

DRAFT ENVIRONMENTAL ASSESSMENT NEW VETERINARY CLINIC

JANUARY 2013



ELLSWORTH AIR FORCE BASE
SOUTH DAKOTA



DRAFT
FINDING OF NO SIGNIFICANT IMPACT (FONSI)
NEW VETERINARY CLINIC
ELLSWORTH AIR FORCE BASE, SOUTH DAKOTA

The attached environmental assessment (EA) analyzes the potential for impacts to the environment as a result of the construction and operation of a new veterinary clinic at Ellsworth Air Force Base (AFB), South Dakota. A No-Action Alternative was also considered. The EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code [U.S.C.] 4321 et seq.), the Council on Environmental Quality regulations implementing the procedural provisions of NEPA, 40 Code of Federal Regulations (CFR) Parts 1500-1580, and Air Force policy and procedures (32 CFR Part 989).

This FONSI summarizes the results of the evaluation of construction and operation activities. The discussion focuses on activities that have the potential to change both the natural and human environments.

Summary of Environmental Consequences

Socioeconomics, utilities, transportation, airspace, hazardous materials management, hazardous waste management, pesticide management, storage tanks, radon, ordnance, radioactive materials, noise, and biological resources would not be affected.

Because there would be no change in population, and only a temporary increase in employment that would result from the construction of the new facility and no new personnel would be required, significant impacts to socioeconomics are not expected. No change in use of utilities would occur and no impacts are expected. No increase in traffic is expected to occur, except from that of short-term construction crews. No impacts to the use, control, or management of airspace are anticipated as a result of the construction project. Hazardous materials, hazardous waste, and pesticide management practices are not expected to change as a result of the construction project or implementation of the Proposed Action. There are no structures or facilities within the project area that contain storage tanks, ordnance, or radioactive materials; therefore, impacts are not expected. The project does not include any type of facility for which radon would be a concern. Noise generated from construction activities is expected to be temporary; no permanent or long-term impacts for noise are expected. The project area is within a developed portion of the base, and the immediate area is disturbed; therefore, significant impacts to biological resources are not expected.

Because the new veterinary clinic would not change the visual character or sensitivity of the site, no impacts to aesthetics are expected. The project would be consistent with the proposed land use designation for the project site in the base general plan. Long-term adverse impacts are not expected.

The construction of the new facility would not change the manner in which medical/biohazardous materials are generated, stored, distributed, or disposed of. Construction of the new facility would not increase the relative amount of medical/biohazardous materials stored on base because the facility would be replacing the existing veterinary clinic. After the Proposed Action is implemented, medical/biohazardous waste generation would move from the existing facility to the new veterinary clinic. No significant impacts from generation, storage, or disposal of medical/biohazardous waste are anticipated.

Construction activities do not involve large-scale cutting, filling, or grading of the area, so geology and soils are not expected to be significantly altered. Standard construction practices would be implemented to control potential soil erosion and water runoff. No surface water resources are near the project area and construction is not expected to have a significant impact on surface or groundwater resources.

During construction, the potential exists for short-term impacts to local air quality from fugitive dust or emissions from construction vehicles. However, standard management practices would be used to control fugitive dust, and emissions from construction activities would be temporary. Impacts to air quality are expected to be temporary and less than significant.

The project area has been heavily disturbed; no historic properties are expected to be encountered during project activities. No significant impacts to cultural resources are expected.

Cumulative Impacts

The EA reviewed cumulative impacts that could result from the incremental impact of proposed activities when added to other past, present, or reasonably foreseeable future action. No significant cumulative impacts would be expected.

Mitigations

The EA concluded that no significant impacts to the environment would result from the construction and operation of the new veterinary clinic. Therefore, no mitigation measures would be required.

Decision

As a result of the analysis of impacts in the EA, it was concluded that the proposed activity would not have a significant effect on human health or the natural environment; therefore, an environmental impact statement will not be prepared.

MARK E. WEATHERINGTON, Colonel, USAF
Commander, 28th Bomb Wing
Ellsworth Air Force Base, South Dakota

Date

Attachment:
Environmental Assessment

DRAFT
ENVIRONMENTAL ASSESSMENT

**NEW VETERINARY CLINIC
ELLSWORTH AIR FORCE BASE,
SOUTH DAKOTA**

JANUARY 2013

**COVER SHEET
ENVIRONMENTAL ASSESSMENT
FOR NEW VETERINARY CLINIC
AT ELLSWORTH AIR FORCE BASE, SOUTH DAKOTA**

- a. Responsible Agency: U.S. Air Force
- b. Proposed Action: Construct a new veterinary clinic to replace the existing base veterinary clinic.
- c. Written comments and inquiries regarding this document should be directed to: Lt Kurt DeRussy, 28 CES/CEP, Ellsworth Air Force Base, 2125 Scott Drive, Ellsworth AFB, SD 57706.
- d. Designation: Draft Environmental Assessment (DEA)
- e. Abstract: The purpose of this action is to construct a new veterinary clinic. The facility would be sited and constructed to comply with US Army provisions for location and operation of medical facilities. Veterinary clinic personnel and operations would relocate from the existing veterinary clinic. The existing veterinary clinic building would be used by another unit.

This EA has been prepared in accordance with the National Environmental Policy Act to analyze the potential environmental consequences of the Proposed Action. Two alternatives were examined: the Proposed Action and the No-Action Alternative. The Proposed Action is to construct the new veterinary clinic. The No-Action Alternative involves continuing to operate the veterinary clinic at its current location.

The environmental resources potentially affected by the Proposed Action are land use, aesthetics, medical/biohazardous waste, geology and soils, water resources, air quality, and cultural resources. Based on the nature of the activities that would occur under the Proposed Action and No-Action Alternative, the Air Force has determined that minimal or no adverse effects to the above resources are anticipated.

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ACRONYMS AND ABBREVIATIONS

ACQR	Air Quality Control Region
AFB	Air Force Base
BHRCI	Black Hills-Rapid City Intrastate
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CRM	Cultural Resources Manager
DENR	Department of Environmental and Natural Resources
DOD	Department of Defense
EA	environmental assessment
EIS	environmental impact statement
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
FONSI	Finding of No Significant Impact
HAPs	Hazardous Air Pollutants
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
MMRP	Military Munitions Response Program
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
pCi/l	picoCuries per liter
ppm	parts per million
PSD	Prevention of Significant Deterioration
ROI	Region of Influence
SF	square foot
SHPO	State Historic Preservation Officer
tpy	tons per year
UFC	Unified Facilities Criteria
U.S.C.	U.S. Code
USFWS	U.S. Fish and Wildlife Service

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1.0 PURPOSE OF AND NEED FOR ACTION

This environmental assessment (EA) evaluates the potential environmental impacts of implementing the construction and operation of a new veterinary clinic on Ellsworth Air Force Base (AFB), South Dakota (Figure 1-1).

This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code [U.S.C.] 4321 et seq.), the Council on Environmental Quality (CEQ) regulations implementing the procedural provisions of NEPA 40 Code of Federal Regulations [CFR] Parts 1500-1580, and Air Force policy and procedures (32 CFR Part 989).

1.1 PURPOSE AND NEED

Ellsworth AFB's existing veterinary clinic is located in an inadequate facility originally designed for an alternate purpose. The existing clinic's operations and care capabilities are inhibited due to the substandard facility. The building is not in compliance with the spaces and functionality required by Department of Defense (DOD) Medical Space Planning Criteria.

The purpose of the action is to allow Ellsworth AFB to provide adequate care to Military Working Dogs as required, and to the base animal population. Military Working Dogs are a mission-essential component to base security. The dogs provide security forces units the capability to enforce military laws and regulations, suppress use of illegal drugs, detect explosives, and protect installation and resources. Sufficient care facilities, to include separate exam, surgery, x-ray, and prep spaces, are required to keep the working dog population healthy.

1.2 DECISIONS TO BE MADE

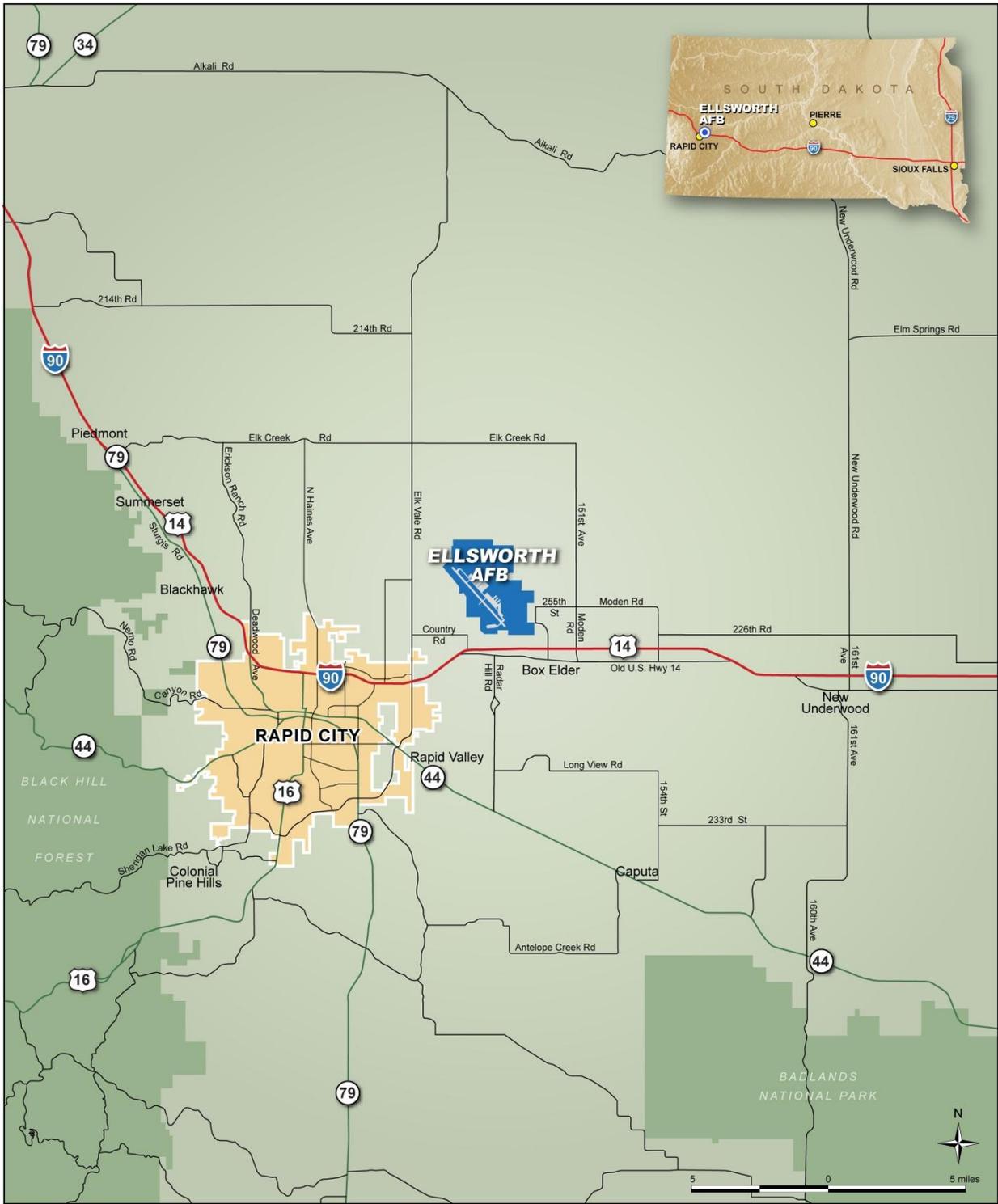
This EA will provide the U.S. Air Force decision maker with information required to understand the potential environmental consequences of the construction and operation of a new veterinary clinic to support the decision of whether to prepare an environmental impact statement (EIS) or a Finding of No Significant Impact (FONSI) (40 CFR Part 1508.9).

1.3 LOCATION OF THE PROPOSED ACTION

The proposed facility would be in the southeastern portion of Ellsworth AFB near the intersection of Eaker Drive and Chennault Street. The new facility would be constructed on the location of former Building 3401 (Figure 1-2), which was demolished in 2003. The location is north of and adjacent to the Black Hills Chapel, Building 3405.

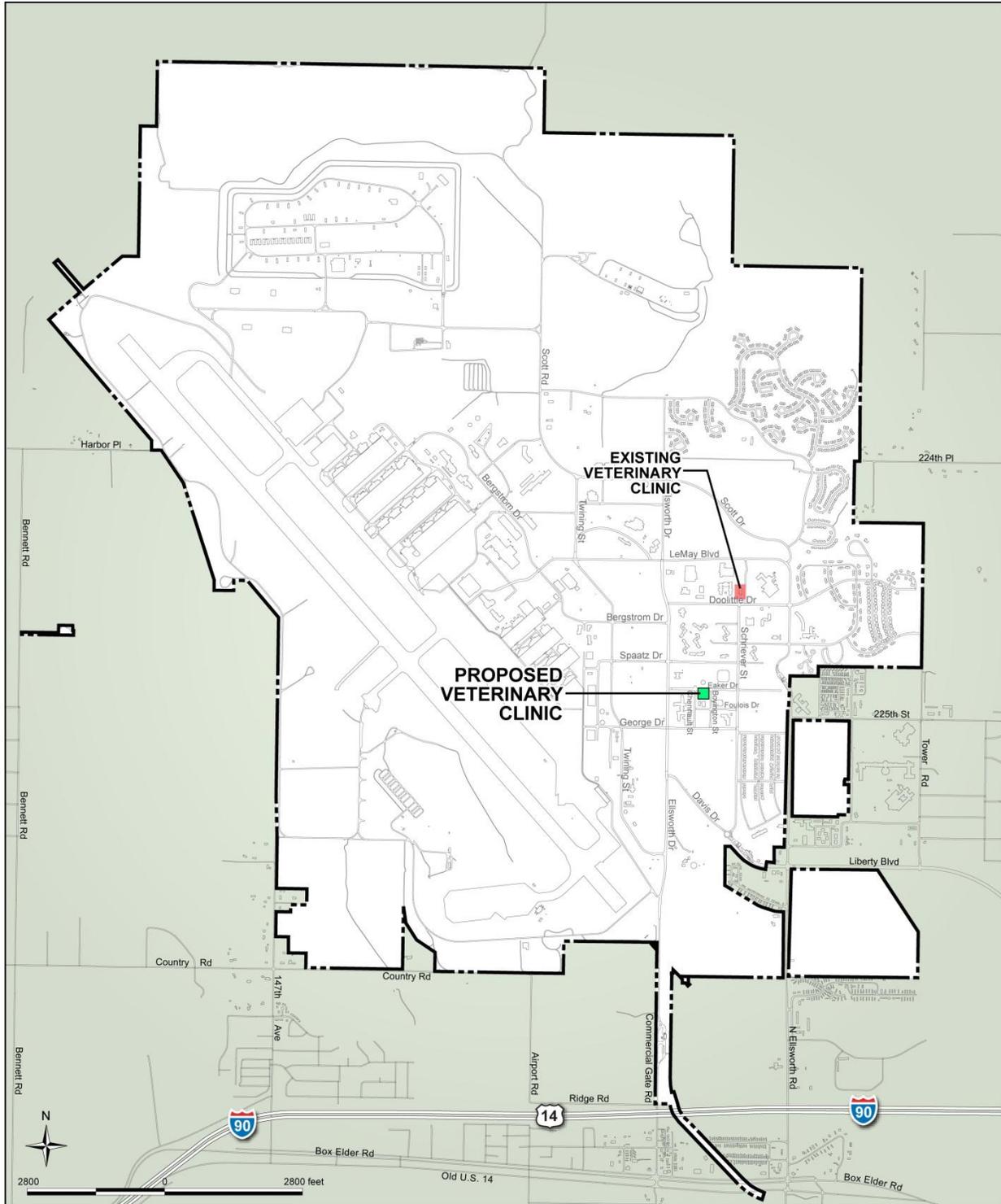
1.4 SCOPE OF ENVIRONMENTAL REVIEW

This document is "issue-driven," in that it concentrates only on those resources that may be affected by implementation of the Proposed Action or No-Action



ELLSWORTH001

**Ellsworth AFB
Regional Map**
Figure 1-1



EXPLANATION

- Proposed Veterinary Clinic
- Base Boundary

**Proposed Veterinary Clinic
Site Location Map**

Figure 1-2

1 Alternative. The EA describes and addresses the potential environmental
2 impacts of the activities associated with the construction and operation of the
3 new veterinary clinic. The EA also evaluates the potential environmental impacts
4 of the No-Action Alternative.

5 Consistent with 32 CFR 989 and the CEQ regulations, the scope of analysis
6 presented in this EA is defined by the potential range of environmental impacts
7 that would result from implementation of the Proposed Action and No-Action
8 Alternative.

9 Resources that have a potential for impact were considered in more detail in
10 order to provide the Air Force decision maker with sufficient evidence and
11 analysis to determine whether or not additional analysis is required pursuant to
12 40 CFR Part 1508.9. The resources analyzed in more detail are land use,
13 including aesthetics, medical/biohazardous waste, geology and soils, water
14 resources, air quality, and cultural resources. The affected environment and the
15 potential environmental consequences relative to these resources are described
16 in Chapters 3.0 and 4.0, respectively.

17 Initial analysis indicated that the veterinary clinic construction project would not
18 result in either short- or long-term impacts to socioeconomics, utilities,
19 transportation, airspace, hazardous materials management, hazardous waste
20 management, storage tanks, Environmental Restoration Program (ERP) sites,
21 pesticide usage, ordnance, radon, radioactive materials, noise, biological
22 resources, and environmental justice. The reasons for not addressing these
23 resources are briefly discussed in the following paragraphs.

24 **Socioeconomics.** No changes would occur in population or employment
25 associated with the Proposed Action or No-Action Alternative. Veterinary clinic
26 personnel would relocate from the existing veterinary clinic (Building 6010).
27 Employment associated with construction activities would be minimal and
28 temporary. Because no increase in population or employment is expected,
29 impacts to socioeconomics would not be expected and are not analyzed further
30 in this EA.

31 **Utilities.** The electrical, natural gas, water, and sanitary sewer requirements of
32 the new facility would be similar to those of the existing facility. No new
33 personnel would be required for the Proposed Action or No-Action Alternative, so
34 no increase in utility usage and sanitary and solid waste generation would occur.
35 Utility connections to the former Building 3401 are already on site; therefore, no
36 additional utility lines would be required. Impacts to base utility systems are not
37 expected and are not analyzed further in this EA.

38 **Transportation.** Neither the Proposed Action nor the No-Action Alternative
39 would entail any increase in traffic or require roadway improvements. Daily trips
40 associated with construction employees would be minimal. Impacts to
41 transportation are not expected and are not analyzed further in this EA.

42 **Airspace.** No aircraft operations are associated with the Proposed Action and
43 No-Action Alternative, and the new veterinary clinic would not be situated in an

1 area that would affect any airfield operations. Impacts to airspace are not
2 expected and are not analyzed further in this EA.

3 **Hazardous Material Management.** During construction activities, small
4 amounts of hazardous materials are expected to be utilized by the contractor;
5 therefore, the potential for spill would exist. Hazardous materials likely to be
6 used during construction activities include adhesives, motor fuels, paints,
7 thinners, solvents, and petroleum, oil, and lubricants (POL). Storage, handling,
8 and transportation of hazardous materials would be conducted in accordance
9 with applicable regulations and procedures. Any spills or releases of hazardous
10 materials would be cleaned up by the contractor.

11 Only household cleaning supplies (e.g., window cleaners, floor wax, toilet bowl
12 cleaners) are expected to be used at the proposed facilities (i.e., visitor center,
13 guardhouses, truck inspection facility, and mail inspection facility). Hazardous
14 materials management procedures are not expected to be impacted and are not
15 analyzed further in this EA.

16 **Hazardous Waste Management.** Small quantities of hazardous waste would be
17 generated during construction activities. The construction contractor would be
18 responsible for following applicable regulations for management of any
19 hazardous waste generated. Any spills or releases of fuel or oil from
20 construction equipment would be cleaned up by the contractor. The contractor
21 would be responsible for the off-site disposal of any hazardous waste in
22 accordance with applicable regulations.

23 Activities at the new veterinary clinic would generate hazardous waste similar to
24 those generated at the existing veterinary clinic. Hazardous waste production
25 would neither increase nor decrease. The proposed facility would continue to
26 use only household cleaning supplies (e.g., window cleaners, floor wax, toilet
27 bowl cleaners); only small quantities of household hazardous waste would be
28 generated (i.e., residual household cleaning supplies within their containers).
29 Because any hazardous waste generated during construction activities and
30 during operation of the facility would be managed in accordance with applicable
31 regulations, no impacts are anticipated; and hazardous waste management
32 procedures are not analyzed further in this EA.

33 **Storage Tanks.** No storage tanks would be affected by the Proposed Action and
34 No-Action Alternative, and no storage tanks are required for the Proposed Action
35 and No-Action Alternative. Impacts to storage tanks are not expected and are
36 not analyzed further in this EA.

37 **ERP Sites.** No ERP Sites are located near the proposed site. A groundwater
38 contamination plume that reaches to within approximately ¼ mile to the west of
39 the site is the nearest site. The proposed veterinary clinic is not expected to
40 contribute to, disturb, or prevent remediation of any environmental contamination
41 that may be present in the groundwater plume. Impacts to ERP sites are not
42 expected and are not analyzed further in this EA.

1 **Pesticide Usage.** The Proposed Action and No-Action Alternative would not
2 result in any change to existing pesticide usage on the base. Therefore, impacts
3 from pesticide usage are not expected and are not analyzed further in this EA.

4 **Ordnance.** A Military Munitions Response Program (MMRP) records search
5 was recently conducted for Ellsworth AFB. The work plan for site remediation
6 does not identify any areas for further investigation near the proposed clinic site.
7 The Proposed Action and No-Action Alternative would not require the use of
8 ordnance. Therefore, impacts from ordnance are not expected and are not
9 analyzed further in this EA.

10 **Radon.** Pennington and Meade counties are within U.S. Environmental
11 Protection Agency (EPA) radon zone 2, which indicates indoor average radon
12 levels of between 2 and 4 picocuries per liter (pCi/l) (U.S. Environmental
13 Protection Agency 1999). Because indoor average radon levels in the region are
14 below U.S. EPA recommended mitigation level of 4.0 pCi/l, impacts from radon
15 would not be expected and are not analyzed further in this EA.

16 **Radioactive Materials.** The Proposed Action and No-Action Alternative would
17 not require the use of radioactive materials. Therefore, impacts from radioactive
18 materials are not expected and are not analyzed further in this EA.

19 **Noise.** The Proposed Action and No-Action Alternative would not result in any
20 changes to existing noise conditions. Noise associated with construction of the
21 new facility would be temporary and intermittent. Impacts from noise are not
22 expected and are not analyzed further in this EA.

23 **Biological Resources.** The project site is situated in a developed area. The
24 new facility would be constructed on the site of a demolished facility
25 (Building 3401). The footprint of this demolished facility is sparsely vegetated
26 with grasses and weedy plants and is mowed. The only other biological
27 resources present in the area are landscaping plants (e.g., lawn grasses, shade
28 trees) and a limited number of common animal species typically found in such
29 areas. The only sensitive species with habitat on the base is the burrowing owl,
30 a sensitive bird species that nests in the prairie dog town in the northern portion
31 of the base (U.S. Air Force 2010). These species do not have habitat in the
32 project site area. No wetlands are in the project site area. Impacts to biological
33 resources are not anticipated and are not analyzed further in this EA.
34 Consultation with the U.S. Fish and Wildlife Service (USFWS) has been initiated
35 (see Appendix A).

36 **Environmental Justice.** Socioeconomic impacts are not expected under the
37 Proposed Action. In addition, any potential environmental impacts identified for
38 resource areas in this EA would occur on the base; off-base populations would
39 not be affected. Based on these findings, disproportional impacts to low-income,
40 minority, and child populations are not expected and are not analyzed further in
41 this EA.

1 **1.5 FEDERAL PERMITS, LICENSES, AND FEES**

2 The construction contractor responsible for conducting construction activities
3 would obtain any required permits. The developer would cooperate with the Air
4 Force to ensure compliance with applicable Air Force, federal, state, and local
5 regulations and/or requirements.

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2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 INTRODUCTION

This chapter provides a description of the Proposed Action and No-Action Alternative, discusses the alternatives considered but eliminated from further study, and provides a comparison of the potential environmental impacts of the Proposed Action and No-Action Alternative.

2.1.1 Background

The site of the proposed veterinary clinic was previously occupied by Building 3401, which was demolished in 2003. The site is surrounded by existing pavement that served as a parking lot for the demolished building. Water, sanitary sewer, natural gas, and electrical service are available nearby. Building 3401 was approximately 5,000 square feet (SF) larger than the proposed veterinary clinic.

The base veterinary clinic is currently in Building 6010, which also supports other users (see Figure 1-2). After completion of the new veterinary clinic, the portion of Building 6010 that is currently occupied by the clinic would be used by another unit.

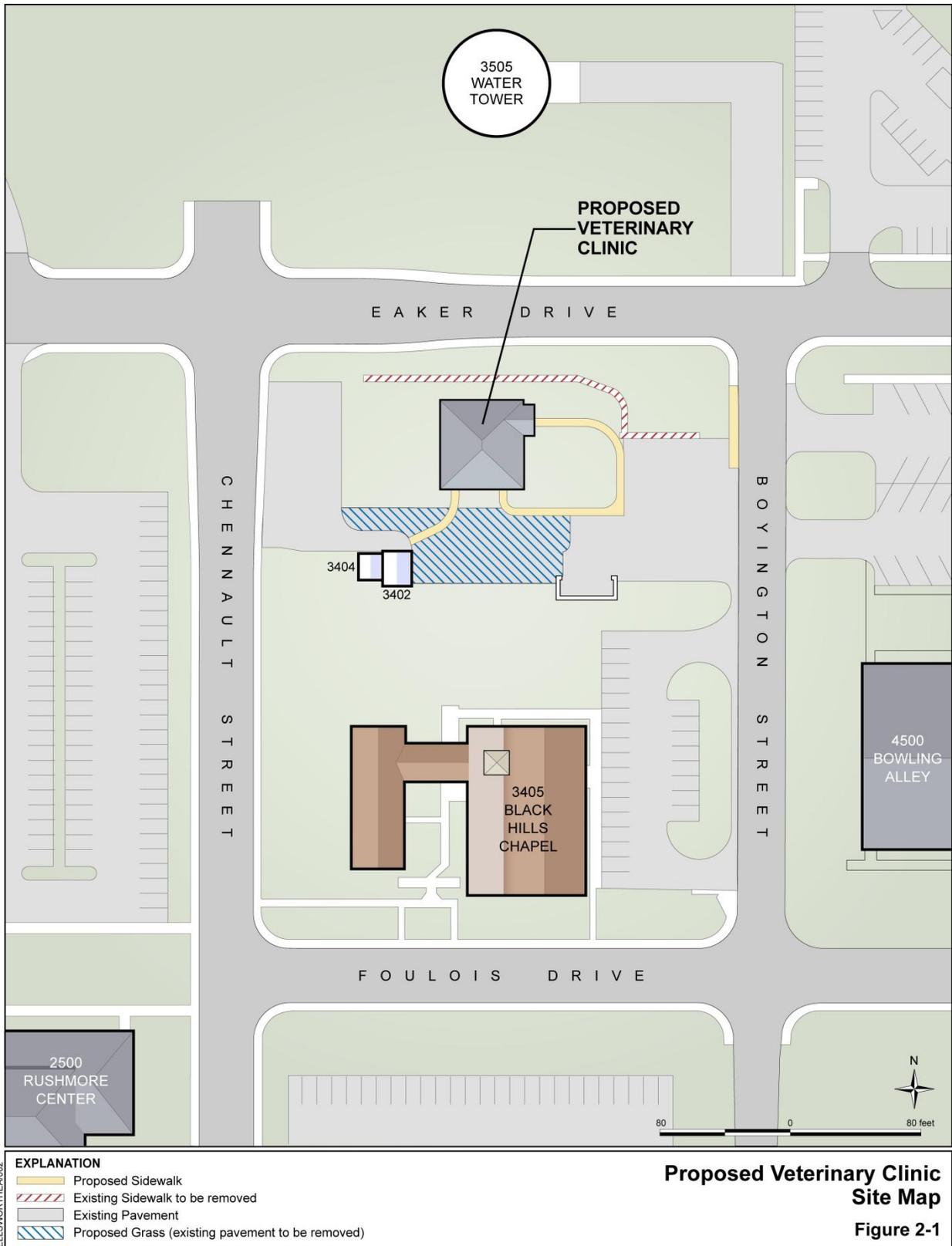
2.2 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action would involve the construction and operation of a new veterinary clinic on Ellsworth AFB (Figure 2-1). The proposed new veterinary clinic would be constructed to comply with U.S. Army provisions for location and operation of veterinary facilities. This facility would replace the existing veterinary clinic. Use of this new facility would bring Ellsworth AFB into compliance with U.S. Army policies for medical facilities. The project consists of the following:

- Construction of a veterinary clinic including offices, examination rooms, surgery rooms, and storage areas. The facility would be approximately 2,100 SF.
- Removal of approximately 4,750 SF of existing pavement.
- Removal of an existing sidewalk.
- Construction of new sidewalks.

The new building would be connected to existing electrical, natural gas, water, and sanitary sewer systems and lines on the project site.

The areas of existing pavement on the site that would not be removed would be reused in their present state.



1 Construction activities are anticipated to be completed within a 12-month time
2 period.

3 The total area that would be disturbed by proposed construction activities is
4 estimated to be less than 1 acre. Because the proposed project includes
5 removal of an area of existing pavement, it would result in an estimated net loss
6 of more than 2,000 SF of impermeable surfaces on the base.

7 **2.3 ALTERNATIVES TO THE PROPOSED ACTION**

8 **2.3.1 No-Action Alternative**

9 Under the No-Action Alternative, the Air Force would not construct a new
10 veterinary clinic. The existing veterinary clinic (in Building 6010) would continue
11 to provide veterinary services on base. The facility would continue to violate the
12 provisions of U.S. Army MEDCOM requirements (Unified Facilities Criteria [UFC]
13 4-510-01, Design: Medical Military Facilities), which address the design and
14 operation of medical facilities.

15 **2.3.2 Alternatives Eliminated from Further Consideration**

16 Alternatives to the construction of a new veterinary clinic that were considered
17 but eliminated include four different siting locations for the facility and upgrading
18 the existing facility. These alternatives were eliminated from further
19 consideration as discussed below.

20 **Site A:** This site was located near the existing working dog kennel. No utilities
21 are currently available at the location, and construction at this location is not
22 considered economically feasible.

23 **Site B:** This site is near the Hospital Boiler Plant (Building 5902) located across
24 Doolittle Drive from the base hospital. Building 5902 is slated to be demolished.
25 Once the facility is demolished, the site would be a large, undeveloped area; and
26 the veterinary clinic would not be an appropriate use of this large, undeveloped
27 land.

28 **Site C:** This site is on the current hospital property, near the entrance.
29 Constructing a new veterinary clinic at this location would be an encumbrance to
30 the hospital parking lot, and the available area in the hospital parking lot would
31 not be large enough for the veterinary clinic.

32 **Site D:** This site is located northwest of the proposed location, near the
33 Education Center. The Education Center area is proposed for redevelopment,
34 and siting the new facility in this location would complicate the plans for
35 redevelopment.

36 **Upgrade Facility:** Upgrading the existing facility would require extensive
37 modifications to bring the building into compliance with regulations. The cost to
38 modify the existing facility would exceed 75 percent of the value of the facility and

Table 2-1. Summary of Potential Environmental Impacts from the Proposed Action and No-Action Alternative
(Page 1 of 2)

Resource Category	Proposed Action	No-Action Alternative
Land Use	<p>Impacts: Construction of the new veterinary clinic would be consistent with the proposed land use designation for the area in the base general plan.</p> <p>Mitigation: No mitigation measures would be required.</p>	<p>Impacts: No changes to existing land use; no impacts would be expected.</p> <p>Mitigation: No mitigation measures would be required.</p>
Aesthetics	<p>Impacts: Construction of the new veterinary clinic would not result in a significant change to the low visual sensitivity of the area.</p> <p>Mitigation: No mitigation measures would be required.</p>	<p>Impacts: No changes to existing aesthetic quality; no impacts would be expected.</p> <p>Mitigation: No mitigation measures would be required.</p>
Medical/ Biohazardous Waste	<p>Impacts: Medical/biohazardous waste generated during normal veterinary activities would be managed in accordance with existing procedures. No significant impacts would be expected.</p> <p>Mitigation: No mitigation measures would be required.</p>	<p>Impacts: No changes to management of medical/biohazardous waste; no impacts would be expected.</p> <p>Mitigation: No mitigation measures would be required.</p>
Geology and Soils	<p>Impacts: Surface disturbance may cause soil erosion; however, standard construction practices would be implemented to control soil erosion.</p> <p>Mitigation: No mitigation measures would be required.</p>	<p>Impacts: Impacts to geology and soils would be similar to baseline conditions; no additional impacts would be anticipated.</p> <p>Mitigation: No mitigation measures would be required.</p>

Table 2-1. Summary of Potential Environmental Impacts from the Proposed Action and No-Action Alternative
(Page 2 of 2)

Resource Category	Proposed Action	No-Action Alternative
Water Resources	<p>Impacts: Soil disturbance could cause a decrease in water quality if erosion occurs; however, standard construction practices would be implemented to control soil erosion.</p> <p>Mitigation: No mitigation measures would be required.</p>	<p>Impacts: Impacts to water resources would be similar to baseline conditions; no additional impacts would be anticipated.</p> <p>Mitigation: No mitigation measures would be required.</p>
Air Quality	<p>Impacts: Temporary impacts from air emissions from construction equipment and increased traffic from construction crews; however, standard management practices would be used to control fugitive dust, and emissions from construction activities would be temporary.</p> <p>Mitigation: No mitigation measures would be required.</p>	<p>Impacts: Impacts to air quality would be similar to baseline conditions; no additional impacts would be anticipated.</p> <p>Mitigation: No mitigation measures would be required.</p>
Cultural Resources	<p>Impacts: The project site would be and has been heavily disturbed, and no historic properties would be expected to be encountered during project activities. No significant impacts would be expected.</p> <p>Mitigation: No mitigation measures would be required.</p>	<p>Impacts: Impacts to cultural resources would be similar to baseline conditions; no additional impacts would be anticipated.</p> <p>Mitigation: No mitigation measures would be required.</p>

3.0 AFFECTED ENVIRONMENT

This chapter describes the current environmental condition of the project area and its region of influence (ROI). It provides information to serve as a baseline from which to identify and evaluate environmental changes resulting from the Proposed Action. The baseline conditions assumed for the purposes of analysis are the existing conditions within the project area.

The ROI to be evaluated will be defined for each resource area potentially affected by the Proposed Action and No-Action Alternative. The ROI determines the geographical area to be addressed as the affected environment. Although the immediate project area may constitute the ROI limit for many resources, potential impacts associated with certain issues (e.g., water resources, air quality) may transcend these limits.

Based upon the nature of the Proposed Action, it was determined that the potential exists for the following resources to be affected: land use, aesthetics, medical/biohazardous waste, geology and soils, water resources, air quality, and cultural resources.

3.1 LOCAL COMMUNITY

Ellsworth AFB is situated on approximately 5,416 acres in Pennington and Meade counties, South Dakota (see Figure 1-1). The base is surrounded by the community of Box Elder to the west, south, and east and is approximately 12 miles east of Rapid City, between the Great Plains and the Black Hills Region (U.S. Air Force 2009b). This section describes the affected environment for land use and aesthetics.

3.1.1 Land Use

The ROI for land use includes the project area, which is currently vacant land with the visible signs of prior disturbance. The former building on this site (Building 3401) was demolished, including the foundation; and only the parking areas and sidewalks remain. According to the 2009 Ellsworth Air Force Base General Plan, the area is currently designated as administration (U.S. Air Force 2009b).

3.1.2 Aesthetics

The ROI for aesthetics includes the project area and adjacent area.

Visual resources include natural and man-made features that give a particular environment its aesthetic qualities. Criteria used in analysis of these resources include visual sensitivity, which addresses the degree of public interest in a visual resource and concern over adverse changes in its quality. Visual sensitivity is categorized in terms of high, medium, or low levels.

1 High visual sensitivity exists in areas where views are rare, unique, or in other
2 ways special, such as in remote or pristine environments. High-sensitivity views
3 would include landscapes that have landforms, vegetative patterns, water bodies,
4 or rock formations of unusual or outstanding quality. Areas of medium visual
5 sensitivity, in which the presence of motorized vehicles and other evidence of
6 modern civilization is commonplace, are more developed than areas of high
7 visual sensitivity. Landscape features in areas of medium visual sensitivity are
8 also more common than features in high visual sensitivity areas; and they
9 generally contain varieties in form, color, line, and texture. Low visual sensitivity
10 areas tend to have minimal landscape features, with little change in form, color,
11 line, and texture.

12 As described in Section 3.1.1, Land Use, the project area consists of a vacant lot
13 surrounded by administration and recreation facilities and a water tower to the
14 north. The project area includes parking areas, sidewalks, and a mowed area
15 where the former building was situated. It is adjacent to Eaker Road to the north
16 and Chennault Drive to the west. From the project area, numerous buildings and
17 roads are visible. Views of the project area are considered to be of low visual
18 sensitivity due to the nature and extent of development within proximity to the
19 site.

20 **3.2 HAZARDOUS MATERIALS AND WASTE MANAGEMENT**

21 This section describes the existing conditions for medical/biohazardous waste.

22 **3.2.1 Medical/Biohazardous Waste**

23 Medical/biohazardous waste is considered a solid waste that is generated in the
24 diagnosis, treatment, or immunization of humans or animals. OSHA regulations
25 (29 CFR Part 1910) set forth requirements for the management of medical and
26 biohazardous waste to ensure safe and healthy working conditions for workers.
27 In following the regulations, contaminated reusable sharps and other regulated
28 wastes are required to be placed in puncture-resistant, color-coded, leak-proof
29 containers as soon as possible after use. Specimens of blood or other potentially
30 infectious material are required to be placed in a container that prevents leakage
31 during collection, handling, processing, storage, transport, and treatment.

32 The existing veterinary clinic at Ellsworth AFB generates medical and
33 biohazardous waste. Medical wastes are shipped to the base medical clinic for
34 proper disposal. Animal carcasses are frozen and shipped to a cremation
35 service located in Nebraska for processing (AECOM 2012).

36 **3.3 NATURAL ENVIRONMENT**

37 This section describes the natural resources within the affected environment of
38 the project area: geology and soils, water resources, air quality, and cultural
39 resources.

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3.3.1 Geology and Soils

Geology and soils comprise those aspects of the natural environment that may be affected by the Proposed Action. These include physiography, geologic units and structure, the potential for natural hazards, and soil condition.

In general, the ROI for geology is the regional setting, including Ellsworth AFB, and specific localized features on or proximal to the project area. The ROI for soils encompasses the project area.

3.3.1.1 Geology.

Physiography

Ellsworth AFB is located in the Pierre Hills Division of the Missouri Plateau, in the Unglaciated Physiographic Section of the Great Plains Physiographic Region. The Great Plains Region in the western portion of the state is in a mature stage of erosion interrupted by nearly level areas called benches or tables and conspicuous buttes. Generally, the Great Plains slope gently to the east from the western border of the Black Hills towards the Missouri River (Visher 1918). The Pierre Hills Division is typified by a series of smooth hills and ridges with rounded tops and is underlain by the Pierre shale formations and has lower elevations than the plateau country to the north and the south (Malo 1997).

The topography of the installation is level to gently sloping, with the exception of the northernmost section of the base that descends abruptly northward to a valley floor. The remainder of the base slopes southward towards Box Elder Creek. Base surface elevations range from 3,380 to 3,080 feet (Ellsworth AFB 2010).

Geology

Geologic units ranging in age from the Cretaceous to Quaternary have been identified in the Pierre Hills. The Great Plains flat-lying land is reflective of the mature stage of erosion of the province and more than 500 million years of tectonic stability. The plains are composed of marine and stream sediments deposited during the Mesozoic Era (60 to 255 million years before present) when a shallow sea covered the region. The flat plains are interrupted by conspicuous buttes, which are isolated flat-topped hills with steep slopes that are capped with erosion-resistant rock (USGS 2002).

Ellsworth AFB is located in an area consisting of terrace gravel and alluvial fan deposits of the Pleistocene age and Pierre Shale of the Upper Cretaceous age (Redden and DeWitt 2008). The area is characterized by a series of thick beds of sandstone, limestone, and shale, the oldest and deepest of which are crystalline basement rocks. A band over 1,000 feet thick of marine shale with intermittent sandstone and limestone beds extends to the surface at Ellsworth AFB. The uppermost of these deposits is the Pierre Shale, which forms the bedrock surface at the base and occurs from depths of 40 feet below ground surface-to-surface outcroppings. Thickness of the Pierre Shale is reported to be

1 approximately 860 feet at Ellsworth AFB, based on well logs for the base's
 2 Production Well Number 1 (U.S. Air Force 2010). Unconsolidated materials
 3 including colluvial deposits, alluvial deposits, and residual material overlay the
 4 Pierre Shale at the base (U.S. Air Force 2001).

5 **3.3.1.2 Soils.**

6 The soils mapped over the majority of the installation include loams and clay
 7 loams of the Nunn series. The Nunn series consists of very deep, well drained
 8 soils that formed in loess and mixed alluvium. Runoff is negligible to low, and
 9 permeability is moderately slow to slow. Nunn soils are on terraces or alluvial
 10 fans and in drainage ways (NRCS 2012).

11 The site of the Proposed Action is just north of the county line between Meade
 12 and Pennington counties; in Meade County, the soil is mapped as Nunn clay
 13 loam, 0 to 2 percent slopes, and in Pennington County as Nunn-Urban land
 14 complex, 0 to 3 percent slopes. Soils mapped as Nunn clay loam, 0 to 2 percent
 15 slopes are composed of 90 percent Nunn clay loam and 10 percent minor
 16 components, which include Altvan loam, Beckton clay loam, Hoven silt loam,
 17 Onita silt loam, and Satanta loam. Nunn-Urban land complex loam with 0 to
 18 3 percent slopes are composed of 60 percent Nunn clay loams and similar soils,
 19 30 percent Urban land, and 10 percent Beckton clay (NRCS 2012).

20 Soils mapped at the site of the Proposed Action and soil limitations are shown in
 21 Table 3-1. Soil limitations were determined based on data available in the
 22 Natural Resource Conservation Service's web soil survey (NRCS 2012).
 23 Engineering limitations were considered for building construction. Soils mapped
 24 at the site were rated as very limited for building construction due to shrink-swell
 25 potential and depth to saturation.

Table 3-1. Properties of Soils Mapped at the Site of the Proposed Action

Mapping Unit	Texture and Slope	Farmland Classification	Construction Limitations
Nunn	Clay loam, 0 to 2 percent slopes	Prime farmland soil if irrigated	Very limited for building construction due to shrink-swell potential and depth to saturation
Nunn-Urban land complex	Variable texture, 0 to 3 percent slopes	Not prime farmland soil	Very limited due to shrink-swell potential

26 **Prime Farmland.** The Nunn clay loam mapping units (with 0 to 2 percent
 27 slopes) are considered to be a prime farmland soil if irrigated; however, this land
 28 is not available for agriculture because it is currently developed or considered to
 29 be urban or built-up land, which by definition cannot be prime farmland.
 30 According to the U.S. Department of Agriculture, urban or built-up land consists
 31 of land cover or land uses including residential, public administrative sites, and
 32 small parks (less than 10 acres) within urban and built-up areas (NRCS 1999).

1 Therefore, the prime farmland soils mapped at the site of the Proposed Action
2 would not be considered prime farmland.

3 **3.3.2 Water Resources**

4 Water resources comprise those aspects of the hydrologic cycle that may be
5 affected by the Proposed Action. These include surface water and groundwater.
6 In general, the ROI for water resources includes the project area and those areas
7 within the same watershed or groundwater aquifer that may be affected by
8 changes in direction, quantity, or quality of water resources.

9 **3.3.2.1 Surface Water.**

10 Ellsworth AFB is located within the Missouri River Basin. Surface drainage from
11 the southern portion of the base, which contains the proposed veterinary clinic
12 site, flows generally south-southeast via retention ponds, ditches, storm sewers,
13 and ephemeral streams, and discharges into Box Elder Creek approximately
14 1 mile south of the base boundary (U.S. Air Force 2010). The main base
15 drainage is an unnamed tributary of Box Elder Creek located west of the
16 proposed veterinary clinic site. This drainage contains several impoundments,
17 and floodplains occur along it (U.S. Air Force 2010). The nearest surface water
18 to the proposed veterinary clinic site is an impoundment located approximately
19 900 feet to the west. The proposed clinic site is not in or adjacent to a 100-year
20 floodplain (U.S. Air Force 2011).

21 Treated wastewater from the Ellsworth AFB wastewater treatment plant is
22 discharged to an unnamed tributary of Box Elder Creek via an outfall located
23 more than ½ mile south of the proposed clinic site (U.S. Air Force 2010).

24 A storm water curb inlet is located on the south side of Eaker Drive, to the
25 northwest of the proposed clinic facility.

26 **3.3.2.2 Groundwater.**

27 Ellsworth AFB is underlain by one shallow, unconfined aquifer and three confined
28 aquifers. The Inyan Kara Aquifer is confined between beds of Upper Cretaceous
29 strata above and Permian-Jurassic strata below and occurs in permeable
30 sandstone of the Fall River and Lakota formations. The Minnelusa Aquifer lies
31 below the Inyan Kara Aquifer and is confined between Permian-Jurassic strata
32 above and Pennsylvanian strata below and occurs in limestone. Recharge
33 occurs to the west of the base among the foothills between Rapid City and the
34 Black Hills. The upper portion of this aquifer is the most heavily used in the
35 communities near the base. The Madison Aquifer is deepest and occurs in
36 limestone beneath Lower Pennsylvanian confining strata. This aquifer has the
37 most dependable water quality of the regional confined aquifers. Ellsworth AFB
38 used to have a production well in this aquifer, but it is no longer used. Drinking
39 water for the base is obtained from Pactola Reservoir in the Black Hills (U.S. Air
40 Force 2010).

3.3.3 Air Quality

Air quality in any given location is defined by the concentration of various pollutants in the atmosphere, generally expressed in units of parts per million (ppm) or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The significance of a pollutant concentration is determined by comparing it to federal and/or state ambient air quality standards. The federal Clean Air Act (CAA), 42 U.S.C. Sections 7401-7671(q) provides that emissions sources must comply with the air quality standards and regulations that have been established by federal, state, and county regulatory agencies. These standards and regulations focus on (1) the maximum allowable ambient pollutant concentrations, and (2) the maximum allowable emissions from individual sources.

The U.S. EPA has established federal standards for the permissible levels of certain pollutants in the atmosphere. The National Ambient Air Quality Standards (NAAQS) have been established for seven criteria pollutants: ozone, nitrogen dioxide (NO_2), particulate matter equal to or less than 10 microns in diameter (PM_{10}), particulate matter equal to or less than 2.5 microns in diameter ($\text{PM}_{2.5}$), carbon monoxide (CO), sulfur dioxide (SO_2), and lead (Table 3-2).

The State of South Dakota has also developed ambient air quality standards to regulate air pollution levels. Both federal and State air quality standards are shown in Table 3-2. Standards are not to be exceeded more than once per year, except for ozone and PM_{10} , which are not to be exceeded more than an average of 1 day per year.

The ROI consists of the air shed that Ellsworth AFB is within, for purposes of air quality analysis. Ellsworth AFB is situated in Meade and Pennington counties, which are designated as Black Hills-Rapid City Intrastate (BHRCI) Air Quality Control Region (ACQR). U.S. EPA has classified the BHRCI ACQR as in attainment for all NAAQS.

The South Dakota Department of Environmental and Natural Resources (DENR) regulates air quality for the State of South Dakota. Ellsworth AFB is classified as a synthetic minor with the DENR (SD DENR 2007). As required by DENR, Ellsworth AFB calculates annual criteria pollutant emissions from stationary sources and provides this information to DENR. Various sources on-installation emit criteria pollutants and Hazardous Air Pollutants (HAPs), including generators, boilers, water heaters, fuel storage tanks, gasoline service stations, surface coating/paint booths, and miscellaneous chemical usage. The current veterinary clinic is not a source of criteria pollutants.

Title 40 CFR 51 Part 93, General Conformity, requires federal actions to conform to any State Implementation Plan approved or promulgated under Section 110 of the CAA. An air conformity applicability analysis and possibly a formal air conformity determination are required for federal actions in nonattainment or maintenance areas. The general conformity rule does not apply because Meade and Pennington counties are classified as an attainment area for NAAQS.

Table 3-2. Ambient Air Quality Standards Applicable in South Dakota

Pollutant	South Dakota Standards ^{(a)(b)}		Federal Standards		Standard Type ^{(c)(d)}
Carbon Monoxide (CO)					
8-hour Average	9 ppm	(10 mg/m ³)	9 ppm	(10 mg/m ³)	Primary
1-hour Average	35 ppm	(40 mg/m ³)	35 ppm	(40 mg/m ³)	Primary
Nitrogen Dioxide (NO₂)					
Annual Arithmetic Mean	0.05 ppm	(100 µg/m ³)	0.05 ppm	(100 µg/m ³)	Primary & Secondary
Ozone					
8-hour Average	0.08 ppm	(157 µg/m ³)	0.075 ppm	(157 µg/m ³)	Primary & Secondary
Lead					
3 Months		1.5 µg/m ³		1.5 µg/m ³	Primary & Secondary
Particulate ≤10 micrometers (PM₁₀)					
Annual Geometric Mean		NA		50 µg/m ³	Primary & Secondary
24-hour Average		150 µg/m ³		150 µg/m ³	Primary & Secondary
Particulate ≤2.5 micrometers (PM_{2.5})					
Annual Arithmetic Mean		15 µg/m ³		15 µg/m ³	Primary & Secondary
24-hour Average		24 µg/m ³		65 µg/m ³	Primary & Secondary
Sulfur Dioxide (SO₂)					
Annual Arithmetic Mean	0.03 ppm	(80 µg/m ³)	0.03 ppm	(80 µg/m ³)	Primary
24-hour Average	0.14 ppm	(365 µg/m ³)	0.14 ppm	(365 µg/m ³)	Primary
3-hour Average	0.5 ppm	(1,300 µg/m ³)	0.5 ppm	(1,300 µg/m ³)	Secondary
1-hour Average	0.075 ppm	(157 µg/m ³)			Primary

Notes:

- (a) Standards, other than for ozone and those based upon annual averages, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.
- (b) Concentrations are expressed first in units in which they were promulgated. Equivalent units are provided in the second column.
- (c) Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by EPA.
- (d) Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after EPA approves the implementation plan.

µg/m³ = micrograms per cubic meter

mg/m³ = milligrams per cubic meter

PM_{2.5} = particulate matter equal to or less than 2.5 microns in diameter

PM₁₀ = particulate matter equal to or less than 10 microns in diameter

ppm = parts per million

1 As attainment areas, Meade and Pennington counties are regulated under the
 2 Prevention of Significant Deterioration (PSD) program authorized by the CAA
 3 Part C Sections 160-169. PSD areas require that owners and/or operators of
 4 new or modified stationary sources obtain a PSD permit prior to construction of a
 5 major source situated in attainment or unclassified areas. A major source is
 6 defined by PSD regulations as being a specific type of stationary source listed by

1 U.S. EPA that has a potential of emitting 100 tons per year (tpy) or more of a
2 regulated pollutant. A source not listed by U.S. EPA may also be considered
3 major if it has the potential to emit 250 tpy or more of a regulated pollutant.
4 Because no new emission sources would be associated with the new facility,
5 PSD permitting criteria would not be applicable to the Proposed Action.

6 **3.3.4 Cultural Resources**

7 Cultural resources are defined as prehistoric or historic archaeological sites,
8 buildings, structures, districts, artifacts, or other physical evidence of human
9 activity considered important to a culture, subculture, or community for scientific,
10 traditional, religious, or other reasons. For this discussion, cultural resources
11 have been divided into prehistoric and historic archaeological resources, historic
12 buildings and structures, and traditional cultural resources (e.g., sacred or
13 ceremonial sites).

14 For the purposes of this analysis, the term ROI is synonymous with the area of
15 potential effect as defined under cultural resources legislation. The ROI for the
16 analysis of cultural resources within this EA includes any areas where ground
17 disturbance or modification to historical-era structures would occur within the
18 project area.

19 **3.3.4.1 Prehistoric and Historic Archaeological Resources.**

20 The following prehistory and history of Ellsworth AFB has been excerpted from
21 the Ellsworth AFB Integrated Cultural Resource Management Plan (U.S. Air
22 Force 2011).

23 **Prehistoric Period**

24 Northern Plains prehistory has been the subject of several published studies and
25 archaeological surveys as described in the Ellsworth AFB *Cultural Resources*
26 *Survey Report* (Hufstetler et al. 1997), which was the first specific prehistoric
27 overview of the installation area. Six prehistoric periods have been defined for
28 the Ellsworth AFB region, including the adjacent Black Hills of South Dakota and
29 Wyoming, and the White River Badlands of South Dakota. From earliest to
30 latest, the periods are these: the Paleo-Indian period (11,500 to 7,500 before
31 present [B.P.]), the Early Plains Archaic period (7,500 to 5,000 B.P.), the Middle
32 Plains Archaic period (5,000 to 2,500 B.P.), the Late Plains Archaic/Plains
33 Woodland period (3,000 to 1,500 B.P.), the Late Prehistoric/Plains Village period
34 (2,000 to 300 B.P.), and the Protohistoric period (1700 A.D. to 1861 A.D.).

35 The region surrounding Ellsworth AFB exhibits some evidence of occupation
36 during all of the prehistoric periods, but occupation in the immediate vicinity of
37 Ellsworth AFB is not documented until the Late Prehistoric/Plains Village period.
38 Plains Village period sites have been reported at several locations along the
39 periphery of the Black Hills, including the excavation of a bison-processing
40 station and an associated ceramic assemblage along Box Elder Creek, just south
41 of Ellsworth AFB. Overall, though, Plains Village period remains are relatively

1 sparse; and the dynamics of the Late Prehistoric use of the region remains poorly
2 understood.

3 During the subsequent Protohistoric period, a number of different tribal groups
4 migrated in and moved through the Ellsworth AFB region. The late tribal diversity
5 of the region is well documented in early written accounts, yet these populations
6 are difficult to distinguish in the archaeological record. European trade goods
7 help identify some later sites from this period, but only a few sites with such
8 goods have been identified in the Ellsworth AFB vicinity. To date, the State
9 Archeological Research Center has not developed specific contextual information
10 or research questions related to the prehistory of the immediate Ellsworth AFB
11 area.

12 **Historical Period**

13 The Black Hills mining boom began in 1874, marking the beginning of a
14 permanent Euro-American presence in western South Dakota. Although it lay
15 outside the gold-bearing zone, Rapid City was founded in 1876 in response to
16 the dramatic influx of Euro-Americans attracted by the gold rush in the Black
17 Hills. The next few years proved difficult for the pioneer village. Numerous
18 attacks by Lakota Sioux, who were enraged by the massive encroachment of
19 Euro-Americans into their territory, curtailed the mining rush to the area and
20 hindered growth at Rapid City. However, after the U.S. Senate's February 1877
21 ratification of a treaty whereby the Lakotas ceded claim to the Black Hills and
22 surrounding plains, the mining activities resumed; and development at Rapid City
23 flourished once more.

24 Through the 1870s and 1880s, cattle ranchers moved into the area alongside the
25 miners. By the mid-1880s, cattlemen occupied most of the available grazing
26 ranges in western South Dakota. The first farmers in the West River country
27 arrived simultaneously with the cattle ranchers in the mid-1870s, settling in the
28 narrow creek valleys along the eastern fringe of the Black Hills.

29 Homesteading activities in western South Dakota during the early twentieth
30 century were typical of settlement practices elsewhere across the northern Great
31 Plains. The original Homestead Act of 1862 granted 160-acre parcels to new
32 settlers who had five years to improve and invest in their new property, or "prove
33 up" their claims, before being granted full title. Homesteaders typically planted
34 the arid plains in wheat using newly introduced techniques for dry-land farming.

35 Most of the land in the Ellsworth AFB vicinity was settled during the mid to late
36 1880s. The flurry of local homesteading activities at this time can be attributed to
37 the growing prosperity of the nearby community of Rapid City. From the 1910s
38 until the late 1930s, the immediate Ellsworth area was a rural, agriculturally
39 based region. The transformation of the area to the site of a major military base
40 was preceded in the late 1930s by the construction of a small municipal airport
41 on a site on the western edge of what would become Ellsworth AFB.

1 Three days after the attack on Pearl Harbor, December 10, 1941, the
2 announcement was made that the new Rapid City municipal airport had been
3 selected as the site for a new air base. The mission of the new base was the
4 training of bomber pilots and bombardiers. Today, 70 years later, Ellsworth AFB
5 remains one of only two bases whose mission is flying the B1 bomber.

6 **Archaeological Studies**

7 In South Dakota, files of known cultural resource site records are maintained by
8 both the South Dakota State Historic Preservation Officer (SHPO) and the South
9 Dakota State Archaeological Research Center. Prior to 1994, neither agency
10 had records of any historic or prehistoric sites on base land. Jeff Buechler of
11 Dakota Research Services (DRS) in Rapid City, conducted a comprehensive
12 archaeological survey at Ellsworth AFB in 1994 (Hufstetler et al. 1997). The
13 survey project was designed to cover all significant tracts of undisturbed land
14 within the base boundaries; both pedestrian survey and soil auger testing were
15 conducted. The survey did not locate any significant archaeological sites on
16 Ellsworth AFB. Within the current boundaries of the base, the only major parcels
17 that have not been subjected to archaeological inventory are areas of steep,
18 broken hillside at the far north end of the base. This land is outside the ROI for
19 the proposed project and has a very low likelihood of significant archaeological
20 resources.

21 It is likely that buried archaeological resources associated with the military use of
22 the facility from the World War II era and later exist at the base. Such sites could
23 include military trash dumps, building foundations, abandoned roads and
24 taxiways, or the remains of temporary training facilities (Lewis et al. 1997).
25 These have not been identified, to date, and are unlikely to be impacted by the
26 proposed project.

27 The results of previous archaeological studies substantiate the Ellsworth AFB
28 Cultural Resources Manager's (CRM) finding that the archaeological survey of
29 the base is complete per Section 110 (a) (2) of the National Historic Preservation
30 Act (NHPA). Since no significant archaeological properties exist on the base,
31 further archaeological investigations are unwarranted, and Section 106
32 consultations with SHPO will not be initiated based solely on the potential of
33 proposed undertakings to affect such properties.

34 **3.3.4.2 Historic Buildings and Structures.**

35 Ellsworth AFB has completed its identification requirements under Section 110 of
36 the NHPA for historic buildings and structures under its jurisdiction. Twenty-one
37 buildings have been found eligible for inclusion in the National Register of
38 Historic Places (NRHP) (Hufstetler and McCormick 1998; Lewis et al. 1997; Prior
39 and Peter 2001; U.S. Air Force 2009a, 2011). Of these, four are World War II-
40 era structures; and the remainder are Cold War-era structures, including several
41 hangars, aircraft maintenance docks, and storage magazines built in the 1950s.
42 None of these is within the ROI for this EA (U.S. Air Force 2011).

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3.3.4.3 Traditional Cultural Resources.

The largest Native American tribe in western South Dakota is the Oglala Sioux. Seven other federally recognized tribes also reside within the state: the Rosebud Sioux, Crow Creek Sioux, Cheyenne River Sioux, Lower Brule Sioux, Yankton Sioux, Flandreau Santee Sioux, and Sisseton-Wahpeton Sioux. Lacking any significant issues at this time, the base has not actively solicited comment from Native Americans about any specific cultural resource issues on the base. The base has, however, established contact with Native American tribes, informing them of cultural resources survey activities and assuring them that the Air Force is aware of its responsibilities in this area.

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4.0 ENVIRONMENTAL CONSEQUENCES

This chapter presents the results of the analysis of potential environmental effects associated with the Proposed Action and No-Action Alternative. Changes to the natural and human environments that may result from the Proposed Action and No-Action Alternative were evaluated relative to the existing environment as described in Chapter 3.0. The potential for significant environmental consequences was evaluated using the context and intensity considerations as defined in CEQ regulations for implementing the procedural provisions of NEPA (40 CFR Part 1508.27).

4.1 LOCAL COMMUNITY

This section describes the potential effects of the Proposed Action and No-Action Alternative on land use and aesthetics.

4.1.1 Land Use

4.1.1.1 Proposed Action.

The Proposed Action would be consistent with the base's existing general plan. Therefore, no significant impacts to land use would be expected.

Mitigation Measures

The Proposed Action is not expected to have a significant impact on land use; therefore, no mitigation measures would be required.

4.1.1.2 No-Action Alternative.

Under the No-Action Alternative, a new veterinary clinic would not be constructed. No changes in existing land use would occur, and impacts to land use would not be expected.

Mitigation Measures

No mitigation measures would be required.

4.1.2 Aesthetics

4.1.2.1 Proposed Action.

The project area is currently developed land that contains a mowed area where a former building was situated and a paved parking area that was associated with the removed building. Although the construction of the new veterinary clinic would change the visual character of the immediate area, it would be visually consistent with surrounding adjacent areas. Existing buildings, structures, and roads within sight of the project area have created an industrial setting in which the proposed construction project would be consistent. The area would continue

1 to be of low visual sensitivity. Therefore, no significant impacts to aesthetics are
2 expected.

3 **Mitigation Measures**

4 The Proposed Action is not expected to have a significant impact on aesthetics;
5 therefore, no mitigation measures would be required.

6 **4.1.2.2 No-Action Alternative.**

7 Under the No-Action Alternative, no construction would take place on the project
8 area. The aesthetic quality of the site would remain unchanged, and no
9 significant impacts to aesthetics would be expected.

10 **Mitigation Measures**

11 No mitigation measures would be required.

12 **4.2 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT**

13 This section describes the potential effects of the Proposed Action and No-Action
14 Alternative on medical/biohazardous waste.

15 **4.2.1 Medical/Biohazardous Waste**

16 **4.2.1.1 Proposed Action.**

17 The construction of the new facility would not change the manner in which
18 medical/biohazardous materials are generated, stored, distributed, or disposed
19 of. Construction of the new facility would not increase the relative amount of
20 medical/biohazardous materials stored on base because the facility would be
21 replacing the existing veterinary clinic. After the Proposed Action is
22 implemented, medical/biohazardous waste generation would move from the
23 existing facility to the new veterinary clinic. No significant impacts from
24 generation, storage, or disposal of medical/biohazardous waste are anticipated.

25 **Mitigation Measures**

26 The Proposed Action is not expected to have a significant impact on
27 medical/biohazardous waste management; therefore, no mitigation measures
28 would be required.

29 **4.2.1.2 No-Action Alternative.**

30 Under the No-Action Alternative, no change in the generation, storage, disposal,
31 or management of medical/biohazardous waste would occur. No significant
32 impacts to the management of medical/biohazardous would be expected.

33 **Mitigation Measures**

34 No mitigation measures would be required.

1 **4.3 NATURAL ENVIRONMENT**

2 This section describes the potential effects of the Proposed Action and No-Action
3 Alternative on geology and soils, water resources, air quality, and cultural
4 resources.

5 **4.3.1 Geology and Soils**

6 **4.3.1.1 Proposed Action.**

7 **Geology**

8 Construction of a new veterinary clinic would make no significant change to the
9 terrain or topography of the site. The facility would be constructed entirely within
10 the footprint of the former building, and no large-scale cut-and-fill activities would
11 be conducted. Project activities would involve a small amount of ground-
12 disturbing activities associated with the construction of the new facility and
13 removal of some existing paved parking areas. These activities are not expected
14 to significantly impact the geologic integrity of the area because they would not
15 disturb the ground surface beyond those areas that have already been disturbed
16 by past construction activities. Therefore, no significant impact to geology is
17 expected.

18 **Soils**

19 Construction of the new facility would temporarily disturb the ground surface but
20 would not result in the permanent displacement of large amounts of soil. Soils on
21 site would be altered; however, the construction site is relatively small and
22 changes to the soils are not expected to affect areas outside the project area
23 boundary. In addition, soils on the site have been altered by previous
24 development. Less than significant impacts could occur if soils in the disturbed
25 area begin to erode; however, the topography of the site is relatively flat, making
26 significant erosion unlikely. Standard construction practices would be used to
27 control the loss of soil. Disturbed areas around the construction site would be
28 landscaped or revegetated. No significant soil erosion would be expected;
29 therefore, no significant impact to soils are anticipated.

30 **Mitigation Measures**

31 The Proposed Action is not expected to have a significant impact on geology or
32 soils; therefore, no mitigation measures would be required.

33 **4.3.1.2 No-Action Alternative.**

34 Under the No-Action Alternative, no ground-disturbing activities would take place
35 on the project area. The No-action Alternative would result in no potential for
36 impacts to geology on the site or increased soil erosion or changes in
37 sedimentation patterns.

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Mitigation Measures

No mitigation measures would be required.

4.3.2 Water Resources

4.3.2.1 Proposed Action.

Surface Water

The Proposed Action would have no significant impact on surface water. No surface water is present on or adjacent to the project area. The construction site is relatively small, and changes in surface water drainage patterns are not expected to affect areas outside the project boundary. Because the Proposed Action includes removal of an area of existing pavement, it would result in an estimated net loss of more than 2,000 SF of impermeable surfaces. Surface runoff generated on the site should decrease. Therefore, existing drainage patterns are not expected to be significantly affected. The project is not expected to release any pollutants into surface waters.

Ground disturbance during construction has the potential to increase soil erosion that could degrade water quality. Because the total area of disturbance would be less than 1 acre, and the Proposed Action is not part of a larger common plan of development, it does not require permitting under the South Dakota General Permit for Storm Water Discharges Associated with Construction Activities. However, Ellsworth AFB requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) for all ground-disturbing activities. The SWPPP would include standard practices to prevent excessive soil loss.

Groundwater

The Proposed Action would have no significant impact on groundwater within the project area. The creation of large, impervious surfaces can affect groundwater recharge by precipitation or surface water infiltration; however, the Proposed Action would result in a net reduction in the amount of impervious surfaces on base.

No proposed wastewater discharge is associated with the project, and pollutants that could potentially affect groundwater resources are not expected to be released.

Mitigation Measures

The Proposed Action is not expected to have a significant impact on surface water or groundwater; therefore, no mitigation measures would be required.

1 **4.3.2.2 No-Action Alternative.**

2 Under the No-Action Alternative, surface water and groundwater within the
3 project area would remain unchanged.

4 **Mitigation Measures**

5 No mitigation measures would be required.

6 **4.3.3 Air Quality**

7 **4.3.3.1 Proposed Action.**

8 The Proposed Action is not expected to have a significant impact on air quality.
9 Short-term impacts to air quality would occur primarily from emissions generated
10 during construction of the new facility and removal of an area of existing paved
11 parking lot. Impacts are expected to come primarily from fugitive dust associated
12 with clearing and grading of the land and construction vehicles traveling on
13 unpaved surfaces at the construction site. In addition, during construction,
14 mobile emission sources, such as construction vehicles and equipment and
15 privately owned automobiles used to access the work area, could contribute to
16 air pollution; however, emissions from construction activities would be temporary.
17 Fugitive dust emissions would be reduced through the use of standard
18 management practices (e.g., routine sweeping and wetting). No new emission
19 sources (e.g., back-up generators) would be associated with the new facility.
20 Impacts to air quality are expected to be temporary and less than significant.

21 **Mitigation Measures**

22 The Proposed Action is not expected to have a significant impact on air quality;
23 therefore, no mitigation measures would be required.

24 **4.3.3.2 No-Action Alternative.**

25 Under the No-Action Alternative, no temporary emissions associated with
26 construction of the new veterinary clinic would occur. Because existing
27 conditions would not change, no impacts to air quality would be expected.

28 **Mitigation Measures**

29 No mitigation measures would be required.

30 **4.3.4 Cultural Resources**

31 The area of focus for this EA is the proposed project area. Section 106 of the
32 NHPA of 1966, as amended, requires federal agencies to take into account the
33 effects of their actions on historic properties. Federal agencies must allow the
34 Advisory Council on Historic Preservation a reasonable opportunity to comment
35 on any Federal undertakings affecting cultural resources, in accordance with

1 36 CFR Part 800. The Section 106 process is part of the Air Force's
2 Environmental Impact Analysis Process, a program that implements NEPA.

3 Federal agencies are required by Section 110 of the NHPA to assume
4 responsibility for identifying, evaluating, nominating, and protecting historic
5 properties under their control. Historic properties are cultural resources that are
6 listed in, or eligible for listing in, the NRHP. Impacts to cultural resources may be
7 considered adverse if the resources have been determined eligible for listing in
8 the NRHP or have significance for Native American groups. The proposed
9 project site contains no known historic properties that are eligible for listing in the
10 NRHP.

11 **4.3.4.1 Proposed Action.**

12 **Prehistoric and Historic Archaeological Resources**

13 No prehistoric or historic archaeological properties are known within the ROI.
14 The entirety of the ROI lies within one of the identified Ellsworth AFB
15 archaeologically sensitive areas; however, the project site is situated where a
16 demolished facility previously stood. Because no cultural remains were
17 uncovered during the demolition and because the surrounding area is heavily
18 disturbed from previous construction and operational use, no historic properties
19 are expected to be affected from construction of the new veterinary clinic.
20 Consultation with the South Dakota SHPO has been initiated.

21 In the unlikely event that archaeological resources are encountered during
22 construction activities, the construction contractor would suspend work in the
23 immediate area; and the Ellsworth AFB CRM and the South Dakota SHPO (as
24 appropriate) would be notified. Subsequent actions will follow the guidance
25 provided in 36 CFR Part 800.13 and Native American Graves Protection and
26 Repatriation Act.

27 **Historic Buildings and Structures**

28 No historic buildings or structures are located within the ROI; therefore, no
29 historic properties would be affected by construction of the new veterinary clinic.

30 **Traditional Cultural Resources**

31 No traditional cultural resources are known within the ROI; therefore, no effects
32 on traditional cultural properties are expected.

33 **Mitigation Measures**

34 No mitigation measures would be required.

35 **4.3.4.2 No-Action Alternative.**

36 Under the No-Action Alternative, the new veterinary clinic would not be
37 constructed. Historic properties would have no potential to be affected.

1 **Mitigation Measures**

2 No mitigation measures would be required.

3 **4.4 UNAVOIDABLE AND ADVERSE ENVIRONMENTAL EFFECTS**

4 No unavoidable adverse environmental effects would be produced by
5 implementation of the Proposed Action or by the No-Action Alternative. As
6 discussed in the analysis, implementation of the Proposed Action could result in
7 impacts to some resource areas; however, impacts would not be significant
8 because they would be short-term and minor in nature.

9 **4.5 COMPATIBILITY OF THE PROPOSED ACTION WITH THE OBJECTIVES OF FEDERAL,**
10 **STATE, REGIONAL, AND LOCAL LAND USE PLANS AND POLICIES**

11 Neither the Proposed Action nor the No-Action Alternative would adversely affect
12 federal, state, regional, or local land use plans and policies.

13 **4.6 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM**
14 **PRODUCTIVITY**

15 Neither the Proposed Action nor the No-Action Alternative would affect the long-
16 term productivity of the environment because no significant environmental
17 impacts are anticipated, and natural resources would not be depleted.

18 **4.7 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

19 The Proposed Action would require use of resources such as labor, fuel, and
20 construction materials.

21 **4.8 CUMULATIVE IMPACTS**

22 Cumulative impacts result from “the incremental impact of actions when added to
23 other past, present, and reasonable foreseeable future action regardless of what
24 agency undertakes such other actions. Cumulative impacts can result from
25 individually minor but collectively significant actions taking place over a period of
26 time” (Council on Environmental Quality 1978).

27 No other projects that would occur adjacent to the proposed project site that
28 would have with the potential to result in cumulative impacts with the Proposed
29 Project have been identified. In addition, because the Proposed Action would not
30 substantially change the basic, long-term integrity or character of the site, no
31 cumulative impacts are expected.

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1 **5.0 CONSULTATION AND COORDINATION**

2 The federal and state agencies that were contacted during the preparation of this EA are listed below.

3 **FEDERAL AGENCIES**

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5 **STATE AGENCIES**

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8.0 REFERENCES

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APPENDIX A
AGENCY CONSULTATION

