GRAND FORKS AIR FORCE BASE
NORTH DAKOTA

INSTALLATION OF
DIGITAL AIRPORT SURVEILLANCE RADAR

FINAL
ENVIRONMENTAL ASSESSMENT

Prepared by:

AECOM

for:

U.S. AIR FORCE

ELECTRONIC SYSTEMS CENTER

May 11, 2011

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
11 MAY 2011		**00-00-2011 to 00-00-2011**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Final Environmental Assessment: Installation of Digital Airport Surveillance Radar at Grand Forks Air Force Base, North Dakota	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **AECOM,701 Edgewater Drive,Wakefield,MA,01880**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**202**	

ENVIRONMENTAL ASSESSMENT
GRAND FORKS AFB, NORTH DAKOTA

Table of Contents

Table of Contents (continued)

Table of Contents (continued)

Table of Contents (continued)

Table of Contents (continued)

Table of Contents (continued)

LIST OF FIGURES

LIST OF TABLES

LIST OF ATTACHMENTS

FINDING OF NO SIGNIFICANT IMPACT (FONSI) and FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)

Name of Action: Install Digital Airport Surveillance Radar at Grand Forks Air Force Base

The United States Air Force (USAF) proposes to construct a Digital Airport Surveillance Radar (DASR) system at Grand Forks Air Force Base (AFB) in North Dakota. This Proposed Action is part of the National Airspace System (NAS) Program, the aviation system capital investment plan developed by the Federal Aviation Administration (FAA) in cooperation with the Department of Defense (DOD) to modernize approach control systems in the United States, its territories, and overseas military installations. DASR is a DOD-lead contract to install airport surveillance radar equipment for both the DOD and FAA. The implementation of the NAS program, which also includes the installation of DOD Advanced Automation Systems (DAAS) and Voice Communications Switching Systems (VCSS) at DOD bases, was previously evaluated in a programmatic Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) (USAF, 1995a).

The EA for Grand Forks AFB addresses the site-specific impacts of locating a DASR system on Grand Forks AFB and evaluates environmental impacts of constructing and operating the DASR system, along with dismantling the existing AN/GPN-20 radar, on both the natural and man-made environments. The DAAS and VCSS components of the NAS program at Grand Forks AFB will be located within existing buildings, and impacts are anticipated to be minor. Primary consequences of the DASR system evaluated in the EA involve the construction and operation of an ASR-11 radar system on Grand Forks AFB to replace the existing AN/GPN-20 radar.

The DASR system at Grand Forks AFB is needed to replace the existing AN/GPN-20 airport surveillance radar. The ASR-11 will improve system reliability, provide additional weather data, reduce maintenance cost, improve performance, and provide digital data input to proposed new digital automation system air traffic controller displays. The proposed ASR-11 will take advantage of the significantly increased capabilities of digital technology. The new DASR system will serve to accurately locate aircraft in terms of range, azimuth, and latitude; provide information regarding aircraft identification code; identify emergency conditions; and report six discrete weather precipitation levels.

The No Action alternative was evaluated. The No Action alternative will result in the continued use of the existing AN/GPN-20 radar. This will deny Grand Forks AFB the improved system reliability, additional weather data, and improved performance offered by the new DASR system; thus, this alternative was not chosen. Three sites were evaluated for possible siting of the ASR-11, including the proposed Action (Site 1), Alternative 1 (Site 6), and Alternative 2 (Site 8). All three sites are situated within the base boundary. If the Proposed Action (Site 1), Alternative 1 (Site 6), or Alternative 2 (Site 8) were chosen as the preferred alternative, no significant adverse impacts associated with land use, socioeconomics, utilities/transportation, noise, air quality, geology/soils, surface water and groundwater, biological resources, cultural resources, or aesthetics will be anticipated. Vegetation, consisting primarily of mixed field grasses, will be cleared regardless of the site chosen. There is the potential for wetland impacts at the Proposed Action (Site 1), Alternative 1 (Site 6), or Alternative 2 (Site 8). Additionally, small shrubs (primarily invasive species) will be removed from Alternative 2 (Site 8) if this site

were selected. Utility connections for all three sites will extend primarily adjacent to existing roadways, with a short segment of underground utilities installed immediately next to the site.

Operation of the DASR system is anticipated to have minimal long-term impacts to the natural and human environments. During normal operation of the ASR-11, the radar will generate radio frequency radiation (RFR); however, the RFR generated will be safe to humans at ground level and is not anticipated to pose harm to the general population. During operation of the DASR system, fuel will be stored in an aboveground storage tank (AST) and some hazardous materials, such as equipment oil or grease, may be used at the site. All hazardous materials utilized during operation will be used and disposed of in accordance with Grand Forks AFB policies/protocols and all applicable state/federal regulations in order to minimize the potential for media contamination. Consequently, it is anticipated that operational use of hazardous materials will not adversely affect the natural or human environments.

To minimize noise impacts during construction, mufflers will be used on construction equipment and vehicles. In addition, all equipment and vehicles used during construction will be maintained in good operating condition so emissions are minimized, thus reducing the potential for air quality impacts. Dust will be controlled onsite by using water to wet down disturbed areas. The temporary construction activities at the Proposed Action (Site 1), Alternative 1 (Site 6), or Alternative 2 (Site 8) are not anticipated to impact stormwater runoff; however, during construction, all activities will follow the base guidelines to minimize sedimentation and erosion during storm events. All vegetated areas disturbed for the DASR system construction will be seeded with a grass mixture or appropriate vegetative material, or covered with a geotextile fabric and crushed stone to stabilize the disturbed soils. All hazardous materials used during construction will be handled and disposed of in accordance with Grand Forks AFB policies/ protocols and all applicable state/federal regulations. If necessary, traffic management measures will be developed to facilitate traffic flow and pedestrian access.

Public Review and Interagency Coordination

The Draft EA and Draft Finding of No Significant Impact/Finding of No Practicable Alternative were furnished to the agencies listed in Section 6.0 of the EA and were made available at the Grand Forks AFB public web site. Notices of Availability were published in the Grand Forks Herald on 10 Mar 2011 and on the Grand Forks AFB web site from 10 March 2011 through 11 April 2011. All interested agencies, groups, and persons were invited to submit written comments on the Draft FONSI/FONPA and EA from 10 March through 10 April 2011. No public comments were received. Comments were received from the US Fish and Wildlife Service, State Historical Society of North Dakota, the US Department of Interior, and Department of Commerce Governmental Services. None of the comments required changes to the Proposed Action or environmental consequences in the EA.

FINDINGS

Finding of No Practicable Alternative

Executive Order 11990, Protection of Wetlands, provides that if a federal government agency proposed to conduct an activity in a wetland, alternatives to the action will be considered and actions will be modified, to the extent feasible, to avoid adverse impacts to wetlands. Due to the proximity of wetlands to the Proposed Action (Site 1), Alternative 1 (Site 6), and Alternative 2

(Site 8) and proposed utility corridors for each site, constructing the DASR cannot avoid impacting wetlands. Affected wetland areas will be mitigated by removing and stockpiling the top 12 inches of wetland soils prior to initiating construction activities in utility corridors. Upon completion of wetland construction activities, stockpiled wetland soils will be backfilled and reseeded to match pre-construction grades and wetland environments. The USAF finds that there are no practicable alternatives to construction activities within these wetlands for the installation of a DASR at Grand Forks AFB. The USAF further finds that practicable measures have been taken to minimize harm to wetlands.

Finding of No Significant Impact

In accordance with Council of Environmental Quality regulations implementing the National Environmental Policy Act of 1969, as amended, and the Environmental Impact Analysis Process, 32 CFR 989, the USAF concludes that the Proposed Action (Site 1), Alternative 1 (Site 6), and Alternative 2 (Site 8) are acceptable from an environmental perspective. Based on this summary of effects, along with the detailed description of the effects provided in the attached EA, the USAF has determined that construction of the Proposed Action, to occur at Site 1, will have no significant impact on the quality of the natural or human environment; thus an Environmental Impact Statement (EIS) is not warranted.

JOHN H. BONAPART, JR
SES, DAFC
Deputy Director, Installations and
Mission Support

16 JUN 11
Date

ACRONYMS AND ABBREVIATIONS

AAQS	Ambient Air Quality Standards
ACS	American Community Survey
AFB	Air Force Base
AFFSA	Air Force Flight Standards Agency
AFI	Air Force Instruction
AFOSHSTD	Air Force Occupational Safety and Health Standard
AICUZ	Air Installation Compatibility Use Zone
AM	Amplitude Modulation (radio)
AMC	Air Mobility Command
AN/GPN-20	Airport Surveillance Radar designation
ANG	Air National Guard
ANSI	American National Standards Institute
ASR-11	Airport Surveillance Radar designation
AST	Aboveground Storage Tank
ATCT	Air Traffic Control Tower
AT/FP	Anti-terrorism/Force Protection
BMP	Best Management Practice
BRAC	Base Realignment and Closure
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CE	Civil Engineering
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CES	Civil Engineering Squadron
CFR	Code of Federal Regulations
CITS	Combat Information Transport System
DAAS	DoD Advanced Automation Systems
DASR	Digital Airport Surveillance Radar

dB	Decibel
DHS	Department of Homeland Security
DOD	Department of Defense
DoDI	Department of Defense Instruction
DRMO	Defense Reutilization and Marketing Office
EA	Environmental Assessment
EIS	Engineering Installation Squadron
EIS	Environmental Impact Statement
ELSG/ND	Electronic Systems Group/NAS Deployment
EO	Executive Order
EOD	Explosive Ordnance Disposal
ERP	Environmental Restoration Program
ESC	Electronic Systems Center
FAA	Federal Aviation Administration (Dept. of Transportation)
FM	Frequency Modulation (radio)
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FSS	Force Support Squadron (319^{th})
FTA	Fire Training Area
GATR	Ground-Air Transmit Receive
GFAFB	Grand Forks Air Force Base
GHG	Greenhouse Gas
Hz	Hertz
IEEE	Institute of Electrical and Electronics Engineers
IRP	Installation Restoration Program
JD	Jurisdictional Determination
JSND	Job Service North Dakota
kHz	Kilohertz

kW	Kilowatt
LOS	Line of Sight
m/sec	Meters per second
MBTA	Migratory Bird Treaty Act
MHz	Megahertz
MPE	Maximum Permissible Exposure
MSSR	Monopulse Secondary Surveillance Radar
mW/cm^2	Milliwatts per square centimeter
NAAQS	National Ambient Air Quality Standards
NAF	Non-Appropriated Fund
NAS	National Airspace System
NEPA	National Environmental Policy Act
nm	Nanometers
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSC	National Safety Council
NSLA	New Sanitary Landfill Area
NWR	National Wildlife Refuge
OSHA	Occupational Safety and Health Administration
OSLA	Old Sanitary Landfill Area
PEL	Personal Exposure Limit
Q-D	Quantity-Distance
RAPCON	Radar Approach Control
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
RFR	Radiofrequency Radiation
RPA	Remotely Piloted Aircraft

SAC	Strategic Air Command
SATCOM	Satellite Communications
SFS	Security Forces Squadron
SWMU	Solid Waste Management Unit
SWPPP	Stormwater Pollution Prevention Plan
TPH	Total Petroleum Hydrocarbons
UFC	Unified Facilities Criteria
USEPA	United States Environmental Protection Agency
USACE	U.S. Army Corps of Engineers
USAF	United States Air Force
USC	United States Code
USDA	United States Department of Agriculture
VCSS	Voice Communications Switching Systems
W	Watts

EXECUTIVE SUMMARY

This Environmental Assessment (EA) describes the proposed project to install a Digital Airport Surveillance Radar (DASR) system at Grand Forks Air Force Base (AFB) in North Dakota. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) and its implementing instructions. The EA provides analysis sufficient to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI) and to aid federal agencies in complying with NEPA when no EIS is required.

This Proposed Action is part of the National Airspace System (NAS) Program, the aviation system capital investment plan developed by the Federal Aviation Administration (FAA) in cooperation with the Department of Defense (DOD) to modernize approach control systems in the United States, its territories, and overseas military installations. DASR is a DOD-lead contract to install airport surveillance radar equipment for both the DOD and FAA. As part of the Proposed Action, once the DASR is installed and fully operational, the existing GPN-20 will be decommissioned and dismantled.

The NAS program will comprehensively upgrade air traffic control systems infrastructure by systematically replacing analog systems with state-of-the-art, digital technology. The purpose of the DASR component of the NAS program is to detect and process aircraft position and weather conditions at airfields. The DASR system will use the ASR-11 radar to accurately locate aircraft, in terms of range, azimuth, and altitude; provide information regarding aircraft identification code; identify emergency conditions; and report six discrete weather precipitation levels. The ASR-11 for Grand Forks AFB is needed to replace the older existing AN/GPN-20 airport surveillance radar.

The DASR facilities for Grand Forks AFB would consist of: a 20-foot tall rotating radar antenna mounted on an 87-foot tower, a concrete radar equipment shelter, a 100 kW emergency engine generator in a concrete shelter, utility cabling, electronic equipment grounding systems, and a 1,000-gallon aboveground fuel storage tank. Facility construction would include separate concrete foundations for the antenna tower, the equipment shelter and the engine generator shelter, and a site fence (up to 140-foot by 140-foot). Site work, inclusive of minor regrading

and the installation of geotextile fabric beneath six inches of crushed stone, would occur within a 0.59 acre (160 feet by 160 feet) or smaller area. Improvements beyond the site area would include an unpaved access road (depending on the site chosen). This proposed access road may be paved by Grand Forks AFB in the future. Additionally, belowground utility lines between 250 – 5,300 feet long would be installed to extend electrical and telephone service to the site, and between 300 – 4,700 feet of new utility trenching (depending on the site chosen) would be necessary to install fiber optic connections. Once the new DASR system is operational, the existing AN/GPN-20 will be dismantled and structures will be razed.

Initial site selection screening criteria identified eight potential sites (Sites 1 through 8). See Figure 2-2 on page 7 of the EA for a map of sites. Site selection screening criteria applied as part of the preliminary down-select teleconference held on September 17, 2009 resulted in the elimination of four of the original sites and the selection of one site (Site 4) as an alternate. Site 4 was later eliminated as an alternate during the LOS Survey, once it was determined that there were no fatal flaws with any of the top three candidate DASR sites. Site 2 was eliminated from the line of sight (LOS) survey consideration due to a land use conflict with the abutting golf course driving range. Site 3 was eliminated to reserve the space for potential future mission requirements; Site 3 is ideally situated to support future airfield development such as new hangars, which would have less siting flexibility than a DASR. Sites 4 and 5 were eliminated due to conflicts with existing land use. Site 4 is within a fenced area managed by the 319th Force Support Squadron (FSS) for the storage of recreational vehicles and automobiles. While there is presently little active storage within the fenced area, the use of a portion of the lot for a DASR would displace the existing use and likely require siting/relocation of a new storage area to meet the needs of the 319th FSS. Site 5 is in close proximity to a recycle/land fill area, and DASR construction was not viewed as an optimum dual usage of the space. Site 7 is located within the 7:1 transitional surface, which would limit the tower height of the DASR facility to 37 feet (unless a permanent waiver is obtained); therefore, Site 7 was eliminated due to its close proximity to the airfield and the corresponding requirement to obtain a permanent waiver (for a tower tall enough to provide sufficient radar coverage). The three remaining sites on Grand Forks AFB, referred to as the Proposed Action (Site 1), Alternative 1 (Site 6) and Alternative 2 (Site 8), have been identified as potential locations for the ASR-11, based on operational, construction, and environmental siting criteria contained in the Grand Forks AFB *Integrated Site Survey Report* (USAF, 2010). These three sites are evaluated in this EA.

The Proposed Action (Site 1) and Alternative 1 (Site 6) are located in remote areas in the southwest corner of the base, while Alternative 2 (Site 8) is located to the north of the developed portion of the base, east of the runway. All three of the sites are located within the base boundary. The Proposed Action (Site 1) is located south of the perimeter fence on the south side of Road 25; the Ground-Air Transmit Receive (GATR) antenna facility is approximately 1,400 feet to the southeast. Alternative 1 (Site 6) is positioned east of the perimeter fence and west of Road 3; the former Strategic Air Command (SAC) Alert Ramp is approximately 850 feet to the east. Alternative 2 (Site 8) is situated within the former compost site, east of Road 7; the firing range is approximately 1,000 feet to the north.

Issues that must be addressed during construction, regardless of the site selected, are elevated noise levels, increased dust, traffic and access disruption, aesthetic effects, wetland disturbance and storm water management. Potential impacts in these areas would be reduced using standard measures as outlined below:

- To minimize noise impacts during construction, mufflers would be used on construction equipment and vehicles.
- All equipment and vehicles used during construction would be maintained in good operating condition so that emissions are minimized, thus reducing the potential for air quality impacts.
- Dust would be controlled on-site by using water to wet down disturbed areas.
- All areas disturbed for the DASR system construction would be seeded with a grass mixture or covered with a geotextile fabric and crushed stone to stabilize the disturbed soils, in order to minimize the potential for erosion and sedimentation.
- During construction, all activities would follow the base best management practices (BMPs) guidelines to minimize sedimentation and erosion during storm events.
- Wetland impacts would be avoided whenever practicable and protective measures would be installed upgradient to avoid erosion and sedimentation into the wetland resources. Where temporary impacts to wetlands are unavoidable, the wetland would be restored in place at the end of construction.
- All hazardous materials used during construction of the ASR-11 would be handled and disposed in accordance with Grand Forks AFB policies and protocols and all applicable state and federal regulations.

Potential future impacts associated with operation of the ASR-11 facility would be minimized through use of measures including the following:

- All hazardous materials used during operation of the ASR-11 would be handled and disposed in accordance with Grand Forks AFB policies and protocols and all applicable state and federal regulations.
- Due to the potential for RFR hazards during operation and maintenance, warning signs, indicating the safe distance from the operating radar, may be installed at the facility perimeter.
- Through Best Management Practices (BMPs), disturbance to wetland areas will be minimized; however, any unavoidable impacts in wetland areas where new construction will be conducted will be mitigated (see Section 4.19).

All three sites are acceptable from an environmental perspective, although there are some noted concerns and differences among the sites. In particular, the Proposed Action (Site 1) is within an area near existing wetlands which abut the existing access road. Proposed utility routes would be aligned parallel to the existing access road and Road 25. The access road will require improvements which are not anticipated to impact the adjacent wetlands; however minor impact to the nearby wetland south of Road 25 will result from the installation of utilities to connect the DASR to existing base infrastructure. The proposed access road from Alternative 1 (Site 6) to Road 3 crosses a drainage ditch, which is mapped as a wetland. A culvert would need to be constructed to allow drainage under the access road to minimize impacts to the drainage ditch. An existing access road crosses over a wetland drainage ditch at Alternative 2 (Site 8); therefore, if this existing access road requires improvements, there is the potential to impact this wetland. Utility alignments will be routed to avoid/minimize the total wetland disturbance, and disturbed areas will be restored in place whenever possible. Table ES-1 provides a summary of the potential environmental impacts associated with each of the sites.

Based on siting investigations and surveys, operational needs, construction criteria, and environmental considerations, the Air Force identified Site 1 as the preferred location for the Proposed Action to occur, and the Facility Board approved the Site 1 location on March 25, 2010; however, this EA identifies and evaluates potential impacts associated with placing the ASR-11 at either the Proposed Action (Site 1) or at Alternative 1 (Site 6) or Alternative 2 (Site 8).

Table ES-1. Environmental Impact Summary Matrix for the Proposed Action and Alternatives for Grand Forks AFB

Category	*No Action Alternative*	*Removal of Existing AN/GPN-20 System*	*Proposed Action (Site 1)*	*Alternative 1(Site 6)*	*Alternative 2 (Site 8)*
Land Use	No Impact	Land currently occupied by the AN/GPN-20 may be reclaimed by Grand Forks AFB.	Site 1 is located within a land area designated as Open Space; however, this Open Space designation is anticipated to become Airfield. The placement of the ASR-11 at Site 1 is anticipated to be consistent with the existing and proposed use within the vicinity of the site. Site 1 is located approximately 400 feet south of the perimeter fence. There are no Unified Facilities Criteria (UFC) requirements or Anti-terrorism/Force Protection (AT/FP) issues for uninhabited radar. Therefore, the project would comply with critical asset protection requirements. The base may seek a no-build easement/deed restriction within the area encompassed by the 1,500 arc surrounding Site 1, to prevent the adjacent private property owner from constructing tall (or reflective) structures that have the potential to affect the ability of the radar to detect aircraft.	Site 6 is located within a land area designated as Open Space; however, this Open Space designation is anticipated to become Aircraft Operations and Maintenance. Site 6 is owned by the USAF but is presently leased to a local farmer for hay harvesting; however, the farmer's lease can be modified to exclude this area should it be designated for a DASR. The placement of the ASR-11 at Site 6 is anticipated to be consistent with the existing and proposed use within the vicinity of the site.	Site 8 is mostly located within an area designated as Airfield. The placement of the ASR-11 at this site is anticipated to be consistent with the existing and future uses and proposed development within the vicinity of the site.
Socioeconomics	No Impact	Dismantling of AN/GPN-20 expected to have short-term minor contribution to local economy; no long-term impacts are expected.	Installation of ASR-11 expected to have short-term minor contribution to the local economy; no long-term impacts are expected.		
Utilities and Transportation	No Impact	No impacts to utilities are anticipated. Minor short-term impacts are possible to on-base traffic during dismantling.	A minimal disruption of the electrical system may be expected during ASR-11 installation. Minor short-term impacts to on-base traffic are possible during ASR-11 installation. The potential for impacts is anticipated to be commensurate with the length of the proposed utility or fiber installation. Lengths of new utility connection: 4,700 feet for electric, 1,500 feet for telephone, and 11,400 feet for fiber optic (the first 1,500 feet of which will be installed in a new trench, and the remaining 9,900 feet of fiber will be placed within existing duct bank).	Lengths of new utility connection: 5,300 feet for electric, 4,000 feet for telephone, and 14,300 feet for fiber optic (the first 4,700 feet of which will be installed in a new trench, and the remaining 9,600 feet of fiber will be placed within existing duct bank).	Lengths of new utility connection: 250 feet for electric, 300 feet for telephone, and 4,600 feet for fiber optic (the first 300 feet of which will be installed in a new trench, and the remaining 4,300 feet of fiber will be placed within existing duct bank).
Noise	No Impact	Dismantling of AN/GPN-20 would create only minor short-term noise impacts due to construction activities, compared to proximate flightline activities.	Elevated noise levels during construction will be short-term and minimal. Operation of ASR-11 would not cause significant noise impacts above that produced from proximate aircraft operations and the surrounding developed environment.		
Air Quality	No Impact	Short-term impacts from removal of AN/GPN-20 expected to consist of dust generation from construction activities and are anticipated to be minimal.	Short-term impacts from installation of ASR-11 expected to consist of dust generation and engine emissions from construction activities and are anticipated to be minimal. Long-term impacts associated with each site consist of evaporative fuel loss from aboveground storage tank and emissions from on-site emergency generator. Neither source is anticipated to represent a substantial impact to air quality.		

Category	*No Action Alternative*	*Removal of Existing AN/GPN-20 System*	*Proposed Action (Site 1)*	*Alternative 1(Site 6)*	*Alternative 2 (Site 8)*
Geology and Soils	No Impact	Dismantling of AN/GPN-20 would not impact geology or soils.	No impacts to the existing geology are anticipated at any of the sites. Regardless of the site selected, during site design, a geotechnical investigation would be conducted at the selected site to test the stability of the soils. Approximately two soil borings would be collected in the vicinity of the DASR tower construction.		
			The soil at Sites 1 and 6 is classified as USDA-designated prime farmland. However, the use of farmland by a federal agency for national defense purposes is exempt from the requirements of the Farmland Protection Policy Act (FPPA). No impacts to soils are anticipated at either site.		No impacts to soils are anticipated at Site 8.
Surface Water & Groundwater	No Impact	Dismantling of AN/GPN-20 would not impact surface or groundwater.	Based on the proposed construction approach, it is not anticipated that project activities would affect groundwater or surface water features on base. During construction, all activities would be conducted in accordance with base best management practices (BMPs) and installation guidelines to prevent adverse effects to groundwater and surface water features. Trenching and construction of radar tower footings may intersect the groundwater table at any of the three sites, due to the high water table on base, particularly at Sites 1 and 6 where the water table is exceptionally high. Therefore, it will be necessary to conduct a detailed soil analysis during site design to determine what type of footing is most appropriate for the DASR. If drilled or driven piers are required, dewatering may be necessary. Following construction, the majority of the site, with the exception of the radar facilities and associated concrete pads, would be covered with a gravel base that would allow infiltration of storm water and would not be anticipated to substantially affect runoff or groundwater recharge.		
			No impacts to surface waters are anticipated at Site 1.	The proposed access road from Site 6 to Road 3 crosses a drainage ditch. A culvert would need to be constructed to allow drainage under the access road to avoid impacting the drainage ditch.	No impacts to surface waters are anticipated at Site 8.
Biological Resources	No Impact	No Impact	Approximately ½ acre of mixed herbaceous cover would be cleared at all sites. Vegetation disruption is also expected along utility alignments, generally proportional to the utility route lengths (see distances above). Drainage swales mapped as wetlands are located in the vicinity of proposed utility routes for all three sites. If new trenching is required near mapped wetlands along proposed utility corridors, utilities will be routed to avoid wetland impacts. No wetland impacts are anticipated in areas where the proposed fiber optic will be pushed/pulled through existing duct bank. During construction, all activities would be conducted in accordance with base best management practices (BMPs) and installation guidelines to minimize adverse effects to wetland features. There is potential for limited wildlife displacement at sites. There are no known federally-listed threatened or endangered species present within or adjacent to the Proposed Action (Site 1) or Alternative 1 (Site 6) or Alternative 2 (Site 8).		
			Tree clearing would not be necessary. Due to the presence of noxious and invasive plants at, vegetation and soil should be removed from construction equipment prior to leaving the site; and if fill material is required, invasive-free sources should be used. Construction activities have the potential to affect the wetland located proximate to the existing access road at Site 1. A wetland delineation for a USACE Section 404 wetland determination was performed by a wetland scientist during site design at the preferred site and along the access road and alignments for utility installations (where new trenching would occur). A JD issued in January 2011 determined that these wetlands are non-jurisdictional.	Tree clearing would not be necessary. Due to the presence of noxious and invasive plants at, vegetation and soil should be removed from construction equipment prior to leaving the site; and if fill material is required, invasive-free sources should be used. Construction activities have the potential to affect the drainage ditch (mapped as a wetland) east of Site 6. Although this wetland area was considered non-jurisdictional, the JD of base wetlands expired in May 2010. Coordination with base personnel and USACE will be necessary if any impacts to wetlands are anticipated.	Shrub/small tree clearing of Russian olive at Site 8 would be necessary; however, Russian olive is invasive. An herbicide should be applied to stumps to prevent regrowth. Vegetation and soil should be removed from construction equipment prior to leaving the site; and if fill material is required, invasive-free sources should be used. Construction activities would affect the drainage swale/wetland that runs parallel to Road 7 due to required access improvements. Although this wetland was considered jurisdictional, the JD of base wetlands expired in May 2010. Coordination with base personnel and USACE will be necessary if any impacts to this wetland are anticipated.
Aesthetic Resources	No Impact	No Impact	Although both Sites 1 and 6 are potentially visible from off-base, both sites are located within an area utilized for airfield operations. Construction of a DASR would be consistent with the military aesthetic of these two areas.		The ASR-11 tower/platform at Site 8 may be painted beige for architectural compatibility with the other existing facilities on the eastern side of the base. The expense to change from the standard color would be borne by Grand Forks AFB. Site 8 would be visible from the new fire station (currently under construction) and proposed snow barn; however, Site 8 is located within an area designated as airfield. Construction of a DASR would be consistent with the military aesthetic of this area.

Category	*No Action Alternative*	*Removal of Existing AN/GPN-20 System*	*Proposed Action (Site 1)*	*Alternative 1(Site 6)*	*Alternative 2 (Site 8)*
Cultural Resources	No Impact	No cultural resources are known to exist at the radar site; therefore no impacts are anticipated.	There are no known cultural or archaeological resources located in the vicinity of Site 1.	During a 1995/1996 survey for cultural and archaeological resources, two artifacts were located in the vicinity of Site 6, including an isolated prehistoric chert flake and a calcined mammal bone. The artifacts were not temporally diagnostic and were not considered significant.	There are no known cultural or archaeological resources located in the vicinity of Site 8.
Pollution Prevention and Hazardous Waste	Hazardous materials used during O&M of facility would continue being handled in compliance with all applicable regulations and base policies, therefore no impacts expected.	Portions of the radar facility may contain lead paint, which has the potential to chip off during the dismantling, as well as small amounts of mercury, PCBs, and potentially radioactive material.	The proposed fiber optic routes for Sites 1 and 6 would pass through the northeastern corner of ERP Site ST-08, Site Refueling Ramps and Pads. The proposed fiber optic cable would be pushed/pulled through the existing fiber optic duct bank in this area; thus, there would be no ground disturbance. Consequently, no impacts to this ERP site are anticipated to occur. Hazardous materials used during facility operation would be handled in compliance with base policies.		Site 8 is positioned within a former small arms range that is now closed; however, no bullets or debris were found during construction of the compost facility that was built on the site in the 1990s. Site 8 is also located 200 feet west of the closed/capped ERP Site FT-02, the Fire Training Area/Old Sanitary Landfill Area. The proposed fiber optic route for Site 8 would pass adjacent to this site and through the northeastern corner of ERP Site ST-08, Site Refueling Ramps and Pads. The proposed fiber optic cable would be pushed/pulled through the existing fiber optic duct bank in these areas; thus, there would be no ground disturbance. Consequently, no impacts to these ERP sites are anticipated to occur.
Safety and Occupational Health	Existing radar system would continue operating in accordance with base protocol, no impact anticipated.	No Net Impact	Although the radar would generate RFR while operating at any of the sites, persons at ground level (either within or beyond the site fence) would not be exposed to RFR levels exceeding the ANSI/IEEE maximum permissible exposure (MPE) levels or the permissible exposure limits (PELs) for personnel as defined by DoD Instruction 6055.11 and AFOSHSTD 48-9 during normal operation of the radar. There are no structures or buildings at or exceeding the 95 ft elevation of the radar focal point within 360 ft (109.7 m) of the proposed ASR-11 at any of the sites (referencing the distance measured by the 738th EIS (2005) in which the MPE/PEL would be exceeded by a non-rotating beam in uncontrolled environments). As a result, it is not anticipated that individuals within buildings proximate to the Proposed Action (Site 1), Alternative 1 (Site 6) or Alternative 2 (Site 8) would be exposed to RFR levels above the MPE/PEL regardless of the ASR-11 mode of operation (rotating or non-rotating beam). As a precautionary measure, the base may post signs at the perimeter of the DASR facility advising personnel and the public against approaching the radar facility during operation. No impacts expected.		

1.0 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

The Proposed Action addressed in this EA is the construction of a Digital Airport Surveillance Radar (DASR; specifically, an ASR-11) for Grand Forks Air Force Base (AFB) in North Dakota. This Proposed Action is part of the Department of Defense (DOD) National Airspace System (NAS) Program, which involves installation of new air traffic control equipment on U.S. Army, U.S. Navy, and U.S. Air Force (USAF) bases throughout the country and at overseas DOD installations. These radars are also being installed at commercial airports under the authority of the Federal Aviation Administration (FAA). The implementation of the NAS program at DOD bases was previously evaluated in a programmatic EA and FONSI (USAF, 1995a), which fully detail the need for the program.

The programmatic EA for the NAS program committed to completing site-specific NEPA documentation tiered from the programmatic EA for individual NAS sites. This EA addresses the site-specific impacts of locating an ASR-11 on Grand Forks AFB, and evaluates the consequences of constructing and operating this ASR-11 system on the natural and man-made environments.

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The NAS program was developed to modernize air traffic control systems in the United States, its territories, and overseas military installations. DOD NAS is a component of the aviation system capital investment plan developed by the FAA. Pursuant to the Program Management Directive (USAF, 1994), the DOD must provide services within its delegated airspace comparable to the services which the FAA provides to civil aircraft in civilian airspace. These services include: flight following, separation, expeditious handling, radar approach control, and landing.

The purpose of the DASR component of the USAF NAS program is to detect and process aircraft position and weather conditions in the vicinity of USAF airfields. The DASR will serve to accurately locate aircraft, in terms of range, azimuth, and altitude; provide information regarding

aircraft identification code; identify emergency conditions; and report six discrete weather precipitation levels. The new radar facility for Grand Forks AFB will not increase or decrease the current number of flights, change aircraft patterns, or otherwise alter existing base operations.

1.3 OBJECTIVE OF THE PROPOSED ACTION

The NAS program is comprehensively upgrading air traffic control systems infrastructure by systematically replacing analog systems with state-of-the-art digital technology. The ASR-11 is needed at Grand Forks AFB to replace the existing AN/GPN-20 airport surveillance radar. The proposed ASR-11 will take advantage of the significantly increased capabilities of digital technology, enabling digital data input to proposed new digital automation system air traffic controller displays. Additionally, the ASR-11 will improve system reliability, provide additional weather data, reduce maintenance cost, and improve performance.

1.4 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

The EA is a written analysis which serves to (1) provide analysis sufficient to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI); and (2) aid federal agencies in complying with NEPA when no EIS is required. If this EA were to determine the Proposed Action would significantly degrade the environment, significantly threaten public health or safety, or generate significant public controversy, then an EIS would be completed. An EIS involves a comprehensive assessment of project impacts and alternatives and a high degree of public input. Alternatively, if this EA results in a FONSI, then the action would not be the subject of an EIS. The EA is not intended to be a scientific document. The level and extent of detail and analysis in the EA is commensurate with the importance of the environmental issues involved and with the information needs of both the decision-makers and the general public. As a finding contained in the FONSI, a Finding of No Practicable Alternative (FONPA) must be accomplished when the alternative selected is located in wetlands or floodplains, and must discuss why no other practicable alternative exists to avoid impacts.

1.5 DECISIONS THAT MUST BE MADE

Based on siting investigations and surveys, operational needs, construction criteria, and environmental considerations, the Grand Forks AFB Facility Board has recommended that the Proposed Action occur at Site 1 (GFAFB, 2010d); however, this EA identifies and evaluates potential impacts associated with placing the ASR-11 at either the Proposed Action (Site 1) or at Alternative 1 (Site 6) or Alternative 2 (Site 8), as well as the subsequent dismantling of the existing AN/GPN-20 radar (which would occur regardless of which site is selected for the ASR-11).

The Air Force goal for the management of wetlands is that wetlands are to be protected, as stipulated in Executive Order (EO) 11990, "Protection of Wetlands". Additionally, the Air Force has the goal of ensuring no loss of wetlands. Supporting these goals is the policy that wetland impacts are to be assessed under NEPA and nothing should be built in a wetland unless there is a finding of no practicable alternative (FONPA). If there is no practical alternative, then the appropriate mitigation measures must be taken. AMC signs the FONPA relying on recommendations from the Grand Forks AFB Wing Commander regarding the alternatives for the action.

