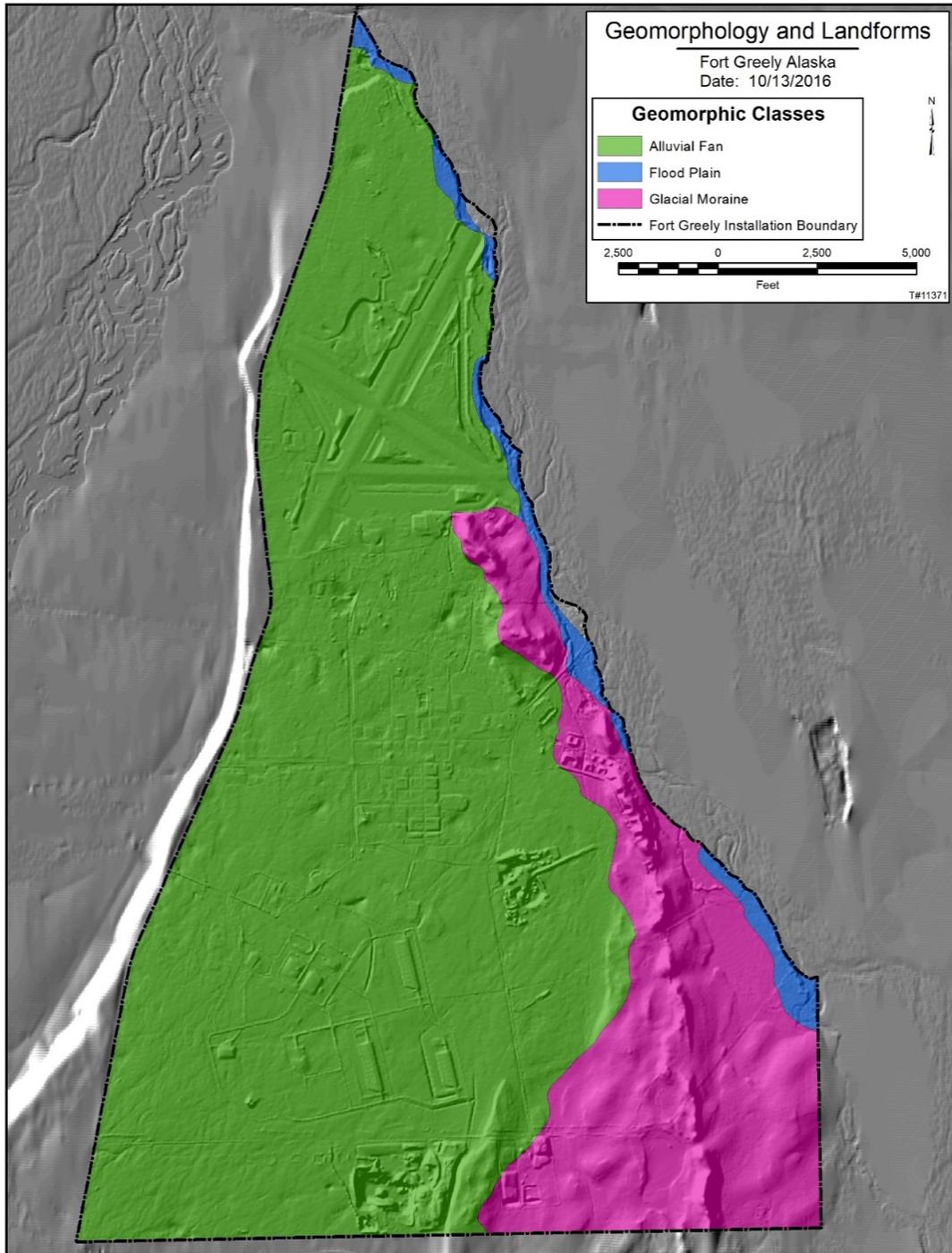
Geologic Hazards

FGA lies in a 200-mile wide seismic zone that extends from Fairbanks southward through Prince William Sound. The Denali Fault extends through the Alaska Range, approximately 45 miles south of FGA. The rate of displacement of this fault is generally 10 millimeter (mm) per year (Burns & Koehler, 2012).

In 2002, a magnitude 7.9 Denali Fault earthquake ruptured the earth surface for 209 miles. It was the strongest ever recorded earthquake in interior Alaska, and comparable in size and type to the devastating 1906 San Francisco quake. Minor to moderate damage occurred to roads, runways, and some buildings. Damage occurred to support structures for the Trans-Alaskan pipeline south of FGA and portions the Richardson Highway between FGA and Fairbanks. Movement was felt in a large area from north of Fairbanks to the Kenai Peninsula south of Anchorage (U.S. Department of Interior, 2003).

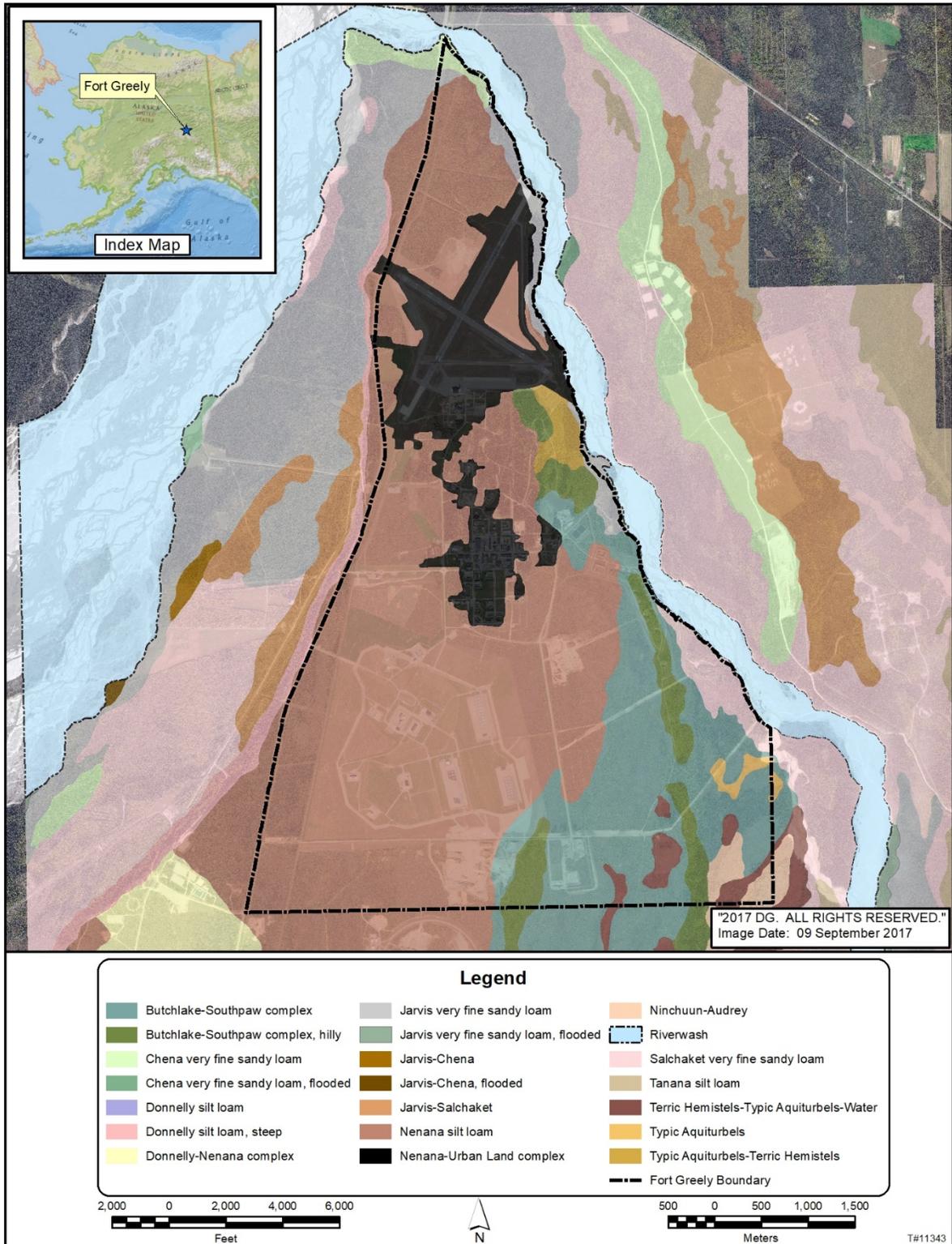
Discontinuous permafrost occurs throughout the region. However, permafrost was not encountered in soil borings conducted in the current MDC area or the proposed IF #4 site.

Figure 3.5-1 FGA Geomorphology



Source: Salcha-Delta Soil and Water Conservation District, 2016

Figure 3.5-2 FGA Soils



Source: USDA, 2005

3.6 Hazardous Materials and Hazardous Wastes

The relevant aspects of hazardous materials/waste management include the applicable Federal and state regulations and FGA Garrison Environmental Procedures. These procedures include specific procedures for hazardous materials usage and hazardous waste generation, and management programs for existing hazardous waste-contaminated sites within areas potentially affected by the Proposed Action, as well as spill notification and response procedures. For the purposes of the following analysis, the terms hazardous materials or hazardous waste will mean those substances defined by both Federal and state regulations.

Hazardous Materials Management

The FGA Hazardous Materials and Waste Management Procedure complies with all applicable state and Federal regulations. It established standard operating procedures for the correct management and storage of hazardous materials on the installation.

The procedure includes site-specific good housekeeping practices, facility surveys, satellite accumulation area inspections, employee training, record keeping, internal reporting, comprehensive site compliance evaluation, and sediment and erosion control. The installation also complies with applicable reporting requirements by submitting annual emergency response and extremely hazardous substances updates to the local emergency management officials.

Hazardous Waste Management

FGA is registered by the USEPA as a small quantity generator. The wastes are accumulated at satellite accumulation points throughout the installation before disposal. Building 637 serves as the temporary hazardous waste storage facility prior to their shipment off base. Hazardous waste management is performed in accordance with the FGA Hazardous Materials and Waste Management Procedures.

Pollution Prevention

The pollution prevention consists in the elimination or reduction of hazardous substances, pollutants, and contaminants. It includes waste diversion, minimization, and recycling. MDA and its contractors have addressed pollution prevention in the established MDC procedures and processes. The FGA Garrison Integrated Solid Waste Management Plan details FGA's effort in recycling and waste diversion opportunities on the installation. Recycling activities at FGA include fuels, batteries, brass shell casings, aluminum cans, tin/steel cans, glass, and card board.

Installation Restoration Program

No Installation Restoration Program (IRP) sites on FGA have been listed on the Comprehensive Environmental Response, Compensation, and Liability Act National Priorities List. Environmental cleanup at FGA has been addressed under both the IRP and the Base Realignment and Closure Environmental Cleanup Program. Numerous sites have been investigated by the U.S. Army and remediated under these programs. Investigations are now

complete at all known sites, while several suspected sites are still being investigated. As shown in Figure 3.6-1, there are two known sites within the EA Study area with building restrictions. Munitions contamination removal at the former World War II (WWII) Tent Area site is complete and the site has no building restrictions. The Proposed Action area does not contain any IRP or known/suspected contamination sites.

South Tank Farm (STF)

The STF was historically used as the main fuel storage facility for the Old Post when it was associated with the Allen Army Airfield. The STF had a storage capacity of 1,680,000 gallons. It consisted of four 420,000 gallon above ground storage tanks (ASTs) and associated valves and piping. The STF was connected to the Canadian Oil Pipeline and distribution piping throughout the Old Post. The ASTs, concrete pads, and associated valves and piping were removed sometime between 1977 and 1980. There are no known records regarding the method of closure or decommissioning of this former fuel facility. The site includes approximately 20 acres (U.S. Army Garrison Fort Greely, 2012a).

Remedial investigations were conducted at the site from 2003 through 2012. Soil contamination generally consists of petroleum hydrocarbons and their weathering products. The contaminants are diesel range organics and ethylene dibromide, which are present in subsurface soils and groundwater. Monitoring wells down gradient of the site are tested regularly and the extent of the contaminant plume monitored. Drinking water wells are treated at the wellhead with point of use filters and monitored for compliance with ADEC drinking water standards (U.S. Army Garrison Fort Greely, 2012a).

Landfill No. 6

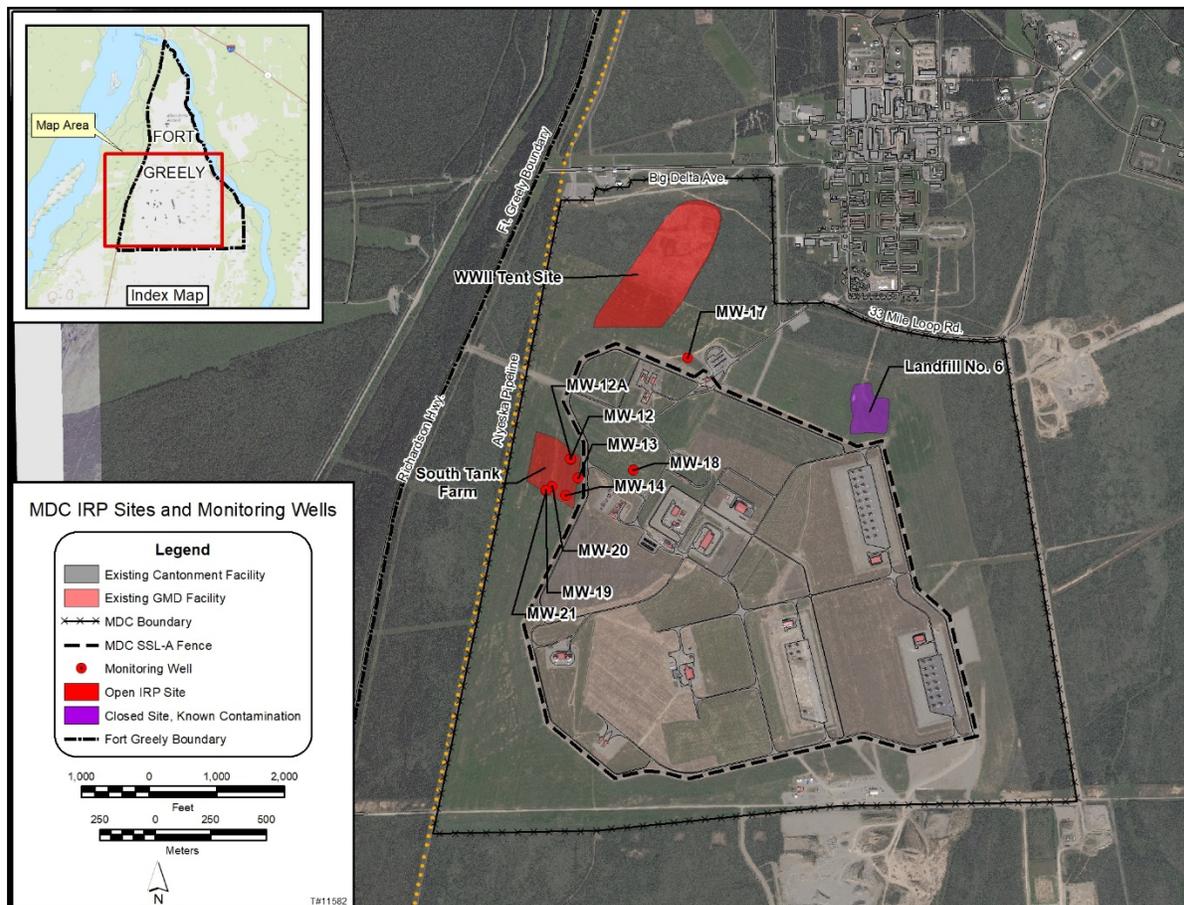
Landfill No. 6 is the Family Housing Landfill, covering approximately 11 acres. Use of the landfill began in the mid-1950s and ceased in 1960. The landfill has since been covered with soil and graded. The original purpose of the landfill was to provide a disposal site for grubbing material and debris from the housing construction. It is also believed to have accepted sanitary wastes (domestic garbage and septic tank wastes) buried in trenches. It is not known if other types of waste were placed in the landfill. Contaminants of potential concern include solid waste as well as methane, petroleum products, volatile organic compounds, semi-volatile organic compounds, polychlorinated biphenyls (PCBs), pesticides, and metals. Groundwater at this site has not been investigated. The site was closed as a No Further Remedial Action Planned site in 2005 (U.S. Army Garrison Fort Greely, 2012b).

