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FINDING OF NO SIGNIFICANT IMPACT (FONSI) AND FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA) REPAIR KETTLE CREEK DRY DAM UNITED STATES AIR FORCE ACADEMY COLORADO SPRINGS, COLORADO

Pursuant to provisions of the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code [USC] 4321, et seq.); the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508); and the Air Force Environmental Impact Analysis Process (32 CFR Part 989), the United States (U.S.) Air Force (USAF) prepared the attached Environmental Assessment (EA) to assess the potential environmental consequences associated with the Proposed Action to repair the Kettle Creek Dry Dam on the U.S. Air Force Academy (USAFA) in Colorado Springs, Colorado.

Purpose and Need

Kettle Creek Dry Dam is located near the eastern boundary of the USAFA, immediately northeast of the intersection of Interstate 25 (I-25) and Briargate Parkway. Kettle Creek flows from the northeast into the Kettle Creek Dry Dam reservoir, which is normally dry. From there, the creek flows through a 9-foot diameter pressure outlet conduit that channelizes flow through the dam and under I-25 to an outfall located approximately 3,300 feet downstream of I-25. Kettle Creek Dry Dam was constructed in 1956 to provide flood protection for the then-planned USAFA airfield; however, the airfield was later constructed approximately 1 mile north of its originally planned location. As a result, the dam currently provides minimal benefit to the USAFA or other parties.

Kettle Creek Dry Dam is currently classified as a “high hazard” dam by the Colorado Department of Water Resources (DWR) due to the likelihood that human life would be lost (i.e., motorists on I-25) if the dam fails. The dam requires improvements to comply with DWR’s *Rules and Regulations for Dam Safety and Dam Construction* (Rules). Inspections of the dam in 2011 and 2015 determined that the USAFA must address inadequate spillway capacity (including the potential for the spillway to discharge onto I-25), repair eroding gullies on the downstream slope of the dam (west of southbound I-25), monitor seepage in the inlet structure walls, and clear trees and brush from the dam.

The purpose of the Proposed Action is to reduce the risk to life along the I-25 corridor caused by the existing high hazard dam, bring the dam into compliance with DWR Rules, restore the Kettle Creek riparian habitat, and improve maintenance infrastructure in support of the dam and the nearby Kettle Lakes. The Proposed Action is needed because the Kettle Creek Dry Dam currently does not comply with applicable state requirements.

Description of Proposed Action and Alternatives

The Proposed Action involves bringing the Kettle Creek Dry Dam into compliance with DWR dam safety requirements for high hazard dams, restoring the Kettle Creek riparian habitat, and improving maintenance infrastructure in support of the dam and natural habitat. Following an evaluation of potential alternatives, the USAF determined that modifying the Kettle Creek Dry Dam such that it could be reclassified under DWR Rules as an “exempt structure” (i.e., a dam exempt from DWR jurisdiction due to its lack of ability to impound water above the natural ground surface, except during floods) best meets the purpose of and need for the Proposed Action (herein referred to as the “Preferred Alternative”). In addition to the Preferred Alternative, the No Action Alternative is also being considered:

Preferred Alternative. The Preferred Alternative includes three primary components: dam modifications, upstream channel reach improvements, and Kettle Lakes diversion structure improvements.

- Dam modifications include modifying the Kettle Creek Dry Dam such that it could be reclassified under DWR Rules as an "exempt structure." This would occur by removing the part of the embankment rising above I-25. Excavated embankment materials would be used to repair large erosion gullies on the downstream slope of the dam west of southbound I-25, and existing riprap and granular fill would be reused in other areas of the site.
- Upstream channel reach improvements involve installing grade control structures (e.g., grouted boulder) and in-stream channel features (i.e., streambank protection measures and sills), and conducting bank grading and select wetland plantings to raise the channel. Raising the channel's elevation would reconnect it to the adjacent floodplain, thus restoring connectivity of the riparian and wetland areas and improving habitat for the Preble's Meadow jumping mouse (PMJM). In addition, a new steel trash rack and sedimentation basin would be constructed to facilitate periodic debris and sediment removal activities.
- Kettle Lakes diversion structure improvements include modifying a concrete curb and installing a solar-powered commercial dewatering pump to help divert water from the existing outfall conduit while reducing the potential for sediment and debris to clog the diversion structure. A new manhole structure would also be constructed south of the outlet conduit to provide easy access for debris removal and maintenance on the commercial dewatering pump. The USAFA would also repair eroded areas around the diversion structure using compacted embankment fill, erosion control mats, and reseeding.

Construction would be conducted over the course of approximately 18-21 months, beginning with site preparation, including tree removal. After the repair of the dam, revegetation would occur according to the detailed site-specific revegetation plan included in the final design plans. After modification and improvements are complete, the Kettle Creek Dry Dam, including associated infrastructure components, would require minimal ongoing operational and maintenance effort. The USAFA would periodically maintain and clear the sedimentation basin, trash rack, and Kettle Lakes diversion structure of large debris and/or sediment buildup. Following construction, most of the Project Site would generally function as natural land, which the USAFA would manage according to its Integrated Natural Resources Management Plan, PMJM Conservation and Management Plan, and Integrated Pest Management Plan.

No Action Alternative. Under the No Action Alternative, the USAFA would retain the deficient existing conditions of the Kettle Creek Dry Dam. No construction, alteration, improvement/rehabilitation, or habitat improvement would be performed. The Kettle Creek Dry Dam would remain a high hazard dam and would continue to violate the DWR Rules; loss of life could potentially occur if the dam were to fail. While the No Action Alternative would not meet the Proposed Action's purpose and need, it is analyzed in this EA to provide a comparative baseline with the Preferred Alternative.

Summary of Environmental Impacts

The EA evaluates the existing environmental conditions and potential environmental consequences of implementing the Proposed Action with regard to visual resources; air quality and climate; noise; earth resources; water resources; biological resources; cultural resources; socioeconomics and environmental justice; transportation; and hazardous and toxic materials and waste. The USAF has concluded that the Proposed Action would not affect the following resources: airspace; land use and zoning; safety and occupational health; and utilities; thus, these resources were eliminated from detailed analysis in the EA. Environmental impacts are summarized below.

Visual Resources: Construction of the Preferred Alternative would alter viewsheds in the Region of Influence (ROI) by removing the existing dam embankment above I-25 and removing select mature trees from the Project Site. While motorists may occasionally have unobstructed views of the Project Site while traveling on adjacent roads during construction, these views would be temporary and would be generally consistent with other views of landscape construction that motorists typically experience. Additionally, much of the construction would be outside the primary line of sight of motorists. Residents along the south side of Montezuma Road may potentially have clear views of the Project Site for the duration of the Project, particularly if they have a second story residence. Visual impacts to personnel in the National Guard Readiness Center would be minimal as the Project Site is shielded from the facility by mature trees.

The Preferred Alternative would permanently alter the viewscape in the ROI by removing the dam embankment above I-25 and approximately 531 mature trees, installing grade control structures, conducting bank grading and wetland plantings, and improving the Kettle Lakes diversion structure to reduce clogging and aid in debris removal. Overall, these modifications would be consistent with the character of the viewshed in the ROI and would not introduce discordant elements. Removal of the dam, which is not a valued visual element, would eliminate an existing obstruction in the viewshed. Removal of approximately 531 mature trees could detract from the existing viewscape, but it would be revegetated in the long-term as the plantings grow. Overall, no significant adverse impacts on visual resources are anticipated.

Air Quality and Climate: Construction activities would temporarily generate fugitive dust from grading and clearing, as well as criteria pollutant and greenhouse gas emissions from the use of diesel-powered and gasoline-powered equipment. Following completion of construction activities, the Preferred Alternative would have no “steady state” (i.e., long-term annual) air emissions. The USAF used the Air Conformity Applicability Model (ACAM) to analyze the potential air quality impacts associated with the Proposed Action. The ACAM results indicate emissions associated with the Preferred Alternative would not exceed regulatory or insignificance thresholds, and the potential air quality impact from all criteria pollutants is insignificant. In the short-term, construction of the Preferred Alternative would produce approximately 2,815.5 tons of carbon dioxide equivalent over a two year period. In the long-term, there would be no steady state greenhouse gas emissions. Potentially relevant long-term climate change areas of concern for the Proposed Action include increases in flooding, drought, and wildfires. However, the Proposed Action includes channel improvements to Kettle Creek, such as reconnecting the stream to its floodplain, and dam modifications that would reduce the potential for adverse effects from flooding. Overall, no significant impacts to air quality or climate are anticipated.

Noise: Construction activities associated with the Proposed Action would result in a short-term increase in noise levels within the vicinity of construction, related to use of equipment during excavation, backfill, material transporting, etc., such as backhoes, excavators, graders, loaders, trucks, and pumps. Noise impacts would be greatest for receptors nearest the construction area, including the residential houses along Montezuma Road. The predicted noise levels would be below the maximum permissible noise levels applicable to construction noise per the City of Colorado Springs noise ordinance. The overall construction activities would last less than two years and would be even shorter in duration within a specific work area as the project progresses. Moreover, the majority of these construction activities would occur relatively far from the residences with the exception of the grading areas considered above. Overall, no significant impacts to noise are anticipated.

Earth Resources: Changes due to grading activities and upstream channel improvements would slightly but permanently alter the topography of the Project Site. However, the layout of the site has been designed to minimize these changes to the extent practicable. Further, all graded slopes would be designed and constructed to minimize potential future erosion, including through revegetation. During construction, excavation would be required to 34 feet below current grade to facilitate the dam modifications. Bedrock is

expected to be encountered when installing the sheet piling for the grade control structures associated with the upstream channel reach improvements. Sheet piling would loosen, but not remove, the bedrock to the depth required. As such, minor localized impacts to geologic conditions would be expected. No geologic hazards are apparent on the Project Site and seismic events are not expected to interfere with construction. Construction of the Preferred Alternative would remove vegetative cover, disturb the soil surface, and compact the soil throughout the limits of disturbance (LOD), impacting between 28.1 and 50.7 acres depending on if the alternate staging/stockpiling areas are utilized. The soil would then be susceptible to erosion by wind and surface runoff. Soil would be compacted, graded, and revegetated in accordance with the Site Grading Plan and site-specific revegetation plan to minimize the potential for runoff to the extent practicable. Additionally, Kettle Creek would be temporarily diverted around the work area during construction of the upstream channel improvements, further minimizing the potential for sedimentation during that phase of the project.

Since the Project Site would exceed 1 acre of land disturbance, a National Pollutant Discharge Elimination System Construction General Permit (CGP) would be obtained for the project pursuant to the Clean Water Act (33 USC 1251 et seq; CWA) of 1972. Coverage under the CGP would require development of a Stormwater Pollution Prevention Plan (SWPPP), which would include erosion control practices, inspection procedures, and other best management practices (BMPs) designed to reduce erosion during the construction process. Overall, disturbed areas would be quickly re-vegetated in accordance with the site-specific revegetation plan to minimize the potential for construction-related erosion. Construction of the Preferred Alternative includes the installation of permanent erosion control measures along Kettle Creek, including revetment, channel armoring, and revegetation. In addition, the proposed sedimentation basin, which would be constructed upstream of the existing outlet conduit, would serve to control and reduce long-term sedimentation of Kettle Creek. Installation of these measures would decrease overall erosion and sedimentation currently occurring within and along the stream channel, therefore resulting in long-term beneficial impacts to soils in the ROI. Overall, no significant adverse impacts to earth resources are anticipated.

Water Resources: Construction of the Preferred Alternative would directly disturb approximately 2,876-linear feet of Kettle Creek during upstream channel reach improvements. Excavation, soil stockpiling, and grading activities to facilitate the dam modifications may temporarily increase erosion and sedimentation in the Kettle Creek drainage basin. The USAFA estimates that construction of the Preferred Alternative would directly impact approximately 0.06 acre of wetlands. Other wetlands near the ROI could be indirectly impacted by increased erosion and sedimentation during construction. Prior to starting construction, USAFA would conduct a formal delineation of wetlands (and Waters of the US) following USACE methods and would obtain all necessary permits. Construction of the Preferred Alternative would disturb approximately 6.7 acres of 100-year floodplain within the Project Site. Actions within the floodplain (e.g., upstream channel reach improvements) would be necessary to enhance PMJM habitat as well as to prevent future erosion and reduce sedimentation downstream. While the floodplain would slightly rise within the Project Site, there are no expected floodplain impacts outside of USAFA property. Grading and stockpiling areas have been specifically chosen to occur outside of the 100-year floodplain. Overall, the Preferred Alternative would not contribute to any measurable loss with regard to flood control capacity. In addition, reconnecting the channel to the natural floodplain would have a beneficial impact. Construction of the Preferred Alternative would not be anticipated to intersect groundwater (e.g., through deep excavation), involve groundwater withdrawals, or intentionally release or inject materials into groundwater resources and aquifers. Potential impacts to groundwater may still occur, however, from the accidental spill or release of petroleum products or other liquids used during construction activities. Once construction is complete, periodic maintenance of the dam would occur, but this would not be likely to release contaminants into the groundwater.

The USAFA would obtain coverage under the current USEPA stormwater CGP and develop a project specific SWPPP, which would identify erosion controls and BMPs to manage stormwater discharges. Kettle Creek would be temporarily diverted around the work area during construction of the upstream channel improvement and this phase of the project would be conducted during the dry season, further minimizing sedimentation impacts during this phase of the project. The site would also be designed in compliance with Section 438 of the Energy Independence and Security Act to restore the pre-development hydrology of the site to the maximum extent technically feasible. Impacts to surface waters and wetlands would be minimized to the extent practicable through adherence to USAFA's Stormwater Management Program and the SWPPP. With implementation of BMPs, such as performing routine inspections of equipment, maintaining spill-containment materials on-site, and adhering to site-specific hazardous and toxic materials and waste (HTMW) plans, the potential for impacts to groundwater would be minimized. In the long-term, implementation of the Preferred Alternative would minimize erosion and enhance wetlands in the ROI through vegetative plantings along the banks of Kettle Creek, reconnection of the stream to its historic floodplain upstream, and installation of erosion control devices. Installation of the sedimentation basin would also substantially reduce the amount of sediment traveling downstream through the outlet conduit, including into the Kettle Lakes. In addition, the upstream channel restoration has been designed to shift the existing channel away from steep bluffs on the south side of the creek to minimize the potential for future erosion. Wetland plantings would be placed at select locations throughout the Project Site. These areas would be revegetated with site-specific wetland seed mixes in accordance with the Project's revegetation plans. Furthermore, upstream channel reach improvements would prevent continued downcutting of the Kettle Creek channel, potentially reducing the future loss of wetland areas occurring along the stream. Overall, no significant adverse impacts on water resources are anticipated.

Biological Resources: Required clearing within the LOD from construction of the Proposed Action would temporarily affect vegetation; however, once ground disturbance is complete, the entire Project Site would be revegetated following a site-specific revegetation plan designed to meet the prescribed standards USAFA has established for revegetation, erosion control, and tree care. New plantings, along with measures to restore the Kettle Creek channel, would enhance the vegetation quality along Kettle Creek in the long term. During construction, common wildlife species occurring on the Project Site would be physically displaced, and construction noise and increased human activity may also disturb wildlife species located within 0.5 mile of the Project Site. Although disturbance, displacement, or inadvertent wildlife mortality from construction activities would be an adverse impact, such impacts would not inhibit the continued propagation of common wildlife populations and species near the Project Site. Once construction is completed, common wildlife species would benefit from the habitat enhancements and improvements to an important habitat corridor included in the Preferred Alternative.

The USAF has determined that the Preferred Alternative would have no effect on the federally listed eastern black rail, greenback cutthroat trout, and Ute Ladies'-tresses as these species are not expected to occur within the ROI. Effects of the Preferred Alternative on the PMJM would be covered under the USFWS's 2000 BO, which USAFA renews every 5 years. The USAFA would continue to adhere to the terms and conditions of the PMJM Conservation Agreement and Conservation Plan throughout implementation of the Preferred Alternative. Following construction, detailed and site-specific revegetation plans would reproduce PMJM habitat within the construction LOD. The Project Site may provide suitable migration stop-over habitat for the monarch butterfly, which is a federal candidate species. Potential adverse impacts to the monarch butterfly may result if ground-disturbing activities occurred during the migration period (generally between mid-June and September). However, the likelihood of monarch butterfly mortality is low, as migrating adult monarchs would likely avoid the Project Site during construction. Should migrating monarch butterflies stop-over on the Project Site in notable numbers during construction, construction activities would be paused until the USAFA Natural Resources Manager evaluates the situation and identifies an appropriate path forward. While potential impacts to migratory birds could occur, most birds would likely

avoid the Project Site and/or relocate to nearby habitats in the area. Prior to construction USAFA would survey the ROI to identify any bird nesting or breeding activities. If breeding/nesting birds are discovered, construction delays, buffers, or other restrictions may be implemented as appropriate. The Project Site contains potential habitat for the bald eagle and the golden eagle; however, golden eagle sightings on USAFA historically occur along the western border of the installation approximately 5 miles from the Project Site. Should eagle nests be identified in the ROI, USAFA would comply with the CPW's Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors. Overall, these impacts would be temporary and would cease once construction is complete. Following construction, these special-status species would benefit from habitat improvements associated with the Preferred Alternative, including erosion control, plantings, and restored riparian habitat connectivity along Kettle Creek. Overall, no significant adverse impacts on biological resources are anticipated.

Cultural Resources: The Preferred Alternative would have no adverse effect on historic properties, as no known historic properties occur within the ROI. Additionally, the Preferred Alternative would have no effect on any identified tribally significant resources on USAFA. No indirect project effects, such as those to viewsheds, viewpoints, viewshed corridors, or physically adjacent resources, are anticipated. On March 15, 2022, the State Historic Preservation Officer concurred with the USAF's determination of no adverse effect to historic properties. Should unanticipated cultural resources be encountered, USAFA would follow the Standard Operating Procedures (SOPs) for Discoveries of Archaeological Resources and Native American Graves Protection and Repatriation Act Cultural Items as published in the 2019 Integrated Cultural Resources Management Plan. All work would stop, and the Cultural Resources Manager would be contacted to begin compliance with the SOP. Overall, no significant adverse impacts on cultural resources are anticipated.

Socioeconomics and Environmental Justice: As no EJ communities of concern with respect to race or income are present surrounding the Project Site, there is no potential for the Proposed Action to disproportionately impact EJ communities. No significant impacts on EJ communities of concern are anticipated. Implementation of the Preferred Alternative would not displace nearby residents or adversely affect economic conditions in the ROI. Proposed construction activities would likely be completed by local contractors, increasing employment opportunities, personal incomes, and materials purchases within the community. If non-local contractors support construction, direct economic benefits associated with expenditures on lodging, food, and retail would accrue to the local community. Tax revenues associated with direct and indirect construction expenditures would also benefit economic conditions. Therefore, the Preferred Alternative would be anticipated to have a short-term, beneficial impact on the surrounding communities during construction. Once construction is complete, the Project Site would be maintained by USAFA staff. Overall, no significant adverse impacts to socioeconomics or environmental justice are anticipated.

Transportation: Construction of the Preferred Alternative would result in temporary increases in construction-related traffic at the site that would include workers' personal commuting vehicles and heavy construction vehicles. To manage construction-related traffic, the contractor would implement and adhere to a project-specific transportation management plan for each phase of the Preferred Alternative. The contractor would be required to apply for and obtain a Special Use Permit from the Colorado Department of Transportation (CDOT) for work occurring within the I-25 CDOT easement. Contractors would also adhere to a Traffic Control Plan for work within the easement. Lane closures on I-25 are not anticipated; however, should road closures be determined necessary during construction, the construction contractor would coordinate with the CDOT Traffic Engineering Program and follow the traffic control standards listed in the CDOT Miscellaneous and Signage Standard Plan, Plan No. S-630-1, Traffic Controls for Highway Construction. Throughout construction, traffic control would be coordinated such that delays for travelers though the construction zone would be minimized. Shoulder closures are permitted to accommodate traffic

control devices and temporary barriers to protect the work zone. A temporary concrete barrier is proposed along the northbound Briargate entrance ramp to protect the work zone from traffic and protect the roadway from construction operations. Temporary drum devices would also be installed along southbound I-25 to facilitate repairs to the erosion gullies. USAFA would ensure that construction does not affect the CDOT water detention basin located near the proposed West Staging Area. These increases in traffic near the Project Site would be temporary, within the capacity of the existing vehicular transportation network, and would not contribute to a noticeable degradation of traffic conditions. Once construction is complete, the Project Site would require minimal maintenance. Overall, no significant adverse impacts to transportation are anticipated.

Hazardous and Toxic Materials and Waste: The Preferred Alternative is not anticipated to generate any hazardous waste. Operation of construction equipment and vehicles would create the potential for discharge, spills, and contamination of commonly used products, such as diesel fuel, gasoline, oil, antifreeze, and lubricants, at the Project Site. However, all hazardous materials or waste discovered, generated, or used during construction would be handled, containerized, and disposed of in accordance with the Spill Prevention, Control and Countermeasure Plan (SPCCP) and applicable local, state, and federal regulations. The Preferred Alternative would have no potential to interfere with existing Environmental Restoration Program sites. Following construction, periodic maintenance of the dam (e.g., vegetation maintenance, debris removal) may require the use of vehicles and light equipment. While use of this equipment would create the potential for discharge, spills, and contamination of commonly used HTMW, maintenance would only occur periodically, and any potential releases of HTMW would be handled, containerized, and disposed of in accordance with the SPCCP and applicable local, state, and federal regulations. Overall, no significant adverse impacts to HTMW are anticipated.

Regulatory Compliance Measures and Mitigation Measures

The USAF would comply with all federal and state laws and regulations, including consultation and permitting requirements. With implementation of these measures and other design commitments mentioned in the EA, the Proposed Action would be anticipated to have no significant impacts. As such, no resource-specific mitigation measures are recommended.

Reasonably Foreseeable Actions with Close Causal Relationships and Environmental Trends

The USAF identified and reviewed other projects planned to occur within the Proposed Action's ROI and analyzed the potential causal relationships of the Proposed Action with these other reasonably foreseeable actions and existing environmental trends in the ROI. Baseline conditions in the ROI generally include trending development, with a focus on additional housing and expansion or upgrades of outdated facilities and infrastructure. Environmental trends indicate improved infrastructure from drainage and transportation updates, temporary and permanent employment opportunities from construction projects and commercial developments, and improved residential and commercial services. Implementation of the Preferred Alternative when taken into consideration with reasonably foreseeable future projects could lead to short-term impacts to the viewshed, air emissions, noise, soil erosion, stormwater runoff, vegetation and common wildlife, and traffic congestion. These impacts would be minimized to the extent practicable through implementation of BMPs and adherence to regulatory guidelines under the Proposed Action. No significant adverse impacts would occur.

Public Review

An early public notice was published in the *Colorado Springs Gazette* on January 8, 2022 and the *Colorado Springs Independent* on January 12, 2022, disclosing that the Proposed Action would take place in a floodplain and/or wetland, and seeking advanced public comment on the Proposed Action regarding its

potential impacts as well as potential alternatives. The public comment period for this early notice ended on February 7, 2022. No comments were received.

USAF published a Notice of Availability of the Draft EA and Draft FONSI/FONPA in the *Colorado Springs Independent* and *Colorado Springs Gazette* on June 29, 2022 and July 2, 2022, respectively. The Draft EA and Draft FONSI/FONPA were made available on the USAFA website at https://www.usafa.af.mil and printed copies of the Draft EA and Draft FONSI/FONPA were held at the Pikes Peak Library District – Library 21c located at 1175 Chapel Hills Drive, Colorado Springs, CO 80920 for public review. These documents are available for public review and comment for 30 days following publication of the NOAs (i.e., through August 1, 2022).

During the Draft EA public review period, written comments may be mailed to Barry Schatz, Environmental Element Chief, 8120 Edgerton Drive, USAFA, CO 80840; or emailed to 10CES.CENPP.Planning_Programming@us.af.mil. The USAF will only respond to public comments during specified, formal public comment and review periods.

Interagency and Intergovernmental Coordination for Environmental Planning

USAF coordinated with federal, state, and local agencies with jurisdiction by law or special expertise over the Proposed Action to inform the range of issues to be addressed in the EA. The USAF also consulted with federally recognized tribes that are historically affiliated with the geographic region of the USAFA regarding the potential for the Proposed Action to affect properties of cultural, historical, or religious significance to the tribes. Responses have been considered and incorporated in the EA, as appropriate. Records of agency and tribal correspondence are included in **Appendix A**, **Appendix B**, and **Appendix C** of the EA.

Findings

Finding of No Practicable Alternative. While the USAFA designed the Preferred Alternative to avoid wetland and floodplain impacts to the extent feasible, because the Preferred Alternative involves channel modifications and other work in an existing dam reservoir, there is no practicable alternative to working in wetlands or floodplains. Pursuant to Executive Orders 11988 and 11990 and taking the above information into account, I find that there is no practicable alternative to this action and that the proposed repair actions include all practicable measures to minimize harm to the environment. This decision has been made after taking into account all submitted information and considering a full range of practical alternatives that meet project requirements and are within the legal authority of the USAF. This finding fulfills both the requirements of the referenced Executive Orders and 32 CFR Part 989 for a FONPA.

Finding of No Significant Impact. After review of the EA prepared in accordance with the requirements of NEPA and CEQ regulations, and which is hereby incorporated by reference, I have determined that the proposed Repair Kettle Creek Dry Dam project will not have a significant impact on the quality of the human or natural environment with implementation of the regulatory compliance measures and BMPs identified. Accordingly, an Environmental Impact Statement is not required. This decision has been made after taking into account all submitted information and considering a full range of practical alternatives that meet project requirements and are within the legal authority of the USAF. The signing of this FONSI/FONPA completes the environmental impact analysis process.

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CARLOS R. CRUZ-GONZALES, DFAC Date
Director of Logistics, Engineering, & Force Protection
Headquarters U.S. Air Force Academy

Attachment: Environmental Assessment for Repair Kettle Creek Dry Dam

ENVIRONMENTAL ASSESSMENT

FOR

Repair Kettle Creek Dry Dam

Draft

PREPARED BY:

U.S. Air Force

June 2022

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Privacy Advisory

Letters or other written comments provided may be published in the Final Environmental Assessment (EA). As required by law, substantive comments will be addressed in the Final EA and made available to the public. Any personal information provided will be kept confidential. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the names of the individuals making comments and their specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

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COVER SHEET

ENVIRONMENTAL ASSESSMENT

REPAIR KETTLE CREEK DRY DAM

a. Lead Agency: U.S. Air Force (USAF)

b. Proposed Action: Repair Kettle Creek Dry Dam

c. Written comments and inquiries regarding this document should be directed to:

Barry Schatz, Environmental Element Chief
8120 Edgerton Drive
USAFA, CO 80840
10CES.CENPP.Planning_Programming@us.af.mil

d. Designation: Draft Environmental Assessment (EA)

Abstract: The Kettle Creek Dry Dam, located on the U.S. Air Force Academy (USAFA), is currently not in compliance with Colorado Department of Water Resources (DWR) regulations for "high hazard" dams. The USAF, through the USAFA, must repair the dam to bring it into compliance. This EA evaluates the potential environmental impacts associated with two alternatives for this Proposed Action: the Preferred Alternative, and the No Action Alternative.

Under the Preferred Alternative, the USAFA would modify the dam such that it could be reclassified by the DWR as an "exempt structure" (i.e., a dam exempt from DWR jurisdiction due to its lack of ability to impound water above the natural ground surface, except during floods). The Preferred Alternative includes three primary components: dam modifications, including removing the dam embankment; upstream channel reach improvements to restore Kettle Creek; and Kettle Lakes diversion structure upgrades to improve functionality and reduce sedimentation of the riparian area and lakes.

Under the No Action Alternative, the USAFA would retain the deficient existing conditions of the Kettle Creek Dry Dam. No construction, alteration, improvement/rehabilitation, or habitat improvement would be performed. The Kettle Creek Dry Dam would remain a high hazard dam and would continue to violate the DWR regulations; loss of life could potentially occur if the dam were to fail.

The following environmental resources were analyzed in the EA: visual resource, air quality and climate, noise, earth resources, water resources, biological resources, cultural resources, socioeconomics and environmental justice, transportation, and hazardous and toxic materials and waste. Resources that would not be meaningfully or measurably affected by the Proposed Action, including airspace, land use and zoning, safety and occupational health, and utilities, were dismissed from detailed analysis. Based on the analysis presented in this EA, the USAF determined that with incorporation of best management practices and minimization measures, the Proposed Action would have no significant impacts on the human or natural environment.

This Draft EA and Draft Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA) are available on the USAFA website at https://www.usafa.af.mil.

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ABBREVIATIONS AND ACRONYMS

ACAM	Air Conformity Applicability Model
AFI	Air Force Instruction
AFMAN	Air Force Manual
AFPD	Air Force Policy Directive
AICUZ	Air Installation Compatible Use Zone
APE	Area of Potential Effects
BASH	Bird Air Strike Hazard
BCC	Birds of Conservation Concern
bgs	below ground surface
BMP	Best Management Practice
BO	Biological Opinion
CAA	Clean Air Act
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CPW	Colorado Department of Parks and Wildlife
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
CGP	Construction General Permit
CNHP	Colorado Natural Heritage Program
DNL	Day-Night Sound Level
DoD	Department of Defense
DWR	Department of Water Resources
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EISA	Energy Independence and Security Act
EJ	Environmental Justice
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FICUN	Federal Interagency Committee on Urban Noise
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
GHG	Greenhouse Gas
GWP	Global Warming Potential
HAP	Hazardous Air Pollutant
HTMW	Hazardous and Toxic Materials and Waste
HUD	Housing and Urban Development
HWMP	Hazardous Waste Management Plan
I-25	Interstate 25
IPAC	Information for Planning and Consultation
LOD	Limits of disturbance
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NMCI	North Monument Creek Interceptor
NRCS	Natural Resources Conservation Service

NRHP	National Register of Historic Places
PMJM	Preble's Meadow Jumping Mouse
PPB	Parts Per Billion
PPM	Parts Per Million
ROI	Region of Influence
SHPO	State Historic Preservation Offices
SIP	State Implementation Plan
SOP	Standard Operating Procedure
SPCCP	Spill Prevention, Control and Countermeasure Plan
SWMP	Stormwater Management Program
SWPPP	Stormwater Pollution Prevention Program
U.S.	United States
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USAFA	United States Air Force Academy
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 PURPOSE AND NEED

1.1 INTRODUCTION

This environmental assessment (EA) evaluates the potential environmental impacts associated with the United States (U.S.) Air Force's (USAF) Proposed Action, led by the U.S. Air Force Academy (USAFA), to repair Kettle Creek Dry Dam in order to meet current dam safety regulations. The Proposed Action would be implemented at the Kettle Creek Dry Dam at the USAFA in El Paso County, Colorado (**Figure 1**).

The USAF prepared this EA in compliance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code [USC] 4321, et seq.); the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508); and the Air Force Environmental Impact Analysis Processes (32 CFR Part 989).

To facilitate public review of this EA, the USAF published this Draft EA and Draft Finding of No Significant Impact (FONSI)/Finding of No Practicable Alternative (FONPA) on the USAFA website at https://www.usafa.af.mil.

1.2 PURPOSE AND NEED

Kettle Creek Dry Dam is located near the eastern boundary of the USAFA, immediately northeast of the intersection of Interstate 25 (I-25) and Briargate Parkway. Kettle Creek flows from the northeast into the Kettle Creek Dry Dam reservoir, which is normally dry. From there, the creek flows through a 9-foot diameter pressure outlet conduit that channelizes flow through the dam and under I-25 to an outfall located approximately 3,300 feet downstream of I-25. Kettle Creek Dry Dam was constructed in 1956 to provide flood protection for the then-planned USAFA airfield; however, the airfield was later constructed approximately 1 mile north of its originally planned location. As a result, the dam currently provides minimal benefit to the USAFA or other parties.

Kettle Creek Dry Dam is currently classified as a "high hazard" dam by the Colorado Department of Water Resources (DWR) due to the likelihood that human life would be lost (i.e., motorists on I-25) if the dam fails. The dam requires improvements to comply with DWR's *Rules and Regulations for Dam Safety and Dam Construction* (Rules). Inspections of the dam in 2011 and 2015 determined that the USAFA must address inadequate spillway capacity (including the potential for the spillway to discharge onto I-25), repair eroding gullies on the downstream slope of the dam (west of southbound I-25), monitor seepage in the inlet structure walls, and clear trees and brush from the dam.

The *purpose* of the Proposed Action is to reduce the risk to life along the I-25 corridor caused by the existing high hazard dam, bring the dam into compliance with DWR's Rules, restore the Kettle Creek riparian habitat, and improve maintenance infrastructure (i.e., the Kettle Lakes diversion structure) in support of the dam and Kettle Lakes. The Proposed Action is *needed* because the Kettle Creek Dry Dam currently does not comply with applicable state requirements.

Figure 1: Kettle Creek Dry Dam Site Location

1.3 INTERAGENCY AND INTERGOVERNMENTAL COORDINATION/CONSULTATION

The USAF coordinated with the following federal, state, and local agencies with jurisdiction by law or special expertise over the Proposed Action to inform the range of issues to be addressed in the EA.

- U.S. Army Corps of Engineers (USACE)
- U.S. Fish and Wildlife Service (USFWS)
- Colorado Department of Transportation (CDOT)
- Colorado Natural Heritage Program (CNHP)
- Colorado Department of Parks and Wildlife (CPW)
- History Colorado (State Historic Preservation Office [SHPO])
- City of Colorado Springs
- El Paso County Community Services Department, Environmental Division
- Pikes Peak Area Council of Governments

Coordination letters, and responses received, are consolidated in **Appendix A** and discussed in **Section 3.0**, as appropriate. USAFA's consultation with the Colorado SHPO under Section 106 of the National Historic Preservation Act of 1966 (NHPA) is included in **Appendix B**.

Consistent with NHPA implementing regulations (36 CFR Part 800), Department of Defense (DoD) Instruction 4710.02, *Interactions with Federally-Recognized Tribes*, Air Force Instruction (AFI) 90-2002, *Air Force Interaction with Federally-Recognized Tribes*, and Air Force Manual (AFMAN) 32-7003, *Environmental Conservation*, the USAF is also consulting with federally recognized tribes that are historically affiliated with the geographic region of the USAFA regarding the potential for the Proposed Action to affect properties of cultural, historical, or religious significance to the tribes (**Appendix C**).

1.4 PUBLIC AND AGENCY REVIEW OF THE EA

An early public notice was published in the *Colorado Springs Gazette* and the *Colorado Springs Independent* on January 8, 2022 and January 12, 2022, respectively, to disclose that the Proposed Action would take place within a wetland and a floodplain (**Appendix D**). The USAF requested advanced public comment on the Proposed Action regarding its potential impacts as well as potential alternatives. The comment period for public input on this early public notice ended on February 7, 2022. No comments were received.

In accordance with CEQ and USAF NEPA regulations, this Draft EA and Draft FONSI/FONPA have been made available for a 30-day public review and comment period between June 29, 2022, and August 1, 2022. A Notice of Availability for the Draft EA and Draft FONSI/FONPA was published in the *Colorado Springs Independent* and *Colorado Springs Gazette* on June 29, 2022 and July 2, 2022, respectively.