1.6 APPLICABLE REGULATORY REQUIREMENTS AND REQUIRED COORDINATION

This Environmental Assessment (EA) addresses the Proposed Action and the No Action alternative in accordance with the National Environmental Policy Act (NEPA) (42 United States Code [USC] 4321-4347), Council on Environmental Quality (CEQ, 1978) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] §§ 1500-1508), and 32 CFR 989 et seq., *Environmental Impact Analysis Process*. NEPA procedures were established to ensure environmental information is available to public officials and citizens before decisions are made and before actions are taken. In addition, this EA evaluates the compliance of the Proposed Action with potential requirements of the following federal environmental laws and regulations:

- Clean Air Act
- Clean Water Act
- Pollution Prevention Act of 1990
- National Historic Preservation Act

- Archaeological Resources Protection Act
- Endangered Species Act of 1973
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- Resource Conservation and Recovery Act (RCRA)
- Toxic Substances Control Act (TSCA) of 1970
- Occupational Safety and Health Administration (OSHA) regulations
- Executive Order (EO) 11988 (Floodplain Management)
- EO 11990 (Protection of Wetlands)
- EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- EO 13514 (Federal Leadership in Environmental, Energy, and Economic Performance)

NEPA implementing regulations require coordination with relevant federal, state, and local agencies to evaluate the potential environmental impacts of implementing the alternatives. Grand Forks AFB will coordinate with regulatory agencies, including the North Dakota Game and Fish Department (NDGF), North Dakota Department of Health (DOH), State Historical Society of North Dakota, and U.S. Fish & Wildlife Service (USFWS).

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

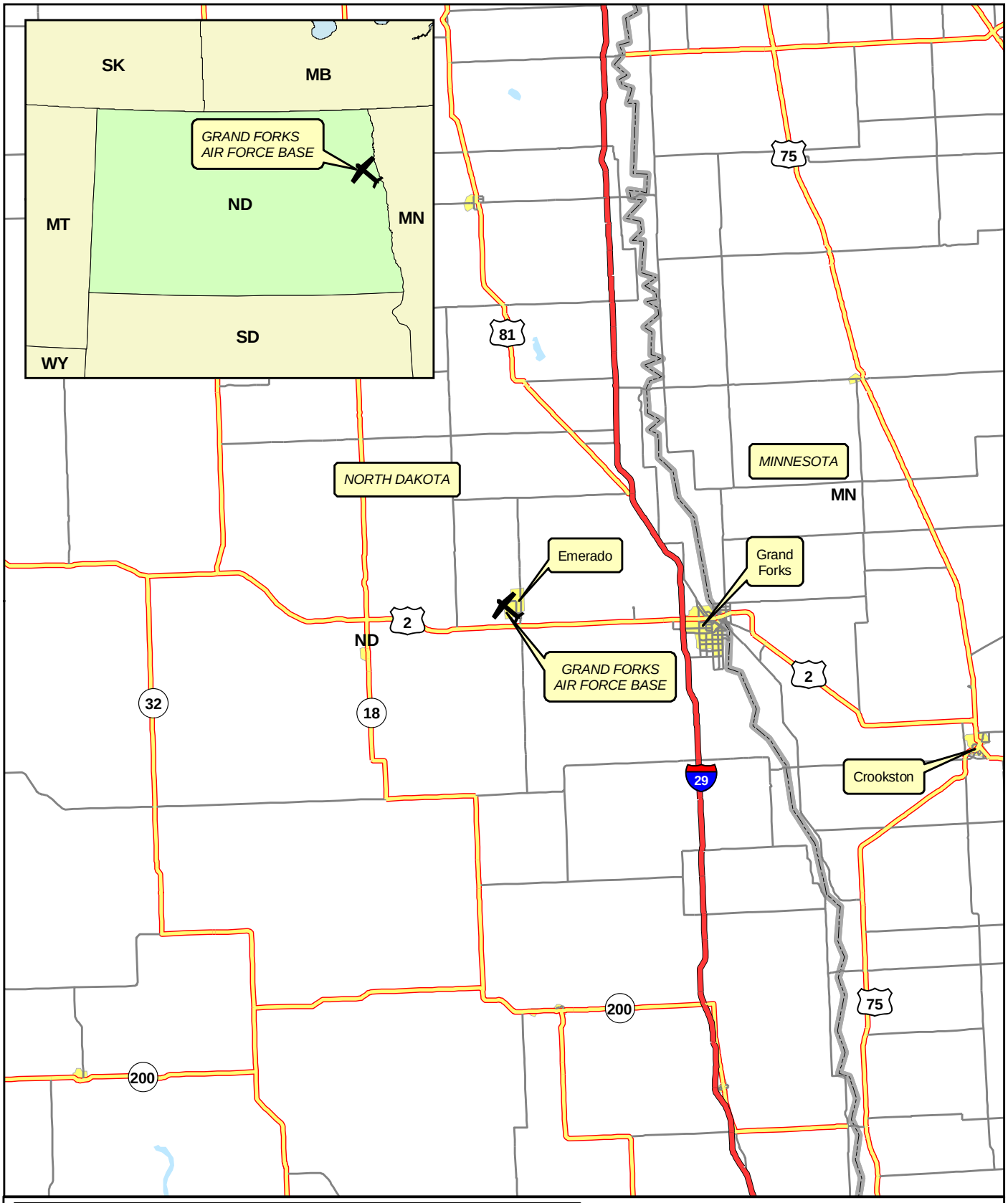
2.1 INTRODUCTION

The Proposed Action is the installation of an ASR-11 at Grand Forks AFB in North Dakota (Figure 2-1) to replace the existing AN/GPN-20 radar. Based on siting investigations and surveys, operational needs, construction criteria, and environmental considerations, the Air Force has recommended that the Proposed Action occur at Site 1 (GFAFB, 2010d). Alternatives to the Proposed Action include no action, or installation of the ASR-11 at one of two alternative sites: Alternative 1 (Site 6) or Alternative 2 (Site 8). The No Action alternative consists of not constructing the ASR-11 facility and would involve continued use of the existing AN/GPN-20 system. The Proposed Action (Site 1), Alternative 1 (Site 6) and Alternative 2 (Site 8) were identified for Grand Forks AFB (Figure 2-2), in accordance with the NAS Siting Plan (USAF, 1995b) and FAA Order 6310.6 *Primary and Secondary Terminal Radar Siting Handbook*, as well as site-specific criteria identified in the Grand Forks AFB *Integrated Site Survey Report* (USAF, 2010). This EA discusses and evaluates potential impacts associated with the placement of the ASR-11 at the Proposed Action (Site 1) and at each of the alternative sites (Sites 6 and 8) and also summarizes the potential impacts associated with the No Action alternative.

2.2 SELECTION CRITERIA FOR ALTERNATIVES

Candidate sites for the installation of a DASR were identified based on operational, construction, and environmental criteria. The operational criteria included the following (FAA, 1992):

- The site should be of sufficient elevation to provide line of sight (LOS) visibility and radar coverage to the maximum number of critical navigational fixes.
- The site should not be located closer than 0.5 mile from the end of any existing or planned runway.
- The site should not be located closer than 0.5 mile from any point of required detection coverage.
- The site should not be located closer than 2,500 feet from any existing or planned electronic equipment installation or facility.



Source: ESRI, 2002

LEGEND

- Urban Areas
- Surface Water Features
- Grand Forks Air Force Base
- Interstate
- US Highway
- Major Roadways
- State Boundary

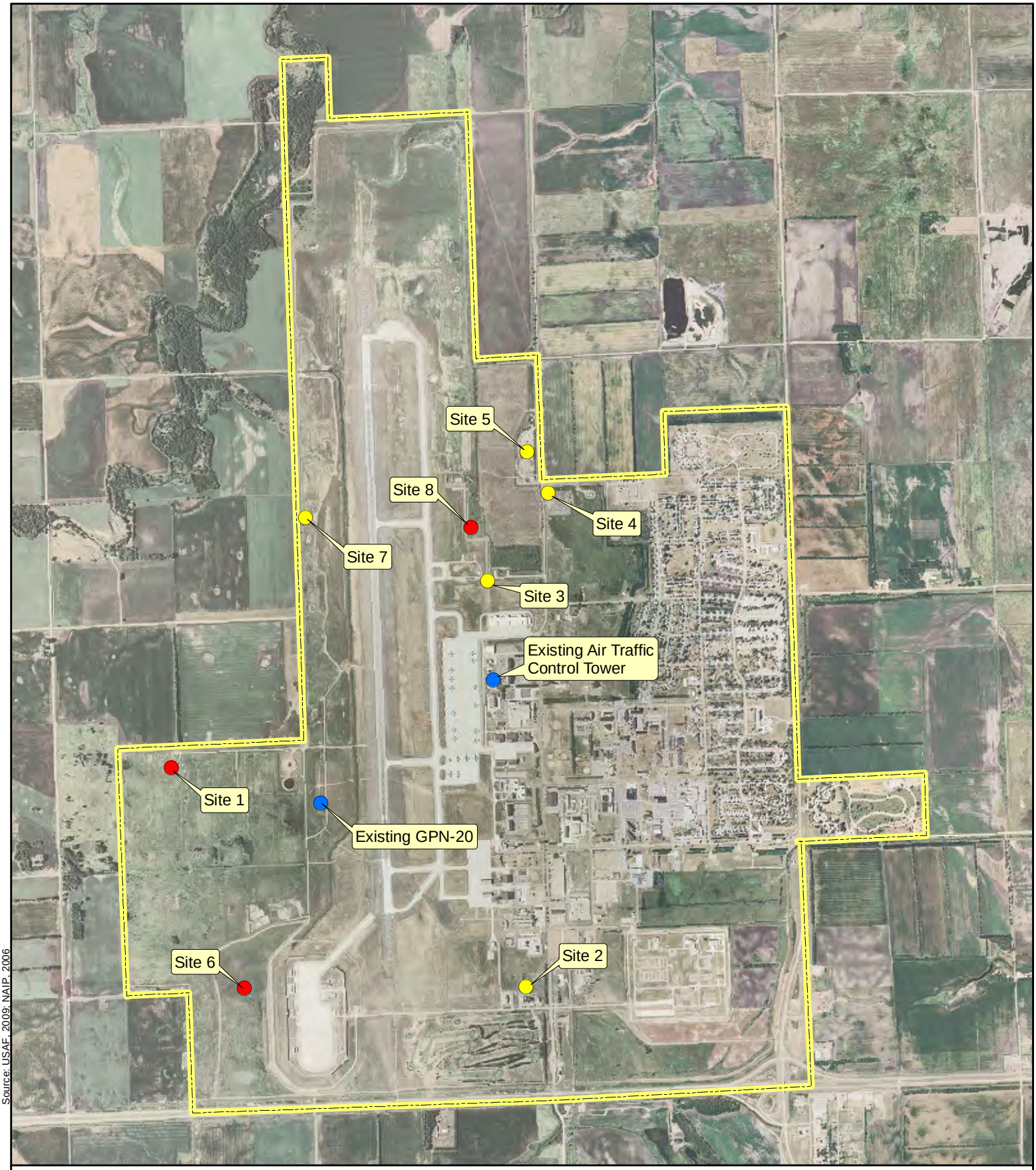
N
W E
S

FIGURE 2-1
LOCUS MAP
GRAND FORKS
AIR FORCE BASE

DIGITAL AIRPORT SURVEILLANCE RADAR
North Dakota

4 2 0 4 8 12 16
Miles

Fig2-1_GrandForksSiteLocus.mxd



Source: USAF, 2009; NAIP, 2006

LEGEND

- Installation Perimeter
- Existing Air Traffic Control Facility
- ASR-11 Candidate Site Eliminated from Consideration
- Alternative ASR-11 Site

N
W E
S

FIGURE 2-2
LOCATION OF ASR-11 ALTERNATIVE SITES

GRAND FORKS AIR FORCE BASE
DIGITAL AIRPORT SURVEILLANCE RADAR
Grand Forks County, North Dakota

0 800 1,600 3,200 4,800 6,400 Feet

Fig2-2_GrandForks_SiteLocations.mxd

- The site should not be located less than 0.5 mile from National Weather Bureau radars and radiosonde equipment.

- The site should not be located closer than 1,500 feet to any aboveground object which would interfere or cause degradation in the ASR-11 operation.

Construction criteria included avoiding sites with occupied existing structures, railroad tracks, highways, runways, taxiways, or a slope greater than 20 percent. The environmental siting criteria included avoiding a number of sensitive resources, including: ecological/wildlife refuges, preserves, conservation areas and sanctuaries; wild and scenic rivers; prime and unique farmlands; historical, archaeological, and cultural sites; wetlands; threatened and endangered species habitat; designated hazardous waste sites; and floodplains.

The site survey process consisted of a field survey of the airfield area to identify specific sites for a detailed investigation and analysis. Once all data had been gathered, the identified sites were further screened by investigating matters which include, but are not limited to, planning and zoning restrictions, soil conditions, and proximity to power and telephone lines. The remaining candidate sites then underwent a Line of Sight (LOS) survey consisting of panoramic photographs at various elevations and radar analysis to determine the most favorable mix of optimal operational performance, lowest construction cost, and least environmental impacts. The details of the siting process are further described in the Grand Forks AFB *Integrated Site Survey Report* prepared by Raytheon Systems Company (USAF, 2010).

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

Initial site selection screening criteria identified eight candidate sites (Sites 1 through 8, Figure 2-2). Site selection screening criteria applied as part of the preliminary down-select teleconference held on September 17, 2009 resulted in the elimination of four of the original sites and the selection of one site (Site 4) as an alternate. Site 2 was eliminated from the line of sight (LOS) survey consideration due to a land use conflict with the abutting golf course driving range. Site 3 was eliminated to reserve the space for

potential future mission requirements; Site 3 is ideally situated to support future airfield development such as new hangars, which would have less siting flexibility than a DASR. Site 5 was eliminated due to conflicts with existing land use. Site 5 is in close proximity to a recycle/land fill area, and DASR construction was not viewed as an optimum dual usage of the space. Site 7 is located within the 7:1 transitional surface, which would limit the tower height of the DASR facility to 37 feet (unless a permanent waiver is obtained); therefore, Site 7 was eliminated due to its close proximity to the airfield and the corresponding requirement to obtain a permanent waiver (for a tower tall enough to provide sufficient radar coverage). Site 4, within a fenced area managed by the 319th Force Support Squadron (FSS) for the storage of recreational vehicles and automobiles, was later eliminated as an alternate during the LOS Survey, once it was determined that there were no fatal flaws with any of the top three candidate DASR sites.

Thus, the three remaining sites (Sites 1, 6, and 8) were chosen to undergo a LOS survey and further environmental evaluation. All three of the sites are located within the base boundary. Site 1 and Site 6 are located on the southwestern, more remote, side of the base, while Site 8 is situated to the north of the developed portion of the base, east of the runway.

2.4 DESCRIPTION OF PROPOSED ALTERNATIVES

2.4.1 No Action

Implementation of the No Action alternative would result in the continued use of the existing AN/GPN-20 radar. Continued use and reliance on the AN/GPN-20 would deny Grand Forks AFB the improved technology offered by the new DASR system. Grand Forks AFB would not benefit from the improved system reliability, additional weather data, reduced maintenance costs, and improved performance provided by the ASR-11 radar.

2.4.2 Proposed Action

The DASR system would detect and process aircraft position and weather conditions at the airfield. The ASR-11 would have clutter rejection, target accuracy, and probability of detection equal to or better than the existing AN/GPN-20 radar. The DASR system would consist of two subsystems: the Primary Surveillance Radar and the Monopulse Secondary Surveillance Radar.

The Primary Surveillance Radar would transmit electromagnetic waves in the form of radio frequency pulses, which backscatter from the surface of aircraft, or other "targets of opportunity". The radar would measure the time required for an echo to return and the direction of the signal in order to determine the target's range and azimuth, respectively.

By comparing variations in returned signal parameters, such as phase differences between pulses, the radar would separate moving targets from stationary clutter, such as mountains and trees. The primary radar would also report six discrete weather precipitation levels (from mild to hazardous) via a processing channel dedicated to weather detection and reporting. Operational characteristics of the proposed ASR-11 primary surveillance radar as compared to the existing AN/GPN-20 are shown in Table 2.1-1.

Table 2.4-1 Comparison of Characteristics of Existing AN/GPN-20 Primary Surveillance Radar and Proposed ASR-11

	Existing AN/GPN-20	**Proposed ASR-11**
Frequency	2800 and 2880 MHz	2700 - 2900 MHz (2 frequencies)
Power Peak	500 kW	19.5 kW (1 microsec) 18.0 kW (89 microsec)
Average Power	363 W	1.8 kW
Pulse Repetition Frequency	1040 pulses/second (Hz)	841.7 pulses/second (Hz; Average)

Sources: Raytheon, 2006; USAF, 2010; GFAFB, 2010a

The Monopulse Secondary Surveillance Radar (MSSR, also called the beacon radar) would be a cooperative system consisting of ground-based beacon interrogator/receiver systems and existing aircraft-based transponders. The secondary radar would obtain additional information, such as identification code, barometric altitude, and emergency conditions, from an aircraft transponder. Various processing techniques would be used to decipher both overlapping responses from multiple aircraft (synchronous garble) and aircraft responses to other beacon systems (asynchronous interference). The beacon radar would also provide rapid identification of aircraft in distress. The MSSR would transmit at a frequency of 1030 MHz and receive at a frequency of 1090 MHz.

A standard DASR facility would consist of: a 20-foot tall rotating radar antenna mounted on an 87-foot tower, a concrete radar equipment shelter, a 100kW diesel emergency generator in a concrete shelter, utility cabling, electronic equipment grounding systems, and a 1,000-gallon double-walled aboveground fuel storage tank. Facility construction would include separate concrete foundations for the antenna tower, the equipment shelter and the generator shelter, and a 140-foot by 140-foot site fence. Site work, inclusive of minor regrading and the installation of geotextile fabric beneath six inches of crushed stone, would be within a 0.59-acre site (160 feet by 160 feet). As part of the site design, a geotechnical investigation, consisting of approximately two soil test borings, will be conducted at the selected site. Additional improvements, beyond the site area, would include an unpaved access road and utility trenching to connect the site to existing duct banks or manholes. The proposed access road may be paved by Grand Forks AFB in the future for snow removal purposes. The total structure height, including lightning rods on the antenna tower, would be 116 feet. A typical DOD ASR-11 facility is shown in Figure 2-3.

As a result of the site survey process, Grand Forks identified Site 1 as the preferred alternative, herein referred to as the Proposed Action (Site 1). The Proposed Action **(**Site 1) (Figure 2-4) is located on the west side of the airfield within an open grass field at the terminus of a short driveway at the western end of Road 25. It is approximately 1,400 feet west of the Ground-Air Transmit Receive (GATR) antenna facility and approximately 400

Figure 2-3 Typical ASR-11 Facility

feet south of the perimeter fence. A tall, narrow communication tower slated for demolition is located adjacent to the site. Wetlands are located in the vicinity of the Proposed Action (Site 1), with the closest wetlands nearly surrounding the site footprint and access road (within approximately 5 to 15 feet).

A modified DASR site layout is proposed for Site 1, a decagon encompassing approximately 12,000 square feet, to minimize impacts to wetlands that would result from a typical DASR layout, thereby avoiding any permanent impact to approximately 3,000 square feet of wetlands bordering the site. The Proposed Action (Site 1) would be within a 0.38-acre site with an existing access road extending from Road 25. The Proposed Action (Site1) would also require the installation of connecting utilities including electric, telephone and fiber optic cable. Approximately 1,500 feet of utility trenching would be required to connect the ASR-11 to existing fiber duct banks/manholes

in the vicinity of the site. An additional 9,900 feet of fiber optic cable would be installed within existing duct banks to connect the utilities via the existing fiber optic network to the Radar Approach Control (RAPCON). Also approximately 4,700 feet and 1,500 feet of belowground utility lines would be required to extend electrical and telephone service to the ASR-11.

Once the new DASR system is operational, the existing AN/GPN-20 would be dismantled and structures would be removed to existing grade. Any subsequent removal or demolition requiring below-ground activities would be the responsibility of Grand Forks AFB. Upon completion, the site of the existing AN/GPN-20 would be reclaimed by the base.

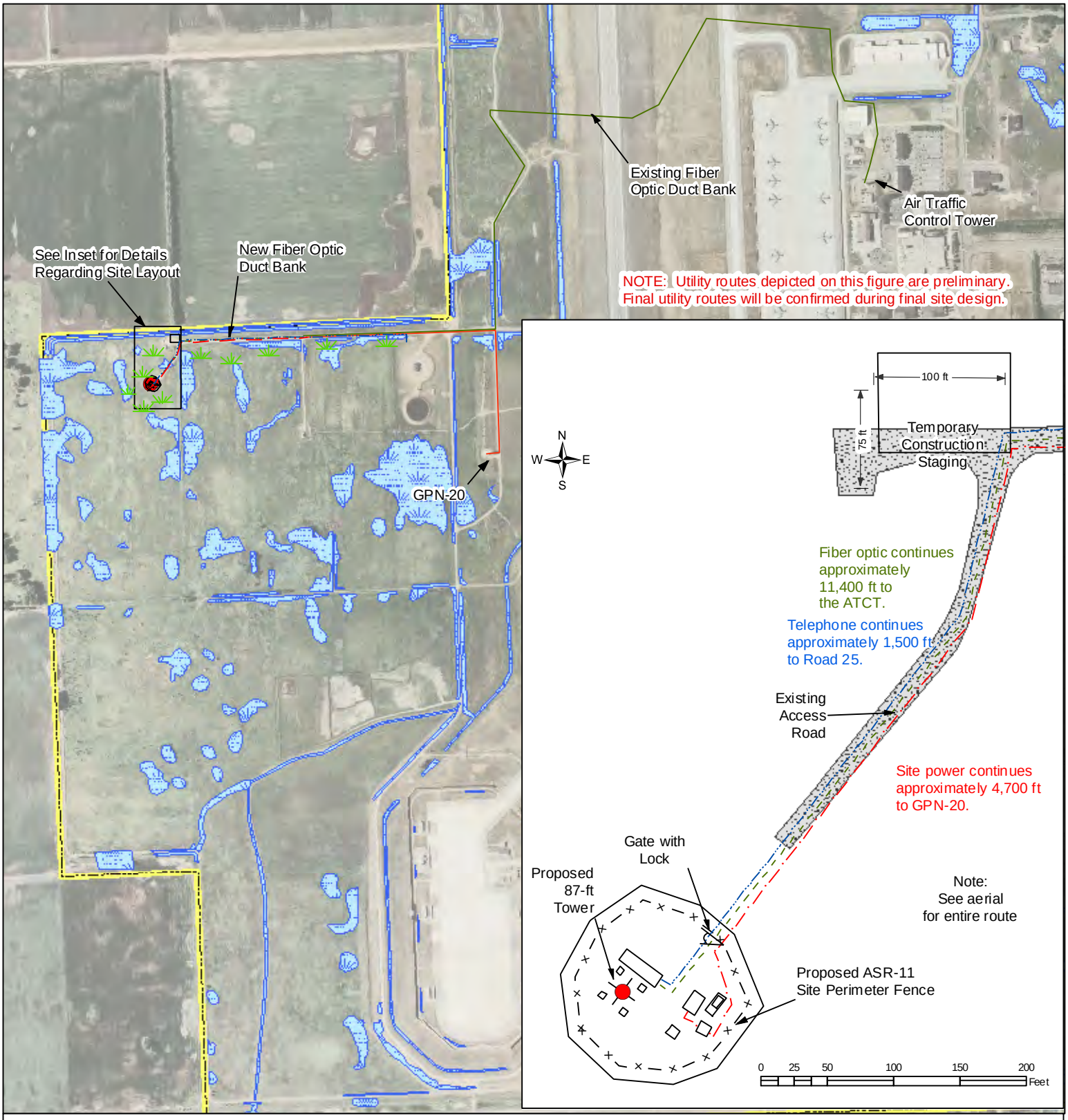
2.4.3 Alternative Action

The alternative action would involve DASR installation at either of the two alternative sites identified. The alternative sites and identified DASR site layout are described below.

Alternative 1 (**Site 6**) (Figure 2-5) is located on the west side of the base within a flat open field, approximately 1,200 ft east of the base perimeter fence, approximately 550 ft west of Road 3, and approximately 850 ft west of the former Strategic Air Command (SAC) Alert Ramp, which is no longer active. The site is primarily comprised of mixed grasses under a hay lease agreement.

Alternative 2 (**Site 8**) (Figure 2-6) is situated on the east side of the base, east of Road 7 within the former compost site which is no longer in use; the firing range is located approximately 1,000 feet to the north. Vegetation within the site is comprised primarily of mixed grasses with scattered Russian olive (*Elaeagnus angustifolia*) ranging in size from shrubs to small trees.

If either alternative site was chosen for DASR site installation, the site layout would likely be consistent with a typical DASR site design encompassing approximately 0.45 acres (140 feet by 140 feet). Depending on the alternative site, an access road would need to be constructed between 40 feet and 440 feet. Approximately 300 to 4,700 feet (depending on



Source: USAF, 2009; NAIP, 2006

LEGEND

- Proposed Fiber Optic in New Conduit
- Proposed Fiber Optic in Existing Conduit
- Proposed Telephone
- Proposed Underground Power
- Proposed Underground Power in Existing Conduit
- Proposed ASR-11 Site Fence
- Proposed ASR-11 Site Features
- Installation Perimeter
- Proposed Tower
- Existing Wetlands
- Adjacent wetlands (June 2010)

FIGURE 2-4
PROPOSED ACTION (SITE 1)

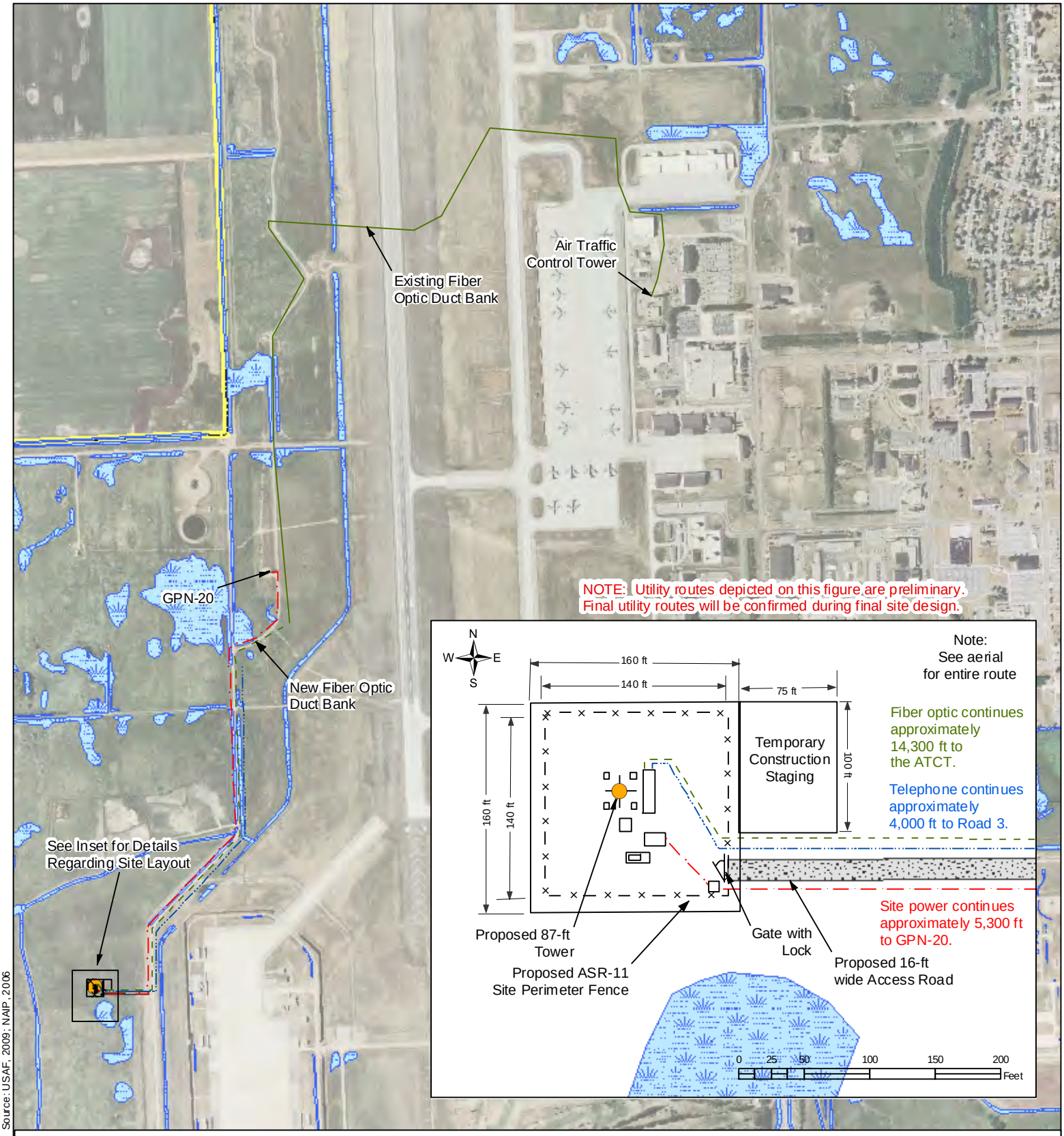
N
W E
S

GRAND FORKS AIR FORCE BASE
DIGITAL AIRPORT SURVEILLANCE RADAR

Grand Forks County, North Dakota

0 437.5 875 1,750 2,625 3,500
Feet

Fig2-4_GrandForksSite1.mxd



Source: USAF, 2009; NAIP, 2006

LEGEND

- Proposed Fiber Optic in New Conduit
- Proposed Fiber Optic in Existing Conduit
- Proposed Telephone
- Proposed Underground Power
- Proposed ASR-11 Site Fence
- Proposed ASR-11 Site Features
- Installation Perimeter
- Proposed Tower
- Existing Wetlands

N
W E
S

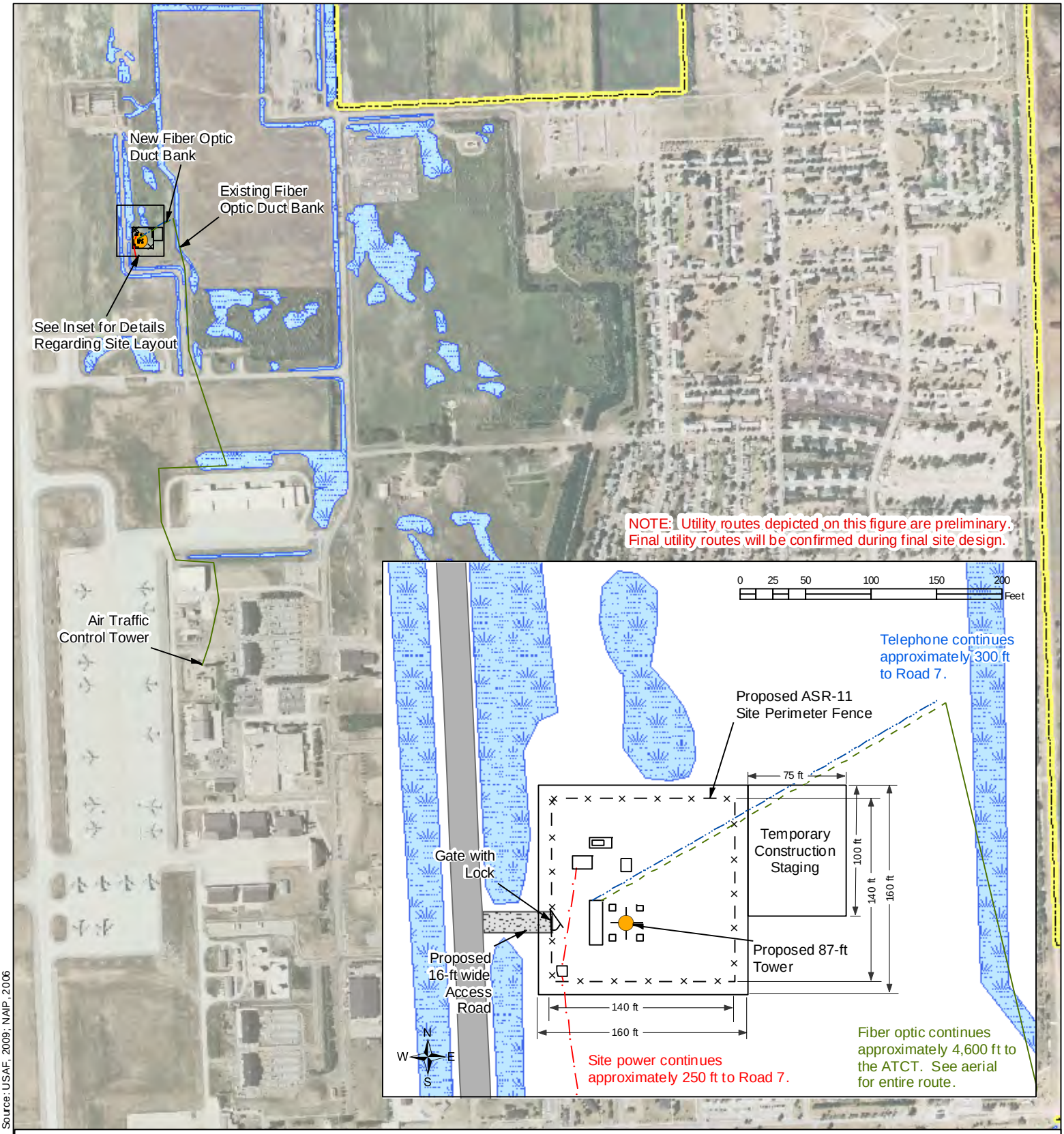
FIGURE 2-5
ALTERNATIVE 1 (SITE 6)

GRAND FORKS AIR FORCE BASE
DIGITAL AIRPORT SURVEILLANCE RADAR

Grand Forks County, North Dakota

0 410 820 1,640 2,460 3,280
Feet

Fig2-3_GrandForksSite1.mxd



Source: USAF, 2009; NAIP, 2006

LEGEND

- Proposed Fiber Optic in New Conduit
- Proposed Fiber Optic in Existing Conduit
- Proposed Telephone
- Proposed Underground Power
- Proposed ASR-11 Site Fence
- Proposed ASR-11 Site Features
- Installation Perimeter
- Proposed Tower
- Existing Wetlands

N
W E
S

FIGURE 2-6
ALTERNATIVE 2 (SITE 8)

GRAND FORKS AIR FORCE BASE
DIGITAL AIRPORT SURVEILLANCE RADAR

Grand Forks County, North Dakota

0 305 610 1,220 1,830 2,440 Feet

Fig2-6_GrandForksSite8.mxd

the alternative site) of utility trenching would be required to connect the ASR-11 to existing fiber duct banks/manholes in the vicinity of the site. An additional 4,300 to 9,600 feet (depending on the alternative site) of fiber optic cable would be installed within existing duct banks to connect the utilities via the existing fiber optic network to the RADAR Approach Control (RAPCON). Also depending on the alternative site, between 250 and 5,300 feet of belowground utility lines would be required to extend electrical and telephone service to the ASR-11.

