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Environmental Assessment for the Proposed Construction of Base Utilities Inc. Maintenance Utility Structure at Grand Forks Air Force Base, North Dakota

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December 2019 Project #R18084

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ACRONYMS AND ABBREVIATIONS

°F	degree Fahrenheit
319 ABW	319th Air Base Wing
319 CES	319th Civil Engineering Squadron
ACC	Air Combat Command
ACM	Asbestos Containing Material
ACP	Access Control Points
AFB	Air Force Base
AFI	Air Force Instruction
AFOSH	Air Force Occupational and Environmental Safety, Fire, Protection, and Health
AFPD	Air Force Policy Directive
AFSPC	Air Force Space Command
AMC	Air Mobility Command
AOC	Area of Concern
APE	Area of Potential Affect
APZ	Accident Potential Zone
AQCR	Air Quality Control Region
ARPA	Archaeological Resource Protection Act
AST	aboveground storage tank
AT/FP	Anti-Terrorism / Force Protection
BE	Bioenvironmental Engineering
BFSA	Bulk Fuel Storage Area
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
BRAC	Base Realignment and Closure
CAA	Clear Air Act
CAAA	Clear Air Act Amendments

ACRONYMS AND ABBREVIATIONS (CONTINUED)

CAS	Central Accumulation Site
CBP	Customs and Border Protection
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFC	chlorofluorocarbon
CFR	Code of Federal Regulations
CH4	methane
CO	carbon monoxide
CO2	carbon dioxide
CO2e	carbon dioxide equivalent
CS	Communications Squadron
CVI	Commercial Vehicle Inspection
CWA	Clean Water act
CZ	Clear Zone
DLA	Defense Logistics Agency
DoD	Department of Defense
DoDI	Department of Defense Instruction
EA	Environmental Assessment
EESHO-MIS	Enterprise Environmental, Safety and Occupational Health Management Information System
EIAP	Environmental Impact Analysis Process
EMFR	Electromagnetic Field Radiation
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ESQD	Explosives Safety Quantity Distance
FEMA	Federal Emergency Management Agency

ACRONYMS AND ABBREVIATIONS (CONTINUED)

FIRM	Flood Insurance Rate Map
FONSI	Finding of NO Significant Impact
FSS	Force Support Squadron
ft bgs	feet below ground surface
FTU	Formal Training Unit
FY	Fiscal Year
GHG	greenhouse gas
gpm	gallons per minute
HAP	Hazardous Air Pollutant
HCFC	hydrochlorofluorocarbon
HFC	hydrofluorocarbon
HQ	Headquarters
HVAC	heating, ventilation, and air conditioning
I-	Interstate
ICBM	Intercontinental Ballistic Missile
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IPaC	Information Planning and Conservation
IRP	Installation Restoration Program
ISR	intelligence, surveillance, and reconnaissance
JP-8	Jet Fuel
LBP	lead-based paint
LEED	Leadership in Energy and Environmental Design
MBTA	Migratory Bird Treaty Act
MCE	Mission Control Element
MOA	Memorandum of Agreement
MSDS	Material Safety Data Sheets

ACRONYMS AND ABBREVIATIONS (CONTINUED)

MSL	mean sea level
MWD	Military Working Dog
N2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NASOC-GF	National Air Security Operations Center at Grand Forks AFB
NDAC	North Dakota Administrative Code
NDCC	North Dakota Century Code
NDDH	North Dakota Department of Health
NDFG	North Dakota Fish and Game
NDNHP	North Dakota Natural Heritage Program
NDPDES	North Dakota Pollutant Discharge Elimination System
NDPRD	North Dakota Parks and Recreation Department
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NO2	nitrogen dioxide
NOI	Notice of Intent
NOX	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
NWS	National Weather Service
O3	ozone
OSHA	Occupational Safety and Health Administration

ACRONYMS AND ABBREVIATIONS (CONTINUED)

OWS	Oil Water Separator
Pb	lead
PFC	perfluorocarbon
PM	particulate matter
PM10	particulate matter equal to or less than 10 microns in diameter
PM2.5	particulate matter equal to or less than 2.5 microns in diameter
PME	Professional Military Education
POL	petroleum, oils, and lubricants
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
RIN	Regulation Identification Number
RPA	remotely piloted aircraft
SAP	Satellite Accumulation Point
SCAQMD	South Coast Air Quality Management District
SDZ	Surface Danger Zones
sf	square feet
SF6	sulfur hexafluoride
SHPO	State Historic Preservation Office
SHSND	State Historical Society of North Dakota
SIP	State Implementation Plan
SO2	sulfur dioxide
SOX	sulfur oxides
SPCC	Spill Prevention, Control, and Countermeasures
START1	Strategic Arms Reduction Treaty I
SWPPP	Stormwater Pollution Prevention Plan
TCP	Traditional Cultural Property
tpy	tons per year

ACRONYMS AND ABBREVIATIONS (CONTINUED)

TSDF	Treatment, Storage, and Disposal Facility
UAS	Unmanned Aerial Systems
UFC	Unified Facilities Criteria
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USAPHC	U.S. Army Public Health Center
USC	U.S. Code
USCCSP	U.S. Climate Change Science Program
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGBC	U.S. Green Building Council
USGS	U.S. Geological Survey
UST	underground storage tank
VOC	Volatile Organic Compound
WMA	Wildlife Management Area

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PURPOSE AND NEED FOR THE PROPOSED ACTION

This Environmental Assessment (EA) studies the possibility for impacts to the environment resulting from the construction of a maintenance utility shop and additional storage lot on Grand Forks Air Force Base (AFB). As required by the National Environmental Policy Act (NEPA) of 1969, federal agencies must consider environmental consequences in their decision-making process. This EA provides evaluation of the potential environmental impacts from both the Proposed Action and its alternatives.

The 319th Reconnaissance Wing (319 RW) is the host unit at Grand Forks AFB, North Dakota. This EA was prepared to evaluate the potential environmental impacts of the proposed project in compliance with the National Environmental Policy Act of 1969 (NEPA) (42 U.S. Code [USC] §§ 4331 et seq.), the regulations of the President's Council on Environmental Quality (CEQ) that implement NEPA procedures (40 Code of Federal Regulations [CFR] Parts 1500-1508), the U.S. Air Force (USAF) Environmental Impact Assessment Process Regulations at 32 CFR Part 989, and Air Force Instruction (AFI) 32-7061 (Secretary of the Air Force 2003).

The intent of the ongoing process of installation development at Grand Forks AFB is to provide infrastructure improvements necessary to support the mission of the 319 RW and its tenant units. These plans identify requirements for the improvement of the physical infrastructure and functionality of Grand Forks AFB, including current and future mission, facilities, and infrastructure requirements.

1.1 Introduction

Grand Forks AFB is in Grand Forks County, North Dakota near the North Dakota-Minnesota state boundary. The base occupies approximately 5,745 acres, adjacent to the north, of the City of Emerado, approximately 15 miles west of the City of Grand Forks (see Figure 1-1). The base was established in 1955 and has hosted a variety of missions and aircraft types throughout its 63-year history. The 319 RW is the current host unit at Grand Forks AFB and oversees the management of the base, which is also home to several tenant units, including the Air Force Office of Special Investigations, 10th Space Warning Squadron, and U.S. Customs and Border Protection.

The 319th Reconnaissance Wing of Grand Forks Air Force Base, North Dakota, is a Global Hawk wing comprised of three groups, 14 squadrons, and three detachments, and employing aircraft and equipment. The wing trains, deploys and redeploys over 1,400 Airmen in support of Air Expeditionary Force and combatant commander requirements. It also provides facilities and equipment support for the Department of Homeland Security, Customs and Border Protection. The wing is also only one of two locations worldwide operating the High Frequency Global Communications System, providing operational support of senior leader

communications for all Department of Defense agencies, including the President of the United States. In addition, the wing provides logistics, civil engineering, contracting, communications, medical, security, and force support functions along with facilities and equipment.

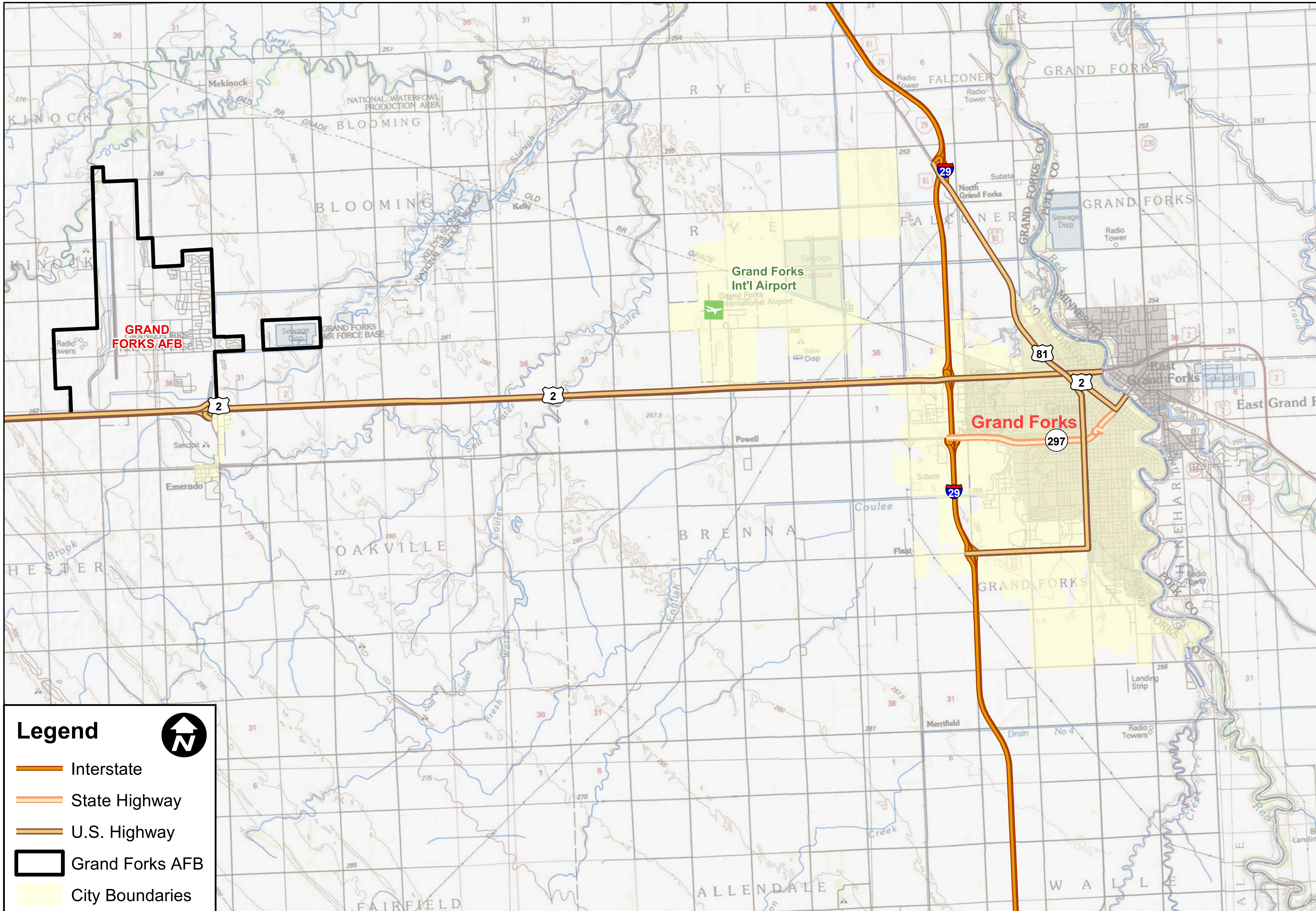

FIGURE 1-1

Miles: 0 1.5 3

Kilometers: 0 3 6

VICINITY MAP GRAND FORKS AFB, ND

BASE UTILITY INC. E-A

PREPARED BY: CFE

DATE: 5/20/2019

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R18084 - Base Utilities Inc. E-A

PREPARED BY: CFE | DATE: 5/17/2019

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OVERVIEW MAP GRAND FORKS AFB, ND

0 1,000 2,000 Feet

0 250 500 Meters

FIGURE 1-2

The RQ-4 Global Hawk is a high-altitude, long-endurance, remotely piloted aircraft (RPA) with an integrated sensor suite that provides global all-weather, day or night intelligence, surveillance, and reconnaissance (ISR) capability. The RQ-4 Global Hawk operations were initiated in late December 2010 by the ACC and the first RPA arrived in June 2011. The RQ-4 Global Hawk is operated by the 319th Reconnaissance Wing/319th Operations Group / 348th Reconnaissance Squadron (348 RS) at Grand Forks AFB, North Dakota, but aircraft are rotated to operational detachments worldwide.

The MQ-9 Reaper, also called the Predator B, is flown by the DHS CBP National Air Security Operations Center at Grand Forks AFB (NASOC-GF). It performs multi-mission ISR missions over land or sea. CBP's priority mission of anti-terrorism uses the MQ-9 to identify and intercept potential terrorists and illegal cross-border activity. It is also used in disaster relief, emergency response, and recovery operations. The CBP became a tenant in early 2009. CBP has relocated the remaining aircraft and personnel operating at Grand Forks International Airport to the Grand Forks AFB. This includes the Cessna 206 fixed-wing aircraft and the Airbus Helicopter Eurocopter AS350 light enforcement helicopter.

319th RW signed a 50-year Enhanced Use Lease with Grand Forks County on February 18, 2015. The enhanced use lease allows the county to develop the 217- acre property into an Unmanned Aerial Systems (UAS) business park for aircraft testing, training, and research (i.e., The Grand Sky Aviation and Technology Park). Northrop Grumman and General Atomics have signed leases and are constructing facilities. Grand Sky has a joint-use agreement allowing tenants to use the Grand Forks AFB runway. They have flown the MQ-9. MQ-1 Predator, Mooney 20, and Cessna 172 at Grand Forks AFB.

The 119th Wing, North Dakota Air National Guard, Fargo, N.D. is comprised of nearly 1,200 personnel, and provides trained Airmen executing MQ-9 precision attack and reconnaissance, kinetic, and non-kinetic target intelligence production as well as expeditionary support capabilities for the nation and state.

The Air National Guard's federal mission is to maintain well-trained, well-equipped units available for prompt mobilization during war and provide assistance during national emergencies (such as natural disasters or civil disturbances). During peacetime, the combat-ready units and support units are assigned to most Air Force major commands to carry out missions compatible with training, mobilization readiness, humanitarian and contingency operations such as Operation Enduring Freedom in Afghanistan.

Under state law, the Air National Guard provides protection of life, property and preserves peace, order and public safety. These missions are accomplished through emergency relief support during natural disasters such as floods, earthquakes, and forest fires; search and rescue operations; support to civil defense authorities; maintenance of vital public services and counterdrug operations. The 119th Wing operated as a tenant of Grand Forks AFB beginning in 2011 but returned full time to Fargo in 2016.

The intent of the 319 RW and ACC is to streamline NEPA compliance and facilitate the installation development process by evaluating in one integrated document the potential impacts on the human environment of the projects proposed for execution at Grand Forks AFB.

1.2 Need for the Action

The purpose of the Proposed Action is to provide an on-base location for the privatization of utilities. Additionally, Base Utilities Inc. (BUI) will have an off-base location, which will serve as the primary administrative site. The Proposed Action is needed to continue providing all necessary labor, management, supervision, permits, equipment, supplies, materials, transportation, and any incidental services for the water and wastewater treatment system. Not undertaking the proposed project would hinder the ability of Base Utilities Inc., to perform its mission of service and maintenance to the members of Grand Forks AFB, decrease efficiency, and increase cost to the users.

1.3 Objection for the Action

The proposed project provides an on-base location for the privatization of water and wastewater treatment systems. It will provide a 4,800-sf utility facility, a 12'x12' water-fill station, and a washout pit. The Proposed Action would reduce utility and energy consumption, maintenance time for repair of damaged infrastructure, and consolidate water distribution and wastewater system operations and maintenance within one central facility. More importantly, the Proposed Action would allow BUI to operate during increased security levels, when off-base access is restricted.

1.4 Scope of the Environmental Assessment

This EA evaluates potential environmental impacts to the following resources that would likely be affected by construction of a utility building and additional storage lot. This analysis covers only those items listed below. It does not include any previous construction or demolition of facilities, parking lots, associated water drainage structures, or other non-related construction and demolition.

The following environmental impacts were covered within the scope of the environmental assessment.

- Air Quality;
- Hazardous Material, Wastes, and Stored Fuel;
- Water Resources;
- Biological Resources;
- Cultural Resources;
- Geological Resources;

- Infrastructure;
- Safety and Occupation Health; and
- Environmental Management.

Per NEPA, the resource areas that are anticipated to experience either no impacts or negligible environmental impacts are not examined in detail in this EA. These environmental resources include:

- Land Use;
- Noise;
- Visual Resources;
- Socioeconomics;
- Airspace / Airfield Operations; and
- Environmental Justice / Protection of Children.

As described below, implementation of the projects included in the Proposed Action or any of their alternatives, including the No-Action Alternative, would have no impact on any of these resource areas.

Land Use. Land use at Grand Forks AFB is guided by the base's General Plan and the Installation Development Plan. As described in Section 2.2., *Selection Standards for Project Alternatives*, the project was sited such that the proposed construction and operation would be compatible with the designated land uses described for the base. No substantially new activities would be introduced that would result in potential changes to existing land uses. Project sites that do not conform to Grand Forks AFB plans for compatible land use have not been carried forward for further analysis. Consequently, the project included within the Proposed Action would be inherently consistent with land use guidelines for Grand Forks AFB, and there would be no adverse impacts to existing land use at the base as a result of the implementation of the Proposed Action.

Noise. Proposed construction at Grand Forks AFB would not result in a substantial short-term change or any long-term change in ambient noise levels at the base, which is dominated by industrial-type activities. Noise and vibration would likely be noticeable temporarily in the immediate vicinity of construction activities; however, these activities would be short-term, localized, and would not affect sensitive receptors, or create adverse impacts. Further, the proposed facilities would not be sited in an area with incompatible outdoor noise levels and would not be considered noise-sensitive uses. Construction and maintenance of proposed facilities would not result in additional noise impacts on Grand Forks AFB, as personnel and mission requirements would not change.

Visual Resources. Grand Forks AFB is characterized by a mixture of large industrial facilities, hangars, and the airfield. The visual environment of Grand Forks AFB does not constitute a unique or sensitive viewshed, and the proposed facilities, as well as modifications of existing facilities would be visually consistent with existing structures at the base and in the vicinity of

proposed project site. Therefore, no detrimental impact on visual resources at Grand Forks AFB or in the region would occur upon implementation of the Proposed Action.

Socioeconomics. Implementation of the project included in the Proposed Action would provide short-term socioeconomic benefits to the local economy, including construction employment and materials purchases. However, such short-term beneficial impacts from temporary employment gains would be negligible on a regional scale and the Proposed Action would result in no long-term changes in employment levels or economic activity at Grand Forks AFB.

Environmental Justice / Protection of Children. Regarding environmental justice issues, no major adverse environmental impacts associated with the projects included in the Proposed Action are anticipated to impact on- or off-base communities. Therefore, no populations (i.e., minority, low-income, or otherwise) would be disproportionately or adversely impacted and no adverse impact with regard to environmental justice would result. In general, implementation of the project included in the Proposed Action would not result in increased exposure of children to environmental health risks or safety risks such as those associated with the generation, use, or storage of hazardous materials. Standard construction site safety precautions (e.g., fencing and other security measures) would reduce potential risks to minimal levels and any potential impacts to children would be negligible and short-term.

1.5 Decision to be Made

This EA evaluates the environmental consequences from implementing the construction of a utility shop, washout pit and additional equipment and materials storage lot on Grand Forks AFB. NEPA requires that environmental impacts be considered prior to final decision on a proposed project. If significant impacts are identified, Grand Forks AFB would implement best management practices (BMPs) and/or mitigation measures to reduce the impacts below the level of significance, undertake the preparation of an Environmental Impact Statement (EIS) addressing the proposed action, or abandon the proposed action. Preparation of an environmental analysis must be accomplished prior to a final decision regarding the proposed project and must be available to inform decision makers of potential environmental impacts of selecting the proposed action or any of the alternatives.

1.6 Applicable Regulatory Requirements and Required Coordination

1.6.1 Regulatory Requirements

These regulations require federal agencies to analyze potential environmental impacts of proposed actions and alternatives and to use these analyses in making decisions on a proposed action. All cumulative effects and irretrievable commitment of resources must also be assessed during this process. The Council on Environmental Quality (CEQ) regulations declares that an EA is required to accomplish the following objectives:

- Briefly provide enough evidence and analysis for determining whether to prepare an EIS or a Finding of No Significant Impact (FONSI).
- Aid in an agency's compliance with NEPA when an EIS is not necessary and facilitate preparation of an EIS when necessary.

Air Force Instruction (AFI) 32-7061 as promulgated in 32 Code of Federal Regulations (CFR) 989, specifies the procedural requirement for the implementation of NEPA and the preparation of an EA. Other environmental regulatory requirements relevant to the proposed action and alternatives are also in the EA. Regulatory requirements including, but not restricted to the following programs will be assessed:

- AF Environmental Impact Analysis Process (EIAP) (32CFR989)
- AFI 32-7020, *The Environmental Restoration Program*
- AFI 32-7040, *Air Quality Compliance and Resource Management*
- AFI 32-7042, *Waste Management*
- AFI 32-7063, *Air Installation Compatible Use Zones (AICUZ) Program*
- AFI 32-7064, *Integrated Natural Resource Management*
- AFI 32-7065, *Cultural Resource Management*
- *American Indian Religious Freedom Act* of 1978 [42 U.S.C. § 1996]
- *Archaeological Resources Protection Act* (ARPA) [15 U.S.C. Sec § 470a-11, et seq., as amended]
- *Clean Air Act* (CAA) [42 U.S.C. Sec § 7401, et seq., as amended]
- *Clean Water Act* (CWA) [33 U.S.C. Sec § 1251, et seq.]
- *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) [42 U.S.C. Sec. § 9601, et seq.]
- Defense Environmental and Community Right-to-Know Act (EPCRA) of 1986 [42 U.S.C. Sec. § 11001, et seq.]
- *Endangered Species Act* (ESA_ [16 U.S.C. sec § 1531-1543, et sew.]
- Executive Order (EO) 11514, *Protection and Enhancement of Environmental Quality* and Amended by EO 11990
- EO 11593, *Protection and Enhancement of the Cultural Environment*
- EO 11988, *Floodplain Management* and amended by 12148
- EO 11990, *Protection of Wetlands* and amended by 12608
- EO 12088, *Federal Compliance with Pollution Control Standards*
- EO 12148, *Floodplain Management*
- EO 12372, *Intergovernmental Review of Federal Programs*
- EO 12608
- EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*
- EO 13007, *Indian Sacred Sites*
- EO 13112, *Invasive Species*
- EO 13186, *Conservation of Migratory Birds*

- *Farmland Protection Policy Act* of 1981 [7 U.S.C. 4201], revoked
- *Hazardous Materials Transportation Act* of 1975 [49 U.S.C. Sec 1761, et seq.]
- *Migratory Bird Treaty Act* of 1918 [16 U.S.C. 703-712]
- *National Environmental Policy Act (NEPA)* of 1969 [42 U.S.C. Sec 4321, et seq.]
- *National Historical Preservation Action* (NHPA) of 1966 [U.S.C. Sec 470, et seq., as amended]
- *The Native American Graves Protection and Repatriation Act* (NAGPRA) of 1990 [Public Law 101-601, 25 U.S.C. Sec 3001-3013, et seq.]
- *Noise Control Act of 1972* [42 U.S.C. Sec. 4901, et seq., Public Law 92-574]
- *ND Air Pollution Control Act* (Title 23) and Regulations
- *ND Air Quality Standar*ds (Title 33)
- *ND Hazardous Air Pollutants Emission Standards* (Title 33)
- *Occupational Safety and Health Act* (OSHA_ of 1970 [29 U.S.C. Sec. § 651, et seq.]
- *Pollution Prevention Action* of 1990 [42 U.S.C. § 133]
- *Resource Conservation Recovery Act* (RCRA) of 1976 [42 U.S.C. Sec. § 6901, et seq.]
- *Toxic Substances Control Act* (TSCA) of 1976 [15 U.S.C. Sec. § 2601, et seq.]

Grand Forks AFB has a National Pollutant Discharge Elimination System (NPDES) permit for both wastewater and stormwater to cover base-wide industrial activities. Implementation of the proposed action or an alternative action would disturb less than one acre, and thus negate the need for Grand Forks AFB to obtain a separate NPDES Construction permit from the North Dakota Department of Environmental Quality (NDDEQ) (formerly the North Dakota Department of Health (NDDH). The general small site permit will cover this activity and needs to be tracked by the construction agent in accordance with the appropriate rules. The permit would allow discharge of stormwater runoff until the site stabilized by the reestablishment of vegetation or other permanent cover.

Scoping for this EA included discussion of relevant issues with members of the environmental management flight. Scoping letters requesting comments on possible issues of concern are sent to agencies with pertinent resource responsibilities. In accordance with 32 CFR 989, a copy of the final EA is submitted to the North Dakota Department of Commerce Division of Community Services.

Applicable regulatory requirements and required coordination include: a Work Clearance Request, Stormwater Protection Plan, Dust Control Plan, Spill Control Plan, and Erosion and Sediment Control Plan with the Civil Engineer Environmental Management Branch (CEI) Water Program Manager and Contracting Officer.

1.6.2 Public and Agency Review

NEPA, 40 CFR Parts 1500-1508, and 32 CFR Part 989 require public review of the EA before approval of a Finding of No Significant Impact (FONSI) and implementation of the Proposed Action. A Notice of Availability for public review of the Draft EA was published in the Grand Forks Herald on 03 January 2020 and the Draft EA was been made available

for public review at the Grand Forks Public Library located at 2110 Library Circle, Grand Forks, North Dakota 58201. All comments received during the 30-day public review period for the Draft EA have been incorporated into the Final EA and included in Appendix A.

1.6.3 Interagency /Intergovernmental Coordination and Consultation

Scoping is an early and open process for developing the breadth of issues to be addressed in an EA and for identifying significant concerns related to an action. Per the requirements of the Intergovernmental Cooperation Act of 1968 (42 USC§ 4231[a]) and EO 12372, Intergovernmental Review of Federal Programs, Federal, state, and local agencies with jurisdiction that could be affected by the Proposed Action were notified during the initial development of this EA in a letter dated 2 October 2019.

1.6.4 Government-to-Government Consultations

EO 13175, Consultation and Coordination with Indian Tribal Governments, directs Federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on federally administered lands. Consistent with EO 13175, Department of Defense Instruction (DoDI) 4710.02, Interactions with Federally-Recognized Tribes, and AFI 90-2002, Air Force Interaction with Federally-Recognized Tribes, federally- recognized tribes that are historically affiliated with lands in the vicinity of Grand Forks AFB have been invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes (see Appendix A). The tribal consultation process is distinct from NEPA consultation or the interagency coordination process, and it requires separate notification of all relevant tribes. The timelines for tribal consultation are also distinct from those of other consultations. The Grand Forks AFB point-of-contact for Native American tribes is the base's appointed Installation Tribal Liaison Officer.

1.6.5 Other Agency Consultations

Per the requirements of Section 106 of the National Historic Preservation Act (NHPA), and its implementing regulations (36 CFR Part 800), as well as Section 7 of the Endangered Species Act (ESA), and its implementing regulations (50 CFR Part 402), the findings of effect and request for concurrence have been transmitted to the North Dakota State Historic Preservation Officer (SHPO) and the U.S. Fish and Wildlife Service (USFWS). Correspondence regarding the findings, concurrence, and resolution of any adverse effect is included in Appendix A.

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DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 Introduction

This document addresses potential adverse and beneficial environmental issues that could result from the implementation of proposed construction at Grand Forks AFB. Implementation of the Proposed Action would result in long-term increased energy efficiency, decreased utility and energy consumption, and streamlined infrastructure. However, construction-related ground-disturbing activities would have the potential to result in short-term, temporary, construction-related impacts that require analysis in accordance with National Environmental Policy Act (NEPA). In addition to the Proposed Action, Council on Environmental Quality (CEQ) regulations require an assessment of potentially effective and reasonably feasible alternatives for implementation of the Proposed Action. Additionally, CEQ regulations stipulate that the No-Action Alternative must be analyzed to assess any environmental consequences that may occur if the Proposed Action is not implemented.

The Proposed Action includes construction of a utility privatization site (see Figure 1). Details related to the project including: Proposed Action, its alternative, and No-Action Alternative, are provided below.

2.2 Selection Standards for Project Alternatives

The scope and location of the project and, where applicable, their alternatives, have undergone extensive review by 319th Civil Engineer Squadron (CES) personnel, local government agencies, and supporting installation and United States Air Force (USAF) staff specialists.

Potential alternatives to the project included in the Proposed Action were each evaluated based on three universal selection standards, which were applied to all alternatives. Each project description, beginning in Section 1.3, Proposed Action and Alternatives provides details regarding how these universal selection standards apply to specific project requirements.

2.2.1 Mission Requirements

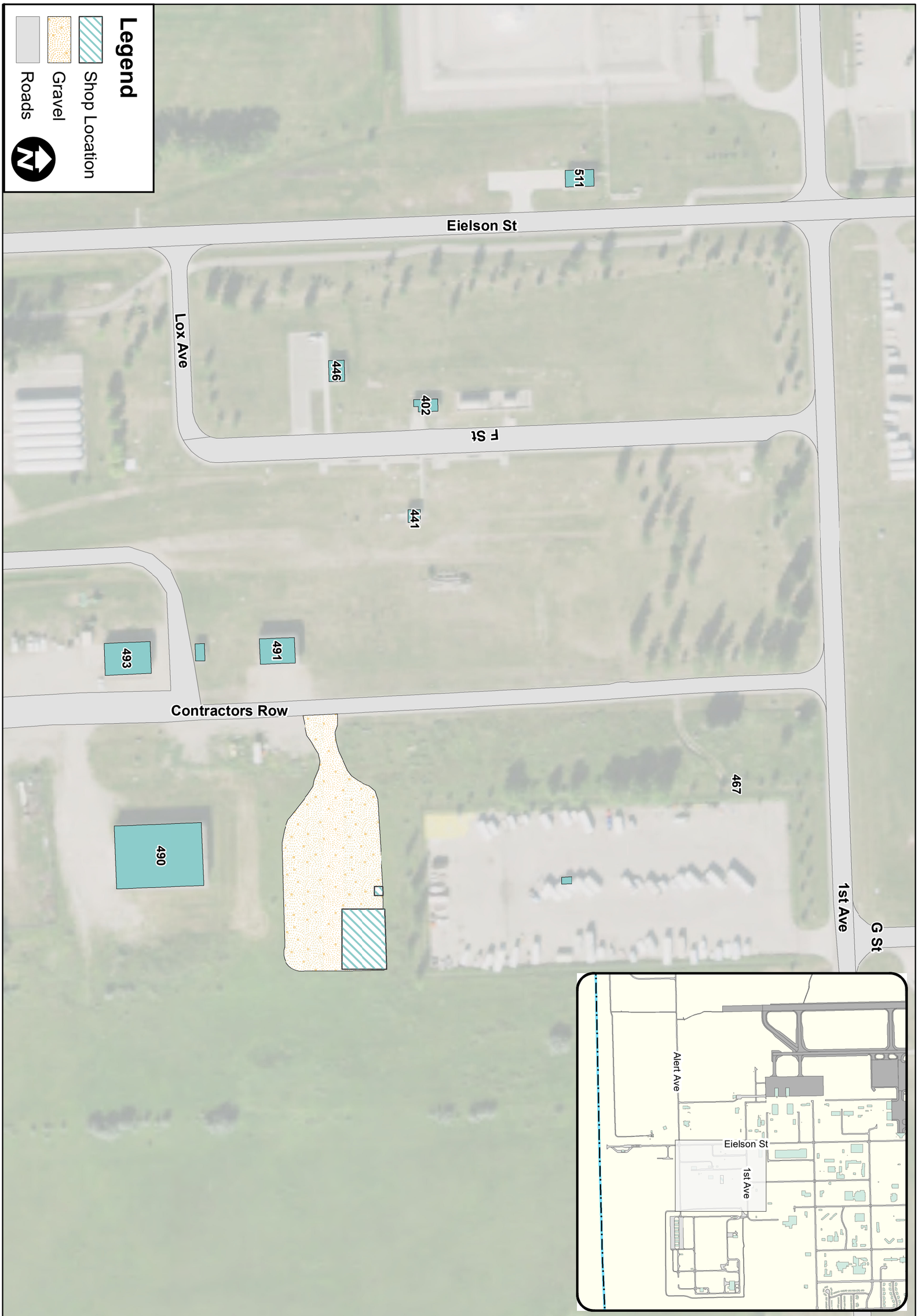
Standard 1: Planning Constraints – Planning constraints are man-made or natural elements that can create significant limitations to the operation or construction of buildings, roadways, utility systems, airfields, training ranges, and other facilities. These constraints, when considered collectively with the base's capacity opportunities, inform the identification of potential areas for development, as well as those areas that can be redeveloped to support growth. These standards address compatibility with base operational aspects, natural and

built resources, land use compatibility, and largely dictate the location/placement of a proposed facility.

- *Operational* – Operational constraints are generally related to flying and maintaining aircraft; storing fuel, munitions, and other potentially hazardous cargo; and operating training ranges or fulfilling similar operational requirements that can limit future development activity. At Grand Forks AFB, operational constraints include, but are not limited to, airfield clearance and safety zones, noise contours, explosives safety quantity distance zones, and Anti-Terrorism / Force Protection (AT/FP).
- *Natural* – Natural constraints include environmental and cultural resources at Grand Forks AFB. These resources provide positive aesthetic, social, cultural, and recreational attributes that substantially contribute to the overall quality of life on base.
- *Built* – Built constraints are related to the condition, functionality, or effectiveness of infrastructure systems, facilities, and other man-made improvements.
- *Land Use Compatibility* – Land use compatibility constraints are associated with land use designations (e.g., airfield, administrative, recreation, etc.) on the base and ensuring that planning considerations account for compatibility between proposed and existing uses (e.g., recreational uses may not be compatible with the airfield).

Standard 2: Base Capacity Opportunities – This refers to the capabilities of the base's existing facilities/infrastructure to meet existing and future mission needs. This standard largely drives the scope of the facility/infrastructure development and/or improvement and requires that proposed facility/infrastructure development and improvements support the following aspects:

- Mission operations;
- Mission support;
- Built infrastructure; and
- Quality of life.



BASE UTILITY INC. E-A	SHOP LOCATION GRAND FORKS AFB, ND	0 150 300 Feet 0 50 100 Meters	FIGURE 3-1
PREPARED BY: CFE DATE: 5/20/2019			
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Standard 3: Sustainability Development Indicators – This refers to the ability to operate into the future without a decline in either the mission or the natural and man-made systems that support it, creating a sustainable base. Sustainability is a holistic approach to asset management that seeks to minimize the negative impacts of the USAF's mission and operations on the environment. This standard generally drives the scope of the facility/infrastructure development and/or improvement and supports sustainability of the installation through consideration of the following:

- Energy;
- Water;
- Wastewater;
- Air quality;
- Facilities space optimization;
- Encroachment;
- Airfields; and
- Natural/cultural resources

2.3 Alternatives Considered but Eliminated from Detailed Study

Location for the New Utility Privatization Site. Alternatives that included the construction of a new utility privatization site in a different location were not carried forward for analysis because they did not meet *Selection Standard 1 – Planning Constraints*.

2.4 Description of Proposed Alternatives

2.4.1 No Action

Under the No-Action Alternative, BUI, would continue to rent a building from Grand Forks AFB that has been on the demolish list for several years. In the current building, there is no space for equipment, tools, or technology needed to operate and maintain the water distribution and wastewater systems. The lack of space would directly impact the response for emergency water breaks, sewer backups, and could result in property damage to residents in housing facilities. Nevertheless, the No-Action Alternative has been carried forward for further analysis, consistent with CEQ regulations, to provide a baseline against which the impacts of the project can be assessed.

2.4.2 Proposed Action

For the utility privatization site included in the Proposed Action, it is anticipated that all construction equipment would be brought on-site and would remain on-site for the duration of their use. Best management practices (BMPs) to minimize environmental impacts (e.g., soil stockpiling, use of silt berms/fences, watering of exposed soils), preparation of management plans (e.g., Stormwater Pollution Prevention Plan [SWPPP], Erosion Control Plan, and Soils Management Plan), and worker training programs would be implemented as required by

appropriate permitting efforts during construction. Upon completion, all disturbed areas not supporting new facilities or pavements would be revegetated to the extent possible with native plant species or plantings which mimic the adjacent undisturbed areas.

Design and construction of the new utility privatization site would comply with applicable codes, laws, and AT/FP requirements.

Under the Proposed Action, a new 4,800-sf utility facility (roughly 60'x80') would be constructed approximately 180 feet to the north of existing Facility 490, within what is currently a grassy area. In addition, 65'x65' dump vault would be erected. The dump vault with have a poured concrete slab with concrete support walls. The remaining area is to be graveled for storage and staging. Design of the facility and water-fill station will be an open floor layout. The gravel area would be utilized for parking, material stockpiles, and equipment storage. The Proposed Action would reduce utility and energy consumption, maintenance time for repair of damaged infrastructure, and consolidate water distribution and wastewater system operations and maintenance within one central facility. More importantly, the Proposed Action would allow BUI to operate during increased security levels, when off-base access is restricted.

Selection Standard Applicability. The proposed utility privatization site must be located in a compatible land use type within the developed area of the base (Selection Standard 1).

2.5 Description of Past and Reasonably Foreseeable Future Actions Relevant to Cumulative Impacts

Impacts from the Proposed Action would be concurrent with other actions occurring at Grand Forks AFB. There are other construction projects occurring on Grand Forks AFB in the same time frame. These projects are addressed under separate NEPA documents.

2.6 Summary Comparison of the Effects of All Alternatives

Potential impacts from implementing the Proposed Action and No-Action Alternative are discussed in detail in Chapter 4.

2.7 Identification of Preferred Alternatives

The preferred alternative is the proposed action to construct the utility privatization site approximately 180 feet north of existing Facility 490. The Proposed Action would reduce utility and energy consumption, maintenance time for repair of damaged infrastructure, and consolidate water distribution and wastewater system operations and maintenance within one central facility.

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AFFECTED ENVIRONMENT

3.1 Introduction

This section describes relevant existing environmental conditions at Grand Forks AFB and in the surrounding region of Grand Forks County. This information will be used to identify the anticipated environmental impacts associated with implementation of the project included in the Proposed Action (see Section 4, *Environmental Consequences*).

Per guidelines established by the NEPA, CEQ regulations, 32 CFR Part 989, *Environmental Impact Analysis Process*, and the AFI 32-7061, *The Environmental Impact Analysis Process*, the description of the affected environments and the associated impact analyses in this EA focus on only those aspects potentially subject to impacts as a result of the implementation of the Proposed Action. Section 1.7, *Scope of the Environmental Assessment*, provides an explanation and a summary of resource areas eliminated from detailed analysis.

This EA addresses the environmental conditions and impact analyses for the following environmental resources that would likely be affected by the implementation of the Proposed Action or its alternatives at Grand Forks AFB:

- Air Quality;
- Biological Resources;
- Water Resources;
- Geology and Soils;
- Cultural Resources;
- Infrastructure;
- Hazardous Material, Wastes, Stored Fuel; and
- Safety

3.2 Air Quality

3.2.1 Definition of Resource

Overall air quality in each location is determined by the concentration of various pollutants and particulates in the atmosphere.

3.2.1.1 Regulatory Authority

Under the Clean Air Act, the U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) for six "criteria air pollutants". These "criteria air pollutants include: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter equal or less than 2.5 microns in diameter ($PM_{2.5}$), particular matter equal to or less than 10 microns in diameter (PM_{10}), and lead (Pb). The primary NAAQS sets limits to public health, including sensitive populations such as children, the elderly, and individuals suffering from respiratory disease, with an adequate safety margin. The secondary NAAQS sets limits to protect public welfare, including protection against decreased visibility,

damage to animals, crops, vegetation, and buildings. In addition, the USEPA regulates Hazardous Air Pollutants (HAPs) through the National Emission Standards for Hazardous Air Pollutants (NESHAP) program rules.

The North Dakota Department of Environmental Quality (NDDEQ) Division of Air Quality's primary responsibility is protecting the health and welfare of North Dakota's citizens from the harmful effects of air pollution. Their authority comes from North Dakota Century Code (NDCC) Chapter 23-25, Air Pollution Control. NDDEQ also monitors ambient air quality in North Dakota to confirm it meets or exceeds the standards required by the state per North Dakota Administrative Code (NDAC) Chapter 33-15-02, Ambient Air Quality Standards and by the NAAQS. To address this responsibility, the NDDEQ owns and operates a network of eight ambient air quality monitoring sites stationed throughout the State of North Dakota.

3.2.1.2 Criteria Air Pollutants

Air quality is affected by stationary sources (e.g., industrial development) and mobile sources (e.g., motor vehicles). Air quality at a given location is a function of several factors including the quantity and type of pollutants emitted locally and regionally, as well as the dispersion rates of pollutants in the region. Primary factors affecting pollutant dispersion include wind speed and direction, atmospheric stability, temperature, the presence or absence of inversions, and topography. Primary standards provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly.

Carbon Monoxide (CO). CO is a colorless, odorless, poisonous gas produced by incomplete burning of carbon in fuel. The health threat from CO is most serious for those who suffer from cardiovascular disease, particularly those with angina and peripheral vascular disease. CO reduces the amount of oxygen that can be transported in the blood stream to critical organs like the heart and brain. At very high levels, which are unlikely to occur outdoors but are possible indoors or in other closed environments, CO can cause dizziness, confusion, unconsciousness, and death (https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution#Effects).

Airborne Lead (Pb). Airborne lead can be inhaled directly or ingested indirectly by consuming lead-contaminated food, water, or non-food materials such as dust or soil. Fetuses, infants, and children are most sensitive to lead exposure. Lead has been identified as a factor in high blood pressure and heart disease. Exposure to lead has declined dramatically in the last 35 years because of the reduction of lead in gasoline and paint, and the elimination of lead from soldered canned goods. Levels of airborne lead have decreased 98% between 1980 and 2014 (https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#how). The NDDEQ does not monitor for lead, as prior sampling efforts have shown that the state has low lead concentrations and no significant lead sources. The state ended lead monitoring in its air quality program on 31 December 1983 (NDDH 2018).

Nitrogen Dioxide (NO_2). NO_2 is a highly reactive gas that can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. Repeated exposure to high concentrations of NO_2 may cause acute respiratory disease in children. Because NO_2 is an important precursor in the formation of O_3 (or smog), control of NO_2 emissions is an important component of overall pollution reduction strategies. High airborne concentrations of NO_2 and NOx interact with water, oxygen, and other chemicals in the air to produce acid rain, which can be damaging to crops and ecological systems. The primary sources of NO_2 in the U.S. are fuel combustion emissions, including transportation and power generation (https://www.epa.gov/no2-pollution/basic-information-about-no2#What%20is%20NO2).

Ozone (O_3). Most of the ground-level (or terrestrial O_3) is formed because of complex photochemical reactions in the atmosphere involving volatile organic compounds (VOCs), nitrogen oxides (NOx), and oxygen. O_3 is a highly reactive gas that damages lung tissue, reduces lung function, and sensitizes the lung to other irritants. Although stratospheric O_2 shields the Earth from damaging ultraviolet (UV) radiation, terrestrial O_2 is a highly damaging air pollutant and is the primary source of smog.

In March 2008, the USEPA published a new standard for 8-hours ozone and revoked the 1-hour NAAQS for O_3 in most areas. During the review of NAAQS for O_3, the USEPA revised the existing 8-hour threshold to a level of 0.075 parts per million (ppm) from the previous level of 0.08 ppm. On 26 October 2015, the USEPA published in the Federal Register, Regulation Identification Number (RIN) 2060-AP38, Volume 80, Number 206, a proposed new rule revising the NAAQS for ground-level O_3 (USEPA 2015a). As of 28 December 2015, the primary and secondary NAAQS for O_3 has been revised to a level of 0.070 ppm from the previous level of 0.075 ppm.

Particulate Matter ($PM_{2.5}$ and PM_{10}). Particulate matter (PM) is a mixture of tiny particles that vary greatly in shape, size, and chemical composition, and can be comprised of metals, soot, soil, and dust. PM_{10} includes larger, coarse particles, whereas $PM_{2.5}$ includes smaller, fine particles. Sources of course particles include crushing or grinding operation and dust from paved or unpaved roads. Sources of fine particles include all types of combustion activities (e.g., motor vehicles, power plants, wood burning) and certain industrial processes. Exposure to $PM_{2.5}$ and PM_{10} levels exceeding the current standards can results in increased lung- and heart-related respiratory illness. The USEPA has concluded that finer particles are more likely to contribute to health problems than those greater than 10 microns in diameter.

Sulfur Dioxide (SO_2). SO_2 is emitted primarily from stationary source coal and oil combustion, steel mills, refineries, pulp and paper mills, and from non-ferrous smelters. High concentrations of SO_2 may aggravate existing respiratory and cardiovascular disease; asthmatics and those with emphysema or bronchitis are the most sensitive to SO_2 exposure. SO_2 also contributes to acid rain, which can lead to the acidification of lakes and streams and damage trees.

Hazardous Air Pollutants (HAPs). The USEPA designated approximately 187 compounds as HAPs based on their toxicity and use throughout various industries. The NDDEQ does not currently monitor for HAPs.

Table 3-1 National Ambient Air Quality Standards (NAAQS) – 40 CFR part 50

Pollutant	Primary Standard		Averaging Time	Secondary Standard
	Federal	**State**		
Carbon Monoxide (CO)	9 ppm (10 mg/m^3)	Same	8-hour	None
	35 ppm (40 mg/m^3)	Same	1-hour	None
Lead (Pb)	0.15 µg/m^3 (1)	Same	Rolling 3-month	Same as primary
Nitrogen Dioxide (NO_2)	53 ppb	Same	Annual	None
	100 ppb	--	1-hour	Same as primary
PM_{10}	150 µg/m^3	Same	24-hour	Same as primary
$PM_{2.5}$	15 µg/m^3	Same	Annual	Same as primary
	35 µg/m^3	Same	24-hour	Same as primary
Ozone (O3)	0.070 ppm	Same	8-hour	Same as primary
Sulfur Dioxide (SO_2)	75 ppb	0.273 ppm	1-hour	None
	--	0.5 ppm	3-hour	0.5 ppm

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 ug/m3 as a calendar quarter average) also remain in effect.
(2) The level of the annual NO2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.
(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.
(4) The previous SO2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area which is not yet 1 year since the effective date of the designation under the current (20-10) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO2 standards or is not meeting the requirements of a SIP call under the previous SO2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.
(5) Source: https://www.epa.gov/criteria-air-pollutants/naaqs-table

The Menu of Control Measures (MCM) provides state, local, and tribal air agencies with the existing emission reduction measures as well as relevant information in developing emission reduction strategies, plans, and programs to assure they can attain and maintain the National Ambient Air Quality Standards (NAAQS). The MCM is a living document that can be updated with newly available or more current data as it becomes available. The MCM can be accessed at: https://www.epa.gov/air-quality-implementation-plans/menu-control-measures-naaqs-implementation. Due to the size of the document, it is not provided in its entirety here.

3.2.1.2.1 Clean Air Amendments

The Clean Air Act Amendments (CAAA) of 1990 place most of the responsibility to achieve compliance with NAAQS on individual states. Areas not in compliance with any of the NAAQS can be declared nonattainment areas by the USEPA or the appropriate state or local agency. Nonattainment areas are declared for each pollutant addressed by the NAAQS. Once the USEPA declares an area as nonattainment, the USEPA requires each state to prepare a State Implementation Plan (SIP). A SIP is a compilation of goals, strategies, schedules, and enforcement actions that will lead the state into compliance with the NAAQS. Should the state and local air agencies fail to develop adequate SIPs, then the USEPA will develop a Federal Implementation Plan (FIP) to remedy the state's failure. To be re-designated to attainment, the area must show thorough monitoring and modeling that the pollutant levels are consistently meeting the NAAQS and have been maintained for 10 consecutive years. During this time, the declared area is in transitional attainment, also known as maintenance.

Under 40 CFR 93, the USEPA issued conformity regulations that mandate the Federal government not engage, support, or provide financial assistance for licensing, permitting, or approval of any activity that does not conform to an approved SIP or Federal Implementation Plan. This rule applies to all Federal actions except for those projects requiring funding or approval from the U.S. Department of Transportation (DOT), the Federal Highway Administration (FHA), the Federal Transit Administration, or the Metropolitan Planning Organization; such projects must instead comply with the conformity rules established by the U.S. Department of Transportation. The General Conformity Rule establishes conformity as a process in which economic, environmental, and social aspects of transportation and air quality planning are considered. This rule applies to any Federal action that results in direct or indirect emissions for criteria pollutants that exceed the rates specified in 40 CFR 93.153(b)(1) and (2) in a nonattainment or maintenance area. Global climate change is a transformation in the average weather of the Earth, which can be measured by changes in temperature, wind patterns, and precipitation. Scientific consensus has identified human-related emission of greenhouse gases (GHGs) above naturals levels as a significant contributor to global climate change (U.S. Climate Change Science Program [USCCSP] 2009). GHGs trap heat in the atmosphere and regulate the Earth's temperature. They include water vapor, CO_2, methane (CH_4), nitrous oxide (N_2O), ground-level O_3, and fluorinated gases such as chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs). The functionally equivalent amount or concentration of CO_2 is used as the reference for measuring global warming potential. Equivalent CO_2 is a unit of measurement for describing GHG concentration.

The U.S. Supreme Court ruled on April 2, 2007, in Massachusetts v. U.S. Environmental Protection Agency that CO_2 is an air pollutant, as defined under the CAA, and that the USEPA has the authority to regulate emissions of GHGs. The USEPA announced that GHGs (including CO_2, CH_4, N_2O, hydrofluorocarbons [HFC], perfluorocarbons [PFC], and sulfur hexafluoride [SF_6]) threaten the public health and welfare of the American people. This action was a prerequisite to finalizing the USEPA's GHG emissions standards for light-duty vehicles, which were jointly proposed by the USEPA and U.S. Department of Transportation's National

Highway Traffic Safety Administration (NHTSA). The standards were established on April 1, 2010 for 2012 through 2016 model year vehicles and on October 15, 2012 for 2017 through 2025 model year vehicles (USEPA 2016; USEPA and NHTSA 2012).

Carbon Dioxide (CO_2). CO_2 is a GHG that enters the atmosphere through the burning of fossil fuels (e.g., oil, natural gas, and coal), solid waste decay, and trees and wood products and because of chemical reactions (e.g., manufacture of cement). The largest source of CO_2 emissions in the U.S. is from fuel combustion, including transportation emissions. CO_2 can be removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of photosynthesis and the biological carbon cycle. However, in areas where CO_2 concentration ratios exceed the intake capabilities by plants, this gas contributes to negative GHG effects.

Methane (CH_4). CH_4 is a GHG that is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.

Nitrous Oxide (N_2O). N_2O is a GHG that is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

Fluorinated Gases. Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), CFCs, and HCFCs are synthetic GHGs with high CO_2s factors that are emitted from a variety of industrial processes. HFCs, PFCs, and SF_6 are sometimes used as substitutes for ozone-depleting fluorinated gases (i.e., CFCs, HCFCs, and halons). HFCs, PFCs, and SF_6 are typically emitted in smaller quantities and while these substances do not deplete ozone, they are potent GHGs and are referred to as high global warming potential gases.

3.2.2 Existing Conditions

3.2.2.1 Regional Climate

Grand Forks County is in the Red River Valley physiographic region in the eastern portion of the state, where the Red River forms the border with Minnesota (Bluemle and Biek 2007). Grand Forks AFB has a humid continental climate that is characterized by a wide temperature range and frequent, drastic weather changes. Temperature ranges from a monthly average of 6.7 degrees Fahrenheit (°F) in January to a monthly average of 68.6 °F in July. The average annual temperature is approximately 40 °F. Summers are short and humid, with May through August being the wettest months of the year. Normal precipitation is approximately 20 inches per year. Winters are long with almost continuous snow cover. Wind direction is generally from the northwest during the winter and the southwest during the summer. Average annual wind speed is 10 miles per hour, with maximum winds speeds reaching up to 45 miles per hour in May (National Weather Service [NWS] 2016).

3.2.2.2 Local Air Quality

Grand Forks County is within North Dakota Air Quality Control Region (AQCR) 172, which includes all counties in North Dakota except for Metropolitan Fargo, North Dakota. North Dakota is one of a handful of states in the U.S. that meets all ambient air quality standards (NDDH 2016b). As defined in 40 CFR 81.335, Grand Forks County is designated as attainment or unclassifiable for all criteria pollutants (NDDH 2016a; USEPA 2016a). According to USEPA AirData, ambient-level criteria pollutant concentrations for monitoring stations in North Dakota did not exceed the primary NAAQS during 2016 (USEPA 2016b).

3.2.2.3 Grand Forks AFB

Air quality management at USAF installations is established in AFI 32-7040, Air Quality Compliance. AFI 32-7040 requires installations to achieve and maintain compliance with all applicable Federal, state, and local standards.

Under the CAA, the Title V Operating Permit Program imposes requirements for air quality permitting on air emission sources. Also, under CAA, the National Emission Standards for Hazardous Air Pollutants (NESHAP) program specifies various provisions for regulated sources, including limits on HAP emissions, compliance demonstrations and performance testing, monitoring, recordkeeping, and reporting.

Grand Forks AFB is classified as a major source of emissions and has an Air Pollution Control Title V Permit to Operate (NDDH 2012). As required by the NDDEQ, Grand Forks AFB calculates annual criteria pollutant emissions from stationary sources and provides this information to the NDDEQ. There are various sources on-base that emit criteria pollutants and HAPs including the following:

- Stationary combustion sources (e.g., boilers, water heaters, generators);
- Fuel-storage/transfer operations (e.g., fuel storage tanks, gasoline service stations);
- Operational sources (e.g., chemical usage, paints, degreasers, abrasive blasting, welding operations, fuel cell maintenance, surface coatings/paint booths);
- Miscellaneous chemical usage; and
- Mobile sources (e.g., vehicle operations, aircraft operations, trim and power checks, aerospace ground equipment). Mobile sources are not regulated under Title V program but rather fall under the Non-Road Mobile Source program, fuel efficiency and corporate average fuel economy standards.

Table 3-2 Stationary Source Emissions Inventory (2015) at Grand Forks AFB

Emissions (tpy)						
CO	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**SO_x**	**VOCs**	**HAPs**
6.69	9.16	0.67	0.67	0.12	4.65	0.15

Notes: tpy = tons per year
Source: Grand Forks AFB 2015a

3.3 Waste, Hazardous Materials, and Stored Fuel

3.3.1 Definition of Resource

Hazardous materials are defined as substances with strong physical properties of ignitability, corrosivity, reactivity, or toxicity that may cause an increase in mortality, a serious irreversible or incapacitating but reversible illness or may pose a substantial threat to human health or the environment. Hazardous wastes are defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that pose a substantial present or potential hazard to human health or the environment.

Issues associated with hazardous materials and wastes typically focus on underground storage tanks (USTs); aboveground storage tanks (ASTs); and the storage, transport, and use of pesticides, bulk fuel, petroleum, oils, and lubricants (POLs). When such resources are improperly used, they can threaten the health and well-being of wildlife species, botanical habitats, soil systems, water resources, and people.

To protect habitats and people from inadvertent and potentially harmful releases of hazardous substances, the DoD has dictated that all facilities develop and implement Hazardous Waste Management Plans (HWMP) or Spill Prevention and Response Plans. The most recent GFAFB HWMP issued 10 January 2019 (GFAFB 2018a). Also, the DoD has developed the Environmental Restoration Program (ERP), intended to facilitate thorough investigation and cleanup of contaminated sites at military installations. These plans and programs, in addition to established legislation (e.g., Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA] and Resource Conservation and Recovery Act [RCRA]) effectively form the "safety net" intended to protect the ecosystems on which most living organisms depend. The State of North Dakota implements RCRA and regulates hazardous waste in the state. The state program (NDAC Chapter 33-24, Hazardous Waste Management) adopted federal hazardous waste regulations with few additions (NDDH 2012).

No demolition is planned associated with the Proposed Action. Building demolition therefore should not generate hazardous materials such as asbestos, lead-based paint (LBP), etc. North Dakota has its own program and guidelines to manage asbestos-containing material (ACM). The NDDEQ is responsible for overseeing compliance with the requirements of the ACM program. Building materials in older buildings are assumed to contain asbestos. It exists in a variety of forms and can include siding, ceiling tiles, floor tiles, floor tile mastic, roofing materials, joint compound, wallboard, thermal system insulation, boiler gaskets, paint, and other materials. If asbestos is disturbed, fibers can become friable. Friable materials can be easily reduced to powder by hand, when dry. These materials are more likely to release measurable levels of asbestos into the airborne environment when disturbed and generally pose a greater risk to health.

The Residential Lead-Based Paint Hazard Reduction Act of 1992, Subtitle B, Section 408 (commonly called Title X) regulates the use and disposal of LBP on Federal facilities. Federal agencies are required to comply with applicable Federal, state, and local laws relating to LBP activities and hazards. The State of North Dakota regulates LBP under State Rule 33-15-24, Standards for Lead-Based Paint Activities. The NDDEQ is responsible for overseeing compliance with the requirements of the LBP program. No LBP containing wastes are anticipated with the Proposed Action.

3.3.2 Existing Conditions

3.3.2.1 Hazardous Materials

Hazardous materials are routinely and safely utilized to accomplish the mission of Grand Forks AFB. The U.S. Air Force Hazardous Waste Management Plan – Grand Forks Air Force Base (GFAFB HWMP 2018) outlines the responsibility and provides instruction for appropriate waste handling and management to ensure conformance with the regulations, policies, and guidance for any hazardous wastes generated, treated, stored, or responded to (in terms of releases) on Grand Forks AFB.

Hazardous materials and petroleum products such as fuels, flammable solvents, paints, corrosives, pesticides, and cleaners are used throughout Grand Forks AFB for various functions including aircraft maintenance, aircraft ground equipment maintenance, ground vehicle maintenance, and facilities maintenance. Hazardous materials management programs include inventory control, storage area inspections, and material resale programs. Bulk storage systems at the base include fuel and petroleum aboveground and underground tanks, drum storage areas for oils and maintenance materials, hazardous waste storage and accumulation areas, and storage areas. Grand Forks AFB's Spill Prevention, Control, and Countermeasures (SPCC) Plan (Grand Forks AFB 2015c) presents specific procedures for preparing for and responding to inadvertent discharges of petroleum, oil, and lubricants (POL) at the base and is intended to address all bulk storage oil containers greater than 55 gallons.

3.3.2.2 Hazardous Waste Generation and Accumulation

As defined by 40 CFR 262.34, the base is classified as a small quantity hazardous waste generator (USEPA Identification No. ND3571924759). A small-quantity generator produces greater than 100 kilograms (220 pounds) but less than 1,000 kilograms (2,200 pounds) of hazardous waste in a calendar month (GFAFB HWMP 2018). The NDDEQ serves as the primary oversight agency for RCRA compliance in North Dakota.

Hazardous wastes at the base are managed in accordance with the most recent hazardous waste management instruction guidelines, AFI 32-7042, Waste Management. Compliance with the provisions, regulations and mandates put forth in AFI 32-7042, is mandatory for actions involving hazardous waste on the base. The purpose of the guidelines is to ensure safe and effective collection, handling, and disposal of hazardous waste on the base in accordance with DoD, USAF, USEPA, OSHA, U.S. DOT, and North Dakota state environmental and transportation requirements (GFAFB HWMP 2018). The largest volume of hazardous waste at the base is generated by painting of aircraft and overhaul activities. Activities generating hazardous wastes on Grand Forks AFB include the following:

- Dental lab;
- Automobile skills training and practice;
- Paint removal and application, degreasing, metal etching, and carbon removal of engines; and

Conducting these activities requires the use of hazardous metals of large volumes of solvents and the generation of dust and liquid wastes. Other hazardous wastes contributing to this waste stream include petroleum products and waste, hydraulic fluid, and mercury-containing light bulbs and ballasts. Disposal of mercury-containing light bulbs must be conducted in accordance with the Universal Waste Rule (40 CFR Part 273); this rule specifies procedures for proper disposal and storage of used mercury-containing light bulbs and ballasts.

Grand Forks AFB does not maintain a permitted hazardous waste storage facility. Wastes are stored in containers at the site of generation throughout the base and are transferred to the Satellite Accumulation Point (SAP), an area where hazardous waste is initially accumulated at or near the point of generation and which is under the control of the SAP manager (GFAFB HWMP 2018). Hazardous waste accumulated at an SAP is not subject to any accumulation time limit. However, it is limited by volume.

Table 3-3 Hazardous Waste Satellite Accumulation Points

Building Number	Building Description	Waste Stream Description	Quantity Disposed	Number of SAPs
109	319 MDOS/SGD (Dental Clinic)	Unused amalgam and empty capsules	20 lbs.	1
310	319 FSS/FSCA (Auto Skills Center)	Parts Washer Sludge	30 gal	1
408	319 CES/CEIEC (CAS)	Aerosol Can Contents	200 lbs.	1
415	319 LRS/LGRVM (General Purpose)	Aerosol Can Contents/Parts Washer Sludge	100 lbs.	2
416	319 LRS/LGRV (Special Purpose)	Parts Washer Sludge	180 lbs.	2
622	69 MXS/MXAMF (Structures)	Bead Blasting Filters/ Paint and Sludge/Paint Related Solid Waste/Spent Paint Stripper and Related Solid Wastes	1510 lbs.	5

Source: GFAFB HWMP 2018

After accumulation at the SAP, all hazardous waste generated at the Grand Forks AFB is transferred to the Central Accumulation Site (CAS) until it is shipped off site by Defense Logistics Agency (DLA) Disposition Services to a Treatment, Storage, and Disposal Facility (TSDF). Small-quantity generators, like Grand Forks AFB, may store waste up to 270 days if the waste is to be shipped 200 miles or more to the nearest TSDF. Grand Forks AFB is more than 200 miles from the nearest TSDF and therefore stores hazardous waste for up to 270 days on site without a permit.

The Grand Forks CAS is managed by the Hazardous Waste Program Manager (319 CES/CEIEC) and is in Facility 408 (GFAFB HWMP 2018).

3.3.2.3 Fuel Storage

The fuel storage containers at Grand Forks AFB that are subject to SPCC requirements include: ASTs, emergency generators with external and/or internal tanks, mobile tanks, drums, and oil-filled operating equipment. Grand Forks AFB currently has a total of 23 USTs and 80 ASTs located on base. Total capacity (not average volume maintained) of the various oil containers (where capacity is 55 gallons or more) is summarized below:

- ASTs (organizational tanks, generator tanks, and bulk storage) – 3,311,824 gallons;
- ASTs (animal fats or vegetable oils) – 1,500 gallons;
- Mobile/Portable Tanks – 38,750 gallons;

- Drums – 2,750 gallons (average).

Most of the petroleum handled at Grand Forks AFB is Jet Fuel (JP-8) for military aircraft. JP-8 is stored within field-erected bulk storage ASTs located at two facilities: the contractor-operated Bulk Fuel Storage Area (BFSA) (Pumphouse 501) and the 319 Logistics Readiness Squadron, Fuels Management (319 LRS/LGRF)-operated Hydrant Fuels Area (Pumphouse 658). The BFSA is located near the south side of the base and is the receiving point for JP-8 fuel. There are two ASTs at this facility, which supply fuel to the Hydrant Fuels Area via underground pipelines. The Hydrant Fuels Area is in the center of the base and uses two ASTs to supply fuel to the C Ramp. These two facilities currently have a total maximum capacity of 3,090,000 gallons of JP-8. Additionally, there is one 40,000-gallon JP-8 UST at the truck off-load area, seven emergency spill recovery/product recovery USTs and four R-11 fuel delivery trucks (24,000 gallons aggregate capacity). Other organizations on base store unleaded regular gasoline, diesel fuel, used motor oil and/or JP-8 in tanks of various sizes and configurations (GFAFB SPCC Plan 2015).

3.3.2.4 Asbestos and Lead-Based Paint

Asbestos is a mineral fiber that was historically added to products to strengthen them and provide heat insulation and fire resistance. Many building products contained asbestos prior to the 1970s. Consequently, as many of the buildings at Grand Forks AFB were constructed before this period, there is a potential for these facilities to contain asbestos. AFI 32-1052, *Facilities Asbestos Management*, provides the direction for asbestos management at USAF installations. It requires installations to develop an asbestos management plan for the purpose of maintaining a permanent record of the status and condition of ACM in installation facilities, and to document asbestos management efforts. In addition, the instruction requires installations to develop an asbestos operating plan detailing how the installation accomplishes asbestos-related projects. Grand Forks AFB maintains an Asbestos Management Plan and an Asbestos Operating Plan that document policies and procedures for managing ACMs at Grand Forks AFB and specify responsibilities and requirements for identifying, assessing, and maintaining ACMs.

Lead-based paints are also considered hazardous materials. Although these paints are no longer used at the base, many of the buildings on Grand Forks AFB were constructed prior to 1978 and therefore may contain lead-based paint. Lead-based paint removal and disposal at Grand Forks AFB is conducted in accordance with Federal, state, and local regulations. All paint waste generated from paint removal operations at Grand Forks AFB is containerized, sampled, and analyzed to determine whether the waste meets the definition of hazardous waste (GFAFB ISWMP 2018).

3.3.2.5 Environmental Restoration Program

The Environmental Restoration Program (ERP) is the AF's environmental restoration program based on the CERCLA. CERCLA provides for Federal agencies with the authority to inventory, investigate, and clean up uncontrolled or abandoned hazardous waste site activities. They are the Fire Training Area/Old Sanitary Landfill Area, FT-02; New Sanitary Landfill Area, LF-03; Strategic Air Ground Equipment (SAGE) Building 306, ST-04; Explosive Ordnance Detonation Area, OT-05; Refueling Ramps and Pads, Base Tanks Area, ST-06; POL Off-Loading Area, ST-08; and Refueling Ramps and Pads, ST-08 (USAF, 1997b). Two Sites, OT-05 and ST-06 are considered closed. ST-08 has had a remedial investigation/feasibility study (RI/FS) completed and the rest are in long-term monitoring. Grand Forks AFB is not on the Priorities LIST (NPL).

The nearest site to the proposed construction site is ST007, Petroleum, Oils and Lubricant (POL) Unloading Area. It is located about 500 feet west of the proposed BUI site. ST007 is part of the Base POL system, which has been in operation since 1958. The site is located in the south- central portion of the Base and consists of 17 fuel and deicer unloading/transfer manifolds used for receiving and dispensing jet fuel, deicer fluid and fuel oil from tanker trucks. Petroleum odor was detected form an excavation at the site in 1991. A Preliminary Assessment/Site Inspection (PA/SI) was performed to evaluate impacts to soil and groundwater in 1992. Supplemental work was conducted in 1993 and 1994 to further characterize groundwater impacts. Soil and groundwater at the site are contaminated with petroleum products due to periodic spillage that occurred during fuel unloading over the past 50 years.

Natural attenuation was the remedial alternative selected to address groundwater contamination at ST007 in the 1995 Decision Document. LTM has been completed to verify natural attenuation is occurring at the site. As part of the regular LTM program, samples are collected from five monitoring wells: POL-MW02, POL-MW03R, POL-MW04, POL-MW5R and POL-MW09. The samples were analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX), TPH-DRO and TPH-GRO. Detected BTEX concentrations were compared to the current USEPA MCLs. TPH compounds were compared to NDDH cleanup action level guidelines. Groundwater sampling data from the LTM events from 2010 to 2012 were reviewed. A summary of the data reviewed follows:

- Chemicals of concern (COCs) were not identified in monitoring wells POL-MW02 or POL-MW04 in excess of screening levels.
- Benzene , TPH-GRO, and TPH-DRO were identified in monitoring well POL-MW03R at concentrations exceeding the screening levels.
- Benzene, ethylbenzene, TPH-GRO and TPH-DRO were identified in monitoring wells POL-MW5R and POL-MW09 at concentrations exceeding the screening levels.

Groundwater contamination appears to be confined to the site. The slow seepage velocity within the native clay material is confining the contamination to the sandy fill at the source area.

With the exception of brief spikes in contaminant concentrations, groundwater contamination levels have remained relatively constant at the site. Natural attenuation continues to remediate the site and has enough assimilative capacity to remove all contamination.

3.4 Water Resources

3.4.1 Definition of Resource

Water resources analyzed in this EA include surface water and groundwater. Natural surface water resources include lakes, rivers, and streams that collect and distribute water from precipitation and runoff from the land. Human-created water collection systems include ditches, canals, and storm water systems. Groundwater comprises the subsurface hydrologic resources of the physical environment and is an essential resource. Groundwater is typically used for potable water consumption, agricultural irrigation, and industrial applications. Ground water properties are often described in terms of aquifer depth, aquifer or well capacity, water quality, and surrounding geologic composition.

Other issues relevant to water resources include watershed areas affected by existing and potential runoff and hazards associated with the 100-year and 500-year floodplains. Floodplains are belts of low, level ground present on one or both sides of a stream channel and are subject to either periodic or infrequent inundation by floodwater. Inundation dangers associated with floodplains have prompted Federal, state, and local legislation limit development in these areas largely to recreation and preservation activities. EO 11988, Floodplain Management, required actions to minimize flood risks and impacts. Under these orders, development alternatives must be considered and building requirements must be in accordance with specific Federal, state, and local floodplain regulations. DoD has implemented storm water requirements under Section 438 (42 USC § 17094) of the Energy Independence and Security Act to maintain the hydrologic function of a site and mitigate the adverse impacts of storm water runoff from DoD construction projects. Section 438 requires Federal facility projects of more than 5,000 square feet to "maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow" (DoD 2010).

3.4.2 Existing Conditions

3.4.2.1 Surface Water

Grand Forks AFB is located within the Red River Basin. The Red River originates in northeastern South Dakota and flows northward forming the border between North Dakota and Minnesota. The Turtle River is a tributary to the Red River that drains approximately 311 square miles, including Grand Forks AFB. The headwaters (North and South Branch) of the Turtle River originate approximately 10 miles west of Grand Forks AFB and the river flows in an east-northeastern direction joining the Red River approximately 25 miles northeast of Grand Forks AFB (Grand Forks AFB 2016c). Potable water for the base is obtained from surface water sources including the Red River and Red Lake River through the City of Grand Forks (Grand Forks AFB 2016c).

The NDDEQ Water Quality Division has designated the Turtle River a Class II stream under its Water Quality Standards (NDAC Chapter 33-16, Control, Prevention, and Abatement of Pollution of Surface Water), indicating that it may require additional treatment to meet drinking water standards, but can be used for irrigation, propagation of life for resident fish species, and water recreation. Streams in this classification may be intermittent making them less beneficial to uses such as municipal water, fish life, irrigation, bathing, or swimming (NDDH 2016c). The 25.43-mile long segment of the Turtle River (waterbody ID: ND-09020307-019-S_00) into which the project area flows was removed from the impaired list under CWA Section 303(d) by the NDDEQ Water Quality Division for arsenic, cadmium, fecal coliform, and selenium (NDDH 2014).

3.4.2.2 Ground Water

Groundwater in Grand Forks County occurs in unconsolidated glacial drift aquifers and in rocks of Cretaceous and Ordovician age underlying the glacial deposits. Bedrock aquifers include rocks from the Dakota Group from the Ordovician Period (approximately 490 to 445 million years before present), and the overlying Pierre Formation from the Cretaceous Period (approximately 145 to 65 million years before present). Groundwater movement is primarily to the east, and Grand Forks County is part of a large artesian discharge area (Kelly and Paulson 1970; Grand Forks AFB 2016c).

The uppermost aquifer is the Emerado Aquifer, a major glacial drift aquifer underlying Grand Forks AFB approximately 50 to 80 feet below ground surface (ft bgs). Groundwater is confined under an artesian head, and well yields can vary from rates of 690 to 860 gallons per minute (gpm). Water quality within this aquifer is poor, with high levels of dissolved solids and salinity. This is potentially attributable to upward seepage of groundwater from bedrock aquifers. The deepest aquifer is found in the Ordovician Red River Formation. Yield varies depending on joints and fractures within the formation, and the groundwater is very saline, The Dakota Group aquifer is the principal groundwater aquifer among the Great Plains states. Wells tapping the Dakota Aquifer in the vicinity of the Grand Forks AFB are generally in the 100- to 200-foot depth range. This aquifer is confined and under pressure, delivering groundwater to wells at rates ranging from 2 to 50 gpm. Water in the Dakota Group aquifer is primarily used for livestock watering as it is very saline and considered unsuitable for domestic consumption or industrial use. The water level within the aquifer has dropped nearly 20 feet in the past several years due to increased use for agricultural purposes (Grand Forks AFB 2016c).

Groundwater containing contaminants has the potential to affect surface water, depending on the depth of groundwater and possible hydrological connection. Monitoring wells are located in many areas throughout Grand Forks AFB, but most are concentrated in a few areas, including clusters located southwest of the runway, northeast of the runway near the perimeter and the northeast corner of the base, near the center of the airfield area, and due east of the southern end of the runway. Two main areas on Grand Forks AFB where ground water is monitored are the landfill treatment facility (nine monitoring wells) and Building 201,

the former filling station (eight monitoring wells). To date, no groundwater contamination above applicable Federal or state threshold has been detected (Grand Forks AFB 2016c).

3.4.2.3 Floodplains

The Zoning Administrator in the Planning and Zoning Department of Grand Forks County serves as the Flood Plain Officer. The Flood Plain Officer maintains and enforces the County Flood Plain Ordinances. Elevation certificates, required for any building in the floodplain, and all county flood maps and map amendments are maintained in this office (Grand Forks County 2016).

The Federal Emergency Management Agency (FEMA) is in the process of amending the flood map to incorporate information obtained from a flood that occurred in 1997, which was caused by a combination of river flooding and overland flooding from snowmelt. Other occurrences of localized overland flooding have affected portions of the county very frequently due to the relatively high-water table and high level of precipitation (Grand Forks County 2016).

Grand Forks AFB is located in the Turtle River watershed and is covered by FEMA Flood Insurance Rate Map (FIRM) Panels Numbers 38035C0525E and 38035C0550E (Effective 17 December 2010). The Turtle River flood zone occupies only a small section of the northwest corner of the base, which is where the 100-year floodplain of the Turtle River is located (See Figure 3-2; FEMA 2010; Grand Forks AFB 2016c). Additionally, a portion of the 100-year floodplain associated with a tributary to Kelly's Slough is located in the southeast corner of the base near the sewage lagoons (see Figure 5; FEMA 2010; Grand Forks AFB 2016c). All other areas on the base are located outside of the 500-year floodplain (FEMA 2010). All projects included in the Proposed Action are located outside of the floodplain areas on Grand Forks AFB.

3.4.2.4 Storm Water System

The storm water system at Grand Forks AFB consists of open channels, catch basins, and underground concrete pipes that guide storm water through unpaved ditches. Storm water leaves the base through four storm water outfalls including the southeast, northeast, northwest, and west ditches (Braun 2010; Grand Forks AFB 2016c).

Section 402(p) of the CWA states that storm water discharges associated with industrial activity to waters of the U.S. must be authorized by a National Pollution Discharge Elimination System (NDPDES) Industrial Storm Water Permit (Permit No. NDR05-000). The permit authorizes the discharge of storm water associated with industrial activity to surface waters, in accordance with effluent limitations, monitoring requirements, and other conditions (NDDH 2005; Grand Forks AFB 2016c).

Runoff at Grand Forks AFB flows primarily into grassy drainage ditches on the west, northwest, north, and south sides of the base. From these ditches, runoff drains north and west into the Turtle River or east into Kellys Slough, a tributary to Turtle River, through outfalls permitted by the NDDHNDDEQ for storm water discharges from an industrial activity (Permit No. NDR02-0314).

In 2014 Grand Forks AFB developed a SWPPP to comply with requirements in NDPDES Permit for discharge associated with industrial activity (Grand Forks AFB 2014). The SWPPP provides base wide and facility-specific BMPs to reduce pollutants in storm water discharges from the base. BMPs for Grand Forks AFB include the following:

- Source controls;
- Management practices;
- Preventive maintenance;
- Spill prevention and response'
- Erosion and sediment controls; and
- Identification of storm water pollution prevention team (SWPPP team).

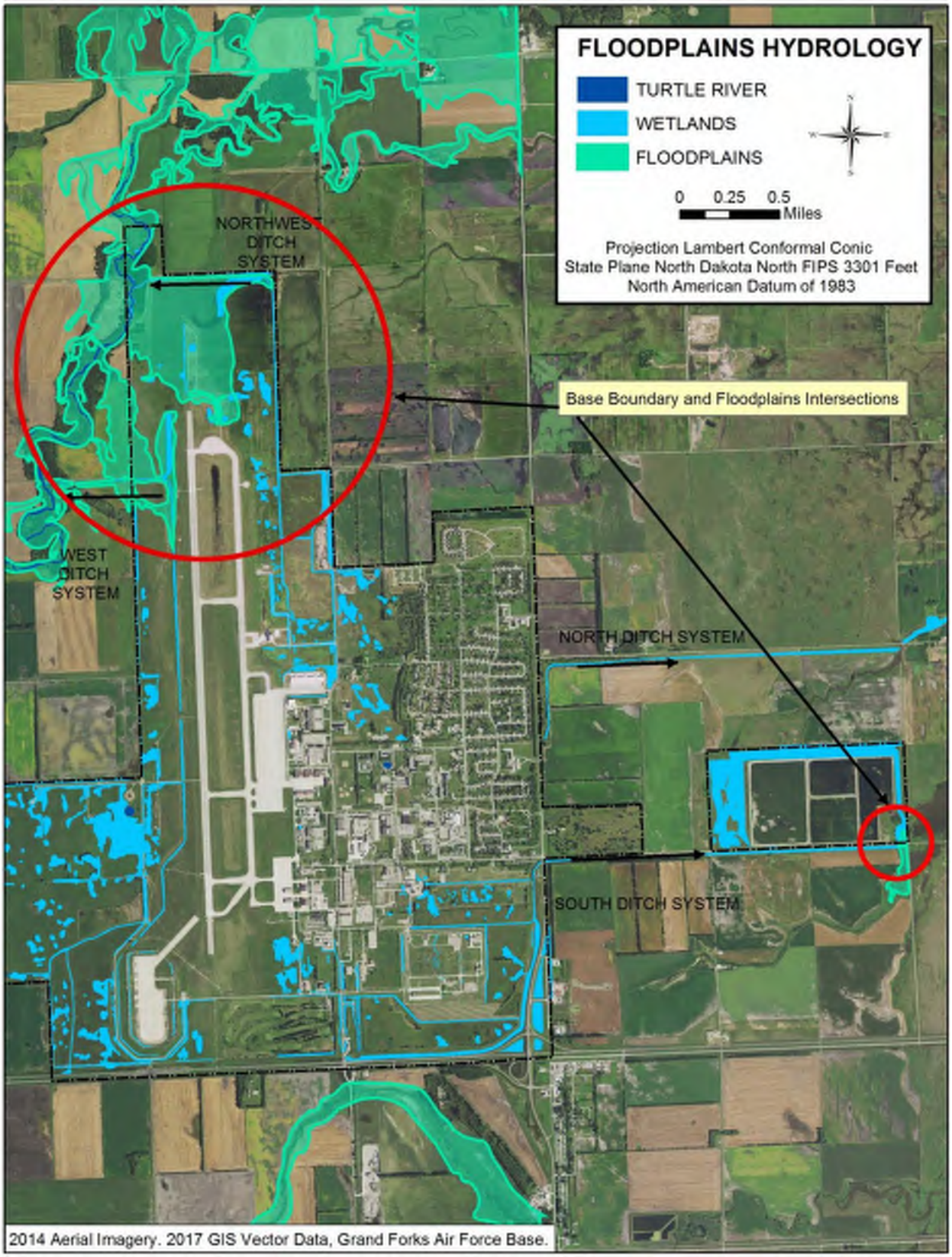


FIGURE 5: Floodplains Hydrology

3.5 Biological Resources

3.5.1 Definition of Resource

Biological resources include native and introduced flora, fauna, and their habitats. The Federal Endangered Species Act of 1973 (ESA) granted special status on species which are listed either federally or by states as being threatened, endangered, or candidate species of concern. The ESA prohibits the "taking" of any federally listed species of concern. The term, "taking", includes the killing, harming, harassing, or any action that may damage the habitat of a listed species. North Dakota does not have a separate state list of species of concern.

The amended Migratory Bird Treaty Act (MBTA) was enacted to protect migratory birds from acts like those prohibited by the ESA. Over 800 bird species are currently protected under the MBTA. Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, was issued to ensure that Federal agencies consider environmental effects on these protected birds and where feasible, implement policies and programs supporting the conservation and protection of migratory birds.

In addition to the species protected by these actions, the United States Fish and Wildlife Service (USFWS) has designated areas as sensitive habitats or designated critical habitats (for federally protected species). Sensitive habitats also include wetlands, sensitive upland communities, plant communities that are unusual or of limited distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, feeding/forage areas, crucial summer/winter habitats). The Clean Water Act (CWA) Section 404 and EO 11990, Protection of Wetlands, deal with protection of jurisdictional wetlands as defined by the U.S. Army Corps of Engineers (USACE) and the USEPA as, "those areas that are inundated or saturated by surface or groundwater at a frequency or duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33CFR 328.3(b)). The USACE has the authority to regulate jurisdictional wetlands as Waters of the U.S. under CWA Section 404. EO 11990 provides additional guidance concerning how to mitigate or minimize any net loss of both jurisdictional and non-jurisdictional wetlands.

3.5.2 Existing Setting

3.5.2.1 Vegetation

The Red River Valley historically is a tall-grass prairie region bounded by forests on the east and mixed-grass prairie on the west. This tall-grass prairie grasses (https://gf.nd.gov/wildlife/habitats/tallgrass) include bluestem grasses, switchgrass, indiangrass, prairie dropseed, slender wheatgrass, porcupine grass, mat muhly, fescue sedge, and meadow sedge. Dominant forbs include western prairie-fringed orchid, blue-eyed grass, meadow anemone, prairie cinquefoil, wild licorice, prairie blazing star, tall goldenrod, black-

eyed susan, and white sage. Trees and shrubs were scarce and generally limited to riparian or lacustrine areas. Little of this historic prairie remains due to agricultural conversion to utilize the Red River Valley's highly productive soils.

North Dakota has one federally listed threatened plant species, the Western Prairie Fringed Orchid, which does not occur in Grand Forks County.

3.5.2.2 Wildlife

Most of the area surrounding Grand Forks AFB has been converted from native prairie to agricultural use. Grand Forks County does have several Wildlife Management Areas (WMAs), waterfowl production areas, conservation reserve program lands, and recreation areas, which provide local wildlife habitat.

Kelly's Slough National Wildlife Refuge (NWR) is located approximately one mile east of the air base's sewage lagoons. This refuge consists primarily wetland areas, serving as habitat for migrating birds. Numerous waterfowl production areas (WPAs) are located east of the air base, most are adjacent to the NWR or nearby. Prairie Chicken Wildlife Management Area is located three (3) miles north of the base. This WMA consists of approximately 4,000 acres managed by North Dakota Game & Fish Department Oakville Prairie Biological Station WMA. Turtle River State Park, roughly three miles west of the base, also has some intact native wildlife habitat.

3.5.2.3 Threatened and Endangered Species

In North Dakota, there are six federally listed endangered species and four threatened species. There are no candidate species currently listed in North Dakota. There is also designated critical habitat for three of these species (https://www.fws.gov/northdakotafieldoffice/SEtable.pdf). Three species are listed as being existent in Grand Forks County and have the potential to occur in the GFAFB area, shown in Table 1 below.

Table 3-4 Federally Listed Threatened and Endangered Species Existent in Grand Forks County

Common Name	Scientific Name	Federal Status
Whooping Crane	*Grus americana*	Endangered
Gray Wolf	*Canis lupus*	Endangered
Northern Long-Eared Bat	*Myotis septentronalis*	Threatened

Historically, rufa red knots have been infrequent visitors to Grand Forks County during their migration. However, a red knot was observed and photographed at Kelly's Slough NWR in May 2017 (www.ebird.com, 2018). Project related impacts to these migratory shorebirds will also be evaluated within this report.

While North Dakota has no state listing of threatened and endangered species, other mechanisms have been enacted to protect and identify special habitats and "Species of Conservation Priority". In 1975, North Dakota enacted the Nature Preserves Act (NDCC Chapter 55-11) which tasks the North Dakota Parks and Recreation Department (NDPRD) with setting aside a system of natural areas and nature preserves for the benefit of North Dakota's citizens. The North Dakota Natural Areas Registry and Natural Heritage Inventory Programs are also administered under this act (http://www.parkrec.nd.gov/nature/heritage.html).

In 2015, NDGF developed their "Species of Conservation Priority" listing as part of their State Wildlife Action Plan (SWAP). The current list includes 47 birds, 2 amphibians, 9 reptiles, 21 mammals, 22 fish, 10 freshwater mussels, and 4 insects. This listing consists of three distinct conservation levels: Level I is the highest conservation priority, Level II is moderate conservation priority, and Level III are those species that have a moderate conservation priority but are believed to be peripheral or non-breeding in North Dakota. There are currently 36 Level I species, 44 Level II species, and 35 Level III species. (https://gf.nd.gov/wildlife/swap).

3.5.3 Grand Forks AFB

3.5.3.1 Vegetation

The area currently occupied by GFAFB was originally tall grass prairie habitat, which was converted to agricultural use prior to the base's construction. During the base's construction, all the native prairie habitats were converted to a standard mixture of grasses established by the DoD, which included two introduced grass species, smooth bromegrass (*Bromus inermis*) and Kentucky bluegrass (*Poa pratensis*).

Currently, the GFAFB grounds are divided into three categories (Grand Forks AFB 2016c):

- **Improved grounds** – 1,298 acres consisting of all covered areas (under buildings and sidewalks), land surrounding base buildings, the 140-acre golf course, recreational sports fields, and the family housing area.
- **Semi-improved grounds** – 1,243 acres, including the airfield, fences, and maintained drainage ditches.
- **Unimproved grounds** – 3,204 acres, including woodlands, grasslands, and wetlands.

A total of 365 plant species have been identified at GFAFB, including 77 grasses, sedges, and rushes; 228 broadleaf species or forbs; and 63 tree or shrub species, including shelterbelt, upland forest, and wetland species (Grand Forks AFB 2016c). Additionally, four state special status species including, white lady's slipper (*Cypripedium candidum*), lesser yellow lady's slipper (*Cypripedium parviflorum var. parviflorum*), Dutchman's breeches (*Dicentra cucullaria*), and eastern prickly gooseberry (*Ribes cynosbati*) were identified during the most recent biological surveys conducted in 2008 and 2009 (Grand Forks AFB 2016c).

While there is no known remnant native prairie within the GFAFB bounds, some prairie index species are found in the unimproved and semi-improved areas of the base. Also, active prairie restoration efforts, such as at the base's Prairie View Nature Preserve, have been conducted to reintroduce prairie species. Prairie View Nature Preserve is a restored native prairie with many environmental education features which is managed by prescribed fires. One natural community, the wooded riparian corridor of the Turtle River, runs through the base northwest of the airfield. The river and its wooded banks serve as both habitat and as a natural corridor for native wildlife and plants, such as the state special status pileated woodpecker (*Drycopus pileatus*), Dutchman's breeches, and eastern prickly gooseberry in an otherwise relatively agricultural area (Grand Forks AFB 2016c).

3.5.3.2 Wildlife

Grand Forks AFB is classified as a Category 1 base, as defined in AFI 32-7064, *Integrated Natural Resources Management*, meaning that suitable habitat for conserving and managing fish and wildlife exists on the base (Grand Forks AFB 2016c). These habitat areas include the Turtle River riparian corridor, Prairie View Nature Preserve, grasslands on the western side of the base, and the lagoons to the east (Grand Forks AFB 2016c).

Since 1993, 35 mammalian species have been documented on GFAFB, all of which are primarily small mammals common to grassland habitats, including the plains pocket gopher (*Geomys bursarius*), the Richardson's ground squirrel (*Spermophilus richardsonii*), the thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*), the white-tailed jackrabbit (*Lepus townsendii*), and the striped skunk (*Mephitis mephitis*). All these species are common to eastern North Dakota (Grand Forks AFB 2016c).

There are 238 bird species known to occur on Grand Forks AFB, including 105 breeding species that have been recorded within the base boundaries. The sewage lagoons, located east of base, provide habitat for many species of waterfowl, black terns (*Chlidonias niger*), shorebirds, swallow species, and others. Additionally, the Turtle River area and shelterbelt system provide habitat for a variety of woodland bird species. The base's many grassland and wetlands provide important habitat for grassland birds like the upland sandpiper (*Bartramia longicauda*) (Grand Forks AFB 2016c).

Four amphibians and four reptiles have been observed at GFAFB since 2004 (Grand Forks AFB 2013a). These include the American toad (*Bufo americanus*), Canadian toad (*Bufo hemiphrys*), northern leopard frog (*Rana pipiens*) and wood frog (*Rana sylvatica*), as well as the common garter snake (*Thamnophis sirtalis),* plains garter snake (*Thamnophis radix*), painted turtle (*Chrysemys picta*), and common snapping turtle (*Chelydra serpentina*) (Grand Forks AFB 2016b). Tiger salamanders (*Ambystoma tigrinum*) and chorus frogs (*Pseudacris spp*.), although not documented to occur on base are common prairie amphibians and could also potentially occur on base (Grand Forks AFB 2016c).

Since 2004, 21 species of fish have been observed at GFAFB (Grand Forks AFB 2013a, 2016c). Low water levels within wetlands, drainage channels, the reflection pond, and stormwater detention areas are generally insufficient to support fish populations, although minnow are commonly observed in the sewage lagoons and in ditches. Additionally, the Turtle River, which runs through the northwest corner of the base, supports some game fish species, including northern pike (*Esox lucius*), white sucker (*Catostomus commersonii*), rock bass (*Ambloplites rupestris),* black bullhead (*Ameiurus melas*), and channel catfish (*Ictalurus punctatus*) (Grand Forks AFB 2016c).

3.5.3.3 Threatened and Endangered Species

No federally listed threatened or endangered species are known to occur on GFAFB. Further, there is no federally designated critical habitat on base or in the immediate vicinity (Grand Forks AFB 2016c; USFWS 2018). Species identified in Table 3-4, *Federally Listed Threatened and Endangered Species Existent in Grand Forks County*, are unlikely to occupy any portion of the base, especially the proposed Project Location (see Figure 3, *Location of Proposed Actio*).

Gray Wolf (*Canis lupus*). Gray wolves have been eradicated from most of the lower 48 states. Populations do still exist in Minnesota, Wisconsin, Michigan, Washington, Idaho, Wyoming, and Montana. Sightings in North Dakota are rare (www.wolf.org , 2018). There are no records of gray wolves on GFAFB and potential habitat is limited to the wooded, riparian corridor associated with the Turtle River (USFWS 2011).

Whooping Crane (*Grus americana*). Grand Forks County is located near the edge of the accepted migratory corridor for whooping cranes (https://gf.nd.gov/wildlife/id/grassland-birds/whooping-crane). Most whooping cranes are found in North Dakota during their annual migration from Aransas National Wildlife Refuge in Texas to Wood Buffalo National Park in north-central Canada every spring and fall. Two types of whooping crane habitat are recognized: 1) shallow wetlands characterized by cattails (Typha spp.), bulrushes (*Cyperus* and *Scirpus* spp.), and sedges (*Carex* spp.) and 2) upland areas, primarily during migrations. Croplands and wetlands are the primary migratory stopover locations. Croplands are used for foraging and feeding while wetlands are primarily used for roosting (https://gf.nd.gov/wildlife/id/grassland-birds/whooping-crane). While numerous wetlands have been identified within the bounds of Grand Forks AFB, these wetlands are generally unsuitable as nesting or foraging habitat due to their proximity to base related activities. No sightings of whooping cranes were found in a review of the ND-BIRD list service or in a www.ebirds.org search for Grand Forks County.

Northern Long-eared Bat (*Myotis septentronalis*). In May 2015, northern long-eared bats were federally listed as a threatened species under the ESA. Northern long-eared bats are medium-sized bats with a body length of three to four inches and a wingspan between nine and ten inches. As their name suggests, their distinguishing characteristic is their long ears, particularly compared to the other members of its genus, *Myotis*. They hibernate in caves and mines in winter. During the summer, reproductive females prefer to nest in live and dead trees

either singly or in colonies. Males and non-reproductive females prefer roosts like their winter homes. Rarely, they roost in human structures, such as barns or sheds (https://www.fws.gov/midwest/endangered/mammals/nleb/nlebfactsheet.html). The only possible habitat on or near the base would likely be found in the Turtle River riparian corridor in the northwestern corner of the base. This area is far removed (over three miles) from the proposed Project Area.

Rufa Red Knot (*Calidris canutus rufa*). In addition to the species listed in Table 3.4, rufa red knots have been documented in or near Grand Forks County. These shorebirds are extremely rare throughout North Dakota even during their migratory period (NDGFD 2013). The archives of the ND-BIRDS listserv contain 20 records of the red knot in North Dakota from 2000 to 2013. There are approximately six records on www.ebird.org over that same time. These observations are primarily in mid-May or mid-September corresponding with their migration period
(https://www.fws.gov/northeast/redknot/pdf/20141125_REKN_FL_supplemental_doc_FINAL.pdf).

Ebird.org records show that a single red knot was observed at Kelly's Slough NWR on May 20, 2017. The NWR area is typical of stopover habitat for these and other shorebirds, with barren shores along saline or alkaline wetlands and lakes.

Dakota Skipper (*Hesperia dacotae*) and Poweshiek Skipperling (*Oarisma poweshiek*). "Both the Dakota Skipper and Poweshiek Skipperling (Oarisma poweshiek) butterflies have been listed as threatened and endangered and are found in ND, however no critical habitat has been identified in Grand Forks County. Neither species was identified in the lepidoptera survey of 2012" (INRMP 2019).

State Species of Concern. While no federally listed species have been documented on the base, several state species of concern have been documented during previous biological surveys at Grand Forks AFB (Grand Forks AFB 2016c). Two amphibian state species of concern, the northern leopard frog (*Rana pipens*) and the Canadian toad (*Bufo hemiophrys*) have been documented on GFAFB. One mussel, the Mapleleaf (*Quadrula quadrula*) and one reptile, the common snapping turtle (*Chelydra serpentina*) have been found in the Turtle River on GFAFB and are both North Dakota species of conservation priority (Grand Forks AFB 2016c). Additionally, 62 birds listed as North Dakota species of conservation priority have been documented on base, primarily in the open grasslands, wetlands, and woodlands available outside the main cantonment area (GFAFB 2016c). Bald eagles (*Haliaeetus leucocephalus*) have been observed on the base. While they are no longer federally listed, they are protected under the Bald and Golden Eagle Protection Act (BGEPA). Bald eagles observed at GFAFB have been documented near the sewage lagoons, occasionally seen feeding on area roadkill, and along the Turtle River riparian corridor (GFAFB 2016c). Kellys Slough NWR has a documented bald eagle nest approximately two miles east of the base (GFAFB 2016c). Golden eagles (*Aquila chrysaetos*) have also been observed migrating through the area during the spring near the lagoons in 2009 and 2010 (GFAFB 2016c).

3.5.3.4 Migratory Birds

Grand Forks AFB is located between two major migration pathways, the Central and the Mississippi Flyways, these flyways carry a large percentage of the migratory birds utilizing these inland migration routes. Consequently, most birds occurring within the base are migratory birds. The USFWS IPaC System identified 20 species as likely to occur in or around the base for migratory, foraging, breeding, or nesting habitat (USFWS 2016a).

3.5.3.5 Wetlands

Wetlands at Grand Forks AFB are classified as prairie potholes, meaning they are hydrologically isolated and glacial in origin. Regionally, they are called sloughs, and maintain wetland hydrology through inflow from surface water runoff, direct precipitation, and groundwater inflow entering the wetland (Stewart and Kantrud, 1972; Grand Forks AFB 2016c). Prairie potholes experience extreme variations in water depth depending on annual precipitation. Existing wetlands on base are generally associated with drainage ways, low-lying depressions, and potholes. Previous wetland assessments and delineations conducted at Grand Forks AFB have occurred in 2000, 2004, 2006, 2008, and 2012 (GFAFB 2016c). These surveys have documented 235 wetlands comprising 308 acres on Grand Forks AFB, as shown in Figure 3-4. Wetlands on base are generally less than one acre in size and are located throughout the base, except for the cantonment area, which is heavily developed and paved. All previous wetland assessments and information was addressed and packaged in a comprehensive Wetland Management Plan in 2013 detailing the inventory of wetland areas, procedures and BMPs (Grand Forks AFB 2013b, 2016b).

Jurisdictional wetlands are wetlands that are regulated by the USACE under Section 404 of the CWA, exhibit all three wetland characteristics (i.e., hydrology, hydric soils, and hydrophytic vegetation) as defined in the USACE Wetlands Delineation Manual (1987) and are further defined to have a connection and/or were evaluated as adjacent to Waters of the U.S. Several requests for jurisdictional determinations at GFAFB have been made. The 2004 wetland report was submitted to USACE for jurisdictional determination, and it was determined that 16 wetlands comprising 145 acres were jurisdictional on 23 May 2005. Another request for jurisdictional determination occurred for the Wetland Delineation Summary Report in 2006, and the USACE took jurisdiction over 18 wetlands totaling 15 acres on 10 January 2007. Jurisdictional determinations expire after five years from the USACE. Most of the base's jurisdictional wetlands have expired in that status. Wetlands with current jurisdictional determinations total 20 individual wetlands comprising approximately 19 acres (Grand Forks AFB 2016c).

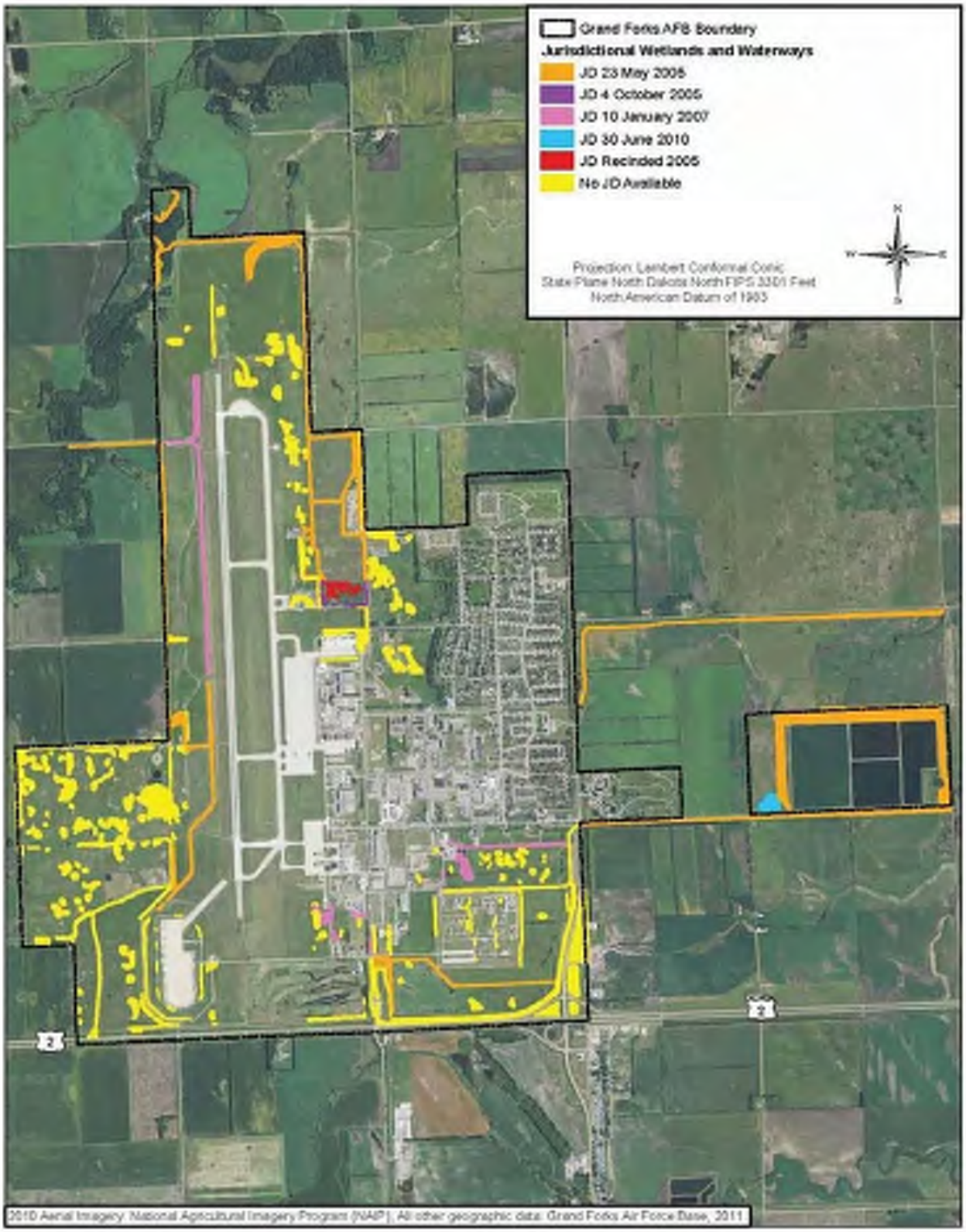


FIGURE 6: **Jurisdictional Wetlands and Waterways**

3.6 Cultural Resources

3.6.1 Definition of Resource

Cultural resources represent and document activities, accomplishments, and traditions of previous civilizations, and link current and former inhabitants of an area. Depending on their conditions and historic use, these resources may provide insight into living conditions in previous civilizations and may retain cultural and religious significance to modern groups.

Archaeological resources include areas where prehistoric or historic activity measurably altered the environment or deposits of physical remains (e.g., arrowheads, bottles) discovered therein. Architectural resources include standing buildings, districts, bridges, dams, and other structures of historic or aesthetic significance. Architectural resources generally must be more than 50 years old to be considered for inclusion in the National Register of Historic Places (NRHP), an inventory of culturally significant resources identified in the U.S.; however, more recent structures, such as Cold War-era resources, may warrant protection if they have the potential to gain significance in the future. Traditional cultural resources can include archaeological resources, structures, neighborhoods, prominent topographic features, habitats, plants, animals, and minerals that Native Americans or other groups consider essential for the persistence of traditional cultural.

The principal Federal Law addressing cultural resources is the National Historic Preservation Act of 1966, as amended (16 USC § 470), and its implementing regulations (36 CFR Part 800). The regulations describe the procedures for identifying and evaluating historic properties, assessing the effects of Federal actions on historic properties, and consulting to avoid, reduce, or minimize adverse effects. These procedures are commonly referred to as the Section 106 process. As part of the Section 106 process, agencies are required to consult with State Historic Preservation Office (SHPO).

The term *historic properties* refer to cultural resources that meet specific criteria for eligibility for listing on the NRHP; historic properties need not be formally listed on the NRHP. Section 106 does not require the preservation of historic properties but ensures that the decisions of Federal agencies concerning the treatment of these places result from meaningful considerations of cultural and historic values and of the options available to protect the properties. The Proposed Action is an undertaking as defined by 36 CFR Part 800.3 and is subject to requirements outlined in Section 106.

Consultation with federally recognized tribes for proposed activities that could significantly affect tribal resources or interests is required by DoDI 4710.02 (14 September 2006), within which the DoD Annotated Policy on American Indians and Alaska Natives (27 October 1999) is a component, and EO 13175, *Consultation and Coordination with Indian Tribal Governments*.

3.6.2 Existing Conditions

3.6.2.1 Regional History

Human occupation of North Dakota dates to before the end of the last Ice Age, when early inhabitants are believed to have hunted megafauna that roamed North American during the Pleistocene Era (Grand Forks AFB 2016a). The French explorer Pierre Gaultier de Varennes, Sieur de La Verendrye, may have been the first European to visit North Dakota in 1783. The first trading post in North Dakota was established on the Knife River between the Native American Mandan and Hidatsa villages by Rene Jusseaume, a fur trader in 1794 (Robinson 1966; Grand Forks AFB 2016a). The rival Hudson's Bay and Northwest Companies both maintained trading post near Pembina, in the Red River Valley. Between 1801 and 1808, Alexander Henry, a "wintering partner" of the Northwest Company, used Pembina as his main post, and established outposts in a number of locations, including Grand Forks. Later outposts were also maintained on the Turtle River (Ritterbush 1992, Grand Forks AFB 2016a). North Dakota became part of the U.S. after the Louisiana Purchase in 1803 and was visited by Lewis and Clark the same year. North Dakota was part of a succession of different territories until 1861 when the Dakota Territory was established, encompassing what is now North and South Dakota, Montana, and Wyoming. The arrival of the Northern Pacific Railway in 1881 provided an easy travel route to the territory, and Eastern North Dakota became particularly popular for Scandinavian immigrants. Nineteenth-century settlement in Grand Forks was accelerated by river traffic from the south down the Red River to Manitoba during the 1860s (Grand Forks AFB 2016a).

3.6.2.2 Grand Forks AFB

Grand Forks AFB maintains an Integrated Cultural Resources Management Plan (ICRMP), which is intended to assist the base in maintaining and operating existing facilities, and in developing new facilities, as needed, in compliance with all applicable Federal and state legislation protecting cultural resources (Grand Forks AFB 2016a). Cultural resources are protected under the NHPA, as amended and protected by the Archaeological Resource Protection Act (ARPA) of 1979. Both archaeological and historic architectural resources that have not been evaluated must be considered eligible for NRHP until appropriately evaluated and SHPO concurrence has been documented.

3.6.2.3 Historic Built Environment

In 1954, as Cold War tensions between the U.S. and the Soviet Union escalated, the DoD announced plans to build-up, or newly construct, six military installations within the uppermost northern tier of the middle U.S. Grand Forks AFB was opened in 1957 and was designed to support an alert fighter-interceptor squadron and a complement of support personnel and facilities. Throughout the 1960s, 1970s, 1980s, and early 1990s, Grand Forks AFB experienced numerous command and operational changes. In 1964, the 804th Combat

Support Group was to assume duties and the 321st Strategic Missile Wing was activated as America's first Minuteman II Intercontinental Ballistic Missile (ICBM) wing. In 1972, the 804th Combat Support Group inactivated, and construction began for upgrade from Minuteman II to Minuteman III. However, under the Strategic Arms Reduction Treaty I (START I), which entered into force late in 1994, destruction of a number of ICBM facilities was required. Between 1995 and 2001, missiles were removed from their underground storage silos, the missile control facilities were decertified, the missile silos were destroyed by implosion, and the missile control facilities were demolished (Grand Forks AFB 2016a).

3.7 Transportation Systems

3.7.1 Definition of Resource

The utilities and infrastructure resources include the basic structures and facilities serving the Grand Forks AFB and surrounding area including transportation, water and wastewater, electrical and gas, and communication systems.

3.7.2 Existing Conditions

3.7.2.1 Transportation

US Highway 2 is the major east-west roadway corridor and the primary access route to the Grand Forks AFB installation. Interstate I-29 is the major north-south roadway corridor located 10 miles to the east along the North Dakota-Minnesota border. US Highway 2 is on the south side of the installation. County Road 3 connects to US Highway 2 and is located on the east side of the installation. There are two entrances to Grand Forks AFB. The primary entrance is the main gate located along County Road 3 that connects to Steen Boulevard. A secondary entrance is the south gate located along US Highway 2 that connects to Eielson Street.

The primary vehicular routes on the installation include Steen Boulevard, Eielson Street, and J Street. Steen Boulevard serves as the center of the installation's roadway system, beginning at the main gate and running west to the airfield. Eielson Street provides north-south access to the installation from the south gate. 1st Avenue is secondary east-west roadway connecting Eielson Street to Contractors Row that leads to the primary site of the Proposed Action. A secondary site of the Proposed Action is located off the installation, 0.5 mile south of the south gate on 26th Street NE (Figure 7, *Transportation Routes*).

FIGURE 7

TRANSPORATION
GRAND FORKS
AFB, ND

BASE UTILITY INC. E-A

PREPARED BY: CFE | DATE: 5/20/2019

ACKERMAN ESTVOLD

0 500 1,000 Feet

0 250 500 Meters

Proposed Location

Emerado

Legend

- Existing AFB Facility
- Base Roads - Primary
- Base Roads
- Grand Forks AFB
- City Boundaries
- Interstate
- State Highway
- U.S. Highway
- County Road

3.7.2.2 Water and Wastewater

Grand Forks AFB receives potable water from the City of Grand Forks, which, in turn, draws from the Red River. The primary water main has a maximum pumping capacity of 1.87 million gallons per day. Four elevated storage tanks provide a storage capacity of 1.9 million gallons of water for the installation (USAF 2006). Grand Forks AFB's current water demand averages approximately 356,000 gallons per day (USAF 2011). As such, there is sufficient water supply available for future installation expansion and mission requirements.

Grand Forks AFB maintains its own sanitary sewer system and treatment center. Wastewater generated on-installation is transported via a system of gravity and force mains to a wastewater treatment center, approximately 1 mile east of the installation. The wastewater treatment center consists of four treatment lagoons (one primary, two secondary, and one tertiary). The treatment lagoons have sufficient capacity to accommodate future installation expansion (USAF 2006).

3.7.2.3 Electrical and Gas

Electrical power is supplied to Grand Forks AFB by Nodak Electric Cooperative and arrives via two 69-kilovolt feeders. The primary distribution system is 7,200/12,470 volts leaving the two main substations: (1) Steen substation and (2) Eielson substation. Nine feeder circuits in a loop radial arrangement distribute power at Grand Forks AFB. Approximately 99 percent of the transformers at Grand Forks AFB are loaded with less than 60 percent of their kilovolt-ampere rating, leaving ample electrical power available for future installation expansion (USAF 2006).

Natural gas is supplied to Grand Forks AFB by Xcel Energy, a local regional distributing company. The base is served by as 12-inch main that delivers natural gas to the metering station (Building 163) near the main gate where an 8-inch main distributes natural gas from the main metering station to the rest of the base. Natural gas is largely used for heating facilities on base. Ample natural gas capacity is available for future base expansion (USAF 2006).

3.7.2.4 Communication

Grand Forks AFB has communications infrastructure available to support a wide range of communication requirements, including voice, data, video, wireless, land mobile radio, aircraft communications, and security systems. The communications infrastructure at Grand Forks AFB has been well maintained over the years. In the past 5 years, the Communications Squadron (CS) has garnered some upgrades to include increased single mode fiber optic cable paths that provide reliable, diversifiable and scalable network connectivity as well as robust transport nodes. The proposed construction under the Proposed Action would tie into the existing communications infrastructure and would not result in increased communication needs

beyond the existing capacities at the base. Therefore, implementations of the Proposed Action would have no impact on communications infrastructure at Grand Forks AFB.

3.8 Safety and Occupational Health

3.8.1 Definition of Resource

Human health and safety are defined as the conditions, risks, and preventative measures associated with a facility and its ability to potentially affect the health and safety of facility personnel or the general public. OSHA, USEPA, and the National Fire Protection Agency issue standards regarding personnel training, preventative controls, and other occupational health and safety matters.

3.8.2 Existing Conditions

3.8.2.1 Clear Zones and Accident Potential Zones

The primary safety concern with regard to military aircraft activity is the potential for aircraft mishaps (i.e., crashes), which may be caused by midair collisions with other aircraft or objects, weather difficulties, or on-ground collisions between aircraft.

Clear Zone (CZs) and Accident Potential Zones (APZs) are rectangular zones extending outward from the ends of active military airfields that delineates areas recognized as having the greatest risk of aircraft mishaps, most of which occur during takeoff or landing.

3.8.2.1.1 Clear Zones

The CZ has the highest accident potential of the three zones, as 27 percent of airfield accidents studied occurred in this area. As stated previously, it is USAF policy to request that Congress authorize and appropriate funds to purchase the real property interests in this area to prevent incompatible land uses. A CZ consists of real estate shaped in a 3,000 by 3,000-foot square, centered on and abutting each end of the runway, and containing approximately 207 acres. Open space (undeveloped) and agricultural uses (excluding raising livestock) are the only uses deem compatible in a CZ. Development within the 413 acres of CZs is prohibited which makes them off-limits for future planning purposes (Grand Forks AFB 2016b). CZs at Grand Forks AFB are owned by the USAF are within compatible uses.

3.8.2.1.2 Accident Potential Zones I and II

APZ I is an area that possesses somewhat less accident potential than the CZ, with 10 percent of accidents studied occurring in this zone. APZ II has less accident potential than APZ I, with 6 percent of the accidents studied occurring in this zone. Although the potential for aircraft

accidents in APZs I and II does not warrant land acquisition by the USAF, land use planning and controls are strongly encouraged in these areas for the protection of the public.

APZs I and II extend off-base north and south of the base, beginning where the CZ ends, and extending an additional 5,000 feet (APZ I) and 7,000 (APZ II). APZ I extends across the base boundary and APZ II lies entirely off-base. The 1995 Air Installation Compatible Use Zone Study indicated that land use within the APZs are undeveloped or in agricultural production and current conditions are similar.

3.8.2.2 Explosive Safety Quantity Distance (ESQD) Arcs

ESQD arcs are defined clearance distances around munitions storage areas and other location subject to explosive mishaps. ESQD arcs are identified to protect personnel, the public, and assets against exposure to blasts, thermal hazards, and shrapnel from explosives. As such, facilities development within quantity-distance arcs is discouraged.

The ESQD arcs at Grand Forks AFB are associated munitions storage area, hot cargo pads, hazardous cargo parking, and aircraft parking spaces cover. These arcs cover large portion of the airfield and land, limiting development on approximately 414 acres in the southeastern portion of the base and along the northeastern side of the airfield.

3.8.2.3 Surface Danger Zones (SDZ)

Additional operation safety constraints at Grand Forks AFB include the small arms surface danger zone (SDZ). The small arms range has an SDZ associated with Building 654 covering 406 acres. The SDZ extends over Taxiway A to the west and goes off of the base to the east (Grand Forks AFB 2016b).

3.8.2.4 Anti-Terrorism/Force Protection

AT/FP measures are a critical component of development projects at Grand Forks AFB. All roadways, parking, and facility construction projects at the base must comply with UFC 4-010-1, Department of Defense Minimum Antiterrorist Standards for Buildings. The USAF Force Protection Design Guide, published by the Air Force Civil Engineering Center, supplements the DoD standards and must also be consulted during the planning and design process. These guidelines detail the standoff distances between facilities, roadways, parking and the base boundary and can limit the development potential of areas within the base. Site Specific barrier plans are also developed and utilized as needed to protect assets from AT/FP threats. Most AT/FP challenges at Grand Forks AFB are caused by vehicle standoff distance requirement with parking lots too close to buildings (e.g., Buildings 108, 314, 541, and 542) (Grand Forks AFB 2016b).

3.8.2.5 Construction Safety

Title 40 CFR Part 989.27 requires that the Air Force Environmental Impact Analysis Process (EIAP) for an action assess direct and indirect impacts of proposed actions on the safety and health of USAF employees and others at a work site. A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. Human health and safety addresses both workers' health and public safety during construction activities and during subsequent operations of the facility.

AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program* implements Air Force Policy Directive (AFPD) 91-3, *Occupational Safety and Health*, by outlining the AFOSH Program. The purpose of the AFOSH Program is to minimize loss of USAF resources and to protect USAF personnel from occupational deaths, injuries, or illnesses by managing risks. In conjunction with the USAF Mishap Prevention Program, these standards ensure all USAF workplaces meet Federal safety and health requirements. This instruction applies to all USAF activities.

All contractors performing construction activities at Grand Forks AFB are responsible for following ground safety regulations and worker's compensation programs and are required to conduct construction activities in a manner that does not pose any risk to workers or personnel on- or off-base. Industrial hygiene programs address exposure to hazardous materials, use of personal protective equipment (PPE), and availability of Safety Data Sheets (SDS). Industrial hygiene is the responsibility of contractors at Grand Forks AFB, as applicable. Contractor responsibilities include: reviewing potentially hazardous workplace operation; monitoring exposure to workplace chemicals (e.g., asbestos, lead, hazardous material), physical hazards (e.g., noise propagation), and biological agents (e.g., infectious waste); recommending and evaluating controls (e.g., ventilation, respirators) to ensure personnel are properly protected or unexposed; and ensuring that a medical surveillance program is in place to perform occupational health physicals for those workers subject to any accidental chemical exposures.

Bioenvironmental Engineering (BE) is a part of the approval process for chemicals on Grand Forks AFB through the Enterprise Environmental, Safety, and Occupational Health Management Information Systems (EESOH-MIS). If a process requires the use of chemicals, personnel are required to request approval through EESOH-MIS.

In accordance with AFI 48-109, *EMFR Occupational and Environmental Health Program*, the BE office also tracks all Electromagnetic Field Radiation (EMFR) emitters for Grand Forks AFB. Personnel are required to supply the BE office with EMFR system information, in order to conduct EMFR hazard distance health risk assessments.

3.9 Environmental Management

3.9.1 Definition of Resource

Geological resources consist of the Earth's surface and subsurface materials. Within a given physiographic province, these resources typically are described in terms of geology, topography, and soils

Geology is the study of the Earth's composition and provides information on the structure and configuration of surface and subsurface features. Such information derives from field analysis based on observations of the surface and borings to identify subsurface composition.

Topography is the change in elevation over the surface of a land area. An area's topography is influenced by many factors, including human activity, underlying geologic material, seismic activity, climatic conditions, and erosion.

Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, physical characteristics, and relative compatibility or constraining properties regarding particular construction activities and types of land use. A discussion of topography typically encompasses a description of surface elevations, slope, and distinct physiographic features and their influence on human activities.

3.9.2 Existing Conditions

3.9.2.1 Geology, Topography, and Soils

3.9.2.1.1 Regional Geology

Grand Forks AFB is located within the Central Lowland Physiographic Province along the flat former glacial Lake Agassiz Plain. Bedrock strata dip gently towards the center of the Williston Structural Basin in the west. Precambrian-aged bedrock (4.5 billion to 543 million years before present) is overlain by 130 feet of glacial till and 95 feet of lacustrine deposits. The glacial deposits are composed of silts and clays with occasional sand and gravel lenses (Grand Forks AFB 2016c).

Surficial deposits at Grand Forks AFB are comprised of late Wisconsin glacial drift and are approximately 225 feet thick beneath the base. The glacial deposits beneath the Agassiz Lake Plain consist of up to 95 feet of clay and silt-rich lake deposits, underlain by glacial till containing isolated deposits of sand and gravel. The glacial deposits are underlain by the sandstones, siltstones, and shales of the Lower Cretaceous Fall River and Lakota Formations, which in turn are unconformably underlain by the limestones and dolomites of the Ordovician Red River Formation. The oldest and deepest rocks underlying the area are Precambrian

igneous and metamorphic granites, schists, and greenstones. The depth to these rocks is several hundred feet in eastern Grand Forks County, and increases rapidly to over 2, 000 feet in the western portion of the county (Grand Forks AFB 2016c). The U.S. Geological Survey (USGS) mapped the entire state of North Dakota as having less than 1 percent chance of damage from an earthquake in 2016 (USGA 2016). Therefore, the potential for subsurface shifting or faulting on or in the vicinity of Grand Forks AFB is low.

3.9.2.1.2 Topography

Grand Forks AFB is characterized by flat to gently sloped topography, with a northeastward slope of about 1.5 to 2 feet per mile on the installation (CBP 2008). Elevations ranged from 900 feet above mean sea level (msl) on the western side of the installation to 880 feet about msl on the eastern side. At the site of the Proposed Action, the land slopes approximately 2 to 3 feet per mile (RRRC 2006).

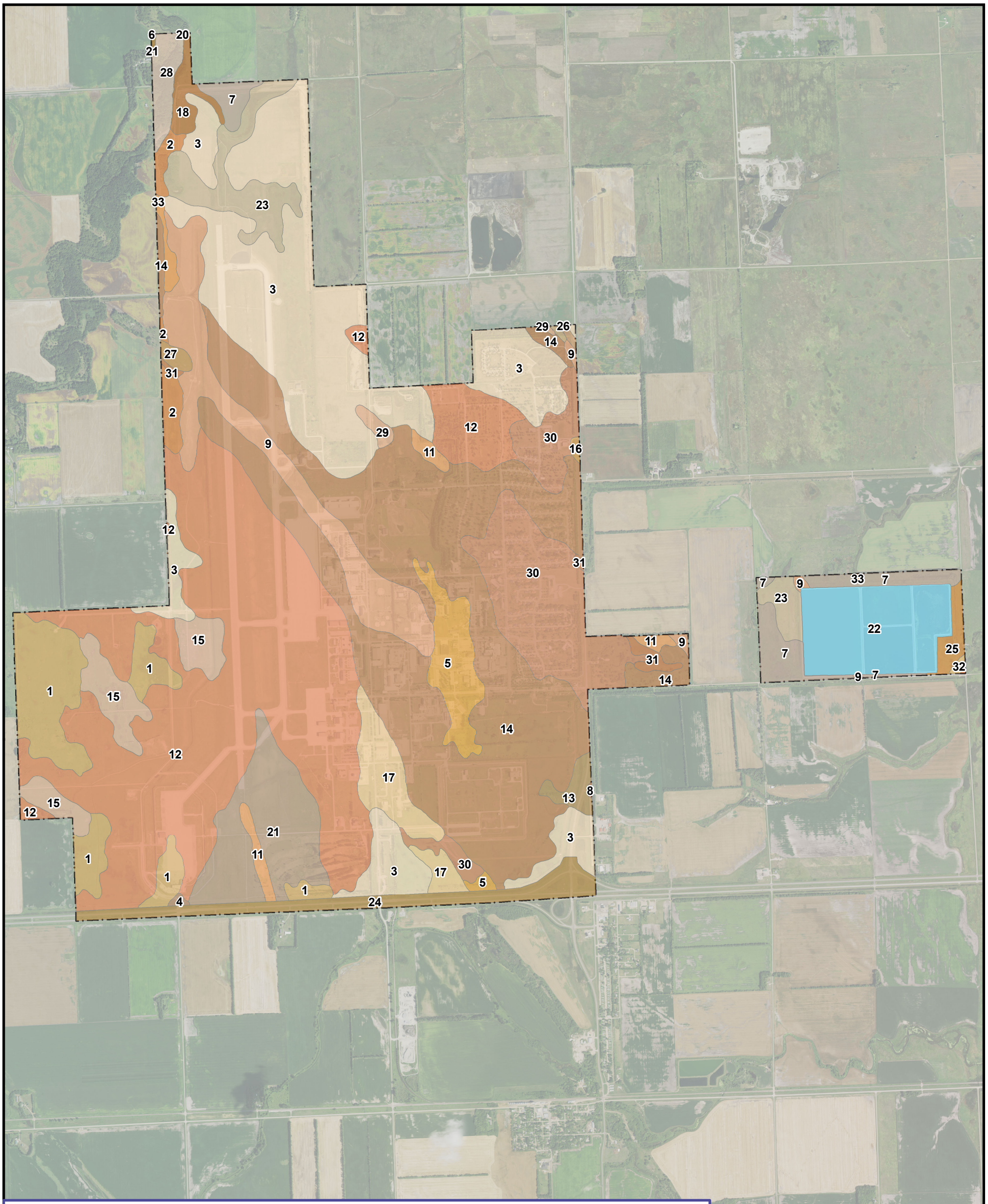
3.9.2.1.3 Soils

Grand Forks AFB is underlain by six loamy soil associations with varying amounts of sand including: Antler-Gilby-Svea; Bearden-Antler; Glyndon-Gardens; Delle-Cashel; Ojata; and Wyndmere-Tiffany-Arveson (GFAFB 2003b). Soils are Grand Forks AFB are deep, fairly level, and somewhat poorly to moderately well drained with a high shrink-swell potential. These soils are also highly susceptible to wind erosion (USGS 1970; U.S. Department of Agriculture [USDA] 2016).

The soils adjacent to Turtle River on the northwestern side of the installation include Velva, Overly, and LaDelle soils. The Velva soil is a sandy loam common to well-drained floodplains. It is found directly adjacent to Turtle River and is frequently flooded and subject to overflow and abandoned meandering channels (cutoff meander). The LaDelle silty loam is a well drained soil found on older floodplains and stream terraces. It is also subject to abandoned channels, steep cutbanks, and escarpments. Farther removed from the floodplain are areas of Overly silty clay and Bearden silty clay loam. These soils are common in the Lake Agassiz plain and are moderately to poorly drained, forming wet areas during spring runoff and shortly after heavy rainfall (USDA 1981).

According to the NRCS Web Soil Survey, all areas proposed for disturbance for the natural revetment and tree planting areas are mapped as the Velva sandy loam with 0 to 6 percent slopes. These soils are occasionally flooded and are not considered to be prime farmland soils (NRCS 2011). As evident by the existing streambank erosion, these soils are very susceptible to erosion.

The LaDelle silt loam (0 to 2 percent slopes) is mapped in both the northern and southern construction access locations, although the eastern portion of the southern construction access location is mapped as Velva sandy loam (0 to 6 percent slopes). Both soils are rated as good for vehicle trafficability.



Legend

Grand Forks AFB

Soil Types

- 1-Antler silt loam, 0 to 2 percent slopes
- 2-Antler silty clay loam, 0 to 2 percent slopes
- 3-Antler-Mustinka silty clay loams, 0 to 2 percent slopes
- 4-Antler-Mustinka silt loams, 0 to 2 percent slopes
- 5-Arveson loam, 0 to 1 percent slopes
- 6-Bearden silty clay loam, 0 to 2 percent slopes
- 7-Bearden silty clay loam, moderately saline, 0 to 2 percent slopes
- 8-Borup silt loam, 0 to 1 percent slopes
- 9-Embden fine sandy loam, 2 to 6 percent slopes
- 10-Foldahl fine sandy loam, 0 to 2 percent slopes
- 11-Gardena silt loam, 0 to 2 percent slopes
- 12-Gilby loam, 0 to 2 percent slopes
- 13-Glyndon silt loam, 0 to 2 percent slopes
- 14-Glyndon-Tiffany silt loams, 0 to 2 percent slopes
- 15-Grimstad fine sandy loam, 0 to 2 percent slopes
- 16-Hamar fine sandy loam, 0 to 1 percent slopes
- 17-Hecla fine sandy loam, 2 to 6 percent slopes
- 18-LaDelle silt loam, 0 to 2 percent slopes, occasionally flooded
- 19-Lallie silty clay loam, 0 to 1 percent slopes, ponded
- 20-Lamoure-Fluvaquents, 0 to 6 percent slopes
- 21-Lankin loam, 0 to 2 percent slopes
- 22-Miscellaneous water
- 23-Ojata silty clay loam, 0 to 1 percent slopes
- 24-Orthents-Aquents-Urban Land, 0 to 35 percent slopes
- 25-Overly silty clay loam, 0 to 2 percent slopes
- 26-Rockwell fine sandy loam, 0 to 1 percent slopes
- 27-Sioux loam, 1 to 15 percent slopes
- 28-Velva sandy loam, 0 to 6 percent slopes
- 20-Winger loam, 0 to 1 percent slopes
- 31-Wyndmere-Tiffany fine sandy loams, 0 to 2 percent slopes
- 32-Zell, fine-silty-LaDelle silt loams, 1 to 9 percent slopes
- 33-Zell, fine-silty-LaDelle silt loams, 2 to 6 percent slopes
- 34-Zell-Gardena silt loams, 2 to 6 percent slopes

USDA-FSA Aerial Photography Field Office, ND GIS Hub

R18084 - Base Utilities Inc. E-A

PREPARED BY: CFE | DATE: 5/17/2019

ACKERMAN ESTVOLD

SOIL TYPES GRAND FORKS AFB, ND

0 2,400 4,800
Feet

0 550 1,100
Meters

N

FIGURE 8

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ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

Environmental impacts that are anticipated as a result of the implementation of the project included in the Proposed Action and their alternatives, including the No-Action Alternative, at Grand Forks AFB are identified and evaluated in this section. Issues analyzed in detail in this EA are listed in Section 1.7, *Scope of the Environmental Assessment* and are presented by resource area, as described in Section 3, *Affect Environment*. Per the NEPA and CEQ regulations, environmental resource areas that are anticipated to experience either no impact or negligible environmental impact under implementation of the Proposed Action are not examined in detail in this document. Alternatives were considered for the project included in the Proposed Action, however, none of the alternatives would satisfy the purpose and need for the project and therefore, none were carried forward for further analysis. Because CEQ regulations stipulate that the No-Action Alternative be analyzed to assess any environmental consequences that may occur if the Proposed Action is not implemented, the No-Action Alternative had been carried forward for analysis and provides a baseline against which the Proposed Action can be compared.

Guidelines established by the CEQ (40 CFR Part 1508.27) specify that significance should be determined in relationship to both context and intensity (i.e., severity). The assessment of potential impacts and the determination of their significance are based on the requirements of 40 CFR Part 1508.27. Three levels of impact have been identified:

- *No impact* – No impact is predicted;
- *Less than significant impact* – An impact is predicted, but the impact does not meet the intensity/context significance criteria for the specific resource; and
- *Significant impact* – An impact is predicted that meets the intensity/context significance criteria for the specific resource.

4.2 Air Quality

4.2.1 Approach to Analysis

AFI 32-7040, Air Quality Compliance and Resource Management (2014), provides a framework for ensuring that USAF actions conform to appropriate implementation plans. Section 3.4 of AFI 32-7040, Conformity Rule Planning, ensures that such actions conform to the applicable implementation plan through the USEPA General Conformity Rule. Section 3.5 of AFI 32-7040, Environmental Impact Analysis Process (EAIP) Planning, outlines requirements under NEPA for analysis of air quality impacts with respect to the Prevention of Significant Deterioration/New Source Review (40 CFR Part 51), HAP emissions, and emissions of any other pollutants regulated under the CAA such as Ozone Depleting Substances.

Conformity determinations for Federal actions related to effects on air quality would be considered significant if an action would result in an increase of the emissions inventory of the North Dakota Air Quality Control Region (AQCR) 172 by 10 percent or more, or if such emissions exceed emission rates established in 40 CFR Part 93.153(b) for criteria pollutants already in non-attainment.

4.2.2 No Action

Under the No-Action Alternative there would be no changes to air emissions at Grand Forks AFB.

4.2.3 Proposed Action

4.2.3.1 Construction - Fugitive Dust Emissions

Under the Proposed Action, fugitive dust would be generated during facility construction activities, including site preparation, clearing, and grading. Fugitive dust emissions generated by such activities can vary substantially depending on levels of activity, specific operations, and prevailing meteorological conditions. The standard dust emission factor for general non-residential construction activity is conservatively estimated at 0.19 tons of PM_{10} generated per acre per month of activity (USEPA 2006). Per procedures documented in the National Emissions Inventory (USEPA 2006), $PM_{2.5}$ emissions are estimated by applying a particle size multiplier of 0.10 to PM_{10} emissions. The USEPA National Emission Inventory documentation assumes that the emissions resulting from construction-related activities are uncontrolled. However, fugitive dust resulting from activities related to implementation of the Proposed Action could be reduced through standard dust minimization practices (e.g., regularly watering exposed soils, soil stockpiling, etc.). When properly implemented, these dust minimization measures can reduce dust generation by up to 50 percent (USEPA 2006).

It has been conservatively estimated that the proposed construction project included in the Proposed Action would disturb a total area of less than one acre. This estimate accounts for site preparation activities, and heavy equipment storage, which may occur outside of the proposed facility footprints. It is anticipated that construction activity would be greatest during 2019. The proposed action will disturb a total of less than one acre of area. The amount of uncontrolled dust (including both PM_{10} and $PM_{2.5}$) generated by the proposed construction activities would be as much as 2.51 tons. However, this could be reduced to approximately 1.26 tons with the implementation of standard dust minimization practices (e.g., regularly watering exposed soils, soil stockpiling, etc.) (USEPA 2006).

Although any increase in dust generation is inherently adverse, implementation of dust minimization measures would limit the total quantity generated during each year of project implementation. Additionally, increased fugitive dust emissions associated with the Proposed Action would be short-term and temporary. Therefore, air quality impacts associated with fugitive dust would be considered minor and less than significant.

Table 4-1 Anticipated Construction-Related Fugitive Dust Emissions

Year	Total Disturbed	Potential Uncontrolled Dust Generated (tpy)	Potential Dust Area Generated with BMPs in acres (tpy)
2019	1.00	2.51	1.26
TOTAL	**1.00**	**2.51**	**1.26**

Sources: MRI 1996; USEPA 2001, 2006.

Notes: General Construction Activities Emission Factor = 0.19 ton PM_{10} per acre-month; $PM_{2.5}$ emissions are estimated by applying a particle size multiplier of 0.10 to PM_{10} emissions (USEPA 2006); The USEPA National Emission Inventory documentation recommends a control efficiency of 50 percent for PM_{10} and $PM_{2.5}$ in PM nonattainment areas (USEPA 2006).

4.2.1.1 Construction - Combustion Emissions

Under the Proposed Action, combustion emissions at Grand Forks AFB associated with construction-related vehicles and equipment would be minimal because most vehicles would be driven to, or brought in on a trailer, and kept at the work sites for the duration of construction activities. Further, as would be the case with fugitive dust emissions associated with site preparation activities, emissions generated by heavy construction equipment would be temporary and short-term. Therefore, under the Proposed Action, impacts to air quality associated with construction activities would be minor and less than significant.

Annual projected combustion emissions under implementation of the Proposed Action are listed in Table 4-1. Because the exact timing and phasing of construction is not known at this time, these emissions estimates are based on the scenario of 10-hour workdays, 5 days per week, for simultaneous construction activity over the course of approximately one year. Further, since a specific equipment list and horsepower rating for the equipment has not yet been determined, emission factors used in this analysis are representative of a fleet-wide average, and a standard equipment list for construction has been used.

Table 4-2 Potential Annual Emissions from Construction Related Combustion at Grand Forks AFB

Equipment	CO (tpy)	NOx (tpy)	PM (tpy)	SOx (tpy)	VOC (tpy)
Off-Highway Truck	0.763	2.225	0.077	0.003	0.257
Grader	0.726	1.400	0.071	0.002	0.174
Trencher	0.561	0.802	0.066	0.001	0.171
Loader	0.572	1.122	0.061	0.001	0.143
Roller	0.487	0.785	0.054	0.001	0.117
Paving Equipment	0.518	0.925	0.064	0.001	0.137
Construction Worker	2.665	3.715	0.015	0.501	0.286
Annual Total	**4.48**	**7.34**	**0.02**	**1.00**	**0.48**
de minimis thresholds	100	100	100	100	100
Significant	**No**	**No**	**No**	**No**	**No**

Sources: South Coast Air Quality Management District (SCAQMD) 2007a, 2007b; USEPA 2006.
Notes: Assuming 12 months of operation per year, 10 hours per day, 5 days per week, 4 weeks per month as well as a total of 50 construction worker vehicles.

4.2.3.2 General Conformity

As described in Section 3.1.2.2, Local Air Quality, Grand Forks County is currently designated as an attainment area by the USEPA for all NAAQS criteria pollutants (NDDH 2016a; USEPA 2016a). Consequently, emissions from construction and operations activities associated with the Proposed Action are not subject to de minimis thresholds for a General Conformity determination.

EO 13693, Planning for Federal Sustainability in the Next Decade, which supersedes EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management, and EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance, outlines implementation steps to achieve the goal of maintaining Federal leadership in sustainability and GHG reductions. Beginning in FY 2016, where life-cycle cost-effective, Federal agencies are required to promote building energy conservation, efficiency, and management by reducing agency building energy intensity.

4.2.3.3 Greenhouse Gas Emissions

Under the Proposed Action, construction activities would result in short-term, temporary GHG (i.e., CO_2) emissions from operation of heavy equipment during construction and construction worker commutes. However, these construction activities associated with the Proposed Action would not result in any substantial increase in GHG emissions. Further, implementation of the Proposed Action would result in a decrease of operational emissions due to a reduction in utility

maintenance related transportation costs from off base location(s). Consequently, the Proposed Action would result in an overall minor beneficial reduction in operational GHG emissions.

4.2.3.4 Conclusion

4.3 Wastes, Hazardous Materials, and Stored Fuels

4.3.1 Approach to Analysis

Numerous Federal, state, and local laws regulate the storage, handling, disposal, and transportation of hazardous materials and wastes; the primary purpose of these laws is to protect public health and the environment. The severity of potential impacts associated with hazardous substances is based on their toxicity, ignitability, and corrosivity. Impacts associated with hazardous materials and wastes would be considered significant if the storage, use, transportation, disposal of, or interaction with hazardous substances substantially increases human health risks or environmental exposure. Impacts to identified contaminates sites would be considered significant if an action disturbed or created additional contamination resulting in adverse effects to human health or the environment.

4.3.2 No Action

If the No-Action Alternative were selected, the construction project included in the Proposed Action would not be implemented. Therefore, potential impacts to hazardous materials and wastes would be reduced and conditions would remain as described in Section 3.7, *Hazardous Materials and Wastes*.

4.3.3 Proposed Action

4.3.3.1 Hazardous Materials

Implementation of the Proposed Action does not include the demolition or addition/alteration of existing facilities on-base. The Proposed Action should not disrupt existing hazardous materials such as fuel oil, refrigerants, mercury, asbestos, and LBP paint. Therefore, impacts associated with hazardous materials would be minor and no significant impacts would occur in the short-term or long-term at Grand Forks AFB.

4.3.3.2 Hazardous Waste Storage and Accumulation

Operationally, implementation of the Proposed Action would not result in any changes to the storage of hazardous materials at Grand Forks AFB, described in Section 3.7, *Hazardous Materials and Wastes*. Contractor-derived hazardous waste would be the responsibility of the contractor, therefore, Grand Forks AFB would continue to operate as a small-quantity generator. Additionally,

implementation of the Proposed Action would not result in any substantial or long-term increase in the use or generation of hazardous materials or hazardous wastes at Grand Forks AFB as no additional use or generation of hazardous materials or hazardous wastes would result from operations association with the Proposed Action at Grand Forks AFB. Therefore, there would be no long-term operation impacts as a result of implementation of the Proposed Action.

4.3.3.3 Environmental Restoration Program

As described in Section 3.7.2.6, *Environmental Restoration Program*, there are seven ERP sites and two Areas of Concern (AOCs) located on Grand Forks AFB. Two of these ERP sites, the Fire Training Area/Old Sanitary Landfill Area and the New Sanitary Landfill Area, are considered closed and will undergo post-closure monitoring for 30 years. Additionally, long-term groundwater and soil monitoring will be performed at the POL Off-Loading Area, and at the Refueling Ramps and Pads. Site ST007 is 500 feet west of the proposed construction site. The remaining sites (i.e., ST-04, OT-05, and ST-06) are in the site closeout phase and no further remedial actions are required or are being performed (Grand Forks AFB 2016b). The construction site associated with the Proposed Action is not located on or near any of the ERP sites or AOCs, and as such the Proposed Action is not anticipated to expose workers to potential soil and groundwater contamination. Any potential hazardous materials or wastes that are inadvertently unearthed during construction activities would be subject to a hazardous waste determination and would be managed appropriately. The ERP manager would be contacted immediately at 701-747-4183. Therefore, no short-term or long-term impacts related to ERP sites at Grand Forks AFB would be anticipated under the Proposed Action.

4.4 Water Resources

4.4.1 Approach to Analysis

An impact to water resources would be considered significant in implementation if the action would: 1) reduce water availability to or interfere with the supply of existing users; 2) create or contribute to the overdraft of groundwater basins or exceed decree annual yields of water supply sources; 3) adversely affect surface or groundwater quality; 4) threaten or damage unique hydrologic characteristics; or, 5) violate established laws or regulations that have been adopted to protect or manage water resources, including management plans adopted by Grand Forks AFB.

4.4.2 No Action

Under the No-Action Alternative the site would not be developed, and the shop would not be built.

4.4.3 Proposed Action

4.4.3.1 Surface Water

As described in Section 3.3, Water Resources Grand Forks AFB is located within the Red River Basin. The Turtle River is a tributary to the Red River that drains approximately 311 square miles, including Grand Forks AFB. The NDDEQ Water Quality Division has designated the Turtle River a class II stream under its Water Quality Standards (NDAC Chapter 33-16, Control, Prevention, and Abatement of Pollution of Surface Water), including that it may require additional treatment to meet drinking water standards, but can be used for irrigation, propagation of life for resident fish species, and water recreation.

The proposed construction and demolition activities associated with the Proposed Action could potentially result in soil erosion or airborne dust that could affect storm water conveyance systems (e.g., open channels, catch basins, etc.) and other surface waters on Grand Forks AFB that ultimately drain to the Turtle River. However, because of the considerable distance between the proposed project sites and receiving water, the majority of the construction and grading impacts at Grand Forks AFB would be unlikely to reach surface waters. It is unlikely that substantial adverse impacts on surface water quality (e.g., silt-laden runoff discharge into the creek) would result from implementation of the Proposed Action. The 319CES would need to file a Notice of Intent (NOI) with the NDDEQ and Grand Forks County and would prepare a site-specific SWPPP that includes BMPs to reduce the potential for soil erosion and prevent contaminant-laden stormwater from leaving the construction site. In addition, implementation of existing nonpoint pollution requirements, SPCC Plan procedures, and BMPs – such as silt fencing and vegetation-based erosion control measures (refer to Section 4.2.3, Proposed BMPs) – would minimize short-term construction-related impacts. Long-term operations of the proposed facilities would not adversely impact surface water on Grand Forks AFB.

4.4.3.2 Groundwater

As described in Section 3.3.2.2, Groundwater, Grand Forks AFB is located above the Emerado Aquifer and the Dakota Group Aquifer. The depth to groundwater at the baser ranges from approximately 50 feet to 200 ft bgs. The use of heavy equipment and trucks during the construction phase of any project brings with it the potential for accidental release of POLs. However, the volume of any potential spill, however unlikely, would be small and clean up would be conducted in compliance with the SPCC Plan (Grand Forks AFB 2015c). Due to the depth to groundwater, the limited quantity of POLs associated with the Proposed Action, and compliance with the base's SPCC Plan, potential impacts from spills of diesel fuel or lubricants associated with construction equipment would be less than significant.

4.4.3.3 Floodplains

As described in Section 3.3.2.3, Floodplains, 100-year floodplains associated with the Turtle River and Kellys Slough are located within the northwest corner of the base as well as the southeastern corner of the base near the sewage lagoons (FEMA 2010; Grand Forks AFB 2016c). All other areas on the base are located outside of the 500-year floodplain (FEMA 2010). None of the construction or demolition projects under the Proposed Action would be sited within a 100- or 500-year floodplain or otherwise result in any change in the elevation, function, or capacity of the existing floodplains within the base boundaries or the surrounding vicinity. Therefore, implementation of the projects included in the Proposed Action would have no impact on floodplains.

4.4.3.4 Conclusion

BMPs, although not required to reduce potential adverse impacts to less than significant levels, would be implemented in order to further reduce adverse impacts on water resources as a result of the Proposed Action. The following BMPs would be implemented to control storm water and wastewater during construction activities:

- Temporary collection and containment systems would be provided domestic and industrial wastewater during the construction phase of the proposed projects as needed.
- The total amount of ground disturbance would be minimized, and vegetation cover would be preserved to the extent practicable.
- Soil erosion would be controlled by covering exposed soils, if practicable, whenever the construction area is idle.
- Silt fencing, compost berms, filter socks, or other similar measures for managing storm water runoff would be installed.
- Inlet protection, such as berms or geo-fabrics, would be installed in locations where runoff would enter the major drainage ways.
- Grand Forks AFB would notify the NPDES program of any changes to the wastewater facility which may result in discharging new or different pollutants, or an increased amount of pollutants.
- Care would be taken to avoid spills of any materials that may have an adverse effect on groundwater quality. All spills would be promptly reported to the NDDEQ and appropriate remedial actions would be performed.
- Tracking and depositing sediment off-site would be minimized to the maximum extent practicable by removing sediment from construction vehicles before they leave the site.
- Construction equipment would be serviced and refueled away from surface water resources on the base, and all chemicals and petroleum products would be stored and contained away from water resources.

4.5 Biological Resources

4.5.1 Approach to Analysis

Determination of the significance of potential impacts to biological resources is based on applicable Federal, state, and local legal protection of the sensitive resources including the Federal ESA, MBTA, and BGEPA. Significance of impacts to biological resources would be based on: 1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource; 2) the proportion of the resource that would be affected relative to its occurrence in the region; 3) the sensitivity of the resource to proposed activities; and 4) the duration of ecological ramifications. Impacts to biological resources would be significant if implementation of the Proposed Action would adversely affect a federally listed threatened or endangered species; substantially diminish a regionally or locally important plant or wildlife species; interfere with wildlife movement or reproductive behavior; and/or result in an infusion of invasive plant or wildlife species.

Data from USFWS, NDGF, NDPR as well as the GFAFB Integrated Natural Resources Management Plan (INRMP) were reviewed to determine the presence or potential occurrence of sensitive species and habitats on GFAFB. Potential physical impacts such as habitat loss and impacts to surface water were evaluated to assess potential impacts to biological resources resulting from implementation of the Proposed Action and its alternatives. For federally listed species and designated critical habitat, formal consultation with the USFWS under Section 7(a)(2) of the ESA is triggered when: 1) it is determined that a proposed action "may affect" federally listed species or designated critical habitat, unless the USFWS concurs in writing that the action is not likely to adversely affect any listed species or critical habitat; or 2) the USFWS does not concur with the determination that the proposed action is not likely to adversely affect federally listed species or designated critical habitat.

4.5.2 No Action

The No-Action Alternative does not have any net benefit with regards to wetland impacts over the preferred alternative. The No-Action Alternative would result in reduced development on the base and fewer impacts to the existing vegetation, wildlife, and special status species at GFAFB.

4.5.3 Proposed Action

4.5.3.1 Vegetation

The proposed construction project included in the Proposed Action at GFAFB has been sited adjacent to existing facilities (refer to Section 2 Proposed Action and Alternatives). As discussed in Section 3.4, Biological Resources, much of the area consists of built or improved (i.e., landscaped) grounds with relatively small areas of fragmented native plant communities (GFAFB 2016c). Consequently, implementation of the Proposed Action would require minimal vegetation

clearing and would not result in significant disruption or loss of sensitive plant species or unique vegetative communities. Overall, impacts to vegetation at GFAFB would be less than significant.

4.5.3.2 Wildlife

Implementation of the Proposed Action could potentially affect wildlife during construction activities from increased noise and human activity. However, the proposed construction will take place within the cantonment area near existing facilities. The proposed location is devoid of native vegetation and high-quality wildlife habitat. Construction activities associated with the Proposed Action would temporarily result in minor ground borne noise and vibration but would only negligibly affect wildlife species that may transit the area. These activities would occur in an area already exposed to noise and industrial activities. Over the long-term, implementation of the Proposed Action would not result in land use changes or increases in training activities that would have the potential to result in the disruption of wildlife species at Grand Forks AFB or in the immediate vicinity. Therefore, impacts to wildlife associated with the Proposed Action would be less than significant.

4.5.3.3 Threatened and Endangered Species

As described in Section 3.4, Biological Resources, no federally listed species are known to occur on GFAFB. No federally designated critical habitat is located within Grand Forks AFB (GFAFB 2016c). Four listed species have the potential to occur on Grand Forks AFB. Several state species of conservation priority are known to occur on Grand Forks AFB. Sensitive birds, amphibians, reptiles, and mussels on base generally occur in the Turtle River riparian corridor or in the grasslands, wetlands, and woodlands outside the main cantonment area. This area is well removed from the Proposed Action location. Four state-listed plants including white lady's slipper (*Cypripedium candidum*), lesser yellow lady's slipper (*Cypridpedium parviflorum var. parvaflorum*), Dutchman's breeches (*Dicentra cucullaria*), and eastern prickly gooseberry (*Ribes cynosbati*) were also identified in previous vegetative surveys conducted in 2008 and 2009, in the areas west of the airfield (GFAFB 2016c).

Implementation of the Proposed Action would be expected to result in less than significant impacts to special status species, as ground disturbances related to the proposed construction would take place within the main cantonment area near other base structure's and activities. These areas do not have native plant communities or quality habitat for animals. The Proposed Action will take place in areas that already experience noise and base-associated industrial activities. Therefore, implementation of the Proposed Action would be expected to result in less than significant impacts to special status species within GFAFB. Suitable habitat for special status species does not exist at the Proposed Action site, therefore the Proposed Action would have no effect on any federally listed species.

4.5.3.4 Wetlands

Based on compiled data included in the base's INRMP (Grand Forks AFB 2016c), including a summary of wetland delineations and assessments conducted in 2000, 2004, 2006, 2008, 2012, the Proposed Action will not impact any previously delineated wetlands.

The Proposed Action should have no significant impacts on wetland areas at GFAFB.

4.5.3.5 Conclusion

BMPs would be implemented to further reduce adverse impacts to any wetlands as well as state species of concern and migratory birds.

4.5.3.5.1 Wetlands

Consistent with Section 2.0, Best Management Practices of the Wetlands Management Plan (Grand Forks AFB 2013c) implementation of the Proposed Action would include the following:

- All previously mapped wetlands and other waters within 100 feet of the Base Utilities Inc. facility's proposed location should be clearly marked/flagged prior to the commencement of construction activities. This would prevent construction workers from entering these wetlands and potentially placing fill within the wetlands or trampling wetland vegetation.
- Temporary basins and silt traps, if needed, would be constructed, as necessary, to contain sediment and runoff in the construction area. Straw wattles and silt fences would be used to limit off-site sediment transport.
- All fuels and other potentially hazardous materials would be contained and stored appropriately. In the event of a spill, procedures outlined in the base's SPCC Plan would be followed to quickly contain and clean up a spill (Grand Forks AFB 2015c).
- An erosion and sediment control plan, typically part of the SWPPP and directed by the base's Storm Water Program Manager, would be developed prior to commencement of construction activities and adhered to during construction.
- Erosion control structures, if required in the SWPPP, would be installed down gradient of the construction site adjacent to any aquatic features. The structures would be regularly maintained and removed once vegetation has been reestablished. All stormwater controls must be approved by the base's Storm Water Program Manager.
- Site grading would be conducted in a manner that would direct storm water runoff generated from construction activities away from nearby aquatic resources, but existing drainage patterns and hydrology should be maintained.
- Projects disturbing one or more acres would obtain a permit from the North Dakota Division of Water Quality.

4.5.3.5.2 Nesting Birds

- Consistent with the base's INRMP, any groundbreaking construction activities requiring the removal of trees should be performed outside of the bird nesting season (i.e., February 1 to July 15) or all young have fledged to avoid incidental take of migratory birds.
- If construction is scheduled to start during the period when migratory birds are present, a site-specific survey for nesting migratory birds should be performed immediately prior to construction.
- If nesting birds are found during the survey, buffer areas should be established around nests. Construction should be deferred in buffer areas until birds have left the nest. Confirmation that all young have fledged should be assessed and determined by a qualified biologist.
- The construction contractor would minimize the total amount of ground disturbance and preserve vegetative covers to the amount practicable.

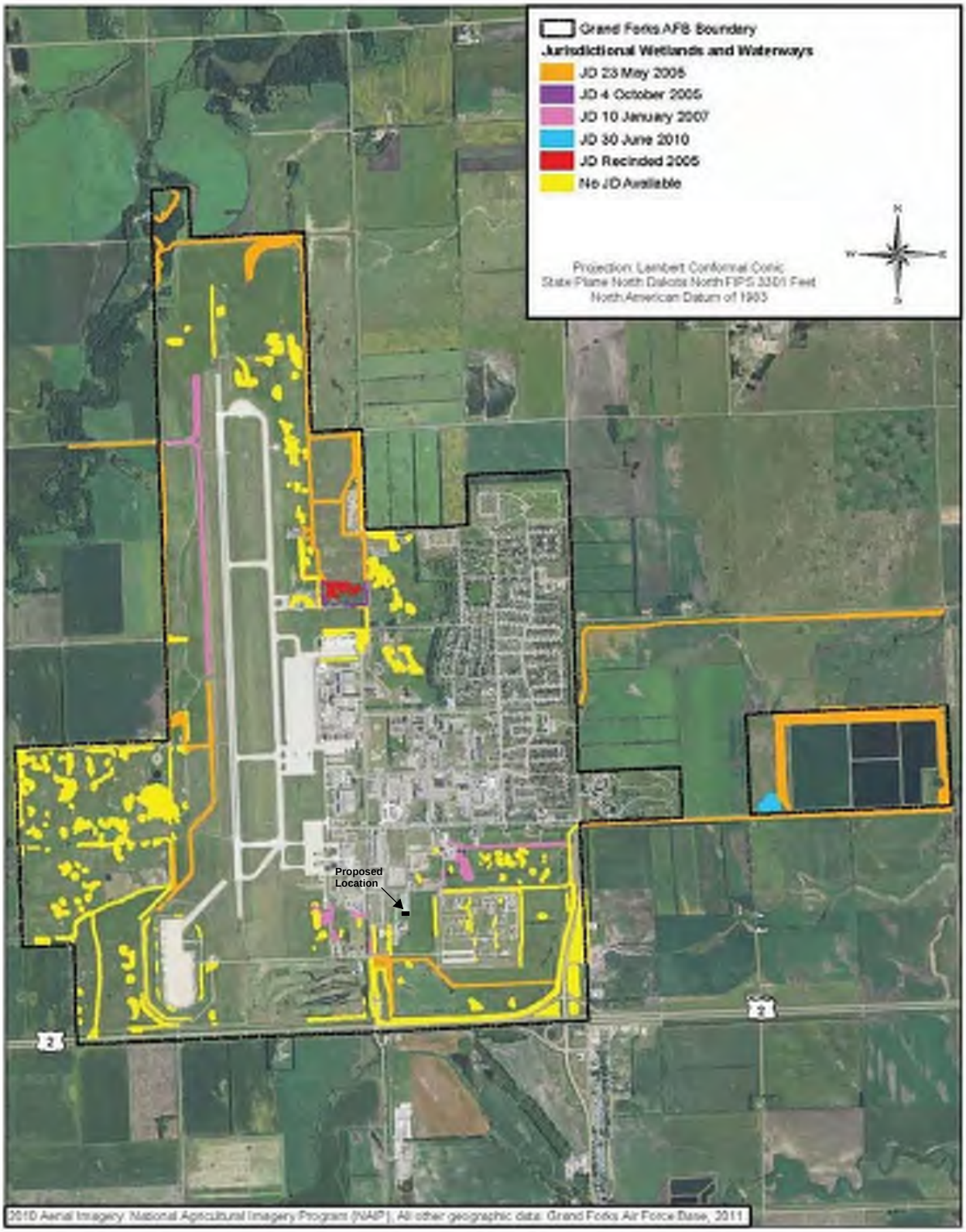


FIGURE 9: Jurisdictional Wetlands and Waterways

4.6 Cultural Resources

4.6.1 Approach to Analysis

Cultural resources are subject to review under both Federal and state laws and regulations. Section 106 of the NHPA empowers the Advisory Council on Historic Preservation to comment on federally initiated, licensed, or permitted projects affects cultural sites listed or eligible for inclusion on the NRHP.

Once cultural resources have been identified, an eligibility determination is made according to the criteria set forth in NHPA. The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

a) That are associated with events that have made a significant contribution to the broad patterns of our history;
b) That are associated with the lives of persons significant in our past;
c) That embody distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
d) That have yielded, or may be likely to yield, information important in prehistory or history.

Significance evaluation is the process by which resources are assessed relative to significance criteria for scientific or historic research, for the general public, and for traditional cultural groups. Only cultural resources determined to be significant (i.e., eligible for the NRHP) are protected under the NHPA.

Analysis of potential impacts to cultural resources considers both direct and indirect impacts. Direct impacts may occur by: 1) physically altering, damaging, or destroying all or part of a resource; 2) altering the characteristics of the surrounding environment that contribute to resource significance; 3) introducing visual, audible, or atmospheric elements that are out of character with the property or alter its setting; or 4) neglecting the resource to the extent that it is deteriorated or destroyed.

Direct impacts can be assessed by identifying the types and located of proposed actions and determining the exact locations of cultural resources that could be affected. Indirect impacts primarily result from the effects of project-induced population increases and the resultant need to develop new housing areas, utility services, and other support functions necessary to accommodate population growth. These activities and facilities' subsequent use can disturb or destroy cultural resources.

4.6.2 Proposed Action

4.6.2.1 Historic Structures

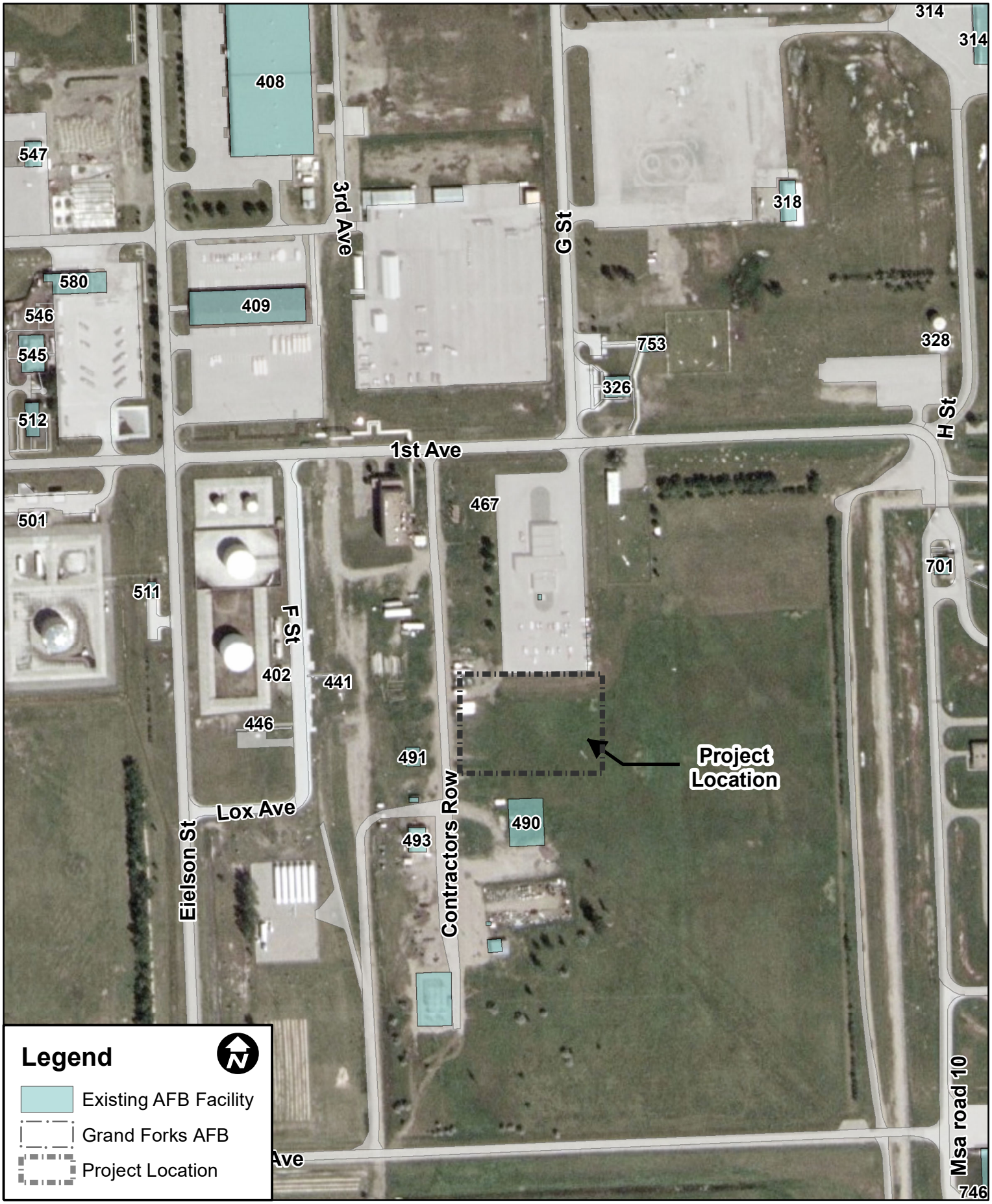
Implementation of the Proposed Action would include the construction of one main 4,800 square-foot maintenance facility.

As described in Section 3.5, *Cultural Resources*, in 2011 the 319 RW at Grand Forks AFB initiated a cultural resources survey of 91 buildings on the base constructed between 1956 and 1961. The survey was conducted under the requirements of Section 110 of the NHPA and primary tasks included documentary search, NRHP eligibility evaluation of the structures both individually and as a district, and coordination between Grand Forks AFB and the North Dakota SHPO. None of the buildings in this survey were identified as eligible for listing due to the absence of direct association with Grand Forks AFB's Cold War missions and overall lack of architectural integrity (Grand Forks AFB 2016a). Grand Forks submitted this report to the North Dakota SHPO on 22 September 2011 and received concurrence with its findings from the North Dakota SHPO on 4 October 2011 (Grand Forks AFB 2016a). As there is no demolition association with the Proposed Action, no impacts to historic built resources are anticipated.

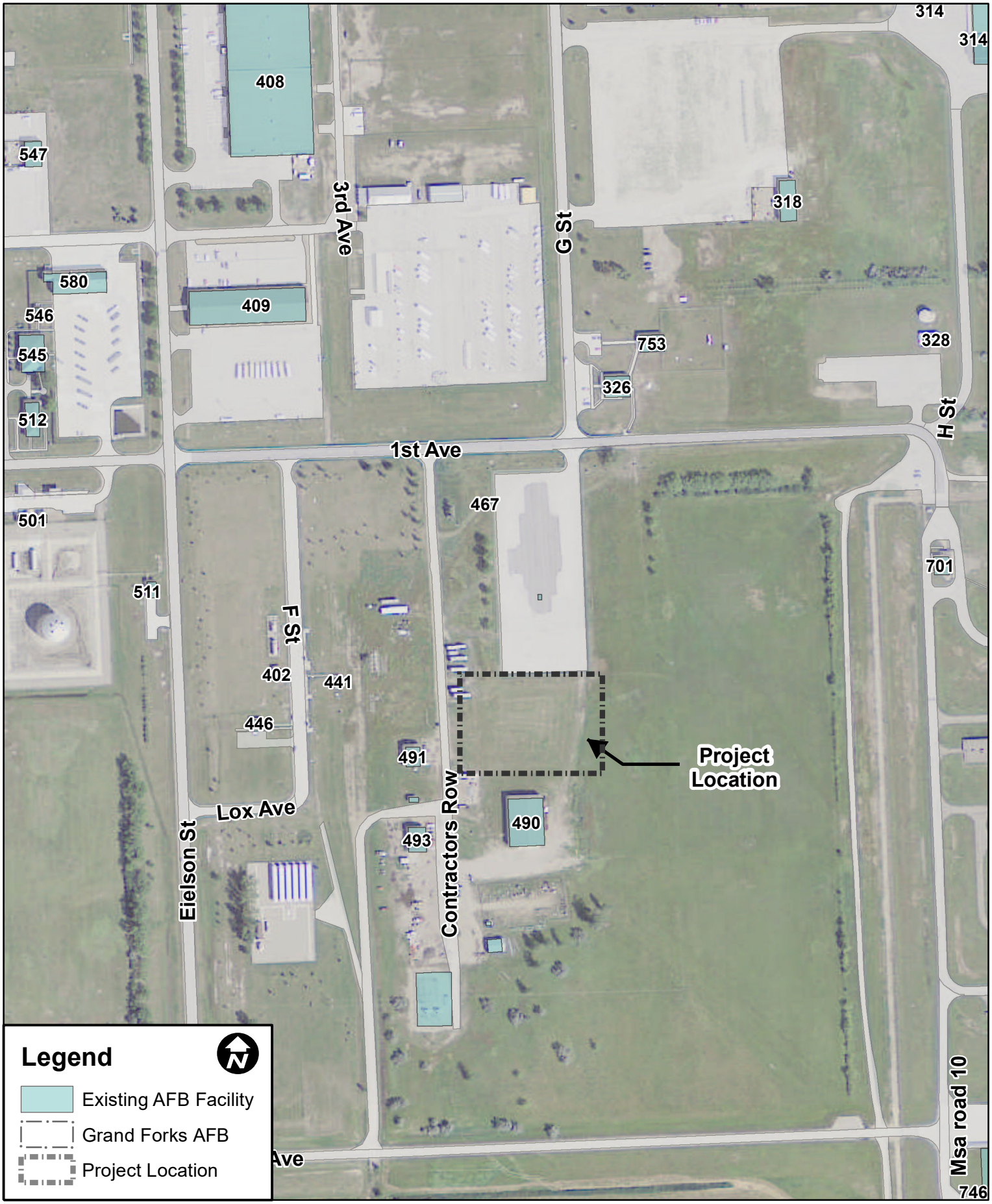
4.6.2.2 Archaeological Resources

As described in Section 3.5, *Cultural Resources*, several archaeological investigations have been conducted at Grand Forks AFB and two archaeological sites as well as two isolated prehistoric finds, and one historic find have been documented and evaluated as not eligible for the NRHP. Additionally, the east terrace of the Turtle River, in the northwestern cover of the base, has been identified as an area that is archaeological sensitive and requires additional studies (Grand Forks AFB 2016a). However, implementation of the Proposed Action would occur within previously disturbed areas. Based upon aerial imagery, the area has been disturbed by construction activities and utility installation in 1987, 2003, 2005, 2006, and 2009. Evidence includes ground surface disturbance on aerial imagery, ground surface scarring visible on aerial imagery and on the ground, and aerial images of vehicular damage. The Proposed Action would avoid previously identified archaeological resources as well as the archaeologically sensitive areas associated with the Turtle River. Consequently, the implementation of the Proposed Action would not be anticipated to result in impacts to archaeological resources at Grand Forks AFB. Nevertheless, the potential remains for currently buried, unknown archaeological resources to be uncovered during ground-disturbing activities. If such resources were uncovered during development of the proposed project locations, activities would be suspended and the Grand Forks AFB Cultural Resources Manager would follow the procedures described in Section 4.3.1.3, *Unexpected Archaeological Discoveries*, in the Grand Forks ICRMP (Grand Forks AFB 2016a). The Grand Forks AFB would immediately notify the North Dakota SHPO and the National Park Service (NPS) as required by 36 CFR Part 800.13 and the AHPA (16 USC § 469) and the archaeological discovery would be evaluated for significance by a qualified archaeologist, as necessary (Grand Forks AFB 2016a).

BASE UTILITY INC. E-A PREPARED BY: CFE | DATE: 12 DEC 18 ACKERMAN ESTVOLD	LOCATION MAP 1987 AERIAL GRAND FORKS, AFB	0 50 100 Meters 0 200 400 Feet	FIGURE **10**



BASE UTILITY INC. E-A PREPARED BY: CFE | DATE: 12 DEC 18 ACKERMAN ESTVOLD	LOCATION MAP 2003 AERIAL GRAND FORKS, AFB	0 50 100 Meters 0 200 400 Feet	FIGURE 11



BASE UTILITY INC. E-A PREPARED BY: CFE | DATE: 12 DEC 18 ACKERMAN ESTVOLD	LOCATION MAP 2009 AERIAL GRAND FORKS, AFB	0 50 100 Meters 0 200 400 Feet	FIGURE 12

4.6.2.3 Federally Recognized Native American Tribes

As discussed in Section 3.5, *Cultural Resources*, based on previous archaeological resources surveys and tribal coordination to date, Grand Forks AFB has no known properties of traditional cultural significance or sacred sites. Section 106 of the NHPA and EO 13175, *Consultation and Coordination with Indian Tribal Governments*, required Federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on federally administered lands. Consistent with EO 13175, DoDI 4710.02, *Interactions with Federally-Recognized Tribes*, and AFI 90-2002*, Air Force Interaction with Federally-Recognized Tribes*, the 319 RW Installation Tribal Liaison Officer at Grand Forks AFB sent letters on 14 March 2019 notifying 29 federally recognized tribes with an interest in the region of the proposed construction project, the Area of Potential Affect (APE) and inquiring whether the tribes desired to engaged in consultations pursuant to Section 106 of the NHPA (see Appendix D). The Cultural Resources Liaison for BUI provided follow-up communication with each tribe via emails and phone calls in April and Mary 2019. Early consultation with tribes was sought by the AF during an invited base field tour and project construction site meeting on 12 Sept 2018. Tribes present requested that tribal construction monitors be used during earth excavating activities at these project sites. The AF explained current AF policy did not generally allow payment of tribal construction monitors. The AF further detailed that construction monitors could only be used if proper documentation showing and identifying culturally significant resources were present at the project site.

The AF with the Cultural Resources Liaison for BUI provided follow-up communication with each tribe via emails and phone calls in April and May 2019 seeking tribal consultation and input. One tribe offered further input and requested participation concurrent to Section 106 consultation efforts ongoing for privatization projects for the installation regarding both the BUI (Water) and NODAK Electric projects. The tribe requested that the AF initiate a Traditional Cultural Properties (TCP) Survey by a certified Traditional Cultural Specialist (TCS)/Contractor to investigate if there are any tribal historic or cultural sites significant to their tribe.

Additionally, it was requested that Tribal Construction Monitors, who hold TCS certifications, be present during earth excavation activities. Current negotiations of a needed tribal survey are ongoing. To date, no tribal Historic resources have been identified for this project site.

In accordance with the Installation Tribal Relations Plan, Grand Forks AFB can coordinate with tribes to confirm construction dates and times for ground disturbing activities, if requested. If a tribe desires to provide their own construction monitor supported by tribal resources, access to the project site can be arranged by the AF. Should a tribal monitor identify any TCPs or other cultural resource items while on-site, they must notify the 319 CES. After receiving notification, the 319 CES would follow processes in the ICRMP and 36 CFR Park 800.13 (Grand Forks AFB 2017).

4.6.3 No-Action Alternative

Under the No-Action Alternative, the construction project would not be implemented. Therefore, conditions would remain as described in Section 3.5, *Cultural Resources*, for project sites where construction activities would not occur.

4.6.4 Proposed BMPs

Although the likelihood of discovering cultural resources, such as archaeological deposits, during construction activities associated with the Proposed Action would be low, inadvertent discoveries would be processed in accordance with the Grand Forks AFB ICRMP, Section 4.3.1.3, *Unexpected Archaeological Discoveries*, and the provisions of applicable law(s) such as Section 106 of the NHPA (36 CFR Part 800.13).

4.7 Transportation Systems

4.7.1 Approach to Analysis

An action would adversely impact location or regional infrastructure if its implementation increased the demand on physical capital improvements beyond the carrying capacity of existing systems. In particular, potential impacts on transportation area assessed with respect to anticipated disruption, deterioration, or improvement of pavement. Beneficial or adverse impacts may arise from physical changes in transportation systems or changes in daily or peak-hour use.

4.7.2 Proposed Action

As described in Section 3.7, *Transportation*, Grand Forks AFB has two ACPs and is supported by three major roadways (Grand Forks 2016b). Temporary impacts on transportation and circulation would be expected during the construction activities associated with the implementation of the Proposed Action. Construction activities are expected to occur during a period of several months in FY 2019 and would include construction-related traffic including heavy construction equipment as well as construction worker vehicles. Additionally, construction activities would also require equipment staging and vehicle staging areas. Grand Forks AFB covers more than 5,000 acres and is served by a robust internal transportation network. While construction vehicle entry through the base's ACPs may result in minor delays during peak hours 7:00am and 4:00pm, the overall impact on traffic at the base would be minor. Additionally, construction staging would occur in previously disturbed areas. Consequently, impacts to parking in the vicinity of the proposed project site would be minor and temporary. No long-term adverse impacts to transportation would be anticipated.

4.7.3 No-Action Alternative

If the No-Action Alternative were selection, the one construction project included in the Proposed Action would not be implemented. Conditions would remain as described in Section 3.6, *Infrastructure*, for project sites where construction activities would not occur.

4.8 Airspace/Airfield Operations

4.8.1 Approach to Analysis

Human health and safety are defined as the conditions, risks, and preventative measures associated with a facility and its ability to potentially affect the health and safety of facility personnel or the general public. If implementation of the Proposed Action would substantially increase the risks associated with aircraft mishap potential or flight safety relevant to the public or the environment, it would represent a significant impact. For example, if an action involved an increase in aircraft operation such that mishap potential would increase significantly, air safety would be compromised; conversely, beneficial impacts would be those reducing the potential for aircraft mishaps. Further, if implementation of the Proposed Action would result in incompatible land use with regard to safety criteria as CZs or APZs, impacts would be significant. Beneficial impacts would include reducing incompatible land uses within CZs or APZs. Siting facilities within established ESQD arcs would be considered adverse due to the risk of potential to explosives including those resulting from blasts, fragments, or thermal hazards.

In addition, if implementation of the Proposed Action would substantially increase the risks to occupational safety, it would represent a significant impact. Beneficial impacts would include those reducing the risk of occupational safety hazards.

4.8.2 Proposed Action

4.8.2.1 Clear Zones and Accident Potential Zones

None of the proposed projects would occur within a CZ or APZ at Grand Forks AFB. All proposed construction activities identified in the Proposed Action have been designed and sited to comply with all airfield safety criteria and are consistent with the guidelines established in the base's General Plan and future Installation Development Plan (Grand Forks AFB 2006, 2016). Further, the Proposed Action would not result in a change in shape or shift in location of existing CZs or APZs and no incompatible land use would be established within these safety zones. Therefore, no impacts with regard to airfield safety zones would result from implementation of the Proposed Action.

4.8.2.2 Explosive Safety Quantity-Distance Arcs

None of the proposed construction projects or additions/alterations under the Proposed Action would be located within the existing ESQD arcs at Grand Forks AFB. Additionally, implementation of the Proposed Action would not result create new ESQD arcs or result in an increase in the size of existing the ESQD arcs.

4.8.2.3 Anti-Terrorism/Force Protection

As described in Section 3.8.2.4, Anti-Terrorism/Force Protection all roadway, parking, and facility construction projects at the base must comply with UFC 4-010-1, Department of Defense Minimum Antiterrorist Standards for Buildings. All proposed construction activities included in the Proposed Action would comply with UFC 4-010-1 as well as USAF Force Protection Design Guide, published by the Air Force Civil Engineering Center, which supplements the DoD standards and must also be consulted during the planning and design process. As such, no impacts with regards to AT/FP measures would occur as a result of implementation of the Proposed Action.

4.8.3 No-Action Alternative

Under the No-Action Alternative, the construction project would not be implemented. Therefore, conditions would remain as described in Section 3.5, *Cultural Resources*, for project sites where construction activities would not occur.

4.9 Safety and Occupation Health

4.9.1 Approach to Analysis

Human health and safety are defined as the conditions, risks, and preventative measures associated with a facility and its ability to potentially affect the health and safety of facility personnel or the general public. If implementation of the Proposed Action would substantially increase the risk to facility personnel, the public, or the environmental, it would represent a significant impact. In addition, if implementation of the Proposed Action would substantially increase the risks to occupation safety, it would represent a significant impact. Beneficial impacts would include those reducing the risk of occupational safety hazards.

4.9.2 Proposed Action

Implementation of the Proposed Action would involve construction activities. As there is no demolition association with the Proposed Action, there is minimal chance activities may encounter asbestos-containing materials and/or LBP.

Operationally, implementation of the Proposed Action would not result in the generation or disposal of additional hazardous materials or wastes (refer to Section 4.7, *Hazardous Materials and Wastes*). Further, the proposed construction would comply with all applicable indoor are quality requirements and OSHA standards. Consequently, implementation of the Proposed Action would result in long-term beneficial impacts associated with occupational health and safety.

4.9.3 No-Action Alternative

Under the No-Action Alternative, the construction project on Grand Forks AFB would not be implemented, and no impacted to safety would occur. Safety at Grand Forks AFB would remain largely unchanged from baseline conditions as described in Section 3.8, *Safety*.

4.10 Environmental Management

4.10.1 Approach to Analysis

An impact to geological resources would be considered significant if implementation of the Proposed Action would: 1) increase potential occurrences of erosion, siltation, or geological hazards; 2) incorporate engineering or construction techniques that do not adequately address potential geological hazards; or 3) expose people or structures to major geological hazards. Generally, impacts with regard to geological resources can be avoided or minimized if proper construction techniques, erosion/siltation control measures, and structural engineering designs are incorporated into project development. Since potential impacts to geological resources would be limited to the project vicinity within the boundaries within Grand Forks AFB, there would be no impacts to regional geology and further analysis of off-site resources has been eliminated.

4.10.2 Proposed Action

4.10.2.1 Geology

As described in Section 3.4.2.1, *Geology*, Grand Forks AFB is located within the Central Lowland Physiographic Province along the flat former glacial Lake Agassiz Plain. Bedrock strata in this area are overlain by glacial deposits composed of silts and clays with occasional sand and gravel lenses. Potential impacts to geological resources associated with the Proposed action at Grand Forks AFB would be limited to ground-disturbing activities occurring during site preparation and construction. These activities would occur on developed or previously disturbed land adjacent to existing facilities. Impacts to geology from implementation of the projects included in the Proposed Action would be negligible because these areas have been previously disturbed. Further, while construction activities may require minor grading and excavation for foundation pouring, none of the proposed construction activities would affect the underlying bedrock geology. Consequently, implementation of the Proposed Action would have a less significant impact of geology at Grand Forks AFB.

4.10.2.2 Topography

The topography at Grand Forks AFB and within the surrounding vicinity is relatively flat, with a northeastward slope of about 1.5 to 2 feet per mile. Across the base, elevations range from 900 feet above MSL on the western side to 880 feet MSL on the eastern side. Implementation of the Proposed Action would include excavation and minor grading activities associated with proposed construction. However, the proposed project would not require substantial grading or the import of large amounts of fill and overall impacts to topography at the base would be less than significant.

4.10.2.3 Soils

Implementation of the construction project included in the Proposed Action would include site preparation activities and excavation associated with construction activities. As described in Section 3.4.2.3, *Soils*, Grand Forks AFB is underlain by deep, fairly level, and somewhat poorly to moderately well-drained soils. Additionally, the majority of naturally occurring soils with the area of the Proposed Action have been physically altered or removed and replaced by imported fill to support existing structures and pavements. Impacts to soils from the implementation of the construction project included in the Proposed Action would be negligible since these areas have been previously disturbed. The Proposed Action would result in short-term increase in soil disturbance; however, construction related impacts as well as long-term impacts to soils would be less than significant.

4.10.3 No-Action Alternative

Under the No-Action Alternative, the construction project associated with the Proposed Action would not be implemented. Therefore, potential impacts to geology, topography, or soils on Grand Forks AFB would be reduced relative to the Proposed Action, and conditions would remain the same as described in Section 3.4, *Geology and Soils*, for the project site where the construction activities would not occur.

4.11 Unavoidable Adverse Impacts

The Proposed Action would involve the use of construction related vehicles and heavy equipment and extensive ground disturbance associated with the proposed construction project at Grand Forks AFB. Consequently, implementation of the Proposed Action would result in unavoidable adverse construction-related impacts on air quality, water resources, and infrastructure. However, as described for the Proposed Action, these impacts would be short-term, temporary, and less than significant.

4.12 Relationship Between Short-Term Uses and Enhancement of Long-Term Productivity

CEQ regulations (40 CFR § 1502.16) specify that environmental analyses must address "… the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity." Special attention should be given to impacts that narrow the range of beneficial uses of the environment in the long-term or pose a long-term risk to human health or safety. A short-term use of the environment is generally defined as a direct consequence of a project in its immediate vicinity. Changes to long-term productivity generally refer to negative impacts to the long-term quality of the land, air, or water.

The Proposed Action would involve the use of previously developed areas. No croplands, pastureland, wooded areas, or wetlands would be modified or affected as a result of implementing the Proposed Action, and consequently, productivity of the area would not be degraded.

4.13 Irreversible and Irretrievable Commitment to Resources

NEPA requires that environmental analysis include identification of any irreversible and irretrievable commitments of resources which would be involved in the implementation of the projects included in the Proposed Action. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the use of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involved the loss in value of an affected resource that cannot be restored as a result of the action.

Resources used for the proposed construction activities include building materials, concrete and asphalt, and various material supplies would be irreversibly lost. However, these resources are not in short supply, would not limit other unrelated construction activities, and would not be considered significant. In addition, energy resources used as a result of the Proposed Action would be irretrievable lost. These include petroleum-based products, natural gas, and electricity. During construction, gasoline and diesel would be used for the operation of construction vehicles. The proposed project included in the Proposed Action would address the currently outdated and inefficient water and wastewater systems at Grand Forks AFB and contribute to an overall reduction in utility usage. This would enable Grand Forks AFB to achieve increased energy efficiency and decreased energy consumption consistent with guidance provide in EO 13693, *Planning for Federally Sustainability in the Next Decade*. Additional, implementation of the Proposed Action would help the 319 RW achieve the USAF "20/20 by 2020" initiative, which aims to offset the 20 percent reduction in funds available for base support by achieving efficiencies through the reduction of owned, leased, and USAF-led joint base real property and associated operating costs by 20 percent by the 2020.

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- JF- FUQUA, JEFFREY M GS-12 UISAF ACC 319 CES/CENPD <jeffrey.fuqua.1@us.af.mil, Programming Engineer, GFAFB, 701-747-4720, 10 July 2019.
- SK – KUCZKOWSKI, SCOTT *P GS-11 USAF ACC 319 SFS/S5X GFAFB, scott.kuczkowski.1@us.fa.mil, Security Programming, 701-747-5954, 10 July 2019.*
- DOS – Donald O. Seward, BB&E, Inc. Contractor, Air Force Civil Engineer Center (AFCEC/CIUU), Utilities Privatization Program Manager, JB Langley-Eustis, VA 23665 757-76403187, Donald.seward.1.ctr@us.af.mil, 10 July 2019.
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- SB – Steve Braun, Hazardous Waste, Hazardous Materials, Tanks and Toxics, GFAFB, 701-747-4655, stephen.braun@us.af.mil, 17 July 2019.
- LO – Larry Olderbak, Environmental Restoration Program manager, GFAFB, 701-747-4183, lawrence.olderbak@us.af.mil, 10 July 2019.
- DH – Haufe, Dana R TSgt USAF ACC, NCOIC, Bioenvironmental Engineering, GFAFB, (701) 747-5596, dana.r.haufe.mil@mail.mil, 19 July 2019.
- MH – Mark W. Hanson, *Chief, General Law, 319 RW/JA, GFAFB, 701-747-3618, mark.hanson.4@us.af.mil, 22 July 2019.*

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APPENDIX A – CORRESPONDENCE

(*The correspondence and consultation letters contained in this appendix are examples of the letters that were sent to the entities listed on the distribution lists included in this appendix).*

IICEP Letter, IICEP Distribution List, and Agency Comments for Draft EA

The Draft E was made available to the following agencies listed below for a 30-day review period in October 2019 to solicit their comments on the Proposed Action. A summary of comments received on the Draft EA is provided in this appendix.

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Summary of Comments Received on the Draft EA

State Historical Society of North Dakota Correspondence. The State Historical Society of North Dakota reviewed the Proposed Action and concurred with a "*No Historic Properties Affected*" determination, provided the project remains as described.

The State Historical Society of North Dakota reviewed the Draft EA and concurred with a "*No Adverse Effect*" determination, provided the project remains as described.

North Dakota Department of Environmental Quality. The North Dakota Department of Environmental Quality reviewed the Proposed Action and concluded the environmental impacts would be minor and could be controlled by proper construction methods.

North Dakota State Water Commission. The North Dakota State Water Commission reviewed the Proposed Action and indicated the project does not required a conditional or temporary permit for water appropriation.

***United States Department of the Interior, Fish and Wildlife Service*.** The United States Department of the Interior, Fish and Wildlife Service reviewed the Proposed Action and offered comments in accordance with the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

They concluded the following federally listed species may occur in the project area: Whooping Crane (endangered) and Northern Long-Eared Bat (threatened). As it was determined that project would have "*no effect*" on federally listed species, additional Service concurrence was no necessary per Section 7 of the ESA.

Native American Tribal Consultation Distribution List

The DOPAA was made available to the following Native American tribes in March 2019 to solicit their comments on the Proposed Action. The letter attached to the DOPAA was used both as government to government relationship under EO 13175 and specific consultation under Section 106 of the NRHP. A summary of comments received on the DOPAA is provided in this appendix.

Mr. Floyd Azure, Chairman
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Summary of Comments Received on the DOPPA

During early consultation efforts, Grand Forks AFB received comments from Native American tribes regarding the Proposed Action. The tribes wanted to determine if the project area has been surveyed for cultural resources or site. The tribes desired monitoring action during earth moving work. Grand Forks AFB assured the tribes that surveys of the project area had been conducted and the installation would conduct cultural resources monitoring by a qualified archaeological in accordance with the ICRMP and do so in a manner approved by the SHSND during earth-disturbing activity. A survey by a Tribal Cultural Specialist and monitoring of ground disturbance was requested.