

FINDING OF NO SIGNIFICANT IMPACT (FONSI)
MAF RENOVATIONS MAFS B-01/G-01
NZAS 17-6006

Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 United States Code (USC) Sections 4321 to 4347, implemented by Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations (CFR) §1500-1508, and 32 CFR §989, Environmental Impact Analysis Process, the U.S. Air Force (Air Force) assessed the potential environmental consequences associated with conducting renovations to Bravo-01 (B-01) and Golf-01 (G-01) Missile Alert Facilities (MAF). The proposed project is to renovate the Support Buildings at the two MAFs which are located within the Minuteman III Intercontinental Ballistic Missile system. While still functional, the Support Buildings at the MAFs have limited utility and are very outdated.

It has been determined that the Proposed Action will not have a significant effect on the quality of the human environment, individually or cumulatively, with other actions in the general area. No environmental effects meet the definition of significance in context or intensity, as defined in the Code of Federal Regulations (CFR) 40 CFR 1508.27. Therefore, an Environmental Impact Statement is not required. This finding is based on the following discussion:

The Environmental Assessment (EA), incorporated by reference into this finding, analyzes the potential environmental consequences of activities associated with the Malmstrom AFB project, and provides environmental protection measures to avoid or reduce adverse environmental impacts. The EA considers all potential impacts of Alternatives 1, 2, 3, and the No-Action Alternative; the EA includes brief descriptions of other alternatives that were eliminated from further consideration. The EA also considers cumulative environmental impacts with other projects in the Area.

Alternative 1 – Renovate “Hotel” and Kitchen Portions (Preferred Alternative)

This alternative would include renovations to MAFs B-01 and G-01. The MAFs need to be updated to meet current mission requirements. The planned renovation of the existing Support Building at MAF B-01 would include adding approximately 938 SF (14' x 67') to the front and a smaller section, approximately 210 SF (7' x 30'), to the back. The existing Support Building at MAF G-01 would have 1,274 SF (14' x 91') added to the front. Remodeling the interior of the “hotel” and kitchen portions of both MAFs would also occur. Additionally, the parking area at each MAF would be expanded by approximately 850 SF to compensate for the additional area that the buildings would now occupy.

Alternative 2 – Repair Only Oldest Portions

Only those portions of the Support Buildings at the MAFs that need the most updating would be repaired. This would include the exterior of the buildings and minor upgrades to the “hotel” portion of each MAF. This alternative would not accommodate a larger number of personnel, or both men and women, at the MAFs.

Alternative 3 – Build a Second Story onto the “Hotel” Portion of Each MAF

This alternative would add a second floor above the “hotel” portion of both MAFs to increase the number of sleeping quarters available and accommodate a larger number of personnel at one time. The first floor of the “hotel” portion of the MAFs would also be renovated.

No-Action Alternative

The No-Action Alternative would leave the buildings as they are and do nothing to upgrade them.

SUMMARY OF FINDINGS

The EA concluded after analyses of the affected environment and environmental consequences of implementing the Preferred Alternative using environmental protection measures and operational planning, the Air Force would be in compliance with all terms and conditions and reporting requirements for implementation of any reasonable and prudent measures stipulated by State Historic Preservation Office (SHPO), as appropriate.

The Air Force has concluded that no significant adverse effects would result to the following resources as a result of the Preferred Alternative: Air Installation Compatible Use Zone, land use, noise, air quality, water resources, safety and occupational health, hazardous materials / waste, cultural resources, earth resources, and socioeconomic resources / environmental justice. No significant adverse cumulative impacts would result from activities associated with the Preferred Alternative when considered with past, present, or reasonably foreseeable future projects.

The primary beneficial effect of updating the Support Buildings will be the ability to accommodate men, women, and more personnel overall. The amount of disruption to mission readiness will be very small compared to the other options.

The preferred alternative violates no federal, state, or local environmental protection laws. Multiple agencies were consulted, and necessary permitting actions have been identified.

The project may have an effect on the historic and biological / natural resources, as described in the sections below.

Historic Resources

There are no known historical resources in the areas surrounding the MAFs according to SHPO. Both the B-01 and G-01 MAFs were built in the early 1960's. This means that the buildings are over 50 years old and have been determined to be historic. For the preferred alternative and Alternatives 2 and 3, a Section 106 historic preservation review is necessary due to the historic nature of the property. The No Action alternative would not make any changes to the buildings so would not negatively affect cultural resources. The soils around the buildings were excavated when the buildings were originally built, and no historical resources were discovered at that time. Therefore, it is not anticipated that anything else historical will be disturbed by the planned renovations.

The United States Air Force (USAF) previously determined that all MAFs are eligible for inclusion on the National Register of Historic Places. Malmstrom has determined the proposed undertaking will have an adverse effect to historic properties as defined in [54 U.S.C. §300308] and has consulted with the SHPO via a meeting on 9 October 2018. A Memorandum of Agreement (MOA) is being drafted to resolve all adverse effects for all MAFs, except MAF A-01. The proposed resolution includes capturing oral histories pertaining to the Minuteman program, photographs of the unique features of each MAF, and an expansion of the brochure produced for the deactivation of the 564th to include all the missile squadrons. All of the information will be downloadable from a public website.

Natural Resources

Section 7 of the Endangered Species Act requires Federal agencies to request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such a proposed action for any project that is conducted, permitted, funded, or licensed by any Federal agency. MAFB consulted with the USFWS regarding potential Threatened and Endangered species that may occur within the project areas based on Section 7 of the Endangered Species Act.

All of the alternatives listed include renovations to the existing buildings, and the preferred alternative also includes the parking areas.

Vegetation

If staging areas are placed on vegetated areas, disturbance of these areas would occur during construction. The No Action alternative would not negatively affect biological or natural resources.

Wildlife

For any of the Alternatives, construction activities have the potential to disturb local wildlife. These effects would be mitigated by limiting outside construction activities to daylight hours.

Special Status Species

Montana Fish, Wildlife & Parks stated “After review of the proposed renovation of B-01 and G-01 and with no further information than provided in your letter - FWP would only provide these items of note in our comment:

Since 1960's the major change would be Grizzly Bear Recovery and Birds of Prey status.

1. Both these locations are now considered possible locations for the threatened species under the Endangered Species act, Grizzly Bear presence.
2. Both locations should consider no open pipe lines to the environment to prevent non-game wildlife from utilizing structure like this and any other structural components that could be used by, present a threat to, or attract non-game species.
3. Presence of various birds of prey that may utilize areas close to or at these sites.”

U.S. Fish & Wildlife Service stated “Our comments are prepared under the authority of, and in accordance with, the provisions of the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.), Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250), and the Endangered Species Act (16 U.S.C. 1531 et. seq.). The current list of candidates, proposed, threatened or endangered species, and designated critical habitat occurring in Judith Basin and Lewis and Clark Counties, Montana are as follows:

<i>Scientific Name</i>	<i>Common Name</i>	<i>Status*</i>
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C

*LE=Listed as Endangered, LT=Listed Threatened, C=Candidate species for listing, P=Proposed, CH=Designated Critical Habitat

“Given the information described in your letter and the project’s scope and location within previously disturbed and developed areas, we do not anticipate adverse effects to threatened, endangered, proposed, or candidate species or critical habitat to result from implementation of the proposed project. Similarly, we do not anticipate substantive impacts to migratory birds to result from the project. Minimizing any necessary tree and shrub clearing activities during the primary nesting season (mid-April to mid-July) would serve to further minimize impacts to migratory birds, and we offer this potential voluntary measure for your consideration where practicable and appropriate in consideration of project objectives and constraints. The Service has developed, and continues to revise and develop, general and industry-specific conservation measures for avoiding and minimizing impacts to birds (<https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>). We recommend that these be considered and incorporated into project design as appropriate.”

No trees or shrubs are located around the MAF support buildings.

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Based on the facts and analyses contained in the attached EA, conducted under the provisions of NEPA, CEQ Regulations, and 32 CFR §989, the Preferred Alternative for the Malmstrom Air Force Base, the MAF Renovation project would not have a significant environmental impact, either by itself or cumulatively with other known projects. Accordingly, an Environmental Impact Statement is not required. The signing of this Finding of No Significant Impact completes the environmental impact analysis process.

Signed:

JENNIFER K. REEVES, Colonel, USAF
Commander, 341st Missile Wing

Date



MAF BRAVO-01



MAF GOLF-01

ENVIRONMENTAL ASSESSMENT

NZAS 17-6006

MAF RENOVATION: MAF B-01 & G-01



MARCH 2019

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1.0 PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

Malmstrom Air Force Base (MAFB), located in Great Falls, Montana, is home to the 341st Missile Wing of the Air Force Global Strike Command. MAFB maintains and operates the Minuteman III intercontinental ballistic missile field, which encompasses numerous missile silos and Missile Alert Facilities (MAF) in an area that is approximately 190 miles from east to west and 120 miles from north to south.

Each MAF is identified with a letter and “01” and consists of a buried and hardened Launch Control Facility and an above-ground Launch Control Support Building. Additionally, every MAF has a landing pad for helicopters, a large radio tower, a large "top hat" HF antenna, a garage for security vehicles, recreational facilities, and one or two sewage lagoons. The entire site, except for the helicopter pad and sewage lagoons, is secured with fencing and security personnel. About a dozen airmen and officers are assigned to a MAF¹ at any given time.

This proposed project includes two MAFs: Bravo-01 (B-01) and Golf-01 (G-01). B-01 is located in the 10th missile wing in Judith Basin County approximately 11 miles northwest of Stanford, Montana. G-01 is located in the 12th missile wing in Lewis and Clark County, approximately 14 miles southwest of Simms, Montana. Both sites are shown in the figures below and in Appendix A.

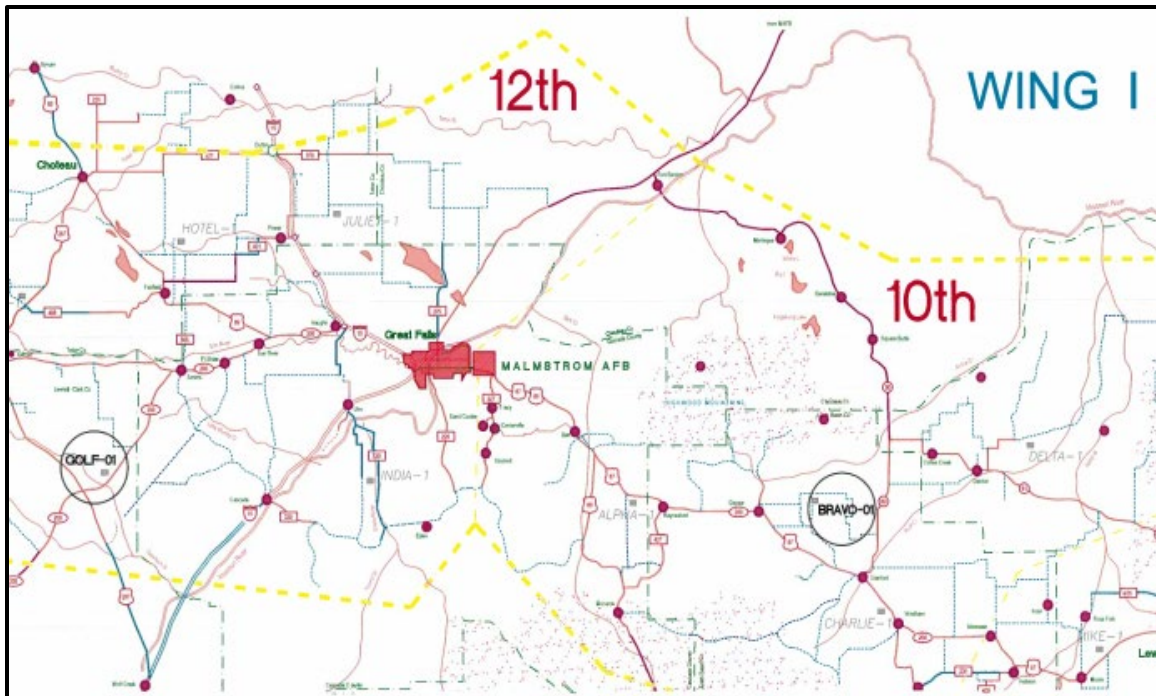


Figure 1: Location Map of B-01 and G-01 MAFs.

¹ Minuteman Missile – A Tribute to the ICBM Program. <https://www.minutemanmissile.com/afbwing1.html>



Figure 2: Aerial view of B-01 MAF.



Figure 3: Aerial view of G-01 MAF.

The proposed action is to renovate the Support Building at each of two MAFs: B-01 and G-01. The MAFs were built in the 1960's and need to be updated to meet current mission requirements. B-01 renovations include adding square feet (SF) to the front and back of the building, and remodeling the interior of the “hotel” portion and kitchen area inside. G-01 renovations include adding onto the front and remodeling the interior of the “hotel” portion and kitchen area inside. The parking lots at both MAFs would be expanded to compensate for space the building expansions will be using and to permit turning of larger vehicles. The Support Building expansion areas are depicted on Figures 4 and 5 in Section 2.0, below, and Support Building and parking lot expansion areas are shown on figures located in Appendix B.

1.2 PURPOSE OF THE ACTION

While still functional, the Support Buildings at the MAFs have limited utility and are very outdated. The renovations will create separate quarters for men and women, increase common living spaces, and update the kitchen facilities.

Without implementation of the proposed action, the Support Buildings at the MAFs are not sufficient to support current mission requirements. The proposed action ensures the continued safe operation of the MAFs and essential mission support.

1.3 NEED FOR THE ACTION

The Support Buildings at the MAFs do not currently meet current mission requirements. The Support Buildings are not equipped to accommodate increasing numbers of personnel, including both men and women. With a greater number of personnel located at the MAFs, the communal spaces are not

adequate, including the kitchen and bathrooms. The buildings are also older and do not contain enough insulation in the walls and ceilings, and the windows are outdated and do not have an effective seal.

B-01 and G-01 are both essential parts of the mission of MAFB, and integral for providing defense for the United States. They are the first two slated for renovations. Renovation of the Support Buildings at thirteen other MAFs will follow in subsequent years, dependent on the outcome of this EA.

1.4 DECISION TO BE MADE

The Air Force 341st Missile Wing (MW) will ultimately decide if the actions described in this EA will result in any significant environmental impacts, based on consultation with other agencies (listed below) and public input as described in the Code of Federal Regulations (CFR), 32 CFR 989 Environmental Impact Analysis Process (EIAP) process. If the actions are not determined to be significant, a “Finding of No Significant Impact” (FONSI) is issued. If significant impacts are predicted, then a recommendation to draft an Environmental Impact Statement (EIS) is made. This EA is a planning and decision-making tool that will be used to guide MAFB in implementing the Proposed Action in a manner consistent with Air Force standards for environmental stewardship.