WWII Tent Area

This site consists of a former WWII bivouac training area located within approximately 40 acres located just south of Big Delta Avenue near the main FGA gate. Studies conducted between 1998 and 2005 showed the area to have a low-level chemical contamination that does not require further clean-up. Munitions and Explosives of Concern (MEC) investigations and clearance activities conducted between 2008 and 2017 resulted in the complete removal of MEC and munitions debris (U.S. Army Garrison Fort Greely, 2017). There is no remaining

munitions contamination at the site. In 2017, ADEC concurred that all remediation fieldwork was complete (SMDC, 2018). Site closure documents are being prepared to officially close the site.

Figure 3.6-1 FGA Installation Restoration Program Sites Near the MDC



3.7 Health and Safety

Health and safety includes consideration of any activities, occurrences, or operations that have the potential to affect one or more of the following:

- The well-being, safety, or health of workers - Workers are considered to be persons directly involved with the operation producing the effect or who are physically present at the operational site.
- The well-being, safety, or health of members of the public - Members of the public are considered to be persons not physically present at the location of the operation, including workers at nearby locations who are not involved in the operation and the off-post population. Also included within this category are hazards from equipment, structures, plants, and animals.

Health and safety concerns at FGA are associated with operation of an airfield, military training activities in adjacent lands, the operational missile defense system, and forest fires.

FGA maintains maintenance personnel and firefighting support. The fire station is located in the cantonment area and is staffed to support the current MDA mission. To assist in emergency response, FGA maintains mutual aid agreements with the city of Delta Junction, the Interior Medical Facilities, and the State of Alaska Division of Forestry.

The Allen Army Airfield at FGA is primarily used for training. The Clear Zones for the airfield are currently contained within the installation boundaries. No airport surveillance radars currently exist at FGA.

Wildland fire management in Alaska requires multi-agency cooperation. Fire management is a joint effort by FGA, the city of Delta Junction, the Bureau of Land Management Alaska Fire Service, and the Alaska Department of Natural Resources, Division of Forestry, Delta Area Office. The agencies have developed an inter-service Support Agreement which establishes the Alaska Fire Service's responsibility for all fire detection and suppression on installation lands. All of FGA is in a critical suppression and is given highest priority for response, which is immediate and aggressive (U.S. Army Garrison Fort Greely, 2007). Integrated Wildlife Fire Management is addressed in the FGA INRMP.

Nineteen fires of 100 acres or more occurred on FGA from 1954 to 1999 (USASMDC, 2002b). Since the 1999 Donnelly Flats Fire, several large fires have occurred within the U.S. Army Alaska (USARAK) training lands surrounding FGA. However, none of these fires were in the proximity of FGA property (U.S. Army Alaska, 2006 and U.S. Department of Interior, 2017).

The MDA MDC at FGA is an operational missile defense system with established safety plans and procedures for routine operations and for emergency situations.

3.8 Water Resources

This section describes the existing water resource conditions at FGA, including the MDC area. Water resources include surface water, groundwater, water quality, and flood hazard areas.

Surface Water

FGA is in the Delta River watershed with a surface topography generally sloping to the north. The Delta River to the west and Jarvis Creek immediately east are the two primary drainages for FGA. Both are glacier-fed and silt-laden. The peak flow in these water systems is reached in late summer, when snow and ice melt is augmented by rainfall. Minimum flow occurs in winter when precipitation occurs as snow and Jarvis Creek and Delta River are generally frozen solid (U.S. Army Garrison Fort Greely, 2005). The only major surface water on FGA is Canister Lake and is located southeast of the current MDC. Other surface water bodies are intermittent, unnamed creeks and lakes.

Storm water drainage for FGA is generally in a northeastern direction towards Jarvis Creek, however the majority of precipitation infiltrates the ground and does not reach Jarvis Creek as

runoff (U.S. Army Garrison Fort Greely, 2016). Runoff is at its greatest during the early summer with the melting of snow and ice on ground surfaces. Drainage patterns have been established for FGA and the MDC area. The MDC operates under the FGA Storm Water Pollution Prevention Plan (SWPPP), with one established storm water discharge point. Except during the spring breakup, this outfall typically has little to no flow due to the relatively flat terrain and well-draining soils.

Floodplains

Executive Order (EO) 11988: Floodplain Management requires Federal agencies to protect values and benefits of floodplains and reduce risks of flood losses by not conducting or allowing activities within floodplains, unless there is no other practicable alternative. The 100-year floodplain of the Delta River is restricted to the western side of the Richardson Highway and does not extend onto FGA. The 100-year floodplain of Jarvis Creek extends westward to the east boundary of FGA. Figure 3.8-1 shows the floodplains near FGA.

The Jarvis Creek floodplain is subject to overbank flooding and aufeis (river ice) overflows. The extent of such flooding, up to the 100-year recurrence interval, was estimated and mapped in 1978 using high altitude aerial photography, satellite imagery, and observations and updated in 1982 as part of a Flood Insurance Study and a Flood Insurance Rate Map prepared by the Federal Emergency Management Agency (FEMA). In 1987, a more extensive analysis of flooding and erosion potential was undertaken, and some suggested flood protection measures were proposed. The 1978, 1982, and 1987 floodplain analyses only covered a small portion of FGA and just the northern portion of the Jarvis Creek watershed (U.S. Army Alaska, 2006).

The most recent floodplain modeling for Jarvis Creek was completed in 2006 using the USACE River Analysis System computer program and topographic data obtained through Light Detection and Ranging (LIDAR). This modeling was performed under two different scenarios: with and without aufeis. Aufeis formations occur in Jarvis Creek at approximately the same spot each winter and has historically caused the water to overflow the natural streambank during the spring, following alternate high water channels or drainage ways east of Jarvis Creek through the community of Delta Junction (U.S. Army Alaska, 2006).

Groundwater

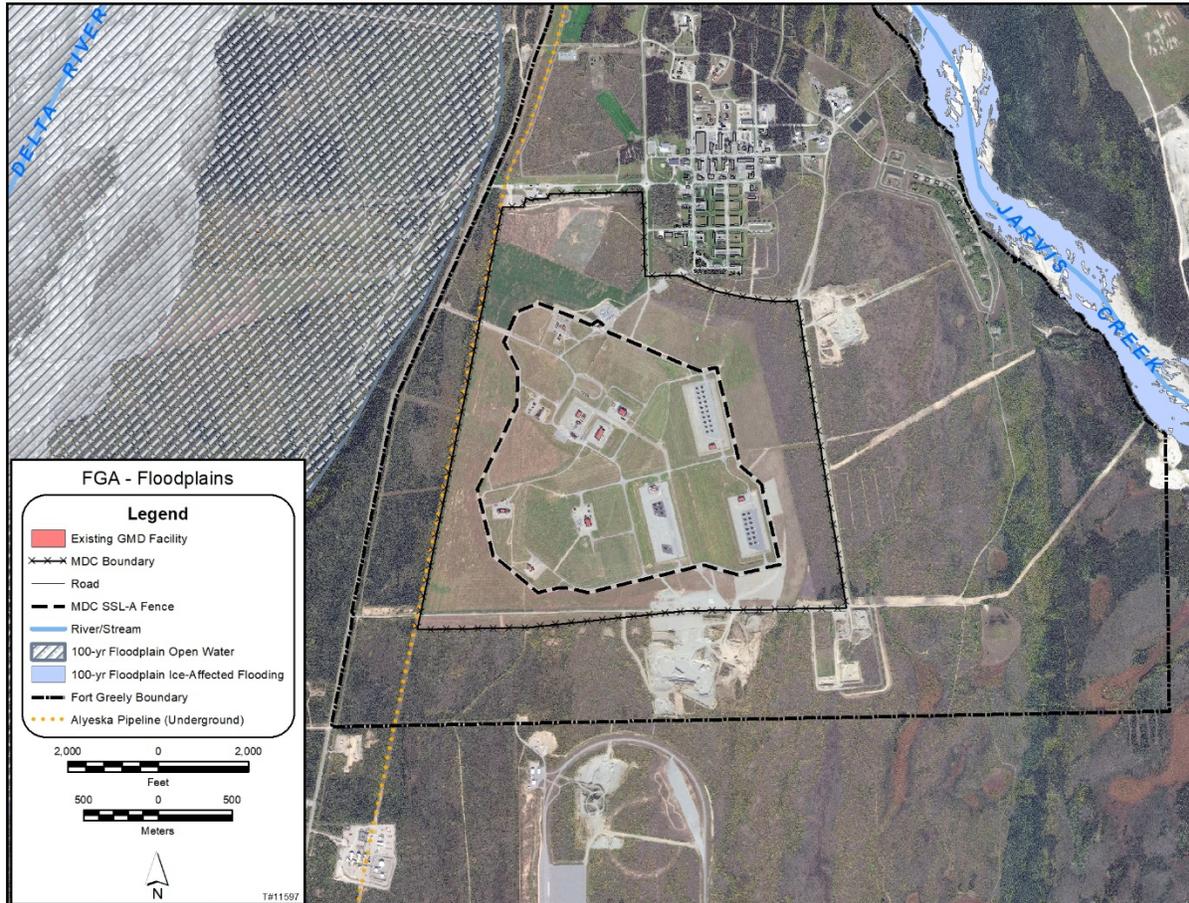
The top of the water-bearing unit is encountered at about 170 ft below ground surface (bgs). This unit consists of a lower stratified gravel layer. One boring completed at FGA penetrated the alluvium to depths of 400 ft bgs. It has been reported that the lower stratified gravel aquifer is at least partially confined by low-permeability lenses and seams that may result in the formation of perched water zones.

Groundwater flows northeasterly at a regional gradient ranging from approximately 5 to 21 ft per mile. Groundwater in the area is recharged continuously by the Delta River and by infiltration of meltwater from the Alaska Range in the late spring and early summer. The depth to groundwater ranges from 170 ft to at least 300 ft bgs, and fluctuates in response to seasonal recharge. There were five usable wells on FGA, located near the north end of FGA, yielding an

estimated combined capacity in excess of 4 million gallons per day (U.S. Army Garrison Fort Greely, 2005).

Four water supply wells are located on the MDC. No new water wells are anticipated with the Proposed Action.

Figure 3.8-1 FGA – Floodplains



Source: USACE, 2006

Water Quality

State primary standards protect drinking water quality by limiting the levels of specific contaminants that can adversely affect public health and are known or anticipated to occur in water. Secondary drinking water standards are non-enforceable guidelines regarding contaminants that may cause cosmetic effects (skin or tooth discoloration) or aesthetic effects (taste, odor, or color) in drinking water.

The drinking water source at FGA and the MDC is groundwater. Most of the wells on the installation tap into unconfined aquifers found in unconsolidated alluvial deposits. The well waters are considered pristine and require only basic chlorine disinfection to make them potable

(U.S. Army Garrison Fort Greely, 2007b). Drinking water at FGA is in compliance with the state drinking water standards (ADEC, 2017b).

The U.S. Army Corps of Engineers (USACE) conducted a study of the water quality of Jarvis Creek in 2003. Based on this study, most of the parameters, including arsenic levels and pH, were within the state drinking water quality standards. Dissolved oxygen and temperature narrowly exceeded the state standard for drinking water, but not the temperature standard for general water supply (U.S. Department of the Army, 2008). No water quality survey has been performed for Canister Lake.

3.9 Wetlands

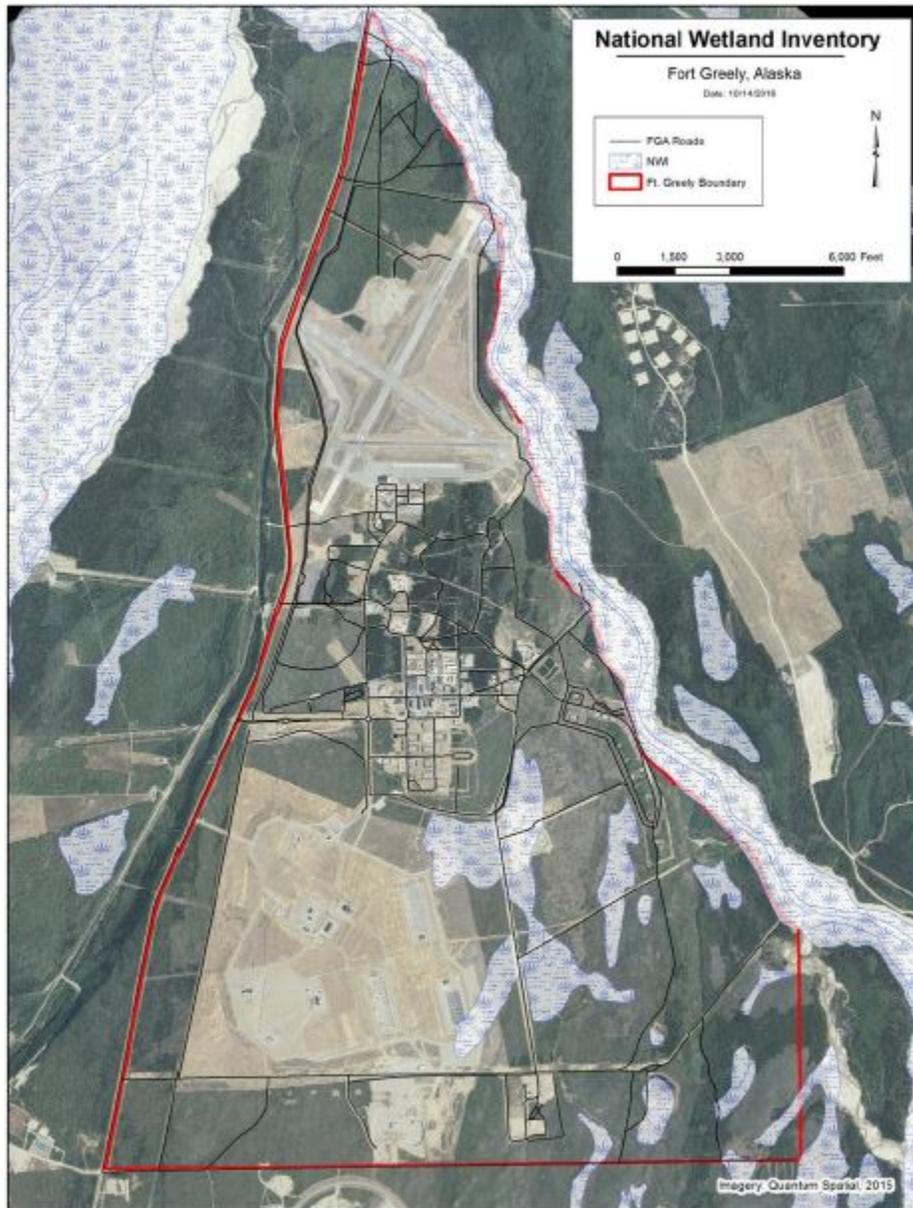
Wetlands in Alaska are defined by the USACE as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Wetlands generally include swamps, marshes, bogs, and similar areas. The USACE Alaska District and the USEPA regulate wetlands through the Clean Water Act (CWA) Section 404 Permitting Program.

Wetlands are among the most productive ecosystems in the world, comparable to rainforests and coral reefs. They provide important functions such as water quality improvement, floodwater storage, fish and wildlife habitat, and biogeochemical cycling. These functions are valuable to people and can be measured in terms of flood risk reduction, revenues generated by hunting and fishing, reduced costs of water treatment, and other metrics.