The Draft EA and Draft FONSI/FONPA were published digitally on the USAFA website at https://www.usafa.af.mil. Printed copies of the Draft EA and Draft FONSI/FONPA are available at the Pikes Peak Library District – Library 21c located at 1175 Chapel Hills Drive, Colorado Springs, CO 80920 for public review.

During the Draft EA public review period, written comments may be mailed to Barry Schatz, Environmental Element Chief, 8120 Edgerton Drive, USAFA, CO 80840; or emailed to 10CES.CENPP.Planning_Programming@us.af.mil. The USAF will only respond to public comments during specified, formal public comment and review periods.

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2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The Proposed Action is to repair Kettle Creek Dry Dam to bring it into compliance with DWR dam safety requirements for high hazard dams, restore the Kettle Creek riparian habitat, and improve maintenance infrastructure in support of the dam and natural habitat.

2.2 SCREENING OF ALTERNATIVES

The USAF developed selection standards to evaluate specific reasonable alternatives by which to implement the Proposed Action. “Reasonable alternatives” are those that could be utilized to meet the purpose of and need for the Proposed Action. The USAF’s four selection standards used to evaluate reasonable alternatives include the following (USAFA, 2014):

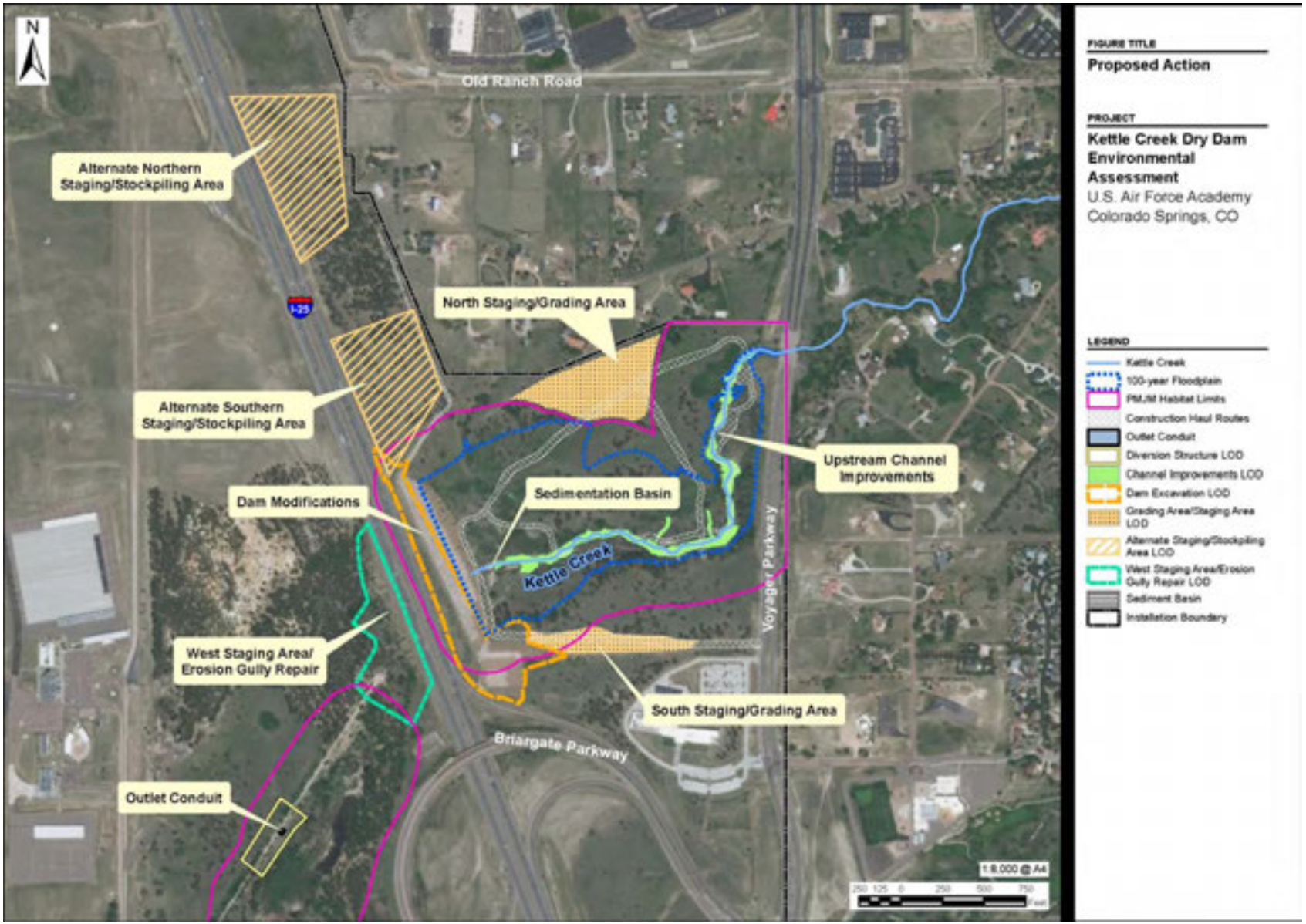
1. **Standard 1 – Risk to Downstream Life and Property:** Kettle Creek Dry Dam is currently not in compliance with DWR Rules pertaining to high hazard dams and poses a risk to human life, infrastructure, and the environment. The USAF evaluated each alternative based on its potential to reduce and/or eliminate risk by assessing the potential for dam failure and magnitude of damage should a dam failure occur.
2. **Standard 2 – Environmental Impacts:** Portions of Kettle Creek contain numerous wetlands and suitable habitat for the Preble’s Meadow Jumping Mouse (PMJM), a federally threatened species which lives and reproduces in and near riparian areas. The USAF evaluated each alternative based on the total area of permanently disturbed wetlands and PMJM habitat, as well as whether an alternative would create additional wetlands and/or PMJM habitat. The USAF also evaluated alternatives according to their potential to impact the USAFA Bird Air Strike Hazard (BASH) program.
3. **Standard 3 – Schedule Duration:** Kettle Creek Dry Dam currently poses a potential public safety risk to motorists due to its structural deficiencies. Therefore, the Proposed Action should be completed in a quick and efficient manner. Furthermore, an extended construction schedule duration would increase potential adverse impacts (e.g., due to construction noise, potential road closures, etc.). The USAF evaluated each alternative based on its ability to be completed in a timely fashion.
4. **Standard 4 – Permitting Difficulty:** Regulatory agencies external to the USAF and USAFA would be involved during the review and approval process of the selected alternative. The USAF evaluated each alternative for the level of permitting difficulty associated with traffic control, environmental impacts, and the number of agencies involved. Increased permitting difficulty would also likely extend the schedule duration.

2.3 EVALUATED ALTERNATIVES

2.3.1 Preferred Alternative – Kettle Creek Dry Dam Modifications

The Preferred Alternative would modify Kettle Creek Dry Dam such that it could be reclassified under DWR Rules as an “exempt structure” (i.e., a dam exempt from DWR jurisdiction due to its lack of ability to impound water above the natural ground surface, except during floods). The Preferred Alternative includes three primary components, described below and shown in **Figure 2**.

Figure 2: Primary Components of the Kettle Creek Dry Dam Repair



Dam Modifications

The existing dam embankment rises approximately 30 feet above I-25 (see **Figure 3**). Under the Preferred Alternative, the part of the embankment rising above I-25 would be removed, allowing the dam to be reclassified from a high hazard dam to an exempt structure pursuant to DWR Rules. Excavated embankment materials would be used to repair large erosion gullies on the downstream slope of the dam west of southbound I-25, and existing riprap and granular fill would be reused in other areas of the site. Remaining excess excavated materials would either be hauled offsite by the construction contractor, or be placed outside the 100-year floodplain in locations with minimal potential environmental and PMJM habitat impacts (i.e., in either the North and South Staging/Grading area or one of the two alternate staging/stockpiling areas; see **Figure 2**) (USAFA, 2021).

Figure 3: Photograph of Kettle Creek Dry Dam from I-25

(Google Earth, 2020)

Upstream Channel Reach Improvements

Urbanization in the Kettle Creek watershed has resulted in significant channel incision[1] and loss of riparian and wetland areas (see **Figure 4**). Under the Preferred Alternative, the USAFA would install grade control structures (e.g., grouted boulder) and in-stream channel features (i.e., streambank protection measures and sills), and conduct bank grading and select wetland plantings to raise the channel. Raising the channel's elevation would reconnect it to the adjacent floodplain, thus restoring connectivity of the riparian and wetland areas and improving habitat for the PMJM. Site-specific wetland seed mixes and planting plans would be used for proposed wetland plantings. Revegetation plans would reproduce PMJM habitat within the construction limits along Kettle Creek as well as establish herbaceous grassland in upland areas. In addition, a new steel trash rack would be constructed at the existing outlet

Figure 4: Photograph of Bare Channel Banks with Active Erosion (11/18/2013)

[1] Channel incision is the process of downcutting into a stream channel leading to a decrease in the channel bed elevation.

conduit intake structure to prevent large debris from clogging the channel flow. A sedimentation basin would also be constructed upstream of the steel trash rack to facilitate periodic debris and sediment removal activities (USAFA, 2021).

Kettle Lakes Diversion Structure Improvements

The existing Kettle Lakes diversion structure is located downstream of the dam, west of I-25. This diversion structure is composed of a 12-inch diameter pipe stemming from the bottom of the 9-foot diameter outlet conduit. The 12-inch pipe is fed from an 8-inch tall concrete curb across the bottom of the conduit that directs water, sediment, and debris towards the 12-inch pipe. This design makes it difficult to remove debris and sediment from the diversion structure, and frequent clogging incurs considerable maintenance effort for the USAFA. Under the Preferred Alternative, the concrete curb would be modified and a solar-powered commercial dewatering pump would be installed to help divert water from the outfall conduit while reducing the potential for sediment and debris to clog the diversion structure. A new manhole structure would also be constructed south of the outlet conduit. This structure would provide easy access to remove any trapped debris from the diversion outlet and would be large enough to provide room to conduct maintenance on the commercial dewatering pump. The USAFA would also repair eroded areas around the diversion structure using compacted embankment fill, erosion control mats, and reseeding.

Construction of the Preferred Alternative is estimated to last approximately 18 to 21 months, making it the shortest duration alternative among those the USAF analyzed (USAFA, 2021). The short duration is largely attributable to the Preferred Alternative's minimal impacts to I-25, including relatively limited permitting requirements. The Preferred Alternative would likely have beneficial impacts on wetlands and PMJM habitat through the proposed upstream channel reach improvements, and there would be no BASH concerns as no additional surface water would be present. Finally, the Preferred Alternative best reduces the risk of the dam to downstream life and property by eliminating the existing embankment. Therefore, the USAF determined that the Preferred Alternative meets each identified selection standard and best achieves the purpose of and need for the Proposed Action (USAFA, 2014).

2.3.1.1 Construction

The Project Site encompasses approximately 28.1 acres, which is bisected by I-25. Construction activities on the west side of I-25 would be accessed through the USAFA South Gate. Primary access to the site on the east side of I-25 would be via Voyager Parkway and Briargate Parkway. Secondary access to the site east of I-25 would be via Old Ranch Road. Construction work adjacent to the highway, ramp, or shoulder may require temporary road closures. Any road closures would follow the traffic control standards listed in the CDOT Miscellaneous and Signage Standard Plan, Plan No. S-630-1, Traffic Controls for Highway Construction. This would include the required Manual on Uniform Traffic Control Device-compliant signing with the proper spacing, temporary concrete barriers along the roadway, and any channelizing devices required per the standard plans. A temporary concrete barrier would be constructed along the northbound Briargate Parkway entrance ramp to protect traffic from construction operations. Temporary drum channelizing devices would also be installed along southbound I-25 to facilitate repairs to the erosion gullies. Construction traffic would not access the Project Site from the CDOT easement along I-25 (USAFA, 2021).

The USAFA has identified three construction staging areas: the "North Staging/Grading Area" and "South Staging/Grading Area" to the east of I-25, and the "West Staging Area" to the west of I-25. Construction materials would be obtained offsite with the exception of some earthwork materials including embankment fill and riprap removed from the dry dam embankment that would be incorporated into the Preferred Alternative. The Preferred Alternative has been designed to balance cut and fill quantities to the extent practicable in order to minimize the need for offsite disposal of earthwork materials. Excavated embankment

materials would be stockpiled within the North and South Staging/Grading Areas and would be used to bring these areas to final grade. In addition, two alternate staging/stockpiling areas east of I-25 could be used by the contractor to stage and stockpile excess materials. These alternate locations are provided as bid options and if utilized, the contractor would be required to complete additional site surveys and develop a site-specific erosion control plan and revegetation plan. The Project Site would encompass approximately 50.7 acres if both alternate staging/stockpiling areas are utilized. Existing utilities within the Project Site would be protected in place during construction; relocation of existing utilities would not be necessary (USAFA, 2021).

Construction of the upstream channel improvements would require diversion of stream flows present in Kettle Creek around the work area. This phase of the project is expected to occur during the dry season. The construction duration (18-21 months) would span two dry seasons to accommodate this. The construction contractor would be responsible for designing and installing a system to divert stream flows; however, it is anticipated that temporary cofferdams, diversion pipes, and diversion channels would be used. Diversion of the Kettle Creek streamflow would be temporary and the natural stream flow would be reestablished following completion of construction activities. The USAFA estimates that 531 trees would need to be removed to accommodate the Preferred Alternative, primarily to clear the North Staging/Grading Area and facilitate upstream channel reach improvements. The construction contractor would be required to protect and preserve trees, shrubs, brush, and grass not specifically required to be removed for completion of the work. The contractor would be required to adhere to the detailed site-specific revegetation plan included in the final design plans. This revegetation plan was developed to minimize erosion and provide optimal habitat conditions for the PMJM. In addition, the construction contractor would be required to comply with all applicable federal, state, and local laws and regulations regarding environmental impacts from construction activities including, but not limited to, protection of air, water, land, and cultural resources (USAFA, 2021).

2.3.1.2 Operation and Maintenance

Kettle Creek Dry Dam, including associated infrastructure components, would require minimal ongoing operational and maintenance effort. The USAFA would periodically maintain and clear the sedimentation basin, trash rack, and Kettle Lake diversion structure of large debris and/or sediment buildup. Following construction, most of the Project Site would generally function as natural land, which the USAFA would manage according to its Integrated Natural Resources Management Plan, PMJM Conservation and Management Plan, and Integrated Pest Management Plan (USAFA, 2017; Colorado National Heritage Program, 1999).

2.3.2 No Action Alternative

Under the No Action Alternative, the USAFA would retain the deficient existing conditions of the Kettle Creek Dry Dam. No construction, alteration, improvement/rehabilitation, or habitat improvement would be performed. The Kettle Creek Dry Dam would remain a high hazard dam and would continue to violate the DWR Rules; loss of life could potentially occur if the dam were to fail. While the No Action Alternative would not meet the Proposed Action's purpose and need, it is analyzed in this EA to provide a comparative baseline with the Preferred Alternative.

2.4 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

The USAF initially considered three additional alternatives to achieve the purpose of and need for the Proposed Action: (1) Spillway rehabilitation; (2) Breach and abandon the existing dam; and (3) Convert the dam to a regional detention facility. The USAF eliminated these alternatives from further consideration because they did not meet one or more of the selection standards (**Section 2.2**), as described below.

2.4.1 Spillway Rehabilitation

The USAF considered rehabilitating the existing Kettle Creek Dry Dam emergency spillway to improve its conveyance capacity during a flood event. However, it was determined early in the design process that widening the existing spillway, located on the south dike of the dam, would convey floodwaters into the National Guard facility located adjacent to the southern dike. This alternative was then modified to include the construction of a new spillway at the north dike. In order to adequately convey a 100-year flood through this new spillway, extensive improvements would be necessary, including construction of the new spillway through the north dike, new spillway channels (approximately 1 mile long) to divert water to Kettle Creek downstream of the existing 9-foot outlet conduit, a new 440-foot long I-25 bridge over the spillway, relocation of the existing I-25 turnout, and removal (i.e., fill) of the existing spillway in the south dike (USAFA, 2014).

The USAF determined that construction of the I-25 bridge would require a lengthy and extensive permitting process with CDOT and the Federal Highway Administration (FHWA). Therefore, this alternative did not meet Selection Standards #3 and #4, and thus was eliminated from further consideration.

2.4.2 Breach and Abandon Existing Dam

This alternative would involve breaching and abandoning the Kettle Creek Dry Dam. DWR Rules require a dam breach to be excavated down to the level of the natural ground. Therefore, this alternative would involve cutting a channel through the dam and reservoir so that the dam cannot impound water. Breaching the dam would require excavation through the embankment of I-25, requiring new 310-foot long bridges for I-25 at the location of Kettle Creek. Excavated material would be deposited within the existing reservoir, outside of the PMJM conservation area, and graded towards Kettle Creek. Additionally, upstream channel improvements would be required within the existing reservoir, and a new 4,000-foot long channel would be constructed to convey water to the existing creek channel downstream of the 9-foot outlet conduit (USAFA, 2014).

The USAFA determined that construction of the I-25 bridge would require a lengthy and extensive permitting process with CDOT and FHWA, and creation of the new open water areas in the downstream channel could lead to BASH impacts. Therefore, this alternative did not meet Selection Standards #2, #3, and #4, and thus was eliminated from further consideration.

2.4.3 Convert to a Regional Detention Facility

The USAF considered converting Kettle Creek Dry Dam into a regional detention facility to provide water detention credits for upstream developments. Regional detention facilities are typically only constructed according to an approved basin or master drainage plan, and use of the Kettle Creek Dry Dam as a regional detention facility is not included in the existing plans for El Paso County or the City of Colorado Springs. Furthermore, the Draft Drainage Criteria Manual for the City of Colorado Springs states that a regional detention facility should not serve a contributing area larger than 1 square mile. This is incongruent with Kettle Creek Dry Dam's approximately 17-square-mile drainage area (USAFA, 2014).

Conversion to a regional detention facility would require coordination with an upstream stakeholder willing to adopt the Kettle Creek Dry Dam as a regional detention facility. The USAF is not currently aware of any such stakeholder. In addition, conversion to a regional detention facility could have water rights implications (i.e., permitting) that would need to be considered. For these reasons, the USAFA determined this alternative does not meet Selection Standards #2, #3, and #4, and thus was eliminated from further consideration.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This chapter describes the affected environment and potential environmental consequences for resource areas that could be affected by the Preferred Alternative. Resources dismissed from detailed analysis in the EA, and the justification for their dismissal, are presented in **Table 1**.

Table 1: Resources Dismissed from Detailed Analysis in the EA

Environmental Resource	Justification
Airspace	Construction activities associated with the Preferred Alternative would have no potential to interfere with airspace operations. Construction would be conducted in accordance with applicable USAF guidelines, and the contractor would obtain a Temporary Construction Waiver for work within USAFA's Air Installation Compatible Use Zone prior to starting construction. Furthermore, the Preferred Alternative would not create any substantial BASH risks.
Land Use and Zoning	Implementation of the Preferred Alternative would not modify existing land use on the Project Site, nor would it conflict with land use or zoning on adjacent properties outside the USAFA boundary.
Safety and Occupational Health	Construction and long-term maintenance activities associated with the Preferred Alternative would be conducted in accordance with applicable federal, state, USAF, and local worker safety and regulatory requirements and guidelines, including those established by the Occupational Safety and Health Administration. Adherence to these requirements would substantially minimize the potential for worker injuries during construction and maintenance. Similarly, there would be no potential for adverse safety impacts to the public.
Utilities	Implementation of the Preferred Alternative would not interfere with existing utilities, nor would it change utility usage at USAFA. Utilities located on the Project Site would be protected in place during construction (USAFA, 2021).

3.2 VISUAL RESOURCES

Visual resources refer to the visible features on a landscape, both manmade and natural, moving and stationary. Although visual quality is partly subjective, visual characteristics that often render an area less attractive include clashing or incoherent architectural elements; unorganized mixing of open and built spaces; presence of litter; and dead or dying vegetation. Actions that remedy or mitigate such characteristics generally improve visual quality.

The Region of Influence (ROI) for visual resources includes the viewshed from which the Preferred Alternative would be notably visible. The ROI is generally bounded by Old Ranch Road to the north, Voyager Parkway to the east, and Briargate Parkway to the south. In addition, components occurring on the western side of I-25 may be visible from I-25 and the Davis Airfield.

3.2.1 Affected Environment

The overall visual landscape of the ROI is rural-suburban with mixed use development and open space. Visibility to the Project Site within the ROI is highly variable and is impacted by large mature trees interspersed throughout the area. The most prominent views of the Project Site occur along I-25, Briargate Parkway, Montezuma Road, and Voyager Parkway (see **Figure 2**), although, notably, the existing dry dam blocks visibility of the Kettle Creek stream channel and much of the proposed limits of disturbance (LOD)

from I-25 (see **Figure 3**). Structures that have prominent views of the Project Site include residences along Montezuma Road and the National Guard Readiness Center to the south of the Project Site. In addition, the Alternate Northern Staging/Stockpiling area, if utilized, would be visible from the commercial buildings to the north of Old Ranch Road.

3.2.2 Environmental Consequences

A visual resources impact would be significant if it would introduce discordant elements or remove important (i.e., visually appealing) elements in a previously cohesive and valued viewscape.

3.2.2.1 Preferred Alternative

Construction of the Preferred Alternative would alter viewsheds in the ROI by removing the existing dam embankment above I-25, and removing select mature trees from the Project Site. Construction activities would be most visible to motorists on I-25, Voyager Parkway, and Briargate Parkway, as well as residents on Montezuma Road and personnel working in the National Guard Readiness Center. While motorists may occasionally have unobstructed views of the Project Site while traveling on adjacent roads during construction, these views would be temporary and would be generally consistent with other views of landscape construction that motorists typically experience. Additionally, much of the construction would be outside the primary line of sight of motorists.

Residents along the south side of Montezuma Road may potentially have clear views of the Project Site for the duration of the Project (18-21 months) particularly if they have a second story. Major site disturbance (e.g., mass grading activities) would likely be concentrated to the first few months of construction and gradually transition to bank stabilization and revegetation activities which would have comparatively less visual impact. Visual impacts to personnel in the National Guard Readiness Center would be minimal as the Project Site is shielded from the facility by mature trees. Overall, the Preferred Alternative would have *short-term, less-than-significant adverse impacts* on visual resources for residents and motorists within the ROI.

The Preferred Alternative would permanently alter the viewscape in the ROI by removing the dam embankment above I-25 and approximately 531 mature trees, installing grade control structures, conducting bank grading and wetland plantings, and improving the Kettle Lakes diversion structure to reduce clogging and aid in debris removal. Overall, these modifications would be consistent with the character of the viewshed in the ROI and would not introduce discordant elements. Removal of the dam, which is not a valued visual element, would eliminate an existing obstruction in the viewshed. Removal of approximately 531 mature trees could detract from the existing viewscape, but it would be revegetated in the long-term as the plantings grow. Overall, the Preferred Alternative would have *long-term, beneficial impacts* on visual resources.

3.2.2.2 No Action Alternative

Under the No Action Alternative, the proposed Kettle Creek Dam Improvements would not be implemented and there would be *no impacts* to visual resources. No construction, alteration, improvement/rehabilitation, or habitat improvement activities would be performed. The viewshed surrounding the Project Site would remain under current conditions.

3.3 AIR QUALITY AND CLIMATE

Air quality conditions at a given location are a function of several factors including the quantity and type of pollutants emitted locally and regionally, as well as the dispersion rates of pollutants in the region. Primary

factors affecting pollutant dispersal include wind speed and direction, atmospheric stability, climate and temperature, and topography.

The ROI for air quality is El Paso County.

3.3.1 Affected Environment

3.3.1.1 Criteria Pollutants

National Ambient Air Quality Standards (NAAQS) are established by the U.S. Environmental Protection Agency (USEPA) for six "criteria pollutants" (as listed under Section 108 of the Clean Air Act [CAA] of 1970) (see **Table 2**): carbon monoxide (CO); lead (Pb); nitrogen oxides (NOx); ozone (O3); particulate matter (PM), divided into two size classes of 1) aerodynamic size less than or equal to 10 micrometers (PM10), and 2) aerodynamic size less than or equal to 2.5 micrometers (PM2.5); and sulfur dioxide (SO2). The State of Colorado has adopted the NAAQS to regulate air pollution levels.

The ambient air quality in an area is characterized in terms of whether it complies with the NAAQS. Areas where monitored outdoor air concentrations are within an applicable NAAQS are considered in *attainment* of that NAAQS. If sufficient ambient air monitoring data are not available to make a determination, the area is instead deemed as *attainment/unclassifiable*. Areas where monitored outdoor air concentrations exceed the NAAQS are designated by the USEPA as *nonattainment*. Nonattainment designations for some pollutants (e.g., O3) can be further classified based on the severity of the NAAQS exceedances. Lastly, areas that have historically exceeded the NAAQS but have since instituted controls and programs that have successfully remedied these exceedances are known as *maintenance* areas.

The General Conformity Rule of the federal CAA mandates that the federal government abide by approved State Implementation Plans (SIP) (i.e., air quality control plans). Air Force Policy Directive (AFPD) 32-70, *Environmental Considerations in Air Force Programs and Activities*, mandates that the USAF comply with all federal, state, and local environmental laws and standards. In accordance with AFPD 32-70, AFMAN 32-7002, *Environmental Compliance and Pollution Prevention*, explains responsibilities and specific details on how to comply with the CAA and other federal, state, and local air quality regulations. This AFMAN provides further and more specific instruction on the requirements of the USAF's Environmental Impact Analysis Process (EIAP) for air quality promulgated at 32 CFR 989.30, which mandates that EIAP documents, such as this EA, address General Conformity.

According to the USAF's attainment list provided by the Air Force Civil Engineer Center, the USAFA is located in a *maintenance* area for CO and in *attainment* areas for all other criteria pollutants (USAF, 2020a).

3.3.1.2 Climate Change and Greenhouse Gas Emissions

The primary long-lived greenhouse gases (GHGs) directly emitted by human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). To estimate global warming potential (GWP), all GHGs are expressed relative to a reference gas, CO_2, which is assigned a GWP equal to 1. All six GHGs are multiplied by their GWP and the results are added to calculate the total equivalent emissions of CO_2 (CO_2e). However, the dominant GHG emitted is CO_2, mostly from fossil fuel combustion (85.4 percent). This EA considers CO_2e as the representative GHG emission.

Table 2: National and Colorado Ambient Air Quality Standards

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	8-hour	9 parts per million (ppm)	Not to be exceeded more than once per year
		1-hour	35 ppm	
Lead	Primary and Secondary	Rolling 3-month average	0.15 micrograms per cubic meter ($\mu g/m^3$) [(1)]	Not to be exceeded
Nitrogen Dioxide (NO_3)	Primary	1-hour	100 (parts per billion) ppb	98th percentile, averaged over 3 years
	Primary and Secondary	Annual	53 ppb[(2)]	Annual mean
Ozone	Primary and Secondary	8-hour	0.070 ppm[(3)]	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particulate matter equal to or less than 2.5 microns in diameter ($PM_{2.5}$)	Primary	Annual	12 $\mu g/m^3$	Annual mean, averaged over 3 years
	Secondary	Annual	15 $\mu g/m^3$	Annual mean, averaged over 3 years
	Primary and Secondary	24-hour	35 $\mu g/m^3$	98th percentile, averaged over 3 years
Particulate matter equal to or less than 10 microns in diameter (PM_{10})	Primary and Secondary	24-hour	150 $\mu g/m^3$	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)	Primary	1-hour	75 ppb[(4)]	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

(1) In areas designated nonattainment for Lead standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.

(2) The official level of the annual NO_2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of a clearer comparison to the 1-hour standard.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is a USEPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS

Source: (USEPA, 2017)

The current level of air emissions from all natural and human activities within a region represent the baseline emissions for that area. The National Emissions Inventory, updated every 3 years by the USEPA, can be used to identify the baseline emissions. It contains estimates of annual air emissions by county. The most recent publicly available inventory data is for calendar year 2017. **Table 3** presents the baseline GHG emission levels obtained from the 2017 National Emissions Inventory for El Paso County. Nationally, the

baseline GHG emission level is 6,588 million metric tons of CO_2e. **Table 3** also summarizes climate conditions for the ROI.

Table 3: Climate Conditions in the ROI

Climate Feature	Preferred Alternative[1]
General Climate Description	Warm-summer Humid Continental
Average Annual Precipitation (Inches)	15.7
Wettest Month / Average Monthly Precipitation (inches)	July 2.9
Driest Month / Average Monthly Precipitation (inches)	January 0.3
Annual Mean Temperature (°F)	49.0
Warmest Month / Average Temperature (°F)	July 71.1
Coolest Month / Average Temperature (°F)	January 29.6
County[1] Baseline GHG Emissions (Metric Tons CO_2e)[2]	7,751,102

Note: 1. El Paso County, Colorado.
2. CO_2e = Carbon Dioxide Equivalent
Sources: (WRCC, 2022; USEPA, 2017)

3.3.1.3 Other Air Quality Considerations

In addition to the criteria pollutants discussed above, Hazardous Air Pollutants (HAPs) also are regulated under the CAA. The USEPA has identified 187 HAPs that are known or suspected to cause health effects in small concentrations. HAPs are emitted by a wide range of man-made and naturally occurring sources, including combustion mobile and stationary sources. However, unlike the NAAQS for criteria pollutants, federal ambient air quality standards do not exist for non-criteria pollutants. Therefore, HAPs are generally regulated through specific air emission permit provisions for stationary sources and HAP emission limits for mobiles sources.

Special goals for visibility in many “Class I Federal areas” were also established by the CAA; these areas generally include national parks, wilderness areas, and international parks. The Regional Haze Rule (40 CFR Part 51) was subsequently enacted in 1999 and requires states to establish goals for improving visibility in national parks and wilderness areas and to develop long-term strategies for reducing emissions of air pollutants that cause visibility impairment. Visibility-impairing pollutants can be transported over great distances; therefore, states are encouraged to work together to develop regional visibility goals and strategies. Visibility-impairing pollutants are emitted by a wide variety of activities and sources, including mobile source fuel combustion, agriculture, and manufacturing. Emissions of these pollutants are regulated by complying with the NAAQS, through state-specific programs, and through specific air emission permit provisions.

3.3.2 Environmental Consequences

Air quality is affected by stationary sources (e.g., boilers, emergency generators, and industrial processes), mobile sources (e.g., motor vehicles, construction equipment, and aircraft), and area sources (e.g., vehicle

and aircraft fuel transfer, storage, and dispensing). The nature and magnitude of this Proposed Action are expected to create only localized air quality impacts to the area surrounding the Project Site. The air quality impact analysis follows the EIAP Air Quality Guidelines for criteria pollutants and GHG emissions (Solutio Environmental, 2017). The USAF used the Air Conformity Applicability Model (ACAM) to analyze the potential air quality impacts associated with the Proposed Action, in accordance with AFMAN 32-7002, the EIAP, and the General Conformity Rule (40 CFR 93 Subpart B). The General Conformity Rule applies to the Proposed Action as USAFA is in a *maintenance* area for 1971 CO NAAQS. The ACAM report is available in **Appendix E**.

Construction emissions resulting from the Proposed Action were calculated using ACAM. The project is not expected to have any emissions associated with the operations activities. The project emissions are "netted" on an annual basis. The impact analysis must consider the greatest annual emissions associated with the Proposed Action. Construction activities are expected to occur in 2022 and 2023.

Current USAF guidance provides methodology for performing an Air Quality EIAP Level II, Quantitative Assessment, which is an insignificance assessment that can determine if an action poses an insignificant impact on air quality (Solutio Environmental Inc., 2020). An air quality impact is considered insignificant if the action does not cause or contribute to exceedance of one or more of the NAAQS. The USAF defines "insignificance indicators" for each criteria pollutant according to current air quality conditions.

For *maintenance* areas*,* the General Conformity Rule formally defines *de minimis* (insignificant) levels that must be used as insignificance indicators. However, General Conformity Rule *de minimis* levels have not been established for *attainment* criteria pollutant emissions. In areas the USAF considers *clearly attainment* (i.e., where all criteria pollutant concentrations are currently less than 95 percent of applicable NAAQS), the insignificance indicators are 250 tons per year (i.e., the USEPA's Prevention of Significant Deterioration threshold), except for Pb, which is 25 tons per year. El Paso County is in *clear attainment* for all criteria pollutants except for CO.

The change in climate conditions caused by GHGs is a global effect. The Proposed Action would have no impact on overall global or regional GHG emissions and global climate change. For NEPA disclosure purposes, however, this EA analyzes the potential GHG emissions, as calculated by the ACAM, anticipated under the Proposed Action, which could contribute to climate change.

3.3.2.1 Preferred Alternative

Criteria Pollutants: Construction of the Proposed Action would result in *short-term, insignificant impacts* on air quality. Construction activities would temporarily generate fugitive dust from grading and clearing, and criteria pollutant emissions (e.g., VOCs and NO_X [as precursors of O_3], CO, PM_{10}, and $PM_{2.5}$ [including its precursor SO_2]) and GHG emissions from the use of diesel-powered and gasoline-powered equipment. The construction workforce commute would also contribute to a short-term increase in emissions. Construction period emissions typically depend on expected material quantities, such as clean fill import and off-site disposal of excess excavated material, and equipment/vehicle utilization requirements for each project component. The peak emissions construction year is expected to be 2023 for all pollutants. The majority of air emissions associated with the Proposed Action would be temporary in nature (limited to the duration of construction activities) and would be caused by fuel combustion in vehicles and construction equipment, and by dust generated from clearing, grading, and equipment and vehicles traveling over unpaved areas.

Table 4 depicts annual netted emissions for each construction year (2022 and 2023) for the Preferred Alternative. All attainment criteria pollutants are below the insignificance indicators.

Table 4: Projected Annual Emissions from Proposed Action

Pollutant	Proposed Action Emissions (ton/year)[1]			NEPA Insignificance Indicator (ton/year)	General Conformity De Minimis Threshold (ton/year)	General Conformity Applicability (Yes or No)
	2022	2023	Steady State			
VOC	0.478	1.227	0	250	N/A	No
NO_x	3.088	7.973	0	250		
CO	2.680	6.824	0	N/A	100	
SO_x	0.008	0.020	0	250	N/A	
PM_{10}	34.053	101.761	0	250		
$PM_{2.5}$	0.123	0.316	0	250		
Pb	0.000	0.000	0	25		
NH_3	0.002	0.006	0	250		
CO_2e	785.5	2,030.0	0	--		
Regulatory Area: Colorado Springs, Colorado – Maintenance: 1971 CO NAAQS						

Notes:
1. 2022 and 2023 represent construction years.
NO_x = nitrogen oxides, SO_x = sulfur oxides, NH_3 = ammonia, CO_2e = Carbon Dioxide Equivalent, N/A = Not Applicable
Source: ACAM version 5.0.17b, run on 9 January 2022 (**Appendix E**).