2.5 DESCRIPTION OF PAST AND REASONABLY FORESEEABLE FUTURE ACTIONS RELEVANT TO CUMULATIVE IMPACTS

Section 4.17 identifies the past, present, and reasonably foreseeable future actions that have the potential to interact with the Proposed Alternative.

2.6 COMPARISON OF THE ENVIRONMENTAL IMPACTS OF ALTERNATIVES

Refer to Table ES-1 (in the Executive Summary) for a comparison of the environmental effects of the alternatives described above.

2.7 IDENTIFICATION OF PREFERRED ALTERNATIVE

USAF's preferred alternative is to implement the Proposed Action at Site 1 as described in Section 2.4.2.

3.0 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

The existing environmental conditions are described for each site in order to provide a baseline against which potential impacts related to construction and operation of the ASR-11 can be determined. General conditions on Grand Forks AFB are presented for each of the parameters and site-specific detail is included, as available. Environmental conditions at the existing AN/GPN-20 site are also described to assess any potential issues associated with its removal. The following information was obtained from several documents and reports provided by Grand Forks AFB Environmental Flight staff and supplemented with data collected during site visits conducted in July and September 2009 and June 2010, as well as subsequent communications with base personnel.

3.2 AIR QUALITY

Grand Forks AFB is located in an attainment area for criteria pollutants (GFAFB, 2005). The most significant source of stationary air pollutant emissions is natural gas combustion for heating facilities (GFAFB, 2005). Other sources include internal combustion engine emissions, coating operations, fire fighter training, hazardous material handling, solvent use, and fuel tank purging (GFAFB, 2005). Large stationary sources are included in the Title V air permit. The base also maintains an inventory of all emissions sources (including insignificant sources) as part of the Title V permit.

3.3 NOISE

The existing general noise environment of Grand Forks AFB is discussed in this section, as well as the noise environments of the candidate ASR-11 sites and the existing AN/GPN-20 location. Many federal agencies use the day-night average sound level to describe noise and to predict community effects from long-term exposure to noise. In addition, this noise level classification system is used to determine the appropriateness of a given use of specific land (land use compatibility) relative to the average level of environmental noise experienced at the

location. These guidelines are described in Air Force Handbook 32-7084, the Air Installation Compatible Use Zone (AICUZ) Program Manager's Guide (USAF, 1999).

The primary source of noise in the vicinity of Grand Forks AFB results from normal base operation and aircraft usage and maintenance. Noise generated independent of aircraft flight noise on Grand Forks AFB, such as maintenance and shop operations, ground traffic, and construction, is comparable to the noise generated in the surrounding community.

The associated noise contours generally reflect proximity to the runways. The area of highest decibel readings (80 dB and higher, as identified in the General Plan) is located in the immediate vicinity of the runways. Extended areas of higher level noise occur along the aircraft approach and departure corridors.

Per the *General Plan: Grand Forks AFB,* the **Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), and **Alternative 2** (**Site 8**) are located outside of the 65 dB contour (less than 65 dB) (GFAFB, 2006). The western portion of the existing **AN/GPN-20** site is located outside of the 65 dB contour, while the eastern portion of the site, closer to the airfield, is located between the 65 and 70 dB contours (GFAFB, 2006). However, these noise contours were delineated when GFAFB had many more tanker aircraft. Current noise levels have likely decreased, as there are fewer tanker aircraft on base due to recent changes in mission requirements.

3.4 WASTES, HAZARDOUS MATERIALS, AND STORED FUELS

3.4.1 Hazardous Materials and Waste

Grand Forks AFB is classified as a small-quantity hazardous waste generator by the state of North Dakota (GFAFB, 2005). Hazardous waste is generated primarily from de-icing, painting, and de-painting aircraft. Hazardous wastes, including petroleum fuels, flammable solvents, paints, corrosives, pesticides, and cleaners, are accumulated at hazardous waste satellite accumulation points, then transferred to the 180-day Hazardous Waste Accumulation Site (at Building 408), with final deposition by the Defense Reutilization and Marketing Office (DRMO) (GFAFB, 2005).

3.4.2 Solid Waste

In compliance with AFI 32-7042, *Solid and Hazardous Waste Compliance*, the base has developed a Solid Waste Management Plan which identifies procedures for the handling and disposal of solid waste and includes a pollution prevention program. Solid waste on Grand Forks AFB is collected and transported off the installation by a contractor to the Grand Forks County Landfill; there are no active landfills on the base (GFAFB, 2005). The Base Recycling Center (Building 671) collects industrial and household recyclables, which are transported off base by contractor (currently Pro-Mark Services, Inc.). No solid waste facility collection or disposal sites are located in the immediate vicinity of the **Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), **Alternative 2** (**Site 8**), or the existing **AN/GPN-20**; however, Alternative 2 (Site 8) is located within the former compost site which is no longer in use and is approximately 1,500 feet southwest of the base recycling facility.

3.4.3 Environmental Restoration Program

The base is involved in the Environmental Restoration Program (ERP) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), whereby environmentally contaminated areas are identified, characterized, and remediated (GFAFB, 2006). There are currently seven ERP sites on base (GFAFB, 2006).

No ERP sites are located on or immediately adjacent to the **Proposed Action** (**Site 1**) (GFAFB, 2006). Site OT-05, the Explosive Ordnance Disposal (EOD) area which was closed in 1999, is located approximately 1,600 feet south of the Proposed Action (Site 1). The new EOD area is located approximately 1,200 feet southeast of the Proposed Action (Site 1). This area was never permitted and was therefore used for training only (GFAFB, 2009e).

There are no ERP sites located on or immediately adjacent to **Alternative 1** (**Site 6**) (GFAFB, 2006). Site OT-05 is located 1,000 feet northwest of Alternative 1 (Site 6). The new EOD area is located approximately 2,600 feet north of Alternative 1 (Site 6). The solid waste landfill (LT-183) is located approximately 1,000 feet north of Alternative 1 (Site 6). This landfill is not an

ERP site; however, it is currently the base land treatment facility where petroleum-contaminated soils are remediated and reused in future base projects (GFAFB, 2009e; USAF, 2009).

Alternative 2 (**Site 8**) is positioned within a former small arms range that is now closed (USAF, 2009). The small arms range was demolished prior to Resource Conservation and Recovery Act (RCRA) Corrective Action permitting (GFAFB, 2009e). The site was likely demolished under a USACE contract in conjunction with construction of the new firing range (GFAFB, 2009e). A compost facility was constructed on the site in the 1990s; no bullets or debris were found during construction activities (GFAFB, 2009e).

Alternative 2 (Site 8) is also located 200 feet west of the closed/capped ERP Site FT-02, the Fire Training Area/Old Sanitary Landfill Area (FTA/OSLA), which encompasses 28 acres, five of which are the FTA (GFAFB, 2009e). Fiber optic cable for Alternative 2 (Site 8) would be routed through an existing duct bank that passes adjacent to this site. The FTA portion of the site was used between 1970 and 1988 for firefighter training (GFAFB, 2009e). The OSLA accepted sludges, cleaning residues, and solvents from approximately 1958 to 1980 (GFAFB, 2009e). Site LF-03, the New Sanitary Landfill Area (NSLA) encompasses 80 acres immediately north of the OSLA, approximately 1,800 feet northeast of Alternative 2 (Site 8). Sludges, cleaning residues, and solvents were disposed in the NSLA from approximately 1956 to 1980, and construction debris was disposed in the NSLA until 1997 (GFAFB, 2009e). Long term monitoring at FT-02 and LF-03, including semi-annual inspections and groundwater and surface water monitoring, is conducted in accordance with the North Dakota Solid Waste Management Rules 30-Year Post-Closure Plan (GFAFB, 2009e).

The proposed fiber optic cable for the Proposed Action (Site 1), Alternative 1 (Site 6), and Alternative 2 (Site 8) would be routed through an existing duct bank that passes through the northeastern corner of ERP Site ST-08, Site Refueling Ramps and Pads. This site is divided into two solid waste management units (SWMUs): SWMU 13, which includes C ramp (refueling ramps and pads that comprise a large concrete apron); and SWMU 14, the portion of the fuel hydrant system located in the immediate vicinity of the C ramp (GFAFB, 2002). A remedial investigation/feasibility study (RI/FS) has been completed at this site, which indicated that

benzene, toluene, ethylbenzene, and xylene (BTEX) and total petroleum hydrocarbons (TPH) were present in the soil and groundwater surrounding the C ramp and determined that remediation was possible via natural attenuation (GFAFB, 2002). Two areas of concern were identified within ST-08, one within each SWMU, which represented the highest concentrations observed during the RI/FS. Groundwater monitoring wells within each area have been sampled and analyzed annually since 2003. The existing duct bank is located within SWMU 13 and is not located in the vicinity of either area of concern.

No ERP sites are located on or immediately adjacent to the existing **AN/GPN-20**.

3.4.4 Stored Fuels

Gasoline, diesel fuel, heating fuel, jet petroleum (JP-8), oil/water separator-recovered oils, and used oils are stored in underground storage tanks (USTs) and aboveground storage tanks (ASTs) on Grand Forks AFB. The existing **AN/GPN-20** facility, which will be decommissioned, includes an emergency generator shelter/enclosure that contains a diesel fuel AST.

3.5 WATER RESOURCES

The characteristics for surface water and groundwater, as well as associated wetlands and floodplains, on the base are discussed in this section and generally describe the areas around the three candidate ASR-11 sites and the existing AN/GPN-20 radar.

3.5.1 Surface Water

Grand Forks AFB is located in the Turtle River Watershed within the Red River Basin. The Turtle River flows through the northwest corner of the base. The majority of surface water on the base flows via manmade drainage ditches to the northwest towards Turtle River and to the northeast towards Kelly's Slough NWR. The Northwest Ditch and West Ditch drain to the Turtle River, while the South Ditch and North Ditch flow to Kelly's Slough, a tributary of the Turtle River.

No surface waters exist within the footprint of the **Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), or **Alternative 2** (**Site 8**) or the existing **AN/GPN-20** site; however, the proposed access road from Alternative 1 (Site 6) to Road 3 crosses a drainage ditch.

3.5.2 Ground Water

The Emerado aquifer, a glacial drift aquifer, is located under Grand Forks AFB at a depth of approximately 50 to 75 feet (GFAFB, 2005). This aquifer is underlain by the Dakota aquifer, a bedrock aquifer that extends across several states. The groundwater table is seasonally high on base (GFAFB, 2009b). The groundwater table within the vicinity of the **Proposed Action** (**Site 1**) and **Alternative 1** (**Site 6**) is known to be particularly high; these areas are characterized as wet prairie/meadow (GFAFB, 2009b). The depth to the water table throughout the base typically ranges from one to ten feet, including the vicinity of **Alternative 2** (**Site 8**) and the existing **AN/GPN-20**.

3.5.3 Wetlands

A 2004 base-wide wetlands survey identified 192 wetlands comprising approximately 301 acres. As depicted within current base mapping, the majority of wetlands on base consist of palustrine wetlands found in stormwater drainage ditches, low-lying areas, and prairie potholes across the base (GFAFB, 2005; GFAFB, 2006). A wetland delineation update has been programmed for Grand Forks AFB; however, a date for the update has not been set (GFAFB, 2009a). No mapped wetland areas are located within the immediate footprints of the **Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), or **Alternative 2** (**Site 8**); however, wetlands are located within portions of the proposed utility alignments for the DASR.

A Jurisdictional Determination (JD) from the U.S. Army Corps of Engineers (USACE) was received by the base in 2005 (GFAFB, 2006). Sixteen of the 192 identified wetlands were considered jurisdictional wetlands comprising approximately 145 acres (GFAFB, 2005; GFAFB, 2006; GFAFB, 2009a). Wetlands located west of the runway were considered non-jurisdictional wetlands in the 2005 JD (GFAFB, 2009a). However, the 2005 JD, including the non-jurisdictional status of wetlands west of the runway, expired in May 2010.

As depicted on base mapping (Figure 2-4), a wetland (considered non-jurisdictional in the 2005 JD) located approximately 80 feet north of the Proposed Action (Site 1) crosses the existing semi-improved access road to the site. However, a site-specific wetland delineation was conducted in June 2010 determining that, in actuality, this wetland abuts the western edge of the existing access road and does not cross the road as depicted in base mapping (GFAFB, 2009d). Mapped wetlands/drainage ditches (considered non-jurisdictional in the 2005 JD) are located along the existing road to the location of the Proposed Action (Site 1) and along Road 25, where proposed connecting utilities would be installed. In addition, mapped wetlands/drainage ditches (considered non-jurisdictional in the 2005 JD) are located along the existing fiber optic duct bank through which the proposed fiber optic cable would be connected to the ATCT. A recent JD for the wetlands surrounding the proposed footprint and utility connections for the Proposed Action (Site1) was received in January 2011 confirming that these wetlands remain non-jurisdictional (Appendix E).

A wetland (considered non-jurisdictional in the 2005 JD) is located approximately 50 feet south of Alternative 1 (Site 6) (Figure 2-5). The proposed access road from Alternative 1 (Site 6) to Road 3 crosses a drainage ditch that is not currently mapped as a wetland. Mapped wetlands/drainage ditches (considered non-jurisdictional in the 2005 JD) are located along Road 3, where proposed connecting utilities would be installed. In addition, mapped wetlands/drainage ditches (considered non-jurisdictional in the 2005 JD) are located along the existing fiber optic conduit through which the proposed fiber optic cable would be connected to the ATCT.

A wetland/drainage swale (considered jurisdictional in the 2005 JD) is located adjacent to and to the west of Alternative 2 (Site 8) and parallel to Road 7 (Figure 2-6). An existing short gravel driveway at Alternative 2 (Site 8) crosses this drainage swale, and a culvert currently exists to allow drainage under the existing driveway (GFAFB, 2009b). In addition, a mapped wetland is located immediately north of the site, and a drainage swale mapped as a wetland is located approximately 180 feet east of Alternative 2 (Site 8). Mapped wetlands/drainage ditches are located in the vicinity of the existing fiber optic duct bank through which the proposed fiber optic cable would be installed for Alternative 2 (Site 8), including wetlands along Road 7 and

10th Avenue, the mapped wetland approximately 180 feet east of Alternative 2 (Site 8), and wetlands to the north of Building 649.

No wetlands are located in the vicinity of the existing **AN/GPN-20**.

3.5.4 Floodplains

The shape of the Red River Valley has resulted from past glacial activity. Floods in this area are frequent. Flooding usually only lasts for a short period because of a vast network of drainage ditches and channelized streams. The Red River has several basin characteristics that make it susceptible to flooding, including an undersized main channel in relation to its floodplain, a small main channel gradient, and a northerly flow that synchronizes flooding with the northerly progression of the spring thaw. Floods typically occur during late spring, resulting from quick temperature rise, spring rains, snowmelt, and residual soil-moisture content. Floods in the Red River Valley can be severe, such as the early 1997 flood that resulted in the evacuation of the entire town of Grand Forks (GFAFB, 2008c).

The National Flood Insurance Rate Map (FIRM) indicates that a small portion of the Turtle River's 100-year floodplain is located in the extreme northwest corner of the base where the river crosses the Grand Forks AFB boundary. No floodplains are present within the preferred or alternative locations for the DASR, nor the existing AN/GPN-20 radar.

3.6 BIOLOGICAL RESOURCES

This section contains descriptions of biological resources, including vegetation, wildlife, and threatened or endangered species for Grand Forks AFB and its vicinity, including the candidate ASR-11 sites and the existing AN/GPN-20 site.

3.6.1 Vegetation

Natural vegetation in the vicinity of Grand Forks AFB once contained species common to the tall grass and mixed grass prairie ecosystem of the Bluestem Prairie Region, including western-

wheat grass (*Pascopyrum smithii*) and porcupine grass (*Stipa spartea*) (GFAFB, 2005). The land now known as Grand Forks AFB was used for farming and had been plowed or otherwise disturbed before the activation of the base (GFAFB, 2005). The base was initially planted with a standard grass mixture, including smooth bromegrass (*Bromus inermis*) and Kentucky blue grass (*Poa pratensis*), which are still largely prevalent (GFAFB, 2005). The base has since restored a native prairie parcel in the northeast corner of the base, the Prairie View Nature Preserve, which is used for recreation and environmental education outreach. In addition, approximately 160 acres of brome hay land have been converted to native grass hay land on base. Hay is currently cultivated at some unimproved areas on base (GFAFB, 2005).

There are nine species of noxious/invasive plants at Grand Forks AFB (GFAFB, 2005). Noxious plants on base must be managed in order to comply with Public law 93-629; one of the base's ecosystem management goals is to treat noxious and invasive plants and to re-seed treated areas with an airfield-compatible grass mixture to help bolster biodiversity in the airfield area (GFAFB, 2005).

The location of the **Proposed Action** (**Site 1**) and **Alternative 1** (**Site 6**) both consist of an open field comprised of mixed grasses and are located within an area that is heavily infested by noxious and invasive plant species, including Canada thistle (*Cirsium arvense* (L.) Scop.), leafy spurge (*Euphorbia esula* L.), and perennial sowthistle (*Sonchus arvensis)* (GFAFB, 2005). Alternative 1 (Site 6) is currently cultivated for hay.

Vegetation at **Alternative 2** (**Site 8**) consists mainly of mixed grasses, with scattered Russian olive ranging in size from shrubs to small trees. Although originally planted at Installation Restoration Program (IRP) sites for bioremediation, Russian olive is invasive; therefore, it is recommended that existing trees/shrubs be cut and an herbicide applied to the stumps to prevent regrowth (GFAFB, 2005).

Vegetation near the existing **AN/GPN-20** is dominated by mixed grasses and weeds.

3.6.2 Wildlife

Wildlife species occurring or potentially occurring on Grand Forks AFB include: whitetail deer, numerous bird and small mammal species, and a variety of reptile/amphibian species (GFAFB, 2005). Fish, including many varieties of minnows, are found in the ditch systems throughout the base and within the Turtle River. Other common fish species found within the Turtle River include northern pike (*Esox lucius*), white sucker (*Catostomus commersonii*), rock bass (*Ambloplites* sp.), black bullhead (*Ameiurus melas*), and channel catfish (*Ictalurus punctatus*) (GFAFB, 2010b).

Biological surveys were conducted on Grand Forks AFB from 2008-2009 resulting in the observation of a total of 118 bird species, including 52 species of concern (GFAFB, 2010b). Observations were partially attributed to the migratory patterns of neotropical and water birds. As a result of the surveys, Biological Areas of Interest were designated on base due to the observation of rare or unique biological sightings (GFAFB, 2010b).

One area of interest includes the grassland area on the southwest portion of base encompassing the location of the **Proposed Action** (**Site 1**) and **Alternative 1** (**Site 6**). Of the species known to occur on Grand Forks AFB, the sharp-tailed grouse (*Tympanchus phasianellus*) was observed breeding and nesting in the vicinity of Alternative 1 (Site 6) (GFAFB, 2010b).

Due to the location of **Alternative 2** (**Site 8**) and the existing **AN/GPN-20** within developed areas on base, fewer species are anticipated to occur in these areas. All three candidate ASR-11 sites are frequented by common wildlife species, such as ground squirrels (*Spermophilus sp.*) and white-tailed jackrabbits (*Lepus townsendii*).

3.6.3 Threatened and Endangered Species

There are seven federally-listed threatened or endangered wildlife species that exist in North Dakota that have the potential to exist at Grand Forks AFB; however, no federally-listed threatened or endangered species are known to be present on Grand Forks AFB (GFAFB, 2005; GFAFB,

2006; GFAFB, 2010b). There is the potential for several listed species to be transient on base, such as the gray wolf (*Canus lupus*) and whooping crane (*Grus americana*) (GFAFB, 2005).

3.7 SOCIOECONOMIC CONDITIONS

This section addresses the population, employment, general economic condition, and housing of the study area. Socioeconomic data specific to the candidate ASR-11 site locations do not exist; however, relevant data for the state of North Dakota, Grand Forks County, the city of Grand Forks, and Grand Forks AFB are presented.

3.7.1 Population

As of December 2008, Grand Forks County population was 66,549, an increase of approximately one percent since the 2000 Census (U.S. Census Bureau, 2009). Approximately 5,084 military personnel, DoD and Non-Appropriated Fund (NAF) employees, and family members resided on the base as of September 2009 (GFAFB, 2010e). Grand Forks AFB has a lower percentage of persons living below the poverty level as compared to the city of Grand Forks, Grand Forks County, or North Dakota (Table 3.7-1). Ethnic distribution for Grand Forks AFB differs from the city, county, and state averages. The total percentage minority population for Grand Forks AFB (19.1 percent) is higher than the city, county, and state (8.4 percent, 8.4 percent, and 9.3 percent, respectively; Table 3.7-1).

3.7.2 Employment

The top two employing industries are health care/social assistance and retail trade at Grand Forks Air Force Base, as well as in the city of Grand Forks, Grand Forks County, and North Dakota (JSND, 2009). The most common occupations are office and administrative support, sales, and management (JSND, 2009).

3.7.3 Housing

Family housing areas on Grand Forks AFB are located in the eastern portion of the base, and unaccompanied personnel housing is located in the central portion of the base (GFAFB, 2006).

As of the 2000 Census, Grand Forks AFB housing included 1,279 dwelling units (U.S. Census Bureau, 2009; Table 3.7-1).

Table 3.7-1 Income and Ethnicity Statistics for North Dakota, Grand Forks County, the City of Grand Forks, and Grand Forks AFB

	North Dakota[1]	Grand Forks County[1]	City of Grand Forks[1]	Grand Forks AFB[2]
Total Persons	638,613	66,549	50,778	5,222[3]
Number of Households	273,213	26,610	21,257	1,279
Persons Below Poverty Level	73,457[2]	7,622[2]	6,631[2]	181
Percent of Persons Below Poverty Level	12.1	17.0	19.9	4.2
Land Area (sq mi)	68,975.9[2]	1,437.81[2]	19[2]	8.0
ETHNICITY PERCENTAGES				
White	90.7	91.6	91.6	80.9
Black	0.9	1.6	1.6	8.4
American Indian	5.3	2.8	3.2	0.9
Asia/Pacific Islander	0.9	1.0	1.0	2.7
Hispanic or Latino	1.8	2.9	2.4	6.0
Other	0.4	0.1	0.2	1.1
Total Minority	9.3	8.4	8.4	19.1

[1] Values based on U.S. Census Bureau 2006-2008 American Community Survey (ACS) 3-Year Estimates, which were based on data collected between January 2006 and December 2008 (U.S. Census Bureau, 2009).
[2] Values based on 2000 U.S. Census data. The 2006-2008 data was not available for certain categories or for communities smaller than 20,000 people (U.S. Census Bureau, 2009).
[3] Value based on the Economic Impact Analysis Fiscal Year 2008 (GFAFB, 2008a).

3.8 CULTURAL RESOURCES

This section describes cultural resources identified at Grand Forks AFB and indicates if any known cultural resource areas are located in the vicinity of the preferred or alternative locations for the DASR, or the existing AN/GPN-20 radar.

Surveys for cultural and archaeological resources were conducted on portions of Grand Forks AFB in 1989 and on the entire base in 1995/1996 (GFAFB, 1996). The surveys identified eight buildings but did not identify any archaeological sites as potentially eligible for inclusion in the National Register of Historic Places (NRHP). These surveys found several archaeological sites, including old farmsteads, and find spots on the base; however, none of these areas were located in the vicinity of the **Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), **Alternative 2** (**Site 8**) or the existing **AN/GPN-20** (GFAFB, 1996).

Two artifacts were located in the vicinity of Alternative 1 (Site 6), including an isolated prehistoric chert flake and a calcined mammal bone (GFAFB, 1996). However, the artifacts were not temporally diagnostic and were not considered significant (GFAFB, 1996).

3.9 LAND USE

The purpose of this section is to briefly characterize land uses on Grand Forks AFB. This section addresses existing land uses of the candidate ASR-11 sites [the Proposed Action (Site 1), Alternative 1 (Site 6) and Alternative 2 (Site 8)] and the existing AN/GPN-20.

Grand Forks AFB occupies approximately 5,161 acres of federally-owned land approximately 15 miles west of the city of Grand Forks, in the eastern section of North Dakota in Grand Forks County (GFAFB, 2006; GFAFB, 2010e). The land surrounding Grand Forks AFB is rural; the base is surrounded by several farming communities (GFAFB, 2005; GFAFB, 2006).

There are nine major land use classifications distinguishable on base as shown in the 2006 *General Plan*, including: Open Space, Aircraft Operations and Maintenance, Industrial, Housing (Family and Unaccompanied), Outdoor Recreation, Medical, Community, Airfield, and Administrative. The dominant land use west of the airfield is Open Space (GFAFB, 2006). The Airfield land use surrounds the runways and comprises the majority of the central portion of the base (GFAFB, 2006). All nine land use categories are found east of the airfield, with housing located in the central/eastern portion of the base (GFAFB, 2006). The following describes the specific land use activities in the immediate vicinity of the sites.

The **Proposed Action** (**Site 1**) is located on the west side of the airfield at the terminus of a short driveway at the western end of Road 25 in an area currently designated as Open Space (Figure 2-4). This relatively flat site consists of an open grass field. The site is approximately 400 feet south of the perimeter fence, and the GATR antenna facility is located approximately 1,400 feet to the southeast. A communication tower slated for demolition is located adjacent to the site. There are relatively few buildings on the west side of the airfield; the nearest buildings to the site are Buildings 819 and 834 associated with the GATR site, located approximately 1,400 feet southeast, and structures associated with the AN/GPN-20, which is located 3,300 feet southeast. Wetlands are located in the vicinity of the Proposed Action (Site 1), with the closest wetlands located to the north and east. Nearby land uses include Airfield and Industrial.

Alternative 1 (**Site 6**) is located on the west side of the base, approximately 1,200 ft east of the base perimeter fence, and approximately 550 ft west of Road 3 (Figure 2-5). The area is currently designated as Open Space. The site is a flat open field primarily comprised of mixed grasses. The former SAC Alert Ramp, which is no longer active, is located to the east. Alternative 1 (Site 6) is owned by the USAF but is presently leased to a local farmer who harvests hay from the land (GFAFB, 2005). There are no buildings located in the vicinity of Alternative 1 (Site 6); the AN/GPN-20 is located approximately 4,300 feet northeast. The adjacent land use is currently designated as Airfield.

Alternative (**Site 8**) is situated on the east side of the base, east of Road 7 within the fenced former Base Compost Site which is no longer in use (Figure 2-6). The site is located within an area designated as Airfield. The firing range is located to the north, and a former sanitary landfill is located to the east. The area is comprised primarily of mixed grasses, with scattered Russian olive ranging in size from shrubs to small trees. The nearest buildings to the site are Building 652 (Repair and Maintenance Building), located approximately 800 feet north; Buildings 654 and 669 (associated with the firing range), located approximately 900 and 950 feet northwest, respectively; and Building 606 (Missile Transfer Building), located approximately 1,000 feet south of the site. Building 649 (3-bay hangar) is located approximately 1,900 feet south of the site. The site is positioned within a former small arms range that is now closed. The site is located within a currently designated Quantity-Distance (Q-D) arc associated with a hot cargo

pad. A temporary waiver to eliminate this Q-D arc is being coordinated at Headquarters Air Mobility Command (AMC) for Grand Forks AFB. Adjacent land uses include Open Space and Industrial uses.

The existing **AN/GPN-20** is located in the western portion of the base, adjacent to the western side of the airfield and is accessed by an unpaved road. The area where the existing AN/GPN-20 is located is designated as Airfield.

3.10 TRANSPORTATION

Vehicular traffic enters Grand Forks AFB via two control points: the main gate entrance, which is the primary entrance to the base, and the commercial gate, a secondary entrance. The main gate connects Steen Boulevard on the eastern side of the base to County Highway B-3. The commercial gate connects Eielson Street in the southern portion of the base to U.S. Highway 2. The road network on Grand Forks AFB consists of arterials, collectors, and local streets, most of which are oriented in a northeast-southwest grid pattern; however, the road configuration within the family housing area is variable.

The **Proposed Action** (**Site 1**) is located at the southern end of a gravel access road, which is accessed from the western end of Road 25. **Alternative 1** (**Site 6**) is located west of and is accessible from Road 3. **Alternative 2** (**Site 8**) is accessible from Road 7. The existing **AN/GPN-20** is accessed by an unpaved road, which is accessible from Road 3.

3.11 AIRSPACE/AIRFIELD OPERATIONS

Grand Forks AFB has one runway, which is 12,350 feet long. The primary unit that utilizes the airfield is the 319 ARW. No other tenant units use the airfield. KC-135s were the predominant type of aircraft that used the airfield. However, the mission transitioned out and a new mission of Remotely Piloted Aircraft (RPA) is scheduled to move on base in its place. A small percentage of transient aircraft, ranging from jet fighters to C-5 transports, use Grand Forks periodically each year (GFAFB, 2008c).

3.12 SAFETY AND OCCUPATIONAL HEALTH

Electric fields, magnetic fields, and electromagnetic radiation are of interest regarding safety and occupation health because of the potential for health effects from some frequency ranges. Electrical currents and components generate electrical fields and magnetic fields. These may be stationary or dynamic. Depending on the equipment, electromagnetic radiation that propagates outward may be created. Electromagnetic radiation, electrical fields, and magnetic fields are localized effects. The electromagnetic environment at a particular location and time is the sum of all the localized electric and magnetic fields plus electromagnetic radiation arriving from both natural and manmade sources.

Electromagnetic radiation travels at a uniform speed (3×10^8 m/sec in a vacuum; the speed of light). It is often useful to consider electromagnetic radiation as a wave, and to describe it in terms of frequency (where 1 Hertz (Hz) means 1 cycle per second and 1 kHz means 1,000 cycles per second). Some parts of the electromagnetic spectrum are more commonly described in terms of wavelength, which is inversely related to frequency.

The spectrum of electromagnetic radiation includes visible light, which has frequencies on the order of 5×10^{14} Hz (specifically, wavelengths from 400 nanometers (nm) to 760 nm). Electromagnetic radiation frequencies higher than that of visible light include ultraviolet light, X-rays, and gamma-rays. These types of electromagnetic radiation are described as “high energy” and have the potential to “excite” electrons, to thereby ionize molecules, and to thus affect body chemistry. Especially in high absorbed doses, high frequency electromagnetic radiation can adversely affect health (NSC, 1979).

Electromagnetic radiation with frequencies lower than that of visible light includes infrared light and radio waves. Frequencies below 10^{12} Hz (10^6 MHz) are categorized as radio waves. These include frequencies used for AM radio; short-wave, television, and FM broadcast bands; pagers; cellular telephones; mobile radios; radar; and microwave technologies. These frequencies are non-ionizing, and have the following known health effects: (1) effects caused by directly heating body tissues and (2) electromagnetic interference with electronic medical devices such as pacemakers.

The heating of tissues caused by exposure to radio frequency radiation (RFR) at relatively low incident power densities can normally be accommodated. However, in some tissues, heat produced at higher radiation intensities may exceed temperature regulating mechanisms so compensation for heat gain may be inadequate. Thus, exposure at high intensities can cause thermal distress or irreversible thermal damage. Eye tissues are particularly vulnerable (NSC, 1979).

Existing equipment at the **AN/GPN-20** radar emits electromagnetic radiation in the radio frequency range. Locations close to the antenna are considered unsafe on the basis of the potential for heating of body tissues when the radar is operating. Similarly, the tower immediately below the antenna may be considered unsafe. The intensity of the radar energy diminishes with distance, so there would be less tissue heating at greater distances.

Within electronic systems for radar, any high-voltage tubes capable of emitting X-rays are typically shielded with lead, and shielding on other equipment is typically adequate to limit transmitted radiation to acceptable levels. While there are unshielded components present at the AN/GPN-20 site such as incandescent light bulbs, there is no indication or expectation that significant levels of electromagnetic radiation other than RFR are emitted into the environment by the AN/GPN-20 system.

Given their locations and distances from occupied buildings, the **Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), and **Alternative 2** (**Site 8**) would be unlikely to contain significant magnetic or electrical fields. Therefore, there would be no significant safety or health concerns related to electromagnetic energy.

3.13 ENVIRONMENTAL MANAGEMENT

The Environmental Flight (319 CES/CEV) manages the environmental programs in accordance with applicable federal, state, local, DoD, and Air Force regulations, standards, and laws that apply to Grand Forks AFB.

3.13.1 Pollution Prevention

The base has developed a Pollution Prevention Program Plan as part of the Solid Waste Management Plan (refer to Section 3.3.1.3 above) in accordance with AFI 32-7080, *Pollution Prevention Program*. The pollution prevention program includes the overall goal of reducing the amount of potential pollutants produced on base and properly handling those that are produced, in order to protect the environment and reduce occupational safety and health risks to GFAFB personnel. The base also has a Storm Water Pollution Prevention Plan (SWPPP) which defines handling and storage of materials that have the potential to discharge to stormwater outfalls.

3.13.2 Geology

Grand Forks County is located on the eastern edge of the Williston Structural Basin (GFAFB, 2005; GFAFB, 2006). Subsurface geology in Grand Forks County consists of up to 2,050 feet of bedrock, including sedimentary sandstones, siltstones, and shales (Paleozoic and Mesozoic era) overlying igneous and metamorphic granites, schists, and greenstones (Precambrian time period) (Hansen and Kume, 1970; GFAFB, 2005). Grand Forks AFB is located on the Agassiz Lake Plain District in the eastern portion of Grand Forks County (GFAFB, 2005). Bedrock at Grand Forks AFB is overlain by up to 225 feet of glacial drift, consisting of clay and silt underlain by sand and gravel deposits (GFAFB, 2005).

3.13.3 Soils

Soils at Grand Forks AFB were generally formed in glaciolacustrine deposits overlying glacial till (GFAFB, 2005). There are six predominant soil types located throughout Grand Forks AFB, including Antler-Gilby-Svea, Glyndon-Gardena, LaDelle-Cashel, Bearden-Antler, Ojata, and Wyndmere-Tiffany-Arveson (GFAFB, 2005; GFAFB, 2006).

The soils located in the area of the **Proposed Action** (**Site 1**) are comprised of Gilby loam (map unit symbol 67) and Antler-Mustinka silt loams, 0 to 2 percent slopes (map unit symbol 171) (USDA/NRCS, 2010). Gilby loam is classified as United States Department of Agriculture (USDA)-designated prime farmland, and Antler-Mustinka silt loams are prime farmland if

drained. However, the use of farmland by a federal agency for national defense purposes is exempt from the requirements of the Farmland Protection Policy Act (FPPA). The Proposed Action (Site 1) is not used for agricultural purposes.