Wetlands occur more frequently at higher latitudes largely because the cooler climate provides less opportunity for evaporation, which is part of the reason Alaska’s surface area is 43% wetlands. Of the 175 million acres of Alaskan wetlands, two-thirds are palustrine shrub/scrub. Interior Alaska contains millions of acres of black spruce muskeg and floodplain wetlands dominated by deciduous shrubs and emergent vegetation species.

Black spruce muskeg is a very common wetland type in the Interior Alaska ecoregion. Black spruce muskeg often develops over aquitards such as permafrost. FGA, on the whole, has very little permafrost; the permafrost that is present on the installation is discontinuous and thaw stable, meaning that if it were to thaw it would not significantly alter the topography.

The National Wetlands Inventory (NWI) mapping performed by the USFWS is intended to provide reconnaissance level information on the location, type, and size of aquatic resources. The maps are prepared from the analysis of high altitude imagery and wetlands are identified based on vegetation, visible hydrology, and geography. In order for an area to be recognized as wetland as defined by the CWA, the parameters of appropriate vegetation, hydrology, and hydric soils must be satisfied. Figure 3.9-1 shows the USFWS NWI mapping for FGA. Some areas of palustrine shrub-scrub and palustrine forested wetlands are mapped within the area of the Proposed Action.

Figure 3.9-1 National Wetlands Inventory Delineation of FGA

Ecological disturbance can affect wetland status. There are several types of disturbance that have significantly affected the vegetation, soils, and hydrology on FGA. The most widespread of these is fire, in particular the 1999 Donnelly Flats fire, which burned 67 percent of FGA (Figure 3.9-2).

As a result of the fire, many areas on FGA previously identified as wetland by the NWI were converted to uplands due to removal of the insulating moss layer.

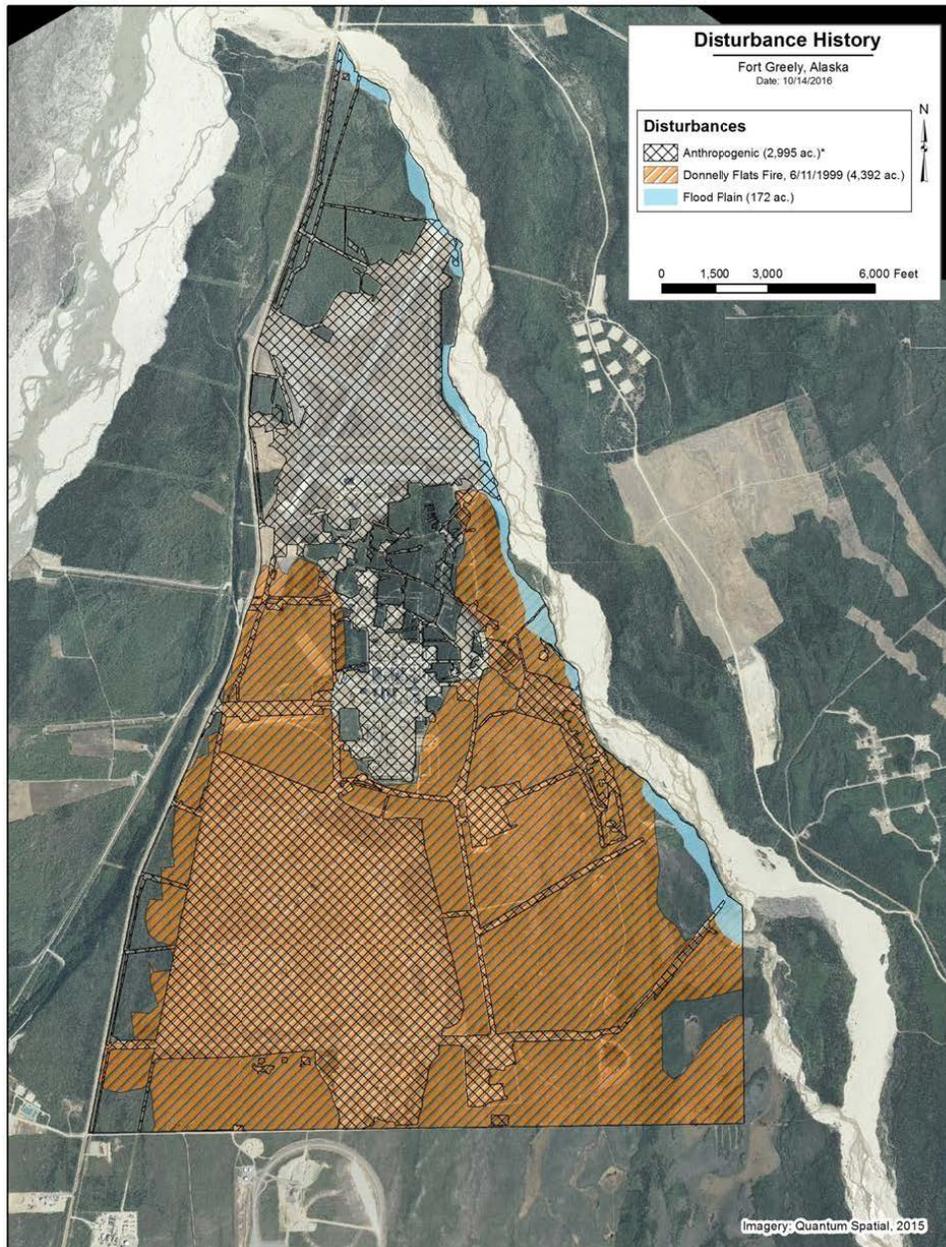
The hydrology in the project area was significantly altered by the Donnelly Flats fire, and in 2016 SDSWCD completed a wetlands delineation survey and other waters of the U.S., including a

3.0 Affected Environment

Preliminary Jurisdictional Determination (PJD), using the latest guidance available from the USACE.

All delineation of wetlands was conducted in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual and the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Alaska Region, Version 2.0.

Figure 3.9-2 Donnelly Flats Fire's Impact on FGA

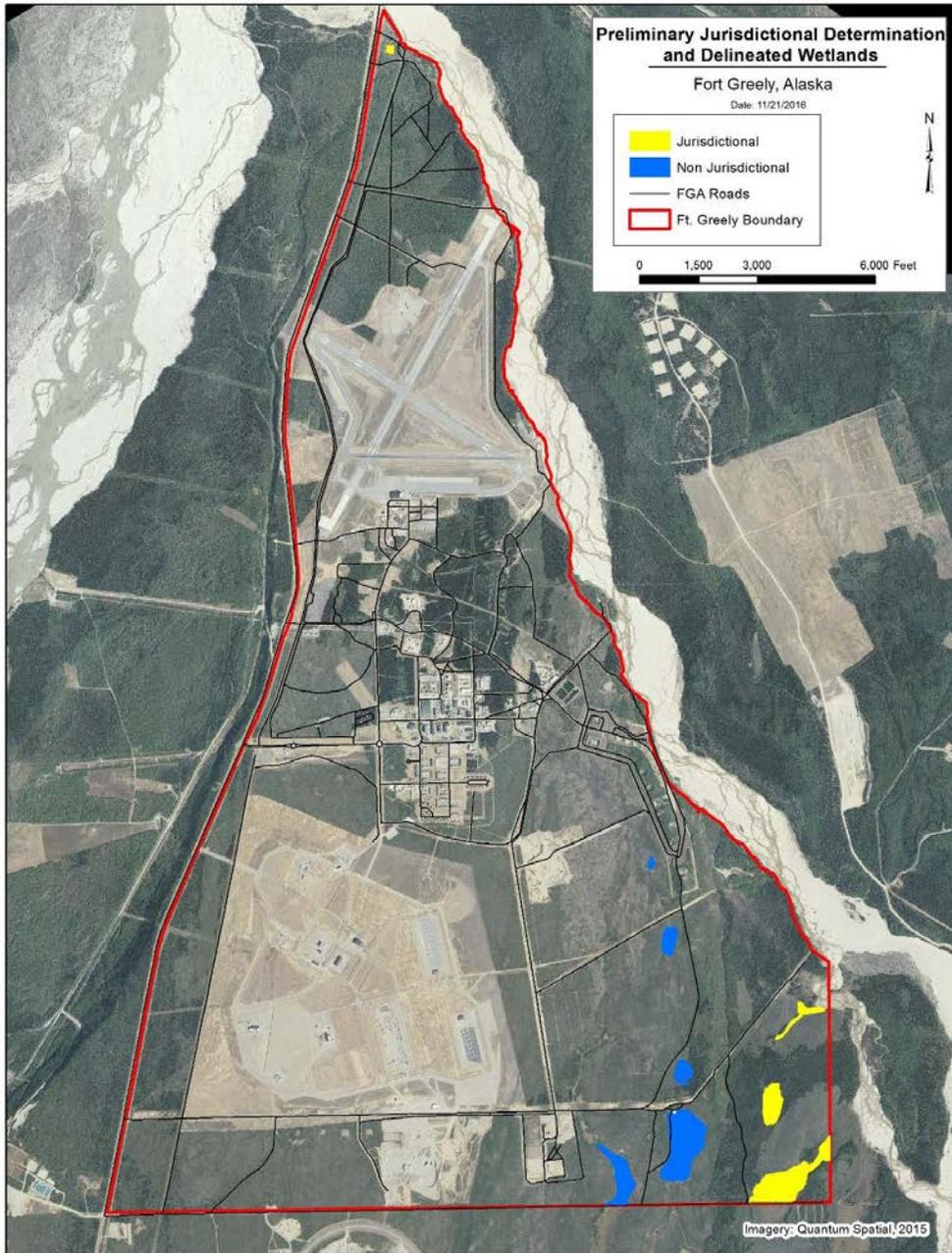


Source: SDSWCD, 2016

Field investigators collected data throughout the study area during August and September, 2015 and August, 2016. These data were used in conjunction with information on geology, soils, topography, climate, disturbances, and vegetation to compile a map of wetland and other waters at FGA, as well as to evaluate the jurisdictional status of these wetlands.

The results of that investigation were quite different than the extent and distribution of wetlands mapped by the USFWS NWI mapper, as shown in Figure 3.9-3. The wetland delineation performed by the SDSWCD was based on actual data collected in the field and documented in accordance with the USACE wetland delineation manual and Alaska District regional supplement, rather than aerial photography interpretation as the NWI mapping. The SDSWCD wetland delineation is also much more recent than the NWI map, which was compiled using photography predating the Donnelly flats fire. The existing condition of wetlands in the project area are more accurately represented by the SDSWCD mapping (Figure 3.9-3) than the NWI mapping.

Figure 3.9-3 2016 SDSWCD FGA Wetland Delineation



Source: SDSWCD, 2016

4.0 Environmental Consequences

4.1 Air Quality

4.1.1 Proposed Action

Emissions associated with the Proposed Action would include fugitive dust from ground disturbance, and combustion emissions from construction equipment and vehicles. No new stationary emission sources are associated with the operation of the Proposed Action.

Fugitive dust emissions would be primarily from tree clearing, ground grading and excavation, movement and screening of backfill and aggregate materials, and vehicle movement on unpaved surfaces. The amount of fugitive dust generated would depend on the project activity, weather conditions, and ground condition. Standards best management practices (BMPs), such as frequent watering, would be implemented to reduce the amount of dust generated.

The Proposed Action would involve construction activities over four summers at FGA, with most activity occurring during the first two. These activities, along with the emissions from existing sources at FGA, are not expected to exceed the 250 tons per year threshold to avoid classification as PSD Major Source nor would the emissions exceed the NAAQS or AAAQS.

Construction activities would have an unavoidable short-term impact on air quality on FGA. However, these impacts would be localized, temporary, and small for each year of construction. The only operational emissions impact anticipated is the increase of vehicular emissions associated from approximately 70 additional personnel to the MDA MDC area. No long-term or significant air quality impact is expected due to the Proposed Action.

The releases of some combustion products, such as carbon dioxide (CO₂), are predicted by climate models to affect the global climate when released into the atmosphere. These gases are called greenhouse gases (GHGs) due to their perceived contribution in increasing global temperatures. The CEQ issued guidance in 2016 on how agencies should consider the effects of climate change and GHGs when they describe the environmental impacts of Proposed Actions in NEPA documents. Although rescinded in 2017, the guidance provides a useful benchmark for analysis. If a Proposed Action would be reasonably anticipated to cause direct emission of 25,000 metric tons or more of CO₂-equivalent GHG emissions on an annual basis, an assessment of the emissions and their potential effects on climate could be meaningful to decision makers and the public.

Combustion engines in construction equipment and vehicles would emit CO₂ and other GHGs during construction activities. However, emissions would not approach the 25,000 metric ton per year threshold identified in the CEQ guidance, which is roughly equivalent to the annual GHG emissions from the annual energy use of approximately 2,300 homes (USEPA, 2017). The amount of CO₂ and other GHGs released as a result of proposed activities is minor, and releases would be temporary; therefore, any potential contribution to climate change would be negligible.

4.1.2 No-Action Alternative

Under the No Action Alternative, additional GBIs, IF #4, MEB, and associated infrastructure would not be constructed at FGA, resulting in no increases to air emissions.

4.2 Biological Resources

4.2.1 Proposed Action

Temporary and short-term impacts to biological resources would occur as a result of the Proposed Action.

Construction

Construction would require clearing and grubbing of approximately 285 acres for the Proposed Action. Impacts would be similar to those analyzed in the NMD Deployment EIS which included a disturbance area of 600 acres. This EIS concluded that there would be no significant impact to FGA biological resources.

Vegetation. Most of the 18,000 acre area burned by the 1999 Donnelly Flats fire is in the same tall shrub-sapling stage as the 235 acres that would be cleared for the Proposed Action, with the notable exception of the approximately 1,200 acres that has been developed and maintained by mowing for the MDC. The cycle of boreal forest fire succession will continue to reset forested areas of the Interior to the pioneering stage, which will progress through moss-herb and gradually create additional tall shrub-sapling stage areas like those that would be lost to the Proposed Action. Open spruce forests, which are the precursor to the vegetation present in the project area, are very abundant in Interior Alaska and the construction of the proposed project would not have a significant impact on vegetation.

Mammals. Moose are the mammal resource of concern with respect to the Proposed Action due to their visibility, phenology, density, and the expressed concerns of local residents and the FGA Director of Public Works (DPW). Other mammals are unlikely to be impacted by the project in a meaningful way due to their low density, general wariness towards people and construction activities, mobility, or small size preventing them from being impacted by fences.

Even though the proposed construction would cause the loss of approximately 235 acres of good quality moose foraging habitat, impacts are not considered significant due to the mobility of the moose to seek similar or better habitat in the surrounding area.

Moose becoming trapped within perimeter fencing at FGA is a current concern. Once inside the fencing, moose tend to not be able to find their way out. The FGA DPW is working to manage the moose and to develop measures that would prevent entry. The Proposed Action involves the installation of additional security fencing. A potential exists for moose to be trapped within the secure areas of the Proposed Action once the fencing is installed. MDA will work with FGA DPW to implement efforts to reduce the moose getting trapped. The area surrounding FGA is abundant with moose and suitable habitat. The project is not expected to have a significant impact on mammals.

Birds. The loss of vegetation within the Proposed Action area is anticipated to result in negligible impacts to bird species at the population level due to the generally widespread population range of the species. Most notable would be the loss of the tall shrub-sapling stage areas, which are often used by migratory bird species. The loss of this habitat would be considered a negligible impact to these widespread species.

Impacts to birds would likely be most prevalent during the site clearing phase of the project when trees, shrubs, and other vegetation are removed.

To meet the aggressive construction schedule, MDA will attempt to begin clearing and grubbing activities by mid-April 2018. This should keep the construction area disturbed to the extent that birds would not use the area for nesting.