As previously stated, a General Conformity applicability analysis was performed for the Preferred Alternative. The USAFA is designated as *maintenance* for the 1971 CO NAAQS; the CO *de minimis* level is 100 tons per year. As the peak construction year for CO (2023) at USAFA is expected to produce approximately 6.8 tons of additional CO emissions, the CO emission level is well below the *de minimis* threshold. Therefore, no additional General Conformity analysis is required for the Preferred Alternative.

Following completion of construction activities, the Preferred Alternative would have no “steady state” (i.e., long-term annual) air emissions. The operational phase of the Preferred Alternative consists of a solar-powered commercial dewatering pump, which would have no emissions. No additional equipment would be operated and there would be no change to the number of personnel on USAFA.

Therefore, construction and steady state emissions would not exceed regulatory or insignificance thresholds, and the potential air quality impact from all criteria pollutants is insignificant.

Greenhouse Gas Emissions and Climate Change: As further shown in **Table 4**, CO_2e emissions from construction would be the largest in 2023. CO_2 represents approximately 99.9974 percent of potential GHG emissions from the Preferred Alternative, while CH_4 and N_2O represent approximately 0.0023 percent and 0.0003 percent, respectively (based on weighted averages of USEPA emission factors for natural gas, gasoline, and diesel in 40 CFR Subpart C of Part 98 Appendix Tables C-1 and C-2).

Table 5 depicts the Preferred Alternative’s annual construction (2022 and 2023) and steady state GHG emissions increases over the applicable county and national baselines. When compared to the national GHG emissions baseline, the peak construction year is 2023, which is 0.00003 percent of the national baseline.

Table 5: Comparison of Greenhouse Gas Emissions

Alternative	Proposed Action GHG Emissions Increase Over County Baseline[1]			Proposed Action GHG Emissions Increase Over National Baseline[2]		
	2022	2023	Steady State	2022	2023	Steady State
Preferred Alternative	0.009%	0.024%	0.00%	0.00001%	0.00003%	0.00%

Notes:
1. El Paso County, Colorado = 7,751,102 metric tons of CO_2e.
2. Annual national GHG emissions = 6,588 million metric tons of CO_2e.
Sources: (USEPA, 2017); ACAM version 5.0.17b, run on 9 January 2022 (**Appendix E**).

The USAF addresses the potential future impacts of climate change to both current and future USAF facilities by assessing site-specific potential impacts as part of long-range planning, project design, and permitting activities. Potentially relevant long-term climate change areas of concern for the Proposed Action include increases in flooding, drought, and wildfires. However, the Proposed Action would not involve construction of any new facilities and related operations. Further, the Proposed Action includes channel improvements to Kettle Creek, such as reconnecting the stream to its floodplain, and dam modifications that would reduce the potential for adverse effects from flooding. Thus, climate change would have *no long-term impacts* on the Proposed Action.

Other Air Quality Considerations: Federal ambient air quality standards do not exist for non-criteria pollutants; therefore, the USAF has not established HAPs insignificance indicators. However, the Preferred Alternative would have no stationary or steady state emissions, and thus no HAP emissions.

Similarly, there is no specific insignificance indicator established for assessing a Proposed Action's impact on visibility in Class I Federal areas. However, many pollutants responsible for impairing visibility are regulated by NAAQS either directly (e.g., $PM_{2.5}$) or indirectly (e.g., nitrogen dioxide [NO_2] and SO_2 emissions, which can form visibility-impairing nitrates and sulfates, respectively, once emitted). Because the Proposed Action would result in insignificant increases in criteria pollutants, it is unlikely that the Preferred Alternative would result in adverse impacts on visibility in Class I Federal areas.

3.3.2.2 No Action Alternative

Under the No Action Alternative, there would be *no impact* to air quality as air emissions at the Project Site would remain the same as compared to the existing condition. There would be no increase over baseline GHG emissions.

3.4 NOISE

Sound is vibrations in the air, which are known as compression waves. Just like a pebble dropped into a pond creates ripples, the compression waves, formed of air molecules pressed together, radiate from a source and decrease with distance. If these vibrations reach a human eardrum at a sufficient rate and intensity, we perceive it as sound. When the sound is unwanted, we refer to it as noise. Generally, sound becomes noise to a listener when it interferes with normal activities. Sound within the range of human hearing is measured on a logarithmic scale, known as the decibel (dB). The human ear does not hear all frequencies equally; the A-weighted decibel scale (dBA) is used to reflect the selective sensitivity of human hearing.

Because the sound pressure level unit of dBA describes a noise level at just one moment and very few noises are constant, other ways of describing noise over extended periods have been developed. One way

of describing fluctuating sound is to describe the fluctuating noise heard over a specific time period as if it had been a steady, unchanging sound. For this condition, a descriptor called the "equivalent sound level," L_{eq}, can be computed. L_{eq} is the constant sound level that, in a given situation and time period (e.g., one hour, denoted by $L_{eq(1)}$, or 24 hours, denoted as $L_{eq(24)}$), conveys the same sound energy as the actual time-varying sound. The Day-Night Sound Level (DNL) refers to a 24-hour average noise level with a 10 dB penalty applied to the noise levels during the hours between 10 PM and 7 AM due to increased sensitivity to noise levels during these hours. Both L_{eq} and DNL were recommended by USEPA as the best descriptors for describing the effects of environmental noise (USEPA, 1974).

The loudest sounds that can be comfortably heard by the human ear have intensities a trillion times higher than those of sounds barely heard. As such, sound is measured in dB, which uses a logarithmic scale that doubles the noise energy every 3 dB. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Sound levels above 120 dB begin to be perceived as uncomfortable, while sound levels between 130 and 140 dB are considered painful. The common sound levels encountered in daily life are shown in **Table 6**.

Table 6. Common Sound Levels

Sound Source	Sound Pressure Level (dBA)
Air Raid Siren at 50 feet	120
Maximum Levels at Rock Concerts (Rear Seats)	110
On Sidewalk by Passing Heavy Truck or Bus	90
On Sidewalk by Typical Highway	80
On Sidewalk by Passing Automobiles with Mufflers	70
Typical Urban Area	60-70
Typical Suburban Area	50–60
Quiet Suburban Area at Night	40-50
Typical Rural Area at Night	30-40
Isolated Broadcast Studio	20
Audiometric (Hearing Testing) Booth	10
Threshold of Hearing	0

Sources: Cowan, James P. *Handbook of Environmental Acoustics,* Van Nostrand Reinhold, New York, 1994. Egan, M. David, Architectural Acoustics. McGraw-Hill Book Company, 1988.

The sound environment around an air installation such as USAFA is typically described using a measure of cumulative exposure that results from all aircraft operational events. The metric used to account for this is A-weighted DNL and is the standard noise metric used by the U.S. Department of Housing and Urban Development (HUD), Federal Aviation Administration, USEPA, and DoD. Since the length and number of events (i.e., the total noise energy) and the time of day play key roles in our perception of noise, to reflect these concerns, USAF uses the DNL metric to describe the cumulative noise exposure that results from all aircraft operations.

To address the potential impacts of aircraft operations on land use, the USAF has defined certain noise zones and provided associated recommendations regarding compatible land uses in Air Installation Compatible Use Zone (AICUZ) program instructions as described in AFI 32-7070, *Air Force Noise Program*, and AFI 32-7063, *Air Installations Compatible Use Zones Program*.

In June 1980, the Federal Interagency Committee on Urban Noise (FICUN) published guidelines relating DNL to compatible land uses (FICUN, 1980). This committee was composed of representatives of DoD, the U.S. Department of Transportation, HUD, USEPA, and the Veterans Administration. Since the issuance of these guidelines, federal agencies have generally incorporated the discussion of compatibility into their comprehensive planning in analysis of noise effects. The land use compatibility guidelines that USAF uses are consistent with FICUN guidelines. In general, residential land uses are not compatible with an outdoor DNL above 65 dBA.

The ROI for noise includes areas within 0.2 mile of the LOD.

3.4.1 Affected Environment

The existing noise conditions around USAFA are contributed from on-installation aircraft operations and traffic on- and off-base. In July 2019, USAFA published an AICUZ study focusing on the flying missions at the Davis Airfield and Bullseye Auxiliary Airfield. According to the study, the off-base DNL noise levels resulting from aircraft operations at the USAFA are well below the 65 dBA incompatible land use guideline.

USAFA is located northeast of the City of Colorado Springs. The sensitive receptors with potential to be affected by the Proposed Action would be Apostolic Christian Church, located on Old Ranch Road approximately 0.2 mile east of the Alternate Northern Staging/Stockpiling area; the residences located along Montezuma Road and Old Ranch Road between I-25 and Voyager Parkway; and several houses along Delta Road and Otero Avenue near Kettle Creek. Because these receptors are located close to the highways, the vehicle traffic would be the dominant source, followed by aircraft, contributing ambient noise levels to the neighborhood. Given the urban setting near the Project Site, particularly with existing highways nearby, the ambient noise levels within the affected areas are anticipated to be in a range between 60 and 70 dBA during daytime hours.

Construction projects are subject to the maximum permissible noise levels specified in the City of Colorado Springs noise ordinance for industrial zones for the period within which construction is to be completed pursuant to applicable construction permit issued by local authority, or if no time limitation is imposed, then for a reasonable period of time for completion of project. The maximum permissible noise levels are 80 dBA for daytime hours between 7 AM to 7 PM and 75 dBA for evening and nighttime hours between 7 PM to 7 AM, respectively (City of Colorado Springs, 2021).

3.4.2 Environmental Consequences

Noise from construction equipment operation and on-road construction vehicles traveling to and from the project sites have the potential to affect neighborhood noise levels.

A noise impact would be significant if it would 1) violate applicable noise regulations, 2) cause unsafe noise conditions for nearby receptors during construction, or 3) substantially affect normal operations of noise-sensitive receptors during operation of the Proposed Action. Since no new long-term noise sources would be created under the Preferred Alternative, only construction activities would potentially impact noise conditions within ROI.

3.4.2.1 Preferred Alternative

Construction activities associated with the Proposed Action would result in a short-term increase in noise levels within the vicinity of construction, related to use of equipment during excavation, backfill, material transporting, etc., such as backhoes, excavators, graders, loaders, trucks, and pumps. Noise impacts would be greatest for receptors nearest the construction area, including the residential houses along Montezuma

Road close to the Northern Staging/Grading Area and Alternate Northern Staging/Stockpiling area (see **Figure 2**). The predicted noise levels (in L_{eq} for each equipment type) at the residence that is closest to these two areas are summarized in Table 7; these levels would be below the maximum permissible noise levels applicable to construction noise per the City of Colorado Springs noise ordinance.

Table 7: Construction Equipment Noise Levels at Nearest Sensitive Receptors (dBA)

Sound Source	Maximum Sound Pressure Level @ 50 feet (L_{max} in dBA)[1]	Equivalent Time Average Sound Pressure Level @ 50 feet (L_{eq} in dBA)	Equivalent Time Average Sound Pressure Level Closest Residence To Northern Staging/Grading Area @ 100 feet (L_{eq} in dBA)	Equivalent Time Average Sound Pressure Leve Closest Residence To Alternate Northern Staging/Stockpiling Area @ 200 feet (L_{eq} in dBA)
Backhoe	80	76	70	64
Excavator	85	81	75	69
Grader	85	81	75	69
Loader	80	76	70	64
Pump	77	74	68	62
Truck	84	80	74	68

Source: (Federal Highway Administration, 2006)

The overall construction activities would last less than two years and would be even shorter in duration within a specific work area as the project progresses. Moreover, the majority of these construction activities would occur relatively far from the residences with the exception of grading areas considered above. Although short-term adverse noise impacts are anticipated during construction, mufflers would be used on construction equipment and vehicles to minimize noise impacts during construction activities. Therefore, the construction activities under the Preferred Alternative would result in *short-term, less-than-significant adverse noise impacts* to the overall noise environment.

3.4.2.2 No Action Alternative

Under the No Action Alternative, the proposed repair of the Kettle Creek Dry Dam would not occur, and there would be *no impact* to the noise environment.

3.5 EARTH RESOURCES

Earth resources include geology, topography, and soils. Geological resources consist of surface and subsurface materials and their properties. Principal geologic factors influencing the ability to support structural development are seismic properties (i.e., potential for subsurface shifting, faulting, or crustal disturbance), soil stability, and topography. Radon is not discussed in this EA as the Proposed Action does not include any below-grade inhabitable structures.

The Farmland Protection Policy Act (FPPA) (7 USC 4201 et seq.) of 1981 states that federal agencies must "minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses." The resources protected by the FPPA include prime and unique farmland, which are categorized by the Natural Resources Conservation Service (NRCS) based on underlying soil characteristics.

Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Under natural conditions, these soils are able to support growth and reproduction of hydrophytic vegetation. Presence of hydric soils is one of the criteria used to identify and delineate wetlands (see **Section 3.6**).

The ROI for earth resources is the Project Site as shown on **Figure 2**.

3.5.1 Affected Environment

Geology: The bedrock underlying the Project Site is comprised mainly of slightly moist to moist, hard to very hard claystone, sandy claystone, and silty to clayey sandstone of the Upper Cretaceous and Paleocene Dawson Formation (USAFA, 2021). The upper 5 to 10 feet of bedrock is typically weathered and changes to sounder material with increasing depth. On the Project Site, depth to bedrock ranges widely, from roughly 6 to 78 feet below grade (USAFA, 2021). The U.S. Geological Survey (USGS) 2018 Seismic Hazard Map shows the site is at moderate risk of seismic hazard (i.e., hazard level 3 out of 7) (USGS, 2018).

Topography: The Project Site is located in the Piedmont province, which is characterized by a series of west-to-east trending ridges interspersed by valleys and rolling land to the east. Elevations within the Project Site range from approximately 6,620 feet along the height of the Kettle Creek ravine, to approximately 6,550 feet along Kettle Creek. West of I-25, elevations slope steeply away from I-25, to approximately 6,510 ft within the outlet conduit LOD (see **Figure 5)**.

Soils: Soils within the Kettle Creek watershed are generally described as deep, well-drained soils formed in sandy parent material weathered from sedimentary rock. Surface horizons of these soils have sandy loam or loamy sand texture (USAFA, 2021). Four soil map units are identified on the Project Site (see **Figure 6** and **Table 8**). No on-site soils are designated as prime farmland or hydric by the NRCS.

Table 8: Select Soil Characteristics for Kettle Creek

Map Unit Name	Acres	Prime / Unique Farmland	Farmland of Statewide Importance	Hydric	Landform / Description
Blakeland loamy sand, 1 to 9 percent slopes	0.4	No	No	No	Hills, flats; somewhat excessively drained soils, depth to water table is more than 80 inches. Depth to restrictive feature is more than 80 inches.
Columbine gravelly sandy loam, 0 to 3 percent slopes	29.1	No	No	No	Flood plains, fan terraces, fans; well drained soils; depth to water table is more than 80 inches. Depth to restrictive feature is more than 80 inches.
Kettle gravelly loamy sand, 8 to 40 percent slopes	3.3	No	No	No	Hills; somewhat excessively drained soils; depth to water table is more than 80 inches. Depth to restrictive feature is more than 80 inches.
Stapleton-Bernal sandy loams, 3 to 20 percent slopes	18.0	No	No	No	Hills; well drained soils; depth to water table is more than 80 inches. Depth to restrictive feature is more than 80 inches.

Source: (NRCS, 2022)

Figure 5: Topography at the Project Site

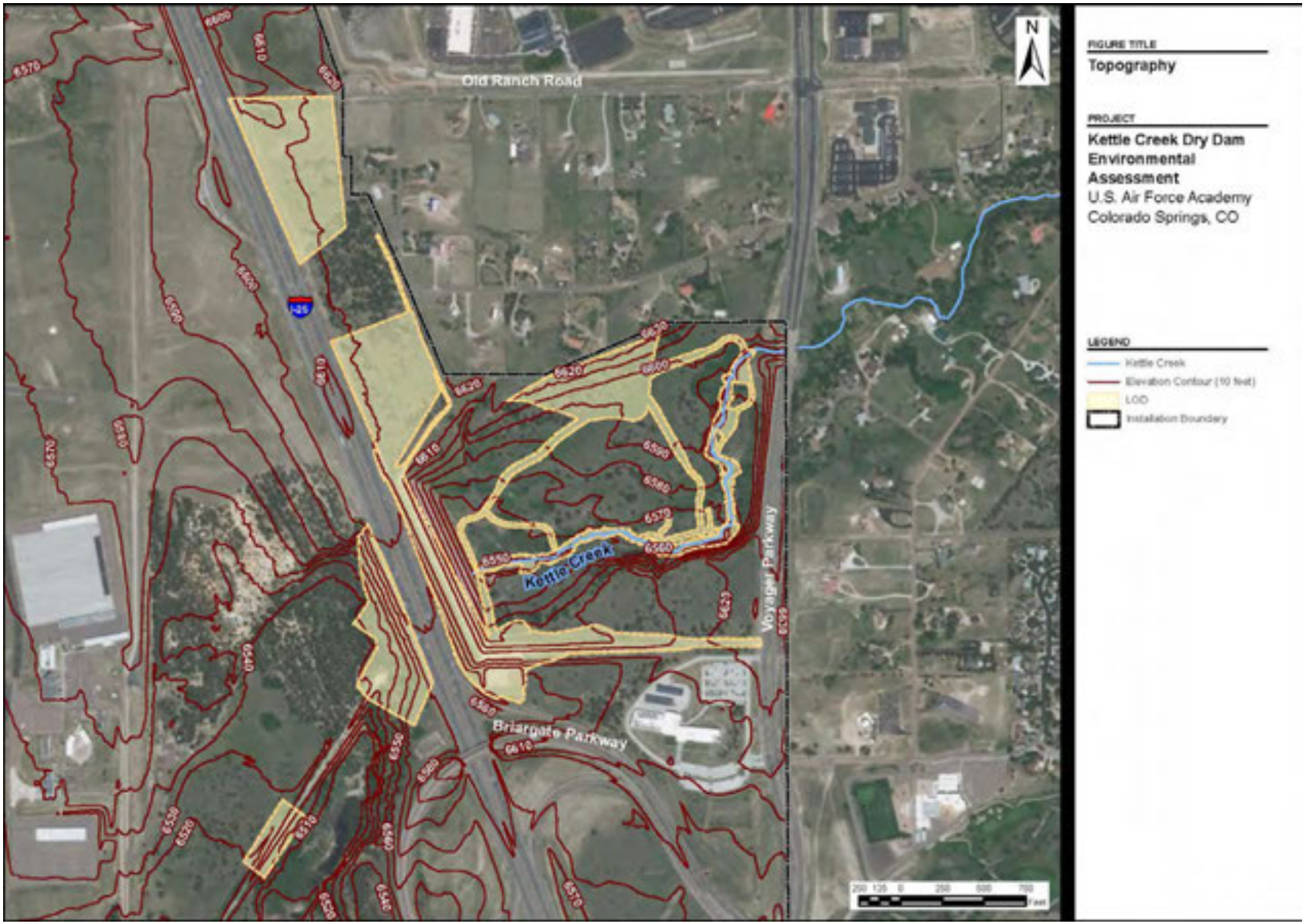
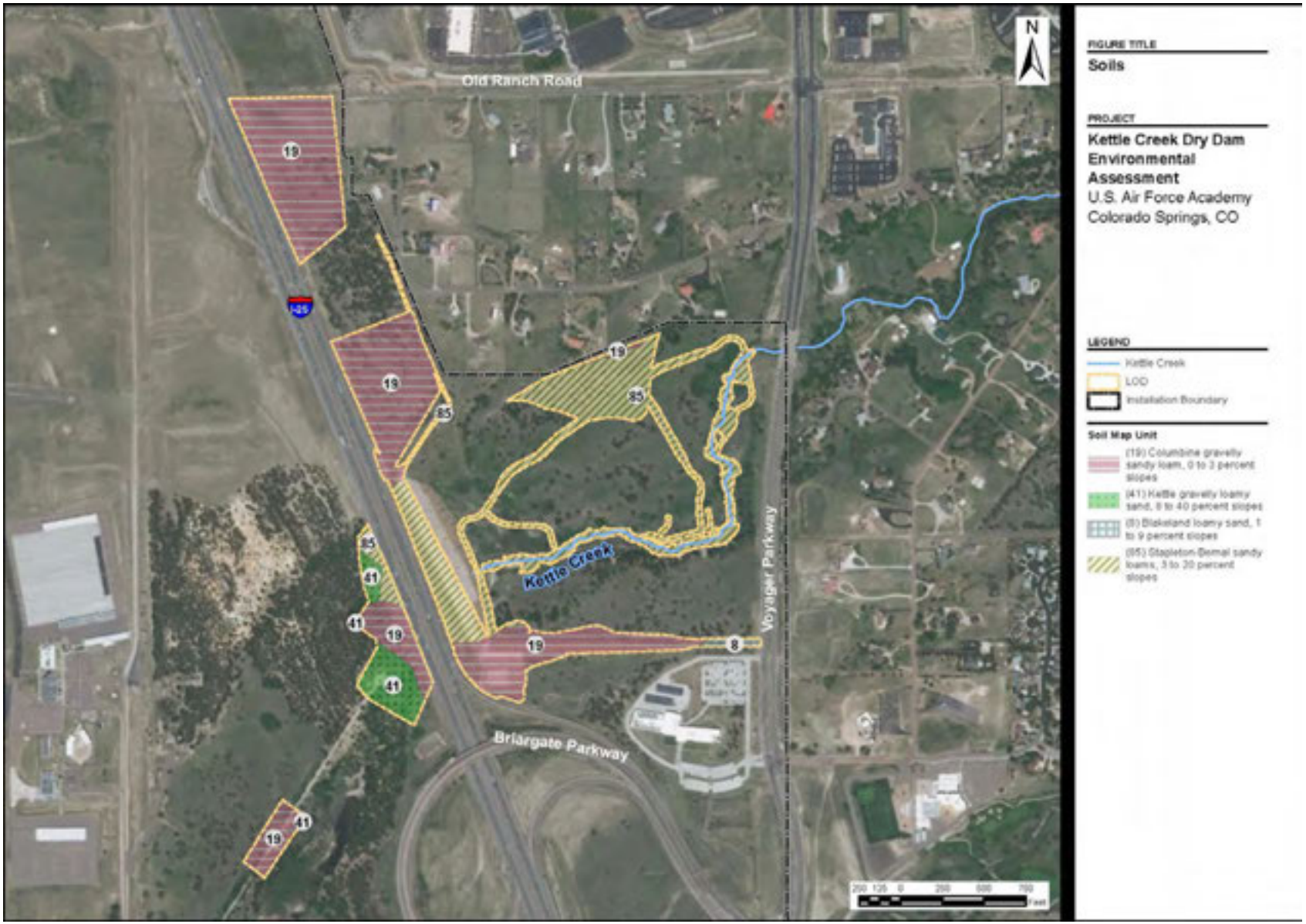


Figure 6: Soils at the Project Site



3.5.2 Environmental Consequences

An earth resources impact would be significant if it would 1) expose people or structures to major geological hazards; 2) substantially increase potential occurrences of erosion or sedimentation; or 3) violate the FPPA.

3.5.2.1 Preferred Alternative

During construction, excavation would be required to 34 feet below current grade to facilitate the dam modifications. Based on soil borings conducted at the site, soils and weathered bedrock would generally be excavated using conventional excavation equipment. Bedrock is expected to be encountered when installing the sheet piling for the grade control structures associated with the upstream channel reach improvements. To account for this, the sheet piling would either be impact- or vibratory-driven into predrilled holes that loosen, but do not remove, the bedrock to the depth required (USAFA, 2021). As such, minor localized impacts to geologic conditions would be expected. While these impacts would permanently alter the geology at the Project Site, impacts would affect only a small area within the ROI. No excavation would be required to facilitate the Kettle Lakes diversion structure improvements (USAFA, 2021). Further, no geologic hazards are apparent on the Project Site and seismic events are not expected to interfere with construction. Therefore, geologic impacts under the Preferred Alternative would be *long-term* and *less-than-significant.*

As described in **Section 2.3.1.1**, grading would be necessary to accommodate the Preferred Alternative. Notably, grading along the dam embankment would reduce the embankment from approximately 30 feet above I-25 to less than 2 feet above I-25, although the dam is not a natural feature in the topographic setting. Excavated materials from the dam embankment would be stockpiled and brought to final grade in the grading areas identified on **Figure 2**. Minor grading would also occur to the west of I-25 to repair areas where erosion has occurred, which would not impact topography. In addition, upstream channel reach improvements would include bank grading and select wetland plantings to raise the elevation of the channel (USAFA, 2021). Changes in topography due to grading activities and upstream channel improvements would slightly but permanently alter the topography of the Project Site. However, the layout of the site has been designed to minimize these changes to the extent practicable. Further, all graded slopes would be designed and constructed in a manner that would minimize potential future erosion, including through revegetation. The grading areas identified on **Figure 2** are entirely outside the 100-year floodplain. Any changes to surface drainage would not be substantial and would be minimized to the extent practical; as noted in **Section 3.6**, the Preferred Alternative would maintain/restore pre-development hydrology in compliance with Section 438 of the Energy Independence and Security Act (EISA). Therefore, *long-term, less-than-significant adverse impacts* to topography would result from construction of the Preferred Alternative.

Construction of the Preferred Alternative would remove vegetative cover, disturb the soil surface, and compact the soil throughout the LOD, impacting between 28.1 and 50.7 acres depending on if the alternate staging/stockpiling areas are utilized. The soil would then be susceptible to erosion by wind and surface runoff. Soil placed and graded in the North and South Staging/Grading areas as well as the alternate staging/stockpiling areas, should they be utilized, would be compacted, graded, and revegetated in accordance with the Site Grading Plan and site-specific revegetation plan in order to minimize the potential for runoff to the extent practicable.

The Preferred Alternative would occur over approximately 18-21 months, allowing two dry seasons for construction of the upstream channel improvements. Kettle Creek would be temporarily diverted around the work area during construction of the upstream channel improvements, further minimizing the potential for sedimentation during that phase of the project. The construction contractor would be responsible for

designing and installing a system to divert stream flows; however, it is anticipated that temporary cofferdams, diversion pipes, and diversion channels would be used.

Since the Project Site would exceed 1 acre of land disturbance, a NPDES Construction General Permit (CGP) would be obtained for the project pursuant to the Clean Water Act (33 USC 1251 et seq; CWA) of 1972. Coverage under the CGP would require development of a Stormwater Pollution Prevention Plan (SWPPP), which would identify potential sources of pollutants, describe all pollution prevention activities that would be implemented on the site, and establish erosion and sediment controls to manage stormwater discharges and minimize sedimentation to the extent practicable. Construction crews would adhere to best management practices (BMPs) outlined in the SWPPP, and the erosion and sediment controls would be implemented prior to land-disturbing activities and maintained in good working order for the duration of construction.

Overall, disturbed areas would be quickly re-vegetated in accordance with the site-specific revegetation plan to minimize the potential for construction-related erosion. Therefore, construction of the Preferred Alternative would have *short-term, less-than-significant adverse impacts* to soil resources in the ROI. Construction of the Preferred Alternative includes the installation of permanent erosion control measures along Kettle Creek, including but not limited to revetment, channel armoring, and revegetation. In addition, the proposed sedimentation basin, which would be constructed upstream of the existing outlet conduit, would serve to control and reduce long-term sedimentation of Kettle Creek. Installation of these measures would decrease overall erosion and sedimentation currently occurring within and along the stream channel (see **Figure 4**), therefore resulting in *long-term beneficial impacts* to soils in the ROI. The Proposed Action would have *no effect* on FPPA-protected farmland, as none exists on the Project Site.

3.5.2.2 No Action Alternative

Under the No Action Alternative, the proposed Kettle Creek Dry Dam improvements would not be implemented and erosion would continue along the banks of Kettle Creek (see **Figure 4**). Continued erosion is not anticipated to expose people or structures to geologic hazards, nor would occurrences of erosion events be expected to increase compared to existing levels. Therefore, the No Action Alternative would have *short- and long-term, less-than-significant adverse impacts* to earth resources in the ROI.

3.6 WATER RESOURCES

Water resources analyzed in this EA include surface water (including stormwater), wetlands, floodplains, and groundwater. Surface water resources comprise lakes, rivers, and streams and are important for a variety of ecological, economic, recreational, aesthetic, and human health reasons. Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (USACE, 1987). Wetlands serve a variety of functions including flood control, groundwater recharge, maintenance of biodiversity, wildlife habitat, recreational opportunities, and maintenance of water quality. Floodplains are belts of low, level ground on one or both sides of a stream channel and are subject to either periodic or infrequent inundation by flood water. A 100-year floodplain has a 1 percent chance of inundation in any given year. Inundation dangers associated with floodplains have prompted federal, state, and local legislation that limits development in these areas largely to recreation and preservation activities. Groundwater can be defined as subsurface water resources that are interlaid in layers of rock and soil and recharged by surface water seepage. Groundwater is important for its use as a potable water source, agricultural irrigation, and industrial applications.

The ROI for surface waters, wetlands, and floodplains includes the boundaries of the site, as well as the down-gradient waterbodies receiving stormwater runoff within 0.5 mile of the site. The ROI for groundwater includes the portion of the groundwater basin that underlies the site.

3.6.1 Affected Environment

Surface Water: The Kettle Creek watershed is just over 10 miles long and drains approximately 17.4 square miles (USAFA, 2021). Kettle Creek flows southwest from the western slope of the Black Forest through unincorporated portions of El Paso County, the City of Colorado Springs, and the eastern portion of the USAFA. The Kettle Creek watershed is bounded on the north by the Black Squirrel and Elkhorn drainage basins, on the south by the Pine Creek drainage basin, on the east by the Colorado Black Forest, and on the west by Monument Creek, which receives Kettle Creek flow 1.5 miles downstream of the Project Site (USAFA, 2021; USAFA, 2017).

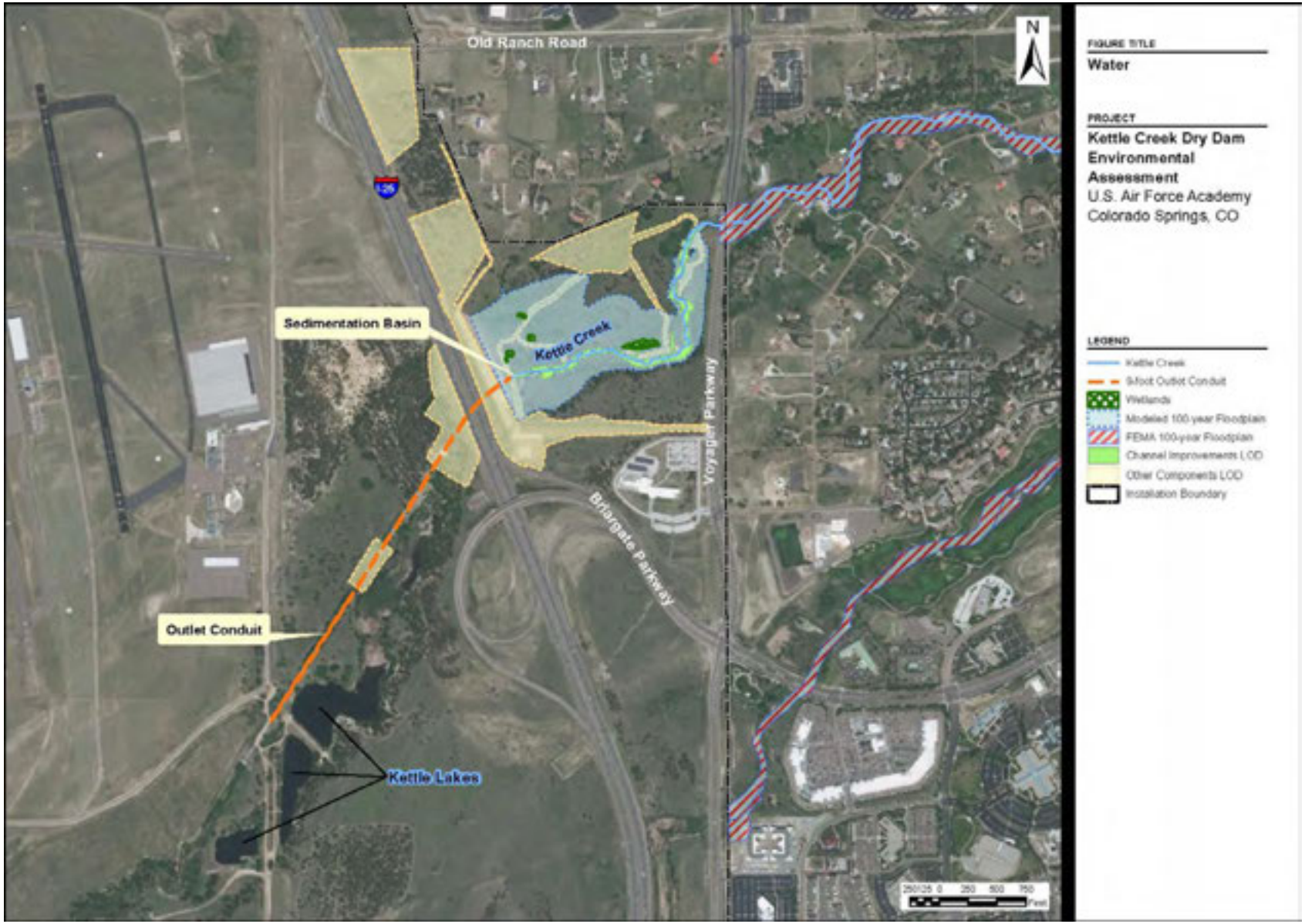
The Kettle Creek Dry Dam is used for flood/stormwater control and currently impounds water during storm events. Outside of storm events, the dam is typically dry, as are the other reservoirs in the USAFA inventory. The contributing drainage area to the dam is 16.4 square miles (USAFA, 2021). Kettle Creek is an intermittent stream that runs through the Kettle Creek Dry Dam and into an existing 9-foot diameter pressure conduit, which transfers water under I-25. At the outlet conduit, a 12-inch diameter diversion pipe directs water to three small impoundments known as the Kettle Lakes (see **Figure 7**). This diversion pipe currently collects significant amounts of sediment and debris, and constant clogging causes significant maintenance requirements. At the downstream end of pressure conduit, the stream flows through an outfall structure where energy is dissipated before flowing into the open stream channel. While the segment of Kettle Creek occurring within the Project Site is not included on the Section 303(d) list of impaired or threatened waters maintained by the Colorado Department of Public Health and Environment (CDPHE), Monument Creek, approximately 1.5 miles downstream of the Project Site, is listed as impaired for aquatic life use (macroinvertebrates and temperature), water supply use (manganese), and recreational use (*E. coli*) (CDPHE, 2020).

The Kettle Lakes have small local drainage areas and are primarily fed by Kettle Creek. These lakes have historically been used by USAFA for training exercises and recreation, and USAFA currently supports an active recreational fishing program by periodically stocking the lakes with rainbow trout and channel catfish (USAFA, 2021; USAFA, 2017). These lakes are impounded by jurisdictional dam structures that have been given a low hazard classification by DWR (USAFA, 2021).