1.4.1 Applicable Laws and Environmental Regulations

- Air Force Instruction (AFI) 32-7064, Integrated Natural Resources Management
- AFI 32-7065, Cultural Resources Management
- Considering Cumulative Effects under the National Environmental Policy Act, Council on Environmental Quality (CEQ), January 1997
- CEQ document “Environmental Justice, Guidance Under the National Environmental Policy Act”
- Executive Orders (EO):
 - 11988 Floodplain Management
 - 11990 Protection of Wetlands
- Judith Basin County Weed Control District
- Lewis and Clark County Weed Control District
- National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190, 42 U.S.C. 4321-4347)
- United Facilities Criteria (UFC) 1-200-01: Department of Defense Building Code – General Building Requirements
- UFC 4-010-01: DoD Minimum Antiterrorism standards for Buildings
- UFC 4-020-01: DoD Security Engineering Facilities Planning Manual
- 32 CFR 989 Environmental Impact Analysis Process
- 36 CFR Part 800 Protection of Historic Properties
- 40 CFR 1500 – 1505, CEQ’s Regulations on Implementing NEPA

1.5 INTERGOVERNMENTAL COORDINATION/ CONSULTATIONS

1.5.1 Interagency and Intergovernmental Coordination and Consultations

Scoping is an early and open process for developing the breadth of issues to be addressed in the EA and for identifying significant concerns related to a Proposed Action. Per the

requirements of the Intergovernmental Cooperation Act of 1968 (31 USC 6501, et seq.) and EO 12372, *Intergovernmental Review of Federal Programs*, federal, state, and local agencies with jurisdiction that could be affected by the Proposed Action were notified during the development of this EA. Section 7 of the Endangered Species Act requires that Federal Agencies work to ensure that any actions they take do not endanger any listed threatened or endangered species.

The following agencies were contacted for comment on the proposed alternatives.

- Federal Aviation Administration (FAA)
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish and Wildlife Service (FWS)
- U.S. Army Corps of Engineers (USACE)
- Montana State Historic Preservation Office (SHPO)
- Montana Department Fish, Wildlife, and Parks (FWP)
- Montana Department of Environmental Quality (DEQ)
- Montana Department of Natural Resources and Conservation (NRCS)
- Lewis and Clark County
- Lewis and Clark Conservation District
- Judith Basin County
- Judith Basin Conservation District

Correspondence and comments from agencies are located in Appendix C and Chapter 4.

1.5.2 Government to Government Consultations

Federal agencies are directed to coordinate and consult with federally-recognized Native American tribal governments whose interests may be directly and substantially affected by activities on federally administered lands (EO 13175 - *Consultation and Coordination with Indian Tribal Governments*). Consistent with that EO, Department of Defense Instruction (DoDI) 4710.02, *DoD Interactions with Federally-Recognized Tribes*, and AFI 90-2002, *Air Force Interaction with Federally-Recognized Tribes*, federally-recognized tribes that are historically affiliated with the geographic region were invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes.

The following federally recognized Indian Tribes were contacted:

- Blackfeet Nation of the Blackfeet Reservation
- Assiniboine and Gros Ventre Tribes of the Fort Belknap Reservation
- Northern Cheyenne Tribe of the Northern Cheyenne Reservation
- Chippewa Cree Tribe of the Rocky Boy's Reservation
- Confederated Salish & Kootenai Tribes of the Flathead Reservation
- Crow Nation of the Crow Reservation
- Assiniboine and Sioux Tribes of the Fort Peck Reservation

Correspondence and comments from the tribes are located in Appendix C and Chapter 4.

1.6 PUBLIC AND AGENCY REVIEW OF EA

Multiple agencies were asked to comment on this project. Government and interested parties were sent “scoping” letters describing the project and requesting input. Responses from consulted agencies and other parties have been summarized and are included in Chapter 4 of this environmental assessment report as well as in Appendix C.

Affected agencies and land owners within a one-mile radius of the proposed improvement projects at B-01 and G-01 will be notified by mail and invited to review and comment on the proposed action. Copies of this EA will be available for a 30-day comment period at the Great Falls Public Library, located at 301 2nd Ave North, the University of Providence Library, 1301 20th Street South, both located in Great Falls; and the Lewistown Public Library, 701 West Main Street, Lewistown, Montana.

Additionally, a website with information about the proposed action and the EA has been developed and includes the capability for submitting comments online. The web address is: malmstrom.af.mil/About-Us/Environmental-Resources/. The 30-day comment period for the proposed action will be advertised in the *Great Falls Tribune*, *Lewistown News-Argus*, and *Cascade Courier*.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The Air Force is proposing to renovate the Support Buildings at MAFs B-01 and G-01. The MAF Support Buildings have limited functionality and need to be updated to meet current mission requirements. The Support Building at B-01 would have two additions – a 14' x 67', 938 SF addition built onto the front, a 7' x 30', 210 SF addition built onto the back – and remodeling of existing interior spaces in the hotel and kitchen portions of the facility (Figure 4). The Support Building at G-01 would have one addition – a 14' x 91', 1,274 SF addition on the front – and remodeling of existing interior spaces in the hotel and kitchen portions of the facility (Figure 5). The proposed action includes new roofs for the two MAF Support Buildings, including new trusses and interior framing modifications, and reinforcement of exterior walls to meet design requirements. As proposed, all new construction will use cold-rolled steel framing.

The parking lots at both MAFs would be expanded by approximately 850 SF to compensate for the additional area taken up by the additions to the front of the buildings and still allow for large vehicles to turn around; this, along with the addition to the back of B-01 will increase the overall impervious area around each MAF. The proposed action building and parking lot expansion areas are shown in the figures below and also in Appendix B.

When the Support Buildings at B-01 and G-01 were built in the 1960's, there were fewer personnel, and only men, stationed at the facilities. Today, facilities are staffed by up to twelve people and are used by both men and women. Consequently, the current facilities' design is inadequate for housing more personnel and both men and women for extended stays.

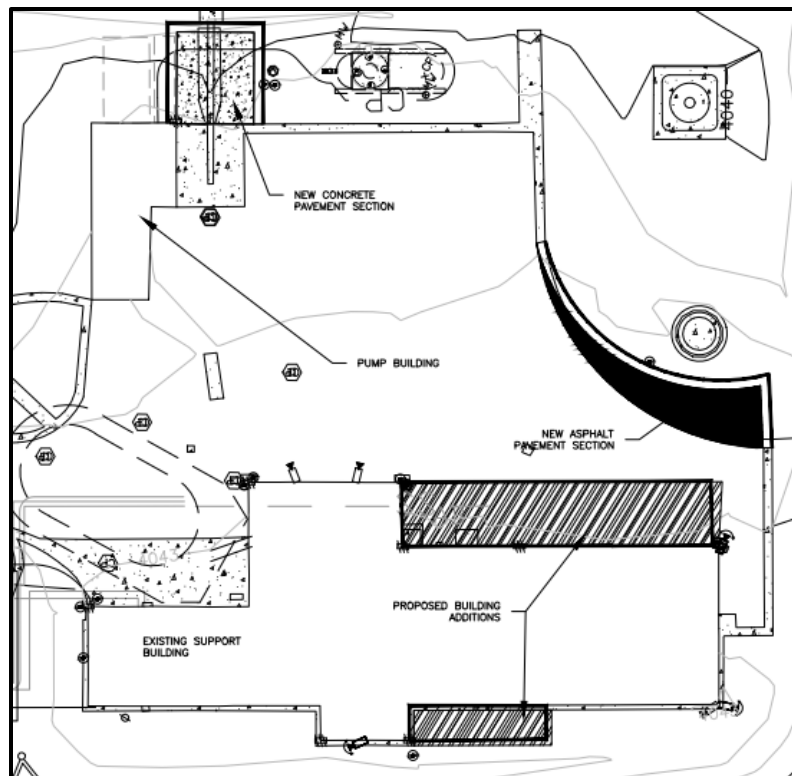


Figure 4: Proposed Support Building and Parking Lot Expansion Areas for MAF B-01.

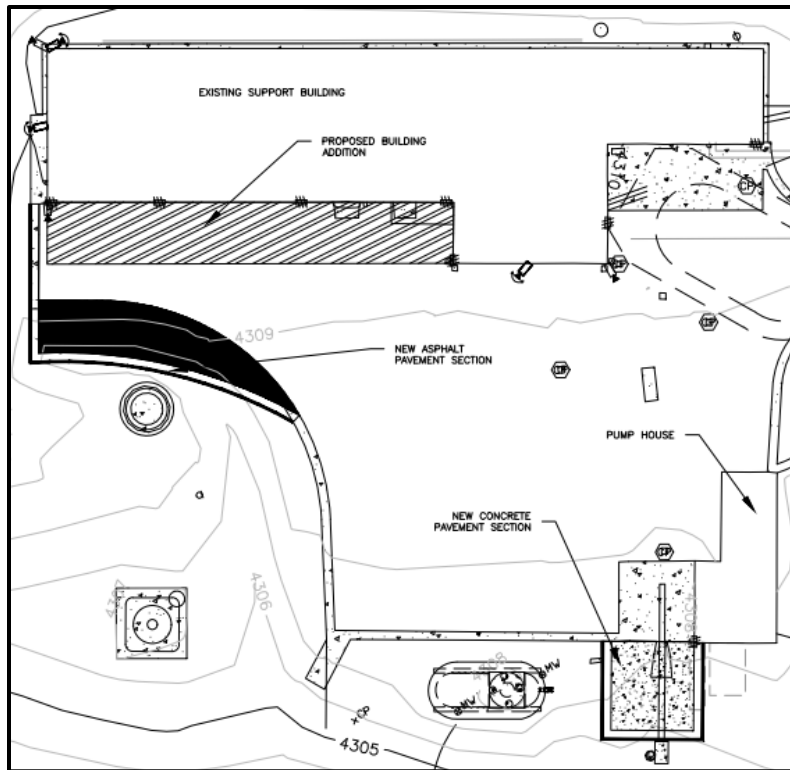


Figure 5: Proposed Support Building and Parking Lot Expansion Areas for MAF G-01.

2.2 SELECTION STANDARDS

Selection standards were developed to assist MAFB in determining reasonable alternatives and the basis for eliminating any of them. The factors considered by MAFB when selecting the most favorable alternative were: effectiveness in meeting the project objective, cost to complete, time for completion, least disruption for mission requirements, and environmental effects. Alternatives that were less effective, costlier, or that took much longer, were less favorable. Alternatives that offered the most flexibility for future needs were considered more favorably. The following selection standards were used to determine the feasibility of each alternative and to determine which of the alternatives will be the best fit to meet the needs of the project.

- Accommodation of Men, Women, and More Personnel
- Environmental Effects
- Time Required to Implement the Alternative
- Disturbance to Mission Readiness

2.2.1 Accommodate Men, Women, and More Personnel

Will the alternative improve the living accommodations to include both men and women, and more total personnel?

2.2.2 Environmental Effects

Will the alternative have an adverse effect on the environment?

2.2.3 Time Required to Implement the Alternative

How long will it take to implement the selected alternative?

2.2.4 Disruption to Mission Readiness

Will implementation of the alternative have a deleterious effect on mission readiness during construction? Does the alternative increase mission readiness?

2.3 SCREENING OF ALTERNATIVES

There are four primary alternatives being considered for upgrading the MAF support buildings (Section 2.4), with one additional alternative being eliminated from consideration (Section 2.5). They include:

1. Renovate the “Hotel” and Kitchen portions of the support buildings at each MAF, which includes adding square footage onto the front and back of B-01, the front of G-01, and expanding the parking lots.
2. Perform minor upgrades to the “Hotel” portion of each support building and the exterior of the buildings.
3. Renovate the first floor “Hotel” area and build a second story above it to increase the living areas of the support buildings at the MAFs.
4. The No Action alternative would leave the buildings as they are.

The table below summarizes how each of the alternatives meets the needs of the project using the selection standards described above. A +, 0, and – grading system was used to rate each of the selection standards as described below.

1. Accommodate men, women, and more personnel
 - + Alternative will fully meet the need to accommodate both men and women, as well as increased personnel
 - 0 Alternative will partially meet the need to accommodate both men and women as well as increased personnel
 - Alternative will not meet the need to accommodate men and women, as well as increased personnel
2. Environmental Effects
 - + Alternative will not adversely affect the environment
 - 0 Alternative may have minor adverse effects on the environment
 - Alternative will adversely affect the environment
3. Time required to implement the alternative
 - + Alternative can be implemented in a timely manner
 - 0 Implementation of the alternative will take a moderate amount of time
 - Alternative may not be completed in a timely manner
4. Disruption to Mission Readiness
 - + Alternative will not disrupt mission readiness
 - 0 Alternative will disrupt mission readiness, but only a few facilities or activities
 - Alternative will disrupt mission readiness, including mission-vital facilities or activities

Alternative	Selection Standards			
	Accommodate Men, Women, and More Personnel	Environmental Effects	Time Required to Implement the Alternative	Disruption to Mission Readiness
1 st Alternative - Renovate “Hotel,” kitchen, and parking lot	+	0	-	+
2 nd Alternative – Minor upgrades to the “Hotel” portion and the exterior	0	+	0	+
3 rd Alternative – Renovate the first floor and build a second story to the “Hotel” area	+	0	-	+
No Action Alternative	-	+	+	+

2.4 DETAILED DESCRIPTION OF THE ALTERNATIVES

2.4.1 Alternative 1 (Preferred Alternative): Renovate “Hotel” and Kitchen Portions.
 The proposed action is to renovate MAFs B-01 and G-01. The MAFs need to be updated to meet current mission requirements. The planned renovation of the existing Support Building at MAF B-01 would include adding approximately 938 SF (14’ x 67’) to the front and a smaller section, approximately 210 SF (7’ x 30’), to the back. The existing Support Building at MAF G-01 would have 1,274 SF (14’ x 91’) added to the front. Remodeling the interior of the “hotel” and kitchen portions of both MAFs would also occur. Additionally, the parking area at each MAF would be expanded by approximately 850 SF to compensate for the additional area that the buildings would now occupy.

2.4.2 Alternative 2: Repair Only Oldest Portions
 Only those portions of the Support Buildings at the MAFs that need the most updating would be repaired. This would include the exterior of the buildings and minor upgrades to the “hotel” portion of each MAF. This alternative would not accommodate a larger number of personnel, or both men and women, at the MAFs.

This alternative would not fully meet the needs of the active duty personnel who are stationed at the MAFs, but it would take less time to implement the changes. It would possibly impact fewer historical areas of the buildings.

2.4.3 **Alternative 3: Build a Second Story onto the “Hotel” Portion of Each MAF**
 Alternative 3 would add a second floor above the “hotel” portion of both MAFs to increase the number of sleeping quarters available and accommodate a larger number of personnel at one time. The first floor of the “hotel” portion of the MAFs would also be renovated.

This alternative would allow more active duty personnel to be stationed at the MAFs but would not increase functionality of the interior spaces, specifically the kitchen, to accommodate the larger population of active duty personnel. This alternative would also possibly have a smaller impact to impervious surfaces. A negative impact would include impacts to the historical appearance of the buildings.

2.4.4 **No-Action Alternative**
 The No-Action Alternative would leave the buildings as they are and do nothing to upgrade them.

2.5 **ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION**

Demolishing both of the MAF Support Buildings completely and rebuilding them was eliminated due to the expense and time frame associated with this option for mission-critical infrastructure.

Alternative	Selection Standards			
	Accommodate Men, Women, and More Personnel	Environmental Effects	Time Required to Implement the Alternative	Disruption to Mission Readiness
Demolish both MAF Support Buildings	+	0	-	-

2.6 **SUMMARY OF POTENTIAL IMPACTS**

Any of the proposed alternatives may have an impact on the surrounding ecosystems and other resources that are discussed further in Chapters 3 and 4.