The soils located at **Alternative 1** (**Site 6**) consist of Gilby loam, which is prime farmland (USDA/NRCS, 2010). Similar to the location of the Proposed Action (Site 1), the provision of the FPPA does not apply. Alternative 1 (Site 6) is a small part of a much larger area that is currently leased to a local farmer who harvests hay from the land.

The soils located at **Alternative 2** (**Site 8**) are comprised of Antler silty clay loam, saline (map unit symbol 65) (USDA/NRCS, 2010).

The existing **AN/GPN-20** is located within an area comprised of Grimstad fine sandy loam (map unit symbol 60) (USDA/NRCS, 2010).

3.14 ENVIRONMENTAL JUSTICE

Under its instructions for the Environmental Impact Analysis Process (32 CFR Part 989), the Air Force must demonstrate compliance with Executive Order (EO) 12898, entitled *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, to determine the effects of federal programs, policies, and activities on minority and low income populations.

As described in Section 3.7, Grand Forks AFB does not appear to have unique populations with respect to poverty or ethnicity.

3.15 UTILITIES

The utility service at Grand Forks AFB, and existing facilities in the vicinity of the candidate ASR-11 sites and proposed utility routes, are discussed in this section. The utilities include water, wastewater, electricity, telephone, fiber optic, and natural gas.

3.15.1 Water Supply

All water for industrial, commercial, and housing use on Grand Forks AFB is supplied by the city of Grand Forks Department of Drinking Water, which withdraws from the Red River of the North and Red Lake River (a tributary to the Red River of the North) (GFAFB, 2005; GFAFB, 2008b). Water is treated by the city and transported to the base through a 14-inch water main that enters the base from the east (GFAFB, 2006). Back-up supplies are available from Agassiz Water Users, Inc. and Traill Co. and can be transported to base through 8-inch water mains that enter the base from the north and south, respectively (GFAFB, 2006). Water is stored in four elevated tanks, with a total storage capacity of 1,900,000 gallons. Although there are no water system facilities in the immediate area of the **Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), or **Alternative 2** (**Site 8**) or the existing **AN/GPN-20**, water pipelines run along roadways proximate to portions of the proposed utility and/or fiber optic routes for Alternative 2 (Site 8) (USAF, 2009; USAF, 2010).

3.15.2 Wastewater

The wastewater system on Grand Forks AFB consists of a gravity and force main collection system, nine lift stations, and four treatment lagoons where effluent undergoes tertiary treatment before discharging through manmade drainage (the South Ditch) approximately four times per year to Kelly's Slough National Wildlife Refuge (NWR), located approximately three miles northeast of the base (GFAFB, 2005; GFAFB, 2006). The treatment system is located on base property, approximately one mile east of the base (GFAFB, 2006). Although there are no wastewater facilities in the immediate area of the **Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), or **Alternative 2** (**Site 8**) or the existing **AN/GPN-20**, wastewater pipelines run along roadways proximate to portions of the proposed utility and/or fiber optic routes for Alternative 2 (Site 8) (USAF, 2009; USAF, 2010).

3.15.3 Electricity

The primary source of electrical power for Grand Forks AFB is Nodak Electric Cooperative (GFAFB, 2006). Electrical power is routed through two on-base substations: Steen Substation,

located in the southern portion of the base to the north of Alert Avenue, and Eielson Substation, located across County Highway B-3 to the east of the base. Power is then transmitted throughout the base via nine loop-radial feeder circuits (GFAFB, 2006). Approximately 72 percent of the power lines on base are currently buried underground; one of the main goals of the base Infrastructure Plan developed by the Civil Engineering Squadron (CES) Maintenance Engineering Element is to bury all aboveground power lines (GFAFB, 2006). Backup and emergency power is supplied by approximately 25 generators located throughout the base (GFAFB, 2006).

Electric power lines are located approximately 200 feet northeast of the **Proposed Action** (**Site 1**); however, the closest distribution lines with adequate 3-phase power are located approximately 2,450 feet to the northeast of the Proposed Action (Site 1), at an existing electrical sectionalizing cabinet.

Electric power lines are located approximately 800 feet east of **Alternative 1** (**Site 6**). The closest distribution lines with adequate 3-phase power are located at the existing AN/GPN-20, approximately 4,300 feet to the northeast of Alternative 1 (Site 6).

Underground power lines run parallel to and to the east of Road 7, which is located adjacent to **Alternative 2** (**Site 8**); these distribution lines can be accessed approximately 250 feet from Alternative 2 (Site 8).

The **AN/GPN-20** is serviced by existing underground electric lines and is also served by an on-site emergency generator (USAF, 2009; GFAFB, 2009a).

3.15.4 Telephone

Existing telephone lines run along roadways proximate to portions of the proposed utility and/or fiber optic routes for the **Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), and **Alternative 2** (**Site 8**).

Dial-up telephone lines closest to the Proposed Action (Site 1) are located along Road 25, approximately 1,500 feet from the Proposed Action (Site 1). Telephone lines are not located in the immediate vicinity of Alternative 1 (Site 6); the closest available lines are approximately 4,000 feet to the northeast along Road 3. Telephone lines run adjacent and parallel to Road 7, approximately 300 feet from Alternative 2 (Site 8).

An underground telephone line currently serves the existing **AN/GPN-20** (USAF, 2009).

3.15.5 Fiber Optic Cable

Grand Forks AFB has a fiber optic backbone that services much of the base. There are 96 strands of fiber optic in conduit around the flightline (GFAFB, 2009a). This fiber is reserved for airfield use; it is believed that presently only 12 strands (for the GATR) are being utilized (GFAFB, 2009a).

The closest fiber optic line to the **Proposed Action** (**Site 1**) is located adjacent to the site, while the closest existing panel/junction is approximately 1,500 feet to the northeast at Road 25.

Alternative 1 (**Site 6**) is located approximately 900 feet to the nearest fiber optic lines, while the closest existing panel/junction is approximately 4,700 feet to the northeast at Road 3.

The closest fiber optic line to **Alternative 2** (**Site 8**) is located adjacent to the site to the west, while the closest existing panel/junction is approximately 300 feet to the northeast at an existing hand hole.

The existing **AN/GPN-20** is connected to the base fiber network.

3.15.6 Natural Gas

Natural gas is supplied to the base by EXCEL Energy (GFAFB, 2006). Natural gas is delivered to a metering system at the main gate entrance and is distributed to base housing for heating and to facilities for heating and hot water generation (GFAFB, 2006). No natural gas lines are known to run within the immediate vicinity of the **Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), or

Alternative 2 (**Site 8**) or the existing **AN/GPN-20**; however, the existing fiber optic network (through which the new fiber would be routed for all three sites) runs parallel to an existing natural gas line for a distance covering approximately 300 feet near the Air Traffic Control Tower (ATCT) end of the proposed routes (USAF, 2009; USAF, 2010).

3.16 AESTHETICS

The purpose of this section is to characterize the aesthetic resources of the project area in order to provide a framework for determining the potential changes that could occur as a result of the construction and operation of the ASR-11 at the Proposed Action (Site 1), Alternative 1 (Site 6), or Alternative 2 (Site 8). Photographs of these sites were taken during the site survey in October 2009 and are provided as Figures 3.16-1, 3.16-2, and 3.16-3.

Features such as runways, aircraft hangars, lights, antennae, and towers impart a functional aesthetic quality on the base; these aesthetic qualities are considered to be an integral part of the Grand Forks AFB landscape. These basic features and airfield-related activities give the impression of an organized and functional military installation. Additionally, Grand Forks AFB Community Planning highly values a consistent scheme and architectural treatment within the eastern/developed portion of the base, which conveys a sense of planned development.

Located within undeveloped areas of open space and airfield uses, the Proposed Action (Site 1), Alternative 1 (Site 6), and Alternative 2 (Site 8) have similar landscapes: a relatively flat open area primarily comprised of mixed grasses. The location of the Proposed Action (Site 1) and Alternative 2 (Site 8) are unimproved open spaces of prairie, while Alternative 1 (Site 6) is maintained as a hay field and is cut once per year. Alternative 2 (Site 8) differs from the other two sites in that it is the only site that contains shrubs/small trees. The area surrounding the **AN/GPN-20** facility is similarly open and flat with the radar tower acting as the only vertical element of the adjacent landscape.

The **Proposed Action** (**Site 1**) is located at the end of a semi-improved driveway that extends south from Road 25 on the west side of the airfield. Views facing north and southeast across the site are provided in Figure 3.16-1. In this figure, View 1A (facing north) shows the existing

access road in the foreground and the base perimeter fence in the distance. The site is located approximately 400 feet south of the perimeter fence and is therefore potentially visible from off-base; however, the area beyond the base fence is agricultural and is not developed/populated. View 1B (facing southeast) shows the GATR antenna facility in the distance to the southeast of the site, as well the existing AN/GPN-20 (barely visible but further behind the GATR site). The ATCT, located to the northeast of the site, is shown on the left in View 1B. To the southwest of the site (not shown in the photos) stand two short narrow former communication towers supported by multiple guy wires. These two small communication towers are scheduled for demolition (GFAFB, 2009a).

Alternative 1 (**Site 6**) is located southeast of the Proposed Action (Site 1) and west of Road 3 and the former SAC Alert Ramp. The site is located approximately 2,600 feet north of and is visible from U.S. Highway 2. Views facing west and east across the site are provided in Figure 3.16-2. In this figure, View 6A (facing west) shows an open mowed hay field in the foreground; the perimeter fence is located in the distance (approximately 1,200 feet to the west) but is not visible in this view. The site is potentially visible from off-base due to proximity to the base perimeter and U.S. Highway 2; however, as with Site 1, the area visible beyond the base fence is agricultural and is not developed/populated. View 6B, facing east across the site, shows the mowed open hay field comprising the site, with the SAC Alert Ramp due east.

Alternative 2 (**Site 8**) is located in the eastern portion of the base within the old compost site to the east of Road 7. Views facing south and west across the site are provided in Figure 3.16-3. In this figure, View 8A faces south across the site where the 3-bay hangar is visible in the distance. As shown in the photo, the site consists of unmowed grasses. View 8B faces west toward Road 7; the gate to the old compost site is located to the right in the photo. The airfield is not visible in this view but is located further in the distance. Scattered Russian olive shrubs/small trees are visible in the vicinity of the site in both photographs. Additionally, Alternative 2 (Site 8) is located in the eastern, developed, portion of the base where there is a coordinated style/theme to development (GFAFB, 2009a).

Figure 3.16-1 Photographs Taken During the October 2009 Visit of Grand Forks AFB ASR-11 at the location of the Proposed Action (Site 1)

View 1A (above). Facing north from the location of the Proposed Action (Site 1).

View 1B (above). Facing southeast from the location of the Proposed Action (Site 1).

Figure 3.16-2 Photographs Taken During the October 2009 Visit of Grand Forks AFB ASR-11 Alternative 1 (Site 6)

View 6A (above). Facing west across Alternative 1 (Site 6).

View 6B (above). Facing east from Alternative 1 (Site 6).

Figure 3.16-3 Photographs Taken During the October 2009 Visit of Grand Forks AFB ASR-11 Alternative 2 (Site 8)

View 8A (above). Facing south across Alternative 2 (Site 8).

View 8B (above). Facing west across Alternative 2 (Site 8).

4.0 ENVIRONMENTAL IMPACTS

4.1 INTRODUCTION

The No Action alternative would leave existing radar system and air traffic control equipment in place. In addition, no new construction, renovation, or operations would be required. Since the No Action alternative would involve no alteration to any of the three potential ASR-11 sites at Grand Forks AFB, this alternative would result in no new impact to environmental resources. However, selecting the No Action alternative, and thereby having to maintain the existing AN/GPN-20, would require relying on existing radar equipment that is over 20 years old, at the end of its useful life cycle and difficult (and costly) to maintain. The *DoD NAS Cost and Operational Effectiveness Analysis Report for Milestone I* determined that modifications to extend the life of the existing system and improve its performance were not cost effective (USAF, 1992). The AN/GPN-20 system is incapable of meeting future user requirements for transmitting digital signal data to new digital automation system air traffic controller displays. The existing facilities also do not meet user requirements for increased target detection, weather reporting, and improved reliability, as stipulated by the Air Force Flight Standards Agency (AFFSA).

The Proposed Action would involve the construction of a new ASR-11 facility. Potential impacts associated with the Proposed Action involve those resulting from construction (short-term) and operation (long-term) of the DASR systems. The potential impacts are described in this section for each of the candidate ASR-11 sites [**Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), and **Alternative 2** (**Site 8**)]. Impacts are presented by environmental parameter.

4.2 AIR QUALITY

The Clean Air Act requires that actions of federal agencies or federally supported activities should not: 1) cause or contribute to any new air quality standard violation; 2) increase the frequency or severity of any existing standard violation; or 3) delay the timely attainment of any standard or any required interim emission reductions or other milestones.

4.2.1 No Action

Air quality in the vicinity of the three candidate ASR-11 sites and the existing AN/GPN-20 is expected to remain stable under future baseline conditions. The No Action Alternative would not have an impact on air quality.

4.2.2 Proposed Action

The short-term air quality impacts of constructing an ASR-11 would be localized in the vicinity of the **Proposed Action** (**Site 1**). Construction vehicle operation and traffic would generate fugitive dust during the construction of access roads, utility trenches, and grading the site. If prolonged dry weather is encountered during construction, water would be applied to the bare soils within the site to suppress dust. The disturbed area at the preferred site would be variable, proportional to the amount of utility trenching and access road construction (see Section 4.15).

All construction vehicles and some equipment would produce engine emissions that could temporarily affect air quality. However, because the number of vehicles and duration of construction required to perform the work is limited, emissions should not exceed either National Ambient Air Quality Standards (NAAQS) or North Dakota Ambient Air Quality Standards (AAQS) in the vicinity of the selected ASR-11 radar site.

Dismantling of the existing **AN/GPN-20** radar would generate some fugitive dust and some vehicle and equipment emissions. The nominal emissions and dust generated from demolition activities during the AN/GPN-20 dismantling should not exceed either federal or state air quality standards.

Operation of the ASR-11 radar is not anticipated to have adverse impacts on air quality. Sources of emissions during the operation of the ASR-11 would include the periodic operation of the emergency diesel generator at the ASR-11 site, and evaporative loss of fuel from the AST. The emergency generator is anticipated to be operated approximately once a month for testing and during occasional power outages. The emissions from operation of the generator and evaporative

loss from the associated AST are expected to be minimal and to have no adverse impact on air quality. Minimal fugitive dust is expected to be generated by maintenance vehicles.

Although the proposed generator would likely be more efficient than the existing generator at the AN/GPN-20 site, the proposed generator (100 kW) would be larger than the existing generator, thereby offsetting some of the emissions reductions that would be achieved by improved efficiency. Similarly, although the existing 100-gallon AST would no longer be required at the AN/GPN-20 site, the proposed AST (1,000 gallons) for the ASR-11 is larger, and thus could result in a slight net increase in evaporative emissions (depending on the vapor pressure of the stored fuel). The generator and AST are not anticipated to result in significant air quality impacts.

The emergency generator and fuel tank would need to be added to the Grand Forks AFB Title V permit (GFAFB, 2009a). An air quality permit from the state of North Dakota may not be required for construction or operation, but there is a notification process with the North Dakota Department of Health for the emergency generator (GFAFB, 2009a). Due to the potential for regulations to change, the base will contact the Department of Health to ensure compliance (GFAFB, 2009b). Given its relatively small size and limited operation (i.e. <500 hours/year), the emergency generator is likely to be considered an insignificant source (GFAFB, 2009b).

The Air Force must comply with EO 13514, entitled *Federal Leadership in Environmental, Energy, and Economic Performance*, which calls for federal agencies to lead by example in the areas of clean energy and the environment. The EO includes new greenhouse gas (GHG) emissions requirements for emissions reductions and inventory. To be consistent with the objectives of EO 13514, the emergency generator and fuel tank would need to be included in the base's annual GHG emissions inventories. In addition, in order to help Grand Forks AFB to further reduce GHG emissions by reducing petroleum consumption, as required by EO 13514, an alternative fuel (non-petroleum based, such as biodiesel (B100)) could be used to run the emergency generator at the ASR-11. Biodiesel has a high gel point, which can be problematic at cold temperatures; however, the gel point can be lowered further with additives such as kerosene during winter months.

4.2.3 Alternative Sites

The short and long term impacts to air quality would be similar to those described in Section 4.2.2, if the DASR were to be constructed at **Alternative 1 (Site 6)** or **Alternative 2 (Site 8)**.

4.3 NOISE

4.3.1 No Action

No major changes in base activities are expected to occur in the vicinity of the **Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), or **Alternative 2** (**Site 8**). In the future without the project, the current noise conditions in the area of the Proposed Action (Site 1), Alternative 1 (Site 6), and the existing **AN/GPN-20** are not anticipated to change; however, noise levels in the vicinity of Alternative 2 (Site 8) may increase slightly due to the proximity of the new fire station (currently under construction) and the proposed CE Maintenance Hanger/snow barn. The No Action alternative would not have an impact on noise.

4.3.2 Proposed Action

Construction of the radar tower and supporting infrastructure, including connections to power and telephone, and installation of the fiber optic cable, would result in elevated noise levels as grading and minor excavation occur, and as construction of the tower proceeds. These elevated noise levels, which would be short-term in duration, are not likely to disrupt activities in the vicinity of the **Proposed Action** (**Site 1**), since the site is located within an undeveloped field in a remote location. Typical construction equipment noise levels may be reduced by using well-maintained equipment and by installing mufflers and engine jackets. Construction of the towers and supporting infrastructure is anticipated to take approximately five months. Peak noise associated with the tower construction is expected to last approximately three weeks; however, construction noise would be expected throughout the five-month duration.

Dismantling of the existing **AN/GPN-20** could result in localized, temporary elevation of noise levels. However, due to the existing noise levels, which are strongly influenced by the proximity

to the flightline, and the expected short duration of the dismantling activity, noise impacts are expected to be minimal.

No long-term noise impacts are anticipated to result from operation of the proposed ASR-11 radar. Noise levels generated by the ASR-11 would be maintained at a level consistent with current Occupational Safety and Health Administration (OSHA) regulations as specified in CFR Title 29, Part 1910. Noise from ASR-11 equipment is not anticipated to exceed 55 decibels (dB) outdoors on the ground at a distance of 100 feet from the tower, with the exception of the emergency generator, which may emit up to 65 dB when operating. The preferred site is located in an area that experiences less than 65 dB as shown in the General Plan. However, due to the proximity of the airfield, the contribution to noise in the surrounding areas is expected to be consistent with the existing noise produced from the proximate aircraft operations. Therefore, the operation of the radar and periodic operation of the emergency generator are not anticipated to cause significant noise impacts. Dismantling the existing AN/GPN-20 would result in the cessation of noise produced from the operating equipment, including the periodic operation of the emergency generator.

4.3.3 Alternative Sites

The short and long term impacts to noise would be similar to those described in Section 4.3.2, if the DASR were to be constructed at Alternative 1 (Site 6) or Alternative 2 (Site 8). **Alternative 1** (**Site 6**) and **Alternative 2** (**Site 8**) are also located within undeveloped fields; additionally Alternative 1 (Site 6) is located in a remote location (similar to the Proposed Action, Site 1). Activities within the vicinity of Alternative 1 (Site 6) or Alternative 2 (Site 8) are not likely to be disrupted by DASR construction activities. Alternative 1 (Site 6) and Alternative 2 (Site 8) are also located in areas that experience less than 65 dB, but similarly, due to the proximity of the sites to the airfield, the contribution to noise in the surrounding areas is expected to be consistent with the existing noise produced from the proximate aircraft operations.

4.4 WASTES, HAZARDOUS MATERIALS, AND STORED FUELS

4.4.1 No Action

It is anticipated that remediation of hazardous waste sites will continue, as will management of hazardous materials and newly generated wastes. Continuing pollution prevention measures on the base may reduce potential for new sources of contamination to arise at the candidate ASR-11 sites, the existing AN/GPN-20 site (where diesel fuel is stored), or at other locations throughout the base. The No Action alternative would not have short-term or long-term adverse impacts on wastes, hazardous materials, or stored fuels.

4.4.2 Proposed Action

Construction of the ASR-11 radar system would comply with applicable Grand Forks AFB policies and guidelines for pollution prevention. In addition, a pollution prevention plan has been developed for the NAS program. This plan prohibits the use of all Class I ozone-depleting chemicals and directs the contractor to minimize the use of Class II ozone-depleting chemicals and toxic substances. Consequently, hazardous waste generation would be avoided to the maximum extent possible during construction of the radar facility and the dismantling of the existing **AN/GPN-20** facility.

Some hazardous materials and waste would likely be used and generated during the ASR-11 construction, including: equipment fuel, engine oil, hydraulic oil, grease, and other equipment operation and maintenance material. Refueling of equipment may also take place at the ASR-11 site selected for construction. Any hazardous materials used during ASR-11 construction would be used, stored, transported, and disposed in accordance with base, military, state, and federal regulations.

The proposed fiber optic route for the **Proposed Action (Site 1)** would pass through the northeastern corner of ERP Site ST-08, Site Refueling Ramps and Pads. The proposed fiber optic cable would be pulled through the existing fiber optic duct bank in this area; thus, there would be no ground disturbance. Consequently, no impacts to this ERP site are anticipated to occur.

The existing AN/GPN-20 radar may have been painted with lead paint, and small amounts of lead, asbestos, PCBs, and potentially radioactive material may also be present at this facility. The AN/GPN-20 would be dismantled and transported off-site. The contractor would be required to separately and properly package, mark, and dispose hazardous materials encountered during the dismantling of the AN/GPN-20 and facilities equipment. Small pieces of lead paint may chip off the AN/GPN-20 radar during the dismantling process; however, substantial amounts of lead paint would not be left on site as a consequence of the decommissioning of the radar. A complete survey of hazardous materials will be conducted at the AN/GPN-20 prior to dismantling. If present, lead paint chips and/or other hazardous materials encountered would be collected and disposed in accordance with applicable Grand Forks AFB policies and procedures.

Operation of the radar facility would include the installation of a 1,000-gallon AST for the storage of diesel fuel to be used for emergency power generation. The fuel tank would be affixed with the National Fire Protection Agency Fire Diamond label to indicate the presence of hazardous material/chemicals. Since the tank would hold less than 1,320 gallons, it would not be regulated by the state, but would comply with all federal and base spill control requirements, including a leak detection system, overfill alarm, and double-wall and/or secondary containment as specified in 40 CFR 112.

In addition, hazardous materials and waste would likely be used and generated during operation, including: equipment fuel, engine oil, hydraulic oil, grease, and other equipment operation and maintenance material. Hazardous materials would be used and waste disposed in accordance with applicable regulations and base policies. Consequently, hazardous waste generation is anticipated to be reduced to the maximum extent possible during the operation of the ASR-11 facility.

4.4.3 Alternative Sites

The short and long term impacts to wastes, hazardous materials, and stored fuels are anticipated to be similar to those described in Section 4.4.2, regardless of whether the DASR is constructed at **Alternative 1 (Site 6)** or **Alternative 2 (Site 8)**. The proposed fiber optic route for Alternative 1 (Site 6), and Alternative 2 (Site 8) would also pass through the northeastern corner of ERP Site ST-08, Site Refueling Ramps and Pads. The proposed fiber optic cable would be

pulled through the existing fiber optic duct bank in this area; thus, there would be no ground disturbance. Consequently, no impacts to this ERP site are anticipated to occur.

4.5 WATER RESOURCES

4.5.1 No Action

The surface water, groundwater, wetlands, and floodplain characteristics at Grand Forks AFB and in the vicinity of the candidate ASR-11 sites and the AN/GPN-20, are not anticipated to change in the future without the project. The No Action Alternative would not have an impact on these resources.

4.5.2 Proposed Action

Surface Water and Groundwater

As discussed in Section 3.5.1, there are no surface water features within the immediate footprints of the **Proposed Action** (**Site 1**). Many of the drainage ditches on base, including some in the vicinity of site footprint or utility alignments, are mapped as wetlands.

Trenching and construction of radar tower footings (approximately seven to eight feet deep) have the potential to intersect the groundwater table due to seasonally high groundwater levels throughout the base, particularly at the location of the preferred site (Site 1) where the water table is exceptionally high. Therefore, a detailed soil analysis would be conducted during site design to determine what type of footing is most appropriate for the DASR. If drilled or driven piers are required, dewatering may be necessary. In addition, groundwater may need to be pumped out of utility hand holes and/or manholes, which would not be watertight, prior to utility installation. Within the construction site, the excess groundwater, which is not anticipated to be contaminated, would be pumped to an upland location and, if necessary, conveyed to a stilling basin (to remove suspended solids) and/or energy dissipating device, then allowed to flow overland and re-infiltrate the ground. The dismantling of the **AN/GPN-20** would not entail disturbance of either surface water or groundwater.

The temporary construction activities are not anticipated to impact stormwater runoff; however, during construction, all activities would follow the base best management practices to minimize sedimentation and erosion during storm events. In addition, federal agencies are required to comply with Section 438 (*Storm water runoff requirements for Federal development projects*) of the *Energy Independence and Security Act of 2007* (H.R. 6) in order to protect water resources at federal project sites that exceed 5,000 square feet (0.1 acres) (USEPA, 2009). Agencies must maintain or restore pre-development hydrology by using stormwater management practices, such as reducing impervious surfaces. In order to comply with Section 438, rainfall must be managed on-site to the extent possible, and off-site discharge of stormwater from all rainfall events less than or equal to the 95th percentile rainfall event must be prevented. The 95th percentile rainfall event is the event whose precipitation total is greater than or equal to 95 percent of all storm events over a given period of record; it is location specific and must be calculated and documented to remain in compliance (USEPA, 2009). To meet these requirements, the majority of the site, with the exception of the radar facilities and associated concrete pads, would be covered with a gravel base. This would reduce impervious cover on the site, thereby allowing infiltration of stormwater, and would not be anticipated to substantially affect runoff or groundwater recharge. In addition, all other vegetated areas disturbed outside of the ASR-11 facility area, including the temporary staging area and the utility trench areas, would be seeded upon project completion in order to restore the vegetative cover of the area and promote infiltration.

Similarly, no long-term impacts to the groundwater are anticipated to result from the operation of an ASR-11 at the preferred site (Site 1). The groundwater table on base is seasonally high; therefore, an adhesive will be applied to the PVC conduit sections through which proposed utilities will be routed to prevent groundwater infiltration, regardless of the site selected. In addition, groundwater may need to be pumped out of utility hand holes and/or manholes, which would not be watertight, prior to maintenance activities. Removal of the AN/GPN-20 is not expected to have an impact on groundwater.

Wetlands and Floodplains

Wetlands on base, as currently mapped, are shown in Figure 2-4 in relation to the **Proposed Action** (**Site 1**) footprint and proposed utility corridors. Due to the expiration of the JD and the need for a base-wide delineation update, in June 2010 a wetland delineation was performed at the

preferred ASR-11 location and along alignments for the access road and utility installations (where new trenching would occur). An updated JD received in January 2011 indicated that the delineated wetlands are not considered jurisdictional (Appendix E). The findings of the wetland delineation were subsequently used by the DASR design team to minimize any potential impact to wetlands that would result from the installation of the ASR-11 on base. As a result, the Proposed Action is to construct the DASR within a modified footprint, i.e. a decagon-shaped area circumscribing approximately 12,000 square feet, rather than the typical square DASR footprint of 19,600 square feet. This design modification avoids permanent impact to approximately 3,000 square feet of wetland, and similarly avoids temporary (construction) impact to an additional 6,000 square feet of wetland surrounding the cul-de-sac, that would have occurred had the standard DASR design footprint been implemented. Consequently, the DASR site itself would have no permanent, nor temporary, impact on wetlands; however, minor direct or indirect wetlands impacts may occur as described below, related to the connecting utilities and construction access road.

Construction activities require that the existing access road that connects Road 25 to the area of the preferred site (Site 1) be temporarily improved by placement of fill to widen the road, to provide access for a crane and the delivery trucks transporting pre-assembled, modular structures. Although wetlands are located adjacent to the roadway, impacts are not anticipated to occur as there is adequate space for the road widening upgradient of the wetland boundary. These temporary access way improvements will be necessary during construction for the lower stretch (approximately 400 feet) from the laydown area intersection to the site. Survey data shows the existing gravel road surface to be roughly 12 feet wide across over this stretch, whereas 16 feet is the minimum desired for construction access. Thus, the shoulders of the existing access road will be temporarily improved to provide a serviceable gravel surface 16 to 18 feet across. This will entail extending each side of the existing road by 2 to 3 feet. The survey data shows the narrowest point between the wetlands on either side of the road to be roughly 25 feet wide. Therefore, the temporary improvements to the access road would not directly impact the existing wetlands on either side. In the later stages of construction (once all structures are in place and a crane is no longer necessary), the temporary fill will be removed and previous contours re-established.

Utilities to connect the DASR to existing base infrastructure would be installed parallel to roadways. In areas where existing ducts are not available and new trenching is required, utilities would be routed to avoid/minimize wetland impacts whenever practicable. Wetland ditches run parallel to the road that the proposed utility corridors will follow; therefore, the utility trenches are anticipated to be constructed upgradient of the ditch and parallel to the road to avoid wetland impacts. However, unavoidable wetland impacts of approximately 500 square feet will result from a portion of the power/electrical route that will run through the wetland to connect to the existing electrical sectionalizing cabinet. In addition, there is the potential that wetland impacts would also result from the connection of the fiber optic cable and telephone to the existing handhole on the north side of Road 25. No wetland impacts are anticipated in areas where the proposed fiber optic and telephone will be pushed/pulled through existing duct bank.

During construction, all activities would be conducted in accordance with base Best Management Practices (BMPs) and installation guidelines to minimize adverse effects to wetland features, including potential sedimentation/siltation and the discharge of hazardous substances (Refer to Appendix D: Construction Best Management Practices (BMPs) for DASR at Grand Forks AFB). Disturbed wetland areas will be restored in place, in accordance with the Wetland Restoration Specifications (Section 02210) for DASR at Grand Forks AFB (refer to Appendix C). The dismantling of the AN/GPN-20 does not include the removal of the existing concrete pads or the foundation (footings); therefore, ground disturbance is not anticipated from the dismantling component of the Proposed Action.

No impacts are anticipated to floodplains as a result of the Proposed Action, because there are no floodplains within the vicinity.

4.5.3 Alternative Sites

Surface Water and Groundwater

The short and long term impacts to surface water and groundwater are anticipated to be similar to those described in Section 4.5.2, regardless of whether the DASR is constructed at **Alternative 1 (Site 6)** or **Alternative 2 (Site 8)**. There are no surface water features within the immediate footprints of Alternative 1 (Site 6) or Alternative 2 (Site 8). Many of the drainage ditches on

base, including some in the vicinity of site footprints or utility alignments, are mapped as wetlands. The proposed access road from Alternative 1 (Site 6) to Road 3 crosses a drainage ditch; therefore, a culvert would need to be constructed to allow drainage under the access road to avoid impacting the drainage ditch.

Trenching and construction of radar tower footings (approximately seven to eight feet deep) also have the potential to intersect the groundwater table at either of the alternative ASR-11 sites due to seasonally high groundwater levels throughout the base, particularly at the location of Alternative 1 (Site 6) where the water table is exceptionally high.

Wetlands and Floodplains

Wetlands on base, as currently mapped, are shown in Figures 2-5 and 2-6 in relation to the **Alternative 1** (**Site 6**) and **Alternative 2** (**Site 8**) footprints and proposed utility corridors. Each of the alternative sites also have potential wetland impacts, and if one of these alternative sites were selected for the DASR, a site specific wetland delineation would need to be conducted (similar to that which was conducted for the preferred site in June 2010) to further quantify wetland impacts for permitting purposes and to assist the design team in minimizing wetlands impacts. Mapped wetland areas are located approximately 50 feet south of Alternative 1 (Site 6), and construction activities have the potential to have minimal effects on the drainage ditch (not currently mapped as a wetland) that is located to the east of Alternative 1 (Site 6). Construction at Alternative 1 (Site 6) would require that a culvert be installed in the drainage ditch to allow access over the area. Similarly, a drainage swale, mapped as a jurisdictional wetland in the 2005 JD, that runs parallel to Road 7 has the potential to be impacted if the existing short access road (that currently crosses the wetland) to Alternative 2 (Site 8) were to require improvements.

No impacts are anticipated to floodplains, because there are no floodplains within the vicinity of the alternative sites.

4.6 BIOLOGICAL RESOURCES

4.6.1 No Action

Without the project, the status of vegetation, wildlife, and endangered species is expected to remain similar to existing conditions. The No Action alternative would have no adverse effect on biological resources because vegetation, wildlife, and endangered species would not be disturbed.

4.6.2 Proposed Action

Vegetation

The construction of the ASR-11 includes the installation of the antenna foundation and tower, utilization of a temporary construction staging area, and other site improvements and grading. This activity will require the clearing of vegetation in the immediate areas of the facility (approximately 0.27 acres), within the temporary construction staging area, and within the open trench excavations along the associated utility installation corridors and access road, where applicable.

Due to the presence of noxious and/or invasive plants at the location of the **Proposed Action (Site 1)**, and to minimize their potential spread, vegetation and soil should be removed from construction equipment prior to leaving the site; if fill material is required, invasive-free sources should be used (GFAFB, 2005). With these precautions, the construction of the DASR facility is not anticipated to present a significant impact to vegetative communities on, or in the vicinity of, Grand Forks AFB.

The ASR-11 facility would be within a 12,000 square foot area in which vegetation would not be able to grow, due either to the presence of structures or the geotextile membrane/gravel surface treatment within the fenced area. However, vegetation would be re-established, by seeding with a native grass mix, within the 7,500 square foot temporary construction staging area, within areas graded outside of the site fence, and along the utility routes which pass through vegetated areas. The dismantling, and subsequent removal, of the existing **AN/GPN-20** is not anticipated to substantially impact vegetation. Given the limited size of the project area, the loss of some vegetation is not anticipated to substantially impact the biological community on, or in the vicinity

of, the selected site. In addition, after demolition of the AN/GPN-20, the area will be reseeded to restore and compensate for any loss of vegetation during demolition activities.

Wildlife

Neither construction of the ASR-11 facility nor the dismantling of the AN/GPN-20 is anticipated to substantially impact wildlife in the area. Wildlife populations that utilize any of the candidate ASR-11 sites, or the existing radar site, are likely to be accustomed to periodic noise intrusions because of the frequent airfield operations in the area. However, some brief displacement of wildlife populations may occur in the vicinity of the site and associated utility installation corridors during construction.

Although grassland bird species are known to occur on base, the presence of grassland birds in the vicinity of the **Proposed Action** (**Site 1)** would not be a concern due to the temporary nature of construction activities and the small overall footprint of the DASR (GFAFB, 2009a). Many species of migratory birds, including those known to occur on base, are protected under provisions of the Migratory Bird Treaty Act (MBTA, CFR 50 10.13). Appropriate best management practices would be implemented to comply with the MBTA.