USAFA manages stormwater through a Stormwater Management Program (SWMP). Construction activities that disturb one or more acres of land are subject to the current USEPA stormwater CGP (see **Section 3.5**). This permit requires the completion of a project-specific SWPPP, which identifies erosion control and BMPs to manage stormwater discharges (USAFA, 2022).

Wetlands: Wetlands are present on the Project Site, primarily occurring as fringe wetlands along the banks of Kettle Creek. The most recent wetland delineation of the Project Site was conducted in 2002 as part of a USAFA-wide wetland mapping project (USAFA, 2017). That study found wetlands along Kettle Creek, and several small, isolated wetlands 100 to 500 feet away from the creek that appeared to result from high groundwater (see **Figure 7**). A formal updated delineation of wetlands (and Waters of the US) following USACE methods would be required as part of the project permitting process.

Figure 7: Water Resources at the Project Site



Floodplains: The USAFA property is a military reservation wherein regulatory floodplains are not mapped by the Federal Emergency Management Agency (FEMA); however, FEMA floodplain mapping does exist along Kettle Creek upstream and downstream of the USAFA property. The USAFA conducted floodplain modeling of the existing and proposed 100-year floodplain for Kettle Creek upstream of the dry dam (see **Figure 7**). Based on this modeling, approximately 6.7 acres of 100-year floodplain occurs within the Project Site. Notably, significant channel incision resulting from urbanization in the Kettle Creek watershed has caused the Kettle Creek floodplain within the dry dam reservoir to become disconnected from the historic floodplain upstream.

Groundwater: The USAFA is underlain by the upper basin of the Arkansas Aquifer, where groundwater is primarily used for domestic and agricultural purposes (Colorado State University, 2022). The USAFA does not receive potable water from groundwater sources and the Project Site is not within a sole source aquifer. Borings conducted at the Project Site encountered groundwater at depths ranging between 12.5 and 19 feet below ground surface (bgs) along the toe of the dam and at depths ranging between 44 and 88 feet bgs along the dam's crest (USAFA, 2021). In general, groundwater elevations are slightly above or at the top of bedrock and are expected to vary seasonally based on precipitation and runoff in the creek channel.

3.6.2 Environmental Consequences

A water resources impact would be significant if it would 1) substantially reduce water availability or interfere with the water supply to existing users; 2) create or contribute to the overdraft of groundwater basins or exceed decreed annual yields of water supply sources; 3) substantially adversely affect surface or groundwater quality; 4) degrade unique hydrologic characteristics; or 5) violate established water resources laws or regulations.

3.6.2.1 Preferred Alternative

Surface Waters: Construction of the Preferred Alternative would directly disturb approximately 2,876-linear feet of Kettle Creek during upstream channel reach improvements. Excavation, soil stockpiling and grading activities to facilitate the dam modifications may temporarily increase erosion and sedimentation in the Kettle Creek (and Kettle Lakes) drainage basin. Prior to starting construction, USAFA would conduct a formal delineation of Waters of the US following USACE methods and would obtain all necessary permits. The USAFA would obtain coverage under the current USEPA stormwater CGP and develop a project-specific SWPPP, which would identify erosion controls and BMPs to manage stormwater discharges. Kettle Creek would be temporarily diverted around the work area during construction of the upstream channel improvement and this phase of the project would be conducted during the dry season, further minimizing sedimentation impacts during this phase of the project. The site would also be designed in compliance with Section 438 of the EISA to restore the pre-development hydrology of the site to the maximum extent technically feasible. Therefore, construction of the Preferred Alternative would have *short-term, less-than-significant adverse impacts* on surface water in the ROI. Impacts would be minimized to the extent practicable through adherence to USAFA's SWMP and the SWPPP.

In the long-term, implementation of the Preferred Alternative would minimize erosion in the ROI through vegetative plantings along the banks of Kettle Creek and reconnection of the stream to its historic floodplain upstream. Installation of the sedimentation basin would also substantially reduce the amount of sediment traveling downstream through the outlet conduit, including into the Kettle Lakes. In addition, the upstream channel restoration has been designed to shift the existing channel away from steep bluffs on the south side of the creek to minimize the potential for future erosion (USAFA, 2021). Therefore, there would be *long-term beneficial impacts* to surface water under the Preferred Alternative.

Construction would have *no effect* on impaired streams, as none are within the ROI. Monument Creek, approximately 0.5 mile downstream, is not listed for sediment loads and the Preferred Alternative is not anticipated to exacerbate any of the issues causing impairment to Monument Creek (macroinvertebrates, temperature, manganese, or *E. coli*).

Wetlands: The USAFA estimates that construction of the Preferred Alternative would directly impact approximately 0.06 acre of wetlands. Other wetlands near the ROI could be indirectly impacted by increased erosion and sedimentation during construction, however, these impacts would be temporary and would be minimized through adherence to USAFA's SWMP and the SWPPP. USAFA would obtain all necessary permits from USACE prior to starting construction. Therefore, the Preferred Alternative would have *short-term, less-than-significant adverse impacts* on wetlands in the ROI.

The USAF published an early public notice in the *Colorado Springs Gazette* and the *Colorado Springs Independent* to disclose that the Proposed Action would take place within a wetland and a floodplain (**Appendix D**). No comments were received. While the USAFA designed the Preferred Alternative to avoid wetland impacts to the extent feasible, because the Preferred Alternative involves channel modifications and other work in an existing dam reservoir, there is no practicable alternative to working in wetlands. The USAFA has prepared a Draft FONPA in accordance with Executive Order (EO) 11990, *Protection of Wetlands*.

As part of the Project, wetlands in the ROI would be enhanced through plantings and installation of erosion control devices. Wetland plantings would be placed at select locations throughout the Project Site. These areas would be revegetated with site-specific wetland seed mixes in accordance with the Project's revegetation plans. Furthermore, upstream channel reach improvements would prevent continued downcutting of the Kettle Creek channel, potentially reducing the future loss of wetland areas occurring along the stream. Therefore, the Preferred Alternative would have a *long-term, beneficial impact* to wetlands in the ROI.

Floodplains: Construction of the Preferred Alternative would disturb approximately 6.7 acres of 100-year floodplain within the Project Site. Actions within the floodplain (e.g., upstream channel reach improvements) would be necessary to enhance PMJM habitat as well as to prevent future erosion and reduce sedimentation downstream. Floodplain modeling completed for the Project estimates that the average rise in water surface elevation during the 100-year storm is 0.07 feet. The maximum rise of 1.5 feet occurs just downstream of Voyager Parkway due to raising the channel in this area to reconnect it to the historic channel and floodplain. While the floodplain would slightly rise within the Project Site, there are no expected floodplain impacts outside of USAFA property (i.e., upstream of the crossing with Voyager Parkway). Grading and stockpiling areas have been specifically chosen to occur outside of the 100-year floodplain. Furthermore, there would be no floodplain impacts downstream of the dry dam, as the existing outlet conduit would remain the same as existing conditions and discharge capacity of the dam would not change. Overall, the Preferred Alternative would not contribute to any measurable loss with regard to flood control capacity. Therefore, there would be *less-than-significant adverse impacts* to floodplains on USAFA property, primarily from the slight rise in water surface elevation under the Preferred Alternative. In addition, reconnecting the channel to the natural floodplain would have a *beneficial impact*. There would be *no impacts* to floodplains outside of USAFA property or downstream of the dam.

The USAF published an early public notice in the *Colorado Springs Gazette* and the *Colorado Springs Independent* to disclose that the Proposed Action would take place within a wetland and a floodplain and solicit public comments (**Appendix D**). No comments were received. While the USAFA designed the Preferred Alternative to avoid floodplain impacts to the extent feasible, because the Preferred Alternative

involves working within and adjacent to a stream channel, there is no practicable alternative to working in floodplains. The USAFA has prepared a Draft FONPA in accordance with EO 11988, *Floodplain Management*.

Groundwater: Construction of the Preferred Alternative would not be anticipated to intersect groundwater (e.g., through deep excavation), involve groundwater withdrawals, or intentionally release or inject materials into groundwater resources and aquifers. Potential impacts to groundwater may still occur, however, from the accidental spill or release of petroleum products or other liquids used during construction activities. With implementation of BMPs, such as performing routine inspections of equipment, maintaining spill-containment materials on-site, and adhering to site-specific hazardous and toxic materials and waste (HTMW) plans, the potential for impacts to groundwater would be minimized, resulting in *short-term, less-than-significant adverse impacts* to groundwater in the ROI. Once construction is complete, periodic maintenance of the dam would occur, but this would not be likely to release contaminants into the groundwater. Therefore, long-term impacts to groundwater would be *negligible*.

3.6.2.2 No Action Alternative

Under the No Action Alternative, the Kettle Creek Dry Dam and Kettle Creek channel existing conditions would continue for the foreseeable future. Downcutting of the channel and erosion and sedimentation would continue, consequently causing decreased water quality and increased sedimentation downstream, including in the Kettle Lakes. In addition, continued downcutting would degrade the existing wetlands on the Project Site and would continue to disconnect the floodplain from the historic floodplain upstream. Therefore, *long-term less-than-significant adverse impacts* to surface water, wetlands, and floodplains would result from implementation of the No Action Alternative. Implementation of the No Action Alternative would have *no impact* on groundwater.

3.7 BIOLOGICAL RESOURCES

Biological resources addressed in this EA consist of vegetation, wildlife, and special status species. Special status species relevant to this EA are those protected under the federal Endangered Species Act of 1973 (ESA), Bald and Golden Eagle Protection Act of 1940, Migratory Bird Treaty Act of 1918, or under applicable state laws or regulations.

The USAF reviewed the potential for the Proposed Action to affect federally listed threatened or endangered species. The USAF's documentation of its effect determinations for federally listed species is provided in the early scoping letter to USFWS (**Appendix A**).

The ROI for biological resources includes vegetation present within the boundary of the site, wildlife present on-site or within 0.5 mile of the site boundary, and aquatic resources present on-site or downstream of the site within 0.5 mile (in accordance with the ROI for surface waters; see **Section 3.6**).

3.7.1 Affected Environment

Vegetation: Vegetation types on USAFA can be generally divided into two zones, the Montane Zone (8,000-9,000 feet elevation) along the western edge of USAFA, and the Foothill Zone (6,000 to 8,000 feet) where the Project Site is located. The Montane Zone includes the mixed conifer forests, while the Foothill Zone includes mixed woodlands, oak shrubland, and grasslands (USAFA, 2021). The Project Site generally consists of riparian shrub, riparian woodland, upland conifer, upland grassland, and upland shrub habitats, much of which are located within the existing reservoir for the dry dam. Riparian shrub areas are characterized by moderate to dense narrowleaf willow (*Salix exigua*) and alder (*Alnus incana*) along and adjacent to Kettle Creek. Riparian woodland occurs along creek terraces and consists of low to moderately

low cover of narrowleaf cottonwood (*Populus angustifolia*) and narrowleaf willow with an understory of predominantly smooth brome (*Bromus inermis*). Upland habitats include grassland with scattered ponderosa pine (*Pinus ponderosa*) trees and conifer woodland on bluffs to the south of Kettle Creek. Upland shrub areas are densely covered and dominated by upland species such as skunkbush sumac (*Rhus aromatica*) and snowberry (*Symphoricarpos sp*.) (USAFA, 2021).

USAFA conducts population monitoring of noxious weeds every five years, with the most recent survey being completed in 2018. USAFA resource management staff, herbicide contractors, and the CNHP regularly conduct treatment activities for noxious weeds throughout the installation. Treatment methods include a combination of herbicide application and manual removal. Kettle Creek is within a Special Weed Management Area. These areas are delineated on the installation and include natural areas with high biodiversity. In these areas, manual removal is the preferred treatment for noxious weeds and any herbicide use is carefully monitored (CNHP, 2021).

Wildlife: The USAFA supports a high diversity of faunal species due to its topographic variation, presence of high-quality riparian habitat, location at the convergence of north-south and plains-mountains transition zones, and proximity to the undeveloped forested expanses of the Pike National Forest (USAFA, 2017). Critical movement corridors are preserved for mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), American elk (*Cervus elaphus*), black bear (*Ursus americanus*), and mountain lion (*Felis concolor*) (USAFA, 2017). Monument Creek and its tributaries (including Kettle Creek) are important riparian habitats for wildlife, especially white-tailed deer, PMJM, amphibians, and avian species. The highest diversity of species on USAFA occurs in these riparian and shrub communities (USAFA, 2017). Aquatic habitat on the Project Site is limited due to the intermittent nature of Kettle Creek. Downstream, both Monument Creek and the Kettle Lakes are known to support communities of fish (USAFA, 2017).

Special Status Species: The USAF queried the USFWS Information for Planning and Consultation (IPaC) database to identify federally listed species with the potential to occur on the Project Site. IPAC identified eight federally listed threatened or endangered species and one candidate species, however four listed species – piping plover (*Charadrius melodus*), whooping crane (*Grus americana*), pallid sturgeon (*Scaphirhynchus albus*), and western prairie fringed orchid (*Platanthera praeclara*) – need only be considered if the project includes water-related activities and/or use in the North Platte, South Platte, or Laramie River Basins which may affect listed species in Nebraska. The Proposed Action is located in the Arkansas River Basin, not the river basins of interest; therefore, these four listed species do not need to be considered for this Proposed Action (USFWS, 2021a). The species to be considered are briefly discussed in **Table 9**.

The CPW maintains a list of state-threatened and endangered species, as well as state species of special concern. Currently, there are 79 species on this list (CPW, 2022). In February 2022, CPW conducted a site visit at the Project Site. In a letter dated February 14, 2022, CPW stated their support for the Proposed Action and habitat improvement throughout the Kettle Creek floodplain. No concerns regarding state-listed species were identified (**Appendix A**).

Table 9: Federal-listed Species with Potential to Occur at the Project Site

Common Name	Scientific Name	Status	Discussion
Preble's Meadow Jumping Mouse (PMJM)	*Zapus hudsonius preblei*	FT	The USAFA supports a significant PMJM population and suitable habitat occurs in the Project Site. Following federal listing of this species in May 1998, the USAFA entered formal consultation with the USFWS regarding the PMJM, and developed a Conservation Agreement and Conservation Plan (USFWS, 2000b; CNHP, 1999). In April 2000, the USFWS rendered a "no jeopardy" Biological Opinion (BO) for the USAFA's proposed actions in PMJM habitat so long as they are conducted in accordance with these documents (USFWS, 2000a). The BO is renewed every 5 years.
Eastern Black Rail	*Laterallus jamaicensis ssp. jamaicensis*	FT	The eastern black rail, in the interior U.S., generally inhabits wet meadows and shallow wetlands with dense emergent vegetation; in Colorado, specifically, cattail marshes with standing water are often used (USFWS, 2019). The Project Site contains no wet meadow or shallow wetland habitat, and this species has not been documented on USAFA.
Greenback Cutthroat Trout	*Oncorhynchus clarkii stomias*	FT	Greenback cutthroat trout inhabit cold water streams and cold-water lakes with adequate stream spawning habitat present in spring (USFWS, 1998). This species is only known to exist in streams isolated from other fish where, with the exception of Bear Creek, it has been reintroduced (Fendt, 2019). The Project Site does not contain suitable habitat for this species.
Ute Ladies'-tresses	*Spiranthes diluvialis*	FT	The Ute ladies'-tresses occurs along riparian edges, gravel bars, old oxbows, high flow channels, and moist to wet meadows along perennial streams. It typically occurs in stable wetland and seepy areas associated with old landscape features within historical floodplains of major rivers. It also is found in wetland and seepy areas near freshwater lakes or springs (USFWS, 2021b). The known current range of the species is well-north of the USAFA and previous surveys for the species on USAFA property were negative.
Monarch Butterfly	*Danaus plexippus*	C	Monarchs in North America undergo long-distance migration between summer and overwintering sites (USFWS, n.d.). In Colorado's Front Range, where USAFA is located, monarchs can be seen migrating between mid-June (heading north) and September (heading south) (University of Colorado Boulder, 2021). The Project Site may provide suitable stop-over habitat for the monarch during migration.

Status = FT = Federally Threatened; FE = Federally Endangered; C = Federal Candidate

IPaC also identified one Bird of Conservation Concern (BCC)[2], the ferruginous hawk (*Buteo regalis*), as having potential to occur on the Project Site. While the ferruginous hawk has been recorded on USAFA, and suitable habitat exists within the Project Site, no ferruginous hawk nests are known to occur within the ROI. The breeding season for the ferruginous hawk spans from March 15 to August 15 (USFWS, 2021c). In addition, two migratory birds, the red-tailed hawk (*Buteo jamaicensis*) and great blue heron (*Ardea herodias*), have been historically observed nesting near Voyager Parkway just outside the LOD (USAFA, n.d.).

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) have been recorded on USAFA (USAFA, 2017). Notably, golden eagles are periodically observed in the mountainous region near the western border of USAFA. Currently, there are no known bald eagle nests on USAFA or in the vicinity of the Project Site. The nearest recorded bald eagle nesting site is approximately 17 miles southeast of the Project Site (CWP, 2018).

3.7.2 Environmental Consequences

A biological resources impact would be significant if it would 1) substantially reduce regionally or locally important habitat; 2) substantially diminish a regionally or locally important plant or animal species; or 3) adversely affect recovery of a federally or state-protected species.

3.7.2.1 Preferred Alternative

Vegetation: The USAFA assumes that all vegetation occurring within the LOD would be cleared during construction. Vegetation removal and/or replacement would be conducted in accordance with the INRMP and the site-specific revegetation plan. The USAFA estimates that 531 trees would need to be removed under the Preferred Alternative. In a letter dated February 14, 2022, CPW stated their support for the Proposed Action and habitat improvement throughout the Kettle Creek floodplain; however, they suggested that no incidental trees be cut or lost during implementation of the Preferred Alternative (**Appendix A**). The Preferred Alternative has been developed to avoid impacting trees and shrubs to the maximum extent practicable.

Once ground disturbance is complete, the entire Project Site would be revegetated following a site-specific revegetation plan designed to meet the prescribed standards USAFA has established for revegetation, erosion control, and tree care. Site-specific seeding, erosion control, and woody plant selections are specified in the project design (USAFA, 2021). Trees included in the revegetation plan include peachleaf willow (*Salix amygdaloides*) and cottonwood, while other trees such as ponderosa pine and alder (*Alnus sp.*) are expected to re-establish naturally within the Project Site over time. New plantings, along with measures to restore the Kettle Creek channel, would enhance the vegetation quality along Kettle Creek in the long term.

Native vegetation communities and wildlife habitats could be impacted by the introduction or encroachment of noxious weeds or invasive species during construction. However, contractors would minimize the introduction or spread of invasive species by adhering to the INRMP and/or local regulations, including implementation of BMPs such as cleaning all construction equipment prior to bringing it on-site. Once construction is complete, the site would be revegetated with native species according to the revegetation plan.

[2] The USFWS identifies BCCs with potential to occur on the Project Site. BCCs are defined as “migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent [the USFWS’s] highest conservation priorities” *(USFWS, 2015)*.

Overall, the Preferred Alternative would result in *short-term, less-than-significant adverse impacts* and *long-term, beneficial impacts* on vegetation in the ROI.

Wildlife: During construction, common wildlife species occurring on the Project Site would be physically displaced, and construction noise and increased human activity may also disturb wildlife species located within the ROI (0.5 mile) of the Project Site. Mobile wildlife species, such as birds and mammals, would likely relocate to areas of similar habitat near the site, although less-mobile species (e.g., some reptiles and amphibians) could be inadvertently destroyed by construction activities. Although disturbance, displacement, or inadvertent wildlife mortality from construction activities would be an adverse impact, such impacts would occur at the individual level, rather than the population or species level, and would not inhibit the continued propagation of common wildlife populations and species near the Project Site. In addition, the Preferred Alternative would not create any elements that would encourage additional bird activity near the Davis Airfield, thus avoiding any BASH concerns. Therefore, construction of the Proposed Action would result in *short-term, less-than-significant adverse impacts* to wildlife. Once construction is completed, common wildlife species would benefit from the habitat enhancements and improvements to an important habitat corridor included in the Preferred Alternative. In addition, aquatic species downstream of the Project Site would benefit from decreased sedimentation in Kettle Creek. Therefore, the Preferred Alternative would have a *long-term beneficial impact* to wildlife.

Special Status Species: USAF has determined that the Preferred Alternative would have *no effect* on the federally listed eastern black rail, greenback cutthroat trout, and Ute Ladies'-tresses as these species are not expected to occur within the ROI. Effects of the Preferred Alternative on the PMJM would be covered under the USFWS's 2000 BO, which USAFA renews every 5 years. The USAFA would continue to adhere to the terms and conditions of the PMJM Conservation Agreement and Conservation Plan throughout implementation of the Preferred Alternative. The construction LOD (including construction haul routes) were designed to minimize impacts to PMJM habitat to the greatest extent practicable. As such, the Preferred Alternative would be covered under the existing BO. Further, the Proposed Action is intended to improve PMJM habitat along Kettle Creek, such as by restoring connectivity of Kettle Creek to its riparian and wetland areas. Following construction, detailed and site-specific revegetation plans would reproduce PMJM habitat within the construction LOD. The USAFA coordinated closely with the USFWS throughout the design process for the Preferred Alternative to maximize the long-term beneficial effects on the PMJM.

The USAFA provided its effect determinations for federally listed species to USFWS in an early scoping letter dated 16 December 2021 (**Appendix A**). No response was received from USFWS.

Potential adverse impacts to the monarch butterfly may result if ground-disturbing activities occurred during the migration period (generally between mid-June and September). However, the likelihood of mortality is low, as migrating adult monarchs would be expected to avoid the Project Site during construction. Should migrating monarch butterflies stop-over on the Project Site in notable numbers during construction, construction activities would be paused until the USAFA Natural Resources Manager evaluates the situation and identifies an appropriate path forward. Therefore, the Preferred Action could have a *short-term negligible adverse impact* to the monarch butterfly. Once construction is completed, the monarch butterfly would benefit from the habitat enhancements included in the Preferred Alternative, thus resulting in a *long-term beneficial impact*.

Potential adverse impacts to state-protected species, if present, would be similar to those described for vegetation and wildlife: habitat loss, displacement, disturbance, and/or mortality. Overall, these impacts would be temporary and would cease once construction is complete. Following construction, these species would benefit from habitat improvements associated with the Preferred Alternative, including erosion control, plantings, and restoring riparian habitat connectivity along Kettle Creek. Therefore, there would be

short-term, less-than-significant adverse impacts and *long-term beneficial impacts* to state-protected species.

Potential impacts to migratory birds could include disturbance to breeding individuals, particularly if construction occurred during the nesting season and nests are located within or adjacent to the construction site. While most birds would likely avoid the Project Site and/or relocate to nearby habitats in the area, USAFA would survey the ROI prior to construction for nesting or breeding birds. Depending on the bird species and location of the nesting/breeding activity, a construction buffer around the nest site may be implemented. Monitoring of any nesting/breeding activity would also be conducted to determine if a construction delay or other restrictions are warranted. With these impact minimization measures, construction would have a *short-term, negligible adverse impact* on migratory birds, including BCCs. Once construction is complete, migratory birds would experience *long-term beneficial impacts* similar to those described above for general wildlife species.

The Project Site contains potential habitat for the bald eagle and the golden eagle; however, golden eagle sightings on USAFA historically occur along the western border of the installation approximately 5 miles from the Project Site. It is currently unknown if any eagle nests occur near the ROI. Should eagle nests be identified in the ROI, USAFA would comply with the CPW's Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors, which would include restricting human encroachment activities (i.e., construction) within 0.5 mile of an active nest between December 1 and July 31 for the bald eagle and between December 15 and July 15 for the golden eagle (USFWS, 2020). With adherence to these guidelines, there would be *short-term, less-than-significant adverse impacts* to eagles, if present, under the Preferred Alternative. In the long-term, bald and golden eagles, if present, would experience *beneficial impacts* associated with habitat enhancements included in the Preferred Alternative that would benefit eagle prey species.

3.7.2.2 No Action Alternative

Under the No Action Alternative, Kettle Creek Dry Dam repairs would not be implemented, and there would be *no impact* to biological resources in the ROI, with the exception of the PMJM. Under the No Action Alternative, the section of Kettle Creek occurring within the dry dam would continue to degrade, resulting in a reduction in habitat quality for PMJM populations currently occupying this area. This would conflict with the PMJM conservation plan and conservation agreement, which direct the USAFA to maximize extent, quality, and connectivity of PMJM habitat within USAFA boundaries by maintaining current habitat and enhancing/restoring degraded habitat. In addition, the beneficial impacts to biological resources resulting from habitat enhancements under the Preferred Alternative would not be realized. Therefore, the No Action Alternative would have *long-term, less-than-significant adverse impacts* to the PMJM.

3.8 CULTURAL RESOURCES

Cultural resources are historic properties as defined by the NHPA; cultural items as defined by the Native American Graves Protection and Repatriation Act (NAGPRA); archaeological resources as defined by the Archaeological Resources Protection Act; sacred sites as defined by Executive Order (EO) 13007, *Indian Sacred Sites*, to which access is afforded under the American Indian Religious Freedom Act; and collections and associated records as defined by 36 CFR 79.

Historic properties covered by the NHPA include any prehistoric or historic district, site, building, structure, or object with known or potential significance with regard to pre- or post-American history, architecture, archaeology, engineering, or culture. Section 106 of the NHPA requires federal agencies to consider the effect an undertaking may have on historic properties. The Preferred Alternative is considered an

undertaking and is required to comply with Section 106, including consultation with the Colorado SHPO. All Section 106 correspondence with the SHPO for the Preferred Alternative is provided in **Appendix B**.

Consistent with Section 106 of the NHPA, DoD Instruction 4710.02, AFI 90-2002, and AFMAN 32-7003, the USAF is also consulting with 34 federally recognized tribes that are historically affiliated with the USAFA regarding the potential for the Preferred Alternative to affect properties of cultural, historical, or religious significance to the tribes. The USAF initiated consultation with each tribe via letter in January 2022; a record of this consultation, including subsequent attempts to contact the tribes, is provided in **Appendix C**. To date, tribes have identified no properties of cultural, historical, or religious significance on the Project Site.

The ROI for cultural resources is the area of potential effects (APE) as defined by the NHPA. The APE for the undertaking (36 CFR) 800.16(d)) consists of the LOD for construction activities and a 0.25-mile (1,320-foot) radius around the boundary of the LOD to account for visual impacts; this buffer generally encompasses the visual resources ROI (see **Section 3.2**). The LOD covers approximately 50.7 acres for a variety of ground-disturbing activities including work on staging and grading areas, dam modifications, the sedimentation basin, erosion gully repair, upstream channel improvements, and the outlet conduit/diversion structure.

3.8.1 Affected Environment

In 2018, USAFA commissioned a cultural resources inventory of approximately 337 acres around the Kettle Creek Dry Dam (Bender, Postiglione, & Roberts, 2018). This inventory built upon and enhanced over 30 previous cultural resources surveys conducted on USAFA property. This investigation identified eight cultural resources within the ROI; USAFA, through Section 106 consultation with the SHPO and other stakeholders, has determined that all eight are not eligible for listing in the National Register of Historic Places (NRHP), and do not support the NRHP eligibility of the USAFA historic district. Resources that fall within the APE are listed in **Table 10**.

Table 10: Cultural Resources Occurring in the ROI

Resource	Site Type and Age	NRHP Determination
5EP.1605	Historic, Telephone Substation	Not Eligible
5EP.1608	Historic, Debris Scatter/Trash Dump	Not Eligible
5EP.2484	Prehistoric, Isolated Find, Debitage	Not Eligible
5EP.6977	Historic, Sign	Not Eligible
5EP.7716	Historic, Buried Culvert with Road Atop	Not Eligible
5EP.8080	Historic, Structure	Not Eligible
5EP.8082	Historic, Structure	Not Eligible
5EP.8083	Historic, Debris Scatter/Trash Dump	Not Eligible

Source: (Bender, Postiglione, & Roberts, 2018)

3.8.2 Environmental Consequences

A cultural resources impact would be significant if it would constitute an unresolved adverse effect as defined in Section 106 of the NHPA (36 CFR 800.5): alteration, directly or indirectly, of any of the characteristics of a historic property that qualify it for inclusion in the NRHP in a manner that would diminish the integrity of its location, design, setting, materials, workmanship, feeling, or association.

3.8.2.1 Preferred Alternative

The Preferred Alternative would have *no adverse effect* on historic properties, as no known historic properties occur within the ROI. Additionally, the Preferred Alternative would have *no effect* on any identified tribally significant resources on USAFA (Kelly, O'Meara, & Koestner, 2017). No indirect project effects, such as those to viewsheds, viewpoints, viewshed corridors, or physically adjacent resources, are anticipated.

During consultation for this Proposed Action, SHPO brought up the concern that two of the resources, 5EP.7716 and 5EP.8080 should be considered part of the USAFA erosion control landscape, 5EP.7715. The status of the resources as contributing or non-contributing to 5EP.7715 was discussed but not formally determined. In the Section 106 package it is clear that 5EP.8080 will be rehabilitated to be lower and regraded, while there should be no impacts from the Preferred Alternative to 5EP.7716. As such, the originally proposed NRHP determination of no historic properties affected was questioned and it was suggested that no adverse effects to historic properties would be more accurate. A second letter of effects was sent to SHPO, who concurred on the determination that the project would have no adverse effects to historic properties (see **Appendix B**).

Should unanticipated cultural resources be encountered, USAFA would follow the Standard Operating Procedures (SOPs) for Discoveries of Archaeological Resources and NAGPRA Cultural Items as published in the 2019 Integrated Cultural Resources Management Plan. All work would stop and the Cultural Resources Manager would be contacted to begin compliance with the SOP.

3.8.2.2 No Action Alternative

Under the No Action Alternative, the proposed repair of the Kettle Creek Dry Dam would not occur, and there would be *no impact* on cultural resources.

3.9 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Socioeconomics refer to the attributes of the human environment, and include demographic and economic characteristics such as age, race, income, and employment. Additionally, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* directs federal agencies to consider the potential adverse impacts of their activities on children. Environmental Justice (EJ) is the consideration of low-income and minority populations. EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* directs federal agencies to consider the potential adverse impacts of their activities on EJ communities, and requires that impacts that may disproportionately affect these communities be addressed. The CEQ has established criteria for identifying EJ communities of concern with respect to race and income: minority populations exist where the percentage of minorities exceeds 50 percent or is meaningfully greater than in the general population of the larger surrounding area, and low-income populations exist where there is a substantial discrepancy between a community and surrounding communities with regard to income and poverty status (CEQ, 1997). Information used to aid in the identification of EJ communities can be obtained from the US Census Bureau or via the USEPA's Environmental Justice Screening and Mapping Tool.

The ROI for socioeconomics and EJ includes census tracts 7201 and 3802 from the 2019 American Community Survey. All components of the Preferred Alternative are located within tract 3802; however, the nearest residences to the Preferred Alternative are in tract 7201. Adjacent communities would be most likely to experience impacts from the Preferred Alternative, both with regard to changes in socioeconomic characteristics and potential disproportionate impacts.

3.9.1 Affected Environment

Socioeconomic and EJ data for the ROI, El Paso County, and the state of Colorado are presented in **Table 11**.

Table 11: Socioeconomic and EJ Data

Demographic Indicators	ROI	El Paso County	State of Colorado
Socioeconomic Indicators			
Total Population	19,600	698,974	5,610,349
Population Change (2010-2019; %)	77.5	12.3	11.6
Median Household Income	$123,978	$68,779	$72,331
Unemployment Rate (%)	6.1	5.8	4.3
Population Under 18 Years (%)	21.1	24.3	22.5
EJ Indicators			
Population Below Poverty Level (%)	8.8	9.9	10.2
Minority Population (%)	13	20.5	16

Sources: (U.S. Census Bureau, 2019; U.S. Census Bureau, 2010)

The state of Colorado had a population increase of 11.6 percent from 2010 to 2019, almost double the 6.1 percent increase in the US population over the same period (U.S. Census Bureau, 2010). El Paso County grew at approximately the same rate as Colorado from 2010 to 2019. The ROI experienced significantly higher population growth during that same period, due in part to residential communities being constructed in the area. The ROI has a similar unemployment rate and poverty rate to both El Paso County and Colorado. Median household income in the ROI is approximately $55,000 higher than in El Paso County. In 2019 the top five industries in El Paso County were: (1) educational, health, and social services (23.1 percent); (2) professional, scientific, management, administrative, and waste management services (14 percent); (3) retail (11 percent); (4) arts, entertainment, and recreation, and accommodation and food services (10.4 percent); and (5) construction (7.3 percent).

No individuals, including children, currently live on or occupy the Project Site. Approximately 30 single-family homes are located within a half mile of the Project Site; however, given the low housing density and adjacent roadways, properties immediately adjacent to the Project Site are limited. Three educational/childcare facilities are located within 1 mile of the Project Site: The Classical Academy (0.3 mile), Preschool Partners (0.3 mile), and Primrose School of Briargate (1 mile). All are located east of Voyager Parkway, while the Project Site is west of Voyager Parkway. Thus, the occurrence of children in the vicinity would not be a frequent or regular presence. The percentage of the population under age 18 is generally similar between the ROI, county, and state.

As the Proposed Action would not result in any change to personnel at USAFA, there would be no potential for it to affect local housing conditions. Additionally, there are no retail shops or services or public recreational sites in the immediate vicinity of the Project Site. Therefore, these socioeconomic components are dismissed from analysis.

The poverty level in the ROI (8.8 percent) is slightly lower than the county (9.9 percent) and state (10.2 percent) and the minority population is both lower than 50 percent and lower than the county and state. Therefore, the ROI is not considered an EJ community of concern. The USAF confirmed these results using the USEPA's Environmental Justice Screening and Mapping Tool (USEPA, 2022).

3.9.2 Environmental Consequences

A socioeconomic impact would be significant if it would 1) substantially alter the location and distribution of the local population or 2) change current economic conditions in the ROI in a way that would be notable and harmful for surrounding communities and residents.

As no EJ communities of concern with respect to race or income are present surrounding the Kettle Creek Dry Dam, there is no potential for the Preferred Alternative to disproportionately impact EJ communities. Therefore, this resource is dismissed from further analysis.

The total population under 18 years of age does not exceed 25 percent of the overall population in the ROI and is similar to the proportion in El Paso County. While children are present at schools, daycares, and similar facilities near the ROI, they would not be permitted near an active construction site, and the site would be secured to prevent unauthorized or accidental access. With site monitoring and access controls in place, and standard air quality controls in place, the Preferred Alternative would not have the potential to disproportionately impact off-site children. Therefore, protection of children does not warrant special consideration under EO 13045 for this Preferred Alternative, and this resource is dismissed from further analysis.

3.9.2.1 Preferred Alternative

Implementation of the Preferred Alternative would not displace nearby residents or adversely affect economic conditions in the ROI. Proposed construction activities would likely be completed by local contractors, increasing employment opportunities, personal incomes, and materials purchases within the community. If non-local contractors support construction, direct economic benefits associated with expenditures on lodging, food, and retail would accrue to the local community. Tax revenues associated with direct and indirect construction expenditures would also benefit economic conditions. Therefore, the Preferred Alternative would be anticipated to have a *short-term, beneficial impact* on the surrounding communities during construction.