3.0 AFFECTED ENVIRONMENT

3.1 SCOPE OF THE ANALYSIS

Chapter 3 describes the current condition of the environmental resources that may be affected by implementation of the Proposed Alternative.

3.1.1 Resources Analyzed

The resources in the project area that were analyzed include noise/acoustical environment, air quality and climate change, water resources, natural resources, earth resources, hazardous materials and wastes, cultural resources, infrastructure/utilities, and safety and occupational health.

3.1.2 Resources Eliminated from Detailed Analysis

Based on the scope of the Proposed Alternative, environmental resources with few to no impacts were identified and removed from detailed analysis. The following describes those resource areas and why they were eliminated.

- **Airspace**

The amount of air travel to each MAF will not be affected; the planned action will only update the existing buildings at these locations. None of the alternatives take place in the airspace, and none of the preferred actions, including the No Action alternative, would change the current flight patterns for MAFB in the area.

- **Socioeconomics**

Socioeconomics comprises the basic attributes and resources associated with the human environment, particularly population and economic activity. Socioeconomics impacts would be considered significant if the Proposed Action resulted in a substantial shift in population trends and notably affected regional employment, earnings, or community services.

The Proposed Action would not result in any population changes at MAFB. Although deconstruction and reconfiguration would be required for the Proposed Action, materials would likely be sourced locally, and construction needs would be met by the local workforce. This would result in a minor short-term beneficial impact on the local economy.

- **Land Use**

Primary land use around the MAFs is agricultural and grazing. The current land use will not change if any of the alternatives are implemented.

- **Environmental Justice**

EO 12898 *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* and EO 13045 *Protection of Children from Environmental Health Risks and Safety Risks* requires

that all federal agencies address the effects of policies on minorities, low-income populations, and children.

All construction and reconfiguration associated with the Proposed Action would occur remotely from residential areas. The nearest residence to B-01 is 0.9 miles west and the closest residence to G-01 is 1.5 miles south. Construction noise measured at this distance is approximately 65 decibels. Although there would be a temporary increase in noise during the construction period, disturbance to surrounding residents would not exceed the significance threshold. After construction is complete, noise would return to pre-construction levels.

Thus, no populations (minority, low-income, or otherwise) would be disproportionately or adversely impacted, and no adverse impact with regard to environmental justice would result.

Implementation of the Proposed Action would not result in increased exposure of children to environmental health risks, or safety risks, such as those associated with the generation, use, or storage of hazardous materials. Standard construction site safety precautions (e.g. fencing and other security measures) would reduce potential risks to minimal levels, and any potential impacts to children would be negligible in the short term as well.

3.2 NOISE / ACOUSTIC ENVIRONMENT

Currently, helicopters visit each MAF infrequently, during daytime hours, and avoid residential areas. Decibels provide a relative measure of sound intensity. Several factors influence sound propagation including obstacles and climatic conditions. Based on data from Malmstrom Air Force Base Air Installation Compatible Use Zone Resource Book (AICUZ, Nov 2014), the sound exposure level for UH-1N aircraft landing on a helipad within approximately three feet is 80 decibels (dB). Modeling results, which can be found in Appendix D, indicate sound levels of 75 dB approximately 377 feet from the aircraft and 65 dB roughly a half mile away.

As a rule of thumb, it takes about 10 times the intensity to sound twice as loud. A useful general reference is that the just-noticeable difference in sound intensity for the human ear is about 1 decibel. Normal conversation at a one-meter distance is around 60 dB. The Occupational Safety & Health Administration (OSHA) allows exposure to 90 dB for up to eight hours a day but only two hours for 100 dB. The National Institute for Occupational Safety and Health has recommended that all worker exposures to noise should be controlled below a level equivalent to 85 dB for eight hours to minimize occupational noise induced hearing loss (www.osha.gov/SLTC/noisehearingconservation).

3.3 AIR QUALITY AND CLIMATE CHANGE

The Clean Air Act (42 U.S.C. 7401- 7671q), as amended, assigns EPA the responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQSs) (40 CFR Part 50) that specify acceptable concentration levels of six criteria pollutants: particulate matter (measured as both particulate matter less than 10 microns in diameter [PM₁₀] and particulate matter less than 2.5 microns in diameter [PM_{2.5}]), sulfur dioxide (SO₂), carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), and lead. Therefore, generally a Net Change Emissions Assessment is required to quantify the

emissions of these criteria pollutants and to evaluate if a proposed action poses a significant impact to air quality.

A Net Change Emissions Assessment compares all net (increases and decreases) of direct (caused by the action and occurring at the same time and location of the action) and indirect (caused by the action but occurring at a different time or location than the action) emissions against significance indicators. For proposed actions occurring within nonattainment/maintenance areas, the General Conformity de minimis values (40 CFR 93.153) are used as General Conformity Determination thresholds (if exceeded, a General Conformity Determination is required). For proposed actions occurring within an area that is in attainment with all NAAQSs, the lowest severity General Conformity de minimis values (40 CFR 93.153) are used as conservative indicators of potential significance.

Additionally, depending upon the severity of criteria pollutant air concentrations, the EPA may designate an area as “nonattainment.” If this occurs, the state (within which the nonattainment area is located in) must develop a State Implementation Plan (SIP) which outlines the steps the state will take to meet the NAAQSs. The purpose of General Conformity is to ensure that any federal action does not interfere with any applicable SIP. Nonattainment areas that achieve attainment with the NAAQSs and redesignated attainment by the EPA are considered “maintenance areas.” States must develop maintenance plans (or maintenance SIPs) for maintenance areas to ensure continued compliance with the NAAQSs for two consecutive ten-year probationary periods.

If an area is designated as nonattainment or maintenance for any of the criteria pollutants, General Conformity (40 CFR 93 subpart B) may apply. The proposed action will occur at B-01 and G-01 MAFs which are both currently in attainment for all NAAQS, and therefore this action is not subject to General Conformity. The action, however, is still subject to an Air Quality Impact Analysis according to AFI 32-7040 Section 3.5.

3.4 WATER RESOURCES

The closest wetland is approximately 317 feet south of the B-01 MAF.² Arrow Creek is the closest named surface water and lies 1.8 miles to the north. There are multiple unnamed tributaries surrounding this MAF; the closest one lies 0.25 miles to the west.

The closest wetland to G-01 MAF is located 0.8 miles to the north.² The nearest named surface water is Henry Creek, 0.6 miles to the east. There are multiple unnamed tributaries surrounding this MAF; the closest lies 0.2 miles to the southwest.

Both MAFs have sewage lagoons outside the perimeter fence which are listed as “freshwater ponds” on the National Wetlands Inventory Mapper website². These areas were not considered wetlands for distances calculated to the nearest wetlands.

² FWS National Wetlands Mapper <https://www.fws.gov/wetlands/data/mapper.html>

3.5 NATURAL RESOURCES

3.5.1 Vegetation

Typical vegetation at the B-01 MAF site³ includes introduced and semi-natural vegetation, shrub/grassland, and agricultural vegetation. Typical vegetation at G-01 MAF include shrub and grassland vegetation.³ There is native vegetation in the area, including Needle and Thread Grass (*Stipa comata*) and Blue Gramma (*Bouteloua gracilis*). Any areas that contain native species should be avoided and not disturbed.

3.5.2 Wildlife

MAF B-01 is located in the Fish, Wildlife and Parks (FWP) Region 4 area. Region 4 supports 64 of Montana's 89 fish species, 75 of Montana's 109 mammals, and 338 of the state's 389 birds. The region is currently managing populations of all ten of the state's common big game animals.⁴ The project area is not located in or near any Sage Grouse habitat.⁵

MAF G-01 is located in the FWP Region 3 area. Region 3 is home to nine state parks, including Montana's oldest, Lewis and Clark Caverns, and Bannack State Park, the site of the first Territorial Capital. The region is headwaters to some of the most renowned trout rivers in the U.S., including the Madison, Gallatin, Jefferson, upper Missouri, upper Yellowstone, Beaverhead, and Big Hole. About 26% of Montana's angling takes place in Region 3, and the region boasts 95 fishing access sites. Big game hunting is a major draw in southwest Montana. Approximately 50% of the elk harvest in the entire state happens in Region 3.⁶ The project area is not located in or near any Sage Grouse habitat.⁵

3.5.3 Special Status Species

In both FWP Regions 3 and 4, there are four known species of animals that are listed on the Threatened and Endangered Species List. They include the Grizzly Bear, Canada Lynx, Bull Trout, and Red Knot. The North American Wolverine is a proposed species, and White Bark Pine⁷ is a candidate species.

There are no known threatened or endangered plants or animals located within the project area for either project site.

3.6 EARTH RESOURCES

Neither project area is known to contain any earth resources of commercial value.

Bravo is located northeast of Geysers, Montana, and southeast of the Highwood Mountains in an area of benches dissected by the drainage of Arrow Creek. The Arrow Creek Badlands are to the north and northwest of Bravo. The benches are a dissected planation surface cut into soft sedimentary rocks and mantled with a veneer of gravel. Although some geologists have suggested the flat surface is a

³ National Land Cover Data Viewer http://gis1.usgs.gov/csas/gap/viewer/land_cover/Map.aspx

⁴ Montana FWP <http://fwp.mt.gov/regions/r4/>

⁵ Montana.gov Sage Grouse Habitat <https://sagegrouse.mt.gov/ProgramMap>

⁶ Montana FWP <http://fwp.mt.gov/regions/r3/>

⁷ Letter response dated January 25, 2018 from Jodi Bush with FWS

braid plain, the flatness of the unchanneled surface and homogeneity of the gravel layer indicate catastrophic sheet flow. The gravel was apparently the abrasive agent for cutting the planation surface and forms extensive gravelly soils, but where it is very thin or absent, the shale and claystone bedrock weather to form shallow, clayey soils.

The Highwood Mountains are composed largely of alkaline igneous rocks, while the rocks to the east are generally weakly lithified sedimentary rocks, most of which are quite undisturbed. Other igneous intrusions create domes to the east and south where they are below the surface and the prominent Square Butte stock and buttes to the west where the igneous rocks are exposed. Arrow Creek appears to follow a fault along the east side of the Highwood Mountains⁸. The Bravo site is underlain by strata of the Colorado Group. The Colorado Group formations are dominated by shale and claystone. Bentonite beds are present in the Blackleaf Formation, and a small amount of limestone is present in the subjacent Kootenai Formation. Thin to thick beds of sandstone occasionally are present between the finer grained rocks. Bravo is near the transition between western and eastern nomenclature, and the Blackleaf strata are reassigned to Thermopolis Formation to the east. There are, however, some minor changes in lithology between the formations, and beds are not continuously traceable. The 1960 well log for Bravo shows 770 feet of Blackleaf Formation strata over Kootenai Formation. Bentonite beds are characteristic of the Blackleaf Formation but not the subjacent Kootenai.

Golf is located in hilly terrain immediately west of the Big Belt Mountains. The Adel Mountains Volcanic Field forms the bulk of this part of the Big Belt Mountains. The Dearborn River drains this area and enters a narrow canyon in Adel Mountains Volcanics several miles southeast of Golf to join the Missouri River. Areas surrounding Golf are primarily composed of sedimentary strata. Hills and ridges are formed from a combination of deformation (folding and faulting) and erosion. Valley bottoms are filled with varying amounts of alluvium. Soils proximate to Golf are shallow, poorly developed loams derived from weathered sedimentary bedrock.

The Golf site vicinity is mapped as sedimentary rocks of the Two Medicine Formation⁹. Much of the Two Medicine contains material derived from products of local volcanism. Virgelle and Telegraph Creek Formations outcrop on hills to the west. Two large faults (thrusts) and a series of anticline-syncline pairs are shown oriented roughly northwest-southeast. Two smaller faults (strike-slip) are shown to the east on the 2014 geologic map. The well log for Golf indicates two feet of igneous rock near the surface (sill). From the description, this is probably shonkonite or trachyandesite. Beneath the sill or flow, Two Medicine Formation strata were encountered. These strata consisted primarily of shale with some sandstone and minor coal and bentonite. Virgelle Sandstone was encountered at 258 feet.

⁸ Vuke, Susan M., Richard B. Berg, Roger B. Colton, and Hugh E. O'Brien. 2002 (revised 2003, 2007). *Geologic Map of the Belt 30' x 60' Quadrangle, Central Montana* (map and text). Montana Bureau of Mines and Geology Open File Report MBMG 450

⁹ Vuke, Susan M. 2014. *Preliminary Geologic Map of the Dearborn River 30' x 60' Quadrangle, West-Central Montana* (map and text). Montana Bureau of Mines and Geology Open File Report MBMG 649.

3.7 HAZARDOUS MATERIALS / WASTE

At both of the MAFs, there are above ground storage tanks (AST) and underground storage tanks (UST) that contain gasoline, diesel, and jet fuels.

According to the Montana DEQ “Mapping DEQs Data” website,¹⁰ there are no known hazardous waste sites within 1.0 mile of the B-01 MAF. From B-01, the closest UST along with two reported petroleum releases are located in the town of Geysler, approximately 6.5 miles to the southwest.

The G-01 MAF is listed on the DEQ Hazardous Waste Handlers report¹¹ as a “conditionally exempt small quantity generator,” but has not been listed as an active site since 1992. The closest reported petroleum release, which occurred in 1995, is located at the Milford Colony approximately 5.5 miles to the west.¹⁰

Asbestos and Lead-In-Paint (LBP) inspections have been conducted at both MAFs. There are asbestos-containing materials (ACM) present at both MAFs. LBP was found in B-01, but not in G-01.¹² There is potential for the lighting fixtures in the MAFs to contain polychlorinated biphenyls (PCBs).

3.8 CULTURAL RESOURCES

According to the Montana State Historical Preservation Office (SHPO) and MAFB, the renovations will have an adverse effect on historic properties as defined in 54 U.S.C. §300308. It is SHPO’s position that any structure over fifty years is considered historic and is potentially eligible for listing on the National Register of Historic Places. MAFB and the Montana SHPO agreed in the 2007 564th Missile Squadron MOA, the 2002 MAF A-01/LF A-06 Stewardship MOA and the 2018 Renewal of the Missile Maintenance PA that all missile sites are eligible for listing in the NRHP. Both B-01 and G-01 were originally constructed in the early 1960’s, with interior renovations that occurred in the 80’s and 90’s, with exterior renovations of the siding occurring in the 90’s as well.

3.9 INFRASTRUCTURE / UTILITIES

At each MAF, there are currently the Support Buildings, pump houses, storage garages, and other structures that are described in Section 1.1. Both MAFS also have existing electrical, sewer and water lines connected to the Support Buildings, and the underground infrastructure of the Launch Control Facility.

3.10 SAFETY AND OCCUPATIONAL HEALTH

Neither facility has adequate gender-separate sleeping quarters. Asbestos inspections have been conducted at both MAFs, and there are asbestos-containing materials (ACM) present.¹³ Buildings met code requirements at the time they were built or remodeled. Neither one of the facilities has any known indoor air quality issues.

¹⁰ Montana DEQ Hazardous Wastes Mapper <http://svc.mt.gov/deq/wmadst/#>

¹¹ Montana DEQ Hazardous Waste Handler <http://svc.mt.gov/deq/dst/#/app/haz/report/epaid/MT557009097>

¹² TD&H Engineering Asbestos and Lead-In-Paint Inspection Reports

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This section will discuss the effects that the chosen alternative will have on existing resources at the MAFs.