Given the relatively small area required for the DASR facility, the presence and operation of a DASR system should not interfere with wildlife. The ASR-11 tower could theoretically pose an obstacle to birds flying through the area of the site. However, as discussed in the Programmatic EA for the NAS program (USAF, 1995a), the relatively low height of the ASR-11 antenna is not anticipated to pose a substantial threat to birds flying through the area. Dismantling of the existing AN/GPN-20 is not anticipated to adversely affect extant wildlife.

Threatened and Endangered Species

As noted in Section 3.6.3, there are no known federally-listed threatened or endangered species present within or adjacent to the **Proposed Action (Site 1)** or the existing **AN/GPN-20** at Grand Forks AFB. Therefore, the proposed project is not anticipated to impact threatened and/or endangered species.

4.6.3 Alternative Sites

Vegetation

The ASR-11 facility at either Alternative 1 (Site 6) or Alternative 2 (Site 8) would be the standard DASR configuration with a larger footprint, resulting in a larger [140-foot by 140-foot area (0.45 acres)] within the site fence in which vegetation would not be able to grow, due either to the presence of structures or the geotextile membrane/gravel surface treatment. Vegetation would also be precluded from growing within the proposed access roads at **Alternative 1** (**Site 6**) and **Alternative 2** (**Site 8**) (covering 0.24 and 0.02 acres, respectively). However, vegetation would be re-established, by seeding with a native grass mix, within the 7,500 square foot temporary construction staging area, within areas graded outside of the site fence, and along the utility routes which pass through vegetated areas. Given the limited size of the project area, the loss of some vegetation is not anticipated to substantially impact the biological community on, or in the vicinity of, either of the alternative sites.

Shrub/small tree clearing may be necessary at Alternative 2 (Site 8), if selected. However, given the age, species (*Russian olive*), and low density of shrubs/trees in the vicinity of Alternative 2 (Site 8), shrub/tree clearing in this location would not be considered an adverse impact (GFAFB, 2009a). Russian olive is invasive; therefore, it is recommended that existing shrubs/trees be cut and an herbicide applied to the stumps to prevent regrowth (GFAFB, 2005).

Due to the presence of noxious and/or invasive plants at Alternative 1 (Site 6) and Alternative 2 (Site 8), and to minimize their potential spread, vegetation and soil should be removed from construction equipment prior to leaving the site; if fill material is required, invasive-free sources should be used (GFAFB, 2005). In addition, shrubs/small trees (Russian olive, which are invasive) at Alternative 2 (Site 8) would be removed. Regardless of the site chosen, the construction of the DASR facility is not anticipated to present a significant impact to vegetative communities on, or in the vicinity of, Grand Forks AFB.

Wildlife

Wildlife populations that utilize either of the alternative ASR-11 sites are likely to be accustomed to periodic noise intrusions because of the frequent airfield operations in the area.

However, regardless of the site selected, some brief displacement of wildlife populations may occur in the vicinity of the site and associated utility installation corridors during construction.

Although grassland bird species are known to occur on base, the presence of grassland birds in the vicinity of **Alternative 1** (**Site 6**) or **Alternative 2** (**Site 8**) would not be a concern due to the temporary nature of construction activities and the small overall footprint of the DASR (GFAFB, 2009a). Many species of migratory birds, including those known to occur on base, are protected under provisions of the Migratory Bird Treaty Act (MBTA, CFR 50 10.13). Appropriate best management practices would be implemented to comply with the MBTA.

Threatened and Endangered Species

As noted in Section 3.6, there are no known federally-listed threatened or endangered species present within or adjacent to either of the alternative ASR-11 sites. Therefore, construction of the proposed project at either **Alternative 1 (Site 6)** or **Alternative 2 (Site 8)** would also not be anticipated to impact threatened and/or endangered species.

4.7 SOCIOECONOMIC CONDITIONS

4.7.1 No Action

Due to the Remotely Piloted Aircraft (RPA) Base Realignment and Closure (BRAC) beddown, Grand Forks AFB has been redistributing the KC-135 refueling aircraft to other bases. To date, the base has reduced from 48 to 12 aircraft (which are scheduled to leave at the end of 2010), and military and family members have declined in equivalent numbers. In addition, a proposed mission of remotely piloted aircraft (RPA), including eight Predators and eight Global Hawks, is currently being evaluated. Therefore, changes to the existing socioeconomic conditions for the base are anticipated in the future regardless of whether the action to construct/operate the DASR is taken, or not.

4.7.2 Proposed Action

Construction at the location of the **Proposed Action (Site 1)**, would not adversely impact the socioeconomic conditions at Grand Forks AFB. A slight short-term increase in the revenue generated in the surrounding area may occur due to construction employees utilizing local

businesses for supplies and personal use. During the construction period, the work crew would consist of approximately 10 people.

Upon successful completion of the construction of the ASR-11, the existing **AN/GPN-20** radar would be dismantled and packed for shipment and possible reuse at another location. No adverse effects on socioeconomic conditions are anticipated as a result of this activity.

In the absence of other independent activities at Grand Forks AFB, socioeconomic conditions would return to the existing conditions once radar construction is completed. The new radar facility would not be staffed, and would therefore have no long-term effects on socioeconomic conditions.

4.7.3 Alternative Sites

Construction of the ASR-11 at **Alternative 1** (**Site 6**) or **Alternative 2** (**Site 8**) would require similar work efforts, and would, therefore, have similar effects on socioeconomic conditions at the base and the surrounding area as described above for the Proposed Action (Site 1).

4.8 CULTURAL RESOURCES

4.8.1 No Action

It is not anticipated there would be any substantial change in cultural resource conditions at the candidate ASR-11 sites or the existing AN/GPN-20 location in the future without the project. The No Action alternative would not affect known cultural resources.

4.8.2 Proposed Action

No cultural resources are known to exist in the vicinity of the **Proposed Action** (**Site 1**) or the existing **AN/GPN-20**. In the event that cultural artifacts are uncovered during construction, activities will be stopped and appropriate personnel would be contacted. Therefore, no impacts to cultural resources are anticipated to result from the construction and operation of the ASR-11 or the dismantling of the AN/GPN-20.

4.8.3 Alternative Sites

No cultural resources are known to exist in the vicinity of **Alternative 2** (**Site 8**). The isolated artifacts found in the vicinity of **Alternative 1** (**Site 6**) were not considered significant. In the event that cultural artifacts are uncovered during construction, activities will be stopped and appropriate personnel would be contacted. Therefore, no impacts to cultural resources are anticipated to result should the ASR-11 be constructed and operated at one of the alternative sites.

4.9 LAND USE

4.9.1 No Action

As depicted on the base future land use plan, the Open Space designation at the location of the **Proposed Action** (**Site 1**) is anticipated to become Airfield (GFAFB, 2006). This modification is associated with base plans to extend the Aircraft Operations and Maintenance land use (and interdependent Airfield land use) to form a continuous swathe west of Eielson Street (GFAFB, 2006). In addition, a potential cross-wind runway in the southwestern portion of the base has been in consideration for almost 30 years (GFAFB, 2009a). This runway, if constructed, would encompass the area of the Proposed Action (Site 1). Due to the uncertainty and lack of progress for the project, it is unlikely that this project will be scheduled for construction (GFAFB, 2009a).

The Open Space designation at **Alternative 1** (**Site 6**) is anticipated to become Airfield Aircraft Operations and Maintenance (GFAFB, 2006). The base intends to identify a suitable reuse for the SAC Alert Ramp to the east of Alternative 1 (Site 6) (GFAFB, 2009b).

Development is underway approximately 700 feet south of **Alternative 2** (**Site 8**) for the construction of a new fire station (with a proposed height of 30 feet) to improve and update fire protection activities for USAF aircraft and facilities (GFAFB, 2009c). This project includes the demolition of Building 606, located approximately 1,000 feet south of Alternative 2 (Site 8). In addition, future development is planned approximately 250 feet west of Alternative 2 (Site 8) for a new Civil Engineering (CE) Maintenance Hanger/snow barn with a proposed height of 48 feet (GFAFB, 2009c).

Although the area in the vicinity of Alternative 2 (Site 8) is officially designated as a hot cargo pad, there has not been a mission requirement for a hot cargo pad for over ten years (GFAFB, 2009b). In addition, construction of the new fire station is ongoing within the area; therefore, Grand Forks AFB plans to de-site the hot cargo pad and thus also remove the associated Q-D arc (GFAFB, 2009b). The base plans to relocate the hot cargo pad and associated Q-D arc to the north of the existing location prior to construction of the DASR; therefore, the Q-D arc will no longer encompass Alternative 2 (Site 8) (GFAFB, 2009c).

In the future without the project, land use characteristics at the existing **AN/GPN-20** site are expected to remain as they are currently designated.

4.9.2 Proposed Action

Short-term impacts associated with the construction of the ASR-11 would include temporary disruption of adjacent land uses due to elevated noise levels, increased dust, interference with roadway access, and visual effects. Given the distance to occupied buildings from the **Proposed Action** (**Site 1**), dust and noise impacts to these adjacent land uses during construction are anticipated to be minimal. The open trench excavations along the associated utility installation corridors are also anticipated to have minimal impact on adjacent land uses, although there may be some short-duration traffic disruptions.

Construction of the ASR-11 facility would require the use of a temporary construction staging area approximately 75 feet by 100 feet in close proximity to the ASR-11 site. This staging area would be used by construction personnel to store equipment during construction of the ASR-11 and would result in a temporary loss of open space. Given the small size of the staging area (75 feet by 100 feet) and its temporary nature, no significant land use impacts are anticipated to result from the use of a staging area.

Upon the successful completion of the construction of the ASR-11, the existing **AN/GPN-20** radar would be dismantled. Impacts to surrounding land uses related to the removal of the AN/GPN-20, including increases in noise and dust, would be minimal due to the short duration

of the dismantling activities and the fact that the radar is surrounded by undeveloped open space and airfield operations.

Although mapped as Open Space, operation of an ASR-11 at the location of the Proposed Action (Site 1) would be compatible with the planned extension of the Aircraft Operations and Maintenance land use (and interdependent Airfield land use) west of Eielson Street. Regarding the generally close proximity to the perimeter fence at the location of the Proposed Action (Site 1), there are no Unified Facilities Criteria (UFC) requirements or Anti-terrorism/Force Protection (AT/FP) issues for uninhabited radar (GFAFB, 2010c). In addition, since the Proposed Action (Site 1) is located approximately 400 feet from the base perimeter, the site would meet the minimum standoff distance of 148 feet required for a "Primary Gathering" building, as specified by Security Forces Squadron (SFS) AFI 31-101 (GFAFB, 2006; GFAFB, 2010c). Therefore, the project would comply with critical asset protection requirements.

A DASR should not be located within 1,500 feet of any non-removable, aboveground structure, existing or planned, that is taller than the antenna platform and could cause screening or reflections or could interfere with or cause degradation to ASR-11 operation (FAA, 1992). This 1,500 radius at the Proposed Action (Site 1) extends over private (agricultural) land, due to the close proximity of the site to the base perimeter (GFAFB, 2009a). Although existing zoning does restrict off-base development, the base may seek a no-build easement/deed restriction within the area encompassed by this arc to prevent the adjacent private property owner from constructing tall (or reflective) structures that have the potential to affect the ability of the radar to detect aircraft (GFAFB, 2009a).

Following demolition/disassembly of the **AN/GPN-20**, the land where the existing radar is presently located may be reclaimed by Grand Forks AFB.

4.9.3 Alternative Sites

Given the distance to occupied buildings from either Alternative 1 (Site 6) or Alternative 2 (Site 8), dust and noise impacts to these adjacent land uses during construction are anticipated to be minimal. Similar to the Proposed Action (Site 1), construction of the ASR-11 facility at either of

the alternative sites would require the use of a temporary construction staging area approximately 75 feet by 100 feet adjacent to the ASR-11 site. This staging area would be used by construction personnel to store equipment during construction of the ASR-11 and would result in a temporary loss of open space. Given the small size of the staging area and its temporary nature, no significant land use impacts are anticipated to result from the use of a staging area.

Although mapped as Open Space, operation of an ASR-11 at **Alternative 1** (**Site 6**) would be compatible with the planned extension of the Aircraft Operations and Maintenance land use west of Eielson Street. Alternative 1 (Site 6) is a small part of a much larger area that is currently leased by the USAF to a local farmer for harvesting hay; however, the lease can be modified to exclude this area should it be designated for a DASR (USAF, 2010).

Since **Alternative 2** (**Site 8**) is located within an area mapped as Airfield, an ASR-11 at this location would also be compatible with the surrounding land uses and proposed development (which is not anticipated to exceed 48 feet in height) in the area.

4.10 TRANSPORTATION

4.10.1 No Action

The No Action alternative would not affect traffic conditions on or around Grand Forks AFB. Traffic would continue to be generated by other ongoing and separately proposed activities.

4.10.2 Proposed Action

Impacts to transportation systems at/near Grand Forks AFB during construction would be minimal. Increased activity in the vicinity of the ASR-11 site, including connection of the ASR-11 to existing utilities, could temporarily disrupt local traffic. Personal and commercial vehicles operated by the contractor and subcontractors would be on site or at an area designated by the Air Force. There would be a period of approximately 10 hours when cement trucks would access the site for the foundation placement. The foundation concrete must be placed continuously, thus necessitating the 10-hour period. The types of construction vehicles used for the construction of

the ASR-11 and dismantling of the AN/GPN-20 are not anticipated to be different from those used for other base construction projects. Therefore, the cement trucks and other construction vehicles necessary for construction are not expected to have an impact on base roads.

A new access road at the location of the **Proposed Action** (**Site 1**) would not be required, as the existing access road that extends southwest from Road 25 connects directly to the site and therefore can be utilized, although an approximately 400-foot long stretch of this road may be widened by 2 to 3 feet on each side. Grand Forks AFB may pave the access road to the selected site to facilitate snow-plowing and all weather access; however, the long-term operation of the ASR-11 facility is not expected to have an adverse effect on traffic or transportation.

4.10.3 Alternative Sites

The short and long term impacts to transportation systems would be similar to those described in Section 4.10.2, if the DASR were to be constructed at Alternative 1 (Site 6) or Alternative 2 (Site 8). **Alternative 1** (**Site 6**) would require the construction of a new access road extending approximately 440 feet from Road 3 to the site. The existing access at **Alternative 2** (**Site 8**) would be improved, and a new access road would be constructed from the terminus of the existing driveway to the site, a distance of approximately 40 feet. These minor alterations are not anticipated to significantly impact the existing transportation system on Grand Forks AFB.

4.11 AIRSPACE/AIRFIELD OPERATIONS

4.11.1 No Action

There are a number of ongoing activities at Grand Forks, independent of the Proposed Action, as described in Section 4.9.1 that continue to shape the evolving mission and nature of airspace and airfield operations at Grand Forks AFB. These changes would continue to occur, regardless of whether the proposed DASR is constructed or not.

4.11.2 Proposed Action

As described in Section 4.9.2, construction and operation of an ASR-11 at the location of the **Proposed Action** (**Site 1**) would be compatible with the planned extension of the Aircraft Operations and Maintenance land use (and interdependent Airfield land use) west of Eielson Street.

4.11.3 Alternative Sites

As described in Section 4.9.3, construction and operation of an ASR-11 at **Alternative 1** (**Site 6**) would be compatible with the planned extension of the Aircraft Operations and Maintenance land use west of Eielson Street. Similarly, construction and operation of the ASR-11 at **Alternative 2** (**Site 8**) would also be compatible with the surrounding airfield operations.

4.12 SAFETY AND OCCUPATIONAL HEALTH

4.12.1 No Action

The No Action alternative would not have impacts on the safety and occupational health of personnel at Grand Forks AFB. Without the project, the future electromagnetic field conditions in the vicinity of the Proposed Action (Site 1), each of the alternative ASR-11 sites, and the existing AN/GPN-20 are expected to remain similar to those currently present.

4.12.2 Proposed Action

Construction of the ASR-11 would not be expected to generate RFR at levels that would be harmful to human health. Some low levels of RFR could be generated from commonly-used devices at construction sites, such as cellular telephones or portable computers. However, any RFR generated, and any other electric or magnetic fields, would be typical of that which exists throughout the developed human environment and is not anticipated to be harmful to human health.

Dismantling of the existing **AN/GPN-20** would occur only after its operation had ceased. Consequently, there should be no RFR hazard to workers involved in the AN/GPN-20 dismantling. Similar to the ASR-11 construction, dismantling activities at the AN/GPN-20 site

could generate low levels of RFR from commonly-used devices; however, these are not anticipated to be harmful to human health.

As discussed in Section 3.12, the RFR generated by the existing AN/GPN-20 is only hazardous at close distances to the radar (i.e. the tower immediately below the antenna) when it is operating. Similarly, the RFR generated by the **Proposed Action (Site 1)** would only be hazardous in the vicinity of the tower immediately below the antenna or within close range of, and at the same elevation as, the radar focal point while the radar is operating (see below). Areas outside of the site fence at ground level would not be considered hazardous. The facility would be sited a sufficient distance from occupied buildings that the radar operation would not pose a RFR hazard to personnel within the general vicinity of any of the ASR-11 candidate sites. To advise personnel in the area of the ASR-11 about the potential for RFR hazards at close ranges, the base may post signs at the fenced perimeter of the facility warning against approaching the antenna while it is in operation. When the antenna is not in operation, no RFR would be generated, and therefore no RFR hazard would exist.

The maximum permissible exposure (MPE) levels established by the American National Standards Institute/Institute of Electrical and Electronics Engineers (ANSI/IEEE) and the permissible exposure limit (PEL) established by Department of Defense Instruction (DODI) 6055.11 and Air Force Occupational Safety and Health Standard (AFOSHSTD) 48-9 are identical. The MPE/PEL for the ASR-11 operational frequency (F) range (2700-2900 MHz) is $F_{MHz}/300$ averaged over six minutes for controlled environments and $F_{MHz}/1500$ averaged over thirty minutes for uncontrolled environments. Controlled environments are locations where there is an exposure that may be incurred by persons who are aware of the potential for exposure, whereas uncontrolled environments are locations where there is an exposure of individuals that have no knowledge or control of their exposure. The resulting MPEs and PELs for the ASR-11 frequency range is 1.80 mW/cm^2 to 1.93 mW/cm^2 in uncontrolled environments and 9.00 mW/cm^2 to 9.67 mW/cm^2 in controlled environments.

Testing of RFR levels has been undertaken at several of the DoD and FAA sites at which the ASR-11s have been installed. Two recent electromagnetic radiation hazard surveys conducted by the 738th Engineering Installation Squadron (EIS) for three separate ASR-11s at both Stockton

Municipal Airport in California and Keesler Air Force Base in Mississippi determined that the MPEs/PELs for uncontrolled and controlled environments were not exceeded with the ASR-11 transmitting in a normal mode of operation (transmitter active and antenna rotating); i.e. under normal operating procedure with the antenna making 12 rotations per minute, time-averaged RFR power density values would not exceed the MPEs/PELs, even immediately adjacent to the radar antenna (738th EIS, 2002 and 2005). However, the survey results demonstrated that in the event that the transmitter remained active, the antenna stopped rotating, and all safety interlocks failed, the MPE/PEL for uncontrolled environments would be exceeded at locations (at an elevation near the radar focal point) less than approximately 228 feet to 360 feet (dependent on the frequency) from the antenna in the main beam, and for controlled environments, MPEs/PELs would be exceeded at locations (also in the main beam at an elevation near the radar focal point) less than approximately 90 feet to 114 feet (dependent on the frequency) from the antenna (738th EIS, 2002 and 2005). When out of the direct line of the radar beam, and with increased distance from the antenna, power density values drop more quickly. For example, the RFR power density for a non-rotating antenna at a distance of 20 feet from the antenna vertical centerline and 10 feet below the antenna focal point averaged 0.03 to 0.04 mW/cm^2; at a distance of 40 feet from the antenna vertical centerline and 45 feet below the antenna focal point, the power density dissipates to less than 0.01 mW/cm^2 (738th EIS, 2005). There are no structures or buildings at or exceeding the 95 foot elevation of the radar focal point within 360 ft of the proposed ASR-11 at the Proposed Action (Site 1) (referencing the distance discussed above in which the MPE/PEL would be exceeded by a non-rotating beam in uncontrolled environments).

The tower immediately below the antenna would be in the spillover region, and would be subject to higher RFR levels during radar operation than locations at ground level near the radar; however, these levels are not anticipated to exceed the MPEs/PELs for controlled or uncontrolled environments (738^{th} EIS, 2002 and 2005; ESC, 2004a). For example, testing at Luke Air Force Base suggests the highest RFR emission level reading in the vicinity of the tower was 0.028 mW/cm^2, measured in the pedestal room entrance just below the antenna while the antenna was rotating (ESC, 2004a). Similarly, the 738^{th} EIS electromagnetic radiation hazard survey (2005) at Keesler AFB revealed RFR levels of 0.02 mW/cm^2 and 0.06 mW/cm^2 at the platform below the antenna (80-foot level) during normal radar operation.

Since the focal point of the ASR-11 at Grand Forks AFB would be 95 feet above ground level, persons standing on the ground below the radar focal point (either within or beyond the site fence) would not be expected to be exposed to RFR levels exceeding the MPEs/PELs for uncontrolled or controlled environments. During the final site acceptance test, RFR measurements will be taken in and around the equipment shelter, at the base of the tower, and inside the pedestal room directly below the antenna. The DOD will not approve the facility for operation unless the RFR is below the ANSI/IEEE MPEs and DoDI/AFOSHSTD PELs (ESC, 2004b).

4.12.3 Alternative Sites

Construction of the ASR-11 at either **Alternative 1** (**Site 6**) or **Alternative 2** (**Site 8**) would not be expected to generate RFR at levels that would be harmful to human health. Similarly, operation of the ASR-11 radar at either Alternative 1 (Site 6), or Alternative 2 (Site 8) would generate identical levels of electric and magnetic fields, including RFR. There are no structures or buildings at or exceeding the 95 foot elevation of the radar focal point within 360 ft of either Alternative 1 (Site 6) or Alternative 2 (Site 8) (referencing the distance discussed above in which the MPE/PEL would be exceeded by a non-rotating beam in uncontrolled environments). Thus, adverse impacts to safety and occupational health would also not be anticipated if the ASR-11 were to be constructed at either of the alternative sites.

4.13 ENVIRONMENTAL MANAGEMENT

4.13.1 No Action

The No Action alternative would not have an impact on environmental management, soils, or geologic features at Grand Forks AFB.

4.13.2 Proposed Action

Pollution Prevention

As the existing AN/GPN-20 is dismantled and the ASR-11 is assembled/constructed, material that is not suitable for reuse or recycling would be removed. All solid waste would be handled in accordance with standard base procedures. Any hazardous materials would be disposed in accordance with Grand Forks AFB policies and protocols and relevant state and federal

regulations (see Section 4.4 on hazardous waste). The operation of the DASR would not generate solid waste.

Geology and Soils

During site design, a geotechnical investigation would be conducted at the selected site to test the stability of the soils. Approximately two soil borings would be collected in the vicinity of the DASR tower construction, with minimal vegetation clearing if necessary. Due to the site investigation processes and selection criteria, the geotechnical investigation is not anticipated to result in an adverse impact to geology or soils.

The construction of the ASR-11 radar system would have similar effects on soil at each of the candidate ASR-11 sites. Excavation for the footings of the radar tower is not anticipated to exceed seven to eight feet in depth. Excavation for the new utility trenches would impact soils due to the trench, which is typically four feet deep and approximately two feet wide.

The existing access road that connects the location of the **Proposed Action** (**Site 1**) to Road 25 would require upgrading, which may include minimal soil disturbance.

The temporary construction staging area would be restored upon project completion and would not be anticipated to substantially impact geology or soils. The dismantling of the **AN/GPN-20** would not require any ground disturbance; therefore, there would be no impact to the soil or geology from dismantling.

No long-term impacts to the existing soils or geology are anticipated if the ASR-11 were operated at the Proposed Action (Site 1). Although the soil at the location of the Proposed Action (Site 1) is classified as USDA-designated prime farmland, the use of farmland by a federal agency for national defense purposes is exempt from the requirements of the FPPA.

4.13.3 Alternative Sites

Pollution Prevention

Similar pollution prevention measures would be employed, regardless of at which site the ASR-11 is constructed and operated; therefore, there would be no adverse impact to environmental management on base.

Geology and Soils

The short and long term impacts to geology and soils would be similar to those described in Section 4.13.2, if the DASR were to be constructed at **Alternative 1 (Site 6)** or **Alternative 2 (Site 8)**. Although the soil at the location of Alternative 1 (Site 6) is classified as USDA-designated prime farmland, the use of farmland by a federal agency for national defense purposes is exempt from the requirements of the FPPA. The current hay lease at Alternative 1 (Site 6) would be modified to exclude the land encompassing Alternative 1 (Site 6), should it be selected. The new access roads at Alternative 1 (Site 6) and Alternative 2 (Site 8) would require soil disturbance (up to 24 feet wide) along the individual linear distances for each site.

4.14 ENVIRONMENTAL JUSTICE

4.14.1 No Action

No impacts to low income or minority populations or children are anticipated under the No Action alternative.

4.14.2 Proposed Action

Under its instructions for the Environmental Impact Analysis Process (32 CFR Part 989), the Air Force must demonstrate compliance with Executive Order (EO) 12898, entitled *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, to determine the effects of federal programs, policies, and activities on minority and low income populations.

In order for there to be a potential environmental justice impact, a unique low-income or minority population must be present, as well as a significant adverse impact. As described in

Section 3.7, Grand Forks AFB does not appear to have unique populations with respect to poverty or ethnicity. Additionally, as described throughout Section 4.0, the proposed DASR installation is not expected to have significant human health or environmental impacts. Therefore, the proposed project is consistent with the objectives of EO 12898.

4.14.3 Alternative Sites

Similar to the Proposed Action (Site 1), no significant human health or environmental impacts would be anticipated if the ASR-11 were constructed at either Alternative 1 (Site 6) or Alternative 2 (Site 8). Therefore, no impacts to low-income or minority populations or children would result.

4.15 UTILITIES AND TRANSPORTATION

4.15.1 No Action

Some improvements to the base infrastructure systems, as part of the base Infrastructure Plan, are described in Grand Forks AFB's 2006 *General Plan* (GFAFB, 2006); however, these proposed improvements are not anticipated to result in substantial changes to the general vicinity of the candidate ASR-11 sites or the area of the existing AN/GPN-20.

4.15.2 Proposed Action (and Alternative Sites)

The following describes potential short- and long-term effects to utilities as a result of the installation of the DASR system. Proposed utility routes are depicted in Figures 2-4, 2-5, 2-6; these figures are conceptual and are subject to refinement pending completion of the Combat Information Transport System (CITS) program (GFAFB, 2009b).

Various lengths of open trench excavation would be needed to provide utility connections, such as fiber optic cables (Table 4.15-1), depending on the site chosen. Construction of the ASR-11 will require limited water and wastewater service. The location of all utility lines in the vicinity of the proposed radar site and the associated fiber optic and utility routes should be confirmed prior to construction.

It is not anticipated that future utility conditions at Grand Forks AFB would be affected as a result of operating the proposed ASR-11 radar system. The addition of electrical power, telephone lines, and fiber optic cable at any of the alternative radar sites would not have a significant effect on the utilities in the area. The operation of the ASR-11 radar system would not require water, wastewater treatment, or natural gas; therefore, no impacts to those utilities are anticipated. Discontinuing the operations at the existing AN/GPN-20 radar is not expected to affect area utilities

Table 4.15-1 Required Lengths of New Utility Connections

ASR-11 Site	Length of Electric Power Line Required[(1)]	Length of Telephone Cable Required[(1)]	Length of Fiber Optic Cable Required[(1)]
Proposed Action (Site 1)	2,700 feet	1,500 feet	11,400 feet (1,500 feet new trenching; 9,900 feet within existing duct bank)
Alternative 1 (Site 6)	5,300 feet	4,000 feet	14,300 feet (4,700 feet new trenching; 9,600 feet within existing duct bank)
Alternative 2 (Site 8)	250 feet	300 feet	4,600 feet (300 feet new trenching; 4,300 feet within existing duct bank)

Water Supply

A temporary increase in water demand would occur during construction. A water source would be supplied on site by mobile water tanks. Due to the limited number of construction workers, short construction period, and the adequate supply of water to the base, it is not anticipated that the water demand both for workers' personal need and dust control during construction of the ASR-11 or dismantling of the AN/GPN-20 would adversely impact the water supply at Grand Forks AFB.

Wastewater Treatment

There would be an insignificant short-term increase in demand for sewage treatment during construction. Portable toilets would be available during the construction, and waste would be transported to the nearby treatment facility.

Electricity

Adequate electrical power is available to each of the candidate ASR-11 sites. Power would be provided to the location of the **Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), or **Alternative 2** (**Site 8**) through underground lines at a length of 4,700 feet, 5,300 feet, and 250 feet, respectively (USAF, 2010; Table 4.15-1; Figures 2-4, 2-5, 2-6). Short-term disruption of power to the immediate area around the ASR-11 site may occur while connections are made. All electrical lines associated with the existing AN/GPN-20 would be removed to the ground surface. Further removal of these lines would be the responsibility of Grand Forks AFB.

Telephone

Telephone lines would be extended along the routes identified in Table 4.15-1 and in Figures 2-4, 2-5, and 2-6. No disruption to telephone service in the immediate area of the candidate ASR-11 sites is expected. All telephone lines associated with the existing AN/GPN-20 would be removed to the ground surface. Further removal of these lines would be the responsibility of Grand Forks AFB.

Fiber Optic Cable

The proposed fiber optic routing for the **Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), and **Alternative 2** (**Site 8**) would consist of direct bury fiber optic cable between the sites and existing panel/junction locations within new duct banks, as identified in Table 4.15-1 and in Figures 2-4, 2-5, and 2-6. The proposed fiber optic lines would then be routed through existing fiber optic conduit.

Natural Gas

Natural gas is not required for the proposed ASR-11 radar. Utility trenching for electric, telephone, and fiber optic connections are not anticipated to impact existing natural gas lines. Therefore, no impacts are expected to occur with regard to natural gas on Grand Forks AFB.

4.16 AESTHETICS

4.16.1 No Action

At this time, there are no planned land use changes in the immediate vicinity of the **Proposed Action** (**Site 1**) that would substantially alter the future aesthetic conditions of its surroundings. The base intends to identify a suitable reuse for the SAC Alert Ramp, which is visible from **Alternative 1** (**Site 6**) (GFAFB, 2009b). Depending on the ultimate facilities/tenant(s) to be located here, aesthetic conditions may change accordingly, reflective of the new use.

Approximately 700 feet south of **Alternative 2** (**Site 8**), development is ongoing for the construction of a new fire station. Once constructed, the fire station would be visible from Alternative 2 (Site 8), but the height of the station would likely not exceed 30 feet. In addition, future development is being considered for the construction of a snow barn approximately 250 feet west of Alternative 2 (Site 8). If constructed, the snow barn would also be visible from Alternative 2 (Site 8), but would likely not exceed 48 feet in height. The aesthetic characteristics of the area of the existing **AN/GPN-20** are not anticipated to change in the future without the project.

4.16.2 Proposed Action

Due to a short construction period and the small area in which staging and installation would be conducted, no significant aesthetic impacts are anticipated at the **Proposed Action** (**Site 1**), Although the location of the Proposed Action (Site 1) is potentially visible from off-base and is located in an area designated as open space, the site is located in the vicinity of airfield operations. Short-term aesthetic impacts due to construction would be consistent with airfield operations within the area.

Existing features such as runways, aircraft hangars, lights, antennae, and towers impart a functional aesthetical quality on the base; these aesthetic qualities are considered to be an integral part of the Grand Forks AFB landscape. These basic features and airfield-related activities give the impression of an organized and functional military installation. Although the installation of the DASR (e.g. tower platform, rotating sail) would alter the viewshed at the Proposed Action (Site 1), the aesthetic impact is not considered significant given the Proposed

Action's small scale in context of the broader ongoing airport structures and activities which contribute to the overall aesthetic character of the military installation.

As discussed above (Section 3.9 Land Use), the Proposed Action (Site 1) is within an open space area; however, the area of the Proposed Action (Site 1) is proposed to change to airfield land uses, even without the DASR project. In addition, although the ASR-11 at the location of the Proposed Action (Site 1) has the potential to be visible from off-base, the long-term presence and operation of the ASR-11 would be consistent with the aesthetic quality of the general area, which in the location of the Proposed Action (Site 1) currently includes a non-functioning antenna tower immediately south and the GATR facility to the southeast.

The **AN/GPN-20** is located within an airfield area; dismantling of this facility would be consistent with airfield operations within the area. The AN/GPN-20 will be dismantled and replaced by a radar with similar aesthetic appearance; hence, there would be "no net change" to the broader viewshed of Grand Forks AFB.

4.16.3 Alternative Sites

Similarly, due to a short construction period and the small area in which staging and installation would be conducted, no significant aesthetic impacts would be anticipated at either **Alternative 1** (**Site 6**) or **Alternative 2** (**Site 8**). Although the location of Alternative 1 (Site 6) is potentially visible from off-base and is located in an area designated as open space, this alternative site is located in the vicinity of airfield operations. Alternative 2 (Site 8) is located within the interior of the base; however, the site is designated as airfield. Thus, short-term aesthetic impacts due to construction would be consistent with airfield operations within the area of either of the alternative sites.

As discussed above (Section 3.9 Land Use), Alternative 1 (Site 6) is within open space; however, the area of Alternative 1 (Site 6) is proposed to change to aircraft operations and maintenance, even without the DASR project. In addition, although the ASR-11 at the location of Alternative 1 (Site 6) has the potential to be visible from off-base, the long-term presence and operation of the

ASR-11 would be consistent with the aesthetic quality of the general area, which in the location of Alternative 1 (Site 6) currently includes the former SAC Alert Ramp to the east.

At Alternative 2 (Site 8), the radar tower may be visible from existing facilities including the firing range and 3-bay hangar, new facilities such as the fire station currently being constructed, and proposed facilities including the CE Maintenance Hanger/snow barn. Although the ASR-11 would represent a change in the existing landscape immediately surrounding this site, the long-term presence and operation of the ASR-11 at this location would be consistent with the aesthetic military character of the area, which includes views of the airfield.

Alternative 2 (Site 8) is located in the eastern/developed portion of the base where there is a coordinated style/theme to development. Therefore, the ASR-11 tower/platform at Alternative 2 (Site 8) may be painted beige rather than the standard color provided by the Program Office (a galvanized tower with a red sail) for compatibility with the other existing facilities on the eastern side of the base (GFAFB, 2009a). The expense to change from the standard color would be borne by Grand Forks AFB.

Although the installation of the DASR (e.g. tower platform, rotating sail) would alter the viewshed at either Alternative 1 (Site 6) or Alternative 2 (Site 8), the aesthetic impact would not be considered significant given the Proposed Action's small scale in context of the broader ongoing airport structures and activities which contribute to the overall aesthetic character of the military installation.

4.17 INDIRECT AND CUMULATIVE IMPACTS

The potential environmental effect resulting from the incremental impacts of the proposed DASR project when added to other construction projects occurring on Grand Forks AFB in the same time frame was considered for the following cumulative effects analysis. The proposed DASR project is of a small-scale and will permanently occupy a footprint of less than one acre within the southwest or eastern portion of Grand Forks AFB, depending on the site selected. Minimal impacts are anticipated as a result of the construction and operation of the proposed DASR. Additional ongoing and planned development and repair projects throughout the base are

described in the 2006 General Plan and are addressed under separate NEPA documents (GFAFB, 2006). Some of these projects are briefly described in this section.

The base has developed a Master Space Plan to help guide development over the next 15 years (GFAFB, 2006). The plan recommends that obsolete facilities be demolished and replaced with buildings that meet Air Mobility Command (AMC) standards (GFAFB, 2006). This includes the new consolidated ATCT/RAPCON that is currently being built across the street from the existing RAPCON (GFAFB, 2009b). In addition, a series of antennas are planned for construction to the west of the runway in support of a Remotely Piloted Aircraft (RPA) mission (GFAFB, 2009b). Multiple entities, including AMC, Air Combat Command (ACC), Air National Guard (ANG) and the Department of Homeland Security (DHS) are currently developing conceptual plans/layouts for future RPA missions anticipated to have communications/transmission facilities associated with them (e.g. Satellite Communications (SATCOM) and GATR for Predators and Global Hawks, to support launch and recovery efforts) (GFAFB, 2009b).

Other potential projects include a proposed vertical expansion of Building 649 (the 3-bay hangar), which could accommodate future missions, and several proposed 80-foot tall wind turbines to the east of base housing to help Grand Forks AFB meet its renewable energy goals (GFAFB, 2009b).

The following proposed or tabled projects are located in the vicinity of the **Proposed Action** (**Site 1**), **Alternative 1** (**Site 6**), or **Alternative 2** (**Site 8**), as discussed in Section 3.1.2 Land Use. A potential cross-wind runway, which would encompass the location of the Proposed Action (Site 1), has been considered by the base for almost 30 years (GFAFB, 2009a). It is unlikely that this project would be scheduled for construction (GFAFB, 2009a). The base intends to identify a suitable reuse for the SAC Alert Ramp to the east of Alternative 1 (Site 6) (GFAFB, 2009b). A new fire station (with a roof height of approximately 30 feet) is being constructed in the vicinity of Building 606 on 10th Avenue, south of Alternative 2 (Site 8) (GFAFB, 2009b). This project, led by the USACE, includes the demolition of Building 606. In addition, future development is planned for a new CE Maintenance Hanger/snow barn to the west of Alternative 2 (Site 8) (GFAFB, 2009c).

The cumulative effects of the proposed DASR project at the Proposed Action (Site 1), Alternative 1 (Site 6), or Alternative 2 (Site 8) combined with other ongoing activities in the area would produce a minimal short-term increase in traffic, noise levels, emissions, and solid waste generation on base; however, the increase would be limited to the construction timeframe of each project. In addition, no long-term, and therefore no cumulative, socioeconomic, utility, noise, air quality, geologic, hydrologic, biological, aesthetic, RFR, or archaeological/cultural resources impacts are anticipated. Wetland impacts are anticipated at the Proposed Action (Site 1), Alternative 1 (Site 6), or Alternative 2 (Site 8); however, wetlands will be protected/avoided whenever possible and disturbed areas will be restored in place. Overall, the proposed DASR project would not result in, or contribute to, significant negative cumulative impacts to the resources in the region.

4.18 UNAVOIDABLE ADVERSE IMPACTS

The three candidate ASR-11 sites are relatively comparable with regard to existing environmental conditions. The three sites are characterized by similar socioeconomic, geologic, hydrologic, and RFR conditions. All three sites are located on base property. The **Proposed Action** (**Site 1**) and **Alternative 1** (**Site 6**) are located in remote areas in the southwest corner of the base while **Alternative 2** (**Site 8**) is located to the north of the developed portion of the base, east of the runway. The Proposed Action (Site 1) and Alternative 1 (Site 6) share relatively similar aesthetic characteristics, with open fields contributing to the view from U.S. Highway 2 [at Alternative 1 (Site 6)] and the perimeter fence. Airfield structures and open spaces contribute to the functional aesthetic quality of the surrounding area at both sites. Alternative 2 (Site 8) also shares some of the airfield functional aesthetic quality; however, it is located in closer proximity to base facilities.

No long-term socioeconomic, utility, noise, air quality, geologic, hydrologic, biological, aesthetic, or archaeological/cultural resources impacts are anticipated at any of the three sites. Although currently mapped as open space, operation of an ASR-11 at either the location of the Proposed Action (Site 1) or Alternative 1 (Site 6) would be compatible with the planned consolidation of Aircraft Operations and Maintenance and Airfield land uses in the area west of

Eielson Street. An ASR-11 at Alternative 2 (Site 8) is not anticipated to have an adverse effect on adjacent land uses since the area is designated as Airfield.

The Proposed Action (Site 1), Alternative 1 (Site 6), and Alternative 2 (Site 8) are at various distances from existing electric, telephone, and data communication lines. Generally, the longer the length of trench required for utility connections, the greater the potential for increased dust and noise levels for a portion of the construction period. Alternative 1 (Site 6) would require the longest access road (440 feet), as well as the longest electric, telephone, and fiber optic connections (ranging from 4,000 feet to 14,300 feet). The remaining two sites have comparatively shorter utility connections (ranging from 250 to 11,400 feet). In addition, the Proposed Action (Site 1) would not require a new access road, and access road requirements at Alternative 2 (Site 8) (40 feet) would be comparatively shorter than at Alternative 1 (Site 6). Alignments for the access road and utility trenches, as well as siting of staging areas, will be designed to avoid wetland resources wherever possible. For those locations where widening of an access road is required, a narrow band of gravel/crushed stone fill will be placed in upland areas adjacent to the existing roadway. The road widening would be temporary (i.e. only necessary to facilitate access for large construction vehicles, such as cranes), and the fill will be removed during the final stages of construction. The temporary placement of this narrow band of pervious materials adjacent to the roadway is not anticipated to have any appreciable effect on existing hydrology or drainage.

There is the potential for impacts to wetlands and/or drainage ditches at the Proposed Action (Site 1), Alternative 1 (Site 6), or Alternative 2 (Site 8). The Proposed Action (Site 1) is located within an area generally surrounded by wetlands which abut the existing access road to the site. Proposed utility alignments would be routed parallel to the existing access road and Road 25. The existing access road connecting Road 25 to the site would require temporary improvements for construction equipment access; however, these road improvements are not anticipated to result in wetland impacts as there is adequate space upgradient of the wetlands for widening the road. Upon completion of construction, the access road fill placed to widen the road will be removed and the grade returned to pre-existing conditions. The electric utility installation will result in approximately 500 square feet of temporary impact to wetlands adjacent to Road 25 to connect the new utility to an existing electrical sectionalizing cabinet. In addition, there is the potential for

additional temporary impact to wetlands north of Road 25 due to the connection of the new telephone and fiber optic cable to an existing handhole. The proposed access road from Alternative 1 (Site 6) to Road 3 crosses a drainage ditch which is mapped as a wetland. A culvert would need to be constructed to allow drainage under the access road to minimize impacts to the drainage ditch. An existing access road crosses over a wetland drainage ditch at Alternative 2 (Site 8); therefore, if this existing access road requires improvements, there is the potential to impact this wetland. Additionally, mapped wetlands/drainage ditches are located along proposed utility routes where new trenching would occur for Alternative 1 (Site 6) or Alternative 2 (Site 8).

During the DASR operation, fuel and other hazardous materials such as engine oil and grease may be used at the site. However, use and disposal of any hazardous materials would occur in compliance with Grand Forks AFB protocols and guidelines, as well as applicable state and federal regulations. Consequently, it is anticipated that operational use of hazardous materials would not adversely affect the natural or human environments.

ERP sites are located within or in the vicinity of the Proposed Action (Site 1), Alternative 1 (Site 6), and Alternative 2 (Site 8). Although the proposed fiber optic routes for all three sites would pass through the northeastern corner of ERP Site ST-08, Site Refueling Ramps and Pads, the proposed fiber optic cable would be pushed/pulled through the existing fiber optic duct bank in this area. Thus, there would be no ground disturbance. Alternative 2 (Site 8) is positioned within a former small arms range that is now closed; however, no bullets or debris were found during construction of the compost facility that was built on the site in the 1990s. Alternative 2 (Site 8) is also located 200 feet west of the closed/capped ERP Site FT-02, the Fire Training Area/Old Sanitary Landfill Area, and the proposed fiber optic route for Alternative 2 (Site 8) would pass adjacent to this site. However, the proposed fiber optic cable would be pushed/pulled through the existing fiber optic duct bank in these areas; thus, there would be no ground disturbance. Consequently, no impacts to these ERP sites are anticipated to occur as a result of construction of the DASR at the Proposed Action (Site 1), Alternative 1 (Site 6), or Alternative 2 (Site 8).

Although the radar would generate RFR while operating at any of the sites, persons at ground level (either within or beyond the site fence) would not be exposed to RFR levels exceeding the ANSI/IEEE maximum permissible exposure (MPE) levels or the permissible exposure limits

(PELs) as defined by DoDI 6055.11/AFOSHSTD 48-9 during normal operation of the radar. As a precautionary measure, the base may post signs at the perimeter of the DASR facility advising personnel and the public against approaching the radar facility during operation.

In summary, construction and operation of the ASR-11 facility would result in minimal short-term and long-term impacts at the Proposed Action (Site 1), Alternative 1 (Site 6), or Alternative 2 (Site 8). Any of the three sites would be an acceptable location for the ASR-11 facility from an environmental perspective.

4.19 MITIGATION MEASURES

While considerable effort has been made during the site screening and preliminary design stages of the DASR project to avoid or minimize wetland disturbance, unavoidable wetland impacts may result from the project. In those locations where unavoidable impacts to wetlands occur (e.g. installation of connecting utilities), these impacts are anticipated to be temporary and will be mitigated, wherever possible, by restoring in place (see Wetland Restoration, Appendix C). To maximize the potential success of the wetland restoration, the top 12 inches of wetland soils in the utility corridor will be excavated, removed and stored in a location protected from direct sun and wind. The stockpiled wetland soils will be kept moist to maintain a viable seed bank for replacement in the wetland. The wetland restoration will consist of backfilling appropriate soil to match pre-existing grades/contours and seeding/planting native wetland species similar to those that existed prior to the construction impact. Upon final grading, the wetland restoration area will contain a minimum of 12 inches of wetland soil in the upper horizon, and the top 2 inches of soil will be loosened to ensure good seed-to-soil contact. The wetland restoration seeding will occur during the growing season with sufficient time to allow germinating seed to establish (approximately April through August) unless otherwise recommended by the seed supplier or local university agricultural extension office. Seeding will not occur when the ground is frozen, snow covered, inundated, or otherwise unsuitable. Seeded areas will be watered at a minimum of twice per week for three weeks immediately following sowing/planting to allow wetland vegetation to successfully (re)establish, unless weather conditions provide sufficient precipitation.

4.20 RELATIONSHIP BETWEEN SHORT-TERM USES AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Short-term effects would be those associated with the construction of the ASR-11, including required utility connections, and demolition of the existing AN/GPN-20 radar. Implementation of the Proposed Action is part of a broader global DoD/FAA objective to modernize air traffic control systems. The Proposed Action will allow DoD, within its delegated airspace, to more reliably and more efficiently provide services, including flight following, separation, expeditious handling, radar approach control, and landing. The proposed ASR-11 will take advantage of the significantly increased capabilities of digital technology, enabling digital data input to proposed new digital automation system air traffic controller displays. Additionally, the ASR-11 will improve system reliability, provide additional weather data, reduce maintenance cost, and improve performance, while utilizing less environmental resources, due to its lower energy consumption than the existing AN/GPN-20. Therefore, no loss of long-term productivity is expected to occur.

4.21 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

An irreversible effect could result from the use of resources that cannot be replaced within a reasonable time. An irretrievable effect could result from the loss of resources that cannot be restored as a result of the Proposed Action. The use of energy, labor, and fuel for construction and operation of the ASR-11 would represent an irretrievable commitment of resources. Additionally, financial resources would be committed to the construction of the ASR-11 and demolition of the AN/GPN-20.

4.22 REQUIRED PERMITS AND LICENCES

Environmental permitting requirements for all work on base are coordinated through the Environmental Flight, the office overseeing environmental issues at Grand Forks AFB. The base is operating under a Title V permit from the state of North Dakota, which would be applicable for both the construction and operation of the DASR facility. The 1,000-gallon aboveground storage tank accompanying the ASR-11 would not require pre-approval from the state, nor would

the emergency generator, since it will be used fewer than 500 hours per year. However, the base would need to add the storage tank and generator to its Title V permit by sending an administrative request to the North Dakota Department of Health Division of Air Quality. The number of hours the emergency generator is used would be documented by Grand Forks AFB. In addition, to comply with EO 13514, the emergency generator and fuel tank would need to be included in the base's annual GHG emissions inventories.

Construction activities that disturb one acre or more and have the potential to discharge stormwater to a "water of the U.S." are regulated under the National Pollutant Discharge Elimination System (NPDES) stormwater program. Contractors at construction sites that disturb one acre or more are required to file a Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity with the state, which must include a Stormwater Pollution Prevention (SWPPP) plan (North Dakota Department of Health, 2010). Furthermore, permit coverage must also be obtained if the site is less than one acre but is part of a common development plan exceeding five acres or more (North Dakota Department of Health, 2010). All sites, when included in the common development plan on base, may exceed the five acre threshold due to the proposed future development on base, as discussed in Section 4.9.1. Disturbance resulting from the **Proposed Action** (**Site 1**) may exceed the one acre regardless of other construction activities on base. **Alternative 1** (**Site 6**) would also exceed the one acre threshold (approximately 1.7 acres, including the site footprint, site access road, and new utility trenches). The proposed project is not anticipated to disturb more than one acre at **Alternative 2** (**Site 8**). Due to the five acre threshold, a NOI would need to be filed (including a SWPPP) regardless of the site selected. The SWPPP must describe BMPs to be used on site to reduce the potential for contaminant loading to stormwater, including sediment and erosion control BMPs (North Dakota Department of Health, 2010). If final design results in the realignment (and subsequent shortening/lengthening) of utility connections and/or access roads, then the area of anticipated disturbance should be recalculated to determine if there is any consequence on NPDES applicability.

The excavation for the radar tower footings (approximately seven to eight feet deep) may penetrate the water table, which can be seasonally high throughout the base. Therefore, it is anticipated that dewatering at the Proposed Action (Site 1), Alternative 1 (Site 6), or Alternative

2 (Site 8) may be necessary. The discharge of uncontaminated groundwater resulting from dewatering activities would be covered by the NOI described above. Otherwise, if an NOI is not filed (e.g. if total site disturbance is less than one acre and the five acre threshold is not exceeded), a NPDES Construction General Permit for Construction Dewatering would be required if the construction dewatering has the potential to discharge to a water of the U.S.

A Base Civil Engineering Work Clearance Request, known as a "dig permit", is necessary for any work that may disrupt aircraft or vehicular traffic flow, base utility services, protection provided by fire or intrusion alarm systems, or routine activities of the installation. The installation of the ASR-11 antenna tower and especially the utility connections could disrupt existing utilities, traffic, or routine base operations; thus, work clearance from base civil engineering will need to be requested through the "dig permit" process.

All wetlands, regardless of the current jurisdictional status, should be protected/avoided to be in compliance with EO 11990, *Protection of Wetlands* (GFAFB, 2005; GFAFB, 2009d). The state of North Dakota does not require a permit for work within wetland areas unless the wetland system is greater than 80 acres (GFAFB, 2009b). Based on the JD received in January 2011 (Appendix E), the Proposed Action would not require a Section 404 application for a nationwide permit under the Clean Water Act (33 USC 401, Section 10; 1413, Section 404); however, a Section 404 permit may be required if construction were to occur at either alternative site due to the potential wetland impacts. If this permit is required, BMPs that curtail soil erosion would be included in the permit (GFAFB, 2005). Development within jurisdictional wetlands requires coordination with the North Dakota State Water Commission and the USACE and compliance with the "No Net Loss" policy (GFAFB, 2005).

5.0 LIST OF PREPARERS

AECOM prepared this document to fulfill the requirements of the National Environmental Policy Act (NEPA) for the Proposed Action of constructing a DASR facility at Grand Forks AFB in North Dakota. Other entities that provided information on an as-needed basis included Grand Forks AFB Environmental Management personnel, including hired contractors, and various technical personnel at Raytheon and URS Corporation. The following persons authored and provided direct oversight for the preparation of this EA:

MANAGEMENT

Charles Freeman, 853 ELSG/ND. B.A. in Biology; Master of Landscape Architecture; registered Landscape Architect, Commonwealth of Massachusetts. Jacobs Technology. As the environmental coordination lead for the DASR program site survey, provided technical review and oversight for preparation of the EA and acted as liaison among hired contractors.

Shreve-Gibb, Betsy. M.R.P. Urban and Regional Planner. AECOM. As Senior Project Manager responsible for all NEPA compliance on NAS projects, with extensive experience preparing environmental assessments and permits, provided technical review and oversight for preparation of all sections of the EA.

TASK LEADER

Petras, James. B.S. Biology. AECOM. As a Project Manager with expertise in preparing environmental assessments and impact reports for federal, municipal, and commercial entities, attended the DASR Preliminary Data Gathering and Line of Sight Survey investigations and provided review of the EA

CONTRIBUTING AUTHORS

Hunt, Jessica. M.S. Natural Resources: Water Resources. AECOM. As a Senior Environmental Scientist with diverse experience in GIS, natural resource protection, watershed issues, and the preparation of technical and scientific documents, attended the DASR Preliminary Data Gathering, prepared maps/figures, and authored portions of the EA.

Meuse, James. M.S. Environmental Engineering. AECOM. As a GIS Specialist with expertise in GIS database development, map generation, and application development, prepared maps/figures for the EA.

Pietro, Lisa. M.S. Geography. AECOM. As an Environmental Scientist with diverse experience in wetland resource area delineations, ecological site evaluations, coastal geomorphology, GIS, NEPA compliance, and permitting, authored and revised portions of the EA and prepared maps/figures.

Touchet, Tom. M.S. Environmental and Forest Biology. AECOM. As a Senior Technical Specialist and Wetland Scientist with expertise in plant ecology, wetland replication, and environmental permitting, led wetland delineation activities and prepared materials to support wetland resource jurisdictional determination.

6.0 LIST OF AGENCIES AND PERSONS CONSULTED AND/OR PROVIDED COPIES

6.1 GRAND FORKS AFB

The following Grand Forks AFB personnel were consulted during the preparation of this Environmental Assessment:

LtCol Samuel Bass, Grand Forks AFB, 319 CS/CC, Communications Squadron Commander
LtCol Brad Baugh, Grand Forks AFB, 319 OSS/DO, OSS Director of Ops
Capt Todd Gibbs, Grand Forks AFB, 319 OSS/OSA, Airfield Operations Officer
Capt William Morrison, Grand Forks AFB, 319 ARW/SEF, Flight Safety Officer
Capt Kaelin Armstrong, Grand Forks AFB, 319 MDOS/SGGB
Lt Chelsea Hall, Grand Forks AFB, 319 OSS/OSA, Airfield Ops Officer
CMSgt Scott Baggett, Grand Forks AFB, 319 OSS/OSAD, RAPCON/CCTLR
MSgt Troy Pasch, Grand Forks AFB, 319 CS/SCXP, Comm Sq Project Manager
MSgt Neil McComsey, Grand Forks AFB, 319 CS/SCXP, Comm Sq Project Manager
MSgt Nephi Judd, Grand Forks AFB, 319 ARW/SEF, Flight Safety NCO
TSgt Frank Deans, Grand Forks AFB, 319 CS/SCOA, Radar Maintenance NCOIC
TSgt Keith Olson, Grand Forks AFB, 319 CS/SCOA-T, Maintenance Superintendant
TSgt Reed Honsey, Grand Forks AFB, 319 CS/SCOT, Radar Maintenance/SCX
TSgt William Emmons, Grand Forks AFB, 319 ARW/SEW
Katheryn Barry, Grand Forks AFB, 319 CS/SCXP, CS Plans/Project Management
Wayne Koop, Grand Forks AFB, 319 CES/CEA, Environmental Management Flight Chief
Ken Johnson, Grand Forks AFB, 319 CES/CEA, Engineering Flight Chief
Heidi Nelson, Grand Forks AFB, 319 CES/CECP, Community Planner
Steve Zhorela, Grand Forks AFB, 319 CES/CECP, Base Development
Diane Strom, Grand Forks AFB, 319 CES/CEVA, NEPA/EIAP Program
Kristen Rundquist, Grand Forks AFB, 319 CES/CEVC, Natural Resources/Air Program Manager
Doug Starkweather, Grand Forks AFB, 319 OSS/OSAA, Acting Airfield Manager
Ronald Cooper, Grand Forks AFB, 319 CS/SCX, Plans Flight Commander
Kyle Skovlund, Grand Forks AFB, 319 SFS/S3R, Physical Security
Michael Jurek, Grand Forks AFB, 319 SFS/S3
Kelly Hogness, Grand Forks AFB, 319 ARW/AT
David McCullough, Grand Forks AFB, 319 CES/CEAN
James McGuire, Grand Forks AFB, 319 CES/CECE, Electrical Engineer
Larry Olderbak, Grand Forks AFB, 319 CES/CEAN

Gary Raknerud, Grand Forks AFB, 319 CES/CEAO
Gary Williamson, Grand Forks AFB, 319 CES/CECP
Judy Stensland, Grand Forks AFB, 319 CES/CEAO
Chris Klaus, Grand Forks AFB, 319 CES/CEAN
Bob Larson, Grand Forks AFB, 319 CES/CEO
Gary Johnson, Grand Forks AFB, 319 ARW/CEG
Scott Bassingthwaite, Grand Forks AFB, 319 CES/CECP
Scott Rudolf, Grand Forks AFB, 319 CES/CECS
Dale Sickels, Grand Forks AFB, 319 CES/CECE
Greg Sturdevant, Grand Forks AFB, 319 CES/CECE
Linda Fuglestad, Grand Forks AFB, 319 CES/CEAN
Stephen Braun, Grand Forks AFB, 319 CES/CEAN
Richard Ostlie, Grand Forks AFB, 319 CES/CECE
Thomas Plath, Grand Forks AFB, 319 CES/CECE
Bradley Painter, Grand Forks AFB, 319 CES/CECE
Jeff Regimbal, Grand Forks AFB, 319 CES/CECE
Stephen Hemington, Grand Forks AFB, 319 SFS/S5P
Merle McCreary, Grand Forks AFB, 319 CES/CEFP
Benjamin Naastad, Grand Forks AFB, 319 CES/CECE
Nicholas Reynolds, Grand Forks AFB, 319 CES/CECE
Thomas Johnston, Grand Forks AFB, 319 AMXS/CCR

6.2 AGENCIES/INDIVIDUALS

The following agencies/persons were provided copies of this EA for review and comment:

Jim Boyd
Division of Community Services
ND Dept of Commerce
1600 E Century Ave, Suite 2
PO Box 2057
Bismarck, ND 58502-2057

Dr. Terry Dwelle
State Health Officer
North Dakota Department of Health
600 East Boulevard Ave
Bismarck, ND 58505-0200

Mr. Terry Steinwand
Commissioner
North Dakota Game and Fish
100 North Bismarck Expressway
Bismarck, ND 58501-5095

Mr. Larry Knudtson, Planning
North Dakota State Water Commission
900 E Boulevard Ave, Dept 770
Bismarck ND 58505-0850

Mr. Jeffrey Towner
U.S. Fish & Wildlife Service
3425 Miriam Avenue
Bismarck ND 58501

Bismarck Regulatory Office
US Army Corps of Engineers
1513 S 12th St
Bismarck ND 58504

Mr. Merlen E. Paaverud
State Historic Preservation Officer
State Historical Society of North Dakota
612 East Boulevard Avenue
Bismarck, ND 58505-0830

U.S. Fish and Wildlife, Migratory Bird Office
P.O. Box 25486 DFC
Denver, CO 80225

Grand Forks County Board of Commissioners
PO Box 6372
Grand Forks ND 58206-6372

Mayor Brown
City of Grand Forks
PO Box 5200
Grand Forks ND 58206-5200

USEPA Region 8
1595 Wynkoop St
Denver CO 80202-1129

Polk County Board of Commissioners
612 N. Broadway, Suite 215
Crookston MN 56716

Dept of Energy
Western Area Power Administration
ND Maintenance Office
PO Box 1173
Bismarck ND 58502-1173

US Department of Agriculture
Natural Resources Conservation Service
4775 Technology Circle #1B
Grand Forks, ND 58203-5635

Grand Forks Regional Airport Authority
2787 Airport Drive
Grand Forks ND 58203

ND Department of Transportation
608 East Boulevard Avenue
Bismarck ND 58505-0700

John D. Odegard School of Aerospace Sciences
PO Box 9007
Grand Forks ND 58202-9007

Tribal Historic Preservation Officer
Indian Affairs Commission
600 E Boulevard
Bismarck, ND 58505-0300

Bureau of Indian Affairs
3801 Bemidji Avenue NW, Suite 5
Bemidji, MN 56601

Bureau of Indian Affairs
161 Saint Anthony Ave, Suite 919
Saint Paul, MN 55103

Bureau of Indian Affairs
Great Plains Regional Office
115 4th Avenue Southeast
Aberdeen, SD 57401

The public was offered a 30-day period to comment on this EA. A public notice was published in the Grand Forks Herald on 10 March 2011, and the EA was available for public review at the Grand Forks AFB Library and at the Grand Forks Public Library.

7.0 REFERENCES

738th Engineering Installation Squadron (EIS), 2002. *Electromagnetic Radiation Hazard Survey for the Digital Airport Surveillance Radar (ASR-11), Stockton, CA.* Prepared by 738th Engineering Installation Squadron (AFMC), Keesler AFB. June 17, 2002.

738th EIS, 2005. *Electromagnetic Radiation Hazard Survey for Training Digital Airport Surveillance Radars (ASR-11/GPN-30), Keesler AFB, MS, 25 October – 5 November 2004.* Prepared by 738th Engineering Installation Squadron (AFMC), Specialized Engineering Flight, Keesler AFB. January 28, 2005.

Council on Environmental Quality (CEQ), 1978. *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*. 40 CFR Parts 1500-1508. November 28, 1978 (and as updated through July 1, 1998).

Environmental Systems Research Institute (ESRI), 2002. ESRI Media Kit – World Data, Redlands, California.

ESC, 2004a. Personal Communication via email between ESC-GAA (C. Freeman) and M&E (B. Shreve-Gibb), Re: Tolicha Peak DASR. March 10, 2004.

ESC, 2004b. Personal Communication via email between ESC-GAA (C. Freeman) and M&E (J. Petras), Re: Tolicha Peak DASR. April 6, 2004.

Federal Aviation Administration (FAA), 1992. *Primary/Secondary Terminal Radar Siting Handbook.* FAA Order 6310.6, Change 1. June 22, 1992.

Grand Forks Air Force Base (GFAFB), 1996. Grand Forks Air Force Base Cultural Resources Survey. Prepared by Parsons Engineering Science. September 1996.

GFAFB, 2002. Final Remedial Investigation/Feasibility Study Report: IRP Site ST-08 (SWMU 13 and SWMU 14). February 2002.

GFAFB, 2005. Grand Forks AFB Integrated Natural Resources Management Plan. December 2005.

GFAFB, 2006. General Plan. Grand Forks Air Force Base, North Dakota. June 2006.

GFAFB, 2008a. Economic Impact Analysis Fiscal Year 2008. Available online at: http://www.grandforks.af.mil/shared/media/document/AFD-090414-009.pdf. Website accessed 17 December 2009.

GFAFB, 2008b. 2008 Annual Consumer Report on the Quality of Tap Water, Grand Forks AFB, North Dakota. Available online at http://www.grandforks.af.mil/shared/media/document/AFD-090609-085.pdf. Website accessed 17 December 2009.

GFAFB, 2008c. Final Environmental Assessment – Proposed Demolition of 35 Buildings within the Munitions Storage Area at Grand Forks Air Force Base, North Dakota. August 2008.

GFAFB, 2009a. Personal communication between the DASR Team and Grand Forks AFB during the DASR Preliminary Data Gathering Trip. July 13 - 17, 2009.

GFAFB, 2009b. Personal communication between the DASR Team and Grand Forks AFB during the DASR Line of Sight Survey Trip. October 12 - 14, 2009.

GFAFB, 2009c. Personal communication between the DASR Team, 319 CES/CECP (H. Nelson and S. Zhorela), and 319 CS/SCXP (MSgt N. McComsey) via email, Re: Facility Working Group Sitings. October 30, December 1, 2, 3, 4, and 7, 2009, and January 26, 2010.

GFAFB, 2009d. Personal communication between URS Corporation (J. Lutz) and 319 CES/CEAN (K. Rundquist) via email, Re: Wetlands. November 13 and 30, 2009.

GFAFB, 2009e. Personal communication between URS Corporation (J. Lutz) and 319 CES/CEAN (L. Olderbak) via email, Re: ERP sites. November 24 and 30, and December 15, 2009.

GFAFB, 2010a. Personal communication between AECOM (J. Hunt) and 319 CS/SCXP (MSgt N. McComsey) via email, Re: Operational characteristics of the existing AN/GPN-20. February 2, 2010.

GFAFB, 2010b. Draft 2010 Biological Survey Update, Grand Forks Air Force Base. February 2010.

GFAFB, 2010c. Personal communication between 853 ELSG/ND (C. Freeman) and 319 ARW/AT (K. Hogness) via email, Re: AT/FP Concerns. January 7, 2010.

GFAFB, 2010d. Facility Board – Staff Summary Sheet. "Siting – Digital Airport Surveillance Radar (DASR). Signed by 319 ARW/CC on March 25, 2010.

GF AFB. 2010e. Personal communication between 319 CES/CEAO (D. Strom) and AECOM (J. Petras). Re: Land/Personnel at GF AFB. 1 November 2010.

Hansen, D. and J. Kume, 1970. The Geology of Grand Forks County. Bulletin 53. North Dakota Geological Survey.

Job Service North Dakota (JSND), 2009. North Dakota Area Profiles. Available online at: http://www.ndworkforceintelligence.com/gsipub/index.asp?docid=350. Website accessed 17 December 2009.

National Agriculture Imagery Program (NAIP), 2006. NAIP Imagery. Available online at: http://www.fsa.usda.gov/FSA/apfoapp?area=home&subject=prog&topic=nai. Website accessed July 2009.

National Safety Council (NSC), 1979. Fundamentals of Industrial Hygiene, Second Edition.

North Dakota Department of Health, 2010. Fact Sheet: Stormwater Discharges from Construction Activities, North Dakota Pollutant Discharge Elimination System (NDPDES) General Permit NDR10-0000. Available at: http://www.ndhealth.gov/WQ/Storm/Construction/ConstructionHome.htm. Website accessed January 29, 2010.

Raytheon, 2006. Specification Sheet for the ASR-11 Primary Radar. March 21, 2006.

United States Air Force (USAF), 1992. Department of Defense (DOD), National Airspace System (NAS) Cost and Operational Effectiveness Analysis (COEA) for Milestone I. June 24.

USAF, 1994. Department of the Air Force Program Management Directive for Air Traffic Control and Landing Systems Integrated Weapons System Management. January 14, 1994.

USAF, 1995a. Department of Defense National Airspace System Final Programmatic Environmental Assessment. Prepared by Metcalf & Eddy, Wakefield, MA.

USAF, 1995b. Department of Defense National Airspace System Digital Airport Surveillance Radar Siting Plan. Prepared by Metcalf & Eddy, Wakefield, MA.

USAF, 1999. Air Installation Compatible Use Zone (AICUZ) Program Manager's Guide, Air Force Handbook 32-7084. March 1, 1999.

USAF, 2009. Digital data (CAD and GIS) supplied by Grand Forks AFB during siting investigations. July and September 2009.

USAF, 2010. Digital Airport Surveillance Radar (DASR) Integrated Site Survey Report – Final, Grand Forks AFB. Prepared by Network Centric Systems, Air Traffic Management Systems, 1001 Boston Post Road, Marlborough, MA. April 9, 2010.

U.S. Census Bureau, 2009. American FactFinder Fact Sheets: Census 2000 Demographic Profiles and 2006-2008 American Community Survey 3-Year Estimates Data Profiles. Available online at: http://factfinder.census.gov/home/saff/main.html?_lang=en. Website accessed 17 December 2009.

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), 2010. Web Soil Survey: Soil Maps-Grand Forks County, North Dakota. Available online at: http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm. Website accessed 21 January 2010.

United States Environmental Protection Agency (USEPA), 2009. Fact Sheet: Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act. December 2009. http://www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_factsht.pdf. Website accessed 3 February 2010.

APPENDIX A: AF 813

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol
RCS: 2010-027

INSTRUCTIONS: *Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).*

SECTION I - PROPONENT INFORMATION

1. TO (*Environmental Planning Function*)	2. FROM (*Proponent organization and functional address symbol*)	2a. TELEPHONE NO
319 CES/CEAO Grand Forks AFB ND 58205	319 CS/SCXP (MSgt Neil C. McComsey) Grand Forks AFB ND 58205	701-747-6088

3. TITLE OF PROPOSED ACTION
Installation of Digital Airport Surveillance Radar (DASR) at Grand Forks AFB

4. PURPOSE AND NEED FOR ACTION (*Identify decision to be made and need date*)
The DASR is part of the National Airspace System (NAS) Program to upgrade from old analog radar (AN/GPN-20) to state-of-art digital technology (ASR-11) as part of a cooperative FAA DoD plan to modernize approach controls systems throughout the US.

5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (*DOPAA*) (*Provide sufficient details for evaluation of the total action.*)
Several potential DASR sites were examined on base in terms of cost, logistics, security, etc. The selected location is west of the existing AN/GPN-20 radar. Non-installation would greatly hamper GFAFB's ability to interface with other radar systems.

6. PROPONENT APPROVAL (*Name and Grade*)	6a. SIGNATURE	6b. DATE
MSgt Neil C. McComsey	Neil C. McComsey	2 Mar 10

SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY

(*Check appropriate box and describe potential environmental effects including cumulative effects.*) (+ = positive effect; 0 = no effect; - = adverse effect; U= unknown effect)

	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (*Noise, accident potential, encroachment, etc.*)		X		
8. AIR QUALITY (*Emissions, attainment status, state implementation plan, etc.*)		X		
9. WATER RESOURCES (*Quality, quantity, source, etc.*)		X		
10. SAFETY AND OCCUPATIONAL HEALTH (*Asbestos/radiation/chemical exposure, explosives safety quantity-distance, bird/wildlife aircraft hazard, etc.*)		X		
11. HAZARDOUS MATERIALS/WASTE (*Use/storage/generation, solid waste, etc.*)		X		
12. BIOLOGICAL RESOURCES (*Wetlands/floodplains, threatened or endangered species, etc.*)			X	
13. CULTURAL RESOURCES (*Native American burial sites, archaeological, historical, etc.*)		X		
14. GEOLOGY AND SOILS (*Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.*)		X		
15. SOCIOECONOMIC (*Employment/population projections, school and local fiscal impacts, etc.*)		X		
16. OTHER (*Potential impacts not addressed above.*)		X		

SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION

17. PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____, OR
X PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED

18. REMARKS
This action includes construction that does propose to affect wetlands. The environmental analysis must discuss why no other practicable alternative exists to avoid impacts. This action is not "regionally significant" and does not require a conformity determination in accordance with 40 CFR 93.153(i). The total emission of criteria pollutants from the proposed action are below the de minimus thresholds and less than 10 percent of the Air Quality Region's planning inventory.

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (*Name and Grade*)	19a. SIGNATURE	19b. DATE
WAYNE A. KOOP, R.E.M., YC-02 Asset Management Flight Chief		5 MAR 10

4.0 Purpose and Need for Action

4.1 Purpose of the Action (mission objectives-who proposes to do what, where, when): The NAS program was developed to modernize military air traffic control systems in the United States and at overseas DoD installations. Pursuant to the Program Management Directive (USAF, 1994), the DoD must provide services within its delegated airspace which are comparable to the services which FAA provides to civil aircraft in civilian airspace. These services include: flight following, separation, expeditious handling, radar approach control, and landing. The purpose of the DASR component of the USAF NAS program is to detect and process aircraft position and weather conditions in the vicinity of USAF airfields. The DASR will serve to accurately locate aircraft in terms of range, azimuth, and altitude; provide information regarding aircraft identification code; identify emergency conditions; and report six discrete weather precipitation levels. The new radar facility will not increase or decrease the current number of flights, change aircraft patterns, or otherwise alter existing base operations.

4.2 Need for the Action (why this action is desired or required-why here, why now): The NAS program is comprehensively upgrading air traffic control systems infrastructure by systematically replacing analog systems with state-of-the-art digital technology. The ASR-11 is needed at GFAFB to replace the existing AN/GPN-20 airport surveillance radar. The proposed ASR-11 will take advantage of the significantly increased capabilities of digital technology, enabling digital data input to proposed new digital automation system air traffic controller displays. Additionally, the ASR-11 will improve system reliability, provide additional weather data, reduce maintenance cost, and improve performance.

4.3 Objectives for the Action (what goal do you wish to accomplish): Construct the DASR in a location no closer than 1500' from aboveground objects that would interfere with ASR-11 operations, 0.5 mile from end of runway, 0.5 mile from any point of required detection coverage, 2500' from electronic equipment, 0.5 mile from National Weather Bureau radar & radiosonde.

4.4 Related EISs/EAs and other documents (similar projects in the past): 1995-002 Air Surveillance Radar System model AN/GPN-20, EA/FONSI 21Mar1995.

4.5 Decision that must be made:Construct the DASR in best location meeting criteria.

4.6 Applicable Regulatory Requirements and Required Coordination-- required permits, licenses, entitlements: Applicable regulatory requirements and required coordination before and during construction include a Work Clearance Request, Stormwater Protection Plan, Dust Control Plan, Spill Control Plan, and Erosion and Sediment Control Plan to the CEV Water Program Manager; a Spill Control Plan and Waste Disposal Plan to the CEV Pollution Prevention Manager; and copies of all plans to the Contracting Officer.

5.0 Description of Proposed Action and Alternatives

5.1 Description of the proposed action (in brief, introduction): Construct the DASR in Site 1.

5.2 Selection criteria for Alternatives

5.2.1 Minimum mission requirements: effectiveness, timeliness, cost effective, legality, safety, efficiency.

5.2.2 Minimum environmental standards : noise, air, water, safety, HW, vegetation, cultural, geology, soils, socioeconomic standards at Grand Forks AFB.

5.3 Alternatives Considered but Eliminated from Detailed Study: Eight sites were evaluated. Five were eliminated.

5.4 Description of proposed alternatives

5.4.1 No-action alternative: Implementation of the No-Action Alternative would result in the continued use of the AN/GPN-20 facility. Continued use and reliance on the AN/GPN-20 would deny GFAFB of the improved technology offered by the new DASR system. GFAFB would not benefit from the improved system reliability, additional weather data, reduced maintenance costs, and improved performance provided by the ASR-11 radar. Continued use of the existing AN/GPN-20 would not result in impacts to environmental resources.

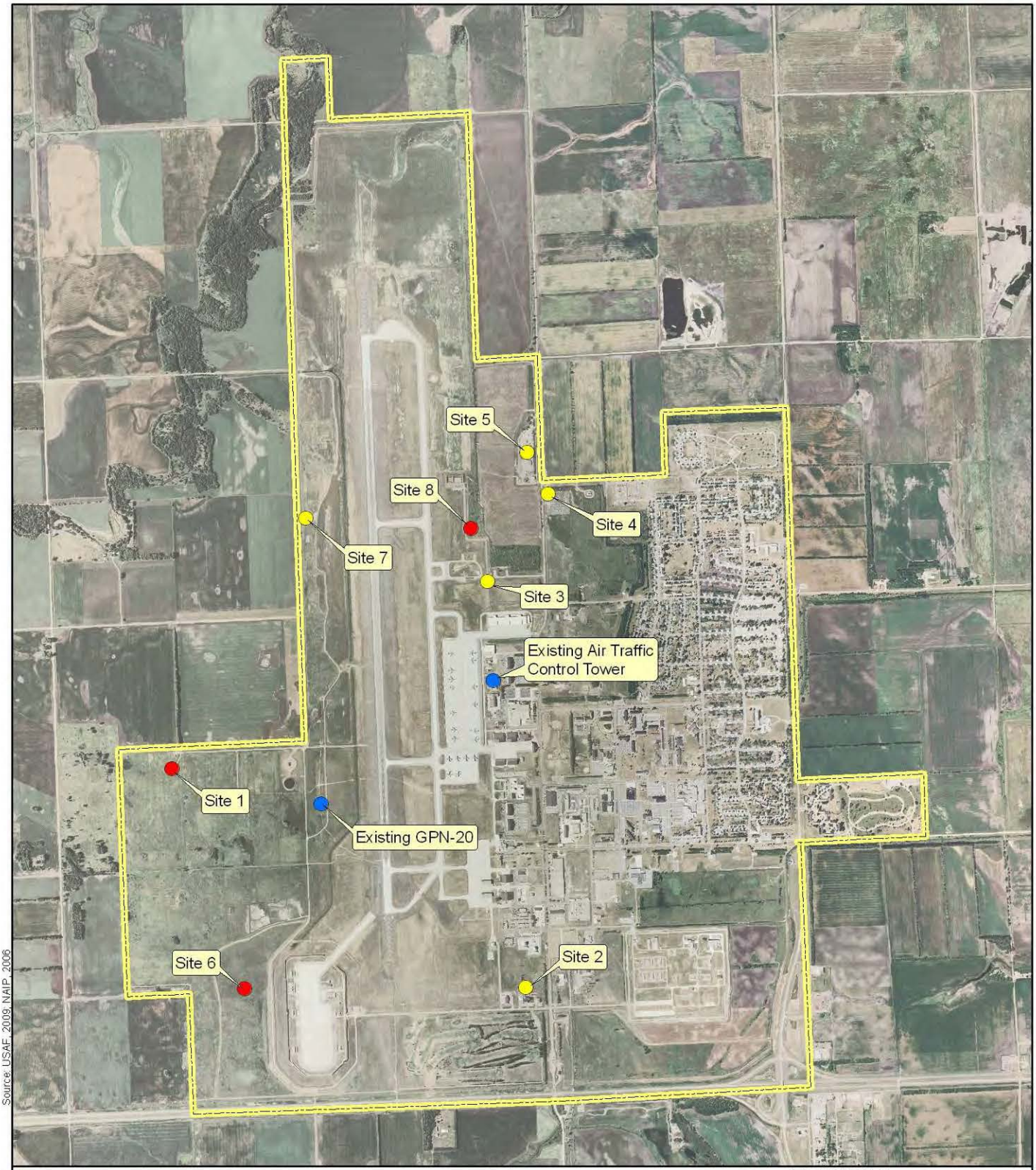
5.4.2 Proposed Action: Construct ASR-11 at Site 1 as shown on Figure 2-2. DASR facilities will consist of a 20-foot tall rotating radar antenna mounted on an 87-foot tower, a concrete radar equipment shelter, a 100kW diesel emergency generator in a concrete shelter, utility cabling, electronic equipment grounding systems and a 1,000 gallon double-walled aboveground fuel storage tank, on separate concrete foundations, surrounded by 140' by 140' site fence.

5.4.3 Another Reasonable Action Alternative: Eight sites were analyzed in the siting for the ASR-11. The second best alternative site is Site 6 located west of the Alpha Ramp.

5.5 Description of Past and Reasonably Foreseeable Future Actions Relevant to Cumulative Impacts: There are several other construction and demolition projects occurring on Grand Forks AFB in the same time frame. These projects are addressed under separate NEPA documents.

5.6 Recommendation of preferred alternative: Construct DASR at Site 1

11. Wetlands: Site 1 is proposed within an area south of an existing mapped wetland which abuts the existing access road. A wetland delineation will be required during design. Wetland impacts should be reduced to the greatest extent possible through project design and implementation of environmental protection measures.



Source: USAF, 2009; NAIP, 2006

LEGEND

- Installation Perimeter
- Existing Air Traffic Control Facility
- ASR-11 Candidate Site Eliminated from Consideration
- Alternative ASR-11 Site

N
W E
S

FIGURE 2-2
LOCATION OF ASR-11 ALTERNATIVE SITES
GRAND FORKS AIR FORCE BASE
DIGITAL AIRPORT SURVEILLANCE RADAR
Grand Forks County, North Dakota

0 800 1,600 3,200 4,800 6,400 Feet

Fig2-2_GrandForks_SiteLocations.mxd

APPENDIX B: PRELIMINARY SITE SCREENING CRITERIA FOR GRAND FORKS AFB

Derived from

Integrated Site Survey Report – Final

April 9, 2010

(USAF, 2010)

EXCLUSIONARY CRITERIA

These criteria consider the essential environmental, constructional, and operational constraints that could eliminate a site from further consideration as a potential site for the ASR-11 System. These criteria relate to environmental parameters that could lead to unmitigable significant impacts and physical parameters regarding a site's suitability for construction.

Does Not Conflict with Criteria

Conflicts with Criteria

		REJECTED SITES (Information provided below represents data gathered during the Preliminary Site Selection Meeting utilizing DTED data only)					**SELECTED SITES** (Information provided below represents data gathered during the Final Site Survey visit utilizing surveyed terrain data and DTED data)		
E	**Criteria**	**Site 2**	**Site 3**	**Site 4**	**Site 5**	**Site 7**	**Site 1**	**Site 6**	**Site 8**
E1	Impacts occupied existing structures								
E2	Within railroad ROW								
E3	Within highway ROW								
E4	Within runways and/or taxiways								
E5	Within power line ROW								
E6	Impacts wilderness areas								
E7	Impacts national natural landmarks								
E8	Site less than 160 by 160 feet								
E9	Lacks coverage of departing aircraft within 1 nmi of the exiting runway ends								
E10	Lacks coverage of aircraft targets on final approach up to the missed approach point								
E11	Within 1,500 feet of any non-removable above-ground screening/ reflecting object								
E12	Airfield specific exclusions(QD zones)								

RESTRICTIVE SCREENING CRITERIA

These criteria could eliminate a site from further consideration due to the extensive mitigation and/or complex construction techniques required to offset potentially significant impacts. Many of these criteria originate from Federal law. Additionally, many of the criteria are covered by state and local laws, which were consulted as appropriate.

No Adverse Impact/Meets Criteria

Partially Impacted/Marginal

Significantly Impacted/Does Not Meet Criteria

		REJECTED SITES (Information provided below represents data gathered during the Preliminary Site Selection Meeting utilizing DTED data only.)					**SELECTED SITES** (Information provided below represents data gathered during the Final Site Survey visit utilizing surveyed terrain data and DTED data)		
R	**Criteria**	**Site 2**	**Site 3**	**Site 4**	**Site 5**	**Site 7**	**Site 1**	**Site 6**	**Site 8**
R1	Ecological or wildlife areas								
R2	Wild and scenic rivers								
R3	Prime and unique farmland						1	1	
R4	Parks and recreation areas								
R5	Historical, archaeological, and culturally sensitive sites								
R6	Wetlands						2		2
R7	Endangered or threatened species habitat								
R8	Non-airfield or non-federal land								
R9	Designated unremediated hazardous waste site								3
R10	Capped landfill								4
R11	Scenic highways								
R12	Coastal zones								
R13	Steep terrain								
R14	Floodplain								
R15	Within 2,500 feet of existing electronic facilities or high tension power lines								

RESTRICTIVE SCREENING CRITERIA (Continued)

No Adverse Impact/Meets Criteria

Partially Impacted/Marginal

Significantly Impacted/Does Not Meet Criteria

		REJECTED SITES (Information provided below represents data gathered during the Preliminary Site Selection Meeting utilizing DTED data only.)						**SELECTED SITES** (Information provided below represents data gathered during the Final Site Survey visit utilizing surveyed terrain data and DTED data)		
R	**Criteria**	**Site 2**	**Site 3**	**Site 4**	**Site 5**	**Site 7**		**Site 1**	**Site 6**	**Site 8**
R16	Cone of silence impacts coverage of radar/instrument approaches, navigational fixes, airway/route, and special air traffic coverage requirements									
R17	Within 2,500 feet of industrial operations that could interrupt or contaminate site									
R18	Within 0.5 nmi of ends of any operational runways and approach and departure paths									
R19	Violates FAR Part 77									

1 Sites 1 and 6 are located on prime farmland soils. However, according to the Farmland Protection Policy Act (FPPA), since the land is part of the AFB and committed to urban development, the provision of the FPPA would not apply.

2 A non-jurisdictional wetland abuts the western edge of the road leading to Site 1. As currently designed, this road would be improved and the utility corridor would run parallel to the road. Thus, there is a potential to impact this wetland. AT Site 8 a drainage swale, which is considered a jurisdictional wetland, runs parallel to Road 7. Should the existing access road need improvements or the utility corridor extend past the limits of the current access road, the drainage swale would be impacted. The Jurisdictional Determination of the wetlands on base expire in May 2010; therefore, coordination with the COE will be necessary for any wetland impact.

3 Site 8 is located within an old small arms range. Base personnel have indicated that this site was most likely demolished prior to Resource Conservation and Recovery Act corrective action permits were implemented and under a COE contract when the existing small arms range was being constructed. During construction of the compost site in the 1990's, grading for drainage was performed and no debris from the small arms range was encountered.

4 Site 8 is located approximately 500 feet west of the Site FT-02 (Fire Training/Old Sanitary Landfill Area) and 1,700 feet southwest of Site LF-03 (New Sanitary Landfill Area). These landfills have been capped. Base personnel have indicated that no impacts are anticipated with the installation of the ASR-11 at Site 8.

SELECTIVE SCREENING CRITERIA

These criteria provide positive or negative considerations that will form the basis for comparison of candidate sites. Much of the information required is obtained/confirmed during site visits.

Positive

Neutral

Negative

		REJECTED SITES (Information provided below represents data gathered during the Preliminary Site Selection Meeting utilizing DTED data only.)					**SELECTED SITES** (Information provided below represents data gathered during the Final Site Survey visit utilizing surveyed terrain data and DTED data)		
S	**Criteria**	**Site 2**	**Site 3**	**Site 4**	**Site 5**	**Site 7**	**Site 1**	**Site 6**	**Site 8**
S1	Visual sensitivity						1	1	
S2	Accessibility to roads							2	
S3	Soils								3
S4	Geology								
S5	Proximity to 3 phase power						4	4	
S6	Proximity to telephone sevice						5	5	
S7	Zoning								
S8	Subsurface rights								
S9	Unique habitat								
S10	Utilities								
S11	Planned use of site	6	6	6	6				
S12	Roadways								
S13	Water resources								
S14	Recreational use								
S15	Underground cable routing								
S16	LOS visibility to air traffic coverage requirements	48 of 53	48 of 53	48 of 53	48 of 53	47 of 53	46 of 53	46 of 53	44 of 53
S17	Secondary radar coverage, on the surface, over the entire length of runways								

1 Land uses to the north and west of base are agricultural; therefore, no adverse visual impacts are anticipated.

2 Site 6 require construction of a 440 foot access road.

3 Site 8 is located within the Base Compost Site, which is closed.

4 Sites 1 and 6 are over 3,000 feet from 3 phase power

5 Sites 1 and 6 are over 1,000 feet from telephone service

6 Site 2 is located at the far western edge of the driving range; however, the installation of the ASR-11 would not preclude the use of the driving range. Base personnel have indicated that a flight simulator facility is proposed within this vicinity; development plans are conceptual and an exact location within this area has not been determined. According to base personnel, Site 3 is located within an area identified as for future hangar development; no design has been completed. Site 4 is located within the base Storage Lot for recreational vehicles. Site 5 is located within the stockpile lot of the Recycling Center.

APPENDIX C: WETLAND RESTORATION SPECIFICATIONS (Section 02210) FOR DASR AT GRAND FORKS AFB

SECTION 02210 – WETLAND RESTORATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes: removal of wetland surface soils, temporary stockpiling, replacement of wetland surface soils, grading to pre-existing elevations, seeding, and maintenance.

B. Related Sections and Documents: The following Sections and Documents contain requirements or information that relate to this Section.
   1. Section 01561 - "Environmental Protection"
   2. Section 02110 - "Site Clearing"
   3. Section 02200 - "Earthwork"
   4. Section 02900 - "Landscaping"

1.2 QUALITY ASSURANCE:

A. Work performed in wetland areas shall comply with all applicable federal, state, and local regulations and the requirements of any permits.

B. The Site Construction Engineer (SCE) shall supervise all of the following detailed components of the restoration work: at a minimum, the SCE shall oversee removal of wetland surface soils, temporary stockpiling, replacement of wetland surface soils, grading to pre-existing elevations, and seeding of wetland restoration seed mix.

C. Under no circumstances shall any excess material from restoration/re-grading activities be discharged into existing wetlands or waterways.

D. Wetland restoration, including sedimentation control, re-grading, and reseeding, shall be completed in accordance with these specifications and signed and stamped project plans.

E. Sedimentation and erosion control best management practices shall be installed, at a minimum, as shown on drawings to protect waterbodies or wetlands in the vicinity of the project.

F. Additional erosion control shall be implemented as necessary in the event that the erosion and sedimentation control system as shown on the plans is not sufficient to provide protection for nearby wetlands as a result of contractor's means and methods for restoration activities.

G. The sedimentation and erosion control system shall be maintained fully functional and shall not be removed until disturbed areas are stabilized by seeding, natural establishment or other means necessary as directed by the SCE.

H. All stockpiled materials shall be located in designated upland portions of the site and shall not impact waterbodies or wetlands in the vicinity of the project.

1.3 EXISTING CONDITIONS

A. Wetland boundaries and general existing site surface conditions and topography in the wetland areas are indicated on the Drawings.

B. The Contractor shall review the Contract documents, make adequate visual observations during site visits, and familiarize him/her self with the physical aspects of the site.

1.4 DELIVERY

A. Seed mixes shall be inspected by the Contractor and the SCE upon arrival at the site. The SCE shall be provided the opportunity to review delivered materials for conformance with the project requirements. Unhealthy, damaged, or otherwise unsuitable seed will not be accepted by the SCE and a replacement seed mix suitable to the SCE shall be procured in a timely fashion.

1.5 STORAGE

A. Seed mix not sown on the day of arrival at the site shall be stored and protected in a dry location away from excessive heat or cold.

B. Wetland soils removed from wetland areas for construction activities shall be stored and protected. Wetland soils shall be kept moist to maintain a viable seed bank for replacement in the wetland for restoration activities. Storage location(s) shall be shaded and protected from wind.

1.6 HANDLING

A. Care should be taken to avoid damaging wetland seed mix. Unsound seed mix will be rejected by the SCE.

1.7 SUBMITTALS

A. For wetland seed mixture, certificates from the seed vendor shall be submitted to the SCE for approval at least two weeks prior to application. The certificates shall state the botanical name, common name, number of seeds per unit of weight, the seed germination percentage, the amount of undesirable plant seeds present in the mixture, the date of production and of packaging, and name and address of supplier.

B. The Contractor shall, within two weeks of completion of seeding, prepare a final report summarizing the completed wetland restoration activities and forward a copy of the report to the SCE. The report shall summarize all restoration activities including activities that deviated from the original plans and specifications (any deviation shall be submitted to SCE for pre-approval prior to commencement of the activity or application of the material not in accordance with the plans and specifications).

PART 2 - PRODUCTS

2.1 SEEDS

A. The Wetland Restoration Areas shall be seeded with wetland species such as: Marsh Milkweed (*Asclepias incarnata*), Bottlebrush Sedge (*Carex comosa*), Prairie Cordgrass (*Spartina pectinata* 'Red River Germplasm'), Wooly Sedge (*Carex lanuginose*), Awl-Fruit Sedge (*Carex stipata*), Baltic Rush (*Juncus balticus*), Wool-Grass (*Scripus cyperinus*), Soft-stem bulrush (*Schoenoplectus tabernaemontani*), Prairie Dogbane (*Apocynum cannabinum*), Blue Joint Grass (*Calamagrostis canadensis*), Flowl bluegrass (*Poa palustris*), American sloughgrass (*Beckmannia syzigachne*), Slender Wheatgrass (*Elymus trachycaulus*), Hairy Fruit Sedge (*Carex trichocarpa*), Needle Spike-rush (*Eleocharis acicularis*) or equivalent species as approved by USAF AMC 319 CES/CEAN.

B. Any seed mix used onsite shall not include any species listed as invasive or noxious by the USDA/NRCS Plants Database (*http://plants.usda.gov/java/noxiousDriver*), NDSU (*http://www.ag.ndsu.edu/pubs/plantsci/weeds/w1103w.htm*), or North Dakota Department of Agriculture (*http://www.agdepartment.com/noxiousweeds/searchweeds.asp*).

PART 3 - EXECUTION OF RESTORATION

3.1 TEMPORARY REMOVAL OF WETLAND SURFACE SOILS

A. Prior to any work within wetland areas, carefully remove the top 12 inches of wetland soil.

3.2 TEMPORARY STOCKPILING OF WETLAND SURFACE SOILS

A. Temporarily stockpile wetland soils for reapplication in accordance with 1.5B. Do not mix stockpiled soils from multiple wetland areas.

3.3 REPLACEMENT OF WETLAND SOILS AND RE-GRADING

A. Soil to be used in the wetland restoration areas shall consist of the original wetland soil removed and stockpiled at the start of construction activities.

B. Handling of the soil shall be performed so as to maintain the integrity of the material (e.g. avoid compaction, destruction of seeds and rhizomes in the soil, etc.).

C. The final surface elevations shall correspond with original elevations or new proposed elevations, as the case may be, as indicated in the project plans.

D. Upon final grading, wetland restoration areas shall contain a minimum of 12 inches f wetland soil in the upper horizon.

E. Final grading shall be free of ditches or ruts caused by equipment.

F. Surplus materials shall be legally disposed off-site at no additional cost to the Owner.

3.4 SEEDING

A. He wetland restoration seeding shall occur during the growing season with sufficient time t allow germinating seed to establish (approximately April through August) unless otherwise recommended by the seed manufacturer. If special conditions exist which warrant a variance in the seeding schedule or conditions, a written request shall be submitted stating the special condition and proposed variance. Said request must be approved by the SCE prior to the start of work outside these time intervals.

B. The seedbed shall be inspected by the SCE prior to seeding. The top 2 inches of the soil shall be loose and friable. Any stones or debris larger than 1 inch shall be removed from the soil surface.

C. The application rate of the wetland seed mix shall follow the manufacturer's recommendations and must be approved by the SCE.

D. Once the seed has been sown with uniform coverage within the wetland restoration area(s), the area(s) shall be lightly raked to ensure good seed-to-soil contact.

E. All seeds shall be watered within the same working day on which they are sown.

F. Seeding shall not occur when the ground is frozen, snow covered, inundated, or otherwise unsuitable.

3.5 WATERING OF SEEDED AREAS

A. Seeded areas shall be watered at a minimum of twice per week for three weeks immediately following sowing/planting to allow wetland vegetation to successfully establish, unless weather conditions provide sufficient precipitation or as otherwise directed by the SCE.

3.6 MAINTENANCE, WARRANTY PERIOD, AND REPLACEMENT

A. Contractor shall warrant that all seed planted under this contract shall result in vegetation that is healthy and in a flourishing condition of active growth one year from the date of the conclusion of seeding.

B. Seed shall be protected from herbivores and other vectors which threaten the establishment of vegetation.

C. Seeded areas shall bear foliage of a normal density, size, and color.

D. The Contractor shall reseed, at no cost to the Owner, all restoration areas not in a vigorous, thriving condition as determined by the SCE during and at the end of the warranty period.

E. Vehicles and equipment shall be prohibited from the seeded areas once seeding has been initiated

END OF SECTION 02210

APPENDIX D: CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPs) FOR DASR AT GRAND FORKS AFB

Grand Forks AFB has approximately 300 wetlands covering 305 acres (approximately six percent of Grand Forks AFB is wetlands). The majority of wetlands at GFAFB are associated with prairie potholes, low-lying areas and ditches. The Air Force has determined that the proposed action has the potential to cause minor, direct and indirect, impacts to wetlands at Grand Forks AFB. The Air Force Environmental Impact Analysis Process (EIAP) implements Executive Order 11990 *that* requires each federal agency to protect the natural values of wetlands and avoid actions which would either destroy or modify their existence or function. While wetland resources may be subject to environmental impact, this EIAP includes a Finding of No Practicable Alternative (FONPA) to the proposed action.

Relocation of the proposed action to another site on Grand Forks AFB is not practicable. Under EIAP, a FONPA must be submitted to the MAJCOM EPF. The Proposed Action would not result in significant adverse effects on the land or the surrounding area. However, BMPs and other minimization measures will be implemented to eliminate or reduce the impacts of adverse effects.

General BMPs that may be included as parts of the Proposed Action are summarized as follows:

- Clearing and grubbing will be timed with construction to minimize the exposure of cleared surfaces. Such activities will not be conducted during periods of significant precipitation. Construction activities will be staged to allow for the stabilization of disturbed soils.

- Trenching activities will be phased so that smaller areas of land are disturbed at one period of time. This would result in less soil exposed at one time, and will reduce the potential for erosion and deposition of sediment into wetlands or other waters of the United States.

- Fugitive dust-control techniques such as soil watering and soil stockpiling will be used to minimize adverse effects. All such techniques would conform to applicable regulations.

- Soil erosion-control measures will be used as appropriate. Silt fences will be used to minimize transport of sediments off the project area.

- An erosion and sedimentation control plan will be developed prior to initiation of construction activities and adhered to during development.

- Silt fence will be installed down gradient of the construction site in sloped areas adjacent to wetlands and other water bodies. The silt fence will be maintained fully functional and will not be removed until disturbed areas are stabilized by seeding, natural establishment or other means necessary.

- Additional erosion control will be implemented as necessary in the event that the erosion and sedimentation control system is not sufficient to provide protection for nearby wetlands as a result of contractor's means and methods for restoration activities.

- A construction grading plan has been developed to show existing and proposed topography. Existing drainage patterns and hydrology will be maintained. Best management practices such as installation of silt fencing along wetland boundaries will aid in prevention of siltation if natural site hydrology directs storm water runoff to the wetlands.

- Disturbance of environmental resources and topography has been minimized by integrating existing vegetation and topography into site design to the maximum extent practicable.

- Where feasible, areas of impervious surface would be minimized through the use of crushed stone or gravel. Storm water runoff originating from the construction site will be diverted and sedimentation controls implemented to avoid an untreated point source discharge into the wetland.

- When wetland crossings cannot be avoided, the use of heavy machinery in wetlands will be minimized by installing construction barriers at the edge of the proposed area of disturbance.

- Provisions will be taken to prevent pollutants from reaching the atmosphere, soil, groundwater, or surface water. During project activities, contractors will be required to perform daily inspections of equipment, maintain appropriate spill-containment materials on site, and store all fuels and other materials in appropriate containers. Equipment maintenance activities, if conducted on the construction site, will be in accordance with all containment and spill prevention procedures, and may include the use of drip pans, adsorbent spill pads, and other preventative measures.

- All fuels and other potentially hazardous materials will be contained and stored appropriately. In the event of a spill, procedures outlined in the installation's Spill Prevention, Control, and Countermeasure Plan (SPCC) will be followed to quickly contain and clean up a spill.

- Precautions will be taken to prevent contamination of soil, water, or atmosphere by the discharge of noxious substances resulting from construction operations. The contractor will provide equipment and personnel necessary to perform emergency measures to contain any spillage, in coordination with Grand Forks AFB EMS personnel.

- If contamination of the soil does occur, contaminated soil will be excavated and disposed at a predetermined off-site location. The resulting excavation will be filled with suitable backfill and compacted to the density of the surrounding soil to prevent future subsidence.

- The wetlands and other waters of the United States will be clearly flagged prior to commencement of construction activities. This will restrict construction workers from entering these wetlands and potentially placing fill within the wetlands or trampling wetland vegetation.

- Wetland soils that must be removed from wetland areas to facilitate construction activities will be stored in a shaded location and protected from the wind. These wetland soils will be kept moist to maintain a viable seed bank for replacement in the wetland for restoration activities.

- Construction equipment will be used primarily during normal work hours, typically from 7:00 am to 5:00 pm Monday through Friday. Equipment will be maintained to the manufacturer's specifications to minimize noise impacts.

- Construction debris will be disposed of at a suitable non-wetland site.

- The site will be maintained in clean condition at all times. At the end of each workday, all loose trash and debris from around the site will be gathered and placed in trash containers or removed from the site. Trash or other construction debris will not be stacked on the ground or in the open; trash will be placed in closed containers. Trash and debris will be prevented from becoming airborne.

- A Storm Water Pollution Prevention Plan (SWPPP) will be developed and implemented to prevent surface water degradation of wetlands within close proximity of project sites.

- Existing drainage ways will be preserved. Water will not be diverted away from or towards wetlands and other waters of the United States. This aids in maintaining the existing hydrology.

- Disturbance of vegetation will be minimized to the maximum extent practicable. Limits of work for utility trenching will be established that restrict construction equipment to the narrow corridor necessary for that activity. Vegetation outside the site footprint and beyond the limit of work will be protected.

- Disturbed areas will be seeded, sodded, or planted with indigenous material as soon as possible after construction activities are completed, as appropriate.

- The spread of noxious weeds can be controlled by avoiding activities in or adjacent to heavily infested areas, removing seed sources and propagules from the site prior to conducting activities, or limiting operations to nonseed-producing seasons. Following activities that expose the soil, affected areas will be covered with weed-seed free mulch or seeding the area with native species. Soil should be covered to reduce the germination of weed seeds, maintain soil moisture, and minimize erosion.

Short-and long-term, minor, adverse effects on soils would be expected from implementation of the Proposed Action. The primary short-term effects would occur during construction activities when vegetation is cleared and the earth is bare. Additional ground-disturbing activities could occur in association with construction activities. However, soils have been previously disturbed during initial construction, so effects would be expected to be minor.

Best management practices (BMPs) would be implemented during construction activities, and approved erosion and sediment control plan (ESCP) and stormwater pollution prevention plan (SWPPP) would be followed to reduce effects of increased impervious surfaces.. Section 438 of the Energy Independence and Security Act (EISA) would be adhered to so that pre- and post-development hydrology would be equal.

In the event of a spill or leak of fuel or other construction related products, all fuels and other potentially hazardous materials would be contained and stored appropriately, and spill procedures outlined in Grand Forks AFB's SPCC Plan would be followed to contain and clean up a spill quickly.

With proper management practices, and mitigation by reseeding the area with similar vegetation, no significant environmental issues are anticipated as a result of the proposed action.

APPENDIX E: USACE JURISDICTIONAL DETERMINATION

JANUARY 18, 2011

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
NORTH DAKOTA REGULATORY OFFICE
1513 SOUTH 12TH STREET
BISMARCK ND 58504-6640

January 18, 2011

North Dakota Regulatory Office [NWO-2005-60039-BIS]

Mr. James Petras
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Dear Mr. Petras:

We have reviewed the information you provided this office for Department of the Army (DA) request for wetland jurisdictional determination (JD) regarding the installation of new airport surveillance radar on the Grand Forks Air Force Base located in Section27, Township 152 North, Range 53 West, Grand Forks County, North Dakota.

Based on the information you provided to this office and further review of wetland data at the North Dakota Regulatory Office, it has been determined the above mentioned project area is not a Department of the Army, U.S. Army Corps of Engineers jurisdictional wetland area. Therefore, a Section 404 permit would not be required for this project as proposed. However, should future plans involve a discharge of fill into waters of the United States, a Department of the Army permit may be required.

The fact that a DA permit is not required does not relieve you of the obligation to obtain required approvals from other Federal, State or local agencies that may have jurisdiction over the project.

An approved jurisdictional determination has been completed for this project. The JD will be made available to you upon request, or it may be viewed at our website at https://www.nwo.usace.army.mil/html/od-rnd/ndhome.htm. The JD will be available on the website within 30 days. If you are not in agreement with the JD, you may request an administrative appeal under Corps of Engineers regulations found at 33 CFR 331. The Request for appeal must be received within 60 days from the date of this correspondence. If you would like more information on the jurisdictional appeal process, contact this office. **It is not necessary to submit a Request for Appeal if you do not object to the JD.** The jd will be valid for a period of 5 years.

The Omaha District, North Dakota Regulatory Office is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete our Customer Service Survey found on our website at http://per2.nwp.usace.army.mil/survey.html. If you do not have internet access, you may call and request a paper copy of the survey that you can complete and return to us by mail or fax.

Should you have any questions regarding this determination, please contact Ms. Patsy Crooke of this office by letter or telephone (701) 255-0015 and reference project number NWO-2005-60039-BIS..

Sincerely,

Daniel E. Cimarosti

Daniel E. Cimarosti
Regulatory Program Manager
North Dakota

Enclosures

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 19 January 2011

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Omaha, NWO-2005-60039-BIS, GFAFB Radar Surveillance

C. PROJECT LOCATION AND BACKGROUND INFORMATION: Section 27, T153N, R53W
State: North Dakota County/parish/borough: Grand Forks City: Grand Forks Air Force Base
Center coordinates of site (lat/long in degree decimal format): Lat. Wetland A: 47.953154; Wetland B: 47.954140 N; Long. Wetland A: -97.419021; Wetland B: -97.409574 W
Universal Transverse Mercator:
Name of nearest waterbody: Isolated Wetlands
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: None
Name of watershed or Hydrologic Unit Code (HUC): Turtle River
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: December 23, 2010
☒ Field Determination. Date(s): **June 9, 2010 by AECOM**

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   ☐ TNWs, including territorial seas
   ☐ Wetlands adjacent to TNWs
   ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   ☐ Non-RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   ☐ Impoundments of jurisdictional waters
   ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: linear feet: width (ft) and/or acres.
   Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Pick List**
   Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):** [3]
   ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: These wetlands (A = .97 acres and B = .75 acres) are located in an area with sufficient drop in elevation compared to the surrounding terrain to allow water to accumulate for prolonged periods of time. Due to signs of consistent inundation is it possible that the location is fed by a groundwater seep (per wetland delineation data forms 07/07/2004). They are closed basins with no discernable surface outlet. These wetlands 1) are not used by interstate or foreign travelers for recreational or other purposes; 2) does not support fish or shellfish that could be taken and sold in interstate or foreign commerce; and 3) are not used for industrial purposes by industries in interstate commerce.

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs N/A

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY)**: N/A**

C. SIGNIFICANT NEXUS DETERMINATION N/A

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY): N/A

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[4] N/A

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☒ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☒ Wetlands: approximately 1.72 (A = .97 ac; B = .75 ac) acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:agent for GFAFB requesting jd.
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☒ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: .
  - ☐ USGS NHD data.
  - ☒ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name:USGS 1:24k Quad - Arvilla.
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation:Websoil Survey; NDHUB.
- ☒ National wetlands inventory map(s). Cite name:USFWS; Quad - Arvilla.
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☐ Aerial (Name & Date):Google Earth 2009; .
  or ☐ Other (Name & Date):Photographs of wetland areas - July 7, 2010.
- ☒ Previous determination(s). File no. and date of response letter:NWO-2005-60039-BIS, May 23, 2005.

---

[4] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify):Previous delineations completed in 07/07/2004.

B. ADDITIONAL COMMENTS TO SUPPORT JD: See attached map.

Figure 2: Project and Wetland Delineation Overview Map

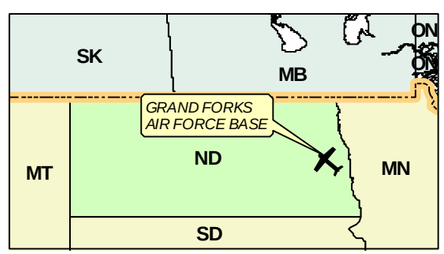
GRAND FORKS AIR FORCE BASE
DIGITAL AIRPORT SURVEILLANCE RADAR
Grand Forks County, North Dakota

N
W E
S

0 125 250 500 750 1,000
Feet

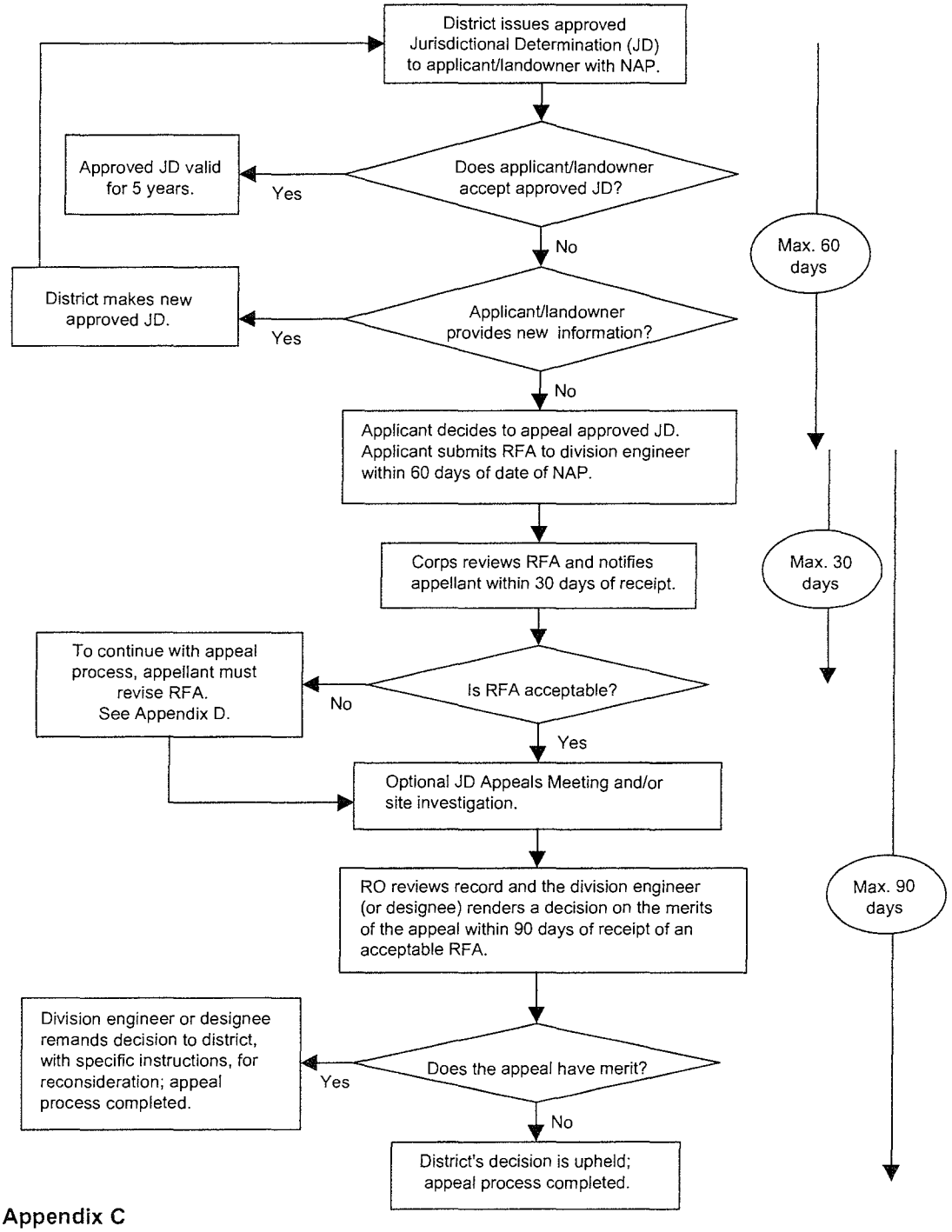
LEGEND

- Wetland Flag Lines - Delineated
- Wetland Flag Lines - Estimated
- Wetland
- Direction Wetland Line (not delineated) Continues



G:\Projects\NAS\Grand_Forks\Maps\EA Maps\JD maps\Figure 2.mxd

Administrative Appeal Process for Approved Jurisdictional Determinations



Appendix C

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: **AECOM/GFAFB**	File Number: NWO-2005-60039-BIS	Date: 18 Jan 2011

Attached is:		See Section below
	A. INITIAL PROFFERED PERMIT (Standard Permit or Letter of Permission)	A
	B. PROFFERED PERMIT (Standard Permit or Letter of Permission)	B
	C. PERMIT DENIAL	C
XX	D. APPROVED JURISDICTIONAL DETERMINATION	D
	E. PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding a modification, reconsideration, or administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or request modification of the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the District Engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- REQUEST MODIFICATION: If you object to the permit (LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the District Engineer. Your objections must be received by the District Engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the District Engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the District Engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the District Engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the Division Engineer (address on page 2). This form must be received by the Division Engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the Division Engineer (address on page 2). This form must be received by the Division Engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept the approved JD, appeal the approved JD, or submit new information and request reconsideration of the approved JD.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the Division Engineer (address on page 2). This form must be received by the Division Engineer within 60 days of the date of this notice.
- RECONSIDERATION BASED ON NEW INFORMATION: You may submit new information to the District Engineer for reconsideration of an approved JD. You must submit the information within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II –Fill out this section and return this form to the appropriate office only if submitting a request for modification or reconsideration to the District Engineer, or if submitting a request for Administrative Appeal to the Division Engineer. All such submittals must be made within 60 days of the date of this notice.

Submit the following requests to the District Engineer

A. Modification of an INITIAL PROFFERED PERMIT (Item A).
D. Reconsideration of an APPROVED JURISDICTIONAL DETERMINATION based on NEW INFORMATION (Item D RECONSIDERATION).

Submit the following requests to the Division Engineer

B. Administrative Appeal of a PROFFERED PERMIT (Item B).
C. Administrative Appeal of a PERMIT DENIAL (Item C).
D. Administrative Appeal of an APPROVED JURISDICTIONAL DETERMINATION (Item D APPEAL) (for reasons other than reconsideration of an approved JD based on new information).

(Note: Preliminary Jurisdictional Determinations (Item E) are not appealable. If you have concerns regarding a preliminary Jurisdictional Determination, you can request an approved Jurisdictional Determination).

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

SUBMITTAL OF NEW OR ADDITIONAL INFORMATION: The District Engineer may accept and consider new information if you request a modification to an initial proffered permit (Part A), or a reconsideration of an approved JD (Part D). An administrative appeal to the Division Engineer is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the administrative record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: DISTRICT ENGINEER Attn: Daniel E. Cimarosti 1513 South 12th Street Bismarck, North Dakota 58504 Telephone: (701) 255-0015 (Use this address for submittals to the District Engineer)	If you wish to submit an appeal or have questions regarding the appeal process you may contact: US Army Corps of Engineers, Northwestern Division Attn: David Gesl, Appeal Review Officer PO Box 2870 Portland, OR 97208-2870 Telephone: (503) 808-3825

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

APPENDIX F: PUBLIC NOTICE

MARCH 10, 2011

8828

AFFIDAVIT OF PUBLICATION

STATE OF NORTH DAKOTA }
COUNTY OF GRAND FORKS } SS.

Ricky Straub of said State and County being first duly sworn, on oath says:

That { she / he } is { a representative of the GRAND FORKS HERALD, INC.,

publisher of the Grand Forks Herald, Morning Edition, a daily newspaper of general circulation, printed and published in the City of Grand Forks, in said County and State, and has been during the time hereinafter mentioned, and that the advertisement of

Notice of Draft Finding of No Significant

a printed copy of which is hereto annexed, was printed and published in every copy of the following issues of said newspaper, for a period of 1 time (s) to wit:

3/10	Yr. 11		Yr.
	Yr.		Yr.
	Yr.		Yr.
	Yr.		Yr.

and that the full amount of the fee for the publication of the annexed notice inures solely to the benefit of the publishers of said newspaper; that no agreement or understanding for a division thereof has been made with any other person and that no part thereof has been agreed to be paid to any person whomsoever and the amount of said fee is $217.23;

That said newspaper was, at the time of the aforesaid publication, the duly elected and qualified Official Newspaper within said County, and qualified in accordance with the law of the State of North Dakota to do legal printing in said County and State.

Publication Fee $ 217.23

19 1/2" Display Ad

Subscribed and sworn to before me this 11 day of March A.D. 2011

JAY EKREN
NOTARY PUBLIC
State of North Dakota
My Commission Expires December 20, 2016

Jay Ekren
Notary Public, Grand Forks, ND

NOTICE OF DRAFT FINDING OF NO SIGNIFICANT IMPACT ON THE DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE DIGITAL AIRPORT SURVEILLANCE RADAR, GRAND FORKS AIRFORCE BASE – NORTH DAKOTA

TO ALL INTERESTED AGENCIES, GROUPS AND PERSONS:

I. The purpose of this Notice is to satisfy the action identified in the Notice title to be undertaken by the Government of the United States, Department of Defense (DoD).

II. In accordance with the National Environmental Policy Act (NEPA), codified at 42 U.S.C., 4321 et seq., an Environmental Assessment has been prepared for the proposed installation of a Digital Airport Surveillance Radar. This project is subject to NEPA review because it is being funded, in part, with federal funding.

III. Proposed Action

The proposed project is for the construction of a Digital Airport Surveillance Radar (DASR) system at Grand Forks Air Force Base (AFB) in North Dakota. This proposed action is part of the National Airspace System (NAS) Program, developed by the Federal Aviation Administration in cooperation with the DoD to modernize approach control systems in the United States and its territories. DASR is a DoD-lead contract to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on U.S. Army, U.S. Navy, and U.S. Air Force bases throughout the country. The implementation of the NAS program, which also includes the installation of DoD Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at DoD bases, was previously evaluated in a programmatic Environmental Assessment and Finding of No Significant Impact (1995).

The environmental assessment for Grand Forks AFB addresses the site-specific impacts of locating a DASR system at Grand Forks AFB, and evaluates the consequences of the DASR system construction on both the natural and man-made environments. The Automation System and Voice Switch components of the NAS program at Grand Forks AFB would be located within existing buildings, and impacts are anticipated to be minor. The primary consequences of the DASR system evaluated in the environmental assessment involve the construction and operation of a DASR system at Grand Forks AFB, as well as the decommissioning and dismantlement of the existing AN/GPN-20 radar.

IV. Public Comments:

Interested parties may obtain a copy of the Environmental Assessment from or may submit written comments relating to this Draft Finding of No Significant Impact and Environmental Assessment to the following address:

Contact Person: Public Affairs Officer
319th Air Refueling Wing
375 Steen Boulevard, Building 313
Grand Forks Air Force Base, ND 58205
Phone: 701-747-5023
Email: PublicAffairsOfficeGrandForksAFB@us.af.mil
Web site: http://www.grandforks.af.mil/library/

Location(s) where the Draft EA and FONSI are available for review:

1. Grand Forks Library
2110 Library Circle
Grand Forks, ND 58201

No administrative action will be taken on the project before 30 calendar days of public review of this Draft EA and Finding of No Significant Impact.

(March 10, 2011)

APPENDIX G: AGENCY CORRESPONDENCE

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAR 8 2011

MEMORANDUM FOR DISTRIBUTION

FROM: 319 CES/CD
525 Tuskegee Airmen Blvd
Grand Forks AFB ND 58205-6434

SUBJECT: Draft Environmental Assessment of the Installation of a Digital Airport Surveillance Radar (DASR) at Grand Forks Air Force Base (AFB), North Dakota and Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA)

The United States Air Force (USAF) proposes to construct a Digital Airport Surveillance Radar (DASR) system at Grand Forks AFB. This Proposed Action is part of the National Airspace System (NAS) Program, developed by the Federal Aviation Administration in cooperation with the Department of Defense (DoD) to modernize approach control systems in the United States and its territories. DASR is a DoD-lead contract to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on U.S. Army, U.S. Navy, and U.S. Air Force Bases throughout the country. The implementation of the NAS program, which also includes the installation of DoD Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at DoD bases, was previously evaluated in a programmatic Environmental Assessment and Finding of No Significant Impact (1995).

This Draft Environmental Assessment for Grand Forks AFB addresses the site-specific impacts of locating a DASR system at Grand Forks AFB, and evaluates the consequences of the DASR system construction on both the natural and man-made environments. The Automation System and Voice Switch components of the NAS program at Grand Forks AFB would be located within existing buildings, and impacts are anticipated to be minor. The primary consequences of the DASR system evaluated in the Environmental Assessment involve the construction and operation of a DASR system at Grand Forks AFB, as well as the decommissioning and dismantlement of the existing AN/GPN-20 radar.

In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation and solicit comments on the attached Draft EA and FONSI/FONPA for this Proposed Action. Please provide your comments within 30 days from the date of this correspondence. Comments may include any issues or concerns related to the Proposed Action. Also enclosed is a copy of the distribution list of other Federal, state, and local agencies to be contacted regarding this Proposed Action. If you feel there are any additional agencies that should review and comment on the proposal, please feel free to include them in your distribution of this letter and the attached materials.

Please provide any comments or information directly to the Public Affairs Officer, 319th Air Refueling Wing, 375 Steen Boulevard, Building 313, Grand Forks AFB, ND 58205, within 30 days from the date of this correspondence. If members of your staff have any questions, the point-of-contact is telephone 701-747-5023, or email PublicAffairsOfficeGrandForksAFB@us.af.mil. The EA is on the web site http://www.grandforks.af.mil/library/.

MARY C. GILTNER
Deputy Base Civil Engineer

Attachment:
Draft EA and FONSI/FONPA

Interagency and Intergovernmental Coordination
for Environmental Planning Distribution List

Mr. Larry Knudtson, Planning
North Dakota State Water Commission
900 E Boulevard Ave, Dept 770
Bismarck ND 58505-0850

Mr. Jeff Towner
U.S. Fish and Wildlife Service
North Dakota Field Office
3425 Miriam Avenue
Bismarck, ND 58501-7926

Mr. Terry Steinwand, Commissioner
North Dakota Game and Fish
100 North Bismarck Expressway
Bismarck, ND 58501-5095

Mr. Merlen E. Paaverud
State Historic Preservation Officer
State Historical Society of North Dakota
612 East Boulevard Avenue
Bismarck, ND 58505-0830

Dr. Terry Dwelle, State Health Officer
North Dakota Department of Health
600 East Boulevard Avenue
Department 301
Bismarck, ND 58505-0200

Bismarck Regulatory Office
U.S. Army Corps of Engineers
1513 South 12th Street
Bismarck, ND 58504

U.S. Fish and Wildlife, Migratory Bird Office
P.O. Box 25486 DFC
Denver, CO 80225

Grand Forks County Board of Commissioners
PO Box 6372
Grand Forks ND 58206-6372

Mayor Brown
City of Grand Forks
PO Box 5200
Grand Forks ND 58206-5200

USEPA Region 8
1595 Wynkoop St
Denver CO 80202-1129

Polk County Board of Commissioners
612 N. Broadway, Suite 215
Crookston MN 56716

Dept of Energy
Western Area Power Administration
ND Maintenance Office
PO Box 1173
Bismarck ND 58502-1173

Jim Boyd
Division of Community Services
ND Dept of Commerce
1600 E Century Ave, Suite 2
PO Box 2057
Bismarck, ND 58502-2057

US Department of Agriculture
Natural Resources Conservation Service
2397 DeMers Avenue
Grand Forks ND 58201

Grand Forks Regional Airport Authority
2787 Airport Drive
Grand Forks ND 58203

ND Department of Transportation
608 East Boulevard Avenue
Bismarck ND 58505-0700

John D. Odegard School of Aerospace Sciences
PO Box 9007
Grand Forks ND 58202-9007

Tribal Historic Preservation Officer
Indian Affairs Commission
600 E Boulevard
Bismarck, ND 58505-0300

Bureau of Indian Affairs
3801 Bemidji Avenue NW, Suite 5
Bemidji, MN 56601

Bureau of Indian Affairs
161 Saint Anthony Ave, Suite 919
Saint Paul, MN 55103

Bureau of Indian Affairs
Great Plains Regional Office
115 4th Avenue Southeast
Aberdeen, SD 57401

North Dakota
DEPARTMENT OF COMMERCE

Community Services Economic Development & Finance Tourism Workforce Development

March 11, 2011

MCG 18 Mar 11 CEA — FYA

Mary C. Giltner
Department of the Air Force
319 CES/CD
525 Tuskegee Airmen Blvd.
Grand Forks AFB, ND 58205-6434

"Letter of Clearance" In Conformance with the North Dakota Federal Program Review System - State Application Identifier No.: ND110311-0064

Dear Ms. Giltner:

SUBJECT: Draft Environmental Assessment of the Installation of a Digital Airport Surveillance Radar and FONSI of No Practicable Alternative

The above referenced EA/FONSI has been reviewed through the North Dakota Federal Program Review Process. As a result of the review, clearance is given to the project only with respect to this consultation process.

If the proposed project changes in duration, scope, description, budget, location or area of impact, from the project description submitted for review, then it is necessary to submit a copy of the completed application to this office for further review.

We also request the opportunity for complete review of applications for renewal or continuation grants within one year after the date of this letter.

Please use the above SAI number for reference to the above project with this office. Your continued cooperation in the review process is much appreciated.

Sincerely,

James R Boyd

James R. Boyd
Manager of Governmental Services
Division of Community Services

bb

STATE HISTORICAL SOCIETY OF NORTH DAKOTA

March 18, 2011

Public Affairs Officer
319th Air Refueling Wind
Public Affairs Office
375 Steen Boulevard, Suite 12
Grand Forks AFB, North Dakota 58205

MC6 24 March
CEA—

ND SHPO 97-0527GH: Draft EA of Installation of Digital Airport Surveillance Radar (DASR) at Grand Forks Air Force Base, North Dakota

Dear Sirs,

We reviewed ND SHPO 97-0527GH: Draft EA of Installation of Digital Airport Surveillance Radar (DASR) at Grand Forks Air Force Base, North Dakota, and concur with a "No Historic Properties Affected" determination, provided the project remains as described in Mary Giltner's letter date stamped March 8, 2011and the CD "Grand Forks Air Force Base North Dakota: Installation of Digital Airport Surveillance Radar Draft Environmental Assessment" prepared by AECOM, March 10, 2011.

Thank you for the opportunity to review this project. If you have any questions please contact Susan Quinnell, at (701) 328-3576 or squinnell@nd.gov Thank you for the excellent documentation package, and the opportunity to review.

Sincerely,

Merlan E. Paaverud, Jr.
State Historic Preservation Officer (North Dakota)

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Great Plains Regional Office
115 Fourth Avenue S.E.
Aberdeen, South Dakota 57401

TAKE PRIDE IN AMERICA

MAR 18 2011

IN REPLY REFER TO:
DESCRM
MC-208

Mary C. Giltner
Deputy Base Civil Engineer
Public Affairs Officer
319th Air Refueling Wing
375 Steen Boulevard, Building 313
Grand Forks AFB, North Dakota 58205

MCO 23 Mar
CEA
CEAO

Dear Ms. Giltner:

We received your letter and the Draft Environmental Assessment of the Installation of a Digital Airport Surveillance Radar (DASR) at the Grand Forks Air Force Base. We have considered the potential for both environmental damage and impacts to archaeological and Native American religious sites on lands held in trust by the Bureau of Indian Affairs, Great Plains Region. You should be aware, however, that Tribes or Tribal members may have lands in fee status near the sites of interest. These lands would not necessarily be in our databases, and the Tribes should be contacted directly to ensure all concerns are recognized. The action considered has the following notification date and project location:

- March 8, 2011 Draft Environmental Assessment for the Installation of a Digital Airport Surveillance Radar (DASR) at the Grand Forks Air Force Base

We have no environmental objections to this action as long as the project complies with all pertinent laws and regulations. Questions regarding environmental opinions and conditions can be addressed to Jeffrey R. Davis, Environmental Protection Specialist, at (605) 226-7656.

We also find that the listed action will not affect cultural resources on Tribal or individual landholdings for which we are responsible. Methodologies for the treatment of cultural resources now known or yet to be discovered – particularly human remains – must nevertheless utilize the best available science in accordance with provisions of the Native American Graves Protection and Repatriation Act, the Archaeological Resources Protection Act of 1979 (as amended), and all other pertinent legislation and implementing regulations. Archaeological concerns can be addressed to Dr. Carson N. Murdy, Regional Archaeologist, at (605) 226-7656.

Sincerely,

Allie a. Harwood

Deputy Regional Director – Indian Services

-----Original Message-----
From: 319 ABW/PA (Public Affairs)
Sent: Monday, April 18, 2011 9:02 AM
To: STROM, DIANE M GS-11 USAF AMC 319 CES/CEAO
Subject: FW: Draft EA on DASR installation at Grand Forks AFB, ND

More feedback.

-----Original Message-----
From: Dave_Olson@fws.gov [mailto:Dave_Olson@fws.gov]
Sent: Friday, April 15, 2011 3:01 PM
To: 319 ABW/PA (Public Affairs)
Subject: Draft EA on DASR installation at Grand Forks AFB, ND

Dear Sir or Madam,

First of all I apologize for getting this to you late since I did not receive your document until April 8 although it arrived in the permit office on March 11. I felt I owed you some correspondence to you Draft EA on the Installation of a Digital Airport Surveillance Radar (DASR) at Grand Forks AFB, ND. In short there are no migratory bird issues regarding this project. Also your draft incorporates Best Management Practices if any issues do arise.

If you require a more formal letter with agency letterhead on it please let me know and I will provide you with a copy.

Cheers
Dave

Dave Olson
Assistant Migratory Game Bird Coordinator
Mountain-Prairie Region
MBSP
P.O. Box 25486-DFC
Denver, CO 80225-0486
tel:303-236-6284
fax:303-236-8680
dave_olson@fws.gov
****
"There are 2 spiritual dangers in not owning a farm,
One is the danger of supposing breakfast comes
from the grocery store, and the other that heat
comes from a furnace"
Aldo Leopold, "Sand County Almanac"

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Norman W. Deschampe, Chairman
Minnesota Chippewa Tribe
Grand Portage Band
PO Box 428
Grand Portage, MN 55605

Dear Chairman Deschampe,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of

the human and natural environment at GFAFB and the surrounding area. Specific actions include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Grand Portage Band.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Charles W. Murphy, Chairman
Standing Rock Sioux Tribe
PO Box D
Fort Yates, ND 58538

Dear Chairman Murphy,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of the human and natural environment at GFAFB and the surrounding area. Specific actions

include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Standing Rock Sioux Tribe.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Erma Vizenor, Chairwoman
Minnesota Chippewa Tribe
White Earth Ojibwe
PO Box 418
White Earth, MN 56591

Dear Chairwoman Vizenor,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of

the human and natural environment at GFAFB and the surrounding area. Specific actions include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the White Earth Ojibwe.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Kevin Jensvold, Chairman
Upper Sioux Indian Community
PO Box 147
Granite Falls, MN 56241

Dear Chairman Jensvold,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of the human and natural environment at GFAFB and the surrounding area. Specific actions

include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Upper Sioux Indian Community.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB ND 58205

Merle St. Claire, Chairman
Turtle Mountain Band of Chippewa Indians
4180 Highway 281
Belcourt, ND 58316

Dear Chairman St. Claire,

Grand Forks Air Force Base (GFAFB) is working on several projects at this time and they include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River, and nuisance species control on the installation. I would like to continue our government-to-government working relationship with the Turtle Mountain Band of Chippewa Indians and invite you to consult on each of these projects.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of

the human and natural environment at GFAFB and the surrounding area. Specific actions include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to continue working with you to fortify our relationship with the Turtle Mountain Band of Chippewa Indians.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

MAY 10 2011

Tex G. Hall, Chairman
Three Affiliated Tribes
Fort Berthold Indian Reservation
404 Frontage Road
New Town, ND 58763-9402

Dear Chairman Hall,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of

the human and natural environment at GFAFB and the surrounding area. Specific actions include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Three Affiliated Tribes.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB ND 58205

Myra Pearson, Chairwoman
Spirit Lake Tribe
PO Box 359
Fort Totten, ND 58335

Dear Chairwoman Pearson,

Grand Forks Air Force Base (GFAFB) is working on several projects at this time and they include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River, and nuisance species control on the installation. I would like to continue our government-to-government working relationship with the Spirit Lake Tribe and invite you to consult on each of these projects.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of

the human and natural environment at GFAFB and the surrounding area. Specific actions include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to continue working with you to fortify our relationship with the Spirit Lake Tribe.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Robert Shepherd, Chairman
Sisseton-Wahpeton Oyate
PO Box 509
Agency Village, SD 57262-0509

Dear Chairman Shepherd,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of the human and natural environment at GFAFB and the surrounding area. Specific actions

include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Sisseton-Wahpeton Oyate.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Stanley R. Crooks, Chairman
Shakopee Mdewakanton Sioux Community
2330 Sioux Trail NW
Prior Lake, MN 55372

Dear Chairman Crooks,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of the human and natural environment at GFAFB and the surrounding area. Specific actions

include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Shakopee Mdewakanton Sioux Community.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

MAY 10 2011

Rodney Bordeaux, Chairman
Rosebud Sioux Tribe
PO Box 430
Rosebud, SD 57570-0430

Dear Chairman Bordeaux,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of the human and natural environment at GFAFB and the surrounding area. Specific actions

include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Rosebud Sioux Tribe.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Floyd Jourdain, Chairman
Minnesota Chippewa Tribe
Red Lake Band of Chippewa Indians
PO Box 550
Red Lake, MN 56671

Dear Chairman Jourdain,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of

the human and natural environment at GFAFB and the surrounding area. Specific actions include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Red Lake Band of Chippewa Indians.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

John Yellow Bird Steele, President
Oglala Sioux Tribe
PO Box 2070
Pine Ridge, SD 57770-2070

Dear President Steele,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of the human and natural environment at GFAFB and the surrounding area. Specific actions

include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Oglala Sioux Tribe.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Marge A. Anderson, Chairwoman
Minnesota Chippewa Tribe
Mille Lacs Band of Ojibwe
43408 Oodena
Onamia, MN 56359

Dear Chairwoman Anderson,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of

the human and natural environment at GFAFB and the surrounding area. Specific actions include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Mille Lacs Band of Ojibwe.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Gabe Prescott, President
Lower Sioux Indian Community
PO Box 308
Morton, MN 56270

Dear President Prescott,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of the human and natural environment at GFAFB and the surrounding area. Specific actions

include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Lower Sioux Indian Community.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Michael Jandreau, Chairman
Lower Brule Sioux Tribe
PO Box 187
Lower Brule, SD 57028

Dear Chairman Jandreau,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of the human and natural environment at GFAFB and the surrounding area. Specific actions

include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Lower Brule Sioux Tribe.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Arthur LaRose, Chairman
Minnesota Chippewa Tribe
Leech Lake Band of Ojibwe
115 6th Ave Street NW, Ste. E
Cass Lake, MN 56633

Dear Chairman LaRose,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of

the human and natural environment at GFAFB and the surrounding area. Specific actions include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Leech Lake Band of Ojibwe.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Karen R. Diver, Chairwoman
Minnesota Chippewa Tribe
Fond du Lac Band of Chippewa
1720 Big Lake Road
Cloquet, MN 55720

Dear Chairwoman Diver,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of

the human and natural environment at GFAFB and the surrounding area. Specific actions include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Fond du Lac Band of Chippewa.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Duane Big Eagle, Chairman
Crow Creek Sioux Tribe
PO Box 50
Fort Thompson, SD 57339-0050

Dear Chairman Big Eagle,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of the human and natural environment at GFAFB and the surrounding area. Specific actions

include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Crow Creek Sioux Tribe.

Sincerely,

Donald L. Shaffer

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Anthony Reider, President
Flandreau Santee Sioux Tribe
PO Box 283
Flandreau, SD 57028

Dear President Reider,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of the human and natural environment at GFAFB and the surrounding area. Specific actions

include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Flandreau Santee Sioux Tribe.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Victoria Winfrey, President
Prairie Island Indian Community
5636 Sturgeon Lake Road
Welch, MN 55089

Dear President Winfrey,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of the human and natural environment at GFAFB and the surrounding area. Specific actions

include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Prairie Island Indian Community.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 10 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Robert Cournoyer, Chairman
Yankton Sioux Tribe
PO Box 248
Marty, SD 57361-0248

Dear Chairman Cournoyer,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of the human and natural environment at GFAFB and the surrounding area. Specific actions

include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Yankton Sioux Tribe.

Sincerely,

Donald L. Shaffer

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

MAY 10 2011

Kevin Leecy, Chairman
Minnesota Chippewa Tribe
Bois Forte Band of Chippewa
5344 Lakeshore Drive
PO Box 16
Nett Lake, MN 55772

Dear Chairman Leecy,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of the human and natural environment at GFAFB and the surrounding area. Specific actions include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Bois Forte Band of Chippewa.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 319TH AIR BASE WING (AMC)
GRAND FORKS AIR FORCE BASE, NORTH DAKOTA

MAY 1 0 2011

Colonel Donald L. Shaffer
Commander, 319th Air Base Wing
460 Steen Blvd
Grand Forks AFB, ND 58205

Kevin Keckler Sr., Chairman
Cheyenne River Sioux Tribe
PO Box 590
Eagle Butte, SD 57625

Dear Chairman Keckler,

I recently sent you an invitation to begin a working government-to-government relationship with Grand Forks Air Force Base (GFAFB) and I would like extend that effort with an invitation to consult on several other projects. These projects include the installation of a digital airport surveillance radar, restoration and stabilization of the riparian area of the Turtle River and nuisance species control on the installation.

The draft environmental assessment addressing the installation of digital airport surveillance radar on the installation discusses site-specific impacts of locating and constructing a radar system at GFAFB and evaluates the consequences of construction on both the natural and man-made environments. The proposed action is part of the National Airspace System program, developed by the Federal Aviation Administration in cooperation with the Department of Defense, to modernize approach control systems in the United States and its territories. The intent is to replace analog air traffic control systems with state-of-the-art digital air traffic control equipment on Army, Navy, and Air Force bases throughout the country. It includes installation of Department of Defense Advanced Automation System digital radar display terminals and Voice Communications Switching Systems at military bases. Part of the proposed action includes the decommissioning and dismantlement of the existing airport surveillance radar.

The next project proposes to restore and stabilize that portion of the Turtle River riparian area located in the northwestern corner of GFAFB. The purpose of the project is to limit potential downstream impacts on water quality, recreation, flood control, and fish and wildlife habitat while restoring the overall health of the adjacent riparian forest. This includes removal of noxious and invasive vegetation species, planting of native species where needed, installation of river bank natural revetments and removal of trash and other foreign debris.

The last project includes actions to apply appropriate techniques to manage and control mosquitoes and noxious and invasive weed species at the installation to improve the quality of the human and natural environment at GFAFB and the surrounding area. Specific actions

include the aerial and ground application of mosquito pesticides, ground applications of herbicides and restoration of grassland areas to native vegetation.

Please accept this letter to initiate tribal consultation with you regarding these actions in accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*. I invite your comments on the proposed undertakings that may have a potential to affect properties of cultural, historical or religious significance to your tribe. Please find an attached disk containing three draft documents for your thoughtful review: 1) "Installation of Digital Airport Surveillance Radar Draft Environmental Assessment", 2) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing Riparian Restoration and Stabilization at Grand Forks Air Force Base, North Dakota" and 3) "Description of the Proposed Action and Alternatives for an Environmental Assessment Addressing the Integrated Control of Nuisance Species at Grand Forks Air Force Base, North Dakota."

Your participation and submission of written comments concerning these projects is desired and can be sent to the following address:

319 CES/CEAN
525 Tuskegee Airmen Blvd
Grand Forks AFB, ND 58205

I would be happy to arrange a meeting with you in person should you prefer to have one. To facilitate these efforts and any desired future consultations, I am designating Colonel Tammy M. Knierim as my government-to-government representative. She is the Mission Support Group commander at my installation, and oversees the personnel involved with this effort. My staff will contact yours after receipt of this letter to provide any assistance needed as necessary. Thank you for your time and consideration. I look forward to fostering a working relationship with the Cheyenne River Sioux Tribe.

Sincerely,

DONALD L. SHAFFER, Colonel, USAF
Commander

Attachment:
Disk with project information