Once construction is complete, the Project Site would be maintained by USAFA staff; there would be *no long-term or ongoing impacts* to socioeconomic conditions in the ROI.

3.9.2.2 No Action Alternative

The No Action Alternative would have *no impact* on socioeconomic conditions in the ROI.

3.10 TRANSPORTATION

This section describes the existing vehicular transportation network surrounding the Project Site. Mass transit, bicycle, and pedestrian infrastructure are not addressed as the Preferred Alternative would not meaningfully impact them.

The ROI for transportation consists of the section of I-25 bordering the Project Site and the roadways providing access to the Project Site.

3.10.1 Affected Environment

Kettle Creek Dry Dam is located near the eastern boundary of the USAFA, immediately northeast of the intersection of I-25 and Briargate Parkway. The Project Site is bisected by I-25, and Voyager Parkway bounds the Project Site on the east side, while Montezuma Road is located just north of the site. Montezuma Road loops south off Old Ranch Road, a secondary road that intersects Voyager Parkway northeast of the Project Site (see **Figure 1**). The construction site east of I-25 would be accessed from Voyager Parkway with secondary access from Old Ranch Road. For construction west of I-25, the Project Site would be accessed from Airfield Drive via the USAFA South Gate. The Project Site would not be accessed directly from the CDOT easement along I-25 or the Briargate Parkway interchange ramps. Additionally, CDOT maintains a permanent water detention basin just north of the on-ramp from Briargate Parkway to southbound I-25, which is located outside but adjacent to the West Staging Area LOD.

3.10.2 Environmental Consequences

A transportation impact would be significant if the associated increase in construction- or operation-related traffic would exceed the existing capacity of vehicular transportation networks or contribute to a noticeable degradation of existing traffic conditions.

3.10.2.1 Preferred Alternative

Construction of the Preferred Alternative would result in temporary increases in construction-related traffic at the site that would include workers' personal commuting vehicles and heavy construction vehicles. To manage construction-related traffic, the contractor would implement and adhere to a project-specific transportation management plan for each phase of the Preferred Alternative. The contractor would be required to apply for and obtain a Special Use Permit from CDOT for work occurring within the I-25 CDOT easement. Contractors would also adhere to a Traffic Control Plan for work within the easement. Lane closures on I-25 are not anticipated; however, should road closures be determined necessary during construction, the construction contractor would coordinate with the CDOT Traffic Engineering Program and follow the traffic control standards listed in the CDOT Miscellaneous and Signage Standard Plan, Plan No. S-630-1, Traffic Controls for Highway Construction. This would include the required Manual on Uniform Traffic Control Device-compliant signing with the proper spacing, temporary concrete barriers along the roadway, and any channelizing devices required per the standard plans. Throughout construction, traffic control would be coordinated such that delays for travelers though the construction zone would be minimized (USAFA, 2021). Shoulder closures are permitted to accommodate traffic control devices and temporary barriers to protect the work zone (USAFA, 2021). A temporary concrete barrier is proposed along the northbound Briargate entrance ramp to protect the work zone from traffic and protect the roadway from construction operations. Temporary drum devices would also be installed along southbound I-25 to facilitate repairs to the erosion gullies. USAFA would ensure that construction does not affect the CDOT water detention basin located near the proposed West Staging Area.

Overall, increases in traffic near the Project Site would be temporary, within the capacity of the existing vehicular transportation network, and would not contribute to a noticeable degradation of traffic conditions. Therefore, construction would have *short-term, negligible impacts* on transportation. Once construction is complete, the Project Site would require minimal maintenance; there would be *no long-term or ongoing impacts* to the vehicular transportation network surrounding the site.

3.10.2.2 No Action Alternative

The No Action Alternative would have *no impact* on the vehicular transportation network on and near the site.

3.11 HAZARDOUS AND TOXIC MATERIALS AND WASTE

This section describes the use and presence of hazardous materials and the generation of hazardous waste at the Project Site. The ROI for HTMW is the Project Site.

HTMW are generally defined as materials or substances that pose a risk (through either physical or chemical reactions) to human health or the environment. Regulated hazardous substances are identified through a number of federal laws and regulations. The most comprehensive list is contained in 40 CFR Part 302, and identifies quantities of these substances that, when released to the environment, require notification to a federal government agency. Hazardous wastes, defined in 40 CFR 261.3, are considered hazardous substances. Generally, hazardous wastes are discarded materials (solids or liquids) not otherwise excluded by 40 CFR 261.4 that exhibit a hazardous characteristic (i.e., ignitable, corrosive, reactive, or toxic), or are specifically identified within 40 CFR Part 261. Petroleum products are specifically exempted from 40 CFR Part 302, but some are also generally considered hazardous substances due to their physical characteristics (especially fuel products), and their ability to impair natural resources.

The DoD Environmental Restoration Program (ERP) was established to provide for the cleanup of environmental contamination at DoD installations. Eligible ERP sites include those contaminated by past defense activities that require cleanup under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and certain corrective actions required by the Resource Conservation and Recovery Act. Non-ERP sites are remediated under the Compliance-Related Cleanup Program.

3.11.1 Affected Environment

Hazardous materials at USAFA are used, handled, stored, and managed in accordance with AFMAN 32-7002, *Environmental Compliance and Pollution Prevention, Hazardous Material Management, Chapters 3 and 5*. USAFA maintains a Hazardous Waste Management Plan (HWMP), which contains procedures for managing hazardous wastes in accordance with applicable DoD, federal, and state regulations and requirements (USAF, 2020b). USAFA also maintains a Spill Prevention, Control and Countermeasure Plan (SPCCP), which is implemented in conjunction with the HWMP to address incident response and emergency responsibilities resulting from spills or discharges of HTMW (USAFA, 2020).

There is no history of HTMW use, storage, generation, or disposal at the Project Site. There is also no record of contamination on-site, although initial construction and periodic maintenance activities of the dam creates the potential for the presence of leaked fuels or oil from vehicles or machinery; however, these instances would likely be minimal and discountable, and addressed via the SPCCP.

The USAFA has two ERP sites, known as Site 6 and Site 7, both of which were historically operated as municipal landfill sites. Site 6 is located north of the Davis airfield, approximately 1.0 mile from the Project Site. Site 7 is located to the south of the Davis airfield, approximately 0.2 mile southwest of the outlet

conduit. USAFA has conducted closure and long-term monitoring of these sites under CERCLA and with oversight from the CDPHE and the USEPA.

3.11.2 Environmental Consequences

An HTMW impact would be significant if it would 1) interrupt, delay, or impede ongoing cleanup efforts; or 2) create new or substantial human or environmental health risks (e.g., soil or groundwater contamination).

3.11.2.1 Preferred Alternative

The Preferred Alternative is not anticipated to generate any hazardous waste (USAFA, 2021). Operation of construction equipment and vehicles would create the potential for discharge, spills, and contamination of commonly used products, such as diesel fuel, gasoline, oil, antifreeze, and lubricants, at the Project Site. Even without major release events, multiple minor releases could have potential effects to the environment within the ROI. However, all hazardous materials or waste discovered, generated, or used during construction would be handled, containerized, and disposed of in accordance with the SPCCP and applicable local, state, and federal regulations. The Preferred Alternative would have no potential to interfere with the two ERP sites. Thus, construction of the Preferred Alternative would have the potential for *short-term, less-than-significant adverse impacts* from releases of HTMW.

Following construction, periodic maintenance of the dam (e.g., vegetation maintenance, debris removal) may require the use of vehicles and light equipment. While use of this equipment would create the potential for discharge, spills, and contamination of commonly used HTMW, maintenance would only occur periodically, and any potential releases of HTMW would be handled, containerized and disposed of in accordance with the SPCCP and applicable local, state, and federal regulations. Any long-term adverse impacts to HTMW would be *negligible*.

3.11.2.2 No Action Alternative

No hazardous wastes or toxic materials would be generated or potentially released with implementation of the No Action Alternative. Therefore, *no impacts* related to HTMW would occur.

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4.0 REASONABLY FORESEEABLE ACTIONS WITH CLOSE CAUSAL RELATIONSHIPS AND ENVIRONMENTAL TRENDS

4.1 INTRODUCTION

The USAF identified and reviewed reasonably foreseeable actions planned to occur in the near-term future within the Preferred Alternative's ROI, including the USAFA and surrounding Colorado Springs area (see **Table 12** and **Figure 8**). The USAF analyzed the potential causal relationships of the Preferred Alternative with these other reasonably foreseeable actions and existing environmental trends in the ROI. Baseline conditions in the ROI generally include trending development, with a focus on additional housing and expansion or upgrades of outdated facilities and infrastructure. Environmental trends indicate improved infrastructure from drainage and transportation updates, temporary and permanent employment opportunities from construction projects and commercial developments, and improved residential and commercial services.

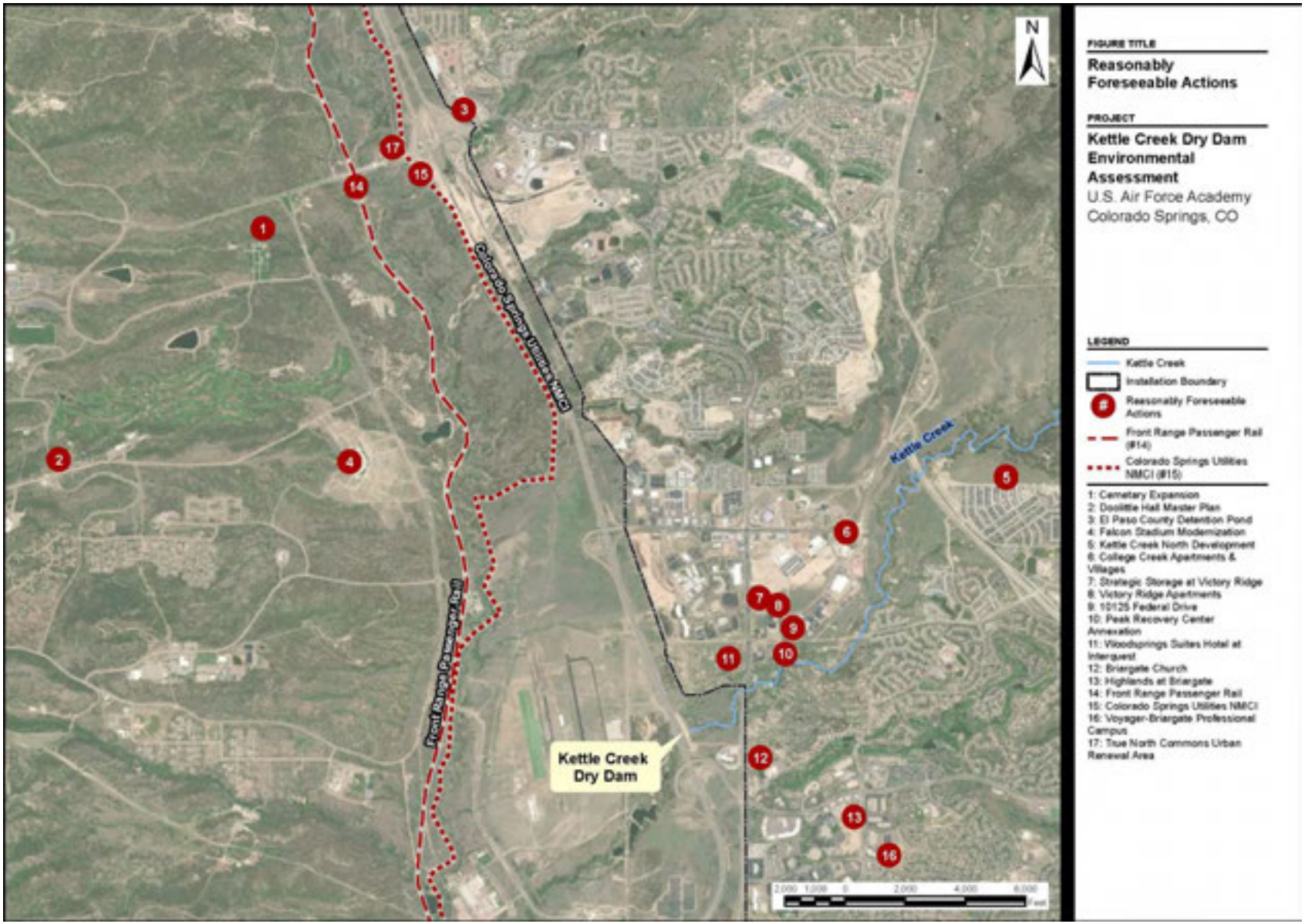
Table 12: Reasonably Foreseeable Actions with Close Causal Relationships to the Preferred Alternative

Project Name	Location	Project Type	Description
1. Cemetery Expansion	USAFA	Institutional	This project would provide additional burial plots at USAFA in order to meet an increase in demand, and sustain the ability to conduct future burials. The expansion would include the construction of new cemetery streets, parking for cemetery visitors, and construction of 1,280 new burial plots.
2. Doolittle Hall Master Plan	USAFA	Institutional; Recreational	The Master Plan includes renovation of Doolittle Hall, construction of a new administration building, and expansion of the Heritage Trail.
3. El Paso County Detention Pond	USAFA	Infrastructure	El Paso County plans to construct a sub-regional drainage system and water quality full spectrum extended detention basin on USAFA property, where an easement has been granted to CDOT for the I-25 and North Gate Boulevard interchange. A sub-regional drainage system is one that serves an area of 130 acres or less.

Project Name	Location	Project Type	Description
4. Falcon Stadium Modernization	USAFA	Recreation	Falcon Stadium is proposed for modernization updates, including upgrades to bring to code existing concession and restroom facilities. Further plans include adding event and end zone plazas; converting some existing bleacher seats to fixed general admission seats (reducing the total number of spectators by approximately 12,000); and constructing additional club facilities for premium seating. Construction and renovation would occur in phases to maintain use of Falcon Stadium during the football season. The proposed improvements would increase safety for spectators, improve crowd circulation throughout the stadium, and provide additional ingress and egress for added security. Construction would begin in late 2022.
5. Kettle Creek North Development	Colorado Springs, CO	Residential	This project proposes 259 single family residential lots on 61.7 acres within the Kettle Creek Drainage Basin, specifically, north of Thunder Mountain Avenue and east of Powers Boulevard in Colorado Springs. The first phase of development proposes 76 residential lots on approximately 21.5 acres.
6. College Creek Apartments & Villages	Colorado Springs, CO	Residential	Located in the Elkhorn Basin and Kettle Creek Drainage Basin, the proposed development would allow for 240 affordable apartment units in ten three-story buildings, with a mix of 30 one-bedroom, 90 two-bedroom, 108 three-bedroom, and 12 four-bedroom units.
7. Strategic Storage at Victory Ridge	Colorado Springs, CO	Commercial	The project would develop 20,130-square feet of self-storage buildings, 14 exterior storage pods, and parking and landscaping improvements within the Elkhorn Drainage Basin.
8. Victory Ridge Apartments	Colorado Springs, CO	Residential	Victory Ridge Apartments is part of the 152-acre Victory Ridge development. The 16.97-acre project will be developed in two phases: Phase 1 will consist of 280 units in five buildings, and Phase 2 will consist of 194 units in four buildings.
9. 10125 Federal Drive	Colorado Springs, CO	Transportation	The project would add 169 parking spaces in the first phase of construction, and an additional 35 parking spaces in the second phase, adjacent to the existing parking lot for a total of 699 parking spaces. The site is located in the southeastern portion of the Elkhorn Major Drainage Basin, also known as Fairlane Technology Park.

Project Name	Location	Project Type	Description
10. Peaks Recovery Center Annexation	Colorado Springs, CO	Institutional	The Peaks Recovery Center was approved for expansion to build a 15,000-square foot two-story building that would accommodate additional clients, as well as an 8,000-square foot therapy building. The expansion would sit on approximately 10 acres.
11. Woodsprings Suites Hotel at Interquest	Colorado Springs, CO	Commercial	The proposed 2.46-acre four-story hotel would be located within the Elkhorn Major Drainage Basin and includes 122 units within a 48,660-square foot building.
12. Briargate Church	Colorado Springs, CO	Institutional	A two-story 4,280-square foot addition is proposed for the church.
13. Highlands at Briargate	Colorado Springs, CO	Commercial; Mixed-Use	The 11.3-acre property would comprise two new retail buildings as well as an office building.
14. Front Range Passenger Rail	USAFA and surrounding areas	Transportation	The 173-mile proposed rail line would link Pueblo, Colorado Springs, and Fort Collins to Denver. A portion of the rail would occur on USAFA property.
15. Colorado Springs Utilities North Monument Creek Interceptor (NMCI)	USAFA	Infrastructure	This project includes the construction of a 30-inch- and 36-inch-diameter new sanitary sewer pipeline. Approximately 8 miles of the 11-mile pipeline would be installed on USAFA, likely along the Santa Fe Trail, from the northern boundary to the southern boundary.
16. Voyager-Briargate Professional Campus	Colorado Springs, CO	Commercial; Mixed-Use	The proposed development would establish two new multi-tenant commercial buildings for office and medical office use.
17. True North Commons Urban Renewal Area	USAFA	Commercial	An area of commercial development located within USAFA property, but outside the USAFA secured perimeter. Development would include a mix of complimentary, non-residential uses such as commercial, hotel, office, and retail, as well as a new Visitor Center.

Figure 8: Reasonably Foreseeable Future Actions



4.2 EVALUATION OF CLOSE CAUSAL RELATIONSHIPS

4.2.1 Visual Resources

Short-term, less-than-significant adverse impacts to aesthetics may occur during construction of the Preferred Alternative and reasonably foreseeable actions. Construction sites would disrupt visual landscapes throughout the ROI. The temporary nature of construction, however, would render these impacts inconsequential. In the long-term, no adverse impacts on visual resources are expected to occur, as the new commercial and residential developments are consistent with existing landscapes, and the Preferred Alternative would not adversely change the aesthetic of the existing environment surrounding Kettle Creek Dam.

4.2.2 Air Quality and Climate

Construction of the Preferred Alternative and reasonably foreseeable actions would generate air emissions from the use of construction equipment and vehicles. Construction emissions would be temporary, while long-term emissions would not occur. Emissions from the Preferred Alternative and other reasonably foreseeable actions would not exceed regulatory thresholds or threaten the maintenance/attainment status of the region, as project-specific compliance with state and federal permitting requirements and implementation of BMPs would further minimize air emissions. These impacts would be *short-term and less-than-significant* due to the temporary and localized nature of construction.

4.2.3 Noise

Construction of the Preferred Alternative and reasonably foreseeable actions would increase noise levels in the ROI. Construction noise is typically considered a minor annoyance, due to its temporary nature. In addition, noise impacts from construction equipment are generally limited to a 0.25-mile buffer as noise attenuates quickly in the ambient environment. While an increase in temporary noise would be experienced by those on and off base, collective noise would not substantially contribute to the existing soundscape already dominated by airfield activity and heavy traffic noise on I-25 and other nearby major roadways. Through project-specific BMPs, the USAF would ensure the Preferred Alternative's causal impact on noise when considered with other reasonably foreseeable actions is minimized to the greatest extent practicable. Noise impacts would be *short-term and less-than-significant*.

4.2.4 Earth Resources

The Preferred Alternative and reasonably foreseeable actions would not appreciably alter geological or topographical conditions in the ROI. While the Preferred Alternative would include bank grading to alter channel elevation, it would not contribute to overall topographical impacts in the ROI when considered with other reasonably foreseeable actions. Removal of the above-grade portion of Kettle Creek Dry Dam would also have negligible topographic impacts, as it is not a natural feature. Other projects would not require substantial grading or changes to topography, as construction activities would primarily occur within previously disturbed areas. Construction activities would require clearing and ground-disturbing activities that would cause soil disturbance and erosion. However, the Preferred Alternative would only impact up to 50.7 acres of soils, which would not contribute to significant degradation of soils in the ROI as a whole, when taken into consideration with reasonably foreseeable actions. With implementation of project-specific BMPs, the resulting causal impact on soils would be further minimized.

4.2.5 Water Resources

The causal relationship between the Preferred Alternative and reasonably foreseeable actions on water resources would result in *short-term, negligible adverse impacts* on downstream waters from increased erosion and sedimentation during construction activities from soil disturbance and stormwater runoff. The Preferred Alternative, however, would divert stream flow during construction of channel improvements. Further, with implementation of stormwater management BMPs and compliance with Section 438 of the EISA, individual and collective effects would be maintained at acceptable levels. The Preferred Alternative and reasonably foreseeable actions would also result in *long-term, beneficial impacts* on surface water hydrology. The Preferred Alternative would reconnect the channel to the floodplain, create new wetlands, and add riparian plantings to restore the natural hydrology of the area. Dam improvements and new drainage systems, such as the El Paso County Detention Pond and Colorado Springs Utilities NMCI, would provide additional infrastructure to also ensure adequate surface water flow and drainage in the ROI.

4.2.6 Biological Resources

The Preferred Alternative and reasonably foreseeable actions would result in *short- and long-term, less-than-significant adverse impacts* on biological resources. Under the Preferred Alternative, a total of 531 trees would be cleared to accommodate the Staging/Grading Areas and facilitate upstream channel reach improvements, while additional vegetation would be cleared in the ROI to accommodate the cemetery expansion and residential and commercial developments. While vegetation would be permanently removed, no sensitive species or high-quality habitat would be affected. Wildlife would be temporarily impacted by construction noise and human activity, but would not experience any long-term effects after construction has been completed. Further, the areas in which reasonably foreseeable actions would occur are already disturbed or in previously developed areas surrounded by urban and suburban development.

There would be *no causal impacts* on special status species, as the USAF would ensure no adverse impacts occur to the PMJM. In addition, no BASH concerns would arise as the reasonably foreseeable actions near the airfield would not create standing pools of water, new habitat, or other areas that birds would find attractive.

4.2.7 Cultural Resources

Implementation of the Preferred Alternative and reasonably foreseeable actions would not result in any effects on historic and cultural resources in the ROI. No significant cultural resources occur within the Project Site, and the Preferred Alternative and other projects would not introduce any structures to the visual landscape that would be incongruent with the existing viewshed. There is potential for archaeological discoveries while conducting ground-disturbing activities during construction; however, in the event that archaeological materials are inadvertently discovered during construction activities, the USAF would cease work immediately and notify the appropriate authorities, minimizing the potential for significant adverse impacts on previously unknown cultural resources.

4.2.8 Socioeconomics and Environmental Justice

In the long term, the Preferred Alternative, when taken in consideration with reasonably foreseeable actions, would result in *beneficial impacts* on the local economy. Collective expenditures by temporary and permanent workforces would benefit local accommodation, food, and retail industries, as well as local fiscal benefits from associated sales tax revenues. There would be no change in population growth rate or housing as the Preferred Alternative would not require new personnel.

As no EJ communities of concern with respect to race or income are present within the ROI, there is no potential for the Preferred Alternative and reasonably foreseeable actions to disproportionately impact EJ communities.

4.2.9 Transportation

Implementation of the Preferred Alternative in consideration with reasonably foreseeable future actions could lead to increased traffic congestion during construction. Road closures and detours along or adjacent to I-25, as well as additional vehicular traffic from construction crews, would result in *short-term, less-than-significant adverse impacts*. In the long-term there would be *beneficial impacts* in the ROI from the Preferred Alternative and reasonably foreseeable actions. The Preferred Alternative would reduce the risk of spillway discharge onto I-25, alleviating potential damage to the major roadway and avoiding closures. Other projects, such as the Front Range Passenger Rail and 10125 Federal Drive, would improve transportation opportunities and parking access, collectively reducing vehicular traffic and congestion on local roads.

4.2.10 Hazardous and Toxic Materials and Waste

Short-term, less-than-significant adverse impacts on HTMW would occur during construction of the Preferred Alternative and reasonably foreseeable future actions. Construction activities could result in potential discharge, spills, and contamination, as well as encounters with unexpected hazardous materials. Any construction activities requiring ground disturbance could expose previously unknown sources of hazardous materials. Solid waste generation would also increase temporarily during construction activities. Proper permitting and compliance would be in place to prevent exposure and the spread of any identified contamination.

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5.0 LIST OF PREPARERS

5.1 AIR FORCE PREPARERS

Name	Role
Brian Mihlbachler	Natural Resources Manager
Erwin Roemer	Cultural Resources Manager
Bernard Schriever	Cultural Resources Planner
Jennifer McCorkle	Environmental Planner

5.2 AECOM PREPARERS

Name	Role	Degree	Years of Experience
Jennifer Warf	Project Manager, EA review and oversight	M.S. in Environmental Studies B.A. in Zoology	20
Carrie Kyzar	Deputy Project Manager, EA review and oversight	M.S. in Environmental Management B.S. in Environmental Science	19
Michael Busam	Deputy Project Manager, EA preparation	B.S. in Environmental Science and Policy	6
Benjamin Obenland	Preparation of EA sections	B.S. in Environmental Science and Policy	3
Blair Jenet	Preparation of EA sections	M.A. in Environmental Science B.A. in Environmental Science and Policy	5
Tara Boyd	Preparation of EA sections	B.A. in Environmental Science and Global Sustainability	1
Allison Carr	Preparation of maps and figures; GIS; and Socioeconomics and Environmental Justice and Transportation sections	Master of City Planning B.A. in Geography	3
Charlene Wu	Preparation of Reasonably Foreseeable Actions section	Master of Environmental Management B.S. in Environmental Science & Policy	8
Fang Yang	Preparation of Air Quality and Noise sections	M.S. Atmospheric Science B.S. Physics	33
Caitlin Shaw	Preparation of Air Quality and Noise sections	M.S. Geosciences B.S. Meteorology	10

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6.0 REFERENCES

Bender, M. L., Postiglione, S. A., & Roberts, R. M. (2018). *Proposed Modifications of the Kettle Creek Dry Dam at the United States Air Force Academy, El Paso County Colorado: Results of a Cultural Resources Inventory.*

CDPHE. (2020). *Regulation #93 -- Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List.* Retrieved from https://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=8787&fileName=5%20CCR%201002-93

CEQ. (1997). *Environmental Justice: Guidance Under the National Environmental Policy Act.* Retrieved December 28, 2021, from https://www.epa.gov/sites/default/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf

City of Colorado Springs. (2021). *Colorado Springs, Code of Ordinances. Article 8: Offenses Affecting the Environment. Noise Pollution - General.* Retrieved February 28, 2022, from https://codelibrary.amlegal.com/codes/coloradospringsco/latest/coloradosprings_co/0-0-0-17146

CNHP. (1999). *Conservation and Management Plan for Preble's Meadow Jumping Mouse on the U.S. Air Force Academy.*

CNHP. (2021). *Noxious Weed Monitoring Year 16 at the USAFA.*

Colorado National Heritage Program. (1999). *Conservation and Management Plan for Preble's Meadow Jumping Mouse on the U.S. Air Force Academy.*

Colorado State University. (2022). *Colorado Water Knowledge: Groundwater Resources*. Retrieved January 6, 2022, from https://waterknowledge.colostate.edu/hydrology/groundwater-resources/#1529444745204-105e7ce9-e046

CPW. (2022). *Colorado Parks & Wildlife Threatened and Endangered List*. Retrieved January 12, 2022, from https://cpw.state.co.us/learn/Pages/SOC-ThreatenedEndangeredList.aspx

CWP. (2018). *Colorado Parks and Wildlife - Species Data - Bald Eagle Nest Sites*. Retrieved February 18, 2022, from https://geo.colorado.edu/catalog/47540-5d6eaced77ee23000ac3bbed

Federal Highway Administration. (2006). *Federal Highway Administration Highway Construction Noise Handbook.* Retrieved from https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/

Fendt, L. (2019, February 15). *The greenback cutthroat trout needs saving, again*. Retrieved from High Country News: https://www.hcn.org/articles/fish-the-greenback-cutthroat-trout-needs-saving-again

FICUN. (1980). *Guidelines for Considering Noise in Land Use Planning and Control.* Retrieved May 15, 2019, from https://www.rosemonteis.us/sites/default/files/references/federal-interagency-committee-1980.pdf

Google Earth. (2020). Google Street View. View of the Kettle Creek Dry Dam from I-25. Retrieved November 9, 2021

Kelly, S., O'Meara, S., & Koestner, K. (2017). *USAFA Ethnographic and Ethnobotanical Survey.* Prepared for the United States Air Force Academy and the United States Army Corps of Engineers Philadelphia District, Project No. W91-2BU1-6P0095. Albuquerque: Parametrix.

NRCS. (2022). *Custom Soil Resource Report for El Paso County Area, Colorado.*

Solutio Environmental. (2017). *Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide -- Fundamentals, Volume 1 of 2.*

Solutio Environmental Inc. (2020). *Level II, Air Quality Quantitative Assessment, Insignificance Criteria.* HQ AFCEC/CZTQ, Air Quality Compliance Technical Support Branch.

U.S. Census Bureau. (2010). *2010 Census.* Retrieved December 28, 2021

U.S. Census Bureau. (2019). *2019 American Community Survey 5-year Public Use Microdata Files.* Retrieved December 28, 2021

University of Colorado Boulder. (2021). *Museum of Natural History: Research and Innovation Office. Monarch Butterfly*. Retrieved January 13, 2022, from https://www.colorado.edu/cumuseum/2021/07/28/monarch-butterfly

USACE. (1987). *Wetland Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, MS.*

USAF. (2020a). *Air Force Installation Attainment Status. Updated 30 November 2020.*

USAF. (2020b). *U.S. Air Force Hazardous Waste Management Plan. U.S. Air Force Academy.*

USAFA. (2014). *Findings & Recommendations. Kettle Creek Dry Dam. Final Report.*

USAFA. (2017). *United States Air Force Integrated Natural Resources Management Plan: United States Air Force Academy.*

USAFA. (2020). *USAFA Spill Prevention Control and Countermeasure Plan.*

USAFA. (2021). *Design and Analysis Report: Kettle Creek Dry Dam Modifications.*

USAFA. (2022). *United States Air Force Academy: Environmental Management.* Retrieved January 9, 2022, from https://www.usafa.af.mil/Units/10th-Air-Base-Wing/Mission-Support-Group/Civil-Engineer-Squadron/Installation-Management/Environmental-Management/

USAFA. (n.d.). *United States Air Force Academy Geospatial Information Systems Data: Species Locations.*

USEPA. (1974, March). *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* Retrieved from https://nepis.epa.gov/Exe/ZyPDF.cgi/2000L3LN.PDF?Dockey=2000L3LN.PDF

USEPA. (2017). *National Emissions Inventory Data*. Retrieved from https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data#dataq

USEPA. (2022). *Environmental Justice Screening and Mapping Tool*. Retrieved February 25, 2022, from https://ejscreen.epa.gov/mapper/

USFWS. (1998, March). *Greenback Cutthroat Trout Recovery Plan.* Retrieved from https://cpw.state.co.us/Documents/Research/Aquatic/CutthroatTrout/GBNRecoveryPlan.pdf

USFWS. (2000a). *Biological Opinion for the U.S. Air Force Academy.*

USFWS. (2000b). *Conservation Agreement for Preble's Meadow Jumping Mouse (Zapus hudsonius preblei).*

USFWS. (2015). *Birds of Conservation Concern*. Retrieved June 14, 2021, from https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php

USFWS. (2019, August). *Species Status Assessment Report for the Eastern Black Rail (Laterallus jamaicensis jamaicensis), Version 1.3.* Retrieved from https://ecos.fws.gov/ServCat/DownloadFile/186791

USFWS. (2020). *Colorado Parks and Wildlife Recommended Buffer Zones and Seasonal Restrictionf for Colorado Raptors*. Retrieved January 13, 2022, from https://cpw.state.co.us/Documents/WildlifeSpecies/LivingWithWildlife/Raptor-Buffer-Guidelines.pdf

USFWS. (2021a). *Information for Planning and Consultation Official Species list: Colorado Ecological Services Field Office.*

USFWS. (2021b, January 6). *Ute-Ladies'-Tresses Orchid*. Retrieved from U.S. Fish and Wildlife Service Endangered Species | Plants: Mountain-Prairie Region: https://www.fws.gov/mountain-prairie/es/uteLadiestress.php

USFWS. (2021c). *Information for Planning and Consultation Resources List. Colorado Ecological Services Field Office.*

USFWS. (n.d.). *Environmental Conservation Online System*. Retrieved from monarch butterfly (Danaus plexippus): https://ecos.fws.gov/ecp/species/9743#candidate

USGS. (2018). *2018 Long-term National Seismic Hazard Map*. Retrieved January 4, 2022, from https://www.usgs.gov/media/images/2018-long-term-national-seismic-hazard-map

WRCC. (2022). *Colorado Springs Muni AP, Colorado (051778*. Retrieved April 29, 2022, from Wester Regional Climate Center: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?co1778

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APPENDIX A:

CONSULTATION WITH FEDERAL, STATE, AND LOCAL AGENCIES

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DEPARTMENT OF THE AIR FORCE
10TH CIVIL ENGINEER SQUADRON
USAF ACADEMY COLORADO

Barry Schatz
Chief, Environmental Element
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy, CO 80840-2400

U.S. Army Corps of Engineers
Pueblo Office
200 South Santa Fe Avenue, Suite 301
Pueblo, Colorado 81003

Dear Stakeholder

The United States (US) Air Force is preparing an Environmental Assessment (EA) to evaluate the potential environmental impacts resulting from the repair of Kettle Creek Dry Dam at the US Air Force Academy (USAFA) to meet Colorado Department of Water Resources (DWR) dam safety regulations (Proposed Action). Kettle Creek Dry Dam is on the eastern boundary of the USAFA, immediately northeast of the intersection of Interstate 25 (I-25) and Briargate Parkway, although other features associated with the dam (i.e., a pressure conduit, outfall, and Kettle lakes) are located west of I-25 (**Attachment 1**).

While Kettle Creek Dry Dam currently provides minimal benefit to the USAFA or other parties, it is classified as a "high hazard" dam by the Colorado DWR, due to the likelihood that human life would be lost (i.e., motorists on I-25) if the dam fails. The dam requires improvements to comply with DWR's dam safety regulations, including addressing inadequate spillway capacity, repairing eroding gullies on the downstream slope of the dam, monitoring seepage in the inlet structure walls, and clearing trees and brush from the dam. The purpose of this Proposed Action, therefore, is to reduce the risk to life along the I-25 corridor caused by the existing high hazard dam, bring the dam into compliance with DWR's Rules, restore the Kettle Creek riparian habitat, and improve maintenance infrastructure (i.e., the Kettle Lakes diversion structure) in support of the dam and Kettle Lakes. The Proposed Action is needed because the Kettle Creek Dry Dam currently does not comply with applicable state regulations.

The EA will analyze the potential range of environmental impacts that would result from the Proposed Action (i.e., the Preferred Alternative) and the No Action Alternative. The Preferred Alternative includes three primary components (**Attachment 2**): (1) dam modifications, which would remove the dam embankment rising above I-25 and convert the dam into an "exempt structure" that cannot impound water above the natural ground surface; (2) upstream channel improvements to reconnect Kettle Creek to its floodplain and improve natural habitat; and (3) improvements to the Kettle Lakes diversion structure to facilitate future maintenance. The No Action Alternative, which reflects the status quo, will be analyzed as a baseline for comparison of potential effects from the Proposed Action. Under the No Action Alternative, the USAFA would retain the deficient existing conditions of the Kettle Creek Dry Dam.