4.2 NOISE / ACOUSTIC ENVIRONMENT

The amount of noise from helicopters will not change since the flight paths and frequencies will not be changing with any of the proposed alternatives. There will be increased noise from construction activities during implementation of any of the three alternatives, but this will only occur during the daylight hours. Heavy equipment required to implement any of the alternatives may include excavators, backhoes, bulldozers, skid-steer loaders, concrete trucks, dump trucks, and pneumatic tire compactors; nail guns and compressors may also be used. Noise attenuation will therefore be more effective since this is a “soft” site, which is described in more detail below.

The nearest residence to B-01 is 0.9 miles west and the closest residence to G-01 is 1.5 miles south. Noise from helicopters and construction equipment measured at this distance is less than 65 dB. Natural factors such as topography, vegetation, and temperature can reduce in-air noise over distance. A hard site exists where noise travels away from the source over a generally flat, hard surface such as water, concrete, or hard-packed soil.

When ground cover or normal unpacked earth is present between the source and receptor, the ground becomes absorptive to noise energy and is called a soft site¹⁴. A significance threshold for noise is 90 dB over an 8-hour time frame.

Alternative 1 would have a temporary increase in noise during the construction period but would then return to pre-construction levels. Disturbance to surrounding residents would not exceed the significance threshold.

Alternative 2 would require the same types of construction equipment as Alternative 1 but would have slightly less noise disturbance since this alternative is less extensive. Disturbance to surrounding residents would not exceed the significance threshold.

Alternative 3 would also have similar amounts of noise disturbance as Alternative 1. Disturbance to surrounding residents would not exceed the significance threshold.

The No Action alternative would not have increased noise.

Sound decibel maps for helicopters and construction noise are located in Appendix D.

¹⁴ Washington State Department of Transportation http://www.wsdot.wa.gov/NR/rdonlyres/448B609A-A84E-4670-811B-9BC68AAD3000/0/BA_ManualChapter7.pdf

4.3 AIR QUALITY AND CLIMATE CHANGE

Air quality will be temporarily affected by construction equipment during the installation of the chosen alternative, since various types of construction equipment will be used, as described in Section 4.2 above. In a study called “Realtime Emissions from Construction Equipment Compared with Model Predictions”¹⁵ published by Bardia Heidari and Linsey C. Marr from Virginia Tech, different types of construction equipment were researched, which included various excavators, backhoes, and loaders. Their research found that tailpipe emissions during operation for carbon dioxide, nitrogen oxides, hydrocarbons, and carbon monoxide did not exceed EPA standards for non-road engines. Greenhouse gases (GHG), including carbon dioxide, methane, and nitrous oxide, are also emitted from vehicles and equipment that would be used during the construction phase. GHG emissions, based on information from the EPA for non-road vehicles, were calculated to be 4.08 tons¹⁶ for the construction period (see calculations, Appendix E). The threshold for reporting of CO₂ gas is 25,000 metric tons per year and generally only applies to facilities that are direct greenhouse gas emitters. The threshold does not apply to small businesses, and therefore construction activities either.¹⁷

Alternative 1 air emissions during construction will be short term and are not anticipated to exceed any air emission standards.

Alternative 2 air emissions during construction would be slightly less than that of Alternative 1.

Alternative 3 air emissions will be slightly more than that of Alternative 1 due to modest differences in construction activity between the alternatives.

There would be no GHG generation from the No Action alternative.

GHG emissions from regular vehicle traffic to the site would increase slightly due to more personnel being stationed at each MAF. Emissions from the building may also increase slightly if the square footage required to be heated and cooled is increased, as with Alternatives 1 and 3.

4.4 WATER RESOURCES

Because all alternatives are building construction related, the only adverse effect would be from short-term construction storm water runoff. Storm water runoff is mitigated through the general construction National Pollutant Discharge System permitting requirements. For the Preferred Alternative and Alternatives 2 and 3, a sediment and erosion control plan would need to be in place for construction which would mitigate runoff adverse effects to water resources. Best Management Practices will be used during construction to mitigate site runoff, and disturbed areas will be revegetated with grasses to restore turf to its pre-construction condition. The No Action alternative would not have an adverse effect on water resources.

¹⁵ Journal of the Air and Waste Management Association. Volume 65, Issue 2. 2015

¹⁶ EPA (2014) Inventory of Green House Gas Emissions and Sinks: 1990-2012. All Values are calculated from Table A-107.

¹⁷ EPA Mandatory Reporting of Green House Gases <https://www.epa.gov/sites/production/files/2015-07/documents/part98factsheet.pdf>

4.5 NATURAL RESOURCES

Section 7 of the Endangered Species Act requires Federal agencies to request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such a proposed action for any project that is conducted, permitted, funded, or licensed by any Federal agency. MAFB consulted with the USFWS regarding potential Threatened and Endangered species that may occur within the project areas based on Section 7 of the Endangered Species Act.

All of the alternatives listed include renovations to the existing buildings, and the preferred alternative also includes the parking areas.

4.5.1 Vegetation

If staging areas are placed on vegetated areas, disturbance of these areas would occur during construction. The No Action alternative would not negatively affect biological or natural resources.

4.5.2 Wildlife

For the Preferred Alternative and Alternatives 2 and 3, construction activities could disturb local wildlife. These effects would be mitigated by limiting outside construction activities to daylight hours.

4.5.3 Special Status Species

Montana Fish, Wildlife & Parks stated “After review of the proposed renovation of B-01 and G-01 and with no further information than provided in your letter - FWP would only provide these items of note in our comment:

Since 1960's the major change would be Grizzly Bear Recovery and Birds of prey status.

1. Both these locations are now considered possible location for the threatened species under the Endangered Species act, Grizzly bear presence.
2. Both location should consider no open pipe lines to the environment to prevent non-game wildlife from utilizing structure like this and any other structural components that could be used by, present a threat to, or attract non-game species.
3. Presence of various birds of prey that may utilize areas close to or at these sites.”

U.S. Fish & Wildlife Service stated “Our comments are prepared under the authority of, and in accordance with, the provisions of the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.), Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250), and the Endangered Species Act (16 U.S.C. 1531 et. seq.). The current list of candidates, proposed, threatened or endangered species, and designated critical habitat occurring in Judith Basin and Lewis and Clark Counties, Montana are as follows:

<i>Scientific Name</i>	<i>Common Name</i>	<i>Status*</i>
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C

*LE=Listed as Endangered, LT=Listed Threatened, C=Candidate species for listing, P=Proposed, CH=Designated Critical Habitat

“Given the information described in your letter and the project’s scope and location within previously disturbed and developed areas, we do not anticipate adverse effects to threatened, endangered, proposed, or candidate species or critical habitat to result from implementation of the proposed project. Similarly, we do not anticipate substantive impacts to migratory birds to result from the project. Minimizing any necessary tree and shrub clearing activities during the primary nesting season (mid-April to mid-July) would serve to further minimize impacts to migratory birds, and we offer this potential voluntary measure for your consideration where practicable and appropriate in consideration of project objectives and constraints. The Service has developed, and continues to revise and develop, general and industry-specific conservation measures for avoiding and minimizing impacts to birds (<https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>). We recommend that these be considered and incorporated into project design as appropriate.”

No trees or shrubs are located around the MAF support buildings.

4.6 EARTH RESOURCES

The preferred alternative would require approximately a one-foot depth of soil removal over approximately 850 SF, and placement of concrete or asphalt pavement for the parking lot enlargement. The additional area to the back of B-01 would also disturb approximately 210 SF of earth. It is anticipated that vegetated areas surrounding the additions would be disturbed by temporary staging areas and traffic or equipment used to construct the parking lot and additional building areas. Any areas that are disturbed would need to be reseeded with Montana native grasses and forbs.

By increasing the impervious areas, the proposed action will increase the amount of stormwater runoff. Any additional runoff would need to be routed within the perimeter fence to areas that can absorb the runoff without creating erosional impacts. Additional runoff would be directed to vegetated areas, existing culverts, or cobbled ditches.

For Alternatives 2 or 3, the overall SF of the buildings and parking lots would not be changed. Therefore, there would not be any additional impervious surfaces. Although all the construction activities for any of the alternatives will occur within the existing property boundary, temporary storm water management will be necessary to prevent erosion.

The No Action alternative would have no adverse effect on earth resources.

4.7 HAZARDOUS MATERIALS / WASTE

All MAFS have facility-specific hazardous materials handling protocols in effect. The Air Force will mitigate the risk of fuel spills during construction by handling fuels through AFI 23-201 - Fuels Management, AFI 23-502 - Recoverable and Unusable Liquid Petroleum Products, and the base's hazardous material emergency planning and response plan (HAZMAT plan) which addresses federal, state, and local spill prevention and response requirements. Both B-01 and G-01 have USTs and ASTs for gasoline, diesel, and jet fuel on site.

There is potential during renovation activities to disturb the existing ACM and LBP at B-01 and the ACM at G-01. If any light fixtures will be disturbed, they should be checked for PCBs prior to being removed. These materials, will need to be abated prior to beginning renovation activities.

No hazardous materials or hazardous wastes will be added to the sites with any of the alternatives. There is potential for fuel spills during construction refueling; if this occurs, the AFI and HAZMAT plan discussed above will be followed. All wastes created during construction will be taken off site and disposed of properly. During the renovation activities, the No Action Alternative would not produce any hazardous materials or waste.

4.8 CULTURAL RESOURCES

There are no known historical resources in the areas surrounding the MAFs according to SHPO. Both the B-01 and G-01 MAFs were built in the early 1960's. The buildings are over 50 years old and according to SHPO are considered historic. For the preferred alternative and Alternatives 2 and 3, a Section 106 historic preservation review would need to be performed at both sites prior to any renovations.¹⁸ The No Action alternative would not make any changes to the buildings so would not negatively affect cultural resources. The soils around the buildings were excavated when the buildings were originally built, and no historical resources were discovered at that time. Therefore, it is not anticipated that anything else historical will be disturbed by the planned renovations.

The United States Air Force (USAF) previously determined that all MAFs are eligible for inclusion on the National Register of Historic Places. Malmstrom has determined the proposed undertaking will have an adverse effect to historic properties as defined in [54 U.S.C. §300308] and has consulted with the SHPO via a meeting on 9 October 2018. A Memorandum of Agreement is being drafted to resolve the adverse effects for all MAFs. Those proposed resolution includes capturing oral histories pertaining to the Minuteman program, photographs of the unique features of each MAF, and an expansion of the brochure produced for the deactivation of the 564th to include all the missile squadrons. All of the information will be downloadable from a public website.¹⁹

Scoping letters were sent to the seven federally recognized Indian Tribes, but only three of the tribes responded with comments. Follow up attempts were also made to reach out to the tribes that did not respond.

Mr. John Murray with the Blackfeet Tribe responded that "The proposed project of renovating two (2) missile alert facilities, B-01 & G-01, are located within lands titled: Blackfeet Indian Reservation in

¹⁸ Montana.gov - SHPO Review and Compliance <https://mhs.mt.gov/Shpo/ReviewComp>

¹⁹ Concurrence letter from Lt. Col Mignery to Montana SHPO, Dated 9/21/2018

the U.S. Treaty of 1855, often referred to as the “Lame Bull Treaty.” I do not have enough info regarding the EA to make any statements related to the work. However, Blackfeet THPO would like to be notified if any cultural, traditional cultural properties, are discovered, and a possible site visit if that event occurs. Other than that, Blackfeet has no comments at this time.”

The Northern Cheyenne Tribe responded “Thank you for your correspondence regarding the EA for two Missile Alert Facilities (MAF)- Bravo-01 and Golf-01. Please send my office copies of any Class 1 file literature research and/or Class III Cultural Surveys completed as part of the EA requirement process. Further determination will be made based on the information provided in this request.”

Confederate Salish & Kootenai Tribes stated “I am writing in response to a letter we received regarding the two proposed renovations to MAFs B-01 and G-01. We have no comments regarding these projects and defer to the other area tribes for any recommendations.”

4.9 INFRASTRUCTURE / UTILITIES

The preferred alternative and Alternatives 2 and 3 would require new building infrastructure. This would include typical building remodeling such as electrical and plumbing. The preferred alternative would also increase the square footage of the existing parking lot by approximately 850 SF. None of the alternatives include additional utilities at either of the MAF sites. The No Action alternative would not require any changes in infrastructure or utilities.

4.10 SAFETY AND OCCUPATIONAL HEALTH

The preferred alternative, and to a lesser degree Alternatives 2 and 3, would improve the buildings at both MAFs, bringing them up to current building code standards. Occupational improvements for separate sleeping quarters will benefit active duty personnel as will improved kitchen and common living areas. Since ACM and LBP were found to be in the support buildings, workers would need to take the proper actions to protect themselves and other building inhabitants from asbestos fibers and dust containing lead. The No Action alternative would negatively affect safety and occupational health by not updating and improving to current standards for living quarters in the buildings.

4.11 OTHER NEPA CONSIDERATIONS

4.11.1 Unavoidable Adverse Effects

There would be short-term noise and earth disturbance, which are temporary negative effects.

4.11.2 Relationship of Short-Term Uses and Long-Term Productivity

In the short term, B-01 and G-01 MAFs will continue to be used as they have been in the past. In the long term, if no action is taken, these sites may no longer meet the needs of the Air Force for mission readiness and may not be usable.

4.11.3 Irreversible and Irrecoverable Commitments of Resources

The preferred alternative and Alternatives 2 and 3 include renovating the MAFs to some extent. These resources will remain in place once they are implemented.

4.11.4 SHPO Adverse Effects

A determination of adverse effects to historical structures has been made; thus, a Memorandum of Agreement (MOA) is being drafted to resolve the adverse effects to the 14 MAFs. The proposed measures to resolve the adverse effects, include capturing oral histories pertaining to the Minuteman program, photographs of the unique features of each MAF, and an expansion of the brochure produced for the deactivation of the 564th to include all the missile squadrons, all of which will be downloadable from a public website.

4.12 CUMULATIVE EFFECTS

Cumulative effects are “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.”²⁰

Expanding the back of the building at B-01, and the parking lots at both B-01 and G-01 MAFs, will remove existing native vegetation inside the fenced area. This will increase the impervious area at B-01 by approximately 1,460 SF, and at G-01 by approximately 850 SF, adding to the total storm water runoff on the site.

Traffic may be increased due to the increase in personnel at each of the MAFs. This would add to the existing traffic in the vicinity.

MAFB plans to renovate 12 of the 13 MAFs, contingent upon funding. MAF A-01 may require a separate design and separate SHPO agreement because of its unique historic qualities and is not included in the pending Montana SHPO MOA for this action.

Cumulative effects for each resource area is discussed further below.

- **Noise/Acoustical Environment**
There are no other known projects that will occur within the vicinity of either the B-01 or G-01 MAF sites. Equipment noise will add to the general highway noise for the short term during implementation of the selected alternative, but there will be no long-term effects.
- **Air Quality and Climate Change**
As discussed in section 4.3, there will be small additions to GHG quantities during construction. This would potentially add slightly to the global quantities of these gases. The selection of Alternative 1 or 3 would increase the building square footage required to be heated and cooled, but this may be negated with improved insulation.
- **Water Resources**
At both MAFs, impervious surfaces would be increased by implementation of the Preferred Alternative, resulting in a greater quantity of storm water runoff. There is adequate vegetation between the buildings and the nearest waterway for the additional water to dissipate into the soil.

²⁰ 40 CFR 1508.7 – Cumulative Impact Definition

- **Natural Resources**
Both vegetation and wildlife will be affected by implementation of the preferred alternative. With other projects in the area, the cumulative impacts will be very small. Wildlife in the area will only be disturbed during construction from equipment and people working in the area. Soils may be exposed to potential erosion in the short term while the building and parking lot additions are being built, but best management practices will be implemented to reduce the amount of erosion that may occur.
- **Earth Resources**
There are no earth resources of monetary value within the project areas.
- **Hazardous Materials and Wastes**
There are no known hazardous materials or wastes located within the project areas with the exception of asbestos found in some of the building materials.
- **Cultural Resources**
The USAF is developing a weapon system replacement for the aging LGM-30 Minuteman III intercontinental ballistic missile system referred to as Ground Based Strategic Deterrent. Concepts include full demolition of the MAFs and selective replacements along with significant upgrades to the Launch Facilities. The preliminary design is scheduled to be presented to the USAF by 2020, with complete construction by 2029.
- **Infrastructure/Utilities**
The buildings will gain infrastructure upgrades that will remain in place for the foreseeable future. This will add to past renovations that have occurred on the buildings.
- **Safety and Occupational Health**
Asbestos was determined to be located in both of the MAF support buildings, therefore proper protective equipment for workers and building inhabitants will be required. By improving the living and sleeping areas of the MAFs, personnel mental health and wellbeing will be improved along with our nation's security

4.13 BEST MANAGEMENT PRACTICES

Best management practices will be followed for any construction activities to reduce sediment loading and prevent storm water discharges into any nearby surface waters. The construction phase of any of the alternatives is not expected to disturb greater than one acre of land. If greater than one acre is disturbed, a Storm Water Pollution Prevention Plan (SWPPP) will be required by the DEQ. Best management practices will be followed whether or not a SWPPP is required.

5.0 LIST OF PREPARERS

This document was developed and compiled by TD&H Engineering, a consultant to Malmstrom Air Force Base, using information supplied by base personnel.

TD&H Engineering, 1800 River Drive North, Great Falls, Montana 59401

Project Manager/Quality Assurance/Quality Control Lead

Peter Klevberg, P.E., BS Engineering Science, 1988; has over 30 years of experience in remediation, hazardous waste, asbestos abatement, geology and hydrogeology, and various environmental projects.

Technical Lead

Katie Rediske, BS Land Rehabilitation & Soil Science, 2007; has nine years of experience with land reclamation, SPCC, Environmental Assessments, Phase I site assessments, and construction materials testing.

Technical Support

Jenni Light, Ph.D. Interdisciplinary Engineering (2006) Environmental Engineering; has over 20 years of environmental experience working with municipalities, government agencies and industry with environmental permitting, (air, water, solid and hazardous waste), SPCC plans, storm water and erosion control plans, environmental assessments and audits, emission inventories as well as GIS mapping and modeling in addition to teaching engineering at a local college.

Administrative Support

Cindy Wojciechowski, AS Accounting, 1986; has over 10 years of industrial hygiene and environmental experience as well as providing administrative support compiling environmental data spreadsheets and assisting with quality assurance and data checks.

6.0 PERSONS AND AGENCIES CONSULTED/COORDINATED

Multiple agencies were consulted for the completion of this EA. They include:

- Federal Aviation Administration
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- Montana Natural Resources and Conservation Service
- Montana State Historic Preservation Office
- Montana Fish Wildlife and Parks
- Montana Department of Environmental Quality
- Department of Natural Resources and Conservation
- Lewis and Clark County
- Lewis and Clark Conservation District
- Judith Basin County
- Judith Basin Conservation District
- Federally Recognized Indian Tribes:
 - Blackfeet Nation of the Blackfeet Reservation
 - Assiniboine and Gros Ventre Tribes of the Fort Belknap Reservation
 - Northern Cheyenne Tribe of the Northern Cheyenne Reservation
 - Chippewa Cree Tribe of the Rocky Boy's Reservation
 - Confederated Salish & Kootenai Tribes of the Flathead Reservation
 - Crow Nation of the Crow Reservation
 - Assiniboine and Sioux Tribes of the Fort Peck Reservation

7.0 REFERENCES


- Bush, Jodi, US FWS, Letter response dated January 25, 2018
- EPA (2014) Inventory of Green House Gas Emissions and Sinks: 1990-2012. All Values are calculated from Table A-107.
- EPA Mandatory Reporting of Green House Gases
- <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>
- EPA: Sources of Green House Gas Emissions.
- FWS National Wetlands Mapper <https://www.fws.gov/wetlands/data/Mapper.html>
- Google Earth Images
- Helicopter Landing and Refueling Project EA, MAFB April 2016. Number of helicopter trips. N. Davison, personal communication with J. Light 11/5/15
- Journal of Air and Waste Management Association. Volume 65, Issue 2. 2015
- Montana FWP – Region 3 <http://fwp.mt.gov/regions/r3/>
- Montana FWP – Region 4 <http://fwp.mt.gov/regions/r4/>
- Montana.gov Sage Grouse Habitat <https://sagegrouse.mt.gov/ProgramMap>
- Montana.gov - SHPO Review and Compliance <https://mhs.mt.gov/Shpo/ReviewComp>
- Montana DEQ Hazardous Wastes Mapper <http://svc.mt.gov/deq/wmadst/#>
- Montana DEQ Hazardous Waste Handler <http://svc.mt.gov/deq/dst/#/app/haz/report/epaid/MT5570090097>
- Montana State Historical Preservation Office
- Minuteman Missile – A Tribute to the ICBM Program. <https://www.minutemanmissile.com/afbwing1.html>
- National Land Cover Data Viewer http://gis1.usgs.gov/csas/gap/viewer/land_cover/Map.aspx
- TD&H Engineering Asbestos Inspection Reports
- U.S. Fish & Wildlife Service, Endangered Species Act https://www.fws.gov/montanafieldoffice/Endangered_Species/Listed_Species/countylist.pdf
- U.S. Air Space Map. <http://knowbeforeyoufly.org/air-space-map/>
- Vuke, Susan M., Richard B. Berg, Roger B. Colton, and Hugh E. O'Brien. 2002 (revised 2003, 2007). *Geologic Map of the Belt 30' x 60' Quadrangle, Central Montana* (map and text). Montana Bureau of Mines and Geology Open File Report MBMG 450
- Vuke, Susan M. 2014. *Preliminary Geologic Map of the Dearborn River 30' x 60' Quadrangle, West-Central Montana* (map and text). Montana Bureau of Mines and Geology Open File Report MBMG 649.
- Washington State Department of Transportation http://www.wsdot.wa.gov/NR/rdonlyres/448B609A-A84E-4670-811B-9BC68AAD3000/0/BA_ManualChapter7.pdf
- 40 CFR 1508.7 – Cumulative Impact Definition
- 77 FR 14473, Final Guidance on Improving the Process for Preparing Efficient and Timely Environmental Reviews Under the National Environmental Policy Act

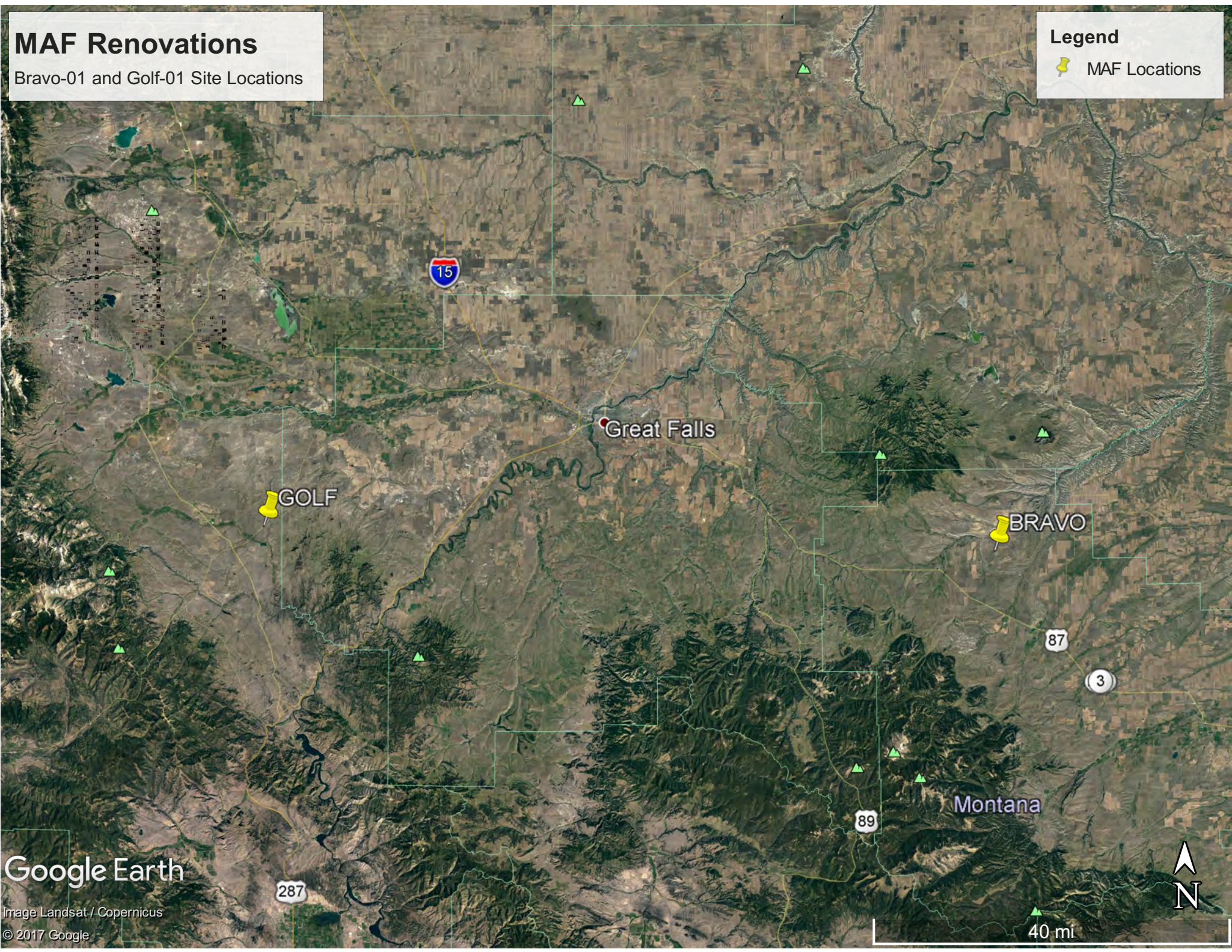
APPENDIX A
SITE VICINITY MAPS

MAF Renovations

Bravo-01 and Golf-01 Site Locations

Legend

 MAF Locations



Google Earth

Image Landsat / Copernicus
© 2017 Google

40 mi

J:\2017\17-217 MAFB EA Repair_Replace MAFs B01_G01\CADD\CIVIL\BRAVO-01_SPC.dwg, 12/5/2017 4:22:36 PM, CND



**ENVIRONMENTAL ASSESSMENT FOR MAF RENOVATION
NZAS 17-6006**

BRAVO-01 AERIAL



DRAWN BY:	CDF
DESIGNED BY:	CDF
QUALITY CHECK:	K. REDISKE
DATE:	12.04.17
JOB NO.	17-217
CAD NO.	BRAVO-01_SPC

J:\2017\17-217 MAFB EA Repair_Replace MAFs B01_G01\CADD\CIVIL\GOLF-01_SPC.dwg, 12/5/2017 4:21:29 PM, CND



**ENVIRONMENTAL ASSESSMENT FOR MAF RENOVATION
NZAS 17-6006**

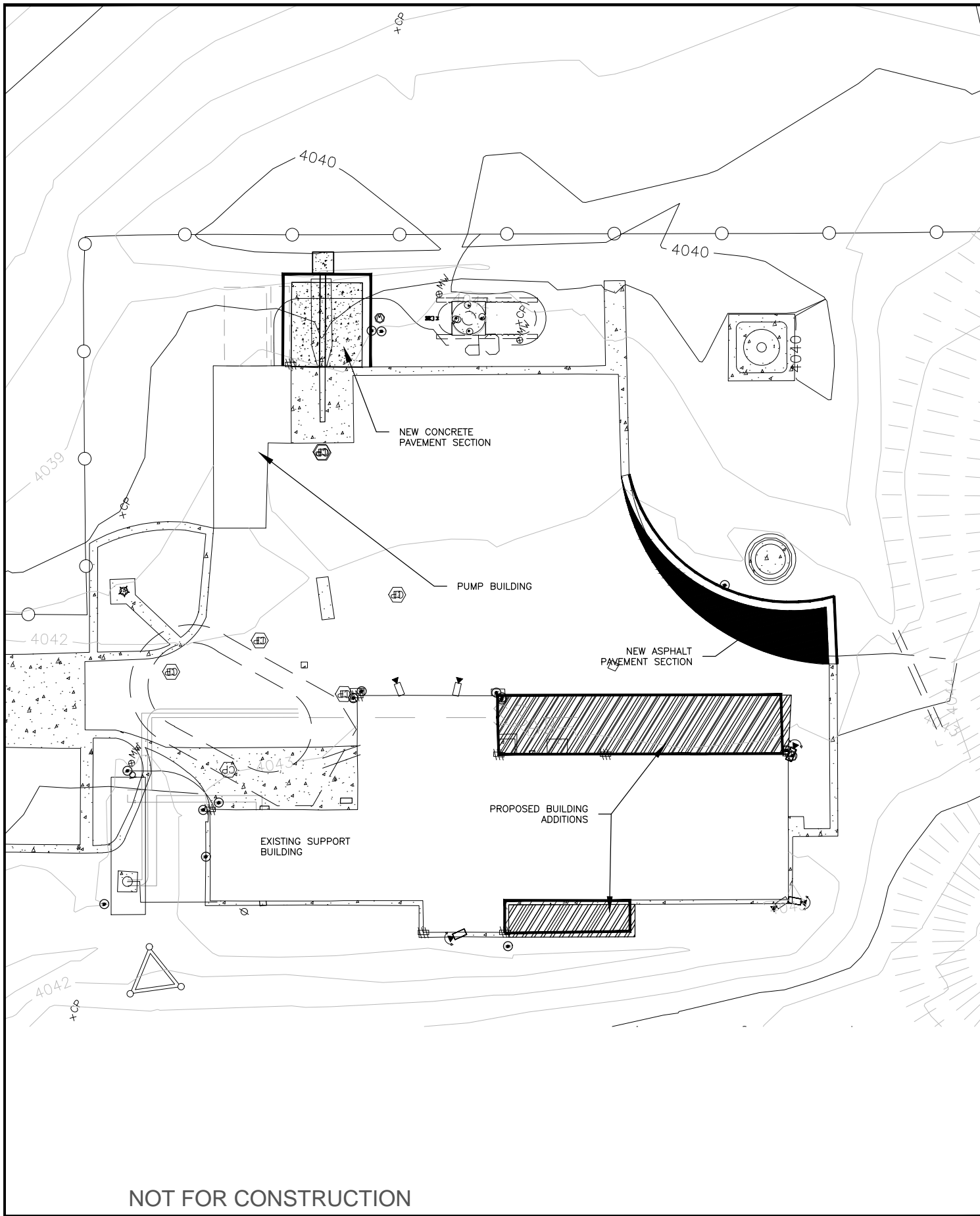
GOLF-01 AERIAL



DRAWN BY:	CDF
DESIGNED BY:	CDF
QUALITY CHECK:	K. REDISKE
DATE:	12.04.17
JOB NO.	17-217
CAD NO.	GOLF-01_SPC

APPENDIX B
PREFERRED ALTERNATIVE
DETAIL SHEETS

J:\2017\17-217 MAFB EA Repair_MAFs B01_G01\CADD\CIVIL\PREF ALT B2.dwg, 12/20/2017 3:29:14 PM, CND



NOT FOR CONSTRUCTION

MAFB: REPAIR AND RENOVATE B-01 AND G-01 EA
MALMSTROM AIR FORCE BASE, MONTANA

BRAVO-01 PREFERRED ALTERNATIVE ADDITIONS

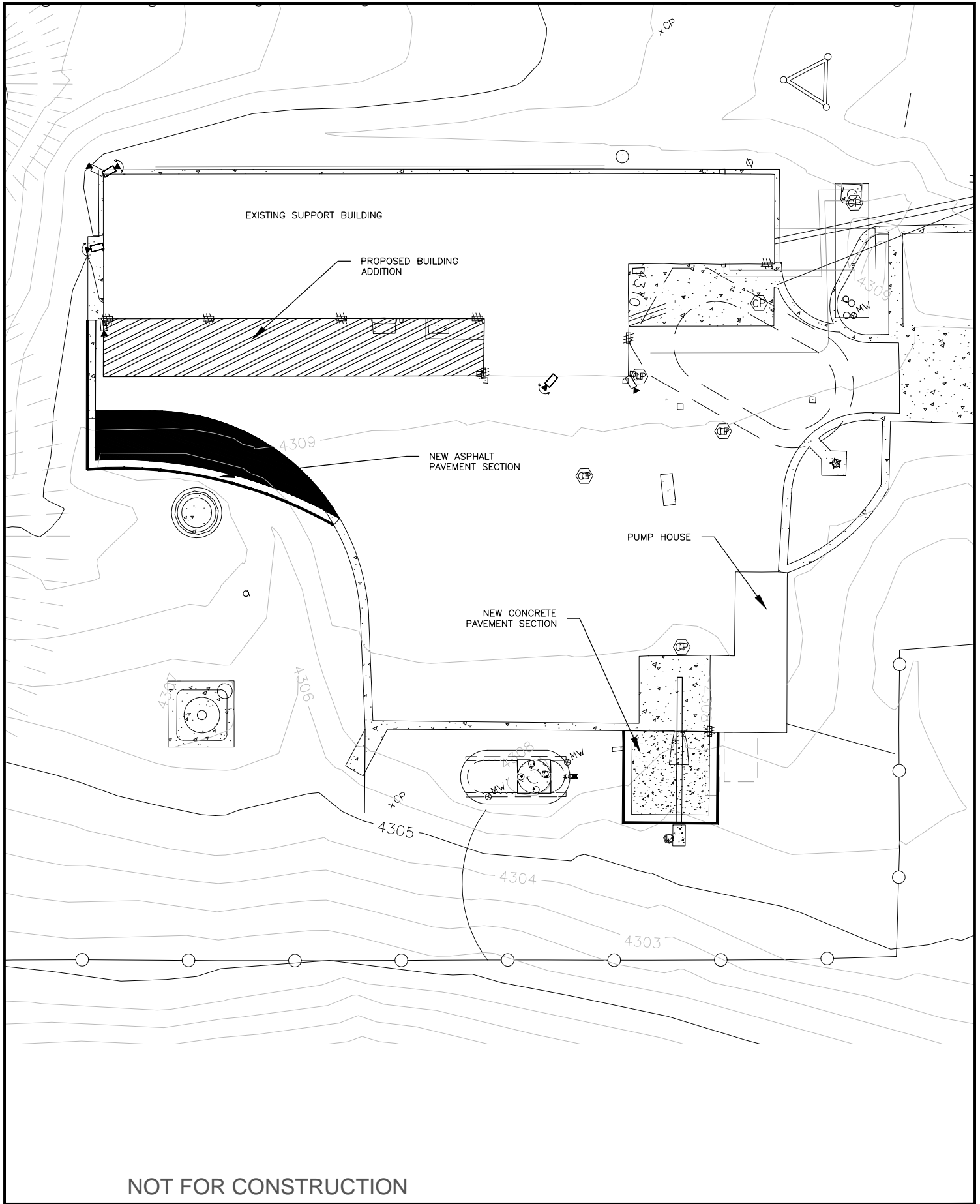


DRAWN BY:	CDF
DESIGNED BY:	
QUALITY CHECK:	
DATE:	12-20-2017
JOB NO.	17-217
CAD NO.	PREF ALT B2

FIGURE

1

J:\2017\17-217 MAFB EA Repair_MAFs B01_G01\CADD\CIVIL\REF ALT G2.dwg, 12/20/2017 3:17:34 PM, CND



NOT FOR CONSTRUCTION

MAFB: REPAIR AND RENOVATE B-01 AND G-01 EA
MALMSTROM AIR FORCE BASE, MONTANA

GOLF-01 PREFERRED ALTERNATIVE ADDITIONS



DRAWN BY:	CDF
DESIGNED BY:	
QUALITY CHECK:	
DATE:	12-20-2017
JOB NO.	17-217
CAD NO.	PREF ALT G2

FIGURE

2

APPENDIX C
CONSULTED AGENCIES & RESPONSES
INTERVIEW DOCUMENTATION

CONSULTED AGENCIES AND RESPONSES

AGENCY	COMMENT	NOTES																					
Federal Aviation Administration	No comment.																						
US Army Corps of Engineers	No comment.																						
US Fish and Wildlife Service	<p>Our comments are prepared under the authority of, and in accordance with, the provisions of the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.), Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250), and the Endangered Species Act (16 U.S.C. 1531 et. seq.). The current list of candidate, proposed, threatened or endangered species, and designated critical habitat occurring in Judith Basin and Lewis and Clark Counties, Montana are as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><i>Scientific Name</i></th> <th style="text-align: left;"><i>Common Name</i></th> <th style="text-align: left;"><i>Status*</i></th> </tr> </thead> <tbody> <tr> <td><i>Ursus arctos horribilis</i></td> <td>Grizzly Bear</td> <td>LT</td> </tr> <tr> <td><i>Lynx canadensis</i></td> <td>Canada Lynx</td> <td>LT, CH</td> </tr> <tr> <td><i>Salvelinus confluentus</i></td> <td>Bull Trout</td> <td>LT, CH</td> </tr> <tr> <td><i>Calidris canutus rufa</i></td> <td>Red Knot</td> <td>LT</td> </tr> <tr> <td><i>Gulo gulo luscus</i></td> <td>Wolverine</td> <td>P</td> </tr> <tr> <td><i>Pinus albicaulis</i></td> <td>Whitebark Pine</td> <td>C</td> </tr> </tbody> </table> <p><small>*LE=Listed as Endangered, LT=Listed Threatened, C=Candidate species for listing, P=Proposed, CH=Designated Critical Habitat</small></p> <p>Given the information described in your letter and the project's scope and location within previously disturbed and developed areas, we do not anticipate adverse effects to threatened, endangered, proposed, or candidate species or critical habitat to result from implementation of the proposed project. Similarly, we do not anticipate substantive impacts to migratory birds to result from the project. Minimizing any necessary tree and shrub clearing activities during the primary nesting season (mid-April to mid-July) would serve to further minimize impacts to migratory birds, and we offer this potential voluntary measure for your consideration where practicable and appropriate in consideration of project objectives and constraints. The Service has developed, and continues to revise and develop, general and industry-specific conservation measures for avoiding and minimizing impacts to birds (https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php). We recommend that these be considered and incorporated into project design as appropriate".</p>	<i>Scientific Name</i>	<i>Common Name</i>	<i>Status*</i>	<i>Ursus arctos horribilis</i>	Grizzly Bear	LT	<i>Lynx canadensis</i>	Canada Lynx	LT, CH	<i>Salvelinus confluentus</i>	Bull Trout	LT, CH	<i>Calidris canutus rufa</i>	Red Knot	LT	<i>Gulo gulo luscus</i>	Wolverine	P	<i>Pinus albicaulis</i>	Whitebark Pine	C	
<i>Scientific Name</i>	<i>Common Name</i>	<i>Status*</i>																					
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<i>Lynx canadensis</i>	Canada Lynx	LT, CH																					
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH																					
<i>Calidris canutus rufa</i>	Red Knot	LT																					
<i>Gulo gulo luscus</i>	Wolverine	P																					
<i>Pinus albicaulis</i>	Whitebark Pine	C																					
US EPA	No comment.																						

AGENCY	COMMENT	NOTES
Montana FWP	<p>After review of the proposed renovation of B-01 and G-01 and with no further information than provided in your letter - FWP would only provide these items of note in our comment:</p> <p>Since 1960's the major change would be Grizzly Bear Recovery and Birds of prey status.</p> <p>1. Both these location are now considered possible location for the threatened species under the Endangered Species act, Grizzly bear presence.</p> <p>2. Both location should consider no open pipe lines to the environment to prevent non game wildlife from utilizing structure like this and any other structural components that could be used by, present a threat to, or attract non game species.</p> <p>3. Presence of various birds of prey that may utilize areas close to or at these sites.</p>	
Montana Historical Society State Historic Preservation Office	<p>The renovations will have an adverse effect on historic properties as defined in 36 CFR §800.4(d)(1). It is SHPO's position that any structure over fifty years is considered historic and is potentially eligible for listing on the National Register of Historic Places. If any structures are to be altered that are over fifty years old, it is recommended that they be recorded, and a determination of their eligibility be made.</p> <p>SHPO concurs with a finding of adverse effects to historical buildings.</p>	
Department of Environmental Quality	No comment.	
Department of Natural Resource Conservation	No comment.	
Lewis and Clark County	No comment.	
Lewis and Clark Conservation District	No comment.	
Judith Basin County	No comment.	
Judith Basin Conservation District	No comment.	
Blackfeet Nation of the Blackfeet Reservation	Mr. John Murray stated: "The proposed project of renovating two (2) missile alert facilities, B-01 & G-01, are located within lands titled: Blackfeet Indian Reservation in the U.S. Treaty of 1855, often referred to as the "Lame Bull Treaty". I do not have enough info	

AGENCY	COMMENT	NOTES
	regarding the EA to make any statements related to the work. However, Blackfeet THPO would like to be notified if any cultural, traditional cultural properties, are discovered, and a possible site visit if that event occurs. Other than that, Blackfeet has no comments at this time”.	
Confederate Salish & Kootenai Tribes of the Flathead Reservation	“I writing in response to a letter we received regarding the two proposed renovations to MAFs B-01 and G-01. We have no comments regarding these projects and defer to the other area tribes for any recommendations”.	
Assiniboine and Gros Ventre Tribes of the Fort Belknap Reservation	No comment.	
Crow Nation of the Crow Reservation	No comment.	
Northern Cheyenne Tribe of the Northern Cheyenne Reservation	Thank you for your correspondence regarding the EA for two Missile Alert Facilities(MAF)- Bravo-01 and Golf-01. Please send my office copies of any Class 1 file literature research and/or Class III Cultural Surveys completed as part of the EA requirement process. Further determination will be made based on the information provided in this request.	SHPO reports were sent to Ms. Limpy, the THPO.
Assiniboine & Sioux Tribes of the Fort Peck Reservation	No comment.	
Chippewa Cree Tribe of the Rocky Boy’s Reservation	No comment.	



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
HELENA REGULATORY OFFICE
10 WEST 15TH STREET, SUITE 2200
HELENA, MONTANA 59626

Rec'd
20 FEB 2018

February 5, 2018

Regulatory Branch
Montana State Program
Corps No. **NWO-2018-00180-MTH**

Subject: Department of the Air Force –B-01 & G-01 Missile Alert Facility Renovation

Mr. Rob Brown
Department of the Air Force
39 78th St. North
Malmstrom AFB, Montana 59406-7536

Dear Mr. Rob Brown:

We are responding to your request for comments regarding the above-referenced project. Specifically, you are proposing to renovate two missile alert facilities designated B-01 and G-01. B-01 will be renovated by adding a 14 foot by 67 foot addition to the front and a 7 foot by 30 foot addition to the back of the existing facility. G-01 will have the interior remodeled and the addition of a 14 foot by 91 foot addition on to the front of the existing facility. At both locations the current parking lot will be expanded no more than 12-feet in any direction from the currently paved parking lot. The B-01 project is located in the 10th missile squadron in Judith Basin County approximately 11 miles northwest of Stanford, Montana. The G-01 project is located in the 12th missile squadron in Lewis and Clark County approximately 14 miles southwest of Simms, Montana.

This project has been reviewed in accordance with Section 404 of the Clean Water Act. Under the authority of Section 404, Department of the Army (DA) permits are required for the discharge of fill material into waters of the U.S. Waters of the U.S. include the area below the ordinary high water mark of stream channels and lakes or ponds connected to the tributary system, and wetlands adjacent to these waters. Isolated waters and wetlands, as well as man-made channels, may be waters of the U.S. in certain circumstances, which must be determined on a case-by-case basis. Based on the information provided, a Department of the Army permit will not be required for this activity

Based on the information you have provided on January 19, 2018, the proposed work will not result in the discharge of dredged or fill material within waters of the United States and does not involve work in, over or under navigable waters of the United States. Therefore, a DA permit is not required for this work. Measures should be taken to prevent construction materials and/or activities from entering any waters of the United States. Appropriate soil erosion and sediment controls should be implemented onsite to achieve this end.

Although a Department of the Army permit will not be required for this activity, this does not eliminate the requirements that other applicable federal, state, tribal, and local permits are obtained if needed. Please be advised that deviations from the original plans and specifications of this project could require additional authorization from this office.

Please refer to identification number NWO-2018-00180-MTH in any correspondence concerning this project. If you have any questions, please contact Dylan Hickey by email at Dylan.J.Hickey@usace.army.mil, or telephone at (406) 441-1364.

Sincerely,

HICKEY.DYLAN.JER
EMIAH.1535865112

Digitally signed by
HICKEY.DYLAN.JEREMIAH.1535865112
DN: c=US, o=U.S. Government, ou=DoD, ou=PKL,
ou=USA, cn=HICKEY.DYLAN.JEREMIAH.1535865112
Date: 2018.02.05 14:00:15 -0700

Dylan Hickey
Regulatory Project Manager

From: "BROWN, ROBERT A GS-12 USAF AFGSC 341 CES/CEIE" <robert.brown.124@us.af.mil>
To: Katie Rediske; Peter Klevberg
CC: CANDACE GS-12 USAF AFGSC 341 CES/CEIE ELLSWORTH
Date: 1/16/2018 1:03:29 PM
Subject: FW: [Non-DoD Source] MAF B-01 and G01 Renovation

FYI, reply to our Tribal letters.

I replied to Mr. Murray via email assuring him we would let them know if any discoveries are made during the project.

Rob

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

From: John Murray [mailto:jmflysdwn@gmail.com]
Sent: Friday, January 12, 2018 10:51 AM
To: BROWN, ROBERT A GS-12 USAF AFGSC 341 CES/CEIE <robert.brown.124@us.af.mil>
Cc: Virgil Edwards <puggy3162@yahoo.com>
Subject: [Non-DoD Source] MAF B-01 and G01 Renovation

Robert:

The proposed project of renovating two (2) missile alert facilities, B-01 & G-01, are located within lands titled: Blackfeet Indian Reservation in the U.S. Treaty of 1855, often referred to as the "Lame Bull Treaty". I do not have enough info regarding the EA to make any statements related to the work. However, Blackfeet THPO would like to be notified if any cultural, traditional cultural properties, are discovered, and a possible site visit if that event occurs. Other than that, Blackfeet has no comments at this time.

John Murray, THPO

Blackfeet Tribe

Box 850

Browning, MT 59417

406-338-7521 office

Sent from Mail <<https://go.microsoft.com/fwlink/?LinkId=550986>> for Windows 10

Attachments: Header.txt, Mime.822

From: "BROWN, ROBERT A GS-12 USAF AFGSC 341 CES/CEIE" <robert.brown.124@us.af.mil>
To: Katie Rediske; Peter Klevberg
CC: CANDACE GS-12 USAF AFGSC 341 CES/CEIE ELLSWORTH
Date: 1/23/2018 3:59:01 PM
Subject: FW: [Non-DoD Source] Draft EA comments

FYI, this email just came in.

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

From: Teanna Limpy [mailto:teanna.limpy@cheyennenation.com]
Sent: Tuesday, January 23, 2018 4:00 PM
To: BROWN, ROBERT A GS-12 USAF AFGSC 341 CES/CEIE <robert.brown.124@us.af.mil>
Subject: [Non-DoD Source] Draft EA comments

Mr. Brown,

Thank you for your correspondence regarding the EA for two Missile Alert Facilities(MAF)- Bravo-01 and Golf-01. Please send my offic copies of any Class 1 file literature research and/or Class III Cultural Surveys completed as part of the EA requirement process. Further determination will be made based on the information provided in this request.

Thanks,

Teanna Limpy, THPO

Tribal Historic Preservation Office

Northern Cheyenne Tribe

19 W. Chiefs Street

P.O. Box 128

Lame Deer, MT. 59043

Work: (406) 477-4839/4838

Cell: (406) 850-7691

++++
""Our first teacher is our own heart"-Cheyenne

Attachments: Header.txt, Mime.822

From: "BROWN, ROBERT A GS-12 USAF AFGSC 341 CES/CEIE" <robert.brown.124@us.af.mil>
To: Katie Rediske; Peter Klevberg
Date: 2/12/2018 11:07:28 AM
Subject: FW: MAFs

FYI, this email just came in today.

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

From: Kyle Felsman [mailto:Kyle.Felsman@cskt.org]
Sent: Monday, February 12, 2018 10:48 AM
To: BROWN, ROBERT A GS-12 USAF AFGSC 341 CES/CEIE <robert.brown.124@us.af.mil>
Subject: [Non-DoD Source] MAFs

Hello Robert,

I writing in response to a letter we received regarding the two proposed renovations to MAFs B-01 and G-01. We have no comments regarding these projects and defer to the other area tribes for any recommendations. Please let me know if anything changes or there are any inadvertent discoveries during the duration of the project. Thank you!

Kyle Felsman

Tribal Historic Preservation Officer

Confederated Salish and Kootenai Tribes

Work: (406) 675-2700 Ext. 1108

Cell: (406) 546-2339

kyle.felsman@cskt.org <mailto:kyle.felsman@cskt.org>

P.O. Box 278

Pablo, MT 59855

Attachments: Header.txt, Mime.822

From: "BROWN, ROBERT A GS-12 USAF AFGSC 341 CES/CEIE" <robert.brown.124@us.af.mil>
To: Katie Rediske; Peter Klevberg
Date: 1/18/2018 3:26:55 PM
Subject: FW: EA B-01 and G-01 renovation

Katie
Here is an email I just got from the Montana FWP.

Rob

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

From: Bertellotti, Gary [mailto:GBertellotti@mt.gov]
Sent: Thursday, January 18, 2018 3:04 PM
To: BROWN, ROBERT A GS-12 USAF AFGSC 341 CES/CEIE
<robert.brown.124@us.af.mil>
Subject: [Non-DoD Source] EA B-01 and G-01 renovation

Mr. Brown,

After review of the proposed renovation of B-01 and G-01 and with no further information than provided in your letter - FWP would only provide these items of note in our comment:

Since 1960's the major change would be Grizzly Bear Recovery and Birds of prey status.

1. Both these location are now considered possible location for the threatened species under the Endangered Species act, Grizzly bear presence.
2. Both location should consider no open pipe lines to the environment to prevent non game wildlife from utilizing structure like this and any other structural components that could be used by, present a threat to, or attract non game species.
3. Presence of various birds of prey that may utilize areas close to or at these sites.

Gary Bertellotti

FWP R-4 Regional Supervisor

4600 Giant Springs Road

Great Falls, MT 59405

406-454-5846

406-788-1174

gbertellotti@mt.gov <mailto:gbertellotti@mt.gov>

Attachments: Header.txt, image001.jpg, Malmstrom AFB G-01 and B-01.pdf, smime.p7s, Mime.822



**DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 341ST MISSILE WING (AFGSC)**

MEMORANDUM FOR RECORD

FROM: 341 CES/CEIE

SUBJECT: Tribal Consultation for Environmental Assessments

Missile Alert Facility (MAF) Renovation Bravo-01 and Golf-01 EA:

Assiniboine & Sioux Tribes of the Fort Peck Reservation

Initial Consultation Letter Explaining the Project was mailed out on in January 4, 2018, with Return Receipt which was received back indicating letters were delivered and received by the Tribe. The Letter was sent to Floyd Azure, Chairman and Darrell Youpee, THPO. No response was received from the Assiniboine & Sioux Tribes with regard to the Consultation Letter.

Tony Lucas, MAFB ITLO, briefed all tribes that attended the Annual Tribal Consultation Meeting in July 2017 at the Ulm Pishkan, and in July 2018 at the CM Rustle Museum in Great Falls, Montana regarding this EA. None of the Tribes had any additional comments or requested additional information regarding this EA.

An email was sent to Darrell Youpee, THPO on June 18 2018, which included the original mailed letter from January 2018 as an attachment. We did not receive a response to this email.

Candace Ellsworth, the Cultural Manager for MAFB attempted to make contact with Dian Youpee, new ITLO, by telephone on November 29, 2018. Ms. Youpee was not available and Ms. Ellsworth left a message with the ITLO office for her to return the call if the Tribe had interest in the project. No return call or other contact has been receive as of the date of this memorandum.

The Assiniboine & Sioux Tribes of the Fort Peck Reservation will be sent a copy of the EA when it is available for Public Review and Comment.

Robert Brown
29 Mar 2018



**DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 341ST MISSILE WING (AFGSC)**

MEMORANDUM FOR RECORD

FROM: 341 CES/CEIE

SUBJECT: Tribal Consultation for Environmental Assessments

Missile Alert Facility (MAF) Renovation Bravo-01 and Golf-01 EA:

Chippewa Cree Tribe of the Rocky Boy's Reservation

Initial Consultation Letter Explaining the Project was mailed out on in January 4, 2018, with Return Receipt which was received back indicating letters were delivered and received by the Tribe. The Letter was sent to Harlan Baker, Chairman and Jonathan Windy Boy, THPO. No response was received from the Chippewa Cree Tribe with regard to the Consultation Letter.

Tony Lucas, MAFB ITLO, briefed all tribes that attended the Annual Tribal Consultation Meetings in July 2017 at the Ulm Pishkan, and in July 2018 at the CM Rustle Museum in Great Falls, Montana regarding this EA. None of the Tribes had any additional comments or requested additional information regarding this EA.

An email was sent to Jonathan Windy Boy, THPO, on June 18 2018, which included the original mailed letter from January 2018 as an attachment. We did not receive a response to this email.

Candace Ellsworth, the Cultural Manager for MAFB attempted to make contact with Jonathan Windy Boy, TPHO, by telephone on November 29, 2018. Mr. Windy Boy was not in and Ms. Ellsworth left a message with the TPHO office to have him return her call if he had any interest in the EA. A return call was not received as of the date of this Memo for Record.

The Chippewa Cree Tribe of the Rocky Boy's Reservation will be sent a copy of the EA when it is available for Public Review and Comment.

Robert Brown
December 12, 2018



**DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 341ST MISSILE WING (AFGSC)**

MEMORANDUM FOR RECORD

FROM: 341 CES/CEIE

SUBJECT: Tribal Consultation for Environmental Assessments

Missile Alert Facility (MAF) Renovation Bravo-01 and Golf-01 EA:

Crow Tribe of Montana

Initial Consultation Letter Explaining the Project was mailed out on in January 4, 2018, with Return Receipt which was received back indicating letters were delivered and received by the Tribe. The Letter was sent to Alvin "A.J." Not Afraid, Chairman and William Big Day, THPO. No response was received from the Crow Tribe with regard to the Consultation Letter.

Tony Lucas, MAFB ITLO, briefed all tribes that attended the Annual Tribal Consultation Meeting in July 2017 at the Ulm Pishkan and in July 2018 at the CM Rustle Museum in Great Falls regarding this EA. None of the Tribes had any additional comments or requested additional information regarding this EA.

An email was sent to William Big Day, THPO, on June 18 2018, which included the original mailed letter from January 2018 as an attachment. We did not receive a response to this email.

Candace Ellsworth, the Cultural Manager for MAFB made a telephone call to William Big Day on November 29, 2018. Mr. Big Day did not answer the call and there was no voice mail to leave a message.

The Crow Tribe will be sent a copy of the EA when it is available for Public Review and Comment.

Robert Brown
December 12, 2018



**DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 341ST MISSILE WING (AFGSC)**

MEMORANDUM FOR RECORD

FROM: 341 CES/CEIE

SUBJECT: Tribal Consultation for Environmental Assessments

Missile Alert Facility (MAF) Renovation Bravo-01 and Golf-01 EA:

Fort Belknap Indian Community of the Fort Belknap Reservation

Initial Consultation Letter Explaining the Project was mailed out on in January 4, 2018, with Return Receipt which was received back indicating letters were delivered and received by the Tribe. The Letter was sent to Mark Azure, Chairman and Michael Black Wolf, THPO. No response was received from the Fort Belknap Indian Community with regard to the Consultation Letter.

Tony Lucas, MAFB ITLO, briefed all tribes that attended the Annual Tribal Consultation Meeting in July 2017 at the Ulm Pishkan and in July 2018 at the CM Rustle Museum in Great Falls, Montana regarding this EA. None of the Tribes had any additional comments or requested additional information regarding this EA.

An email was sent to Michael Black Wolf, THPO on June 18 2018, which included the original mailed letter from February 2017 as an attachment. We did not receive a response to this email.

Candace Ellsworth, the Cultural Manager for MAFB made a telephone call to Michael Black Wolf on November 29, 2018. At that time, Mr. Black Wolf asked that we resend our email from June 18, 2018 and original letter and he would reply with any interest in the next few days. No reply had been received as of December 12, 2018.

The Fort Belknap Indian Community of the Fort Belknap Reservation will be sent a copy of the EA when it is available for Public Review and Comment.

Robert Brown
December 12, 2018

DETER...ASSURE...STRIKE!



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 341ST MISSILE WING (AFGSC)

- PETE
- DOD/Air Force

CONCUR
MONTANA SHPO

DATE 9/21/18 SIGNED *Pete Brown*

Lieutenant Colonel Alex D. Mignery
Commander, 341st Civil Engineer Squadron
39 78th Street North
Malmstrom AFB MT 59402

2018092008
RECEIVED

SEP 20 2018

BY: SHPO

Montana Historical Society
State Historic Preservation Office
Attn: Pete Brown
PO Box 201201
Helena MT 509620-1201

SUBJECT: Notification of Adverse Effects to Missile Alert Facilities Bravo-01 and Golf-01

Dear Mr. Brown

Malmstrom Air Force Base (MAFB) seeks to reinitiate consultation in accordance with 36 CFR 800 on the proposed renovation and additions to the Bravo-01 (B-01) and Golf-01 (G-01) Missile Alert Facilities (MAFs) within the missile deployment area. The United States Air Force (USAF) previously determined that all MAFs are eligible for inclusion on the National Register of Historic Places. Our analysis placed special emphasis on MAF Alpha-01 (A-01) for being the first Launch Control Center built. The 15 MAFs at MAFB were designed by Parsons-Wenzel as type B or C configurations. MAFs A-01 and B-01 are the smaller type B building configuration. The remaining 13 MAFs are a larger type C building configuration. The MAFs do not embody characteristics of architectural, engineering, technological, style, method or technique of construction that significantly distinguish them from the other MAFs nationwide. The distinguishing characteristics of the MAFs reside in the "human element." Human elements embody such features as artwork, photography, building themes/mascots, and other such elements.

The purpose of this undertaking is to update the Support Buildings at the MAFs to meet current mission requirements ultimately remodeling all MAFs. While still functional, the Support Buildings at the MAFs have limited utility and are very outdated. When the Support Buildings at B-01 and G-01 were built in the 1960's, there were fewer personnel, and only men were stationed at the facilities. Today, facilities are staffed by up to twelve people and are used by both men and women. Consequently, the current facility design does not provide adequate housing to support personnel, both men and women for extended stays. The proposed undertaking will create separate quarters for men and women, increase common living spaces, and update kitchen facilities. Without the proposed undertaking, the Support Buildings at the MAFs are not mission ready in the event of an emergency.

The current proposed undertaking is to renovate and enlarge the Support Building at each of two MAFs: B-01 and G-01. B-01 renovations include adding approximately 938 square feet (SF) (14' x 67') to the front of the building and approximately 210 SF (7' x 30') to the back in addition to remodeling the interior of the "hotel" portion and kitchen area inside. G-01 renovations (typical for all 13 type C MAFs) include adding approximately 1,274 SF (14' x 91') onto the front and remodeling the interior of the "hotel" portion and kitchen area inside. The parking lots at both MAFs would be expanded by

approximately 850 SF to compensate for space the building expansions will be using and to permit turning of larger vehicles.

The preferred Area of Potential Effect (APE) for each MAF (see attachment 1) includes both permanent and temporary facilities. No intact archaeological resources are expected to be found within the preferred APE, as the APE has been previously excavated.

Alternatives:

The USAF considered several alternatives before deciding on the current proposed undertaking. Each design alternative was explored to at least 35%. Due to lack of wall insulation along with rodent infestation, the no action alternative was eliminated.

Alternative 2: Only those portions of the Support Buildings at the MAFs that need the most updating would be repaired, including the exterior of the buildings and minor upgrades to the "hotel" portion of each MAF. Design of this alternative began in 2014 and went to 100% completion in May 2016. However this alternative would not accommodate the larger number of personnel at the MAFs necessitating an enlargement of the building and would not meet existing mission needs.

Alternative 3: The 2-story alternative was the outcome of alternative 2 and design was only completed to 35% (March 2016 – October 2017). This alternative demolished the "hotel" portion of the MAF, with reconstruction within the existing footprint and the addition of a second story to increase the number of sleeping quarters available and accommodate a larger number of personnel. This option increased the height of the building substantially, creating operational issues. Funding and contracting constraints led to the termination of the design at 35%.

Previous Consultation:

MAFB initiated consultation with SHPO on the 2-story design (alternative 3) in March 2016 with a meeting in Helena, developing an adverse affect determination for the demolition of up to 15 MAFs over a 5 year period. In May 2016, SHPO concurred with the adverse effect determination. Alpha-01 was recognized with special importance to the Cold War as being the first MAF constructed. Demolition of Alpha-01 was scheduled last and if adverse affects could be avoided they would.

In March 2018, MAFB updated SHPO on the change in design from the 2-story to the proposed undertaking and 95% design drawings were provided. The preferred alternative design process included an accelerated design schedule utilizing elements from each alternative. Conception to 100% design covered 8 months from September 2017 to May 2018. The current project schedule proposes ground breaking to begin June 2019.


Future Projects:

The USAF is developing a weapon system replacement for the aging LGM-30 Minuteman III intercontinental ballistic missile system (ICBM) referred to as Ground Based Strategic Deterrent (GBSD). Concepts include full demolition of the MAFs and selective replacements along with significant upgrades to the Launch Facilities (LFs). The preliminary design is scheduled to be presented to the USAF by 2020, with complete construction by 2029. The new system is to remain active until 2075.

MAFB has determined the proposed undertaking will have an adverse effect to historic properties as defined in [36 CFR §800.4(d)(1)]. We request your concurrence on the adverse effect determinations, and look forward to consulting with your agency regarding preparation of a Memorandum of Agreement (MOA) to mitigate the adverse effect caused by the undertaking and future GBSD actions. MAFB will notify the Advisory Council on Historic Preservation of the adverse effect and invite them to participate in developing an MOA following that option of 36 CFR 800.6(a)(1)(i).

If you have any questions or concerns pertaining to this correspondence, please don't hesitate to contact Candace Ellsworth, 341 CES/CEIE, 39 78th Street N, Malmstrom AFB, MT 59402-7536, (406) 731-7128 or e-mail at candace.ellsworth@us.af.mil.

Sincerely



ALEX D. MIGNERY, Lt Col, USAF
Commander

1 Attachments:
1. APE



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Montana Ecological Services Field Office
585 Shephard Way, Suite 1
Helena, Montana 59601-6287

M.10 DOD
06E11000-2018-TA-
0174
06E11000-2018-
CPA-0035

January 25, 2018

Robert Brown
341st Civil Engineer Squadron
39 78th Street North
Malmstrom AFB, Montana 59402-7536

Dear Mr. Brown:

Thank you for the letter from Lt Col Alex D. Mignery, received in this office on January 18, 2018, requesting U.S. Fish and Wildlife Service (Service) comment regarding the preparation of an Environmental Assessment (EA) associated with renovating two Missile Alert Facilities (MAF). The project includes two MAFs: Bravo-01 and Golf-01, located in Judith Basin and Lewis and Clark Counties, Montana, respectively. The proposed renovations would include adding additional square footage to the buildings at the two MAFs, as well as expanding the parking lots at each location.

Our comments are prepared under the authority of, and in accordance with, the provisions of the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.), Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250), and the Endangered Species Act (16 U.S.C. 1531 et. seq.).

The current list of candidate, proposed, threatened or endangered species, and designated critical habitat occurring in Judith Basin and Lewis and Clark Counties, Montana are as follows:

<i>Scientific Name</i>	<i>Common Name</i>	<i>Status*</i>
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Calidris canutus rufa</i>	Red Knot	LT
<i>Gulo gulo luscus</i>	Wolverine	P
<i>Pinus albicaulis</i>	Whitebark Pine	C

*LE=Listed as Endangered, LT=Listed Threatened, C=Candidate species for listing, P=Proposed, CH=Designated Critical Habitat

Given the information described in your letter and the project's scope and location within previously disturbed and developed areas, we do not anticipate adverse effects to threatened, endangered, proposed, or candidate species or critical habitat to result from implementation of the proposed project.

Similarly, we do not anticipate substantive impacts to migratory birds to result from the project. Minimizing any necessary tree and shrub clearing activities during the primary nesting season (mid-April to mid-July) would serve to further minimize impacts to migratory birds, and we offer this potential voluntary measure for your consideration where practicable and appropriate in consideration of project objectives and constraints. The Service has developed, and continues to revise and develop, general and industry-specific conservation measures for avoiding and minimizing impacts to birds (<https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>). We recommend that these be considered and incorporated into project design as appropriate.








Thank you for the opportunity to comment on this project. The Service appreciates your efforts to incorporate fish and wildlife resource concerns into your project planning. If you have further questions related to this issue, please do not hesitate to contact Brent Esmoil at (406) 449-5225, extension 215.

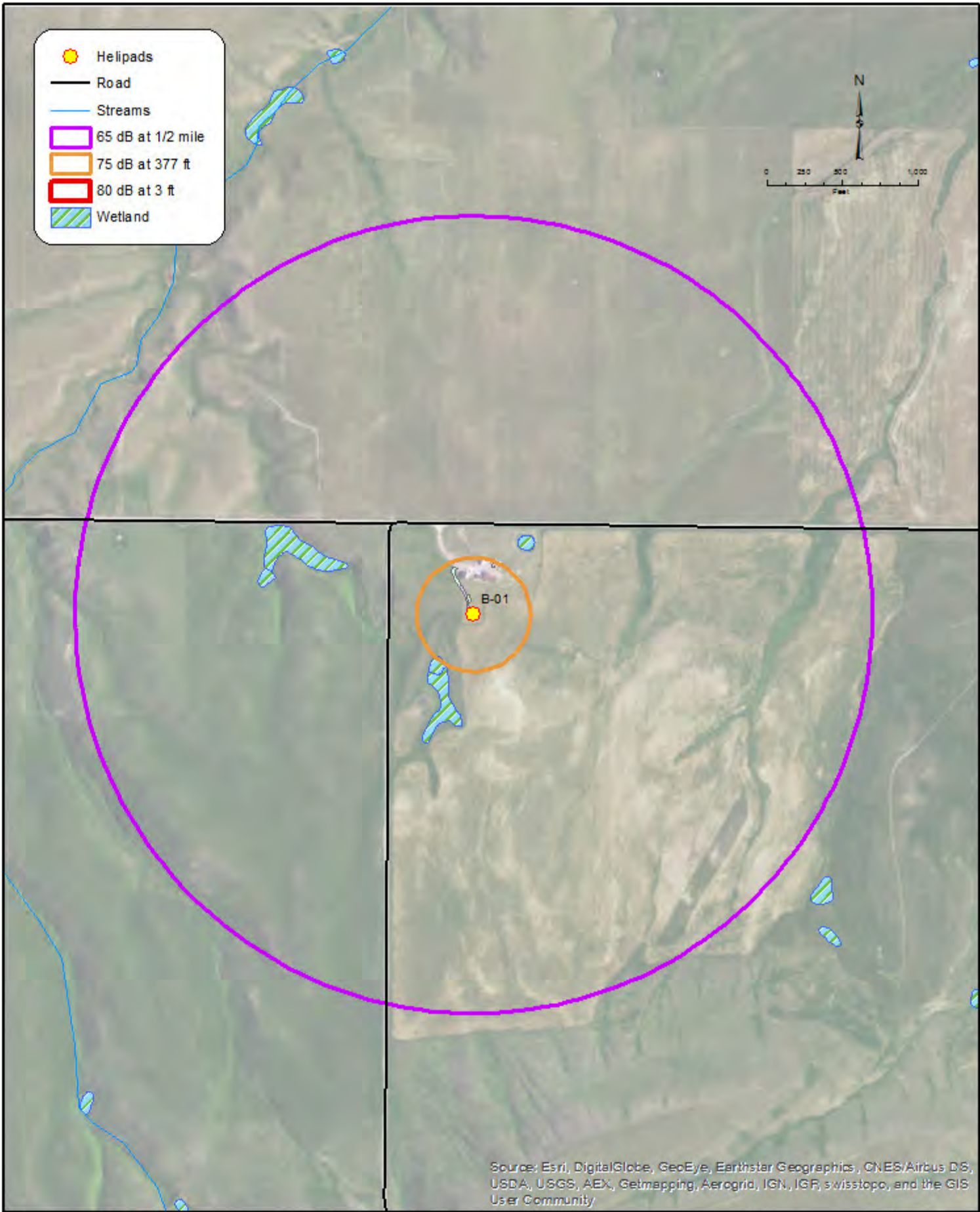
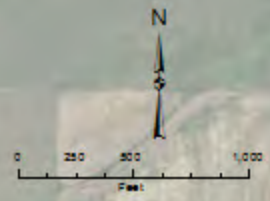
Sincerely,



for Jodi L. Bush
Office Supervisor

APPENDIX D
NOISE MAPS

-  Helipads
-  Road
-  Streams
-  65 dB at 1/2 mile
-  75 dB at 377 ft
-  80 dB at 3 ft
-  Wetland



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS User Community

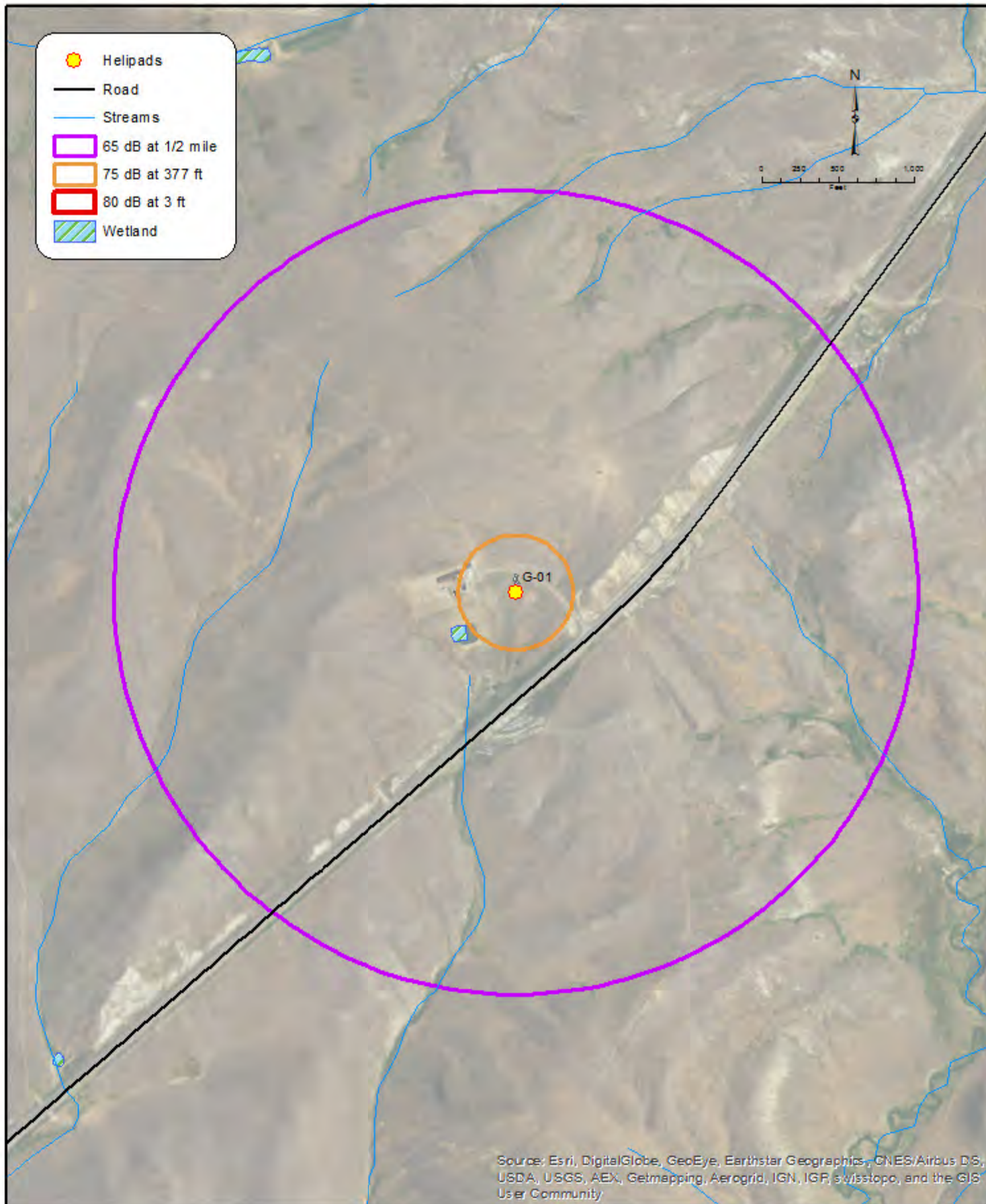
MAFB Renovations at Bravo-01 MAF
Judith Basin County

Noise Isopleth B-01

DRAWN BY:	J Light
DESIGNED BY:	
QUALITY CHECK:	
DATE:	
JOB NO.:	15-120
CHD NO.:	noise 0.000

FIGURE

shengineering.com
 1000 W. 10th Street, Suite 100
 North Platte, Nebraska 68901
 (402) 438-1111



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus D.S., USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS User Community

<p>MAFB Renovations at Golf-01 MAF Lewis & Clark County</p>	<p>shengineering.com 1000 W. 10th Street, Suite 100 Wichita, KS 67202 913.833.1111</p>	<p>DRAWN BY: J Light DESIGNED BY: QUALITY CHECK: DATE: JOB NO.: 15-190 CADD NO.: noise G-01D</p>	<p>FIGURE</p>
<p>Noise Isopleth G-01</p>			

APPENDIX E
AIR EMISSION
CALCULATIONS

Green House Gas Estimates from Emission Factors for Greenhouse Gas Inventories

EPA 4/2014

Table 2 - Mobile Emissions for Diesel Fuels

*Estimate 400 gallon diesel fuel usage for project

$$10.21 \frac{\text{kg CO}_2}{\text{gal}} \times 400 \text{ gal} \times 0.001 \frac{\text{ton}}{\text{kg}} = 4.08 \text{ tons of CO}_2$$

Table 4 - Mobile Combustion of CH₄ and N₂O Emissions

Diesel Medium and Heavy Duty Vehicles

*Estimate 50 miles for the project.

$$0.0051 \frac{\text{g of CH}_4}{\text{mile}} \times 50 \text{ Miles} \times \frac{1 \text{ kg}}{1000 \text{ g}} \times \frac{0.001 \text{ ton}}{\text{kg}} = 2.81 \times 10^{-7} \text{ tons CH}_4$$

$$0.0048 \frac{\text{g of N}_2\text{O}}{\text{mile}} \times 50 \text{ Miles} \times \frac{1 \text{ kg}}{1000 \text{ g}} \times \frac{0.001 \text{ ton}}{\text{kg}} = 2.646 \times 10^{-7} \text{ tons N}_2\text{O}$$

Total Green House Gas Emissions From Construction:

GAS	Tons
CO ₂	4.08
CH ₄	2.81x10 ⁻⁷
N ₂ O	2.646x10 ⁻⁷

Total of 4.08 Tons of GHG Emissions