The armed forces are authorized to take migratory birds incidental to military readiness activities. If the armed forces determine the activities may result in a significant adverse effect on a population of a migratory bird species, then the armed force must confer and cooperate with the Service to develop and implement appropriate conservation measures to minimize or mitigate such significant adverse effects (50 CFR Part 21.15).

MDA evaluated the potential for impacts to migratory bird populations and MBTA compliance in NEPA analysis and used information from the appropriate INRMP, where applicable, and the best scientific data available.

To address this issue, MBTA-protected species noted to use habitats on FGA were reviewed to determine if any such species populations would be significantly adversely affected by the construction and operation of the Proposed Action at FGA. The FGA installation INRMP and PLS lists bird species noted to utilize FGA.

The area that would be cleared for construction and staging contains suitable nesting habitat for one bird of conservation concern that was documented in the 2012 PLS, the lesser yellowlegs and one bird species of conservation concern that is likely to be found in the project area but was not documented in the 2012 PLS, the whimbrel. Twelve additional bird species protected by the MBTA and likely to find suitable nesting habitat in the area proposed for vegetation removal were observed in the 2012 PLS (Table 4.2-1).

Table 4.2-1 Birds Protected by MBTA Likely to Find Suitable Nesting Habitat in the EA Study Area

Common Name	Species Name
Alder Flycatcher	<i>Empidonax alhorum</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
Hermit Thrush	<i>Catharus guttatus</i>
Lapland Longspur	<i>Calcarius lapponicus</i>
Lesser Yellowlegs	<i>Tringa flavipes</i>
Lincoln's Sparrow	<i>Melospiza lincolnii</i>
Orange-crowned Warbler	<i>Oreothlypis celata</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Swainson's Thrush	<i>Catharus ustulatus</i>
Townsend's Solitaire	<i>Myadestes townsendi</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Yellow Warbler	<i>Setophaga petechia</i>

Suitable nesting habitat in Interior Alaska is abundant and widely distributed. The MBTA listed species noted to utilize FGA habitats have widespread populations which would not be significantly impacted by construction and operation activities for the Proposed Action.

The rusty blackbird habitat identified in the 2012 PLS is well away from the Proposed Action area and will not be impacted by the proposed clearing and grubbing activities.

The permanent impacts of the proposed project on birds is expected to be less than significant.

4.2.2 No-Action Alternative

Under the No Action Alternative, additional GBIs, IF #4, MEB, and associated infrastructure would not be constructed at FGA, resulting in no impacts to biological resources. FGA would continue to manage the area in accordance with the INRMP.

4.3 Cultural Resources

4.3.1 Proposed Action

Cultural Resources

A search of the Alaska Historic Resources Survey (AHRs) database and cultural resources surveys at FGA, shows no known cultural resources within the APE (Figure 3.1-1). However, there are 45 known sites within FGA (Table 4.3-1). Two archaeological sites, XMH-1168 and XMH-0871, were identified during a 2010 survey by the CEMML, and are located near the East Boundary Road (Figure 3.1-1). These sites would not be impacted by the Proposed Action. Further information on these sites and potential future expansion activities at FGA can be found in Section 4.9 Cumulative Impacts.

Table 4.3-1 Cultural Resources Known on FGA

AHRS No.	Site Name	NRHP Status	Within APE
XMH-0324	Cannister Lake Site	Not Eligible	
XMH-0730	Building P808, Housing-Eightplex	Not Eligible	
XMH-0732	Building P810, Housing-Eightplex	Not Eligible	
XMH-0733	Building P812, Housing-Eightplex	Not Eligible	
XMH-0735	Building P814, Housing-Eightplex	Not Eligible	
XMH-0744	Building P826, Housing-Eightplex	Not Eligible	
XMH-0745	Building P827, Housing-Eightplex	Not Eligible	
XMH-0746	Building P829, Housing-Eightplex	Not Eligible	
XMH-0747	Building P830, Housing-Eightplex	Not Eligible	
XMH-0748	Building P831, Housing-Eightplex	Not Eligible	
XMH-0749	Building P833, Housing-Eightplex	Not Eligible	
XMH-0750	Building P834, Housing-Eightplex	Not Eligible	
XMH-0751	Building P835, Housing- Eightplex	Not Eligible	
XMH-0752	Building P845, Chapel	Not Eligible	
XMH-0753	Building P847, Child Development Center	Not Eligible	
XMH-0758	Building P854, Housing-Eightplex	Not Eligible	
XMH-0765	Building P875, Housing-Eightplex	Not Eligible	
XMH-0766	Building P876, Housing-Eightplex	Not Eligible	
XMH-0768	Building P878, Heat Distribution Station	Not Eligible	
XMH-0772	Building P895, Housing-Eightplex	Not Eligible	
XMH-0773	Building P896, Housing-Eightplex	Not Eligible	
XMH-0788	Building 924, Housing- Duplex	Not Eligible	
XMH-0789	Building 925, Garage-Two Space	Not Eligible	
XMH-0790	Building 926, Housing-Oneplex	Not Eligible	
XMH-0809	Building 945, Garage-Two Space	Not Eligible	
XMH-0816	Building 955, Garage-Two Space	Not Eligible	
XMH-0817	Building 1201, Ammo Bunker	Not Eligible	
XMH-0818	Building 1202, Ammo Bunker	Not Eligible	
XMH-0819	Building 1203, Ammo Bunker	Not Eligible	
XMH-0820	Building 1204, Ammo Bunker	Not Eligible	
XMH-0821	Building 1205, Ammo Bunker	Not Eligible	
XMH-0822	Building 1206, Ammo Bunker	Not Eligible	
XMH-0823	Building 1207, Ammo Bunker	Not Eligible	
XMH-0824	Building 1208, Ammo Bunker	Not Eligible	
XMH-0825	Building 1209, Ammo Bunker	Not Eligible	
XMH-0871	XMH-00871	Eligible	X
XMH-1168	Moraine Lithic Site	Eligible	X
XMH-1223	XMH-01223	Not Eligible	
XMH-1224	XMH-01224	Eligible	
XMH-1225	XMH-01225	Eligible	
XMH-1226	XMH-01226	Eligible	
XMH-1227	XMH-01227	Eligible	
XMH-1228	XMH-01228	Not Eligible	
XMH-1229	XMH-01229	Not Eligible	
XMH-1230	XMH-01230	Not Eligible	

4.3.2 No-Action Alternative

Under the No Action Alternative, additional GBIs, IF #4, MEB, and associated infrastructure would not be constructed at FGA, cultural resources at the proposed site would not be impacted.

4.4 Geology and Soils

4.4.1 Proposed Action

Short-term impacts to geology and soils would occur as a result of the construction of the Proposed Action.

Construction would require clearing and grubbing of approximately 285 acres for the Proposed Action. Impacts would be similar to those analyzed in the NMD Deployment EIS, which included a disturbance area of 600 acres. The NMD EIS concluded that there would be no significant impact to geology and soils at FGA.

Soils

The primary soil related concern associated with construction would be from soil erosion at the site. Exposed soils from land clearing and construction activities are susceptible to wind and water erosion. The EA Study area consists of soils that are predominantly well drained, with a low runoff and flooding/ponding characteristic (USDA, 2005). As mentioned in Chapter 3, spring breakup often results in surface runoff and occasional flash flooding in the undeveloped area east of Landfill Road. Construction in this area would require the stormwater design to account for these events. The area is not within the floodplain of Jarvis Creek and modeling has shown that flooding from ice blockage on Jarvis Creek would not be expected (USACE, 2006).

Construction stormwater runoff control structures would be used as necessary as part of standard BMPs to divert water from the construction site and control erosion. BMPs could include installing stormwater silt fences or straw bale dikes, adding protective coverings to augment soil stability, creating sediment basins to control water flow, and reseeding disturbed areas. BMPs to control wind soil erosion during construction could include limiting the amount of acreage exposed, and use of watering trucks, structural barriers, and wind breaks. Once constructed, the Proposed Action area would be relatively level with appropriate stormwater drainage established and ground vegetation restored similar to the current MDC.

It is not anticipated the FGA Garrison Construction & Demolition (C&D) landfill or borrow pit would need to be filled and leveled for IF #4 construction and operation.

Geologic Hazards

The active fault zone south of FGA could produce large magnitude earthquakes. Impacts from such an event would be reduced by constructing structures to meet the minimum seismic design standards of the Uniform Building Code. All new construction would incorporate seismic design parameters consistent with the nature of the facility and its geologic setting. Construction and

operation of the Proposed Action are not expected to have any effect on the frequency of earthquakes in the area.

Geotechnical studies conducted in the Proposed Action vicinity did not discover any ice lenses or other permafrost features; therefore, no impacts to permafrost would be expected.

Minor short-term construction impacts to geology and soils are expected from the Proposed Action. Standard construction BMPs and land management practices would be implemented to reduce the impact to the extent possible.

4.4.2 No-Action Alternative

Under the No Action Alternative, additional GBIs, IF #4, MEB, and associated infrastructure would not be constructed at FGA, the geology and soils at the proposed site would not be impacted.

4.5 Hazardous Materials and Hazardous Wastes

4.5.1 Proposed Action

Hazardous materials and waste management would be performed in accordance with ongoing FGA procedures, as well as applicable Federal, state, and local regulations.

4.5.1.1 Construction

The hazardous materials utilized would consist of motor fuel, oil, lubricants, and similar materials associated with vehicles and construction equipment.

Though impacts to the environment are not expected from the presence of potentially hazardous materials and the generation of wastes, BMPs would be incorporated into design, construction, and repair plans. Such plans may be used during the construction period to minimize the amount of hazardous materials stored, the threat of their accidental and unplanned release into the environment, and the quantity of hazardous waste generated.

Wastes would be segregated as non-hazardous and hazardous, and possibly special wastes for collection and disposal. Non-hazardous waste would be removed for appropriate disposal. Hazardous wastes would be collected for disposal in accordance with applicable Federal, state, and DoD requirements. No permitted hazardous waste treatment or disposal facilities exist on FGA; therefore, all hazardous waste would be transferred by licensed hazardous waste transporters for appropriate treatment or disposal.

Any spill or discovery of a hazardous material or hazardous waste during construction would be quickly reported, investigated, and remediated in accordance with the Spill Notification and Response component of the FGA Environmental Procedures and the contractor's SWPPP and Project Spill Prevention, Control, and Countermeasure Plan. These procedures identify the appropriate points of contact for reporting an incident.

As mentioned in Chapter 3, two known contamination sites exist within the EA Study area (the WWII Tent area was closed April 2017).

No known contamination exists within the undeveloped area east of Landfill Road. However, there is a low potential for unexploded ordnance, due to the long history of military training in the adjacent area. Most of the historic ordnance used consisted of small arms ammunition and 40-mm practice grenades. Prior to any site related activities FGA's DPW Environmental Office would review all dig permit applications and would issue appropriate BMPs, controls, and appropriate warning to minimize the disturbance of contaminated areas of concern. If land disturbance activities at the site encounter contamination, ADEC would be notified, a sampling and treatment plan developed, and the contaminated material would be properly remediated or disposed of in accordance with applicable regulations.

4.5.1.2 Operation

The types of hazardous materials and wastes associated with the Proposed Action would be similar to those currently used at MDA MDC and associated support facilities. These hazardous materials and wastes were fully analyzed in the NMD Deployment EIS and the Continental United States Interceptor Site (CIS) Draft EIS.

Hazardous Materials

The Proposed Action would involve minimal use of hazardous materials. These materials would include protective coatings, lubricants and oils, motor and generator fuels, isopropyl alcohol, backup power batteries, adhesives, and sealants.

Hazardous materials specific to the interceptors at FGA would be the nitrogen tetroxide and hydrazine inside of each interceptor kill vehicle (KV). Each KV contains approximately 2 gallons of hydrazine and 1.5 gallons of nitrogen tetroxide. The process and handling of these liquid propellants would be the same as that currently used at the FGA MDC. The hydrazine, which is included in the U.S. EPA's Extremely Hazardous Substance List, would be reported to local authorities in accordance with the Emergency Planning and Community Right-to-Know Act. Both hydrazine and nitrogen tetroxide are reported in U.S. EPA's Toxic Substances Control Act Inventory.

Hazardous Waste

All hazardous waste generated by the operation of an additional IF at FGA would be similar to the wastes currently generated by the MDA MDC. These waste streams are handled in accordance with the FGA Hazardous Materials and Waste Procedures. Hazardous waste disposal is a service provided to MDA via a Base support contract. Typical waste include paints, solvents, oils, lubricants, antifreeze, and batteries.

4.5.2 No-Action Alternative

Under the No Action Alternative, additional GBIs, IF #4, MEB, and associated infrastructure would not be constructed at FGA, and the hazardous materials and hazardous wastes of the MDC would not increase.

4.6 Health and Safety

4.6.1 Proposed Action

The MDA MDC at FGA is an operational missile defense system with established safety plans and procedures for routine operations and for emergency situations. Hazards associated with construction and operation of the system were fully analyzed in the NMD Deployment EIS and CIS Draft EIS, to include transportation and handling of the interceptors, and potential mishaps. These same hazards would exist for the Proposed Action activities.

The current IFs and associated support facilities were constructed in compliance with established worker health and safety standards and ESQDs. The Proposed Action would likewise be sited to comply with ESQD requirements. All of the ESQDs would fall within the base boundary; therefore, the Proposed Action should not pose a public health and safety risk.

The primary public and worker safety concerns associated with Proposed Action include mishaps with the interceptors that would lead to an explosion or leak of hypergolic fuels and oxidizers. As described in the NMD Deployment EIS, the potential for an explosion is very small and tests have shown that the interceptor will most likely burn not explode during a mishap. The interceptor does not contain an explosive warhead.

The KV contains liquid hypergolic propellants. Hypergolic propellants are fuels and oxidizers that ignite on contact with each other and need no ignition source. A release of either propellant could result in the release of hazardous materials inside the canister. An indoor release of liquid propellants could result in localized concentrations that exceed both the Immediately Dangerous to Life or Health (IDLH) or Permissible Exposure Limit (PEL) for workers. Nitrogen tetroxide is the greater hazard due to its lower IDLH limit and lower boiling point. Risk from inadvertent release would be mitigated by design of the tanks, atmospheric monitoring, and following procedure as summarized below. The most likely area for this to occur would be within the Missile Assembly Building (MAB), Interceptor Storage Facility (ISF), and the IFs. Exposure to propellant released below the PEL level for the nitrogen tetroxide as a result of a release would not cause irreversible damage. Exposure at these levels would be mildly irritating to the eyes and nose and could include coughing. (DoD, 2016)

Upon arrival at FGA, the interceptor components would be placed in the MAB for assembly, integration, and check-out or placed in the ISF for storage prior to assembly or emplacement into the silos. The KV bi-propellant tanks would be stored in the KV fuel and oxidizer storage facilities until mounted onto the KV subassembly. From storage, the KV components are brought separately to the MAB to be assembled into a GBI. (DoD, 2016)

Inherent health and safety hazards and risks to interceptor maintenance personnel and equipment damage would be mitigated by the multi-layer design of the KV tanks, protective packaging during transport, and proven operating procedures that have been in place for more than 10 years.

Facility and equipment designs would incorporate the following measures to minimize the potential for and impact of accidents:

- The liquid bi-propellant tanks would have multiple safeguards, such as an internal bladder system, requiring several system failures before a release would occur, thereby making the potential for a release very remote.
- A sensor system would be used to monitor the condition/status of the KV propellant system during bi-propellant tank installation and checkout operations.

In addition, the following operating procedures and training would be instituted to minimize the potential for and impact of accidents.

- Specific health and safety plans would be developed including evacuation plans, and notification of local and offsite emergency response as required.
- An emergency response team would be on call during tank installation and emergency equipment would be near the facility.
- The local fire departments would be notified through the existing cooperative agreements with the installation.
- In the event of a liquid bi-propellant release, the emergency response team would ensure the area would be evacuated, ignition sources would be removed, and vapors would be ventilated. All liquid would be contained for treatment and neutralization and disposed of in accordance with all applicable regulations. Releases would be absorbed with appropriate materials and transferred to containers for disposal.

The interceptor booster solid propellant is designed to burn rapidly and would be difficult to extinguish. Accidental ignition of interceptor booster solid propellant can be caused by static discharge, lightning, or a nearby fire or explosion. Additionally, impact of the rocket motor casing against any object or penetration of the rocket motor's casing may produce enough internal or external frictional energy release to cause ignition. However, detonation resulting solely from an impact is considered impossible because Class 1.3 propellants are not shock sensitive as defined by the U.S. Department of Transportation. Data show that even when subjected to shock from explosives (C4) Class 1.3 propellants with hydroxyl-terminated polybutadiene binders, ammonium perchlorate oxidizer, and aluminum powder fuel do not exhibit burn rates in excess of 3,000 meters per second that is the accepted lower limit for detonation (Merrill et al., 1994) (DoD, 2016). The IFs are designed with sufficient separation between the interceptor silo housings to prevent any potential mishap impacting adjacent interceptors (i.e., no chain reaction).

In addition, the following operating procedures and training would be instituted to minimize the potential for and impact of accidents such as accidental launch.

- Measures would be taken to prevent static buildup during transportation and interceptor handling would be in accordance with standard safety procedures developed by DoD for the handling of solid and liquid propellants.
- A health and safety plan would be prepared that would include procedures to handle emergencies involving the interceptor. This plan would describe how to handle each type of emergency, the appropriate base and off-base contacts, and an evacuation plan, if necessary.

4.6.2 No-Action Alternative

Under the No Action Alternative, additional GBIs, IF #4, MEB, and associated infrastructure would not be constructed at FGA resulting in no change to health and safety on the MDC.

4.7 Water Resources

4.7.1 Proposed Action

Construction

Construction of the Proposed Action would be subject to Alaska Pollutant Discharge Elimination System permitting requirements. A construction SWPPP would be submitted and approved by the FGA DPW Environmental Department prior to the start of any new construction. The Proposed Action area has relatively level topography. Adherence to the SWPPP and BMPs, along with construction of drainage ditches to control surface water runoff is expected to minimize the impact to surface water in the area.

The EA Study area topography and soil surveys indicate there is a low probability of ponding or flooding. The terrain and soils within the proposed areas are similar to the current MDC area and much of the stormwater is expected to infiltrate before it reaches a water body. Runoff would be expected during the spring breakup when ice and snow melt. Sedimentation impacts would be minor due to the naturally high occurring base sediment levels and water infiltrating prior to reaching Jarvis Creek. As discussed in Chapter 3, the Proposed Action area is not within the floodplains of the Delta River or Jarvis Creek.

Water usage would increase during construction primarily through watering for fugitive dust control. Most likely, the water well installed just north of the MDC would be utilized for these activities. It is not expected that this increase would have an impact of the water supply aquifers at FGA.

Operation

Once constructed, the new IF areas would have established storm water drainage pattern, much like the current MDC area. The areas would be reseeded to stabilize the grounds and minimize erosion and impacts to water resources.

Operation of the system would have only slight increases in water usage. Impacts to water resources are expected to be minimal.

4.7.2 No-Action Alternative

Under the No Action Alternative, additional GBIs, IF #4, MEB, and associated infrastructure would not be constructed at FGA, the water resources would not be impacted.

4.8 WETLANDS

4.8.1 Proposed Action

The Proposed Action would not impact wetlands or other waters of the United States.

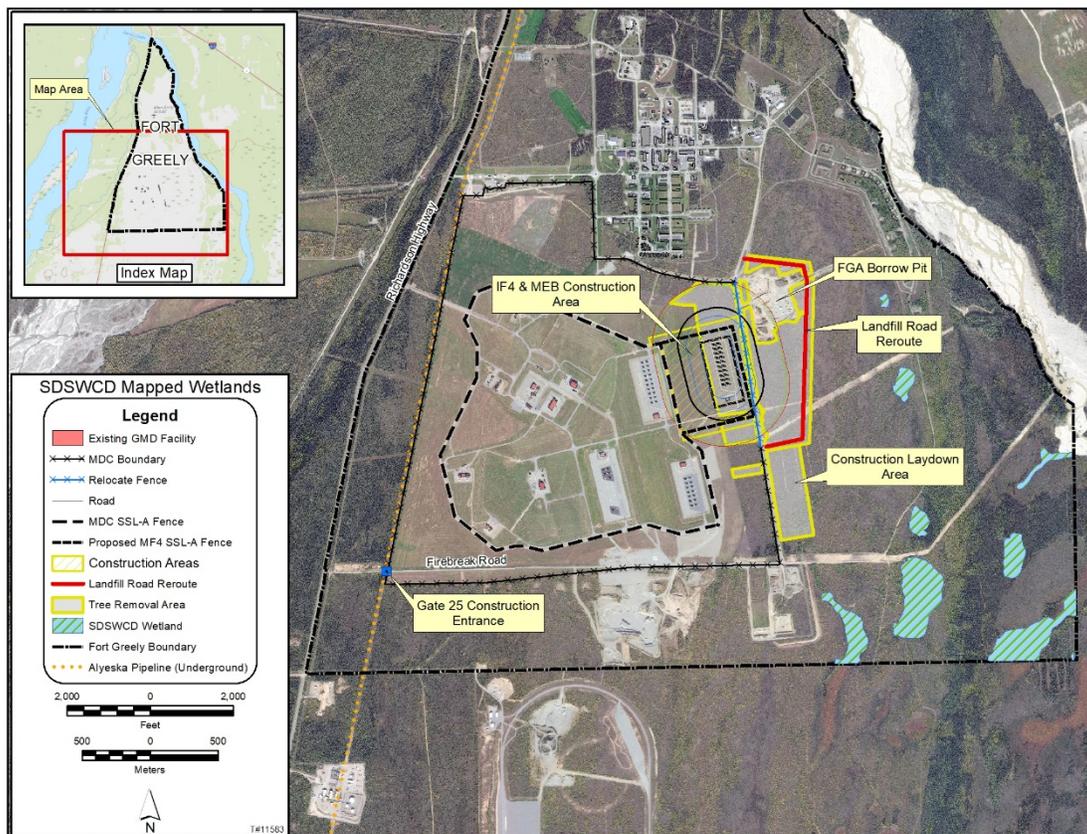
Construction

Previous MDA NEPA analysis in the FGA area were based on pre-fire conditions and indicated wetlands were more abundant, larger, and more widely distributed than they are currently. The entire Proposed Action falls outside of the wetlands identified in the 2016 SDSWCD wetland delineation (Figure 4.8-1). The nearest mapped wetland to the project location is over 1,000 ft. south of the southern extent of the disturbance.

The Proposed Action would be required to adhere to a SWPPP in order to minimize fugitive sediments from ground disturbing activities from leaving the project area. The small increase in impervious surface in the watershed would not have an impact on the nearby wetlands due to the well-drained soils between those surfaces and the wetlands.

4.8.2 No-Action Alternative

Under the No Action Alternative, additional GBIs, IF #4, MEB, and associated infrastructure would not be constructed at FGA resulting in no impacts to wetlands.

Figure 4.8-1 SDSWCD Mapped Wetlands in Relation to the Proposed Action Area

4.9 CUMULATIVE IMPACTS

Cumulative impacts are impacts on the environment that result from:

“ . . . the incremental impact of the action when added to other past, present, and reasonably foreseeable future 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)

The Proposed Action would be implemented over approximately five years. Thus, each resource is analyzed in terms of its ability to accommodate additional effects of the Proposed Action in combination with past, present or reasonably foreseeable future projects within this timeframe.

FGA Garrison has demolished several existing facilities and upgraded several within the existing cantonment area. Additional facility modifications/demolitions could occur in the future. In the MDC area, future activities could include increasing the number of GBIs to a cumulative total of 100 in up to 5 IFs at FGA. The expansion could include a MAB, IDTs, ISFs, KV fuel and oxidizer storage facilities, and associated utility infrastructure extensions. It is anticipated that most of this expansion would be east of the proposed IF #4 site. Specific site layouts would be

determined at a later date, but future facilities could be located in close proximity to the current MDC. Construction and operation of the additional IF and facilities would be similar to that discussed in this EA and previous GMD NEPA documents. This action could require the upgrade to the East Boundary Road, closure of Landfill Road, and closure/relocation of the FGA Garrison C&D Landfill and Borrow Pit. If a FGA future expansion decision is made, additional NEPA documentation would be required.

Air

It is not known if additional generators and/or an additional power plant would be needed for future expansion activities at FGA. If an expansion decision is made in the future, a detailed power study would be completed to determine the requirements. The MDC air permit would be modified to accommodate any needed changes.

Biology

Future expansion activities would require clearing of additional acreage in the vicinity of the MDC. Most of this acreage was burned in 1999 and has similar vegetation and wildlife as the area analyzed in this EA. To the extent practicable, clearing would be performed outside of the bird nesting season to minimize the impact to birds. As mentioned in Chapter 4.2, similar habitat exists in the surrounding area and no significant impact would be expected to biological resources.

Cultural Resources

The East Boundary Road would likely be upgraded and widened in support of future expansion activities at FGA. Cultural sites XMH-0871 and XMH-1168 are both located along this roadway.

Further coordination with the Alaska SHPO would be required prior to any future activities that occur in close proximity to these cultural resources.

XMH-1168

The Moraine Lithic Site (XMH-1168) is located on a 20 to 30-meter (m) wide (65 to 100-ft wide), north-south trending glacial moraine (Gaines et al. 2010: 22). XMH-1168 is approximately 40 m by 20 m (130 ft. by 65 ft.) and has both surface and subsurface components. In 2010, CEMML placed 41 50 centimeter (cm) by 50 cm (1.5 ft. by 1.5 ft.) shovel test pits throughout the site. Twenty-five lithic artifacts were recovered, including 21 pieces of lithic debitage, one projectile point, one fragmentary microblade, one fragmentary side-scraper, and one isolated side-notched projectile point (Gaines et al. 2010:22-23; CEMML, 2011). The side-notched projectile point was determined to be characteristic of the Northern Archaic Tradition. CEMML recommended that XMH-1168 be considered eligible for the National Register of Historic Places under Criterion D (Gaines et al. 2010: 24).

XMH-0871

Site XMH-0871 is located on a north-south trending moraine that is 13 m to 15 m (42 to 50 ft.) above the surrounding terrain (Gaines et al. 2010:15). In 2002, a microblade core was

recovered from the area, which is presently housed at the University of Alaska Museum of the North (Gaines et al. 2010: 16). In 2010, CEMML conducted a survey of the site, digging 60 shovel test pits 50 cm by 50 cm (1.5 ft. by 1.5 ft.) and one 1 m by 1 m (3 ft. by 3 ft.) excavation unit (Gaines et al. 2010: 16). In total, 30 artifacts were recovered during the 2010 survey. Three of these were recovered from buried context and the remaining 27 were from the surface. Artifacts included lithic flakes, projectile point fragments, and diagnostic tools. XMH-1168 was found to be eligible for the National Register of Historic Places under Criterion D (Gaines et al. 2010).

Sites XMH-0871 and XMH-1168 are both located along the East Boundary Road. Any upgrades to the road or increases of heavy traffic along the East Boundary Road would occur in close proximity to cultural resources XMH-0871 and XMH-1168.

Geology & Soils

The future expansion would most likely occur within the alluvial terrace, with a small area within the glacial moraine. Soils include Nanana, silt loam, Butchlake-Southpaw, and Butchlake-Southpaw hilly soils (See Figure 3.5-2). As mentioned in Chapter 3, these soils have a low water-holding capacity with a low probability of flooding or ponding (USDA, 2005). However, during spring break-up localized flash flooding has occurred in the undeveloped area east of Landfill Road. This would be considered when designing the site and establishing drainage patterns. The East Boundary Road follows a moraine ridge with elevation drop occurring to the east towards Jarvis Creek. Improvements to this road may be required. Improvements and widening should occur to the west side of the road where practical to avoid causing any erosion issues to the east.

Future expansion may require the FGA Garrison C&D landfill and borrow pit just east of IF #4 to be filled and leveled. A portion of this fill material exists at the site through the current operations. The clearing, grubbing, and leveling of an additional IF site would also provide fill material. Additional fill material to level the C&D landfill and borrow pit would be expected to be retrieved from areas on FGA or the adjacent USARAK training lands. Dump trucks from this operation would primarily travel on Army lands and would use public highways at a minimum. Dust control and standard erosion BMPs would be implemented.

If closure is required, MDA would work with the FGA Garrison to officially close the C&D landfill with ADEC. At this time no new proposed C&D landfill location has been identified. Another borrow pit exists south of the current MDC and a C&D landfill next to the FGA municipal landfill. However, this C&D landfill is almost at capacity. As most C&D is associated with construction and demolition activities, contracts could be written to require C&D material to be taken off the installation until a new C&D landfill is sited and permitted with ADEC.

Hazardous Materials and Hazardous Wastes

Future activities could include additional interceptors, MAB, IDTs, ISFs, and KV fuel and oxidizer storage facilities. This would increase the amount of hydrazine and nitrogen tetroxide on the MDC. These increases would be reported in the U.S. EPA Toxic Substances Control Act

Inventory. Future missile defense planning at FGA may require an updated KV with greater quantities of these propellants, as the design and technology of the KV improves. These increased quantities would be handled, managed, and reported to comply with Federal, state, and local regulations.

IDT expansion could require the realignment of the fence line and security patrol roadway near the STF area near the current IDTs on the west side of the MDC. Subsurface soils and groundwater contamination is the primary concern for this site. Thus, the fence line and roadway work involving slight surface soil disturbance would not be a great concern. The work would be coordinated with the FGA Garrison and SMDC to ensure proper procedures and controls are in place to minimize disturbance. Excavated soils from the installation of fence posts would be tested to determine if contamination existed. Contaminated soils would be treated or disposed of in accordance with applicable regulations or placed within the existing FGA landfill for future remedial activities.

Health and Safety

While the current interceptor configuration includes a Class 1.3 solid booster propellant, it is possible that future boosters with a Class 1.1 propellant may be required as the design and technology of the interceptor improves. Health and safety impacts for Class 1.1 were analyzed in the NMD Deployment EIS. Accidental ignition of a Class 1.1 booster would be similar to the Class 1.3. Class 1.1 propellant is principally considered a blast hazard, although in a fire it will burn at a rate comparable to that of rubber tires. If detonated, Class 1.1 propellant would produce blast overpressure and fragments beyond 1,000 ft. (U.S. Department of the Air Force, 1992). If a Class 1.1 booster is required, missile field silos and associated facilities, inhabited buildings, traffic routes, etc. would be constructed to comply with all safety standards and ESQDs.

Water

The East Boundary Road runs along a ridgeline, with the terrain elevation decreasing to the east as it approaches Jarvis Creek. As shown in Figure 3.8-1, the Jarvis Creek floodplain extends to the FGA east boundary. However, due to the topography, seasonal flooding of the FGA east boundary area from aufeis blockage on Jarvis Creek is possible. Any development within this area could also experience erosion issues due to very fine sandy loam present.

Wetlands

Future expansion activities could require assets to be placed in the area east of Landfill Road and west of the East Boundary Road. As shown in Figure 4.8-1, there are several wetland areas within this area. Any future activities that would potentially affect these wetlands would require coordination with the USACE.

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Appendix A Acronyms and Abbreviations

AAAQS	Alaska Ambient Air Quality Standards
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish & Game
AFB	Air Force Base
AHRS	Alaska Historic Resources Survey
AKNHP	Alaska Natural Heritage Program
APE	Area of Potential Effect
AST	Above Ground Storage Tank
bgs	below ground surface
BMDS	Ballistic Missile Defense System
BMPs	Best Management Practices
C&D	construction and demolition
CEQ	Council on Environmental Quality
CEMML	Center for Environmental Management of Military Lands
cm	centimeter
CFR	Code of Federal Regulations
CFZ	Construction Free Zone
CIS	Continental United States Interceptor Site
CO	carbon Monoxide
CO ₂	carbon dioxide
CWA	Clean Water Act
DoD	Department of Defense
DPW	Directorate for Public Works
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
ESQD	Explosive Safety Quantity Distance
EU	emission unit
°F	degrees Fahrenheit
FGA	Fort Greely, Alaska
FONSI	Finding of No Significant Impact
ft.	feet
GBI	Ground-based Interceptor
GHG	greenhouse gases
GMD	Ground-based Midcourse Defense
GMU	Game Management Unit
GVEA	Golden Valley Electric Authority
HEMP	High Altitude Electromagnetic Pulse
hp	horse power
ICBM	Intercontinental Ballistic Missile
IDLH	Immediately Dangerous to Life or Health

5.0 References

IDT	In-Flight Interceptor Communication System Data Terminal
IF	Interceptor Field
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
ISF	Interceptor Storage Facility
KV	Kill Vehicle
MMBtu/hr	million British Thermal Units per hour
MAB	Missile Assembly Building
MDA	Missile Defense Agency
MDC	Missile Defense Complex
MEB	Mechanical/Electrical Building
MEC	Munitions and Explosives of Concern
MBTA	Migratory Bird Treaty Act
m	meters
m/sec	meters per second
mg/m ³	milligram per meter cubed
mm	millimeter
NAAQS	National Ambient Air Quality Standards
NDAA	National Defense Authorization Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMD	National Missile Defense
NO ₂	nitrogen dioxide
NWI	National Wetlands Inventory
O ₃	ozone
Pb	lead
PEL	Permissible Exposure Limit
PLS	Planning Level Survey
PM _{2.5}	particulate matter (up to 2.5 micrometers in size)
PM ₁₀	particulate matter (up to 10 micrometers in size)
ppb	parts per billion
ppm	parts per million
PSD	Prevention of Significant Deterioration
ROD	Record of Decision
SEA	Supplemental Environmental Assessment
SCM	Silo Closure Mechanism
SCS	Soil Conservation Service
SDSWCD	Salcha Delta Soil & Water Conservation District
SHPO	State Historic Preservation Office
SIV	Silo Interface Vault
SO ₂	sulfur dioxide
SMDC	U.S. Army Space and Missile Defense Command
SSL-A	System Security Level A
STF	South Tank Farm

SWPPP	Storm Water Pollution Prevention Plan
TWC	Temporary Workers Camp
UFC	Unified Facility Criteria
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
U.S.	United States
USACE	U.S. Army Corps of Engineers
USARAK	U.S. Army Alaska
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	Validation of Concept
WWII	World War II

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Appendix B Environmental Resources Eliminated From Further Detailed Analysis

The following environmental resources have been analyzed extensively in the referenced NEPA documents below. The summaries of the environmental areas are provided below and are not considered further in this EA

- SMDC, 2002. Ground-based Midcourse Defense Validation of Operational Concept Environmental Assessment, U.S. Army Space and Missile Defense Command (SMDC), March 2002.
- SMDC, 2002, Ground-based Midcourse Defense Validation of Operational Concept Supplemental Environmental Assessment, U.S. Army Space and Missile Defense Command (SMDC), December 2002.
- MDA, 2003. Ground-based Midcourse Defense Initial Defensive Operations Capability at Vandenberg AFB Environmental Assessment, Missile Defense Agency (MDA), July 2003.
- DoD, 2007. Ballistic Missile Defense System (BMDS) Programmatic Environmental Impact Statement, Department of Defense (DoD) Missile Defense Agency (MDA), January 2007.

Airspace

Airspace resources are not expected to be affected sufficiently to warrant further discussion and were eliminated from further analysis. Modifications to activities at Allen Army Airfield, including the addition of an airport surveillance radar (ASR-11) or similar type, the addition of Class D airspace to the existing Class E controlled airspace, and the construction and activation of a control tower, were addressed in the GMD VOC Supplemental EA. These upgrades would minimize any potential impacts on airspace from the joint use of Allen Army Airfield. The number of flights per day is not anticipated to be any different than current operations.

Environmental Justice

Based upon the 2010 Census of Population and Housing, the Southeast Fairbanks Census Area has a population of 7,029. Of that total, 949 persons, or 13.5 percent, were low income, and 1,821 persons, or 25.9 percent, were minority. The Proposed Action would occur on an existing installation, and proposed activities would be conducted in a manner that would not substantially affect human health or the environment. This EA or previous NEPA documents have identified no effects that would result in disproportionately high and adverse effect on minority and low-income populations in the area. The activities would also be conducted in a manner that would not exclude persons from participating in, deny persons the benefits of, or subject persons to discrimination because of their race, national origin, or income.

Land Use

FGA is located southeast of Fairbanks and just south of the community of Delta Junction. FGA is not located in a municipality or a borough, and there are no local zoning or land use policies. There are also no state zoning or land use plans or guidelines for the area. The land around FGA is composed of forests, tundra, or wetlands and serves as a military training range. Most development occurs on the Richardson Highway north in Fairbanks, and some small settlements are found along the highways at Delta Junction, Big Delta, Richardson, Alrich, and Birch Lake. The Trans-Alaska Oil Pipeline bisects FGA, with a pumping station located 2.5 miles southwest of the Cantonment Area.

The MDC is located in the southern portion of FGA and encompasses approximately 1,500 acres. With the exception of the C&D landfill and borough pit, primary land utilization is dedicated to the MDC facilities/function. The Proposed Action would be consistent with this land use.

Noise

Noise would be generated from construction equipment and activities, such as earth moving equipment, jack hammers, drills, and pile drivers. No noise sensitive receptors are known to exist within 1.2 miles of the Proposed Action at FGA and as analyzed in the NMD Deployment EIS, VOC EA, and VOC SEA, construction of GBI, support facilities, and infrastructure are not expected to have impacts to the noise environment from construction equipment noise.

Socioeconomics

The proposed construction action would generate a number of short-term jobs for the duration of the project, however, this number is smaller than that analyzed in the NMD EIS and VOC EA. During construction, a positive, temporary increase in economic activity would result from purchases of lodging, supplies and services from local vendors. However, no significant short or long-term impacts to socioeconomic resources are expected from implementation of the Proposed Action. An increase of permanent operational workforce by approximately 67 would have a minor, positive impact to the area.

Transportation

Transportation impacts were analyzed in the NMD EIS. The increase in construction worker traffic for the Proposed Action is less than that analyzed in the EIS (approximately 600). The Proposed Action is expected to have an increase in traffic volume during peak hours on Richardson Highway to FGA, however, due to the isolation of FGA, any interference with normal traffic flow in the region is expected to be temporary and minimal. Transport of construction equipment and material would be performed in accordance with existing safety laws, regulations, and Standard Operating Procedures. The additional personnel required for construction should not affect transportation.

Utilities

The Proposed Action would result in negligible change to utilities at FGA. Minimal increase in water usage is expected. Any additional power would be provided by GVEA by extending existing power lines to the site. The backup power supply is adequate and is permitted. Air emissions will not increase over existing permitted conditions for this Proposed Action. The Proposed Action would be a negligible, insignificant impact to FGA's infrastructure.

Visual Resources

In general, the degree to which an action would modify the existing surroundings is used to assess the level of impact to visual resources. The MDC is only visible to the public from Richardson Highway at sporadic intervals where firebreaks exist in the tree lines. The Proposed Action would not alter or change the visual characteristics associated with activities occurring on the installation. Construction equipment would be visible in this area briefly during project work, but it would not obstruct views of the surrounding area nor would it significantly change the overall landscape. There would be no long-term impacts to visual resources.

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Appendix C Correspondence

To assist in preparation of the EA, letters requesting comments on possible issues of concern related to the Proposed Action were sent to Federal, state, tribal, and local agencies with pertinent responsibilities.

LIST OF AGENCIES AND ORGANIZATIONS CONTACTED

Alaska Department of Environmental Conservation
Alaska Department of Fish and Game
Alaska Department of Natural Resources
Alaska Department of Transportation
Alaska State Historic Preservation Office
Doyon, Limited
Fairbanks Native Association, Inc.
Mayor, Delta Junction, Alaska
Salcha-Delta Soil and Water Conservation District
Tanana Chief's Conference
U.S. Army Corps of Engineers, Alaska District
U.S. Environmental Protection Agency, Region 10
U.S. Fish and Wildlife Service

LIST OF TRIBES CONTACTED

Dot Lake Village Council
Healy Lake Traditional Council
Nenana Traditional Council
Northway Traditional Council
Tanacross IRA Council
Tetlin IRA Council

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**DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
5700 18TH STREET
FORT BELVOIR, VIRGINIA 22060-5573**

FD

February 15, 2018

**MEMORANDUM FOR UNITED STATES ARMY CORPS OF ENGINEERS – ALASKA
DISTRICT**

SUBJECT: Public Release of the Missile Defense Agency Ground-Based Midcourse Defense Expanded Capability, Fort Greely, Alaska Proposed Final Environmental Assessment and Proposed Final Finding of No Significant Impact

The Missile Defense Agency (MDA), in cooperation with U.S. Army Garrison, Fort Greely (FGA), prepared the enclosed Proposed Final Ground-Based Midcourse Defense (GMD) Expanded Capability, Fort Greely, Alaska Environmental Assessment (EA) and Proposed Final Finding of No Significant Impact (FONSI) in accordance with the National Environmental Policy Act as amended (42 United States Code § 4321 et seq.).

The EA evaluates the potential environmental impacts from construction and operation of the following at FGA:

- Up to 20 additional silos with GBIs in one Interceptor Field (#4)
- One Mechanical/Electrical Building
- Associated utilities
- Landfill Road Re-route
- Site Security and Missile Defense Complex Boundary Fence expansion
- Contractor laydown areas
- Potential Temporary Workers Camp

Ground disturbing activities would be on approximately 300 acres. Site preparation will include clearing and grubbing to level the area and establish appropriate drainage. A temporary workers camp to house up to 140 construction workers may be necessary. If a camp is needed it will be located off FGA in the surrounding community on previously disturbed land. Construction activities are set to begin in the spring of 2018 and continue into 2021.

Your agency is among the several Federal and state regulatory and resource management agencies with responsibilities in Alaska that we are requesting involvement in this document review. The 30-day public review for the Proposed Final EA and Proposed Final FONSI extends from February 19 to March 20, 2018.

The MDA requests and welcomes your comments on the Proposed Final EA and Proposed Final FONSI. Please send your written responses via e-mail (preferred) to Ms. Bettie McCaulley, MDA Environmental Officer, at bettie.mccauley@mda.mil, or by regular mail to:

Missile Defense Agency
MDA/FDOE
Attention: Ms. Bettie McCaulley
5222 Martin Road
Redstone Arsenal, AL 35898

Comments must be received by March 20, 2018, to ensure they are considered and become a part of the official record. No comments received will indicate your concurrence with the Proposed Action.

If you have any questions about this project, please contact Bettie McCaulley, MDA Environmental Officer, at (256) 450-2879 or at the above email address.

Sincerely,

A handwritten signature in black ink that reads "Eric Sorrells". The signature is written in a cursive style with a large initial "E".

Eric Sorrells
Chief, Environmental Management
Facilities and Deployment



DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
5700 18TH STREET
FORT BELVOIR, VIRGINIA 22060-5573

February 15, 2018

Ms. Jennifer Curtis
Environmental Review
U.S. Environmental Protection Agency, Region 10
Alaska Operations Office
222 W. 7th Avenue, #19
Anchorage, AK 99513

Dear Ms. Curtis:

The Missile Defense Agency (MDA), in cooperation with U.S. Army Garrison, Fort Greely (FGA), prepared the enclosed Ground-Based Midcourse Defense (GMD) Expanded Capability, Fort Greely, Alaska Proposed Final Environmental Assessment (EA) and Proposed Final Finding of No Significant Impact (FONSI) in accordance with the National Environmental Policy Act as amended (42 United States Code § 4321 et seq.).

The EA evaluates the potential environmental impacts from construction and operation of the following at FGA:

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- Contractor laydown areas
- Potential Temporary Workers Camp

Ground disturbing activities would be on approximately 300 acres. Site preparation will include clearing and grubbing to level the area and establish appropriate drainage. A temporary workers camp to house up to 140 construction workers may be necessary. If a camp is needed it will be located off FGA in the surrounding community on previously disturbed land. Construction activities are set to begin in the spring of 2018 and continue into 2021.

Your agency is among the several Federal and state regulatory and resource management agencies with responsibilities in Alaska that we are requesting involvement in this document review. The 30-day public review for the Proposed Final EA and Proposed Final FONSI extends from February 19 to March 20, 2018.

The MDA requests and welcomes your comments on the Proposed Final EA and Proposed Final FONSI. Please send your written responses via e-mail (preferred) to Ms. Bettie McCaulley, MDA Environmental Officer, at bettie.mccauley@mda.mil, or by regular mail to:

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Sincerely,

A handwritten signature in black ink that reads "Eric Sorrells". The signature is written in a cursive style with a large initial "E".

Eric Sorrells
Chief, Environmental Management
Facilities and Deployment

McCaulley, Bettie A CIV MDA/DPFE

From: Curtis, Jennifer [REDACTED]
Sent: Tuesday, February 20, 2018 10:44 AM
To: McCaulley, Bettie A CIV MDA/FDO
Cc: Sorrells, Eric N CIV MDA/DPFE
Subject: RE: GMD Expanded Capability Proposed Final EA/FONSI; FGA

Hello Ms. McCaulley,

Thank you for the opportunity to review and comment on the Proposed Final Environmental Assessment and Proposed Final Finding of No Significant Impact for expansion of missile defense assets at Fort Greely, Alaska. We have reviewed the EA and do not have any environmental concerns or objections related to the project.

We note, however, that on page 4-11 the EA states that construction stormwater discharges are subject to the National Pollutant Discharge Elimination System under Section 402 of the Clean Water Act. The State of Alaska was delegated authority for implementing this program and federal facilities were delegated in Phase II of this process. Therefore, authorization for discharges would be under the Alaska Pollutant Discharge Elimination System program.

If you have any questions, or would like to discuss further, please feel free to contact me by email or [REDACTED]. Thank you.

Jennifer Curtis
USEPA-Alaska Operations Office
[REDACTED]
Anchorage, Alaska 99513

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

From: McCaulley, Bettie A CIV MDA/DPFE [REDACTED]
Sent: Thursday, February 15, 2018 9:04 AM
To: Curtis, Jennifer [REDACTED]
Cc: Sorrells, Eric N CIV MDA/[REDACTED]
Subject: GMD Expanded Capability Proposed Final EA/FONSI; FGA

Ms. Curtis

The Missile Defense Agency (MDA) has prepared a Proposed Final Environmental Assessment (EA) and Proposed Final Finding of No Significant Impact for expansion of missile defense assets at Fort Greely, Alaska (FGA). Please see the attached information for your use. The public review period for this document is February 19 through March 20, 2018.

The document is also available online via MDA public website at www.mda.mil/news/environmental_reports.html and physical copies will be located at the Fairbanks Noel Wein and Delta Junction public libraries.

We welcome your review of the subject document. If you have questions regarding this information, please feel free to contact me.

Thank you,
Bettie

Bettie McCaulley, LEED AP
Missile Defense Agency|MDA
Environmental Management|DPFE

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DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
5700 18TH STREET
FORT BELVOIR, VIRGINIA 22060-5573

February 15, 2018

Mr. Bob Henszey
Branch Chief
Conservation Planning Assistance
U.S. Fish & Wildlife Service
101 12th Avenue, Room 110
Fairbanks, Alaska 99701

Dear Mr. Henszey:

The Missile Defense Agency (MDA), in cooperation with U.S. Army Garrison, Fort Greely (FGA), prepared the enclosed Ground-Based Midcourse Defense (GMD) Expanded Capability, Fort Greely, Alaska Proposed Final Environmental Assessment (EA) and Proposed Final Finding of No Significant Impact (FONSI) in accordance with the National Environmental Policy Act as amended (42 United States Code § 4321 et seq.).

The EA evaluates the potential environmental impacts from construction and operation of the following at FGA:

- Up to 20 additional silos with GBIs in one Interceptor Field (#4)
- One Mechanical/Electrical Building
- Associated utilities
- Landfill Road Re-route
- Site Security and Missile Defense Complex Boundary Fence expansion
- Contractor laydown areas
- Potential Temporary Workers Camp

Ground disturbing activities would be on approximately 300 acres. Site preparation will include clearing and grubbing to level the area and establish appropriate drainage. A temporary workers camp to house up to 140 construction workers may be necessary. If a camp is needed it will be located off FGA in the surrounding community on previously disturbed land. Construction activities are set to begin in the spring of 2018 and continue into 2021.

The loss of vegetation within the Proposed Action area is anticipated to result in negligible impacts to bird species at the population level due to the generally widespread population range of the species. Most notable would be the loss of the tall shrub-sapling stage areas, which are often used by migratory bird species. The loss of this habitat would be considered a negligible impact to these widespread species.

Impacts to birds would likely be most prevalent during the site clearing phase of the project when trees, shrubs, and other vegetation are removed.

To meet the aggressive construction schedule, MDA will attempt to begin clearing and grubbing activities by mid-April 2018. This should keep the construction area disturbed to the extent that birds would not use the area for nesting.

The armed forces are authorized to take migratory birds incidental to military readiness activities. If the armed forces determine the activities may result in a significant adverse effect on a population of a migratory bird species, then the armed force must confer and cooperate with the Service to develop and implement appropriate conservation measures to minimize or mitigate such significant adverse effects (50 CFR Part 21.15).

We evaluated the potential for impacts to migratory bird populations and Migratory Bird Treaty Act (MBTA) compliance in NEPA analysis and used information from the appropriate Integrated Natural Resources Management Plan (INRMP), where applicable, and the best scientific data available.

To address this issue, MBTA-protected species noted to use habitats on FGA were reviewed to determine if any such species populations would be significantly adversely affected by the construction and operation of the Proposed Action at FGA. The FGA installation INRMP and the 2012 Planning Level Survey (PLS) lists bird species noted to utilize FGA.

The Proposed Action area that would be cleared for construction and staging contains suitable nesting habitat for one bird of conservation concern that was documented in the 2012 PLS, the lesser yellowlegs and one bird species of conservation concern that is likely to be found in the project area, but was not documented in the 2012 PLS, the whimbrel. Twelve additional bird species protected by the MBTA and likely to find suitable nesting habitat in the area proposed for vegetation removal were observed in the 2012 PLS (Table 1).

Suitable nesting habitat in Interior Alaska is abundant and widely distributed. The MBTA listed species noted to utilize FGA habitats have widespread populations which would not be significantly impacted by construction and operation activities for the Proposed Action.

The 2012 PLS identified potential rusty blackbird nesting habitat within the vicinity of the EA Study Area. However, this habitat is well away from the Proposed Action area and will not be impacted by the proposed clearing and grubbing activities.

The permanent impacts of the proposed project on birds is expected to be less than significant.

Your agency is among the several Federal and state regulatory and resource management agencies with responsibilities in Alaska that we are requesting involvement in this document review. The 30-day public review for the Proposed Final EA and Proposed Final FONSI extends from February 19 to March 20, 2018.

The MDA requests and welcomes your comments on the Proposed Final EA and Proposed Final FONSI. Please send your written responses via e-mail (preferred) to Ms. Bettie McCaulley, MDA Environmental Officer, at bettie.mccaulley@mda.mil, or by regular mail to:

Missile Defense Agency
MDA/FDOE
Attention: Ms. Bettie McCaulley
5222 Martin Road
Redstone Arsenal, AL 35898

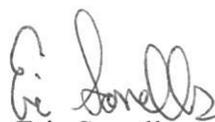
Common Name	Species Name
Alder Flycatcher	<i>Empidonax alnorum</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
Hermit Thrush	<i>Catharus guttatus</i>
Lapland Longspur	<i>Calcarius lapponicus</i>
Lesser Yellolegs	<i>Tringa flavipes</i>
Lincoln's Sparrow	<i>Melospiza lincolnii</i>
Orange-crowned Warbler	<i>Oreothlypis celata</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Swainson's Thrush	<i>Catharus ustulatus</i>
Townsend's Solitaire	<i>Myadestes townsendi</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Yellow Warbler	<i>Setophaga petechia</i>

Table 1. Birds Protected by MBTA Likely to Find Suitable Nesting Habitat in the EA Study Area.

Comments must be received by March 20, 2018, to ensure they are considered and become a part of the official record. No comments received will indicate your concurrence with the Proposed Action.

If you have any questions about this project, please contact Bettie McCaulley, MDA Environmental Officer, at (256) 450-2879 or at the previously mentioned email address.

Sincerely,



Eric Sorrells
Chief, Environmental Management
Facilities and Deployment

cc:
Mr. Sam Cotton, ADFG Commissioner
Mr. Darren Bruning, ADFG Regional Supervisor
Mr. Bob Schmidt, ADFG Delta Junction

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Fairbanks Fish and Wildlife Field Office
101 12th Avenue, Room 110
Fairbanks, Alaska 99701
March 14, 2018



Missile Defense Agency
MDA/FDOE
Attention: Ms. Bettie McCaulley
5222 Martin Road
Redstone Arsenal, AL 35898

Re: Proposed Final EA for the Ground-Based Midcourse Defense (GMO) Expanded Capability, Fort Greely, Alaska.

Dear Ms. McCaulley:

The U.S. Fish and Wildlife Service (Service) has reviewed the referenced Environmental Assessment (EA) by the Department of Defense Missile Defense Agency to expand the existing Ground-based Interceptor (GBI) capability at Fort Greely, Alaska (FGA). Interceptor Field (IF) #4 to include an additional 20 GBIs, launch facilities, a High Altitude Electromagnetic Pulse (HEMP) protected Mechanical/Electrical Building (MEB), and support infrastructure are proposed for FGA. The proposed construction and operation of will include the reroute of sections of Landfill Road, expanded site security and Missile Defense Complex (MDC) boundary fencing; contractor laydown areas; and potential construction of a temporary workers camp (TWC). Ground disturbing activities would be on approximately 300 acres. Site preparation will include clearing and grubbing to level the area and establish appropriate drainage. Land clearing activities are proposed to begin by mid-April 2018, prior to migratory bird return.

The Service does not object to the activities as proposed in the EA and the determination/finding in the FONSI if initiated within the proposed timeline. We appreciate the proposed land clearing activities timeline prior to the 2018 nesting season.

There are no threatened or endangered species in the project area, thus the Service does not expect project-related activities to adversely impact listed species. This letter constitutes informal consultation under the Endangered Species Act. Preparation of a Biological Assessment or further consultation regarding this project is not necessary at this time.

These comments are submitted in accordance with provisions of the Endangered Species Act of 1973 (87 Stat. 844) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended: 16 U.S.C. 661 et seq.) and constitute the report of the Department of the Interior.

We appreciate the early opportunity for discussing migratory bird nesting habitat with you last fall, and for this opportunity to comment on the EA. Please contact Amal Ajmi at 907-456-0324, amal_ajmi@fws.gov, should you have any questions concerning these comments.

Sincerely,

Robert J.Henszey
Branch Chief, Planning and Consultation

ecc: Mr. Sam Cotton, ADFG Commissioner
Mr. Darren Bruning, ADFG Regional Supervisor
Mr. Bob Schmidt, ADFG Delta Junction
Mr. Matt Ferguson, USACE-AK District Environmental



DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
5700 18TH STREET
FORT BELVOIR, VIRGINIA 22060-5573

February 14, 2018

Ms. Judith Bittner
State Historic Preservation Officer
Office of History and Archaeology
550 West 7th Avenue, Suite 1310
Anchorage, AK 99501-3565

Dear Ms. Bittner:

The Department of Defense's Missile Defense Agency (MDA) is proposing to construct and operate an additional Ground-Based Interceptor (GBI) field and associated support facilities, utilities, and infrastructure at Fort Greely, Alaska (Section 14, T11S, R10E, USGS Quad Big Delta A-4, Fairbanks Meridian; Figure 1). In compliance with Section 106 of the National Historic Preservation Act of 1966 [36 CFR § 800.2(a)(4)], the purpose of this letter is to notify you of a Federal undertaking and to seek your concurrence on an assessment of effect.



Figure 1. Location of Project Area in Red

The MDA, in cooperation with U.S. Army Garrison, Fort Greely (FGA) prepared an Environmental Assessment (EA) to evaluate the potential environmental impacts from construction and operation of the following:

- Up to 20 additional silos with GBIs in one Interceptor Field (#4)
- One Mechanical/Electrical Building
- Associated utilities
- Landfill Road Re-route
- Site Security and Missile Defense Complex Boundary Fence expansion
- Contractor laydown areas
- Potential Temporary Workers Camp

Figure 2 shows the Proposed Action location. Ground disturbing activities would be on approximately 300 acres, just east of the current MDA Missile Defense Complex (MDC). Site preparation will include clearing and grubbing to level the area and establish appropriate drainage. Fill material will come from an on-site, existing borrow source.

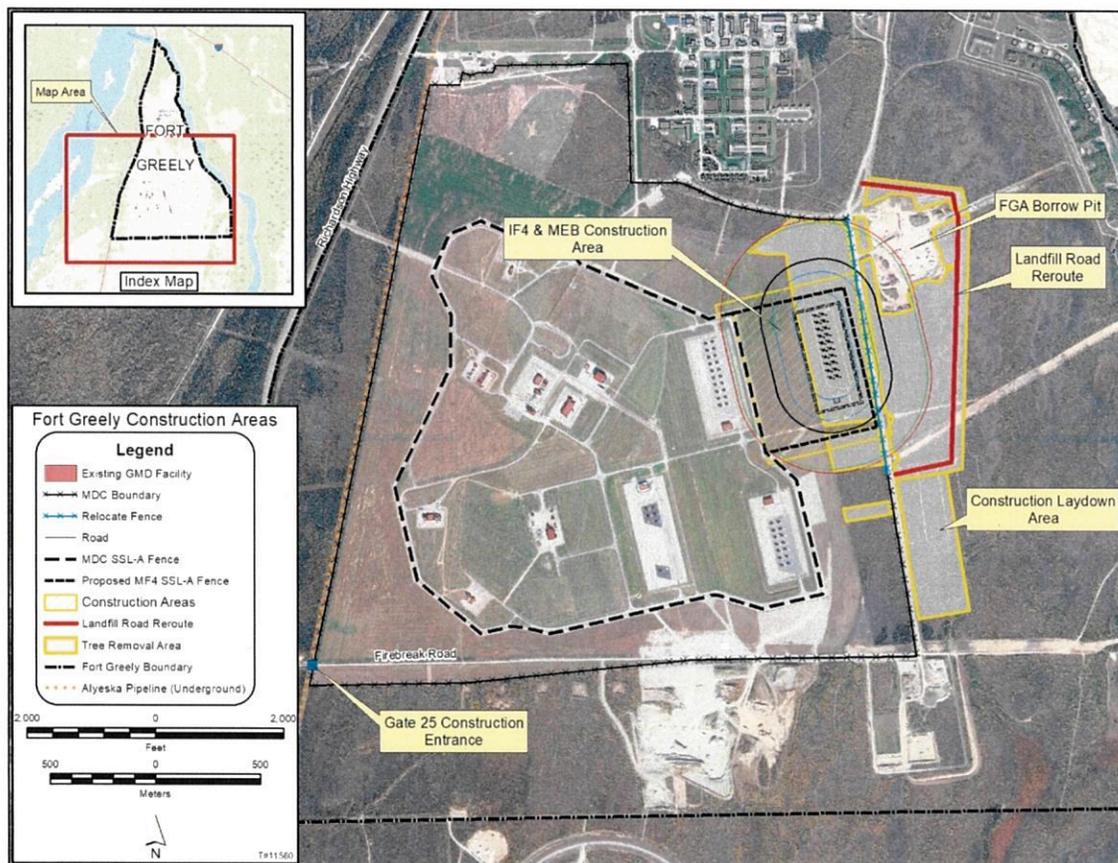


Figure 2. Proposed Action

Access to the site will be from Gate 25, at the south end of the area (Figure 2). Existing roadways will be used to the extent practicable. The laydown area, located south of the main construction area, may require the placement of aggregate surface material and compacting. Construction for the 20 additional launch silos will require excavation to a depth of

approximately 75 feet below ground surface with a diameter of approximately 15 feet. The current landfill road will be rerouted to the east of the borrow pit. Clearing, grubbing, grading, compacting of the exposed subgrade, and placement of aggregate material on the surface will be required.

A temporary workers camp to house up to 140 construction workers may be necessary. If a camp is needed, it will be located off FGA in the surrounding community on previously disturbed land. Preparation of a site would include gravel fill, leveling, and compaction of roads and parking areas. Construction activities are set to begin in the spring of 2018 and continue into 2021.

The area of potential effect (APE) will surround the current MDC and the proposed construction area and is approximately 1,200 acres (Figure 3). If MDA determines that activities would occur outside of the current proposed APE is needed, further coordination would occur.

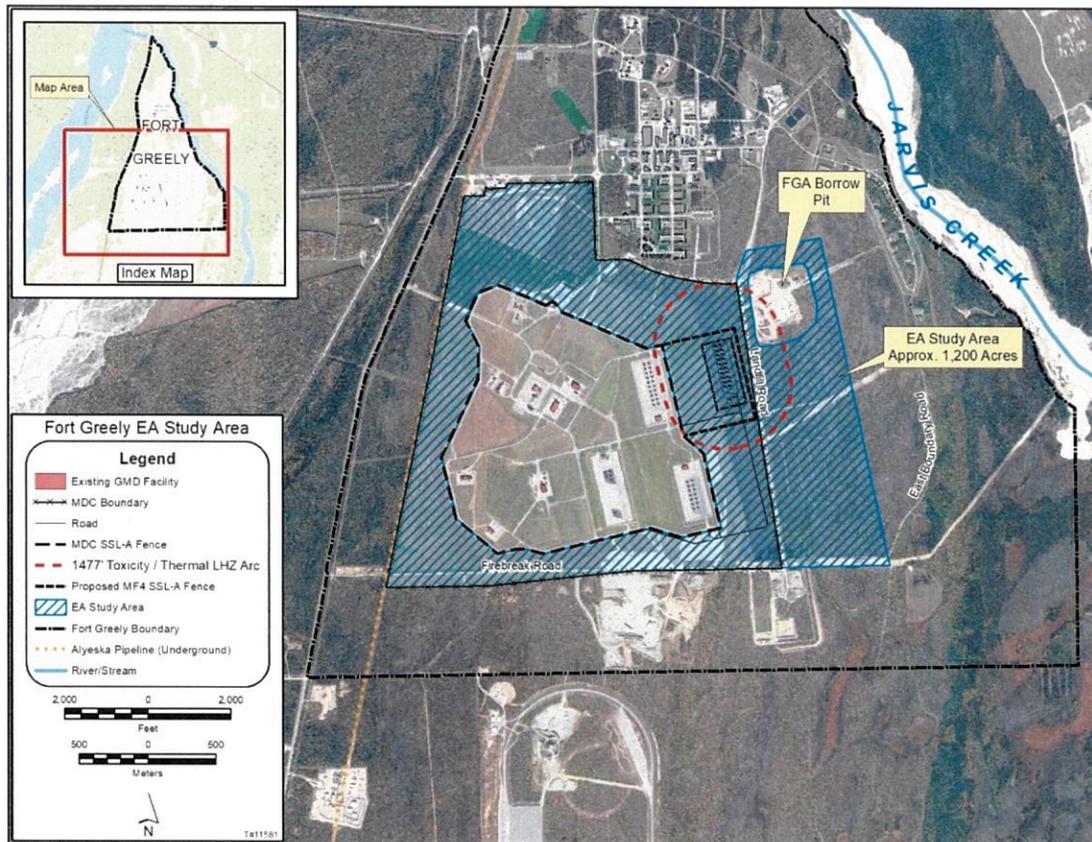


Figure 3. Fort Greely Expanded Capability APE in Blue

A search of the Alaska Historic Resources Survey database and review of cultural resource surveys conducted at FGA shows 46 known sites within the FGA boundaries. Only two of these sites are eligible for the National Register of Historic Places. These two archaeological sites, XMH-1168 and XMH-0871, were identified during a 2005 survey by the Center for Environmental Management of Military Lands, and are located near the East Boundary Road and are not in the current APE.

There are no historic properties within or near the APE; therefore, the MDA determined that no historic properties will be affected by the proposed undertaking. Following 36 CFR § 800.5(b), we seek your concurrence on the determination that the proposed construction of Interceptor Field # 4, associated facilities and infrastructure will result in no adverse effects on historic properties.

If you have any questions about this project, please contact Bettie McCaulley, MDA Environmental Officer, at (256) 450-2879 or email at bettie.mccaulley@mda.mil.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric Sorrells". The signature is written in a cursive style with a large initial "E".

Eric Sorrells
Chief, Environmental Management
Facilities and Deployments

3130-1R MDA



DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
5700 18TH STREET
FORT BELVOIR, VIRGINIA 22060-5573

February 14, 2018

Ms. Judith Bittner
State Historic Preservation Officer
Office of History and Archaeology
550 West 7th Avenue, Suite 1310
Anchorage, AK 99501-3565

SENT BY E-MAIL
DATE 2/20/18

Dear Ms. Bittner:

The Department of Defense's Missile Defense Agency (MDA) is proposing to construct and operate an additional Ground-Based Interceptor (GBI) field and associated support facilities, utilities, and infrastructure at Fort Greely, Alaska (Section 14, T11S, R10E, USGS Quad Big Delta A-4, Fairbanks Meridian; Figure 1). In compliance with Section 106 of the National Historic Preservation Act of 1966 [36 CFR § 800.2(a)(4)], the purpose of this letter is to notify you of a Federal undertaking and to seek your concurrence on an assessment of effect.



Figure 1. Location of Project Area in Red

SJM No Historic Properties Affected
Alaska State Historic Preservation Officer
Date: 3/12/18 File No.: 3130-1R MDA
2018-00207
Please review: 36 CFR 800.13 / A.S. 41.35.070(d)

2018-00207

The MDA, in cooperation with U.S. Army Garrison, Fort Greely (FGA) prepared an Environmental Assessment (EA) to evaluate the potential environmental impacts from construction and operation of the following:

- Up to 20 additional silos with GBIs in one Interceptor Field (#4)
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- Potential Temporary Workers Camp

Figure 2 shows the Proposed Action location. Ground disturbing activities would be on approximately 300 acres, just east of the current MDA Missile Defense Complex (MDC). Site preparation will include clearing and grubbing to level the area and establish appropriate drainage. Fill material will come from an on-site, existing borrow source.

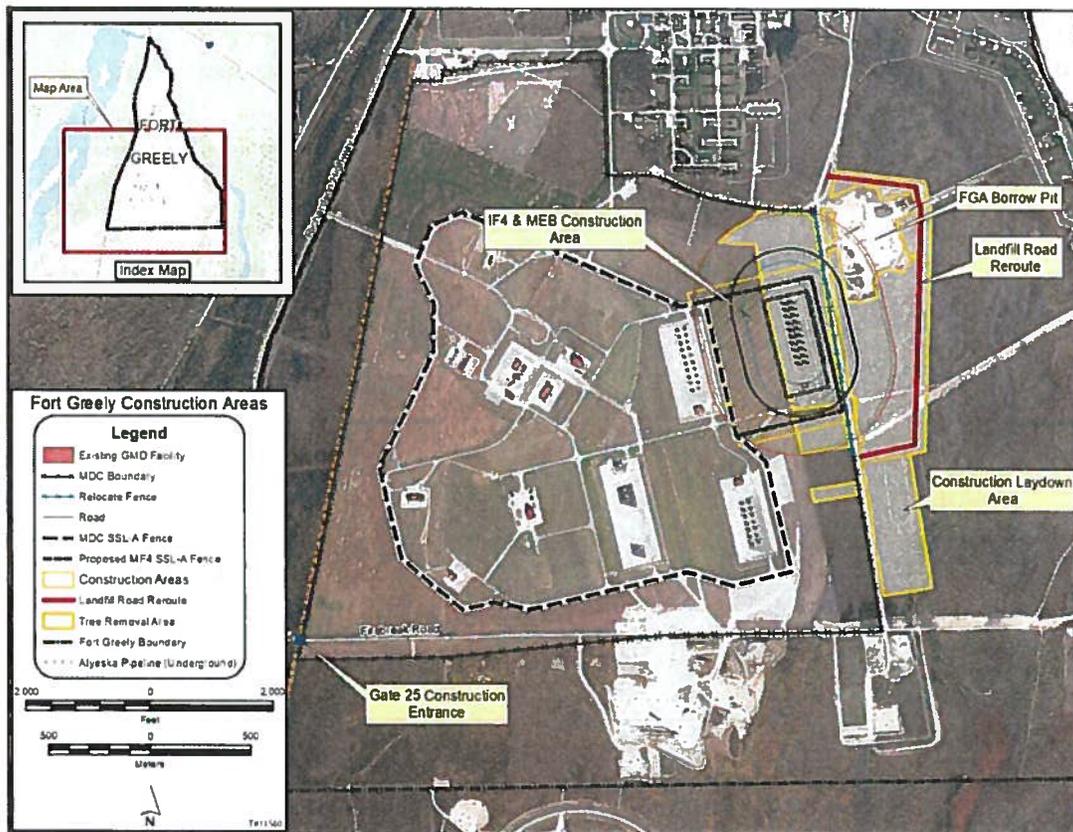


Figure 2. Proposed Action

Access to the site will be from Gate 25, at the south end of the area (Figure 2). Existing roadways will be used to the extent practicable. The laydown area, located south of the main construction area, may require the placement of aggregate surface material and compacting. Construction for the 20 additional launch silos will require excavation to a depth of

approximately 75 feet below ground surface with a diameter of approximately 15 feet. The current landfill road will be rerouted to the east of the borrow pit. Clearing, grubbing, grading, compacting of the exposed subgrade, and placement of aggregate material on the surface will be required.

A temporary workers camp to house up to 140 construction workers may be necessary. If a camp is needed, it will be located off FGA in the surrounding community on previously disturbed land. Preparation of a site would include gravel fill, leveling, and compaction of roads and parking areas. Construction activities are set to begin in the spring of 2018 and continue into 2021.

The area of potential effect (APE) will surround the current MDC and the proposed construction area and is approximately 1,200 acres (Figure 3). If MDA determines that activities would occur outside of the current proposed APE is needed, further coordination would occur.

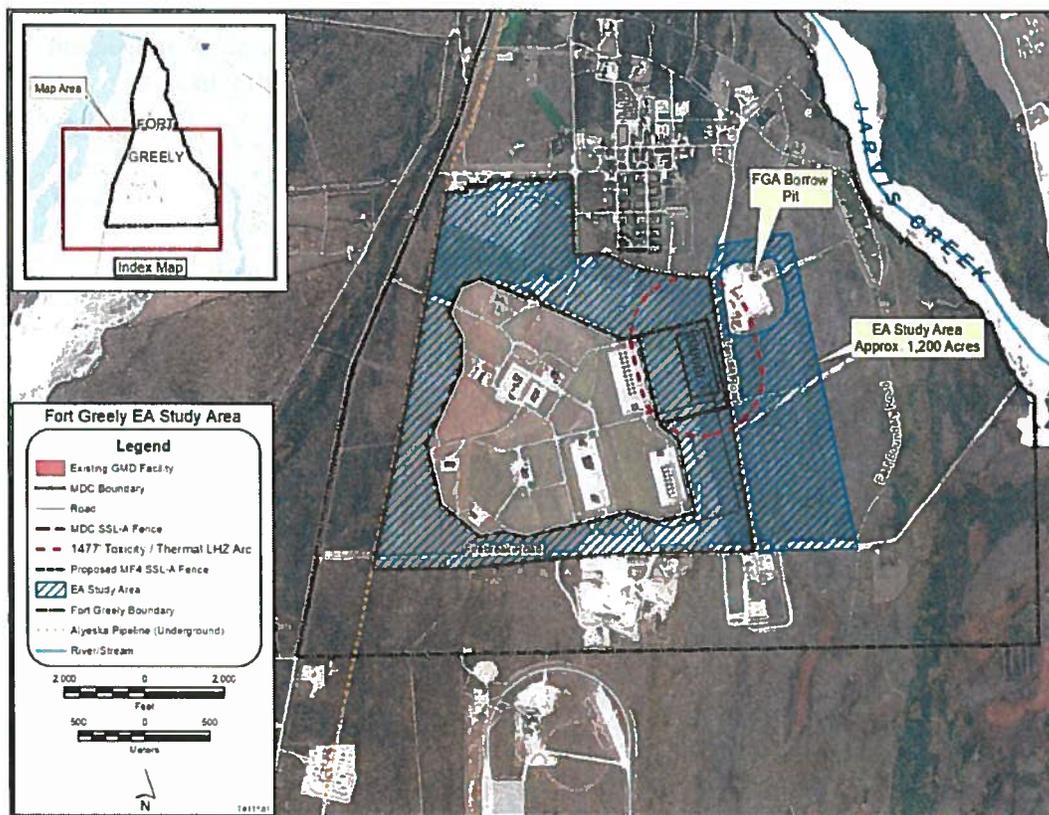


Figure 3. Fort Greely Expanded Capability APE in Blue

A search of the Alaska Historic Resources Survey database and review of cultural resource surveys conducted at FGA shows 46 known sites within the FGA boundaries. Only two of these sites are eligible for the National Register of Historic Places. These two archaeological sites, XMH-1168 and XMH-0871, were identified during a 2005 survey by the Center for Environmental Management of Military Lands, and are located near the East Boundary Road and are not in the current APE.

There are no historic properties within or near the APE; therefore, the MDA determined that no historic properties will be affected by the proposed undertaking. Following 36 CFR § 800.5(b), we seek your concurrence on the determination that the proposed construction of Interceptor Field # 4, associated facilities and infrastructure will result in no adverse effects on historic properties.

If you have any questions about this project, please contact Bettie McCaulley, MDA Environmental Officer, at (256) 450-2879 or email at bettie.mccaulley@mda.mil.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric Sorrells". The signature is written in a cursive style with a small "E:" at the beginning.

Eric Sorrells
Chief, Environmental Management
Facilities and Deployments



**Notice of Availability for
Ground-based Midcourse Defense (GMD)
Expanded Capability, Fort Greely, Alaska
Proposed Final Environmental Assessment**

The Missile Defense Agency (MDA) is proposing to construct and operate an additional interceptor field with up to 20 Ground-Based Interceptors (GBIs), associated support facilities, utilities and infrastructure on approximately 245 acres directly west of the current Missile Defense Complex on U.S. Army Garrison Fort Greely, Alaska (FGA). An additional 40 acres would be required for contractor laydown areas to the south of the construction site. A temporary workers camp for up to 140 construction workers may be required. The temporary workers camp would be located off FGA in the surrounding community on previously disturbed land or on already established areas.

Construction activities at FGA would take approximately four years, beginning in the spring of 2018. Most ground-disturbing activities would occur during the first six months. Site operations would be similar to that as described in the 2000 National Missile Defense Deployment Final Environmental Impact Statement. Once placed, the interceptors would remain underground in the silos, except for removal for maintenance or upgrades/modifications to the silos. Launches would only occur in defense of the Nation. There would be no flight testing of the interceptors from FGA.

The existing GBI sites at FGA and Vandenberg Air Force Base, California, provide the capability to protect the U.S. from the current and projected North Korean intercontinental ballistic missile (ICBM) threat, as well as a future Iranian ICBM threat should it emerge. However, deployment of additional GBIs at FGA would provide the Warfighter additional interceptor capability.

Under the National Environmental Policy Act (NEPA) of 1969 and its implementing regulations, the MDA prepared an Environmental Assessment (EA) to analyze the potential environmental impacts from constructing and operating the additional interceptor field with GBIs. Following analysis of the Proposed Action, MDA determined that no significant impacts to the environment are expected.

For a downloadable copy of the Proposed Final EA, including the unsigned Finding of No Significant Impact (FONSI) visit the website https://www.mda.mil/news/environmental_reports.html. A hardcopy is also available at the following libraries:

Fairbanks North Star Borough Public Library
Noel Wien Library
Fairbanks, AK

Delta Junction Library
Delta Junction, AK

MDA will accept written comments on the Proposed Final EA and FONSI during the public comment period, which extends from February 17 through March 18, 2018.

MDA requests and welcomes your comments via e-mail to envgrp@mda.mil, or via U.S. Postal Service to:

Missile Defense Agency
Attention: Ms. Bettie McCaulley
MDA/FDO
Building 5222, Martin Road
Redstone Arsenal, AL 35898

Comments must be postmarked or received by March 18, 2018 to ensure they become part of the official record. Anyone having further questions should contact MDA Public Affairs at (256) 450-1599.

for more information about AA.
Show me your ways, O Lord, and teach me your paths.
Psalm 25:4

Peter 1:3 states it is a "lively hope" which means a living hope. Why is it a living hope? All other faiths can point to a founder and a founder's grave,

ing back for me some day because I belong to Him through faith.

Is He returning for you? Think about it.



Calling all artists! We need a logo!

**2018 Deltana Fair theme:
Our Roots Run Deep**

What's in it for you?

Well, FAME and Pride! Plus \$50 and a free pass to the fair!

**Email logo design entries to info@deltanafair.com
or mail to Brittany Johnson, Deltana Fair
PO Box 408, Delta Junction, AK 99737**

Entries MUST be received by 5 pm on March 1, 2018



**Notice of Availability for
Ground-based Midcourse Defense (GMD)
Expanded Capability, Fort Greely, Alaska
Proposed Final Environmental Assessment**

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AFFIDAVIT OF PUBLICATION

UNITED STATES OF AMERICA }
 STATE OF ALASKA } SS.
 FOURTH DISTRICT }

Before me, the undersigned, a notary public, this day personally appeared Tameka Amberslo who, being first duly sworn, according to law, says that he/she is an Advertising Clerk of the Fairbanks Daily News-Miner, a newspaper (i) published in newspaper format, (ii) distributed daily more than 50 weeks per year, (iii) with a total circulation of more than 500 and more than 10% of the population of the Fourth Judicial District, (iv) holding a second class mailing permit from the United States Postal Service, (v) not published primarily to distribute advertising, and (vi) not intended for a particular professional or occupational group. The advertisement which is attached is a true copy of the advertisement published in said paper on the following day(s):

2/18/2018 2/25/2018

Missile Defense Agency
Environmental MNCT DPFE

Notice Of Availability
9857

44665

and that the rate charged thereon is not excess of the rate charged private individuals, with the usual discounts.

Subscribed and sworn to before me on this 25th day
 of May, 2018

[Signature]
 Notary Public in and for the State Alaska.

My commission expires Dec 7, 2021



**Notice of Availability for
 Ground-based Midcourse Defense
 (GMD) Expanded Capability, Fort
 Greely, Alaska Proposed Final
 Environmental Assessment**

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NOTARY PUBLIC
M. BURNELL
STATE OF ALASKA
 My commission Expires December 7, 2021