The EA will be prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, et seq.), the Council on Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the Air Force Environmental Impact Analysis Processes (32 CFR 989). To support development of the EA, the US Air Force has also

conducted site-specific field studies as necessary for stream and floodplain modeling, and cultural resources.

As part of this EA, we request your assistance in identifying any potential areas of environmental impact to be assessed in this analysis. If you have any specific items of interest about this proposal, please contact Mr. Barry Schatz, Environmental Flight Element, by email to: barry.schatz.2@us.af.mil; or by mail to: Barry Schatz, 8120 Edgerton Drive, USAFA, CO 80840 within 30 days of receipt of this letter.

Sincerely

SCHATZ.BARRY.ALLEN.1571777726 Digitally signed by SCHATZ.BARRY.ALLEN.1571777726 Date: 2021.12.16 10:53:15 -07'00'

BARRY SCHATZ
Chief, Environmental Element

2 Attachments:
1. Figure 1: Project Site Location Map
2. Figure 2: Preferred Alternative Components Map

FIGURE TITLE

Site Overview

PROJECT

Kettle Creek Dry Dam Environmental Assessment

U.S. Air Force Academy
Colorado Springs, CO

LEGEND

Kettle Creek

Installation Boundary

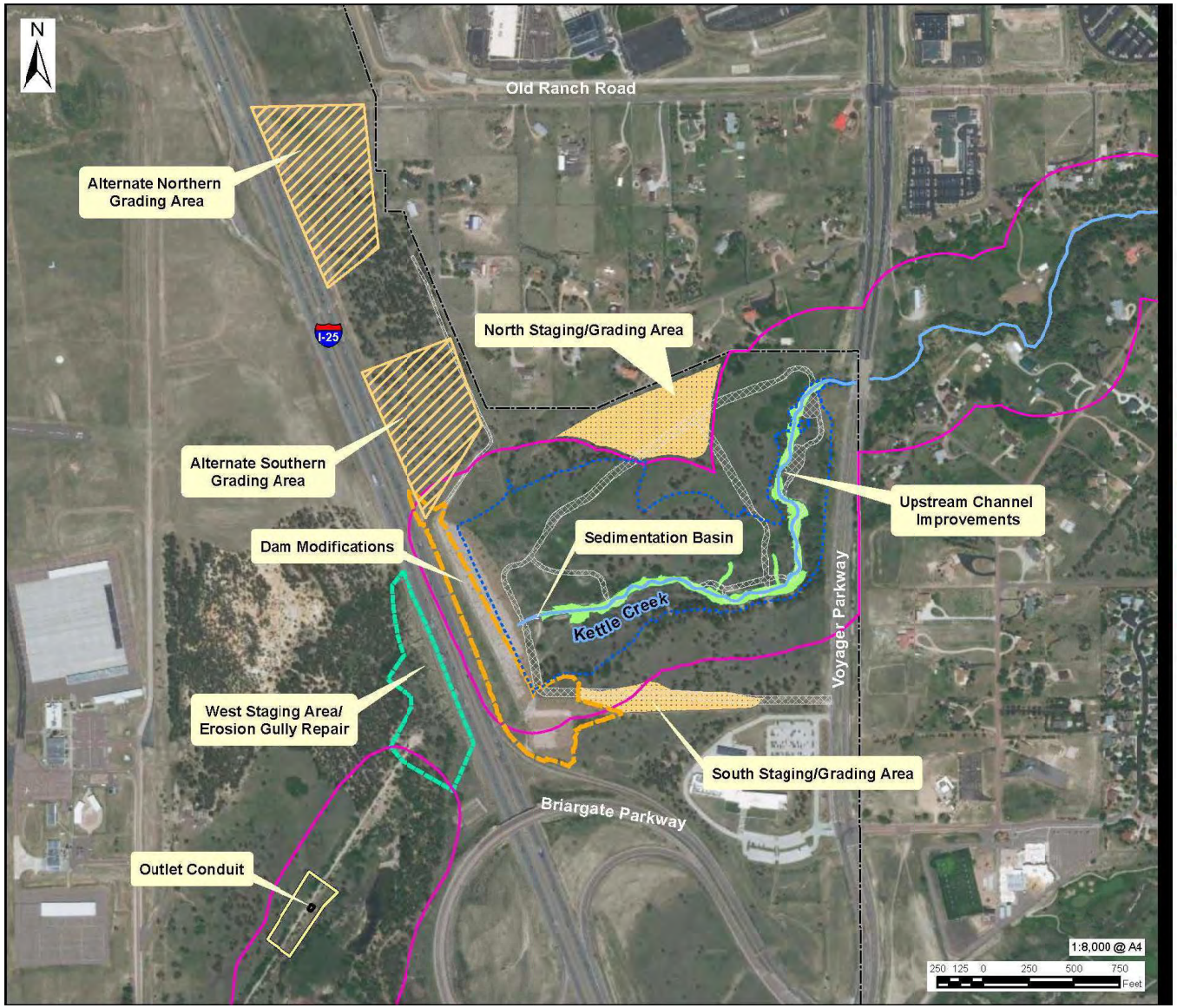

FIGURE TITLE

Proposed Action

PROJECT

Kettle Creek Dry Dam Environmental Assessment

U.S. Air Force Academy
Colorado Springs, CO

LEGEND

- Kettle Creek
- 100-year Floodplain
- PMJM Habitat Limits
- Construction Haul Routes
- Outlet Conduit
- Diversion Structure LOD
- Channel Improvements LOD
- Dam Excavation LOD
- Grading Area/Staging Area LOD
- Alternate Grading Area LOD
- West Staging Area/Erosion Gully Repair LOD
- Sediment Basin
- Installation Boundary

DEPARTMENT OF THE AIR FORCE
10TH CIVIL ENGINEER SQUADRON
USAF ACADEMY COLORADO

12/16/21

Barry Schatz
Chief, Environmental Element
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy, CO 80840-2400

Ms. Liisa Niva
U.S. Fish and Wildlife Service
Colorado Ecological Services Field Office
134 Union Boulevard, Suite 650
Lakewood, CO 80228

Dear Ms. Niva

The United States (US) Air Force is preparing an Environmental Assessment (EA) to evaluate the potential environmental impacts resulting from the repair of Kettle Creek Dry Dam at the US Air Force Academy (USAFA) to meet Colorado Department of Water Resources (DWR) dam safety regulations (Proposed Action). In accordance with Section 7 of the Endangered Species Act of 1973, this correspondence is intended to initiate informal consultation regarding the Proposed Action.

Kettle Creek Dry Dam is on the eastern boundary of the USAFA, immediately northeast of the intersection of Interstate 25 (I-25) and Briargate Parkway, although other features associated with the dam (i.e., a pressure conduit, outfall, and Kettle lakes) are located west of I-25 (**Attachment 1**). While Kettle Creek Dry Dam currently provides minimal benefit to the USAFA or other parties, it is classified as a "high hazard" dam by the Colorado DWR, due to the likelihood that human life would be lost (i.e., motorists on I-25) if the dam fails. The dam requires improvements to comply with DWR's dam safety regulations, including addressing inadequate spillway capacity, repairing eroding gullies on the downstream slope of the dam, monitoring seepage in the inlet structure walls, and clearing trees and brush from the dam.

The purpose of this Proposed Action, therefore, is to reduce the risk to life along the I-25 corridor caused by the existing high hazard dam, bring the dam into compliance with DWR's Rules, restore the Kettle Creek riparian habitat, and improve maintenance infrastructure (i.e., the Kettle Lakes diversion structure) in support of the dam and Kettle Lakes. The Proposed Action is needed because the Kettle Creek Dry Dam currently does not comply with applicable state regulations.

The EA will analyze the potential range of environmental impacts that would result from the Proposed Action (i.e., the Preferred Alternative) and the No Action Alternative. The Preferred Alternative includes three primary components (**Attachment 2**): (1) dam modifications, which would remove the dam embankment rising above I-25 and convert the dam into an "exempt structure" that cannot impound water above the natural ground surface; (2) upstream channel improvements to reconnect Kettle Creek to its floodplain and improve natural habitat; and (3) improvements to the Kettle Lakes diversion structure to facilitate future maintenance.

The overall Proposed Action area is 72.8 acres; the construction LOD within this area comprises 33.0 acres, and two potential alternate grading areas comprise an additional 7.9 to 9.9 acres. The Proposed Action area generally consists of riparian shrub, riparian woodland, upland conifer, upland grassland, and upland shrub habitats, much of which is located within the existing reservoir for the dry dam. The Proposed Action would impact less than 0.01 acre of wetlands and approximately 6.70 acres of 100-year floodplain (overall flood storage capacity would not be affected). The Proposed Action area is surrounded by low-density residential land to the north and east, while the land to the west and south of the Proposed Action area is on USAFA and used for military operations.

The Air Force queried the United States Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) database to identify federally listed species with the potential to occur in the Proposed Action area (Consultation Code 06E24000-2022-SLI-0207). Eight federally listed threatened and endangered species have the potential to occur in the Proposed Action area (see **Attachment 4** for the official species list). However, four listed species (piping plover [*Charadrius melodus*]; whooping crane [*Grus americana*]; pallid sturgeon [*Scaphirhynchus albus*]; and western prairie fringed orchid [*Platanthera praeclara*]) need only be considered if the project includes water-related activities and/or use in the N. Platte, S. Platte, or Laramie River Basins which may affected listed species in Nebraska. The Proposed Action is located in the Arkansas River Basin, not the river basins of interest; therefore, these four listed species do not need to be considered for this Proposed Action. Effect determinations for the other listed species is provided below.

Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei;* PMJM) – Federally Threatened

The USAFA supports a significant PMJM population and suitable habitat occurs in the Proposed Action area. Following federal listing of this species in May 1998, the USAFA entered formal consultation with the USFWS regarding the PMJM. In April 2000, the USFWS rendered a "no jeopardy" Biological Opinion (BO) for the USAFA's proposed actions in PMJM habitat conducted in accordance with the USAFA's Conservation Agreement and Conservation Plan (USFWS, 2000a; USFWS, 2000b; Colorado Natural Heritage Program, 1999).

The USAFA would continue to adhere to the terms and conditions of the PMJM Conservation Agreement throughout implementation of this Proposed Action. The Proposed Action's construction limits of disturbance (LOD; including construction haul routes) were designed to minimize impacts to PMJM habitat to the greatest extent practicable. As such, this Proposed Action would be covered under the existing BO. Further, the Proposed Action is intended to improve PMJM habitat along Kettle Creek, such as by restoring connectivity of Kettle Creek to its riparian and wetland areas. Following construction, detailed and site-specific revegetation plans would reproduce PMJM habitat within the construction LOD. The USAFA coordinated closely with the USFWS throughout the design process for the Proposed Action to maximize Proposed Action's long-term beneficial effects on the PMJM.

Eastern Black Rail (*Laterallus jamaicensis ssp. jamaicensis*) – Federally Threatened

The eastern black rail, in the interior United States, generally inhabits wet meadows and shallow wetlands with dense emergent vegetation; in Colorado, specifically, cattail marshes with standing water are often used (USFWS, 2019). The Proposed Action area contains no wet meadow or shallow wetland habitat, and this species has not been documented on USAFA. Therefore, this species is unlikely to occur in the Proposed Action area, and the Proposed Action would have ***no effect*** on this species.

Greenback Cutthroat Trout (*Oncorhynchus clarkii stomias*) – Federally Threatened

Greenback cutthroat trout inhabit cold water streams and cold water lakes with adequate stream spawning habitat present in spring (USFWS, 1998). This species is only known to exist in streams isolated from other fish where, with the exception of Bear Creek, it has been reintroduced (Fendt, 2019). The Proposed Action area does not contain suitable habitat for this species. Therefore, this species has no potential to occur in the Proposed Action area, and the Proposed Action would have ***no effect*** on this species.

Ute Ladies'-tresses (*Spiranthes diluvialis*) – Federally Threatened

The Ute ladies'-tresses occurs along riparian edges, gravel bars, old oxbows, high flow channels, and moist to wet meadows along perennial streams. It typically occurs in stable wetland and seepy areas associated with old landscape features within historical floodplains of major rivers. It also is found in wetland and seepy areas near freshwater lakes or springs (USFWS, 2021). The known current range of the species is well-north of the USAFA and previous survey for the species were negative, therefore the Proposed Action would have ***no effect*** on this species.

In conclusion, the Air Force requests your review of our findings and determination that implementation of the Proposed Action would have no effect on federally-listed species. Effects of the Proposed Action on the PMJM would be covered under the USFWS's 2000 BO.

If you have any questions or information relevant to this Proposed Action or our effect determinations, please contact Mr. Barry Schatz, Environmental Flight Element, by email to: barry.schatz.2@us.af.mil; or by mail to: Barry Schatz, 8120 Edgerton Drive, USAFA, CO 80840.

Sincerely,

SCHATZ.BARRY.ALLEN.1571777726 Digitally signed by SCHATZ.BARRY.ALLEN.1571777726 Date: 2021.12.16 10:56:23 -07'00'

BARRY SCHATZ
Chief, Environmental Element

4 Attachments:
1. Figure 1: Project Site Location Map
2. Figure 2: Preferred Alternative Components Map
3. References
4. Official Species List via IPaC

FIGURE TITLE

Site Overview

PROJECT

Kettle Creek Dry Dam Environmental Assessment

U.S. Air Force Academy
Colorado Springs, CO

LEGEND

- Kettle Creek
- Installation Boundary

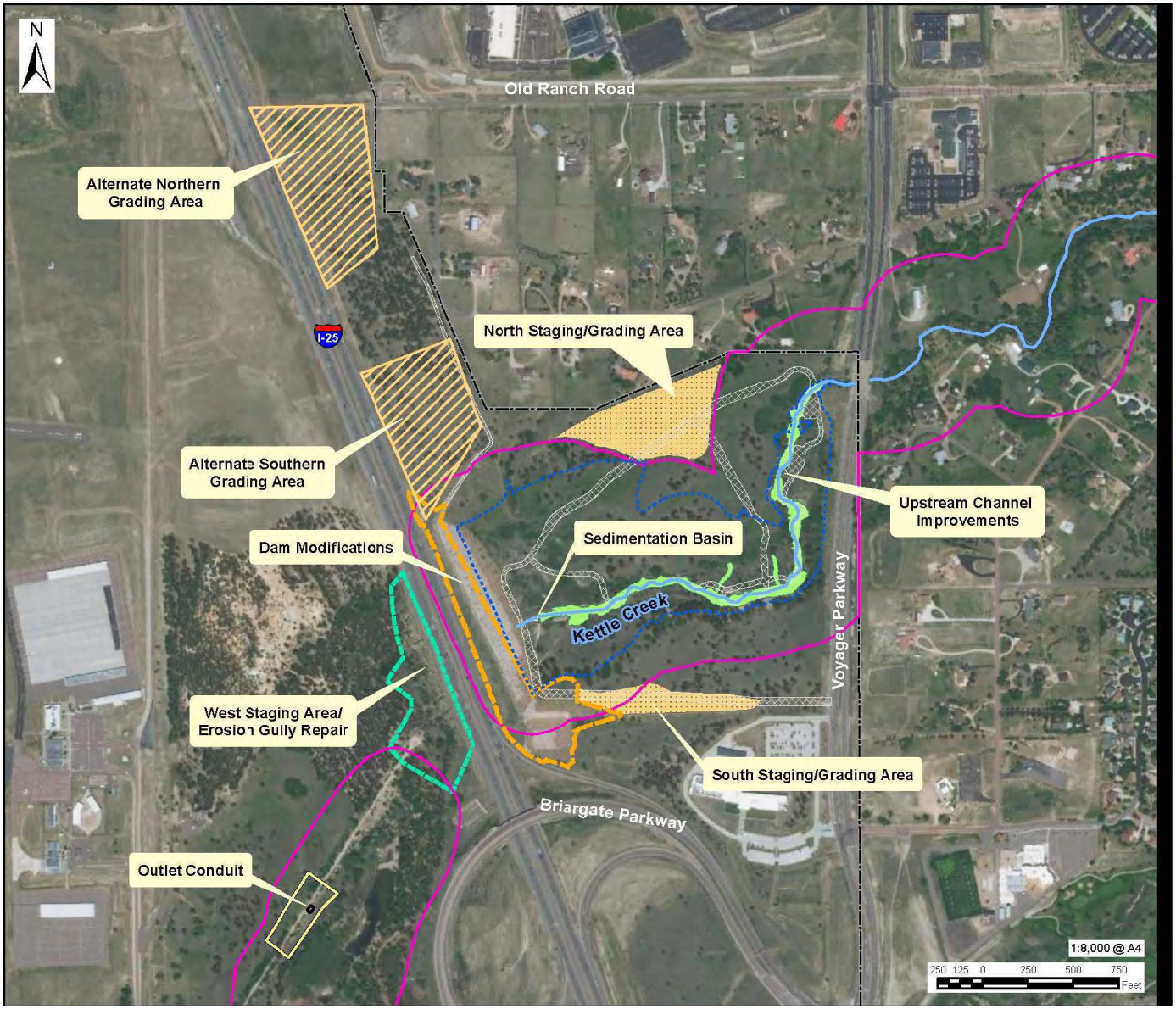

FIGURE TITLE

Proposed Action

PROJECT

Kettle Creek Dry Dam Environmental Assessment

U.S. Air Force Academy
Colorado Springs, CO

LEGEND

- Kettle Creek
- 100-year Floodplain
- PMJM Habitat Limits
- Construction Haul Routes
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- Channel Improvements LOD
- Dam Excavation LOD
- Grading Area/Staging Area LOD
- Alternate Grading Area LOD
- West Staging Area/Erosion Gully Repair LOD
- Sediment Basin
- Installation Boundary

Attachment 3: References

Colorado Natural Heritage Program. (1999). *Conservation and Management Plan for Preble's Meadow Jumping Mouse on the U.S. Air Force Academy.*

Fendt, L. (2019, February 15). *The greenback cutthroat trout needs saving, again*. Retrieved from High Country News: https://www.hcn.org/articles/fish-the-greenback-cutthroat-trout-needs-saving-again

USAF. (2017). *U.S. Air Force Integrated Natural Resources Management Plan: United States Air Force Academy.*

USFWS. (1998, March). *Greenback Cutthroat Trout Recovery Plan.* Retrieved from https://cpw.state.co.us/Documents/Research/Aquatic/CutthroatTrout/GBNRecoveryPlan.pdf

USFWS. (2000a). *Biological Opinion for the U.S. Air Force Academy.*

USFWS. (2000b). *Conservation Agreement for Preble's Meadow Jumping Mouse (Zapus hudsonius preblei).*

USFWS. (2019, August). *Species Status Assessment Report for the Eastern Black Rail (Laterallus jamaicensis jamaicensis), Version 1.3.* Retrieved from https://ecos.fws.gov/ServCat/DownloadFile/186791

USFWS. (2021, January 6). *Ute-Ladies'-Tresses Orchid*. Retrieved from U.S. Fish and Wildlife Service Endangered Species | Plants: Mountain-Prairie Region: https://www.fws.gov/mountain-prairie/es/uteLadiestress.php

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Colorado Ecological Services Field Office
Denver Federal Center
P.O. Box 25486
Denver, CO 80225-0486
Phone: (303) 236-4773 Fax: (303) 236-4005
http://www.fws.gov/coloradoES
http://www.fws.gov/platteriver

In Reply Refer To: November 15, 2021
Consultation Code: 06E24000-2022-SLI-0207
Event Code: 06E24000-2022-E-00526
Project Name: Kettle Creek Dry Dam

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Colorado Ecological Services Field Office
Denver Federal Center
P.O. Box 25486
Denver, CO 80225-0486
(303) 236-4773

Project Summary

Consultation Code: 06E24000-2022-SLI-0207
Event Code: Some(06E24000-2022-E-00526)
Project Name: Kettle Creek Dry Dam
Project Type: DAM
Project Description: An Environmental Assessment analyzing the impacts of repairing Kettle Creek Dry Dam and bringing it into compliance with Colorado Department of Water Resources regulations for "high hazard" dams. The preferred alternative would make it such that the dam would only impound water above the ground surface during floods. The proposed project would include dam modifications, channel reach improvements, and diversion structure upgrades at Kettle Lakes.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.97414405000001,-104.80180756763137,14z

Counties: El Paso County, Colorado

Endangered Species Act Species

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 4 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Preble's Meadow Jumping Mouse *Zapus hudsonius preblei*	Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/4090
General project design guidelines:
https://ecos.fws.gov/ipac/project/ZH3NAMCSLFFPTEREQDZJ6SW2ZM/documents/generated/6861.pdf

Birds

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis*	Threatened
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10477	
Piping Plover *Charadrius melodus*	Threatened
Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. The location of the critical habitat is not available. This species only needs to be considered under the following conditions: • Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska. Species profile: https://ecos.fws.gov/ecp/species/6039	
Whooping Crane *Grus americana*	Endangered
Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. The location of the critical habitat is not available. This species only needs to be considered under the following conditions: • Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska. Species profile: https://ecos.fws.gov/ecp/species/758	

Fishes

NAME	STATUS
Greenback Cutthroat Trout *Oncorhynchus clarkii stomias*	Threatened
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2775	
Pallid Sturgeon *Scaphirhynchus albus*	Endangered
No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: • Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska. Species profile: https://ecos.fws.gov/ecp/species/7162	

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	

Flowering Plants

NAME	STATUS
Ute Ladies'-tresses *Spiranthes diluvialis*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/2159

Western Prairie Fringed Orchid *Platanthera praeclara*	Threatened

No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:

- Project includes water-related activities and/or use in the N. Platte, S. Platte, and Laramie River Basins which may affect listed species in Nebraska.

Species profile: https://ecos.fws.gov/ecp/species/1669

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Jul 31
Ferruginous Hawk *Buteo regalis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/6038	Breeds Mar 15 to Aug 15

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

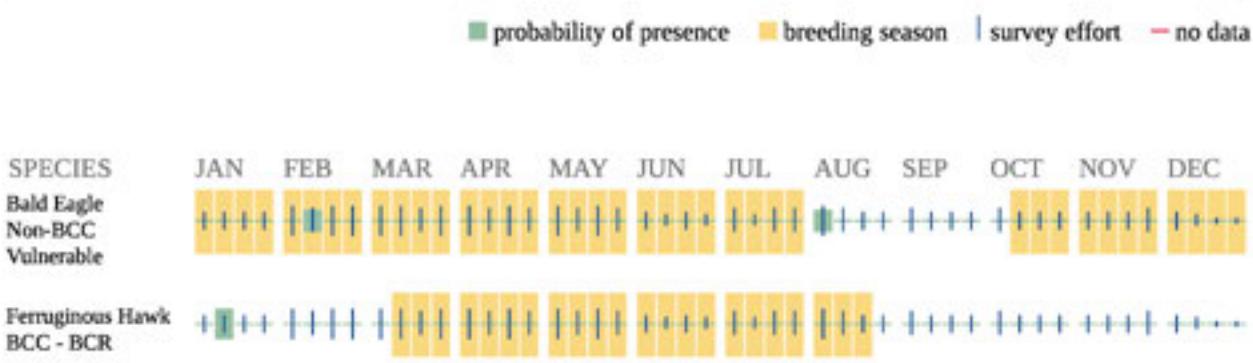
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as

occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can

implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

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DEPARTMENT OF THE AIR FORCE
10TH CIVIL ENGINEER SQUADRON
USAF ACADEMY COLORADO

12/16/21

Barry Schatz
Chief, Environmental Element
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy, CO 80840-2400

Mr. Rob Frei
Colorado Department of Transportation
Environmental Branch
1480 Quail Lake Loop, #A
Colorado Springs, CO 80906

Dear Mr. Frei:

The United States (US) Air Force is preparing an Environmental Assessment (EA) to evaluate the potential environmental impacts resulting from the repair of Kettle Creek Dry Dam at the US Air Force Academy (USAFA) to meet Colorado Department of Water Resources (DWR) dam safety regulations (Proposed Action). Kettle Creek Dry Dam is on the eastern boundary of the USAFA, immediately northeast of the intersection of Interstate 25 (I-25) and Briargate Parkway, although other features associated with the dam (i.e., a pressure conduit, outfall, and Kettle lakes) are located west of I-25 (**Attachment 1**).

While Kettle Creek Dry Dam currently provides minimal benefit to the USAFA or other parties, it is classified as a "high hazard" dam by the Colorado DWR, due to the likelihood that human life would be lost (i.e., motorists on I-25) if the dam fails. The dam requires improvements to comply with DWR's dam safety regulations, including addressing inadequate spillway capacity, repairing eroding gullies on the downstream slope of the dam, monitoring seepage in the inlet structure walls, and clearing trees and brush from the dam. The purpose of this Proposed Action, therefore, is to reduce the risk to life along the I-25 corridor caused by the existing high hazard dam, bring the dam into compliance with DWR's Rules, restore the Kettle Creek riparian habitat, and improve maintenance infrastructure (i.e., the Kettle Lakes diversion structure) in support of the dam and Kettle Lakes. The Proposed Action is needed because the Kettle Creek Dry Dam currently does not comply with applicable state regulations.

The EA will analyze the potential range of environmental impacts that would result from the Proposed Action (i.e., the Preferred Alternative) and the No Action Alternative. The Preferred Alternative includes three primary components (**Attachment 2**): (1) dam modifications, which would remove the dam embankment rising above I-25 and convert the dam into an "exempt structure" that cannot impound water above the natural ground surface; (2) upstream channel improvements to reconnect Kettle Creek to its floodplain and improve natural habitat; and (3) improvements to the Kettle Lakes diversion structure to facilitate future maintenance. The No Action Alternative, which reflects the status quo, will be analyzed as a baseline for comparison of potential effects from the Proposed Action. Under the No Action Alternative, the USAFA would retain the deficient existing conditions of the Kettle Creek Dry Dam.

The EA will be prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, et seq.), the Council on Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the Air Force Environmental Impact Analysis Processes (32 CFR 989). To support development of the EA, the US Air Force has also

conducted site-specific field studies as necessary for stream and floodplain modeling, and cultural resources.

As part of this EA, we request your assistance in identifying any potential areas of environmental impact to be assessed in this analysis. If you have any specific items of interest about this proposal, please contact Mr. Barry Schatz, Environmental Flight Element, by email to: barry.schatz.2@us.af.mil; or by mail to: Barry Schatz, 8120 Edgerton Drive, USAFA, CO 80840 within 30 days of receipt of this letter.

Sincerely

SCHATZ.BARRY.ALLEN.1571777726 Digitally signed by SCHATZ.BARRY.ALLEN.1571777726 Date: 2021.12.16 10:41:17 -07'00'

BARRY SCHATZ
Chief, Environmental Element

2 Attachments:
1. Figure 1: Project Site Location Map
2. Figure 2: Preferred Alternative Components Map

FIGURE TITLE

Site Overview

PROJECT

Kettle Creek Dry Dam Environmental Assessment

U.S. Air Force Academy
Colorado Springs, CO

LEGEND

Kettle Creek

Installation Boundary

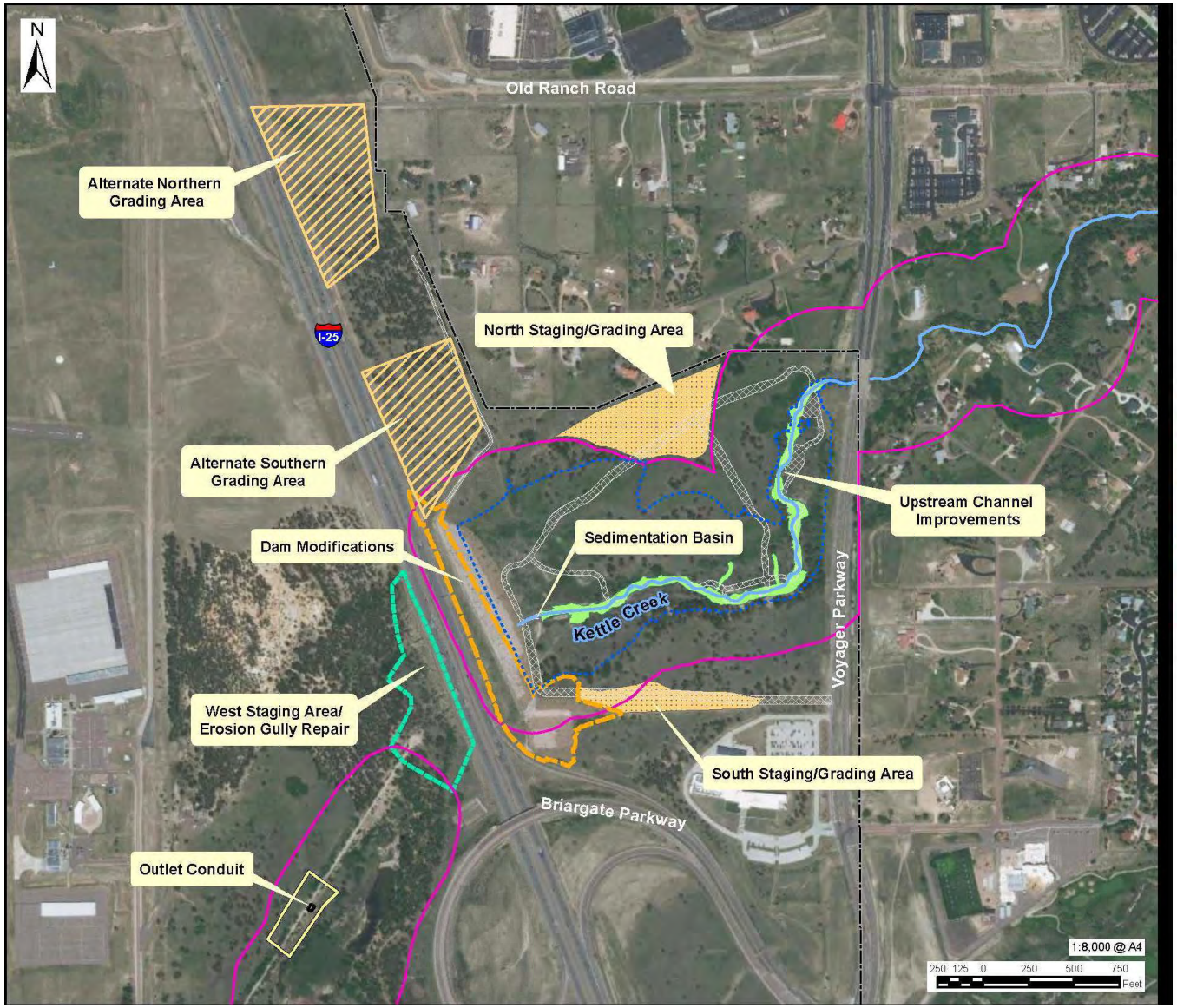

FIGURE TITLE

Proposed Action

PROJECT

Kettle Creek Dry Dam Environmental Assessment

U.S. Air Force Academy
Colorado Springs, CO

LEGEND

- Kettle Creek
- 100-year Floodplain
- PMJM Habitat Limits
- Construction Haul Routes
- Outlet Conduit
- Diversion Structure LOD
- Channel Improvements LOD
- Dam Excavation LOD
- Grading Area/Staging Area LOD
- Alternate Grading Area LOD
- West Staging Area/Erosion Gully Repair LOD
- Sediment Basin
- Installation Boundary

DEPARTMENT OF THE AIR FORCE
10TH CIVIL ENGINEER SQUADRON
USAF ACADEMY COLORADO

12/16/21

Barry Schatz
Chief, Environmental Element
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy, CO 80840-2400

Colorado Natural Heritage Program
Colorado State University
1475 Campus Delivery
Fort Collins, CO 80523

Dear Stakeholder:

The United States (US) Air Force is preparing an Environmental Assessment (EA) to evaluate the potential environmental impacts resulting from the repair of Kettle Creek Dry Dam at the US Air Force Academy (USAFA) to meet Colorado Department of Water Resources (DWR) dam safety regulations (Proposed Action). Kettle Creek Dry Dam is on the eastern boundary of the USAFA, immediately northeast of the intersection of Interstate 25 (I-25) and Briargate Parkway, although other features associated with the dam (i.e., a pressure conduit, outfall, and Kettle lakes) are located west of I-25 (**Attachment 1**).

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conducted site-specific field studies as necessary for stream and floodplain modeling, and cultural resources.

As part of this EA, we request your assistance in identifying any potential areas of environmental impact to be assessed in this analysis. If you have any specific items of interest about this proposal, please contact Mr. Barry Schatz, Environmental Flight Element, by email to: barry.schatz.2@us.af.mil; or by mail to: Barry Schatz, 8120 Edgerton Drive, USAFA, CO 80840 within 30 days of receipt of this letter.

Sincerely

SCHATZ.BARRY.ALLEN.1571777726 Digitally signed by SCHATZ.BARRY.ALLEN.1571777726 Date: 2021.12.16 10:47:11 -07'00'

BARRY SCHATZ
Chief, Environmental Element

2 Attachments:
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2. Figure 2: Preferred Alternative Components Map

FIGURE TITLE

Site Overview

PROJECT

Kettle Creek Dry Dam Environmental Assessment

U.S. Air Force Academy
Colorado Springs, CO

LEGEND

Kettle Creek

Installation Boundary

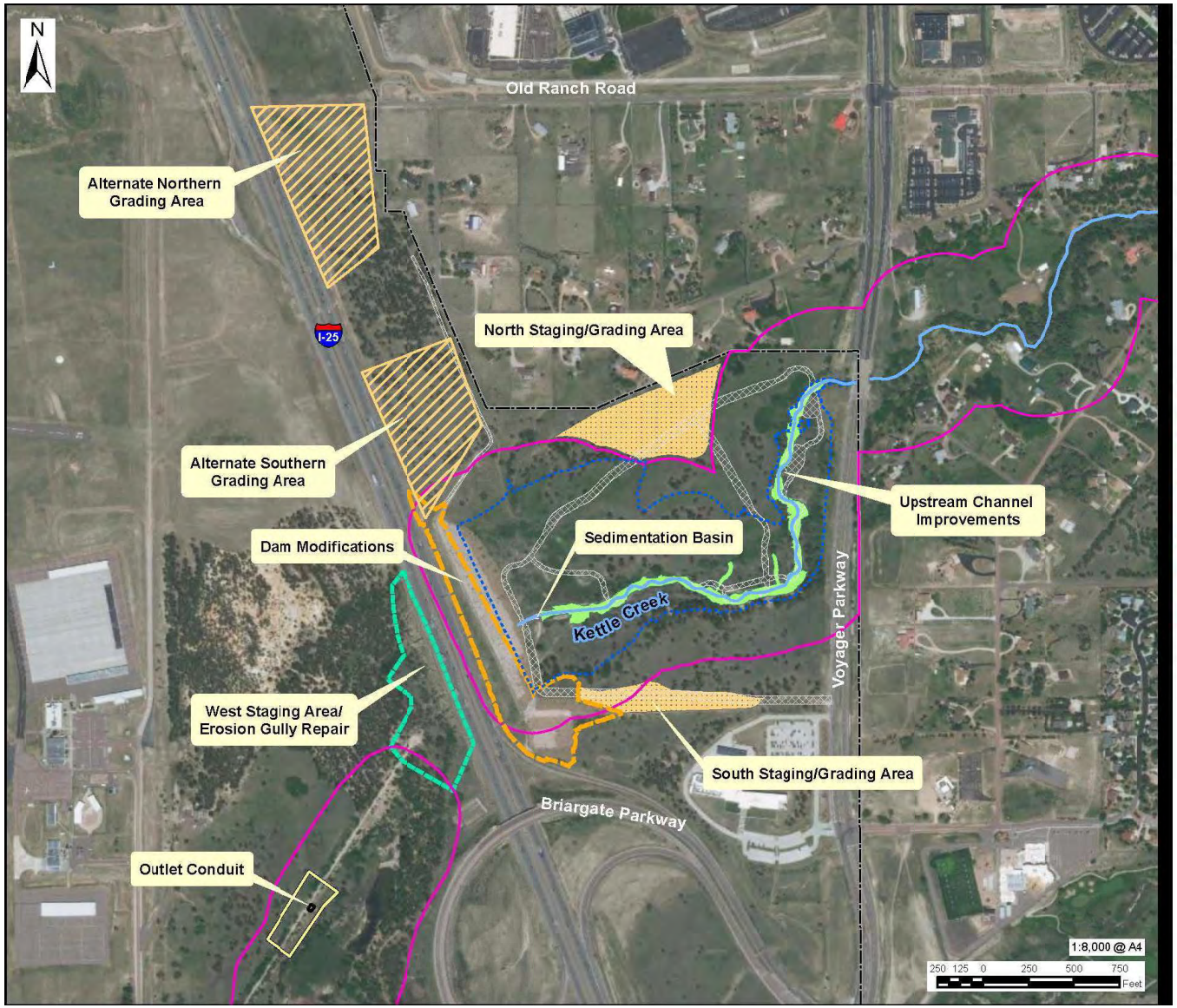

FIGURE TITLE

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Kettle Creek Dry Dam Environmental Assessment

U.S. Air Force Academy
Colorado Springs, CO

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DEPARTMENT OF THE AIR FORCE
10TH CIVIL ENGINEER SQUADRON
USAF ACADEMY COLORADO

Barry Schatz
Chief, Environmental Element
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy, CO 80840-2400

Mr. Cody Wigner, Area Wildlife Manager – Colorado Springs
Colorado Parks and Wildlife
4255 Sinton Road
Colorado Springs, CO 80907

Dear Mr. Wigner:

The United States (US) Air Force is preparing an Environmental Assessment (EA) to evaluate the potential environmental impacts resulting from the repair of Kettle Creek Dry Dam at the US Air Force Academy (USAFA) to meet Colorado Department of Water Resources (DWR) dam safety regulations (Proposed Action). Kettle Creek Dry Dam is on the eastern boundary of the USAFA, immediately northeast of the intersection of Interstate 25 (I-25) and Briargate Parkway, although other features associated with the dam (i.e., a pressure conduit, outfall, and Kettle lakes) are located west of I-25 (**Attachment 1**).

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conducted site-specific field studies as necessary for stream and floodplain modeling, and cultural resources.

As part of this EA, we request your assistance in identifying any potential areas of environmental impact to be assessed in this analysis. If you have any specific items of interest about this proposal, please contact Mr. Barry Schatz, Environmental Flight Element, by email to: barry.schatz.2@us.af.mil; or by mail to: Barry Schatz, 8120 Edgerton Drive, USAFA, CO 80840 within 30 days of receipt of this letter.

Sincerely

SCHATZ.BARRY.ALLEN.1571777726 Digitally signed by SCHATZ.BARRY.ALLEN.1571777726 Date: 2021.12.16 10:48:27 -07'00'

BARRY SCHATZ
Chief, Environmental Element

2 Attachments:
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FIGURE TITLE

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U.S. Air Force Academy
Colorado Springs, CO

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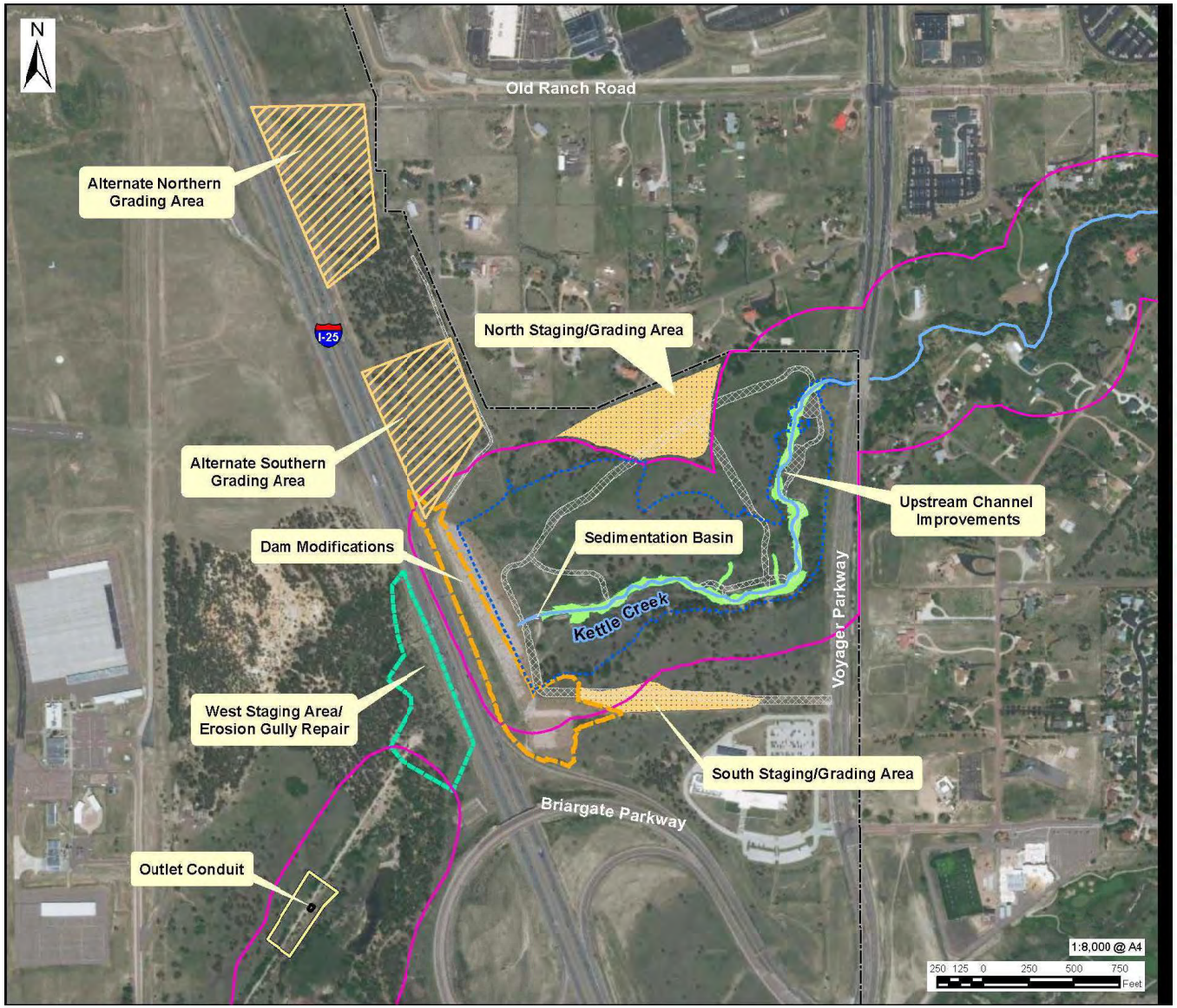
Kettle Creek

Installation Boundary



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Proposed Action

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Kettle Creek Dry Dam Environmental Assessment

U.S. Air Force Academy
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DEPARTMENT OF THE AIR FORCE
10TH CIVIL ENGINEER SQUADRON
USAF ACADEMY COLORADO

12/16/21

Barry Schatz
Chief, Environmental Element
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy, CO 80840-2400

Mr. Daniel Sexton, Senior Planner
City of Colorado Springs
P.O. Box 1575, Mail Code 155
Colorado Springs, CO 80903

Dear Mr. Sexton:

The United States (US) Air Force is preparing an Environmental Assessment (EA) to evaluate the potential environmental impacts resulting from the repair of Kettle Creek Dry Dam at the US Air Force Academy (USAFA) to meet Colorado Department of Water Resources (DWR) dam safety regulations (Proposed Action). Kettle Creek Dry Dam is on the eastern boundary of the USAFA, immediately northeast of the intersection of Interstate 25 (I-25) and Briargate Parkway, although other features associated with the dam (i.e., a pressure conduit, outfall, and Kettle lakes) are located west of I-25 (**Attachment 1**).

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The EA will be prepared in compliance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code 4321, et seq.), the Council on Environmental Quality NEPA Implementing Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and the Air Force Environmental Impact Analysis Processes (32 CFR 989). To support development of the EA, the US Air Force has also

conducted site-specific field studies as necessary for stream and floodplain modeling, and cultural resources.

As part of this EA, we request your assistance in identifying any potential areas of environmental impact to be assessed in this analysis. If you have any specific items of interest about this proposal, please contact Mr. Barry Schatz, Environmental Flight Element, by email to: barry.schatz.2@us.af.mil; or by mail to: Barry Schatz, 8120 Edgerton Drive, USAFA, CO 80840 within 30 days of receipt of this letter.

Sincerely

SCHATZ.BARRY.ALLEN.1571777726 Digitally signed by SCHATZ.BARRY.ALLEN.1571777726 Date: 2021.12.16 10:45:50 -07'00'

BARRY SCHATZ
Chief, Environmental Element

2 Attachments:
1. Figure 1: Project Site Location Map
2. Figure 2: Preferred Alternative Components Map

FIGURE TITLE

Site Overview

PROJECT

Kettle Creek Dry Dam Environmental Assessment

U.S. Air Force Academy
Colorado Springs, CO

LEGEND

Kettle Creek

Installation Boundary

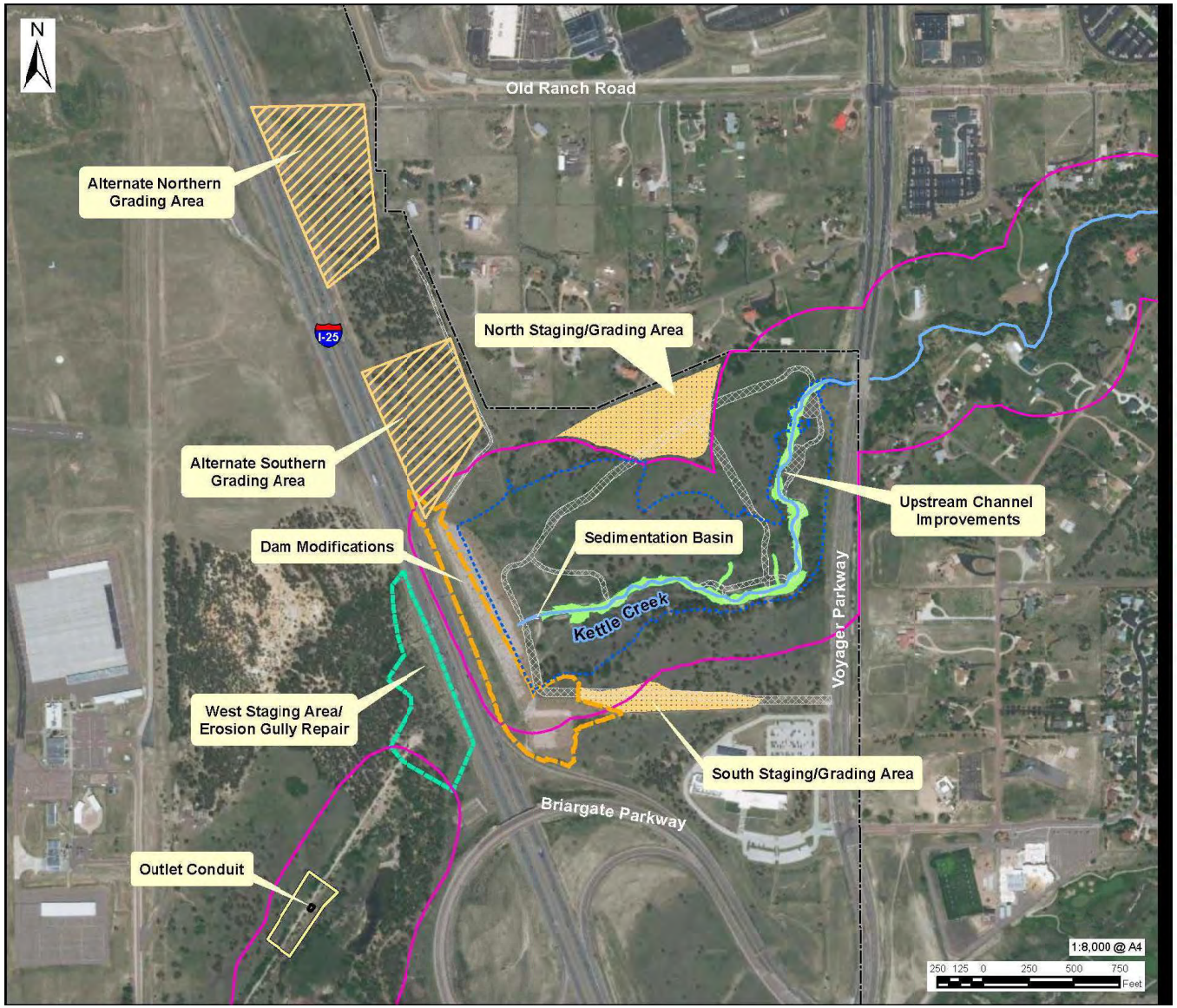

FIGURE TITLE

Proposed Action

PROJECT

Kettle Creek Dry Dam Environmental Assessment

U.S. Air Force Academy
Colorado Springs, CO

LEGEND

- Kettle Creek
- 100-year Floodplain
- PMJM Habitat Limits
- Construction Haul Routes
- Outlet Conduit
- Diversion Structure LOD
- Channel Improvements LOD
- Dam Excavation LOD
- Grading Area/Staging Area LOD
- Alternate Grading Area LOD
- West Staging Area/Erosion Gully Repair LOD
- Sediment Basin
- Installation Boundary

DEPARTMENT OF THE AIR FORCE
10TH CIVIL ENGINEER SQUADRON
USAF ACADEMY COLORADO

Barry Schatz
Chief, Environmental Element
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy, CO 80840-2400

Ms. Nancy Prieve, Natural Resources Specialist
El Paso County Community Services Department, Environmental Division
3255 Akers Drive
Colorado Springs, CO 80922

Dear Ms. Prieve

The United States (US) Air Force is preparing an Environmental Assessment (EA) to evaluate the potential environmental impacts resulting from the repair of Kettle Creek Dry Dam at the US Air Force Academy (USAFA) to meet Colorado Department of Water Resources (DWR) dam safety regulations (Proposed Action). Kettle Creek Dry Dam is on the eastern boundary of the USAFA, immediately northeast of the intersection of Interstate 25 (I-25) and Briargate Parkway, although other features associated with the dam (i.e., a pressure conduit, outfall, and Kettle lakes) are located west of I-25 (**Attachment 1**).

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Sincerely

SCHATZ.BARRY.ALLEN.1571777726 Digitally signed by SCHATZ.BARRY.ALLEN.1571777726 Date: 2021.12.16 10:49:41 -07'00'

BARRY SCHATZ
Chief, Environmental Element

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PROJECT

Kettle Creek Dry Dam Environmental Assessment

U.S. Air Force Academy
Colorado Springs, CO

LEGEND

Kettle Creek

Installation Boundary

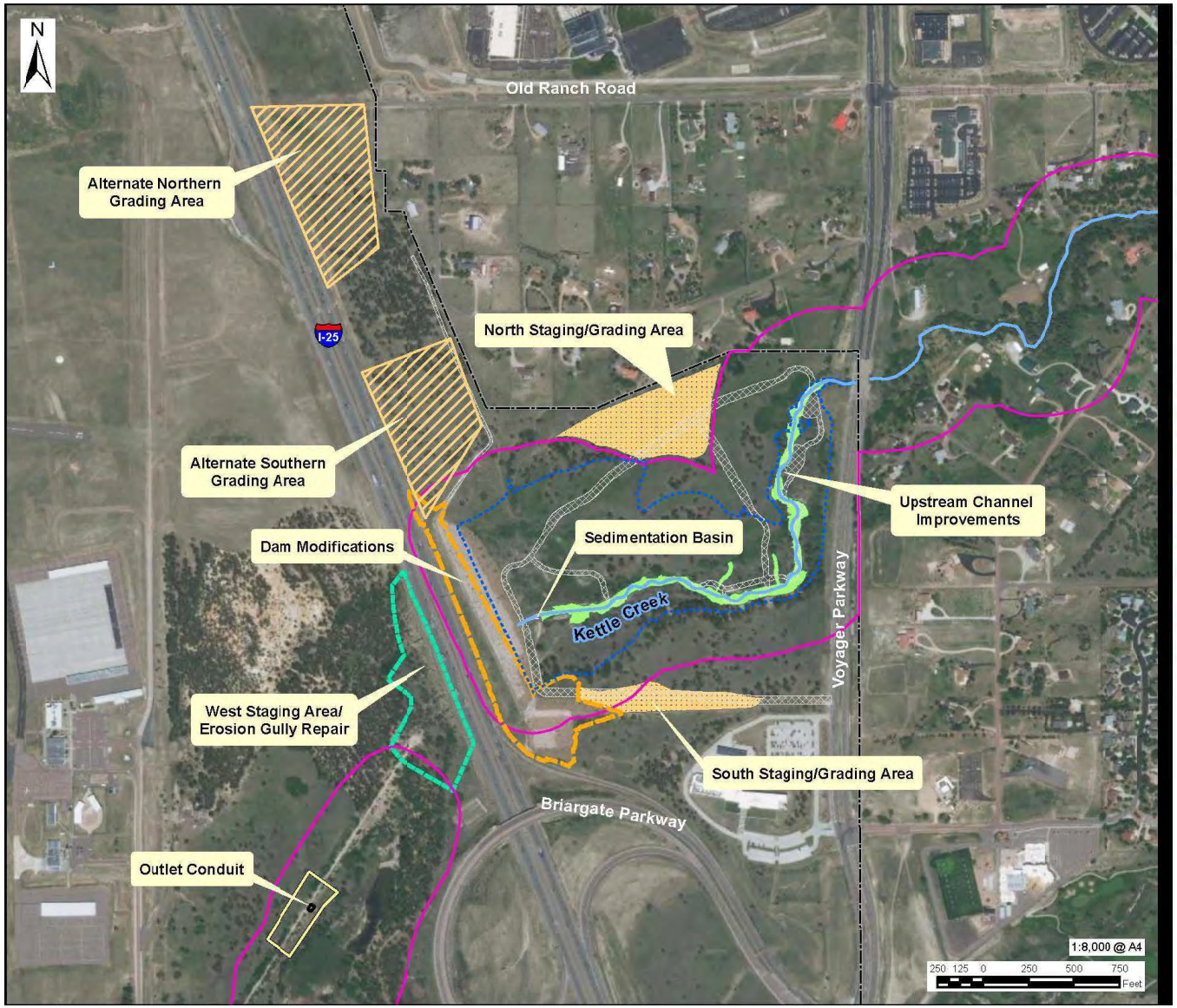

FIGURE TITLE

Proposed Action

PROJECT

Kettle Creek Dry Dam Environmental Assessment

U.S. Air Force Academy
Colorado Springs, CO

LEGEND

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DEPARTMENT OF THE AIR FORCE
10TH CIVIL ENGINEER SQUADRON
USAF ACADEMY COLORADO

Barry Schatz
Chief, Environmental Element
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy, CO 80840-2400

Pikes Peak Area Council of Governments
15 South 7th Street
Colorado Springs, CO 80905

Dear Stakeholder

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Sincerely

SCHATZ.BARRY.ALLEN.1571777726 Digitally signed by SCHATZ.BARRY.ALLEN.1571777726 Date: 2021.12.16 10:52:08 -07'00'

BARRY SCHATZ
Chief, Environmental Element

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Kettle Creek Dry Dam Environmental Assessment

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Colorado Springs, CO

LEGEND

Kettle Creek

Installation Boundary

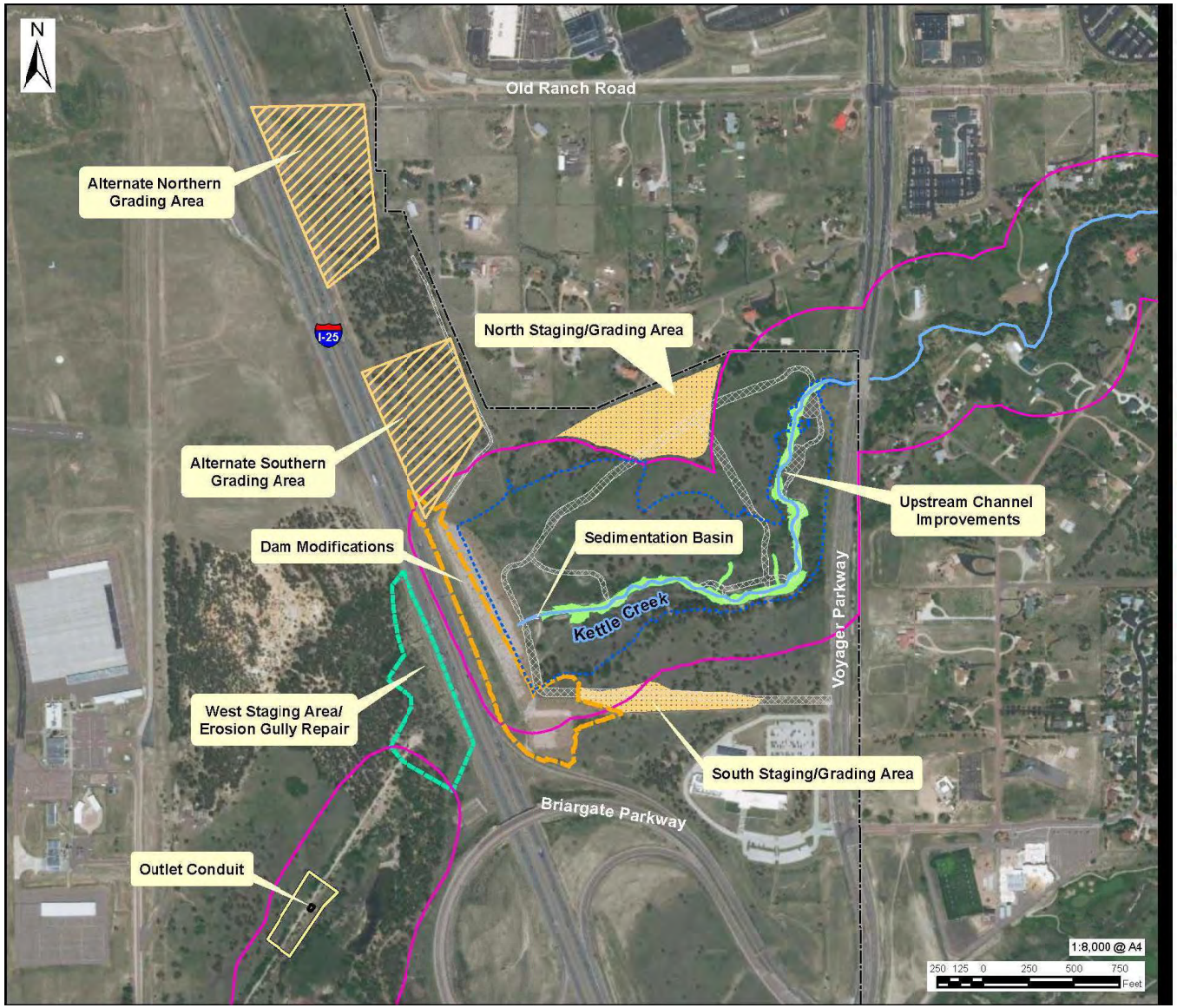

FIGURE TITLE

Proposed Action

PROJECT

Kettle Creek Dry Dam Environmental Assessment

U.S. Air Force Academy
Colorado Springs, CO

LEGEND

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- Sediment Basin
- Installation Boundary

Obenland, Benjamin

To: Busam, Michael
Subject: RE: USAFA - EA for Kettle Crk Dam - agency coordination

---

From: SPA-RD-CO <[redacted]>
Sent: Thursday, January 6, 2022 6:54 PM
To: MCCORKLE, JENNIFER L CTR USAF USAFA 10 CES/CENPP <[redacted]>; SPA-RD-CO <[redacted]>
Cc: Martinez, Joseph A - DELETED [redacted]>; SCHATZ, BARRY A GS-12 USAF USAFA 10 CES/CEIE <[redacted]>
Subject: RE: USAFA - EA for Kettle Crk Dam - agency coordination

Jennifer

The project will likely qualify for a general permit. Please identify the limits of waters of the U.S. along with the areas of temporary and permanent impacts. The discharge of dredged or fill material into a waters of the US will require a permit from us, unless the activity is exempt. You can obtain form 6082 (preconstruction notification) from our website at: https://www.spa.usace.army.mil/Missions/Regulatory-Program-and-Permits/NWP/.

Please let me know if you have any questions.

Kara Hellige
Chief, Southern Colorado Branch
US Army Corps of Engineers, Albuquerque District
[redacted] (office)
[redacted] (cell)

Please visit our website at: https://www.spa.usace.army.mil/Missions/Regulatory-Program-and-Permits/

From: MCCORKLE, JENNIFER L CTR USAF USAFA 10 CES/CENPP <[redacted]>
Sent: Wednesday, December 22, 2021 8:06 AM
To: SPA-RD-CO <[redacted]>
Cc: Martinez, Joseph A CIV USARMY CESPA (USA) <[redacted]>; SCHATZ, BARRY A GS-12 USAF USAFA 10 CES/CEIE <[redacted]>
Subject: USAFA - EA for Kettle Crk Dam - agency coordination

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Sincerely
BARRY SCHATZ
Chief, Environmental Element

Sent on behalf of Mr. Barry Schatz

//SIGN//
Jennifer McCorkle, Environmental Planner, desk [redacted]

COLORADO
Parks and Wildlife
Department of Natural Resources

Southeast Regional Office
4255 Sinton Rd.
Colorado Springs, CO 80907
P 719.227.5200 | F 719.227.5223

January 14, 2022

Barry Schatz
Chief, Environmental Element
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy, CO 80840-2400

Re: Kettle Creek Dry Dam Repair and Improvement

Dear Mr. Schatz,

Colorado Parks and Wildlife (CPW) has reviewed the information submitted for the Environmental Assessment on the repair of the Kettle Creek Dry Dam on the United States Air Force Academy (USAFA) Colorado. Kettle Creek Dry Dam lies on the eastern boundary of USAFA immediately northeast of the Interstate 25 (I-25) and Briargate Parkway intersection. Some of the features associated with the dam are also located just west of I-25. CPW staff is familiar with the Kettle Creek Dry Dam's location and has visited the site for observations. CPW offers the following comments for your consideration.

Kettle Creek falls within Preble's Meadow Jumping Mouse (PMJM) range and potential critical habitat. PMJM is currently on both the Federal and State threatened species list. Temporary and permanent construction impacts in this area may permanently impact resident wildlife. CPW recommends contacting the United States Fish and Wildlife Service for information regarding any construction, demolition or earth movement within PMJM habitat.

In the list of potential actions to be taken for the repair of the Kettle Creek Dry Dam, CPW sees that there will be upstream channel improvements to reconnect Kettle Creek to its floodplain and improve natural habitat. CPW encourages any improvements to the stream channel and the surrounding natural habitat, but CPW also cautions against any actions involving stream improvement that may ultimately impact native fish habitat or survival. CPW recommends that any stream or habitat improvements adhere to all Best Management Practices (BMP) to limit erosion and sedimentation within the stream.

CPW would also recommend that USAFA develop a more detailed action plan after the Environmental Assessment is completed and potential improvement to the Kettle Creek Dry Dam commences. This action plan should then be shared with all interested parties so they may be able to assess other potential impacts from the new plan.

Thank you for the opportunity to comment on this proposed project. If you have any questions or require additional information please contact District Wildlife Manager Corey Adler at 719-439-9637 or via e-mail corey.adler@state.co.us.

Sincerely,

Travis Sauder
Acting Area Wildlife Manager

Cc: Corey Adler, DWM
SE Regional File
Area 14 File

COLORADO
Parks and Wildlife
Department of Natural Resources

Southeast Regional Office
4255 Sinton Rd.
Colorado Springs, CO 80907
P 719.227.5200 | F 719.227.5223

February 14, 2022

Brian S. Mihlbachler, PhD
U.S. Fish and Wildlife Service
Natural Resources Manager
10CES/CEIEA
8120 Edgerton Drive, Suite 40
USAF Academy, CO 80840-2400

Re: Kettle Creek Dry Dam Repair and Improvement

Dear Mr. Mihlbachler,

Colorado Parks and Wildlife (CPW) would like to thank you for taking Aquatic Biologist Cory Noble and District Wildlife Manager (DWM) Corey Adler on a site visit to the Kettle Creek Dry Dam area and to the upstream portion of Kettle Creek itself.

Both Mr. Noble and DWM Adler appreciated the opportunity to get a first-hand look at the dam itself and the Kettle Creek streambed that lies above the Kettle Creek dam.

From first hand observation of the dam and of the extensive erosion issues that have caused Kettle Creek to cut itself deeply within its channel, CPW has these additional comments for the Kettle Creek Dry Dam repair and improvement.

CPW still recommends that the United States Fish and Wildlife Service (USFWS) be contacted regarding any work involving the creek itself and the habitat surrounding the creek. The Kettle Creek area showed high concentrations of the federally threatened Preble's Meadow Jumping Mouse (PMJM) in the past and it could still possibly hold some of the mice now. Contacting USFWS for guidance should be conducted before any work starts on the project.

CPW was previously worried about the restructuring of Kettle Creek with steep creek drop structures of at least 25%. After walking the creek and observing the dramatic erosion problems that are associated with Kettle Creek at this time, CPW understands why such steep drop structures are suggested and planned.

As Kettle Creek was walked CPW also observed that the lower portion of the creek by the dam was blocked by a large concrete "Gorilla Cage" used to block trash and debris from going into the large 9 foot diameter pipe that goes under Interstate 25. It was also observed at the upper portion of Kettle Creek, before it reaches the Voyager Parkway Bridge, that there was a tall drop structure already in place in the middle of the creek. With these observations, especially what was seen by the dam, CPW realizes that the fish community in Kettle Creek is minimal to none.

From all the observations made by Mr. Noble and DWM Adler during the site visit, CPW is supportive in the proposed actions for the creek itself and for the habitat improvement throughout the Kettle Creek floodplain.

Finally, CPW was informed that there was a possibility of surplus earth or other natural materials being stored or discarded to the north/northwest portion of the improvement area. It was said that a stand of pine trees could be cut down to help with this process. CPW highly suggests that no incidental trees be cut or lost in this process. The pine trees are a valuable component to the improved habitat of the area and any unneeded loss of these trees is not recommended. CPW values these trees for wildlife habitat, overall habitat structure and for the benefit that trees give to all of us visually and biologically through photosynthesis and the production of oxygen.

CPW thanks Mr. Brian Mihlbachler taking Mr. Noble and DWM Adler out on the informative site visit. If you have any questions or require additional information please contact District Wildlife Manager Corey Adler at 719-439-9637 or via e-mail corey.adler@state.co.us.

Sincerely,

Travis Sauder
Acting Area Wildlife Manager

Cc: Corey Adler, DWM
SE Regional File
Area 14 File

From: MCCORKLE, JENNIFER L CTR USAF USAFA 10 CES/CENPP
To: Frei - CDOT, Robert
Cc: SCHATZ, BARRY A GS-12 USAF USAFA 10 CES/CEIE
Bcc: MCCORKLE, JENNIFER L CTR USAF USAFA 10 CES/CENPP
Subject: RE: [URL Verdict: Neutral][Non-DoD Source] Re: USAFA - EA for Kettle Crk Dam - agency coordination
Date: Wednesday, January 12, 2022 12:17:00 PM
Attachments: CDOT_Easement.pdf

Rob,
I hope you are doing well. Thank you for the information. To your points below, first, based on the design there should not be an impact to the water quality facility listed below. Second, the project has been design to avoid impacts to traffic on I25 but will confirm with Project Manager. Finally, a Special Use permit will be needed. This requirement will be passed on to our Project Manager.

If you have further questions or concerns, please feel free to reach out.
Thank you,
//SIGN//
Jennifer McCorkle, Environmental Planner, desk [redacted]

From: Frei - CDOT, Robert [redacted]
Sent: Tuesday, January 4, 2022 1:40 PM
To: MCCORKLE, JENNIFER L CTR USAF USAFA 10 CES/CENPP [redacted]
Cc: SCHATZ, BARRY A GS-12 USAF USAFA 10 CES/CEIE [redacted]
Subject: [URL Verdict: Neutral][Non-DoD Source] Re: USAFA - EA for Kettle Crk Dam - agency coordination

Mr. Schatz-
Thanks for the opportunity to provide early input into this process. CDOTs primary environmental concern with this project is our extended detention basin, a permanent water quality facility (EXB 00162 CO-RS00184-EN004) is located north of the southbound on ramp loop on the west side of I-25. The USAFA plan calls for using this location as the West Staging Area. Our preference would be to have the USAFA avoid this facility. However, if that is not possible, then a commitment to repair the facility to its previous condition, if damaged. If the USAFA anticipates any impacts to traffic on I-25 from the proposed project, then I recommend you coordinate with our Traffic Engineering Program (Jason Nelson). Finally, a no cost Special Use permit will be required from our permit unit for work within our easement. Please feel free to reach out to me if you have any questions.
Thanks-
Rob

On Wed, Dec 22, 2021 at 8:12 AM MCCORKLE, JENNIFER L CTR USAF USAFA 10 CES/CENPP [redacted] wrote:

> Dear Mr. Frei
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Sincerely

BARRY SCHATZ
Chief, Environmental Element

Sent on be-half of Mr. Barry Schatz

//SIGN//
Jennifer McCorkle, Environmental Planner, desk [redacted]

--

Rob Frei

Planning and Environmental Manager, Region 2

[redacted]


US AIR FORCE ACADEMY
CDOT Easement
UNITED STATES AIR FORCE ACADEMY

APPENDIX B:

NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION

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DEPARTMENT OF THE AIR FORCE
10TH CIVIL ENGINEER SQUADRON
USAF ACADEMY COLORADO

Lieutenant Colonel Jeremy V. Oldham
Commander
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy, CO 80840-2400

Ms. Dawn DiPrince, AIA
State Historic Preservation Office
History Colorado, the Colorado Historical Society
1200 N Broadway
Denver, CO 80203-2137

Dear Ms. DiPrince

The United States Air Force Academy (USAFA) is proposing to repair the Kettle Creek Dry Dam to meet Colorado Department of Water Resources (DWR) dam safety regulations. The project is an undertaking subject to review under the National Historic Preservation Act (NHPA) Section 106 process. Utilizing NHPA Section 110 authorization to ensure high quality inventories of historic properties, we previously consulted your agency on this proposed work via USAFA letters dated December 21, 2020 (HC# 79070) and January 12, 2021 (HC# 79283). As the proposed repair design became focused, by letter dated August 30, 2021 (HC# 79283-continuation) we initiated Section 106 consultation on this project. We are assuming the primary tracking reference for this project remains HC# 79283.

A National Environmental Policy Act (NEPA) environmental assessment also is being developed, though from communications with your office on other USAFA planning efforts, we understand that your agency does not participate in consultation under NEPA.

Attachment 1 provides proposed undertaking details, proposed Area of Potential Effects (APE) discussion, and results of identification and assessment of the potential of the undertaking to affect adversely Historic Properties. The previous consultations noted above are explained in this attachment. Based on the information presented, we request your concurrence on the proposed APE and a proposed determination of "no historic properties affected" as described in 36 CFR § 800.4(d)(1).

Due to the nature and scope of this undertaking, in accordance with 36 CFR 800.2(c), USAFA is sending duplicate information to American Indian tribal stakeholders to USAFA (Attachment 2). We will address any comments or concerns therefrom. Please contact Mr. Erwin Roemer, 10 CES/CENP, USAFA Cultural Resources Manager, at erwin.roemer@us.af.mil, or at (646) 673-4642, if you have any questions. We thank you for your review and assistance.

Sincerely

OLDHAM.JEREMY.VON.1158169130 Digitally signed by OLDHAM.JEREMY.VON.1158169130 Date: 2022.01.20 11:05:32 -07'00'

JEREMY V. OLDHAM, PE, Lt Col, USAF

DEPARTMENT OF THE AIR FORCE
10TH CIVIL ENGINEER SQUADRON
USAF ACADEMY COLORADO

2 Attachments:
1. USAFA Cultural Resources Section 106 Project Review
2. Consulting/Interested Parties

Attachment 1 contains sensitive cultural resources data. A redacted version of Attachment 1 is available upon request.

ATTACHMENT 2
Consulting/Interested Parties

Apache Tribe of Oklahoma
Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation
Cheyenne and Arapaho Tribes of Oklahoma
Cheyenne River Sioux Tribe
Comanche Nation of Oklahoma
Crow Nation
Eastern Shoshone Tribe of the Wind River Reservation
Flandreau Santee Sioux Tribe of South Dakota
Fort Belknap Indian Community
Fort Sill Apache Tribe
Jicarilla Apache Tribe
Kiowa Tribe of Oklahoma
Lower Brule Sioux Tribe of the Lower Brule Reservation
Mescalero Apache Tribe
Navajo Nation
Northern Arapaho Tribe
Northern Cheyenne Tribe
Oglala Sioux Tribe
Pawnee Nation of Oklahoma
Pueblo de Cochiti
Pueblo of Picuris
Pueblo of Santa Ana
Pueblo of Santa Clara
Pueblo of Taos
Pueblo of Zuni
Rosebud Sioux Tribe
Santee Sioux Nation
Southern Ute Indian Tribe
Spirit Lake Nation
Standing Rock Sioux Tribe
Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation
Ute Indian Tribe of the Uintah and Ouray Reservation
Ute Mountain Ute Tribe
Yankton Sioux Tribe

Colorado State Historic Preservation Officer (SHPO)

DEPARTMENT OF THE AIR FORCE
10TH CIVIL ENGINEER SQUADRON
USAF ACADEMY COLORADO

Lieutenant Colonel Jeremy V. Oldham
Commander
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy, CO 80840-2400

Ms. Dawn DiPrince
State Historic Preservation Officer
History Colorado, the Colorado Historical Society
1200 N Broadway
Denver, CO 80203-2137

Dear Ms. DiPrince

In a letter sent to your office January 20, 2022, the US Air Force Academy (USAFA) proposed a determination of "no historic properties affected" (reference 36 CFR § 800.4(d)(1)) for the proposed undertaking to repair the Kettle Creek Dry Dam (HC# 79283). After reviewing the consultation package, Mr. Matthew Marques of your agency discussed the matter with cultural resources specialists at my office. Mr. Marques advised that the Section 106 procedural interpretation would more appropriately be a recommended "finding of no adverse effect" per 36 CFR § 800.5(b). He based this interpretation on the presence of cultural sites 5EP.7716 and 5EP.80805 in the project's Area of Potential Effects, and in reference to a more recently addressed erosion control landscape, 5EP.7715, involving much of USAFA's lands. We agree with Mr. Marques' request, and by the present communication wish to clarify the previous communication, revising it to request your concurrence on this project having a "finding of no adverse effect to Historic Properties" (36 CFR § 800.5(b)).

For questions on this matter, please contact Mr. Erwin Roemer, 10 CES/CENP Cultural Resources Manager, at email erwin.roemer@us.af.mil or by teleworking (646) 673-4642. We appreciate your time, and that of Mr. Marques, in helping us refine this consultation outcome.

Sincerely

OLDHAM.JEREMY.VON.1158169130
Digitally signed by OLDHAM.JEREMY.VON.1158169130
Date: 2022.03.01 14:11:25 -07'00'

JEREMY V. OLDHAM, Lt Col, USAF, PE

History Colorado

Lieutenant Colonel Jeremy Oldham
Commander, 10th Civil Engineer Squadron
U. S. Air Force Academy Colorado
Department of the Air Force
8120 Edgerton Drive, Suite 40
USAF Academy, Colorado 80840-2400

RE: Proposed Modifications of the Kettle Creek Dry Dam at the United States Air Force Academy, El Paso County, Colorado (HC# 79283)

Dear Lt. Col. Oldham,

Thank you for your correspondence received by our office on March 11, 2022 continuing consultation for the above referenced undertaking under Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR 800.

Based on the documentation provided, we agree that your finding of no adverse effect [36 CFR 800.5(d)(1)] to historic properties is appropriate for the subject undertaking.

Should unidentified archaeological resources be discovered in the course of the project, work must be interrupted until the resources have been evaluated in terms of the National Register eligibility criteria (36 CFR 60.4) in consultation with our office pursuant to 36 CFR 800.13. Also, should the consulted-upon scope of the work change, please contact our office for continued consultation under Section 106 of the NHPA.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR 800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings. Please note that our compliance letter does not end the 30-day review period provided to other consulting parties.

Thank you for the opportunity to comment. If you have any questions, please contact Matthew Marques, Section 106 Compliance Manager, at (303) 866-4678, or matthew.marques@state.co.us.

Sincerely,

Dr. Holly Kathryn Norton

Digitally signed by Dr. Holly Kathryn Norton
Date: 2022.03.15 13:42:47 -06'00'

Dawn DiPrince
State Historic Preservation Officer

APPENDIX C:

NATIVE AMERICAN CONSULTATION

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To support this EA, the USAF consulted on a government-to-government basis with tribes that are federally affiliated with USAFA. Tribes were formally requested to participate in the Section 106 process on 24 January 2022. The list of Tribes contacted and summary responses are included in **Table C-1.** Copies of all correspondence are included in the Administrative Record.

Table C-1: Record of Tribal Outreach

Tribe	Section 106 Letter Sent	Follow-up Correspondence	Summary Response
Apache Tribe of Oklahoma	1/24/2022	2/11/2022 and 2/18/2022	
Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation	1/24/2022	2/11/2022 and 2/18/2022	
Cheyenne and Arapaho Tribes of Oklahoma	1/24/2022	2/11/2022 and 2/18/2022	
Cheyenne River Sioux Tribe	1/24/2022	2/11/2022 and 2/18/2022	
Comanche Nation of Oklahoma	1/24/2022	2/11/2022 and 2/18/2022	No properties identified.
Crow Nation	1/24/2022	2/11/2022 and 2/18/2022	
Eastern Shoshone Tribe of the Wind River Reservation	1/24/2022	2/11/2022 and 2/18/2022	
Flandreau Santee Sioux Tribe of South Dakota	1/24/2022	2/11/2022 and 2/18/2022	
Fort Belknap Indian Community	1/24/2022	2/11/2022 and 2/18/2022	
Fort Sill Apache Tribe	1/24/2022	2/11/2022 and 2/18/2022	
Jicarilla Apache Tribe	1/24/2022	2/11/2022 and 2/18/2022	
Kiowa Tribe of Oklahoma	1/24/2022	2/11/2022 and 2/18/2022	
Lower Brule Sioux Tribe of the Lower Brule Reservation	1/24/2022	2/11/2022 and 2/18/2022	
Mescalero Apache Tribe	1/24/2022	2/11/2022 and 2/18/2022	
Navajo Nation	1/24/2022	Response received; no follow-up necessary.	No properties affected. No further consultation needed.
Northern Arapaho Tribe	1/24/2022	2/11/2022 and 2/18/2022	
Northern Cheyenne Tribe	1/24/2022	2/11/2022 and 2/18/2022	
Oglala Sioux Tribe	1/24/2022	2/11/2022 and 2/18/2022	
Pawnee Nation of Oklahoma	1/24/2022	Response received; no follow-up necessary.	No effect.
Pueblo de Cochiti	1/24/2022	2/11/2022 and 2/18/2022	
Pueblo of Picuris	1/24/2022	2/11/2022 and 2/18/2022	
Pueblo of Santa Ana	1/24/2022	2/11/2022 and 2/18/2022	

Tribe	Section 106 Letter Sent	Follow-up Correspondence	Summary Response
Pueblo of Santa Clara	1/24/2022	2/11/2022	No properties affected.
Pueblo of Taos	1/24/2022	2/11/2022 and 2/18/2022	
Pueblo of Zuni	1/24/2022	2/11/2022 and 2/18/2022	
Rosebud Sioux Tribe	1/24/2022	2/11/2022 and 2/18/2022	
Santee Sioux Nation	1/24/2022	2/11/2022 and 2/18/2022	
Southern Ute Indian Tribe	1/24/2022	Response received; no follow-up necessary.	No adverse effect on properties of cultural and religious significance.
Spirit Lake Nation	1/24/2022	2/11/2022 and 2/18/2022	
Standing Rock Sioux Tribe	1/24/2022	2/11/2022 and 2/18/2022	
Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation	1/24/2022	2/11/2022 and 2/18/2022	
Ute Indian Tribe of the Uintah and Ouray Reservation	1/24/2022	2/11/2022 and 2/18/2022	
Ute Mountain Ute Tribe	1/24/2022	2/11/2022 and 2/18/2022	
Yankton Sioux Tribe	1/24/2022	2/11/2022 and 2/18/2022	

DEPARTMENT OF THE AIR FORCE
10TH CIVIL ENGINEER SQUADRON
USAF ACADEMY COLORADO

Ms. Erin M. Manning
Deputy Director
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy, CO 80840-2400

Dear Tribal Historic Preservation Officer and other stakeholders

The United States Air Force Academy (USAFA) is proposing to repair the Kettle Creek Dry Dam to meet Colorado Department of Water Resources (DWR) dam safety regulations. The project is an undertaking subject to review under the National Historic Preservation Act (NHPA) Section 106 process. The USAFA is seeking your concurrence on our recommendations that the project will result in "no historic properties affected." As past consultations are explained in Attachment 1 to this letter, your tribe was consulted previously for inventory of Historic Properties in the presently proposed Area of Potential Effects (APE).

Attachment 1 provides details of the proposed project, discussion of the APE, and evaluation of the potential of the undertaking to affect Historic Properties. There are no archaeological sites or buildings listed in or eligible for listing in the National Register of Historic Places within the APE. Additionally, there are no known tribally significant resources within the APE. Based on our documentation and analysis, USAFA proposes a finding of "*no historic properties affected*" as described in 36 CFR § 800.4(d)(1). While inadvertent discoveries for this APE are extremely unlikely, regarding previously unknown historic properties that might be revealed during construction, any such discoveries would be promptly consulted to you under provisions of 36 CFR Part 800, other applicable laws and regulations, and USAFA's Integrated Cultural Resources Management Plan.

Please submit your comments to the above address or via email. We respectfully request a reply within 30 days of receiving the consultation package. In accordance with 36 CFR 800.2(c), USAFA is also consulting the Colorado State Historic Preservation Officer and other parties indicated by Attachment 2. This proposed undertaking is associated with a National Environmental Policy Act (NEPA) environmental assessment. Should your tribe wish to be consulted also under the NEPA planning process, please notify us on that matter.

For any questions, please contact Mr. Erwin Roemer, 10 CES/CENP, USAFA Cultural Resources Manager, at erwin.roemer@us.af.mil, or teleworking at (646) 673-4642. Thank you for your review and assistance on this matter.

Very Respectfully

MANNING.ERIN.MARIE.1047632192 Digitally signed by MANNING.ERIN.MARIE.1047632192 Date: 2022.01.20 10:45:29 -07'00'

ERIN M. MANNING, GS-14, DAF

2 Attachments:
1. USAFA Cultural Resources Section 106 Project Review
2. Consulting/Interested Parties

Attachment 1 contains sensitive cultural resources data. A redacted version of Attachment 1 is available upon request.

ATTACHMENT 2
Consulting/Interested Parties

Apache Tribe of Oklahoma
Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation
Cheyenne and Arapaho Tribes of Oklahoma
Cheyenne River Sioux Tribe
Comanche Nation of Oklahoma
Crow Nation
Eastern Shoshone Tribe of the Wind River Reservation
Flandreau Santee Sioux Tribe of South Dakota
Fort Belknap Indian Community
Fort Sill Apache Tribe
Jicarilla Apache Tribe
Kiowa Tribe of Oklahoma
Lower Brule Sioux Tribe of the Lower Brule Reservation
Mescalero Apache Tribe
Navajo Nation
Northern Arapaho Tribe
Northern Cheyenne Tribe
Oglala Sioux Tribe
Pawnee Nation of Oklahoma
Pueblo de Cochiti
Pueblo of Picuris
Pueblo of Santa Ana
Pueblo of Santa Clara
Pueblo of Taos
Pueblo of Zuni
Rosebud Sioux Tribe
Santee Sioux Nation
Southern Ute Indian Tribe
Spirit Lake Nation
Standing Rock Sioux Tribe
Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation
Ute Indian Tribe of the Uintah and Ouray Reservation
Ute Mountain Ute Tribe
Yankton Sioux Tribe

Colorado State Historic Preservation Officer (SHPO)

From: [redacted]
To:

Subject: Followup Government to Government Consultation Request for Comments: Repair Kettle Creek Dry Dam
Date: Friday, February 11, 2022 3:06:00 PM
Attachments: Atch 1_KettleCreekEA_S106.pdf
Atch 2_Consulting-Interested Parties.pdf
Tab 2_KettleCreekEA_THPO-Letter.pdf

Ms. Erin M. Manning
Deputy Director
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy CO 80840-2400

Dear Tribal Historic Preservation Officer

In a letter signed by Deputy Director Manning dated 1/20/2022 (Attached: Tab 2_KettleCreekEA_THPO-Letter), the United States Air Force Academy (USAFA) contacted your office regarding the proposed to repair the Kettle Creek Dry Dam to meet Colorado Department of Water Resources (DWR) dam safety regulations. Past consultations on this project are explained in Attachment 1, and your office was consulted previously over the inventory of Historic Properties in the presently proposed Area of Potential Effects (APE). While inadvertent discoveries for this APE are extremely unlikely , any such discoveries would be promptly consulted on with your office under provisions of 36 CFR Part 800, other applicable laws and regulations, and USAFA's Integrated Cultural Resources Management Plan. The USAFA is seeking your concurrence on our recommendations that the project will result in "no historic properties affected."

USAFA has not yet received a response from you to this request. This email is to check if you may be replying by 2 March 2022, which would be the normal 30 response period, or require more time. Reply by email is accepted, and for that or questions please contact Mr. Erwin Roemer, USAFA Cultural Resources Manager, 10ben CES/CENP, at erwin.roemer@us.af.mil, or by teleworking (646) 673-4642, Mountain Time Zone.

Very Respectfully
ERIN M. MANNING, GS-14, USAF

2 Attachments:
1. USAFA Cultural Resources Section 106 Project Review

2. Consulting/Interested Parties

Thank you,

//SIGNED//

Bernard Schriever, CTR.
Cultural Resources Planner
10 CES/CENPP
KIRA Facilities Services
8120 Edgerton Dr.
USAF Academy, CO 80840
Desk: 719-333-8375
Cell: 970-901-4999

From: [redacted]
To:

Subject: Final Followup Government to Government Consultation Request for Comments: Repair Kettle Creek Dry Dam
Date: Friday, February 18, 2022 8:17:00 AM
Attachments: Atch 1_KettleCreekEA_S106.pdf
Atch 2_Consulting-Interested Parties.pdf
Tab 2_KettleCreekEA_THPO-Letter.pdf

Ms. Erin M. Manning
Deputy Director
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy CO 80840-2400

Dear Tribal Historic Preservation Officer

In a letter signed by Deputy Director Manning dated 1/20/2022 (Attached: Tab 2_KettleCreekEA_THPO-Letter), the United States Air Force Academy (USAFA) contacted your office regarding the proposed to repair the Kettle Creek Dry Dam to meet Colorado Department of Water Resources (DWR) dam safety regulations. Past consultations on this project are explained in Attachment 1, and your office was consulted previously over the inventory of Historic Properties in the presently proposed Area of Potential Effects (APE). While inadvertent discoveries for this APE are extremely unlikely , any such discoveries would be promptly consulted on with your office under provisions of 36 CFR Part 800, other applicable laws and regulations, and USAFA's Integrated Cultural Resources Management Plan. The USAFA is seeking your concurrence on our recommendations that the project will result in "no historic properties affected."

USAFA has not yet received a response from you to this request. This email is to check if you may be replying by 2 March 2022, which would be the normal 30 response period, or require more time. Reply by email is accepted, and for that or questions please contact Mr. Erwin Roemer, USAFA Cultural Resources Manager, 10ben CES/CENP, at erwin.roemer@us.af.mil, or by teleworking (646) 673-4642, Mountain Time Zone.

Very Respectfully
ERIN M. MANNING, GS-14, USAF

2 Attachments:
1. USAFA Cultural Resources Section 106 Project Review

2. Consulting/Interested Parties

Thank you,

//SIGNED//

Bernard Schriever, CTR.
Cultural Resources Planner
10 CES/CENPP
KIRA Facilities Services
8120 Edgerton Dr.
USAF Academy, CO 80840
Desk: 719-333-8375
Cell: 970-901-4999

From: [redacted]
To:

Subject: Revised Kettle Creek Dry Dam Project Letter
Date: Wednesday, March 9, 2022 11:30:00 AM
Attachments: Kettle Crk Dry Dam 2nd ltr to THPOs.pdf

Ms. Erin M. Manning
Deputy Director
10th Civil Engineer Squadron
8120 Edgerton Drive, Suite 40
USAF Academy CO 80840-2400

Dear Tribal Historic Preservation Officers
In a previous communication to you, the US Air Force Academy (USAFA) proposed a determination of "no historic properties affected" (reference 36 CFR § 800.4(d)(1)) for the proposed repair of USAFA's Kettle Creek Dry Dam. In the present letter we are updating you on a change of interpretation resulting from feedback of the Colorado State Historic Preservation Officer's (SHPO) review of that same original communication. The end results are the same. The SHPO's review involved concern that it be made clear that historic engineering flood control features be clearly indicated for a finding of no adverse effect (per 36 CFR § 800.5(b)). We have agreed to a shift in interpretation from "no historic properties affected" to a "finding of no adverse effect" regarding the historic flood control features recorded as 5EP.7716 and 5EP.8085 in the project's Area of Potential Effects, and also in reference to a more recently addressed erosion control landscape, 5EP.7715, involving much of USAFA's lands.

This shift in interpretation of Section 106 consultation does not involve historic properties associated with evidence of American Indians. However you are welcome to comment on this matter, or contact Mr. Erwin Roemer (as below) if questions. Recognizing your workload and other factors we are not requesting a response to this updated communication.

As needed, please contact Mr. Roemer, 10 CES/CENP Cultural Resources Manager, at email erwin.roemer@us.af.mil or by teleworking (646) 673-4642. Thank you for your time in consideration of the additional explanation on this project.

Respectfully
ERIN M. MANNING, GS-14, DAF

APPENDIX D:

EARLY NOTICE OF A PROPOSED ACTIVITY WITH THE POTENTIAL TO IMPACT WETLANDS AND FLOODPLAINS

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EARLY NOTICE OF A PROPOSED ACTIVITY WITH THE POTENTIAL TO IMPACT WETLANDS AND FLOODPLAINS U.S. AIR FORCE ACADEMY, EL PASO COUNTY, COLORADO

The United States (U.S.) Air Force is preparing an Environmental Assessment (EA) to evaluate the potential environmental impacts associated with the repair of Kettle Creek Dry Dam at the U.S. Air Force Academy (USAFA) in El Paso County, Colorado to meet Colorado Department of Water Resources (DWR) dam safety regulations (Proposed Action). The purpose of this Proposed Action is to reduce the risk to life along the Interstate 25 corridor caused by the existing high hazard dam, bring the dam into compliance with DWR's dam safety regulations, restore the Kettle Creek riparian habitat, and improve maintenance infrastructure (i.e., the Kettle Lakes diversion structure) in support of the dam and Kettle Lakes. The Proposed Action is needed because the Kettle Creek Dry Dam currently does not comply with applicable state regulations. Failure to repair the dam means Kettle Creek Dry Dam would remain a high hazard dam and would continue to violate the DWR regulations; loss of life could potentially occur if the dam were to fail.

The dam repair project is subject to requirements and objectives of Executive Orders (EOs) 11990, *Protection of Wetlands* and 11988, *Floodplain Management*, as the project site is located within a floodplain and contains wetlands. The area to be temporarily disturbed during construction and restoration activities would be less than 0.01 acre of wetlands and 6.70 acres of 100-year floodplain. The Proposed Action would not contribute to any measureable loss with regard to flood control capacity, and would include new wetland creation.

The Proposed Action will be analyzed in the forthcoming EA and the public will have the opportunity to comment on the draft EA when it is released. The draft EA will be available for public review at: www.usafa.af.mil.

This notice complies with Section 2(a)(4) of EO 11988 and Section 2(b) of EO 11990. The Air Force requests advance public comment to determine if there are any public concerns regarding the project's potential impacts on wetlands and floodplains. The public comment period is 8 January to 11 February 2022. Please submit comments or requests for more information to the Air Force by email to 10CES.CENPP.Planning_Programming@us.af.mil, or by mail to Barry Schatz, Environmental Flight Element, 8120 Edgerton Drive, USAFA, CO 80840.

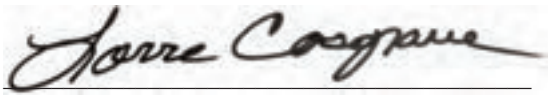
132041

AFFIDAVIT OF PUBLICATION

STATE OF COLORADO
COUNTY OF El Paso

I, Lorre Cosgrove, being first duly sworn, deposes and says that she is the Legal Sales Representative of The Colorado Springs Gazette, LLC., a corporation, the publishers of a daily/weekly public newspapers, which is printed and published daily/weekly in whole in the County of El Paso, and the State of Colorado, and which is called Colorado Springs Gazette; that a notice of which the annexed is an exact copy, cut from said newspaper, was published in the regular and entire editions of said newspaper **1 time(s) to wit 01/08/2022**

That said newspaper has been published continuously and uninterruptedly in said County of El Paso for a period of at least six consecutive months next prior to the first issue thereof containing this notice; that said newspaper has a general circulation and that it has been admitted to the United States mails as second-class matter under the provisions of the Act of March 3, 1879 and any amendment thereof, and is a newspaper duly qualified for the printing of legal notices and advertisement within the meaning of the laws of the State of Colorado.



Lorre Cosgrove
Sales Center Agent

Subscribed and sworn to me this 01/10/2022, at said City of Colorado Springs, El Paso County, Colorado.
My commission expires March 30, 2022.

Sandra King
Notary Public
The Gazette

Document Authentication Number

EARLY NOTICE OF A PROPOSED ACTIVITY WITH THE POTENTIAL TO IMPACT WETLANDS AND FLOODPLAINS
U.S. AIR FORCE ACADEMY,
EL PASO COUNTY, COLORADO

The United States (U.S.) Air Force is preparing an Environmental Assessment (EA) to evaluate the potential environmental impacts associated with the repair of Kettle Creek Dry Dam at the U.S. Air Force Academy (USAFA) in El Paso County, Colorado to meet Colorado Department of Water Resources (DWR) dam safety regulations (Proposed Action). The purpose of this Proposed Action is to reduce the risk to life along the Interstate 25 corridor caused by the existing high hazard dam, bring the dam into compliance with DWR's dam safety regulations, restore the Kettle Creek riparian habitat, and improve maintenance infrastructure (i.e., the Kettle Lakes diversion structure) in support of the dam and Kettle Lakes. The Proposed Action is needed because the Kettle Creek Dry Dam currently does not comply with applicable state regulations. Failure to repair the dam means Kettle Creek Dry Dam would remain a high hazard dam and would continue to violate the DWR regulations; loss of life could potentially occur if the dam were to fail.

The dam repair project is subject to requirements and objectives of Executive Orders (EOs) 11990, Protection of Wetlands and 11988, Floodplain Management, as the project site is located within a floodplain and contains wetlands. The area to be temporarily disturbed during construction and restoration activities would be less than 0.01 acre of wetlands and 6.70 acres of 100-year floodplain. The Proposed Action would not contribute to any measureable loss with regard to flood control capacity, and would include new wetland creation.

The Proposed Action will be analyzed in the forthcoming EA and the public will have the opportunity to comment on the draft EA when it is released. The draft EA will be available for public review at: https://www.usafa.af.mil/Units/10th-Air-Base-Wing/.

This notice complies with Section 2(a)(4) of EO 11988 and Section 2(b) of EO 11990. The Air Force requests advance public comment to determine if there are any public concerns regarding the project's potential impacts on wetlands and floodplains. The public comment period is 8 January to 7 February 2022. Please submit comments or requests for more information to Mr. Barry Schatz by email to barry.schatz.2@us.af.mil, or by mail to Barry Schatz, Environmental Flight Element, 8120 Edgerton Drive, USAFA, CO 80840.

Colorado Springs Independent
235 S. Nevada Ave.
Colorado Springs, CO 80903

AFFIDAVIT

I, Cathy Reilly, in my capacity as Receptionist of the newspaper
(Name) (Title)

Colorado Spring Independent Colorado Springs, CO
(Newspaper Name) (City) (State)

hereby certify that the ☒ ROP/☐ Preprinted Inserts (choose one) for Environmental Flight Element
(Advertiser)

"Early Notice..." the Invoice # NA
(Ad Headline)

was ~~inserted~~ printed in the above newspaper on 1/12/22.
(Run Date)

Cathy Reilly
Signature of Person Making Affidavit

Subscribed and sworn to before me in the County of EL PASO in the State of
(County)

COLORADO, on this 13 day of JANUARY, 2022
(State) (Date) (Month) (Year)

Notary Public Seal:

Robyn Kirk
Notary Public Signature

ROBYN KIRK
Notary Public
State of Colorado
Notary ID # 20114063677
My Commission Expires 10-05-2023

10-05-2023
Commission Expires

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APPENDIX E:

AIR CONFORMITY APPLICABILITY MODEL REPORTS

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AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: USAF ACADEMY
State: Colorado
County(s): El Paso
Regulatory Area(s): Colorado Springs, CO

b. Action Title: USAFA-Repair Kettle Creek Dry Dam

c. Project Number/s (if applicable):

d. Projected Action Start Date: 10 / 2022

e. Action Description:

Under the Preferred Alternative, the USAFA would modify the dam such that it could be reclassified by the DWR as an "exempt structure" (i.e., a dam exempt from DWR jurisdiction due to its lack of ability to impound water above the natural ground surface, except during floods). The Preferred Alternative includes three primary components: dam modifications, including removing the dam embankment; upstream channel reach improvements to restore Kettle Creek; and Kettle Lakes diversion structure upgrades to improve functionality and reduce sedimentation of the riparian area and lakes.

f. Point of Contact:

Name: Caitlin Shaw
Title: Contractor
Organization: AECOM
Email:
Phone Number:

2. Analysis: Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" and "steady state" (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are: _____ applicable
__X__ not applicable

Conformity Analysis Summary:

2022

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Colorado Springs, CO			
VOC	0.478		
NOx	3.088		
CO	2.680	100	No
SOx	0.008		
PM 10	34.053		

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)

PM 2.5	0.123		
Pb	0.000		
NH3	0.002		
CO2e	785.5		

2023

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Colorado Springs, CO			
VOC	1.227		
NOx	7.973		
CO	6.824	100	No
SOx	0.020		
PM 10	101.761		
PM 2.5	0.316		
Pb	0.000		
NH3	0.006		
CO2e	2030.0		

2024 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Colorado Springs, CO			
VOC	0.000		
NOx	0.000		
CO	0.000	100	No
SOx	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		

None of estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

Caitlin L Shaw

_____ 1/9/2022_____

Caitlin Shaw, Contractor DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location
Base: USAF ACADEMY
State: Colorado
County(s): El Paso
Regulatory Area(s): Colorado Springs, CO

- Action Title: USAFA-Repair Kettle Creek Dry Dam

- Project Number/s (if applicable):

- Projected Action Start Date: 10 / 2022

- Action Purpose and Need:
The Kettle Creek Dry Dam, located on the U.S. Air Force Academy (USAFA), is currently not in compliance with Colorado Department of Water Resources (DWR) regulations for "high hazard" dams. The USAF, through the USAFA, must repair the dam to bring it into compliance.

- Action Description:
Under the Preferred Alternative, the USAFA would modify the dam such that it could be reclassified by the DWR as an "exempt structure" (i.e., a dam exempt from DWR jurisdiction due to its lack of ability to impound water above the natural ground surface, except during floods). The Preferred Alternative includes three primary components: dam modifications, including removing the dam embankment; upstream channel reach improvements to restore Kettle Creek; and Kettle Lakes diversion structure upgrades to improve functionality and reduce sedimentation of the riparian area and lakes.

- Point of Contact
Name: Caitlin Shaw
Title: Contractor
Organization: AECOM
Email:
Phone Number:

- Activity List:

Activity Type		Activity Title
2.	Construction / Demolition	Removal of Dam Embankment
3.	Construction / Demolition	Upstream Channel Improvement
4.	Construction / Demolition	Lake Diversion Structure

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location
County: El Paso
Regulatory Area(s): Colorado Springs, CO

- Activity Title: Removal of Dam Embankment

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Description:
Existing dam embankment will be removed

- Activity Start Date
Start Month: 10
Start Month: 2022

- Activity End Date
Indefinite: False
End Month: 9
End Month: 2023

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	1.165881
SO_x	0.019234
NO_x	7.604487
CO	6.312369
PM 10	114.701721

Pollutant	Total Emissions (TONs)
PM 2.5	0.299442
Pb	0.000000
NH_3	0.006438
CO_2e	1946.1

2.1 Site Grading Phase

2.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 12
Number of Days: 0

2.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 958320
Amount of Material to be Hauled On-Site (yd^3): 29000
Amount of Material to be Hauled Off-Site (yd^3): 125000

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	1	8
Graders Composite	1	8
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8
Scrapers Composite	3	8
Tractors/Loaders/Backhoes Composite	3	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 20 (default)

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0648	0.0013	0.3170	0.5103	0.0136	0.0136	0.0058	119.72
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.301	000.002	000.232	003.362	000.009	000.008		000.023	00323.384
LDGT	000.363	000.003	000.402	004.534	000.011	000.010		000.024	00417.507
HDGV	000.719	000.005	001.095	015.968	000.026	000.023		000.045	00767.415
LDDV	000.125	000.003	000.135	002.442	000.004	000.004		000.008	00312.138
LDDT	000.268	000.004	000.390	004.199	000.007	000.006		000.008	00443.722
HDDV	000.480	000.013	005.052	001.697	000.168	000.155		000.028	01480.669
MC	002.615	000.003	000.838	013.632	000.029	000.025		000.054	00399.467

2.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)

20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)

ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Location
County: El Paso
Regulatory Area(s): Colorado Springs, CO

- Activity Title: Upstream Channel Improvement

- Activity Description:
Improvements made to the upstream channel for better stream flow.

- Activity Start Date
Start Month: 10
Start Month: 2022

- Activity End Date
Indefinite: False
End Month: 9
End Month: 2023

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.435987
SO_x	0.007058
NO_x	2.811812
CO	2.584229
PM 10	20.913270

Pollutant	Total Emissions (TONs)
PM 2.5	0.112740
Pb	0.000000
NH_3	0.001907
CO_2e	706.2

3.1 Site Grading Phase

3.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 12
Number of Days: 0

3.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 174240
Amount of Material to be Hauled On-Site (yd^3): 30000
Amount of Material to be Hauled Off-Site (yd^3): 4500

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	1	8

Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8
Tractors/Loaders/Backhoes Composite	2	7

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 20 (default)

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.301	000.002	000.232	003.362	000.009	000.008		000.023	00323.384
LDGT	000.363	000.003	000.402	004.534	000.011	000.010		000.024	00417.507
HDGV	000.719	000.005	001.095	015.968	000.026	000.023		000.045	00767.415
LDDV	000.125	000.003	000.135	002.442	000.004	000.004		000.008	00312.138
LDDT	000.268	000.004	000.390	004.199	000.007	000.006		000.008	00443.722
HDDV	000.480	000.013	005.052	001.697	000.168	000.155		000.028	01480.669
MC	002.615	000.003	000.838	013.632	000.029	000.025		000.054	00399.467

3.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)

2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

4. Construction / Demolition

4.1 General Information & Timeline Assumptions

- Activity Location

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

County: El Paso
Regulatory Area(s): Colorado Springs, CO

- Activity Title: Lake Diversion Structure

- Activity Description:
Construction activities associated with building the lake diversion structure.

- Activity Start Date
Start Month: 10
Start Month: 2022

- Activity End Date
Indefinite: False
End Month: 1
End Month: 2023

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.103256
SO_x	0.001641
NO_x	0.644758
CO	0.608078
PM 10	0.199542

Pollutant	Total Emissions (TONs)
PM 2.5	0.026198
Pb	0.000000
NH_3	0.000227
CO_2e	163.3

4.1 Site Grading Phase

4.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 10
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 4
Number of Days: 0

4.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 4356
Amount of Material to be Hauled On-Site (yd^3): 75
Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	1	6
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	6

Tractors/Loaders/Backhoes Composite	1	7

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

4.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.301	000.002	000.232	003.362	000.009	000.008		000.023	00323.384
LDGT	000.363	000.003	000.402	004.534	000.011	000.010		000.024	00417.507
HDGV	000.719	000.005	001.095	015.968	000.026	000.023		000.045	00767.415
LDDV	000.125	000.003	000.135	002.442	000.004	000.004		000.008	00312.138
LDDT	000.268	000.004	000.390	004.199	000.007	000.006		000.008	00443.722
HDDV	000.480	000.013	005.052	001.697	000.168	000.155		000.028	01480.669
MC	002.615	000.003	000.838	013.632	000.029	000.025		000.054	00399.467

4.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons