**APPENDIX A:** 

# CONSULTATION WITH FEDERAL, STATE, AND LOCAL AGENCIES

# SAMPLE

From:	RYAN, BRENDAN J CTR USAF USAFA 10 CES/CENPP
То:	robert.frei@state.co.us
Cc:	SCHATZ, BARRY A CIV USAF USAFA 10 CES/CEIE
Bcc:	RYAN, BRENDAN J CTR USAF USAFA 10 CES/CENPP
Subject:	USAFA - EA for Combat Survival Training - Agency Coordination
Date:	Wednesday, July 5, 2023 11:26:00 AM
Attachments:	CST EA IICEP DOT RF.pdf

Dear Mr. Frei

The United States Air Force (USAF) is preparing an Environmental Assessment (EA) to evaluate the potential environmental impacts resulting from the implementation of a Combat Survival Training (CST) program, including construction and operation of supporting facilities, at United States Air Force Academy (USAFA) in El Paso County, Colorado (Proposed Action). The CST program includes land survival, water survival, and emergency parachute training that would satisfy the survival and evasion requirements of survival, evasion, resistance, and escape (SERE) training. The USAFA already trains Cadets in land survival training; therefore, the Proposed Action only includes construction and operation activities associated with implementing water survival and emergency parachute training.

The current USAFA SERE program does not meet required training demands, resulting in a backlog of personnel waiting to complete accredited SERE training. USAFA Cadets have been traveling to Fairchild Air Force Base (AFB) in Washington State to complete CST (a graduation requirement). Despite temporary implementation of CST at USAFA in the summer of 2022, there remains a backlog of USAFA Cadets and active duty Airmen waiting to complete the CST required to graduate and become fully operational. The requirements for SERE have also recently changed, including the addition of emergency parachute training, which was not covered in previous SERE training at USAFA. The Joint Training Standards (JTS) are currently being revised by the Joint Personnel Recovery Agency (JPRA) to reflect the new training requirements and incorporate these changes into training courses. Subsequently, the 19th AF Commander at Fairchild AFB and USAFA Superintendent have issued a directive to bring back portions of accredited SERE training to USAFA by implementing a CST program.

Therefore, the <u>purpose</u> of the Proposed Action is to follow the leadership directive to offer CST at USAFA, meet the new standards for SERE set by the JPRA, and increase the overall SERE training capacity of the USAF. The Proposed Action is <u>needed</u> because the training capacity at Fairchild AFB does not meet the current and projected demand for SERE training (including CST) and there is a backlog of USAFA Cadets and Airmen who require this training.

The EA will analyze the potential range of environmental impacts associated with three alternatives for this Proposed Action: Alternative 1 (Consolidated Training Area on North Side of Kettle Lake #3), Alternative 2 (Dispersed Training Facilities), and the No Action Alternative. Alternatives 1 and 2 differ in their construction requirements and locations but would implement the same operational training activities. Under the No Action Alternative, the USAF would not implement a CST program at USAFA, and the USAF's SERE training program would continue to impact Cadet training.

#### **Construction**

Under Alternative 1, the USAF would construct facilities for water survival and emergency parachute training at a consolidated training area on the north side of Kettle Lake #3 at the USAFA (**Figure 1**). Under Alternative 2, the USAF would construct water survival and emergency parachute training facilities at dispersed locations within USAFA rather than one consolidated training area. Water survival training would take place on the south side of Kettle Lake #3, while emergency parachute training would occur at a separate new facility, constructed either adjacent to USAFA's existing Parachuting Ground Training Facility (Building 9204) or in Jacks Valley, where portions of land survival training currently occur (**Figure 2**).

Alternatives 1 and 2 would include the construction of a Conex tower and lateral drift apparatus structure near the lake, an indoor emergency parachute training facility, and a permanent storage facility to hold CST equipment (**Figure 3**). During construction, Alternatives 1 and 2 may utilize a supplemental staging area in an existing parking lot off Airfield Drive. Utilities, including water, sanitary sewer, electric, and telecom would be extended to the selected site from USAFA's existing utility infrastructure (**Figure 1** and **Figure 2**).

#### **Operation**

Once operational, outdoor water-based training would occur in Kettle Lake #3 which will include Cadets and active duty airman utilizing the lateral drift apparatus to simulate parachute landings in water. Jet skis would be deployed in Kettle Lake #3 to simulate parachute drags across the lake and a helicopter would hover over Kettle Lake #3 for several hours per training day to create choppy water to simulate a rough open ocean environment. The remaining portions of emergency parachute training would occur indoors at the newly constructed emergency parachute training building. The CST program would include three, 21-day sessions in the summer of each year, accommodating approximately 400 Cadets each session (1,200 Cadets per summer). In addition, up to 1,000 additional Airmen could be trained in the remaining seasons when weather conditions allow. Training would occur Monday through Sunday during daytime hours.

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, effective May 20, 2022), and the Air Force Environmental Impact Analysis Process (32 CFR 989).

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

Emailed on behalf of Barry Schatz.

//SIGN// Brendan Ryan, Environmental Planner 10 CES/CENPP Kira Facilities Services 8120 Edgerton Dr. USAF Academy, CO 80840 Desk: (719) 333-0897 Cell: (719)208-1485 Brendan.ryan.4.ctr@us.af.mil

### Consultation with Federal, State, and Local Agencies

#### Federal Agencies

#### **U.S. Army Corps of Engineers**

Pueblo Office 200 South Santa Fe Avenue, Suite 301 Pueblo, Colorado 81003 Email: <u>CESPA-RD-CO@usace.army.mil</u>

#### U.S. Fish & Wildlife Service Colorado Ecological Services Field Office 134 Union Boulevard, Suite 650 Lakewood, CO 80228 POC: Liisa Niva, Colorado Ecological Services Email: <u>coloradoes@fws.gov</u>, <u>MountainPrairie@fws.gov</u>

#### State Agencies

Colorado Department of Public Health and Environment, Federal Facilities, HMWM 2800 4300 Cherry Creek Drive, South Denver, CO 80246 Email: <u>comments.hmwmd@state.co.us</u>

#### Colorado Department of Public Health and Environment, Air Pollution Control Division, APCD-TS-B2

4300 Cherry Creek Drive, South Denver, CO 80246 Email: <u>cdphe.commentsapcd@state.co.us</u>

#### **Colorado Department of Transportation**

Environmental Branch 1480 Quail Lake Loop, #A Colorado Springs, CO 80906 POC: Mr. Rob Frei Email: <u>robert.frei@state.co.us</u>

#### **Colorado Natural Heritage Program**

Colorado State University 1475 Campus Delivery Fort Collins, CO 80523 Email: <u>CNHP@colostate.edu</u>

#### Colorado Parks and Wildlife

4255 Sinton Road Colorado Springs, CO 80907 POC: Cody Wigner, Area Wildlife Manager – Colorado Springs Email: <u>cody.wigner@state.co.us</u>

#### **Colorado State Historic Preservation Office**

History Colorado 1200 N. Broadway Denver, CO 80203-2137 POC: Ms. Dawn DiPrince, AIA Email: <u>hc\_oahp@state.co.us</u>

#### Local/Regional Agencies

#### City of Colorado Springs

P.O. Box 1575, Mail Code 155 Colorado Springs, CO 80903 POC: Mr. Daniel Sexton, Senior Planner Email: <u>Daniel.sexton@coloradosprings.gov</u>

#### El Paso County Community Services

Department, Environmental Division 3255 Akers Drive Colorado Springs, CO 80922 POC: Nancy Prieve, Natural Resources Specialist Email: <u>nancyprieve@elpasoco.com</u>

# El Paso County Planning and Community Development

2880 International Circle, Suite N060 Colorado Springs, CO 80910 POC: Ms. Kari Parsons, Planner Email: <u>kariparsons@elpasoco.com</u>

### **Pikes Peak Area Council of Governments**

15 South 7th Street Colorado Springs, CO 80905 POC: Andrew Gunning, Executive Director Email: <u>agunning@ppacg.org</u>





Department of Natural Resources

Area 14- Southeast Region 4255 Sinton Road Colorado Springs, CO 80907 P 719.227.5200 | F 719.227.5264

July 18, 2023

Mr. Barry Schatz Environmental Element Chief 10<sup>th</sup> Civil Engineer Squadron 8120 Edgerton Dr. USAF Academy, Co 80840

Re: Environmental Assessment for Combat Survival Training

Dear Mr. Schatz,

Colorado Parks and Wildlife (CPW) has reviewed the information about the upcoming environmental assessment that will be done for a proposed Combat Survival Training (CST) program at the United States Air Force Academy (USAFA). CPW is familiar with the various locations where impacts of the new CST may occur. CPW is also familiar with the area surrounding these locations.

From CPW's knowledge of the locations proposed for CST impact and from the actions being proposed at these locations, CPW believes that impacts to the surrounding natural resources and wildlife will be negligible. We appreciate being given the opportunity to comment. Please feel free to contact District Wildlife Manager Corey Adler at 719-439-9637 or corey.adler@state.co.us should you have any questions or require additional information.

Sincerely,

Tim Kroening Area 14 Wildlife Manager

Cc: Corey Adler, DWM Area 14 File



**APPENDIX B:** 

# **ENDANGERED SPECIES ACT SECTION 7 CONSULTATION**

# **BIOLOGICAL ASSESSMENT**

# FOR

# United States Air Force Academy (USAFA) Combat Survival Training (CST)

# Final



PREPARED BY: U.S. Air Force

December 2023

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### ABBREVIATIONS AND ACRONYMS

BA	Biological Assessment	PMJM	Preble's Meadow Jumping
BMP	Best Management Practice		Mouse
BO	Biological Opinion	SERE	Survival, Evasion,
CST	Combat Survival Training		Resistance, and Escape
EA	Environmental Assessment	U.S.	United States
ESA	Endangered Species Act	U.S.C	United States Code
INRMP	Integrated Natural	USACE	U.S. Army Corps of
	Resources Management		Engineers
	Plan	USAF	U.S. Air Force
IPMP	Integrated Pest	USAFA	U.S. Air Force Academy
	Management Plan	USFWS	U.S. Fish and Wildlife
			Service

## 1.0 INTRODUCTION

The United States (U.S.) Air Force (USAF) proposes to construct training support facilities and implement a combat survival training (CST) program at the U.S. Air Force Academy (USAFA) in El Paso County, Colorado (Proposed Action). The CST program includes land survival, water survival, and emergency parachute training that would satisfy the survival and evasion requirements of survival, evasion, resistance, and escape (SERE) training. The locations of proposed CST activities within the USAFA are indicated on **Figure 1**.

An Environmental Assessment (EA) is being prepared for the Proposed Action to evaluate environmental impacts resulting from the implementation of a CST program, including construction and operation of supporting facilities at the USAFA. As part of this EA, consultation with the U.S. Fish and Wildlife Service (USFWS) is required under Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 United States Code (U.S.C) 1531 et seq.), to address impacts to threatened and endangered species and their habitat.

#### 1.1 FEDERALLY THREATENED, ENDANGERED, AND CANDIDATE SPECIES POTENTIALLY AFFECTED BY THE PROPOSED ACTION

The USAF's consultant requested and received an Official Species List from the USFWS identifying federally threatened, endangered, and candidate species with potential to occur on the Project Site (**Appendix A**). The Official Species List identified three species that only need to be considered under specific circumstances. The federally endangered gray wolf (*Canis lupis*) only needs to be considered if the project includes a predator management program. The piping plover (*Charadrius melodus*) and pallid sturgeon (*Scaphirhynchus albus*) only need to be considered if the project includes water-related activities and/or use in the N. Platte, S. Platte, or Laramie River Basins which may affect listed species in Nebraska. As the Proposed Action does not include a predator management plan, nor does it occur in the river basins of interest, these species are not considered in this analysis. The remaining species along with their preferred habitat, status, and effect determinations are presented below and summarized in **Table 1**.

#### 1.2 SPECIES DISMISSED FROM FURTHER ANALYSIS

#### 1.2.1 Tricolored Bat (*Perimyotis Subflavus*)

Although the tricolored bat is not currently listed under the ESA, the USAF has included this species in its analysis due to its status as a "proposed endangered" species. This species has been documented in eastern Colorado; however, the Project Site is located outside (west) of this species' known range (USFWS, 2023a). Furthermore, the low number of documented occurrences in eastern Colorado suggest that occurrences of this species in Colorado are accidental (Colorado Bat Working Group, 2023). Moreover, a survey for this species was conducted by the USAFA in 2022, but no individuals were observed (USAFA, 2023). The tricolored bat is not likely to occur in the vicinity of the Project Site. Therefore, the Proposed Action would have **no effect** on the tricolored bat. This species is dismissed from further analysis.

Figure 1: CST Locations within the USAFA



# Table 1: Federally Threatened and Endangered Species Potentially Found in the Project Area or with Potential to be Affected by theProposed Action

Species	Preferred Habitat	Status	Determination
Preble's meadow jumping mouse (PMJM; <i>Zapus</i> <i>hudsonius preblei</i> )	PMJM is a small nocturnal rodent native to the Rocky Mountains-Great Plains interface of eastern Colorado and southeastern Wyoming. This species occupies moist lowlands with dense vegetation with a nearby water source. Notably, PMJM hibernates underground from September to May (USFWS, 2000a).	Threatened	May affect, is likely to adversely affect
Tricolored bat (Perimyotis subflavus)	Tricolored bats are found hibernating in caves and abandoned mines in the winter. In the spring, summer, and fall, this species is found foraging in forested habitats and roosting in leaf clusters of live or recently dead deciduous hardwood trees (USFWS, 2023a).	Proposed Threatened	No effect. No known populations in vicinity.
Eastern black rail ( <i>Laterallus</i> <i>jamaicensis</i> )	Eastern black rails are found in densely vegetated emergent marshes dominated by cattails ( <i>Typha sp.</i> ) (Colorado Parks and Wildlife, 2016)	Threatened	No effect. No known populations in the vicinity.
Mexican spotted owl ( <i>Strix</i> occidentalis lucida)	The Mexican spotted owl is found in forested mountains and canyonlands throughout the southwestern United States. In Colorado, roosting and nesting primarily occur in rocky canyons with most nests being built in caves or on cliff ledges in steep-walled canyons (USFWS, 2023b).	Threatened	No effect. No suitable habitat.
Greenback cutthroat trout (Oncorhynchus clarkii stomias)	Greenback cutthroat trout inhabit cold water streams and 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).	Threatened	No effect. No suitable habitat.
Ute ladies'-tresses ( <i>Spiranthes</i> <i>diluvialis</i> )	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, n.d.).	Threatened	No effect. No suitable habitat.
Monarch butterfly ( <i>Danaus</i> <i>plexippus</i> )	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).	Candidate	No effect. No suitable habitat.

#### 1.2.2 Eastern Black Rail (Laterallus jamaicensis)

Eastern black rails in Colorado are found in shallow emergent wetlands characterized by water depth of less than 2 inches and dense emergent vegetation dominated by cattails (*Typha spp.*), hardstem bulrush (*Scirpus acutus var. acutus*), soft-stemmed bulrush (*Schoenoplectus tabernaemontani*), and willow (*Salix spp.*) (USFWS, 2023c; Colorado Parks and Wildlife, 2016). The eastern black rail has only been documented in El Paso County once at Fort Carson Military Reservation during a 2022 survey, over 15 miles from where the project is located; this species is also known to occur in neighboring Lincoln and Pueblo counties (Colorado Parks and Wildlife, 2016). A survey for this species was conducted by the USAFA in 2022 and 2023, but no individuals were observed (USAFA, 2023; B. Mihlbachler, personal communication, July 31, 2023). Therefore, the Proposed Action would have **no effect** on the eastern black rail. This species is dismissed from further analysis.

#### 1.2.3 Mexican Spotted Owl (Strix occidentalis lucida)

Mexican spotted owls occur in isolated mountain ranges and canyon systems throughout the southwest United States. In Colorado, this species primarily utilizes rocky canyon areas for roosting and nesting. This species has not been documented on USAFA. While transient Mexican spotted owls may fly through USAFA, this species is nocturnal and is not likely to be active during construction and operation of the Proposed Action. The Project Site does not contain suitable roosting or nesting habitat for the Mexican spotted owl, nor has this species been documented on USAFA; therefore, the Proposed Action would have *no effect* on the Mexican spotted owl. This species is dismissed from further analysis.

#### 1.2.4 Greenback Cutthroat Trout (Oncorhynchus clarkii stomias)

The greenback cutthroat trout has been extirpated from Monument Creek and its tributaries, where the Project Site is located (USAFA, 2023). Furthermore, the water features within and near the Project Site, Kettle Lake #3 and Kettle Creek, are a manmade impoundment and intermittent stream, respectively, and do not provide suitable habitat for this species. Therefore, the Proposed Action would have **no effect** on the greenback cutthroat trout. This species is dismissed from further analysis.

#### 1.2.5 Ute Ladies'-tresses (Spiranthes diluvialis)

The Project Site does not include habitat features that would be suitable for this species, such as moist to wet meadows and stable seepy wetland areas. Additionally, this species has not been documented on USAFA. The site visit on March 15, 2023, found no suitable habitat for this species surrounding Kettle Lake #3. Therefore, the Proposed Action would have **no effect** on the Ute ladies'-tresses. This species is dismissed from further analysis.

#### 1.2.6 Monarch Butterfly (Danaus plexippus)

The Project Site may provide limited stop-over habitat for the monarch during migration; however, the likelihood of mortality is low, as migrating adult monarchs would be expected to avoid the Project Site during construction and operation. Should migrating monarch butterflies stop-over on the Project Site in notable numbers during construction or operation, all activities would be paused until the USAFA Natural Resources Manager evaluates the situation and identifies an appropriate path forward. Therefore, the Proposed Action would have **no effect** on the monarch butterfly. Additionally, monarch butterflies are a candidate species and have no Section 7 requirement at the time this Biological Assessment (BA) was submitted. This species is dismissed from further analysis.

#### 1.3 SPECIES RETAINED FOR FURTHER EVALUATION

Based on best available information, Preble's meadow jumping mouse (PMJM) is the only federally listed species that may be affected by the Proposed Action. The USAFA supports a significant PMJM population and suitable habitat occurs on and within the vicinity of the Project Site. 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 remainder of this BA is focused on determining potential effects of the Proposed Action on PMJM.

# 2.0 **PROJECT DESCRIPTION**

#### 2.1 PROPOSED ACTION

The Proposed Action entails implementation of a CST program, including construction and operation of supporting facilities, at the USAFA. The CST program would include three, 21-day training sessions in the summer of each year, accommodating approximately 400 Cadets each session (1,200 Cadets per summer). In addition, up to 1,000 additional Airmen could be trained in the remaining seasons when weather conditions allow. CST would include three primary components: land survival training; water survival training; and emergency parachute training. Training would occur Monday-Sunday during daytime hours.

#### 2.1.1 Construction

The Proposed Action would involve constructing a tower and lateral drift apparatus (i.e., a zipline), indoor emergency parachute training facility, and a storage location for CST equipment. The tower and lateral drift apparatus would be constructed on a 0.3-acre parcel along the northwest bank of Kettle Lake #3 (**Figure 2**). The structure would either be a steel or Conex container (three wide by three high) structure with an overhang rooftop and a lateral drift apparatus anchored to the second level of the tower. The tower and lateral drift apparatus would be prefabricated off-site and installed either in-water or on the adjacent bank of Kettle Lake #3. The tower and lateral drift apparatus would be approximately 40 feet high with a reinforced deck and rooftop (USAF, 2022). No exterior lighting is anticipated. If constructed on the bank, rock removal and installation of a concrete retaining wall may be required. Access to this proposed water survival training facilities site would be available in the existing parking lot off of Airfield Drive (**Figure 2**). Latrines in the form of portable bathrooms would be seasonally installed on the north end of the dam that separates Kettle Lake #3 from Kettle Lake #2. No vegetation clearance or ground disturbance would occur to facilitate latrine installation. Electrical utilities are present within the supplemental construction staging area and would be extended 530 linear feet along the rights-of-way of existing roadways.

The emergency parachute training building would be constructed within the Davis Airfield, approximately 0.7 mile west of Kettle Lake #3 (**Figure 2**). This building would be about 40 feet long, 25 feet wide, and 30 feet tall and located within an approximately 0.9-acre site designed to comply with the imaginary surfaces associated with the Davis Airfield. Construction access would occur via Airfield Drive and Talon Drive.

Equipment for CST, such as transportation trailers, utility terrain vehicles, communication devices, etc., would be stored at the Deadman CST warehouse area, where a new, permanent storage warehouse would be constructed (**Figure 2**). This location is on a significant slope and extensive grading would be required for construction of this storage facility. In addition, two outdoor security lights would be installed on the front and rear of the warehouse. The USAF identified the Deadman CST warehouse area as the preferred location for a permanent storage facility due to its location adjacent to existing CST storage facilities. Photos of the Project Site are included in **Appendix B**.

#### 2.1.2 Operation

Operation of the Proposed Action would involve Cadets utilizing the lateral drift apparatus to simulate parachute landings in water. Jet skis would be deployed in Kettle Lake #3 to simulate parachute drags across the lake. One helicopter would hover over Kettle Lake #3 for several hours per training day to create choppy water to simulate a rough open ocean environment. Helicopter use would be coordinated with the Davis Airfield (0.4-mile northwest of Kettle Lake #3) prior to conducting water survival training. Other in-water training would include techniques to escape from beneath a parachute and life raft operations. Loud

music would sometimes be played during this training to simulate a noisy environment. During in-water training, a floating dock would be deployed into Kettle Lake #3 and would be pulled ashore when not in use. A generator may be used to power the proposed water survival training facilities. A pavilion is located across the dam, on the southwest side of the lake; the pavilion and the surrounding area would potentially be used as a staging area for equipment during training activities (**Figure 2**). No vegetation clearing or ground disturbance would occur in the pavilion and surrounding area. Water survival training instances would last approximately 4 to 6 hours each instance and occur eight times per each of the three, 21-day sessions.

The remaining portions of emergency parachute training would occur indoors at a newly constructed emergency parachute training building. Once constructed, the training area would be managed in accordance with USAFA's 2022 Environmental Standards, Integrated Natural Resources Management Plan (INRMP), and Integrated Pest Management Plan (IPMP) (USAFA, 2023).

#### 2.2 ACTION AREA

The Action Area is defined by 50 Code of Federal Regulations (CFR) 402.02 as "all areas to be affected directly or indirectly by the federal Proposed Action and not merely the immediate area involved in the action." The Action Area includes a 0.5-mile buffer around both the emergency parachute training facility and Deadman CST warehouse to account for noise impacts during the short-term construction period. The Action Area also includes a larger, 0.7-mile buffer around Kettle Lake #3, to account for noise created by the helicopter during training. The Action Area for the Proposed Action is shown in **Figure 3**.

Construction and training activities occurring in, and surrounding, Kettle Lake #3 are anticipated to be the primary source of environmental impacts associated with the Proposed Action. The proposed water survival training facilities site has been drawn to represent the maximum amount of disturbance that would occur near Kettle Lake #3, although the final site layout may be smaller than the area depicted on **Figure 2** and would be designed to minimize impacts to sensitive species. Kettle Lake #3 is an approximately 6.5-acre manmade impoundment with depths up to 18 feet. Kettle Lake #3 is located at 38.96484455381717, -104.81041569434015; Section 32, Township 12 south, Range 66W of the 6<sup>th</sup> Principal Meridian.





Figure 3: Action Area



# 3.0 CONSULTATION HISTORY

Submittal of this BA is part of formal ESA Section 7 consultation between USFWS and USAFA. This has included virtual, in-person, phone, and email correspondence with USFWS regarding the threatened and endangered species that may be present on the Project Site or may be affected by the Proposed Action.

- May 1998. Federal Listing
  - Following federal listing of this species, the USAFA entered formal consultation with the USFWS regarding the PMJM. This consultation resulted in a Conservation Agreement and Conservation Plan for the PMJM. The Conservation Agreement and Conservation Plan state that while USFWS has not designated any critical habitat on USAFA, USAFA will ensure the lasting survival and conservation of PMJM and its habitat within USAFA-owned lands (USFWS, 2000a; USFWS, 2000b; Colorado Natural Heritage Program, 1999).
- April 2000. "No Jeopardy" Biological Opinion
  - 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. USAFA begins including management measures and designated conservation zones for PMJM within their INRMP (USAFA, 2023).
- September 2023. Draft BA for USAFA CST Submitted to USFWS
  - USAFA submitted the Draft BA for USAFA CST to USFWS for review on September 22, 2023. The Draft BA contained a description of USAFA's Proposed Action and potential impacts to the PMJM, as well as USAFA's determination that while the Proposed Action may affect and is likely to adversely affect the PMJM, there would be no effect on designated critical habitat for the PMJM, and the Proposed Action would have no effect on any other threatened or endangered species.
- December 2023. USFWS Comments on Draft BA
  - The USAFA received comments from USFWS on the Draft BA on December 7, 2023. Comments included increasing the Action Area to include a buffer to account for noise impacts during construction and operation, as well as providing more detail on revegetation plans and habitat quality definitions for the PMJM. The USAFA has incorporated these comments into this Final BA.

# 4.0 PREBLE'S MEADOW JUMPING MOUSE

PMJM is the only listed species with potential to be affected by the Proposed Action. PMJM is known to occur along Kettle Lake #3 and former positive live trapping efforts at Kettle Lake #3, as well as upstream and downstream in Kettle Creek, demonstrate confirmed PMJM occupied habitat within the Project Site. The remaining sections of this document discuss background information on PMJM, describe baseline conditions on the Project Site, and evaluate the effects of the Proposed Action on this species.

#### 4.1 DESCRIPTION OF SPECIES

PMJM is a small, brown rodent with a long tail and large hind feet. Mature PMJM are 7 to 10 inches long, with the tail accounting for two thirds of the mouse's length. The hind legs are three times larger than mice of similar body size (USFWS, 2023d). PMJM is mostly nocturnal and a true hibernator, entering hibernation in September or October and emerging in May (Colorado Parks and Wildlife, 2016). This species consumes a seasonal diet consisting of insects and fungi in the spring, and fungi, moss, seeds, and pollen in mid-summer (USFWS, 2023d). PMJM can jump up to three feet high to evade predators (USFWS, 2023e). PMJM have two litters per year, with an average of five offspring per litter. PMJM can live up to three years, although annual survival rates are low (USFWS, 2023d).

#### 4.2 RANGE

PMJM currently only occupies the North Platte, South Platte, and Arkansas river watersheds in southeastern Wyoming and in Colorado's Front Range from the Wyoming border through El Paso County (Colorado Parks & Wildlife, 2020; USAFA, 2023). The Denver metropolitan area is thought to represent a barrier between the northern and southern extent of this species' range. The USAFA supports the greatest extent of contiguous suitable habitat for the PMJM in the Arkansas River Basin (USAFA, 2023).

#### 4.3 HABITAT

PMJM occur in riparian areas with adjacent, relatively undisturbed grasslands and a nearby water source (USFWS, 2023d). Preferred riparian habitat must have a well-developed shrub layer and thick herbaceous layer. Typically, shrub cover consists of willow (*Salix spp.*) species; however, habitat suitability is driven by density of riparian vegetation rather than diversity of plant species (USFWS, 2023d).

PMJM hibernate in underground burrows adjacent to nearby waterways and under cover of thick vegetation. Recorded distances from water range from 7 meters to 31 meters, with the majority of hibernacula being observed within the 100-year floodplain (Colorado Natural Heritage Program, 1999).

#### 4.4 THREATS TO SPECIES

PMJM is primarily threatened by alteration, degradation, loss, and fragmentation of suitable habitat resulting from urban development, flood control, water development, and other human land uses (USFWS, 2023d). Locally, development within the watershed has resulted in accelerated stream erosion in PMJM habitat due to increased stormwater volume and frequency.

# 5.0 ENVIRONMENTAL BASELINE

The Project Site is located outside of USFWS-designated critical habitat; however, the areas of the Project Site surrounding Kettle Lake #3 and the Deadman CST warehouse area occur within the USAFA PMJM Conservation Zone (**Figure 3**). **Section 5.1** and **Section 5.2** provide environmental baseline conditions at these two areas. Photographs of these areas as observed during site visits on March 15, 2023, and July 5, 2023, are included in **Appendix B**. Although the utility corridors, supplemental staging area, operational staging area, and latrine locations would occur within the PMJM Conservation Zone, these areas are highly trafficked and devoid of vegetation and therefore do not represent suitable habitat for the PMJM. The proposed emergency parachute facility location occurs at the Davis Airfield, 0.7 mile west of Kettle Lake #3 and entirely outside the PMJM Conservation Zone. Therefore, the proposed emergency parachute facility location does not contain suitable habitat for the PMJM and is not discussed further in this BA.

Dr. Mihlbachler, the Natural Resources Manager at USAFA, reviewed the Project Sites to characterize the quality of PMJM present. The USAFA uses the following general definitions to describe PMJM habitat:

- **High-quality habitat** includes wetland vegetation and areas adjacent to surface water with at least 50 percent cover of woody vegetation such as sandbar willows, plains cottonwood trees, and peachleaf willow trees. The percent cover of herbaceous vegetation varies between 40 and 80 percent, including both native and nonnative species.
- **Medium-quality habitat** includes dry terraces and floodplain areas adjacent to surface water, but is several feet above the waterway, and has less than 50 percent cover of woody vegetation. Woody vegetation consists mostly of sandbar willows with a sparse to moderate herbaceous cover (20 to 70 percent) in the understory that includes both native and nonnative species.
- Low-quality habitat includes disturbed uplands that have mostly nonnative plant cover and no canopy cover except for a few scattered mature cottonwood and ponderosa pine trees. Dense stands of smooth brome are dominant, along with small to moderate sized populations of noxious weeds.
- **Nonhabitat** includes disturbed upland areas that have little herbaceous vegetation cover dominated by nonnative species, and previously disturbed areas with no vegetation such as pedestrian trails and dirt access roads.

#### 5.1 VICINITY OF KETTLE LAKE #3

The proposed water survival training facilities area includes vegetated open field and boulders. This area has a robust herbaceous layer composed of smooth brome (*Bromus inermis*), blue grama (*Bouteloua gracillis*), crested wheatgrass, western ragweed (*Ambrosia psilostachya*), and common mullein (*Verbascum thapsus*). Pockets of shrub vegetation consisting of prairie sagebrush (*Artemisia frigida*), golden currant (*Ribes aureum*), and narrowleaf willow (*Salix exigua*) are interspersed throughout the site. Notably, a walking trail devoid of vegetation transects this area. Photographs of the site are provided in **Appendix B**.

With respect to PMJM habitat, Dr. Mihlbachler, the Natural Resources Manager at USAFA, has determined that this area consists of a small patch of medium quality riparian habitat limited to the lake margin and lowquality upland habitat (**Figure 3**). Although limited in extent, the multilayered vegetation provides aerial cover and habitat connectivity that PMJM may use to traverse around the lake. PMJM individuals have been observed during survey events within the vicinity of Kettle Lake #3, although no individuals have been recorded within the proposed water survival training facilities site.

The proposed utility trenches, staging areas, and latrine locations around Kettle Lake #3 are sited on existing dirt paths and other cleared areas and therefore do not represent suitable habitat for the PMJM.

#### 5.2 DEADMAN CST WAREHOUSE AREA

This area includes a vegetated open field interspersed with boulders and predominately covered by an herbaceous layer of vegetation consisting of 80 percent smooth brome and 5 percent blue grama. Less dominant herbaceous species observed include prairie sagebrush, hoary golden aster (*Heterotheca canescens*), and yucca (*Yucca* sp.). No shrubs or trees were observed on-site. The forest to the south and east of the Deadman CST warehouse area is comprised of ponderosa pine and gambel oak.

Approximately 80 percent of this area falls within the PMJM Conservation Zone, but would qualify as low quality habitat (**Figure 4**). The vegetation within this area is not dense enough to support this species due to the lack of a shrub layer. No water features were observed on-site. Approximately 20 meters north of this area, on the other side of the access road, is a riparian area comprised of narrowleaf cottonwood (*Populus angustifolia*), peachleaf willow (*Salix amygdaloides*), and a large stand of Siberian peashrub that would qualify as potential habitat. This riparian area has supported the PMJM historically, as confirmed by surveys for this species.



#### Figure 4: PMJM Suitable Habitat within the Project Site

# 6.0 EFFECTS OF THE PROPOSED ACTION

Direct and indirect effects to PMJM are likely to occur as part of the Project. The following subsections describe potential effects.

#### 6.1 DIRECT EFFECTS

The Proposed Action has the potential to adversely affect the PMJM due to habitat disturbance during construction and reduced habitat availability during training activities. Construction activities, including operation of heavy equipment, ground disturbance, and vegetation clearing may injure or kill individuals unable to avoid being destroyed by equipment or buried by earthwork. Additionally, because USAFA does not currently have more refined site designs that differentiate between permanently and temporarily disturbed areas, all habitat impacts are considered permanent for this analysis. Permanent disturbance within the PMJM Conservation Zone would further reduce habitat availability for this species, resulting in a slight reduction in total carrying capacity for the Kettle Creek drainage basin and reduced habitat connectivity. **Table 2** shows the maximum anticipated impacts associated with the Proposed Action components.

<b>Table 2: Potential Direct Impacts</b>	within the PMJM Conservation Zone
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Proposed Action Components	Low Quality Habitat	Medium Quality Habitat	Not suitable habitat but within the PMJM Conservation Zone <sup>1</sup>
Vicinity of Kettle Lake #3	0.2 (Upland)	0.1 (Riparian)	0.4 (Upland)
Deadman CST Warehouse Area	0.3 acre (Upland)	0.0	0.0

<sup>1</sup>Additional areas within the PMJM Conservation Zone include the utility corridor, staging areas, and latrine location. Although these areas are devoid of vegetation and therefore not suitable PMJM habitat, they are quantified here due to their location within the PMJM Conservation Zone.

Overall, the Proposed Action would impact up to 0.6 acre of suitable habitat (0.5 acre of low-quality upland habitat and 0.1 acre of medium quality riparian habitat). In addition, approximately 0.4 acre of non-habitat (areas devoid of vegetation) within the PMJM Conservation Zone would be disturbed for utility installation, equipment staging, and latrines during construction or operation of the Proposed Action. No high quality PMJM habitat would be impacted by the Proposed Action.

While 0.6 acre of suitable habitat, as noted above, is proposed for permanent impact for the purposes of this BA, the actual permanent impact is anticipated to be slightly less, since some areas would only be temporarily disturbed during construction. As discussed further in **Section 7.0**, USAFA would seek to restore temporarily disturbed areas on-site following construction to the extent feasible.

#### 6.2 INDIRECT EFFECTS

Ground disturbance at the Project Site during construction may create conditions suitable for the introduction or encroachment of noxious weeds or invasive species during construction. Proliferation of nonnative or noxious species is not considered a significant threat to PMJM habitat, but may reduce the amount of desirable forage, restricting population sizes and productivity. Ground disturbance would also result in temporary fugitive dust emissions. Fugitive dust may extend off-site (and would likely attenuate closer than 0.5 mile), but would only occur during the day when the mice are anticipated to be in their burrows. Thus, the PMJM would generally be insulated from minor fugitive dust emissions and any indirect effects would be discountable. Downstream effects are not anticipated as standard best management

practices (BMPs) would minimize sedimentation and erosion. Construction would also result in increased noise and vibration within the Action Area, which is discussed further below. Indirect impacts from construction activities would be temporary and would cease once construction is complete.

During operation, indirect impacts on the PMJM within the Action Area surrounding Kettle Lake #3 would occur in the form of increased noise from the operation of training equipment (e.g., jet skis, helicopter) and the playing of loud music. No exterior lighting would be installed at the proposed water survival training facilities location. The two security lights that would be installed on the front and rear of the Deadman CST warehouse would only illuminate the direct vicinity of the warehouse, which would face a road to the front and low-quality habitat at the edge of the PMJM Conservation Zone to the rear. Therefore, adverse impacts on PMJM resulting from artificial security lighting at the Deadman CST warehouse are anticipated to be negligible. The potential impact of artificial noise on the PMJM has not been studied; however, numerous studies conducted on other species of nocturnal rodents can be used to indicate how PMJM may respond to changes in the noise environment. A study targeting pinyon mice (Peromyscus truei) within the Rattlesnake Canyon Habitat Management Area in northwestern New Mexico found that noise levels had no effect on trap success, an indicator of activity levels; however, this study did find a decline in body condition as noise levels increased (Willems et al., 2021). Additionally, a study conducted on wild deer mice (Peromyscus maniculatus) and woodland jumping mice (Napaeozapus insignis) found that mice exposed to broadcast of anthropogenic noise spent less time foraging compared to when no anthropogenic noise was present (Petric & Kalcounis-Rueppell, 2023). However, it is important to note that these studies investigated scenarios where noise levels were increased either 24 hours per day or only at nighttime, while CST, including construction and operational activities, would only alter noise levels for several hours per day, and during daytime hours when this species is less active. Therefore, while PMJM may be adversely affected by increased noise levels during their inactive period, no changes to the nighttime noise environment, when the PMJM is active and foraging, would occur under the Proposed Action.

#### 6.3 CUMULATIVE EFFECTS

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur near the Project Site. The analysis of cumulative effects requires identification of past actions that have influenced the environment and reasonably foreseeable future actions that, if implemented would also contribute to cumulative effects.

Future federal actions that are unrelated to the Proposed Action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA. Examples of future federal actions include issuance of individual permits by the US Army Corps of Engineers (USACE) elsewhere in the Monument Creek Watershed, changes in management of federal or state lands, and federal road and highway projects across PMJM habitat.

Future residential, commercial, and institutional projects are planned east of the USAFA across I-25 and upstream of Kettle Lake #3. These projects are briefly described in **Table 3**.

Development within the Kettle Creek watershed is anticipated to increase stormwater flow within Kettle Creek and downstream in the Kettle Lakes. The USAFA is currently planning repairs on the Kettle Creek Dry Dam, which is located approximately 0.5-mile northeast of Kettle Lake #3.<sup>1</sup> Repairs on the Kettle Creek Dry Dam would mitigate erosion and sedimentation upstream of the Project Site from development projects. Additionally, the Proposed Action would have no impact on flood conveyance capacity within Kettle Lake #3.

<sup>&</sup>lt;sup>1</sup> The USAF conducted Section 7 consultation for the Kettle Creek Dry Dam Repair project and determined that effects to the PMJM would be consistent with the existing BO. The USAFA provided its effect determination to USFWS on 16 December 2021; no response was received.
Project Name	Location	Project Type	Description
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.
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.
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.
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.
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.
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.
Briargate Church	Colorado Springs, CO	Institutional	A two-story 4,280-square foot addition is proposed for the church.
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.
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.
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.

Table 3: Proposed Developments Upstream of Kettle Lake #3

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## 7.0 CONSERVATION MEASURES

Conservation measures will be implemented to avoid, minimize, and mitigate adverse effects to suitable habitat and to further the recovery of PMJM. Avoidance of all suitable PMJM habitat is not feasible on this Project due to the Proposed Action's dependency on open water and the requirement that the Proposed Action occur on a site owned or managed by the USAF. However, the selected Project Site avoids high quality PMJM habitat. Notably, the USAF previously considered a 3.3-acre site on the north bank of Kettle Lake, approximately 500 feet east of the proposed water survival training facilities location shown on **Figure 2**. Following an initial evaluation, the USAF determined potential adverse impacts on the PMJM from utilizing this location would be too extensive and subsequently eliminated this location from consideration. Conservation measures that would be implemented include impact minimization during final design planning, construction phase access limitations, seasonal constraints, limited nighttime work, and use of BMPs during construction and operation.

Through the PMJM Conservation Agreement, the USAF has committed to maintaining and enhancing PMJM populations on USAFA by maximizing the extent, quality, and connectivity of PMJM habitat within the USAFA (USFWS, 2000b). USAFA would perform the following conservation measures to avoid and minimize impacts to PMJM habitat from the Proposed Action:

- To the extent practicable, permanently impacted areas within the PMJM Conservation Zone will be mowed or cut to a height of 4 to 6 inches above ground during the PMJM active season (May-August), while PMJM are mobile and can vacate the area. This would create less desirable habitat for hibernation, which usually starts by late September.
- Noxious weeds will be monitored and controlled in accordance with USAFA's INRMP and IPMP.
- Areas of exposed soil would be limited to the maximum extent practicable. Areas where temporary impacts occur would be promptly revegetated.
- Erosion and sediment would be controlled using silt fencing, erosion logs, and soil retention blankets or other acceptable industry BMPs to minimize surface runoff.
- Construction access in PMJM habitat will be confined to areas identified as impact areas.
- PMJM habitat adjacent to construction areas will be clearly marked to prevent accidental disturbance of those areas.
- A qualified ecologist or landscape architect shall provide a briefing to the contractor prior to ground disturbance to discuss the Project and ensure understanding of avoidance and minimization measures.

As discussed in **Section 6.1**, USAFA does not currently have more refined site designs that differentiate between permanently and temporarily disturbed areas; therefore, all habitat impacts are considered permanent for this analysis. However, while 0.6 acre of suitable habitat is proposed for permanent impact for the purposes of this BA, the actual permanent impact is anticipated to be slightly less, since some areas would only be temporarily disturbed during construction. After construction is completed, USAFA would seek to restore temporarily disturbed areas on-site to the extent feasible, utilizing native seed mixes and vegetation, per the USAFA Erosion Control Revegetation and Tree Care Standards.

USAFA staff would monitor these areas for successful vegetation reestablishment. USAFA has identified criteria to assess the success of mitigation efforts. These minimum standards must be met at the end of two growing seasons for revegetation to be considered successful:

• For upland areas, the combined canopy cover of grasses, forbs, and shrubs will be at least 70 percent of the preexisting cover. At least 50 percent of the canopy cover will consist of native perennial grasses and forbs.

- State-listed noxious weeds will be controlled following the USAFA's Integrated Noxious Weed Management Plan (Colorado Natural Heritage Program, 2015) to prevent competition with the planted vegetation. Noxious weeds will not exceed 5 percent canopy cover in the revegetated areas.
- Upland sites will be adequately stabilized to prevent gullying, severe rill erosion, and stream sedimentation. Areas of soil instability will be promptly treated (e.g., riprap, silt fence, erosion matting, and hay bales) to prevent further site degradation beyond that found preconstruction.

## 8.0 CONCLUSIONS AND EFFECTS DETERMINATION

The Proposed Action would construct training support facilities and implement a CST program at various locations throughout the USAFA. The Proposed Action would involve activities within the PMJM Conservation Zone surrounding Kettle Lake #3 as well as in Jacks Valley near Deadmans Creek. Overall, up to 1 acre of land within the PMJM Conservation Zone, of which 0.6 acre constitutes low or medium quality PMJM habitat, would be impacted by the Proposed Action. Construction may result in unintentional injury or mortality to one or more individuals or a reduction in productivity of this species. In addition, indirect impacts in the form of increased daytime noise may adversely impact PMJM in the area. Therefore, USAF has determined that the Project **may affect, and is likely to adversely affect,** the PMJM. The Project would have **no effect** on designated critical habitat for PMJM.

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#### 9.0 REFERENCES

- Colorado Bat Working Group. (2023). *Tricolored bat (Perimyotis subflavus)*. Retrieved February 27, 2023, from Colorado State University: https://cnhp.colostate.edu/cbwg/bat-list/speciesprofile/?speciesID=15
- Colorado Natural Heritage Program. (1999). Conservation and Management Plan for Preble's Meadow Jumping Mouse on the U.S. Air Force Academy.
- Colorado Natural Heritage Program. (2015). *Integrated Noxious Weed Management Plan: US Air Force Academy and Farish Recreation Area*. Retrieved from https://usafa.isportsman.net/files/Documents%2F2015%20Air%20Force%20Academy%20Weed %20Management%20Plan\_resized.pdf
- Colorado Parks & Wildlife. (2020). *Preble's Meadow Jumping Mouse*. Retrieved March 20, 2023, from Assessing Habitat Quality for Priority Wildlife Species in Colorado Wetlands: https://cpw.state.co.us/Documents/LandWater/WetlandsProgram/PrioritySpecies/Factsheet-and-Habitat-Scorecard\_PreblesMeadowJumpingMouse.pdf
- Colorado Parks and Wildlife. (2016). Assessming Habitat Quality for Priority Wildlife Species in Colorado Wetlands: Black Rail. Retrieved March 7, 2023, from https://cnhp.colostate.edu/download/documents/cwic\_docs/CPWSpeciesProfiles/CPWProfiles\_BI ackRail.pdf
- 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
- Petric, R., & Kalcounis-Rueppell, M. (2023). Anthropogenic noise decreases activity and calling behavior in wild mice. *PeerJ*. doi:https://doi.org/10.7717/peerj.15297
- 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
- USAF. (2022). Training Tower for 19th Air Force Academy. Beaverfit.
- USAFA. (2023). United States 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. (2023a). *Tricolored bat (Permyotis subflavus)*. Retrieved February 27, 2023, from Environmental Conservation Online System: https://ecos.fws.gov/ecp/species/10515

- USFWS. (2023b). *Mexican Spotted Owl*. Retrieved March 7, 2023, from https://www.fws.gov/species/mexican-spotted-owl-strix-occidentalis-lucida
- USFWS. (2023c). *Eastern Black Rail Species Profile*. Retrieved April 11, 2023, from https://www.fws.gov/species/eastern-black-rail-laterallus-jamaicensis-jamaicensis
- USFWS. (2023d). *Preble's Meadow Jumping Mouse Species Profile*. Retrieved March 17, 2023, from https://www.fws.gov/species/prebles-meadow-jumping-mouse-zapus-hudsonius-preblei
- USFWS. (2023e). *Preble's Meadow Jumping Mouse*. Retrieved March 20, 2023, from Environmental Conservation Online System: https://ecos.fws.gov/ecp/species/4090
- USFWS. (n.d.). *Environmental Conservation Online System*. Retrieved from monarch butterfly (Danaus plexippus): https://ecos.fws.gov/ecp/species/9743#candidate

# **APPENDIX A:**

# **Official Species List**

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# 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



In Reply Refer To: December 19, 2023 Project Code: 2023-0037742 Project Name: USAFA Combat Survival Training (CST) Biological Assessment (BA) and Environmental Assessment (EA)

# 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 IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC 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: <a href="https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf">https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf</a>

**Migratory Birds**: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <u>Migratory Bird Permit | What We Do | U.S. Fish & Wildlife</u> <u>Service (fws.gov)</u>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <a href="https://www.fws.gov/library/collections/threats-birds">https://www.fws.gov/library/collections/threats-birds</a>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <u>https://www.fws.gov/partner/council-conservation-migratory-birds</u>.

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 Code 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

# **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**

Project Code:	2023-0037742
Project Name:	USAFA Combat Survival Training (CST) Biological Assessment (BA)
	and Environmental Assessment (EA)
Project Type:	New Constr - Above Ground
Project Description:	The U.S. Air Force (USAF) is proposing to implement a CST program at
	USAFA that trains Cadets in long-term survival and evasion, through land
	survival, water survival, and emergency parachute training. The USAF is
	preparing a BA and EA to evaluate impacts from the Proposed Action.

#### **Project Location:**

The approximate location of the project can be viewed in Google Maps: <u>https://</u>www.google.com/maps/@38.965416149999996,-104.82476870501299,14z



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 3 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<sup>1</sup>, 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. <u>NOAA Fisheries</u>, 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
Gray Wolf Canis lupus	Endangered
Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA,	
MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA,	
VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico.	
There is <b>final</b> critical habitat for this species.	
This species only needs to be considered under the following conditions:	
<ul> <li>Lone, dispersing gray wolves may be present throughout the state of Colorado. If your</li> </ul>	
activity includes a predator management program, please consider this species in your	
environmental review.	
Species profile: <u>https://ecos.fws.gov/ecp/species/4488</u>	
Preble's Meadow Jumping Mouse Zapus hudsonius preblei	Threatened
There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat.	
Species profile: <u>https://ecos.fws.gov/ecp/species/4090</u>	
General project design guidelines:	
https://ipac.ecosphere.fws.gov/project/NGLR3HLCFRCQDGURDDJYTZGYHM/	
documents/generated/6861.pdf	

#### BIRDS

NAME	STATUS
Eastern Black Rail <i>Laterallus jamaicensis ssp. jamaicensis</i> No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/10477</u>	Threatened
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <u>https://ecos.fws.gov/ecp/species/8196</u>	Threatened
<ul> <li>Piping Plover Charadrius melodus</li> <li>Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.</li> <li>There is final critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: <ul> <li>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.</li> </ul> </li> <li>FISHES</li> </ul>	Threatened
NAME	STATUS
Greenback Cutthroat Trout Oncorhynchus clarkii stomias No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/2775</u>	Threatened
Pallid Sturgeon <i>Scaphirhynchus albus</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:	Endangered

 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: <u>https://ecos.fws.gov/ecp/species/7162</u>

## INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i>	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: <u>https://ecos.fws.gov/ecp/species/2159</u>	

### **CRITICAL HABITATS**

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

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

# **IPAC USER CONTACT INFORMATION**

 Agency:
 AECOM

 Name:
 Tara Boyd

 Address:
 4840 Cox Rd

 City:
 Glen Allen

 State:
 VA

 Zip:
 23060

 Email
 tara.boyd@aecom.com

 Phone:
 2036853220

## LEAD AGENCY CONTACT INFORMATION

Lead Agency: Air Force

# **APPENDIX B:**

# Photographic Log

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### **PHOTOGRAPHIC LOG**

#### Site Name:

**USAFA** Combat Survival Training

Site Location: El Paso County, Colorado









### **PHOTOGRAPHIC LOG**

#### Site Name:

**USAFA** Combat Survival Training

Site Location: El Paso County, Colorado







# **AECOM** Imagine it. Delivered.

# **PHOTOGRAPHIC LOG**

#### Site Name:

**USAFA** Combat Survival Training

#### Site Location:

El Paso County, Colorado

Photo No.	Date:	
5	03/15/2023	-
Direction Photo Taken:		
South		
Description		
Potential Operational Staging Area and Pavilion Location.		- Al



## Photo No. Date: 6 03/15/2023 **Direction Photo Taken:** Southeast **Description:** Deadman CST Warehouse Area. From southwest boundary of site looking southeast.





#### **PHOTOGRAPHIC LOG**

#### Site Name:

**USAFA** Combat Survival Training

Site Location: El Paso County, Colorado

Photo No. Date: 03/15/2023 7 **Direction Photo Taken:** Northwest **Description:** Deadman CST Warehouse Area. From southwest boundary of site looking northwest. Photo No. Date: 03/15/2023 8 **Direction Photo Taken:** North/Northeast **Description:** Deadman CST Warehouse Area. From southeast boundary of site looking north/northeast.



#### **PHOTOGRAPHIC LOG**

Site Name:

**USAFA** Combat Survival Training

Site Location: El Paso County, Colorado



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# **APPENDIX C:**

# NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION

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#### 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

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

Dear Ms. DiPrince

The United States Air Force Academy (USAFA) proposes to construct training support facilities in support of its Combat Survival Training (CST) program. The project is an undertaking subject to review under the National Historic Preservation Act (NHPA) Section 106 process (54 USC § 306108). Based on the information and rationale presented by Attachment 1 to this letter, we request your concurrence on the proposed Area of Potential Effects (APE) and a proposed determination of "no adverse effect" as described in 36 CFR § 800.5(a)(1). A National Environmental Policy Act (NEPA) environmental assessment also is being developed, though from communications with your office staff on other USAFA planning efforts, we understand that your agency does not participate in consultation under NEPA.

Attachment 1 provides details of the proposed undertaking, discussion of the APE, and results of identification and assessment of the potential of the undertaking to affect adversely Historic Properties. Two different potential construction alternatives are covered by the APE although USAFA leadership eventually will select only one of the alternatives for actual construction. Careful examination of information from previous inventories for Historic Properties was sufficient for purposes of planning, i.e., no new fieldwork was necessary. The small number of Historic Properties within the APE clearly are not eligible for listing in the National Register of Historic Places. There will be no adverse effects to proposed USAFA Campus District 5EP.595 or the remnant portion of the Great North South Highway / State Highway 1 / US Highway 85 (5EP.5133).

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. Thank you for review and assistance on this and the numerous other USAFA undertakings consulted with you.

Very Respectfully MANNING.ERI N.MARIE.1047 632192 ERIN M. MANNING, GS-14, USAF

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 USAFA Consulting 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 (only for new ground disturbance or pre-contact sites or materials) Pueblo of Santa Clara Pueblo of Taos Pueblo of Zuni **Rosebud Sioux Tribe** San Ildefonso Pueblo (Only for NAGPA type consultations) 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 SHPO

From:	Busam, Michael
То:	Busam, Michael
Subject:	FW: Meeting to discuss way forward on CST given SHPO response below
Date:	Monday, August 28, 2023 10:03:37 AM

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

From: Marques - HC, Matthew <<u>matthew.marques@state.co.us</u>> Sent: Tuesday, August 1, 2023 8:07 AM To: ROEMER, ERWIN JR CIV USAF USAFA 10 CES/CENP <<u>erwin.roemer@us.af.mil</u>>; SCHRIEVER, BERNARD A II CTR USAF USAFA 10 CES/CENPP <<u>bernard.schriever.ctr@us.af.mil</u>>; Mitchell Schaefer - HC <<u>mitchell.schaefer@state.co.us</u>> Subject: [URL Verdict: Neutral][Non-DoD Source] HC# 83274 USAFA Combat Survival Training Facilities

Hi Erwin and Beau,

After reviewing the provided documentation for the above referenced undertaking, we require additional information to comprehensively assess potential visual effects caused by the proposed new construction. Please provide our office with current color photographs of all proposed construction sites from various different vantage points. We also request renderings, photosimulations, project plans, schematic drawings, architectural plans, or some other accurate visual representation(s) that we can use to assess the size of the new infrastructure in comparison to already extant buildings and structures located in the respective project areas. We also request additional details in writings describing the exact location, size, dimensions, and design of all proposed new construction components for this undertaking.

We specifically need to know how large the new resources will stand in comparison to the other extant structures nearby. For example, if APE 7 is selected, how tall will the new building(s) stand in relation to those already in the area? If APE 1 were selected, would the new building rise above the tree line in that area? We request similar information for every possible APE/construction area.

Please let us know if you would like to discuss this over the phone.

Thank you,

--

Matthew Marques

Section 106 Compliance Manager

History Colorado | State Historic Preservation Office

303.866.4678 | matthew.marques@state.co.us <mailto:matthew.marques@state.co.us>

1200 Broadway | Denver, Colorado 80203 | HistoryColorado.org <<u>https://urldefense.com/v3/\_\_https://www.historycolorado.org/\_\_;!!ETWISUBM!05H-5AUh4KDOplu2hH\_BSORFiu4fICApkmikivZeScskshid11rPEtM1ScmnCjDn1JnBOUyP3Pr MgP\_m1SQRtBe6EF10v7OZ\$></u>

Under the Colorado Open Records Act (CORA), all messages sent by or to me on this state-owned email account may be subject to public disclosure



#### 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

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

Dear Ms. DiPrince

The United States Air Force Academy (USAFA) proposes to construct training support facilities in support of its Combat Survival Training (CST) program. We initiated Section 106 consultation with you by a letter dated July 21, 2023, in which we proposed an Area of Potential Effects (APE) along a description of inventory leading to our proposed determination of "no adverse effect." Your staff responded by email August 1, 2023 (Attachment 1) with assignment of tracking number HC#83274, and a request for more information.

Attachment 2 to this letter is a substantially revised version of the information package previously submitted in July, and it provides explanations pertinent to your email communication of August. We continue to propose that careful examination of information from existing inventories for Historic Properties was sufficient for purposes of this project's planning, i.e., no new fieldwork is necessary. The small number of Historic Properties within the APE clearly is not eligible for listing in the National Register of Historic Places. Adverse effects are not anticipated for the proposed USAFA Campus District 5EP.595 and the remnant portion of the Great North South Highway / State Highway 1 / US Highway 85 (5EP.5133).

We again ask for your concurrence on the proposed APE, sufficiency of its historic properties inventory, and a finding of "no adverse effect." The same stakeholders identified in the previous communication of July are being provided a copy of this letter and attachments.

As necessary please contact Mr. Erwin Roemer, 10 CES/CENP, USAFA Cultural Resources Manager, at erwin.roemer@us.af.mil, or at (719) 333-7341. Thank you for review and assistance on this and the numerous other USAFA undertakings consulted with your agency.

Very Respectfully

MANNING.ERIN, Digitally signed by MANNING.ERIN.MARIE.104 MARIE.1047632 7632192 Date: 2023.10.12 15:13:45 -06'00' ERIN M. MANNING, GS-14, USAF Attachments:

- SHPO email dated August 1, 2023
   USAFA Cultural Resources Section 106 Project Review (revised), Appendix A. Figures Appendix B. Photographs Appendix C. Engineering Plans and Schematic Drawings
| From:    | Marques - HC, Matthew  |
|----------|--|
| To:      | ROEMER, ERWIN JR CIV USAF USAFA 10 CES/CENP; SCHRIEVER, BERNARD A II CTR USAF USAFA 10     |
|          | CES/CENPP; Mitchell Schaefer - HC  |
| Subject: | [URL Verdict: Neutral][Non-DoD Source] HC# 83274 USAFA Combat Survival Training Facilities |
| Date:    | Tuesday, August 1, 2023 8:09:48 AM   |

Hi Erwin and Beau,

After reviewing the provided documentation for the above referenced undertaking, we require additional information to comprehensively assess potential visual effects caused by the proposed new construction. Please provide our office with current color photographs of all proposed construction sites from various different vantage points. We also request renderings, photosimulations, project plans, schematic drawings, architectural plans, or some other accurate visual representation(s) that we can use to assess the size of the new infrastructure in comparison to already extant buildings and structures located in the respective project areas. We also request additional details in writings describing the exact location, size, dimensions, and design of all proposed new construction components for this undertaking.

We specifically need to know how large the new resources will stand in comparison to the other extant structures nearby. For example, if APE 7 is selected, how tall will the new building(s) stand in relation to those already in the area? If APE 1 were selected, would the new building rise above the tree line in that area? We request similar information for every possible APE/construction area.

Please let us know if you would like to discuss this over the phone.

Thank you,

--

Matthew Marques

Section 106 Compliance Manager

History Colorado | State Historic Preservation Office

303.866.4678 | matthew.marques@state.co.us <<u>mailto:matthew.marques@state.co.us</u>>

1200 Broadway | Denver, Colorado 80203 | HistoryColorado.org <a href="https://www.historycolorado.org/">https://www.historycolorado.org/</a>

Under the Colorado Open Records Act (CORA), all messages sent by or to me on this state-owned email account may be subject to public disclosure

## Attachment 2 contains sensitive cultural resources data. A redacted version of Attachment 2 is available upon request.

The following pages contain select figures, photographs, and schematics included in Attachment 2.



















Photograph:	Date:	
3	2023	
Feature ID:		
APE-	1	
Direction:		
North-Nor	theast	
Description:		
View from sou boundary of pro equipment warehouse loca north-nort	utheastern pposed CST storage ation, facing heast.	









Photograph:	Date:			A. STAN		1		11.7
5	2023		Sec. 2					ALC MAL
Feature ID:			201.				-	Alt pa
APE	-1			-	1	AND THE OWNER	AND -	
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South	east	n Sta		and the		No.		
Description:		-	Sitter 1	A CARLER				
			- In-					
View from so	outhwestern	and the second second	*			and the		21
equipment	storage				A CIA	and the		Consession of the second
warehouse loc	ation, facing							and the second
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### ΑΞϹΟΜ

Photograph:	Date:	
7	2023	
Feature ID:		24
APE-	1	
Direction:		
Sout	h	See.
Description:		C
View of left side Building 1016, equipment ware which the des proposed CST storage wareho based, facin	e of nearby an existing house upon sign of the equipment buse will be g south.	



Photograph:	Date:
8	2023
Feature ID:	I
APE-	·1
Direction:	
Northe	ast
Description:	
View of right sic Building 1016, equipment ware which the des proposed CST storage wareho based, facing	de of nearby an existing house upon sign of the equipment buse will be northeast.













Photograph:	Date:	
11	2023	
Feature ID:		
APE	-1	
Direction:		
Eas	st	
Description:		
View of prop equipment w location from re 1016, facin	osed CST varehouse ar of Building ng east.	

Photograph:	Date:
12	2023
Feature ID:	
APE-	2
Direction:	
Southe	ast
Description:	
View of Kettle L conduit access southea	ake #3 from road, facing ast.





Photograph:	Date:	
13	2023	
Feature ID:		
APE-	2	
Direction:		
Northw	est	
Description:		
View of Kettle L conduit access Northw	ake #3 from road, facing est.	

















Photograph:	Date:	
17	2023	
Feature ID:	<u> </u>	
APE-	·2	
Direction:		
Sout	h	
Description:		
View of operation area, facing	onal staging 3 South.	



Photograph:

Feature ID:

Direction:

**Description:** 

18



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Photograph:	Date:		
19	N.D.	and the second statement of the second statement of the	
Feature ID:			
APE	-2		
Direction:			
Sou	ith	The second secon	. And the second
Description: View of forme training facili 10088), facing was demolish 2011 and	r cadet water ty (Building south. Facility led between d 2015.		





Photograph:	Date:	
21	N.D.	
Feature ID:	1	
APE	-2	
Direction: Wes	st	
Description: View of former training facilit 10088), facing was demolish 2011 and	cadet water y (Building west. Facility ed between I 2015.	











Photograph:	Date:	
25	2023	
Feature ID:		
APE	-3	
Direction:		
Southe	east	
Description:		
View from p parachute emerç facility locati southe	proposed gency training on, facing ast.	





Photograph:	Date:	
27	2023	
Feature ID:		
APE	-3	and the second
Direction:		
Southv	vest	
Description:		
View from proposed parachute emergency training facility location, facing southwest.		





Photograph:	Date:	
29	2023	
Feature ID:		
APE	-3	
Direction:		
Northw	/est	
Description:		
View from p	proposed	
facility locatio	on, facing	
Building 9214 visible on right.		
		The second se





Photograph:	Date:	
31	2023	A Starter and
Feature ID:		and the second
APE	-3	
Direction:		
North-Nor	rtheast	
Description:		
View from p parachute emerg facility location, northe	proposed gency training facing north- ast.	





**Figure 1.** Rendering of proposed CST Equipment Warehouse (LOD-1), Front Mock-up (Facing South).



**Figure 2.** Rendering of proposed CST Equipment Warehouse (LOD-1), Left Mock-up (Facing West).



**Figure 3.** Rendering of proposed CST Equipment Warehouse (LOD-1), Left-Rear Mock-up (Facing Northwest).



**Figure 4.** Rendering of proposed CST Equipment Warehouse (LOD-1), Rear Mock-up (Facing North).



**Figure 5.** Rendering of proposed CST Equipment Warehouse (LOD-1), Right Mock-up (Facing East).



**Figure 6.** Rendering of proposed CST Equipment Warehouse (LOD-1), Right-Front Mock-up (Facing Southeast).



Figure 7. Schematic drawing of proposed CST Equipment Warehouse (LOD-1).

#### GENERAL

- ALL DESIGN, MATERIALS, CONSTRUCTION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE COLORADO STATE BUILDING CODE 2013 EDITION, AND ALL OTHER APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS
- 2. CONTRACTOR SHALL COORDINATE ALL ARCHITECTURAL, MECHANICAL, ELECTRICAL PLUMBING AND CIVIL DRAWINGS AND SPECIFICATIONS WORK WITH THE STRUCTUR CONTRACT DRAWINGS AND SPECIFICATIONS. CONSULT THE APPROPRIATE DRAWI FOR LOCATIONS AND DIMENSIONS OF OPENINGS, CHASES, INSERTS, REGLETS, SLEEVES, DEPRESSIONS, AND OTHER DETAILS NOT SHOWN ON STRUCTURAL DRAWINGS, ALL DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD A DISCREPANCES SHALL BE ROUGHT TO THE ATTENTION OF THE ARCHITECT BEFC PROCEEDING WITH THE AFFECTED PART OF THE WORK
- 3. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING AND VERIFYING THE EXISTENCE AND LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF WORK
- 4. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING AND VERIFYING ALL SITE CONDITIONS AND FIELD VERIFYING DIMENSIONS BEFORE THE COMMENCEMENT OF WORK. THE STRUCTURAL ENGINEER OF RECORD SHALL BE NOTIFIED OF ANY DISCREPANCIES OR DEVIATIONS FROM THE DRAWINGS.
- 5. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECITION PROCEDURES AND SEQUENCE TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIE-DOWNS, PROVIDE ALL SHORING AND BRACING REQUIRED TO STABILIZE AND PROTECT EXISTING AND ADJACENT STRUCTURES AND SYSTEMS DURING COURSE OF DEMOLITION AND CONSTRUCTION. SUCH MATERIAL SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER COMPLETION OF THE PROJECT.
- SECTIONS AND DETAILS SHOWN ON STRUCTURAL DRAWINGS SHALL BE CONSIDERED TYPICAL FOR SIMILAR CONDITIONS. REFER TO TYPICAL DETAILS AS REQUIRED TO COMPLETE THE WORK.
- 7 ANY CONTRACTOR PERFORMING WORK SHOWN ON THESE DRAWINGS WHICH REQUIRE ANY COM IRACIONE DEFECTRIMING WORK SHOWN ON THESE DRAWINGS WHICH REDUICE OUTDOOR CONSTRUCTION, DIGGING, OR DISTURBING THE EARTH ARE REQUIRED NOTIFY THE LOCAL EXCAVATION ONE-CALL CENTER AT LEAST THREE BUSINESS DAYS PRIOR TO COMMENCING ANY WORK.

#### FOUNDATION

- 1 NOT USED
- THE CONTRACTOR SHALL EMPLOY THE SERVICES OF A PROFESSIONAL GEOTECHNICA ENGINEER LICENSED IN THE PROJECT STATE TO VERIFY THE SPECIFIED ALLOWABLE SOIL BEARING PRESSURE BENEATH ALL FOUNDATIONS.
- 3. EXCAVATE THE BUILDING SITE TO THE DEPTH AND EXTENT INDICATED ON THE FOUNDATION DRAWING, ALL SUBGRADES SHALL BE APPROVED IN WRITING I GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF STRUCTURAL FILL. TING BY THE
- 4. BOTTOM OF FOOTINGS ARE TO BEAR ON UNDISTURBED NATURAL SOIL OR CONTROLLED COMPACTED FILL CAPABLE OF SAFELY SUPPORTING 1.500 PSE ADJUST FOOTING ELEVATION OR SIZE AS DIRECTED BY THE GEOTECHNICAL ENGINEER I SUITABLE BEARING IS NOT FOUND AT THE ELEVATIONS INDICATED.
- 5. BOTTOM OF ALL FOOTINGS MUST BE INSPECTED AND APPROVED BY A LICENSED O GEOTECHNICAL ENGINEER BEFORE PLACING CONCRETE. APPROVAL IN WRITING N CONFIRM THAT SOLI IS ADEQUATE TO SAFELY SUSTINI SPECIFIED SOLI BEARING . IG MUST PRESSURE.
- 6 AREAS REQUIRING UNDERCUT AND FILL MATERIAL DUE TO THE PRESENCE OF UNSUITABLE MATERIAL SHALL BE BACKFILLED TO THE DESIGN FOOTING SUBGRADE WITH NEW COMPACTED STRUCTURAL FILL IN ACCORDANCE WITH THE GEOTECHNICAL
- 7. UNLESS NOTED OTHERWISE IN THE GEOTECHNICAL REPORT SATISFACTORY FILL MATERIALS ARE THOSE COMPLYING WITH ASTM D2487, GROUPS GW, GP, GM, SM AND SP. ON-SITE BORROW MATERIAL SHALL BE TESTED TO DETERMINE SUITABILITY FOR USE AS FILL MATERIAL.
- 8. COMPACT SOILS IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION. 9. FOOTINGS AND SLABS SHALL BE PLACED ONLY ON A FIRM, DRY, NON-FROZEN SUBGRADE
- 10. NO EXCAVATION SHALL BE CLOSER THAN AT A SLOPE OF 2H:1V (TWO HORIZONTAL TO ONE VERTICAL) TO A FOOTING.
- 11. THE CONTRACTOR SHALL OBSERVE WATER CONDITIONS AT THE SITE AND TAKE THE NECESSARY PRECAUTIONS TO ENSURE THAT THE FOUNDATION EXCAVATIONS REMAIN DRY DURING CONSTRUCTION, ANY SHEETING OR SHORING REQUIRED FOR DEWATERING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 12. THE EXCAVATION FOR PLACEMENT OF COMPACTED STRUCTURAL FILL SHOULD EXTEND BEYOND THE EDGE OF FOOTINGS A MINIMUM DISTANCE EQUAL TO THE DEPTH OF FILL.
- 13. GRADE AWAY FROM THE FOUNDATION WALLS AND COORDINATE THE FINAL SITE GRADING WITH THE CIVIL DRAWINGS.
- 14. STEP FOOTINGS DOWN AT 2H:1V TO PASS UNDER ALL PIPES UNLESS NOTED OTHERWISE
- 15. CENTER COLUMN PIERS AND FOOTINGS ON COLUMN LINES, AND CENTER WALL FOOTINGS UNDER WALLS UNLESS SHOWN OTHERWISE. WHERE MORE THAN ONE COLUMN BEARS ON A FOOTING, CENTER FOOTING UNDER CENTER OF BOTH COLUMNS IN EITHER DIRECTION UNLESS NOTED OTHERWISE ON PLANS.

#### CONCRETE

- 1. ALL REINFORCED CONCRETE SHALL BE DESIGNED, DETAILED AND PLACED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318, BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, LATEST EDITION.
- 2. NORMAL WEIGHT CONCRETE SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS: TYPE I PORTLAND CEMENT 28-DAY COMPRESSIVE STRENGTH (fc):
  - SLAB ON GRADE:
     4,000 PSI

     FOOTINGS:
     4,000 PSI

     FOUNDATION WALLS & PIERS:
     4,000 PSI
- MAXIMUM AGGREGATE SIZE: MAXIMUM SI UMP 1 INCH 3 INCHES +/- 1 INCH
- 3. MAXIMUM WATER-CEMENT RATIO (W/C) SHALL BE AS FOLLOWS: W/C MAX = 0.50 FOR fc = 4,000 PSI (NON AIR ENTRAINED) 4. THE RECOMMENDATIONS CONTAINED IN ACI COMMITTEE REPORT 306R. COLD
- WEATHER CONCRETING, LATEST EDITION, SHALL BE OBSERVED. 5. THE RECOMMENDATIONS CONTAINED IN ACI COMMITTEE REPORT 305R, HOT WEATHER CONCRETING, LATEST EDITION, SHALL BE OBSERVED.
- 6. ALL REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615,
- ALL TENSION LAP SPLICING OF REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS FOR ACI CLASS "B" SPLICES, UNLESS NOTED OTHERWISE.

8. LAP ALL BARS MINIMUM 40 DIAMETERS.

9. REINFORCING STEEL DIMENSIONS ARE TO THE CENTERLINE OF THE BAR UNLESS NOTED OTHERWISE. COVER DISTANCES ARE TO THE OUTSIDE FACE OF THE BA

# LATERAL DRIFT TOWER

## UNITED STATES AIRFORCE ACADEMY

STRUCTURAL STEEL

10. UNLESS NOTED OTHERWISE ON THE DRAWINGS, UTILIZE THE FOLLOWING FOR
REINFORCEMENT CLEARANCES:

CONCRETE PLACED DIRECTLY ON EARTH. FOOTINGS:	3" COVER ALL AROUND
SLABS, FROM TOP UNLESS OTHERWISE NOTED:	1"
FORMED SURFACES EXPOSED TO WEATHER OR EARTH: 1	1/2" (#5 BAR OR SMALLER)
	2" (#6 BAR OR LARGER)
CONCRETE NOT EXPOSED TO WEATHER:	
SLABS, WALLS AND JOISTS:	1 1/2" (#14 OR #18 BARS)
	3/4" (#11 OR SMALLER)
BEAMS, COLUMNS:	1 1/2"

- 11. WELDED WIRE FABRIC SHALL CONFORM TO THE REQUIREMENTS OF ASTM A1064. MINIMUM SIZE SHALL BE 6x6-W1.4xW1.4.
- 12 INSTALL WELDED WIRE FABRIC IN LENGTHS AS LONG AS PRACTICABLE. LAP ADJOINING PIECES AT LEAST ONE FULL MESH AND LACE SPLICES WITH WIRE. OFFSET LAPS OF ADJOINING WIDTHS TO PREVENT CONTINUOUS LAPS IN EITHER DIRECTION.
- 13 WEI DING OF REINFORCEMENT IS NOT PERMITTED
- 14. REINFORCEMENT SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI 315, LATEST EDITION AND AS PER CRSI MANUAL OF STANDARD PRACTICE, LATEST EDITION.
- 15. THE PLACEMENT OF THE STEEL REINFORCEMENT SHALL BE REVIEWED BY AN ENGINEER OR QUALIFIED INSPECTION AGENCY.
- 16. REINFORCING SUPPORTS. SPACERS AND CHAIRS SHALL MEET THE REQUIREMENTS OF ACI 301 AND CRSI MANUAL OF STANDARD PRACTICE, LATEST EDITION.
- 17. ANCHOR BOLT PLACEMENT SHALL CONFORM TO THE APPROVED ANCHOR BOLT PLANS PREPARED BY THE STEEL FABRICATOR
- 18. CONTRACTOR SHALL PROVIDE ADEQUATE BRACING FOR ALL WALLS AND PIERS AS REQUIRED DURING BACKFILLING AND COMPACTION.
- 19. FORM MATERIALS SHALL BE OF SUFFICIENT STRENGTH AND STABILITY TO WITHSTAND PARAMELEVARE DECISION CONCRETE WITHOUT BOW OR DEFLECTION. FORMS FOR EXPOSED FINISH CONCRETE WITHOUT BOW OR DEFLECTION. FORMS FOR EXPOSED FINISH CONCRETE SHALL BE PLYWOOD, METAL, METAL-FRAMED PLYWOOD FACED, OR OTHER ACCEPTABLE PANEL-TYPE MATERIALS, TO PROVIDE CONTINUOUS, STRAIGHT, SMOOTH, EXPOSED SURFACES. FURNISH IN LAGEST PRACTICABLE SIZES TO MINIMIZE NUMBER OF JOINTS AND TO CONFORM TO JOINT SYSTEM SHOWN ON
- 20. PROVIDE COMMERCIAL FORMULATION FORM-COATING COMPOUNDS THAT WILL NOT BOND WITH, STAIN, NOR ADVERSELY AFFECT CONCRETE SURFACES, AND WILL NOT IMPAIR SUBSEQUENT TREATMENTS OF CONCRETE SURFACES.
- 21. FORM TIES OR SPREADERS SHALL LEAVE NO METAL WITHIN 1 1/2 INCHES OF EXPOSED CONCRETE SURFACE. PLUG ROD HOLES SOLID.
- 22. NO CONCRETE SHALL BE DEPOSITED UNTIL ALL WATER AND DEBRIS HAVE BEEN COMPLETELY REMOVED FROM THE FORMWORK.
- 23. CONCRETE SHALL BE DEPOSITED AS NEARLY AS PRACTICABLE IN ITS FINAL POSITION TO AVOID SEGREGATION DUE TO REHANDLING. IMMEDIATELY AFTER DEPOSITING, CONCRETE SHALL BE COMPACTED BY MEMOS OF MECHANICAL AGITATION TO PREVENT THE FORMATION OF VOIDS. EXTERNAL VIBRATION WILL NOT BE PERMITTED. THE PLACING OF CONCRETE SHALL BE CARRIED ON AT SUCH RATE THAT CONCRETE IS AT ALL TIMES PLACED OF CONCRETE SHALL BE CARRIED ON AT SUCH RATE THAT CONCRETE IS SHALL NOT BE FLACED ON CONCRETE WITCH HAS ACQUINED ITS NITUAL SET. CONCRETE WHICH HAS CONTANCED TIS MIXING WATER MORE THAN 1½ HOURS SHALL BE CONCRETE WHICH HAS CONTANCED TIS MIXING WATER MORE THE FLACED OF SAULD ONCRETE WHICH HAS CONTANCED TIS MIXING WATER MORE THAN 1½ HOURS SHALL ONCRETE WHICH HAS CONTANCED TIS MIXING WATER MORE THE SAUCE SAUL DOT IN THE WORK. (ONE HOUR WOULD WHIT AR THE MERCATURE IS ADVE TO FE DESTIED IN THE WORK. (ONE HOUR WHICH AR THE MERCATURE IS ADVE.
- 24. FINISHING CONCRETE: ALL CONCRETE SURFACES SHALL BE TRUE AND EVEN, FREE FROM HONEYCOMBING, STONE POCKETS AND EXCESSIVE DEPRESSIONS PROJECTIONS, AND AIR POCKETS. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 1 INCH X 1 INCH UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- 25. HORIZONTAL SURFACES SHALL BE CAREFULLY FINISHED TO THE REQUIRED ELEVATIONS, AND SHALL BE THOROUGHLY WORKED AND FINISHED AS NOTED.
- BROOM FINISH FOR EXTERIOR STAIRS AND CONCRETE SIDEWALKS AND PAVING. GROUT CLEANED FINISH FOR ALL OTHER SURFACES EXPOSED TO VIEW.
- 27. CURING OF CONCRETE: APPLY LIQUID MEMBRANE-FORMING COMPOUND FOR CURING AND SEALING CONCRETE. PRODUCT SHALL BE ASTM C309, TYPE I-D, WITH FUGTIVE DYE, SEALTIGHT C5:309 BY W.R. READOWS, "KURE-N-SEAL" BY SONNEBORN OR APPROVED EQUAL. COMPOUNDS SHALL NOT DISCOLOR CONCRETE SURFACES
- 28. UNHARDENED CONCRETE SHALL BE PROTECTED FROM HEAVY RAINS OR FLOWING WATER. ALL CONCRETE SHALL BE ADEQUATELY PROTECTED FROM MECHANICAL INJURY.
- 29. CONCRETE FOOTINGS, PIERS AND WALLS SHALL ACHIEVE EITHER 75 PERCENT OF THE INTENDED MINIMUM COMPRESSIVE DESIGN STRENGTH OR SUFFICIENT STRENGTH TO SUPPORT THE LOADS INPOSED DURING STELL ERECTION. THE CONCRETE STRENGTH IS BASED ON AN APPROPRIATE ASTM STANDARD TEST METHOD OF FIELD-CURED AND ADDRESSION AND APPROPRIATE ASTM STANDARD TEST METHOD OF FIELD-CURED AND ADDRESSION AND APPROPRIATE ASTM STANDARD TEST METHOD OF FIELD-CURED AND ADDRESSION AND APPROPRIATE ASTM STANDARD TEST METHOD OF FIELD-CURED ADDRESSION AND APPROPRIATE ASTM STANDARD TEST METHOD OF FIELD-CURED ADDRESSION AND APPROPRIATE ASTM STANDARD TEST METHOD OF FIELD-CURED ADDRESSION AND APPROPRIATE ASTM STANDARD TEST METHOD OF FIELD-CURED ADDRESSION AND APPROPRIATE ASTM STANDARD TEST METHOD OF FIELD ADDRESSION AND APPROPRIATE ASTM STANDARD TEST METHOD OF FIELD ADDRESSION AND ADDRESSION AND ADDRESSION AND ADDRESSION AND ADDRESSION AND ADDRESSION ADDRESS SAMPLES.
- 30 PROVIDE GAI VANIZED STEEL SI EEVES WHERE PIPES PASS THROUGH EXTERIOR ... NOTIVE GALVARILLED STEEL SLEEVES WHERE PIPES PASS THROUGH EXTERIOR CONCRETE WALLS, FOOTINGS, BEAMS OR SLABS, PROVIDE PVC SLEEVES WHERE PIPES PASS THROUGH INTERIOR CONCRETE WALLS, BEAM OR SLABS, SLEEVE SHALL BE 2 INCHES LARGER DIAMETER THAN THE PIPE PASSING THROUGH THE CONSTRUCTION.
- 31. PRIOR TO PLACING NEW CONCRETE OVER EXISTING CONCRETE, CONTRACTOR SHALL INTENTIONALLY ROUGHEN THE EXISTING SURFACES WHERE CONCRETE IS TO BE PLACED. APPLY SIKADUR 25 HI-MOD BONDING AGENT OR APPROVED EQUAL, TO EXISTING CONCRETE SURFACES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
- 32. COMPLETE SHOP DRAWINGS AND SCHEDULES OF ALL REINFORCING STEEL SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW.

1. ALL STRUCTURAL STEEL SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC STEEL CONSTRUCTION MANUAL LATEST EDITION. 2. ALL STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE LATEST AISC AND ASTM

STANDARDS AND SPECIFICATIONS:	
W-SHAPES	ASTM A992, Fy = 50 KSI
ANGLE, CHANNEL, PLATES AND BARS	ASTM A36, Fy = 36 KSI
RECTANGULAR HSS	ASTM A500, GR. B, Fy = 46 KSI
HSS PIPE	ASTM A500, GR. B, Fy = 42 KSI
ANCHOR RODS	ASTM F1554, Fy = 36, 55, 105 KSI

ANCHOR RODS	ASTM F1
3. FABRICATE BEAMS WITH THE NATURAL	CAMBER UP.

- 4. FULL DEPTH CONNECTIONS ARE TO BE USED ON ALL GIRDER AND BEAM CONNECTIONS TO COLUMNS. BOLTS TO BE AT 3 INCHES ON CENTER VERTICAL
- 5. WELDING SHALL CONFORM TO THE STEUCTURAL WELDING CODE AWS D.1.1, LATEST EDITION, SHOP AND FIELD WELDING SHALL BE PERFORMED BY WELDERS QUALIFIED AS DESCRIBED IN THE AMERICAN WELDING SOCIETY'S 'STANDARD QUALIFICATION PROCEDURE' (WAS D.1.1) TO FERICAN WELDING SOCIETY'S 'STANDARD QUALIFICATION PROCEDURE' (WAS D.1.1) TO FERICAN WELDING SOCIETY'S 'STANDARD QUALIFICATION BE IN ACCORDANCE WITH AWS D.1.1, AS REQUIRED.
- 6. ALL WELDS SHALL BE 3/16 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
- 7. NO FIELD BURNING OF BOLT HOLES WILL BE PERMITTED. FIELD HOLES SHALL BE DRILLED AND/OR REAMED.
- THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD.
- FIELD CONNECTIONS SHALL BE BOLTED USING 3/4 INCH DIAMETER ASTM A325-N HIGH STRENGTH BOLTS UNLESS NOTED OTHERWISE ON THE PLANS AND DETAILS.
- 10. HIGH-STRENGTH BOLTS, NUTS AND WASHERS SHALL CONFORM TO THE FOLLOWING RITERION: a. ASTM A325-N, TYPE 1, PLAIN, HEAVY HEX STRUCTURAL BOLTS b. ASTM A583, PLAIN, HEAVY HEX CARBON-STEEL NUTS c. ASTM F438, TYPE 1, PLAIN, HEAVY HEX HARDENED CARBON-STEEL WASHERS. d. DIRECT-TENSION INDICATORS: ASTM F959, TYPE 325.
- 16. THE METHOD OF BOLTING ALL STRUCTURAL BOLTS SHALL BE "TURN OF THE NUT" AS OUTLINED IN THE ASD "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" (LATEST EDITION)
- 17. CONTRACTOR SHALL PREPARE, CHECK AND SUBMIT DETAILED STRUCTURAL STEEL SHOP DRAWINGS OF WORK FOR ENGINEER'S REVIEW PRIOR TO FABRICATION. 18. NOT USED.
- 19. CONTRACTOR SHALL SUPPLY TURNBUCKLES, CLEVISES AND PINS THAT MEET ALL GEOMETRIC AND STRENGTH REQUIREMENTS. SAFE WORKING TENSION LOAD SHALL BE GREATER THAN OR EQUALT D3 X HYB. TIGHTEN TURNBUCKLES AS REQUIRED TO ASSURE ALL SLACK IS REMOVED FROM THE TENSION RODS AND THE RODS ARE FULLY TAUT (DO NOT OVERLY TIGHTEN).
- 20. ALL ALUMINUM AND STEEL MEMBERS SHALL BE TREATED OR PROPERLY SEPARATED TO PREVENT GALVANIC AND CORROSIVE EFFECTS.
- 21. ALL NEW GRATING SHALL BE HOT DIPPED GALVANIZED AND ATTACHED WITH MANUFACTURER SUPPLIED FASTENING CLIP TO FRAMING STEEL. ALL GRATING SHALL HAVE 112 INCH 3316 INCH BEARING BARS, AT 1316 INCHES ON CENTER. PLACE BEARING BARS SPANNING ACROSS THE SHORT DIRECTION. STAIR GRATING SHALL CONTAIN INTEGRAL ABRASIVE NOSINGS.
- 22. CONSTRUCTION MANAGER (OR OWNER) SHALL ENGAGE AN INDEPENDENT TESTING AND INSPECTION AGENCY TO INSPECT WELDED CONNECTIONS, INSTALLATION OF SHEAR CONNECTORS AND OTHER WELDAMENTS AND TO PERFORM TESTS AND PREPARE TEST REPORTS. TESTING AGENCY SHALL CONDUCT AND INTERPRET TESTS FREFARE 1EST REFURIS. IESTING AGENCY SHALL CONDUCT AND INTERPRET TESTS IN ACCORDANCE WITH ASTIN EGG, MAGNETIC PARTICLE INSECTION, ASTIN EGG, ETAG RADIOGRAPHIC INSPECTION, OR ASTIN E164, ULTRASONIC INSPECTION, AND STATE IN EACH REPORT WHETHER TEST RESULTS COMPLY WITH REQUIREMENTS, AND SPECIFICALLY STATE ANY DEVIATIONS.

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### Figure 8. Lateral Drift Tower (LOD-2) schematics, Page 1.

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Figure 9. Lateral Drift Tower (LOD-2) schematics, Page 2.



Figure 10. Lateral Drift Tower (LOD-2) schematics, Page 3.



Figure 11. Lateral Drift Tower (LOD-2) schematics, Page 4.

![](_page_102_Figure_0.jpeg)

Figure 12. Lateral Drift Tower (LOD-2) schematics, Page 5.

![](_page_103_Figure_0.jpeg)

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NOTE:
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![](_page_103_Figure_3.jpeg)

![](_page_103_Figure_4.jpeg)

D SECTION 1/4"=1'-0" FRAME LINE - 5 SHOWN FRAME LINE - 1 SAME

![](_page_103_Figure_6.jpeg)

![](_page_103_Figure_7.jpeg)

Figure 13. Lateral Drift Tower (LOD-2) schematics, Page 6.

![](_page_104_Figure_0.jpeg)

Figure 14. Lateral Drift Tower (LOD-2) schematics, Page 7.

![](_page_105_Figure_0.jpeg)

Figure 15. Lateral Drift Tower (LOD-2) schematics, Page 8.

![](_page_106_Figure_0.jpeg)

Figure 16. Lateral Drift Tower (LOD-2) schematics, Page 9.

![](_page_106_Figure_2.jpeg)

DRAWING TITLE SECTION AT FRAME LINES

DRAWING NO.

S2.2

![](_page_107_Figure_0.jpeg)

Figure 17. Lateral Drift Tower (LOD-2) schematics, Page 10.




1 SECTION - TYPICAL GUARD RAIL SPLICE 323 3/4\*=1\*-0\*

Figure 18. Lateral Drift Tower (LOD-2) schematics, Page 11.



Figure 19. Lateral Drift Tower (LOD-2) schematics, Page 12.



Figure 20. Lateral Drift Tower (LOD-2) schematics, Page 13.



Figure 21. Building 9204 schematics, Page 1. Proposed Emergency Parachute Building (LOD-3) designs will be based off Building 9204.

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Figure 22. Building 9204 schematics, Page 2. Proposed Emergency Parachute Building (LOD-3) designs will be based off Building 9204.

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Figure 23. Building 9204 schematics, Page 3. Proposed Emergency Parachute Building (LOD-3) designs will be based off Building 9204.



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COL C. E. DISTRICT ENGINEER

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Figure 24. Building 9204 schematics, Page 4. Proposed Emergency Parachute Building (LOD-3) designs will be based off Building 9204.

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Erin Manning Deputy Director 10<sup>th</sup> Civil Engineer Squadron U.S. Air Force 8120 Edgerton Drive, Suite 40 U.S. Air Force Academy, CO 80840

RE: U.S. Air Force Academy Combat Survival Training Facilities (HC# 83274)

Dear Ms. Manning,

Thank you for your correspondence received on October 16, 2023 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

Dawn DiPrince State Historic Preservation Officer Digitally signed by Dr. Holly Kathryn Norton Date: 2023.10.30 09:22:58 -06'00' APPENDIX D: NATIVE AMERICAN CONSULTATION THIS PAGE INTENTIONALLY LEFT BLANK.



### 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 Officers

The United States Air Force Academy (USAFA) proposes to construct training facilities in support of its Combat Survival Training (CST) program. The project is an undertaking subject to review under National Historic Preservation Act (NHPA) Section 106 process. We seek your concurrence on our recommendations that the project will result in "*no adverse effect*" to Historic Properties as described in 36 CFR § 800.5(a)(1).

Attachment 1 provides details of the proposed undertaking, discussion of the proposed Area of Potential Effects (APE), and results of identification and assessment of the potential for the undertaking to affect Historic Properties. Two different potential construction alternatives are covered by the APE although USAFA leadership eventually will select only one of those alternatives for actual construction. Careful examination of information from previous inventories for Historic Properties was sufficient for purposes of planning, i.e., no new fieldwork was conducted. There are no known tribally significant resources within the APE. The small number of Historic Properties in the APE are not eligible for listing in the National Register of Historic Places. There will be no adverse effects to proposed USAFA Campus District 5EP.595. Inadvertent discoveries are extremely unlikely for this project. However, your office would be immediately notified if any were encountered and consulted upon following provisions of 36 CFR Part 800.

Please submit your comments to the above address or via email. We respectfully request a reply within 30 days of receiving the consultation package. The parties consulted on this matter are depicted 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 at (646) 673-4642. Thank you for your review and assistance on this matter.

Very Respectfully

MANNING.ERIN.M Digitally signed by MANNING.ERIN.MARIE.10476321 92 Date: 2023.07.21 14:41:18 -06'00' ERIN M. MANNING, GS-14, USAF

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 USAFA Consulting 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 (only for new ground disturbance or pre-contact sites or materials) Pueblo of Santa Clara Pueblo of Taos Pueblo of Zuni **Rosebud Sioux Tribe** San Ildefonso Pueblo (Only for NAGPA type consultations) 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 SHPO

From: To:	<u>Richard M. Begay</u> SCHRIEVER, BERNARD A II CTR USAF USAFA 10 CES/CENPP; ROEMER, ERWIN JR CIV USAF USAFA 10 CES/CENP
Cc:	Timothy Begay
Subject:	[Non-DoD Source] RE: Government to Government Section 106 Consultation Request for Comments-Construct Permanent Combat Survival Training Facilities
Date:	Saturday, July 22, 2023 12:08:02 PM

Dear Sirs,

I reviewed the information for the proposed undertaking, construction of permanent combat survival training facilities, and concur with the USAFA's determination of No Adverse Effect. Please proceed without further consultation with the Navajo Nation.

Thank you, Richard M. Begay, THPO Navajo Nation

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

From: SCHRIEVER, BERNARD A II CTR USAF USAFA 10 CES/CENPP <br/>bernard.schriever.ctr@us.af.mil> Sent: Friday, July 21, 2023 4:29 PM

To: coltenarchambeau@gmail.com; tknight@utemountain.org; robertflyinghawk@gmail.com;

maneul.heart@utemountain.org; marybaker@mhanation.com; ademaray@mhanation.com; Betsy Chapoose <BetsyC@utetribe.com; chairmanfox@mhanation.com; schapoose@utetribe.com;

KjGraywater@spiritlakenation.com; douglasy@spiritlakenation.com; j.eagle@standingrock.org;

cwhitemountain@standingrock.org; sunagpra@southernute-nsn.gov; ssn.thpo@gmail.com;

alonzo.denney@ssndakota.com; benjamin.young@rst-nsn.gov; benjamin1011young@gmail.com; rst.thpo@rst-nsn.gov; scott.herman@rst-nsn.gov; kdongoske@gmail.com; arden.kucate@ashiwi.org;

ddnaranjo@santaclarapueblo.org; bchavarria@santaclarapueblo.org; governor@santaclarapueblo.org;

rima@taospueblo.com; warchief@taospueblo.com; governor@taospueblo.com; tribalsecretary@picurispueblo.org; Cecilia Shields <tribal.interpreter@picurispueblo.org>; Jayson A Romero <jayson.romero@cochiti.org>;

governor@cochiti.org; jreed@pawneenation.org; jnelson@pawneenation.org; gary.lafranier@cheyennenation.com; serena.wetherelt@cheyennenation.com; fstarcomesout@oglala.org; Thomas Brings <t.brings@oglala.org>; Crystal C'Bearing <crystal.cbearing@northernarapaho.com>; Crystal Reynolds <crystal.reynolds@northernarapaho.com>; benridgley007@gmail.com; Lloyd.goggles@northernarapaho.com; Richard M. Begay <r.begay@navajo-nsn.gov>; Dr. Buu V. Nygren president.buunygren@navajo-nsn.gov>; holly@mathpo.org; clyde.estes@lowerbrule.net;

Emartinez@mescaleroapachetribe.com; janthpo@gmail.com; evelarde@janadmin.com; Curator@kiowatribe.org; THPO@kiowatribe.org; LSpottedBird@kiowatribe.org; THPO Compliance <thpocompliance@ftbelknap.org>;

jeffrey.stiffarm@ftbelknap.org; Michael.darrow@fortsillapache-nsn.gov; Naomi.hartford@fortsillapache-nsn.gov; fsat@fortsillapache-nsn.gov; jmann@easternshoshone.org; Receptionist@easternshoshone.org;

garrie.killsahundred@fsst.org; tony.reider@fsst.org; Theodore Villicana

<theodore.villicana@comanchenation.com>; Martina.Minthorn@comanchenation.com;

mark.woommavovah@comanchenation.com; Aaron Brien <Aaron.brien@crow-nsn.gov>; Elizabeth Old Chief <Elizabeth.OldChief@crow-nsn.gov>; chrednose@c-a-tribes.org; mbear@c-a-tribes.org; rwassana@c-a-tribes.org; Tashina.crstpres@outlook.com; stevev.crstpres@outlook.com; apacheculture510@yahoo.com;

atcp\_crystal@yahoo.com; durellcooper05@gmail.com; Dyan Youpee <d.youpee@fortpecktribes.net>;

fazure@fortpecktribes.net; monica.murrell@santaana-nsn.gov; Emma Filesteel <emma.filesteel@ftbelknap.org>; boydgourneau@yahoo.com

Cc: ROEMER, ERWIN JR CIV USAF USAFA 10 CES/CENP <erwin.roemer@us.af.mil>

Subject: RE: Government to Government Section 106 Consultation Request for Comments-Construct Permanent Combat Survival Training Facilities

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

# **Pawnee Nation**

Thursday, August 17, 2023

Erwin Roemer Cultural Resources Manager 10<sup>th</sup> Civil Engineer Squadron US Air Force Academy US Air Force US Department of Defense

RE: Proposed Construction of Training Facilities for Combat Survival Training US Air Force Academy Colorado Springs, El Paso County, Colorado

The Pawnee Nation Office of Historic Preservation has received the information and materials requested for our Section 106 Review & Consultation. Consultation with the Pawnee Nation is required by Section 106 of the National Historic Preservation Act of 1966 (NHPA), and 36 CFR Part 800.

Given the information provided, you are hereby notified that the proposed project/s should not adversely affect the cultural landscape of the Pawnee Nation.

However, be advised that additional undiscovered properties could be encountered, and they must be immediately reported to us under both the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act regulations.

This information is provided to assist you in complying with 36 CFR Part 800 for Section 106 Consultation procedures. Should you have questions, please do not hesitate to contact me at <u>jreed@pawneenation.org</u> or by phone at 918-762-2180 ext. 220. Thank you for your time and consideration.

CPRE

Sincerelv.

oseph M. Reed

Matt Reed Historic Preservation Officer Pawnee Nation of Oklahoma

> Historic Preservation Office Matt Reed Phone: 918.762.2180 E-mail: jreed@pawneenation.org P.O. Box 470 Pawnee, Oklahoma 74058

From:	SCHRIEVER, BERNARD A II CTR USAF USAFA 10 CES/CENPP
То:	ROEMER, ERWIN JR CIV USAF USAFA 10 CES/CENP
Subject:	FW: [Non-DoD Source] 5 projects and need more info on 2 projects
Date:	Wednesday, October 25, 2023 12:30:00 PM
Importance:	High

From: gary.lafranier@cheyennenation.com <gary.lafranier@cheyennenation.com>
Sent: Wednesday, October 25, 2023 11:50 AM
To: SCHRIEVER, BERNARD A II CTR USAF USAFA 10 CES/CENPP <bernard.schriever.ctr@us.af.mil>
Subject: [Non-DoD Source] 5 projects and need more info on 2 projects
Importance: High

Good Morning,

**Construct Communication Line Between Bldgs. 1051 and 1052:** Project will have a determination of **No Adverse Effect**.

Demolition of Bldg. 6556: Project will have a determination of No Adverse Effect.

**Construct Permanent Combat Survival Training Faci**lities: Project will have a determination of **No Adverse Effect**.

USAFA Fiber Expansion from Bldg 4199-Bldg 2354: Project will have a determination of No Adverse Effect.

Research Design Airfield DP-BAA Report was confusing. Was there anything discovered and what was their determination?

Farish Memorial Recreation Area Archaeological Inventory Report and forms. I need report please

**Consultation Request for Construct Training Facilities for Combat Survival Training:** Project will have a determination of **No Adverse Effect**.

Thank You,

Gary La Franier FCC/ Section 106 Coordinator (406) 477-8114 Lame Deer, MT. 59043



# Hinono'einino'

Northern Arapaho Tribe TRIBAL HISTORIC PRESERVATION OFFICE P.O. Box 67 - St. Stephens, Wyoming 82524 - PH: 307.856.1628 -<u>Crystal.reynolds@northernarapaho.com</u>



Oct 11, 2023

Wyoming Department of Transportation 5300 Bishop Boulevard, Cheyenne, Wy 82009 307-777-4346

#### **RE: Construct Facilities for Combat Survival Training**

After reviewing your request under the Section 106 process of the NHPA, and NEPA, our office would like to comment on the proposed project: Construct Facilities for Combat Survival Training. Due to the area being previously disturbed the Northern Arapaho Tribal Historic Preservation Office makes the following determination:

#### Determination of Effect:

"No Adverse Effect on Historic Properties" in the Direct and Visual APE.

Our office has come to this determination by drawing conclusions from the survey and file search from maps depicting provenience of sites in regards to the Direct and Visual APE. There are no cultural resources or eligible historic properties within the APE. Currently, there are no properties of religious and cultural significance to the Northern Arapaho within the area of potential effect. However, if traditional cultural properties, rock features, or human remains are found during excavation with any new ground disturbance, we request to be contacted and a report provided.

Thank you for consulting with the Northern Arapaho THPO.

Sincerely,

Crystal Reynolds

Crystal Reynolds NATHPO Tribal Archaeologist crystal.reynolds@northernarapaho.com 307-856-1628 Office 307-856-4974 FAX



### 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 Officers

The United States Air Force Academy (USAFA) proposes to construct training facilities in support of its Combat Survival Training (CST) program. We previously contacted you on this project by a letter dated July 21, 2023, at which time we proposed an Area of Potential Effects (APE) along with a description of Historic Properties inventory leading to our proposed finding of "no adverse effect." No tribes responded with substantial concerns. However, the Colorado State Historic Preservation Officer did request additional information as shown by Attachment 1. As a response to that, Attachment 2 is a substantially revised information package compared to what we sent to you in July. However, we continue to propose that this project will result in "*no adverse effect*" to Historic Properties. We welcome your review comments on Attachment 2.

Please submit comments, if any, to the above address or via email. For questions, please contact Mr. Erwin Roemer, 10 CES/CENP, USAFA Cultural Resources Manager, at erwin.roemer@us.af.mil, or at (719) 333-7341. Thank you for your assistance on this matter.

Very Respectfully MANNING.ERIN MARIE.104763 2192 ERIN M. MANNING, GS-14, USAF

Attachments:

- 1. SHPO email dated August 1, 2023
- USAFA Cultural Resources Section 106 Project Review (revised), Appendix A. Figures Appendix B. Photographs Appendix C. Engineering Plans and Schematic Drawings

From:	Sara Childers					
To:	SCHRIEVER, BERNARD A II CTR USAF USAFA 10 CES/CENPP					
Subject:	[Non-DoD Source] FW: [EXT] Government to Government Section 106 Consultation Request for Construct Training Facilities for Combat Survival Training					
Date:	Tuesday, October 31, 2023 5:50:35 PM					
Attachments:	Tab 1 CST EA S106 - THPO Letter.pdf         Atch 1 CST EA S106 - SHPO email dated August 1, 2023.pdf         Atch 2 CST EA S106 - USAFA Cultural Resources Section 106 Project Review.pdf         Appendix A CST EA S106 - Figures.pdf         Appendix B CST EA S106 - Photographs.pdf         Appendix C CST EA S106 - Engineering Plans and Schematic Drawings.pdf					

Hello,

The Flandreau Santee Sioux Tribe has no issues with the proposed project at this site. If any cultural material and or human remains are disturbed please stop and contact us ASAP. Thank you, Sara Childers

Sara Childers Tribal Historic Preservation Assistant Flandreau Santee Sioux Tribe 603 W Broad Ave | Flandreau, SD 57028 p. 605.997.3891 x1226 www.fsst-nsn.gov

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From: Garrie Kills-A-Hundred <garrie.killsahundred@FSST.org>

Sent: Monday, October 23, 2023 3:48 PM

To: Sara Childers <sara.childers@FSST.org>

Subject: FW: [EXT] Government to Government Section 106 Consultation Request for Construct Training Facilities for Combat Survival Training

Garrie Kills-A-Hundred Tribal Historic Preservation Officer Flandreau Santee Sioux Tribe 603 W Broad Ave | Flandreau, SD 57028 p. 605.997.3891 x1226 www.fsst-nsn.gov

-----Original Message-----From: SCHRIEVER, BERNARD A II CTR USAF USAFA 10 CES/CENPP <bernard.schriever.ctr@us.af.mil> Sent: Monday, October 16, 2023 12:45 PM

From:	Steve Vance
То:	SCHRIEVER, BERNARD A II CTR USAF USAFA 10 CES/CENPP; coltenarchambeau@gmail.com;
	tknight@utemountain.org; ademaray@mhanation.com; Betsy Chapoose; KiGraywater@spiritlakenation.com;
	j.eagle@standingrock.org; sunagpra@southernute-nsn.gov; ssn.thpo@gmail.com; benjamin.young@rst-nsn.gov;
	benjamin1011young@gmail.com; rst.thpo@rst-nsn.gov; kdongoske@gmail.com;
	ddnaranjo@santaclarapueblo.org; bchavarria@santaclarapueblo.org; rima@taospueblo.com;
	warchief@taospueblo.com; Cecilia Shields; Jayson A Romero; jreed@pawneenation.org;
	gary.lafranier@cheyennenation.com; Thomas Brings; Crystal C"Bearing; Crystal Reynolds;
	benridgley007@gmail.com; r.begay@navajo-nsn.gov; holly@mathpo.org; clyde.estes@lowerbrule.net;
	janthpo@gmail.com; THPO@kiowatribe.org; THPO Compliance; Michael.darrow@fortsillapache-nsn.gov;
	Naomi.hartford@fortsillapache-nsn.gov; jmann@easternshoshone.org; garrie.killsahundred@fsst.org; Theodore
	Villicana; Aaron Brien; chrednose@c-a-tribes.org; Tashina.crstpres@outlook.com; apacheculture510@yahoo.com;
	atcp_crystal@yahoo.com; Dyan Youpee; monica.murrell@santaana-nsn.gov; Emma Filesteel;
	boydgourneau@yahoo.com; monica.murrell@santaana-nsn.gov; mbear@c-a-tribes.org; ahill@kiowatribe.org;
	sfox@spiritlakenation.com; THPO@utetribe.com
Cc:	ROEMER, ERWIN JR CIV USAF USAFA 10 CES/CENP; Tashina Dupris; Jeryn.bigeagle17@gmail.com
Subject:	[Non-DoD Source] Re: Follow-up for Government to Government Section 106 Consultation Request for Construct
	Training Facilities for Combat Survival Training
Date:	Monday, November 6, 2023 10:47:15 AM

#### Erwin,

The Cheyenne River Sioux Tribe concurs with the recommended "no adverse effect to historic property".

Resent guidance from the Biden administration has supported Native Nation concerns to land, air, and water, as cultural resources. The concerns of global warming and climate change produced an MOU with multiple federal agencies stating, "bodies of water, landscapes, landforms, stone features, stone structures, and plant communities as sacred objects". I would encourage all individuals conducting survey/studies to continue Tribal involvement for Traditional Ecological Knowledge (TEK) and Indigenous Knowledge (IK). Along with these changes there is the opportunity for federal agencies to offer "comanagement/co-stewardship" in the decision-making process to Native Nations. Although the documents state "low" potential of cultural resources to be discovered/disturbed during construction, I request the presence of a cultural resource manager on-site during all ground disturbance.

# **From:** SCHRIEVER, BERNARD A II CTR USAF USAFA 10 CES/CENPP <bernard.schriever.ctr@us.af.mil> **Sent:** Monday, November 6, 2023 9:47 AM

**To:** coltenarchambeau@gmail.com <coltenarchambeau@gmail.com>; tknight@utemountain.org <tknight@utemountain.org>; ademaray@mhanation.com <ademaray@mhanation.com>; Betsy Chapoose <BetsyC@utetribe.com>; KjGraywater@spiritlakenation.com

<KjGraywater@spiritlakenation.com>; j.eagle@standingrock.org <j.eagle@standingrock.org>; sunagpra@southernute-nsn.gov <sunagpra@southernute-nsn.gov>; ssn.thpo@gmail.com <ssn.thpo@gmail.com>; benjamin.young@rst-nsn.gov <benjamin.young@rst-nsn.gov>; benjamin1011young@gmail.com <benjamin1011young@gmail.com>; rst.thpo@rst-nsn.gov <rst.thpo@rst-nsn.gov>; kdongoske@gmail.com <kdongoske@gmail.com>; ddnaranjo@santaclarapueblo.org <ddnaranjo@santaclarapueblo.org>;

bchavarria@santaclarapueblo.org <bchavarria@santaclarapueblo.org>; rima@taospueblo.com <rima@taospueblo.com>; warchief@taospueblo.com <warchief@taospueblo.com>; Cecilia Shields <tribal.interpreter@picurispueblo.org>; Jayson A Romero <jayson.romero@cochiti.org>; jreed@pawneenation.org <jreed@pawneenation.org>; gary.lafranier@cheyennenation.com <gary.lafranier@cheyennenation.com>; Thomas Brings <t.brings@oglala.org>; Crystal C'Bearing <crystal.cbearing@northernarapaho.com>; Crystal Reynolds <crystal.reynolds@northernarapaho.com>; benridgley007@gmail.com <benridgley007@gmail.com>; r.begay@navajo-nsn.gov <r.begay@navajo-nsn.gov>; holly@mathpo.org <holly@mathpo.org>; clyde.estes@lowerbrule.net <clyde.estes@lowerbrule.net>; janthpo@gmail.com <janthpo@gmail.com>; THPO@kiowatribe.org <thpo@kiowatribe.org>; THPO Compliance <thpocompliance@ftbelknap.org>; Michael.darrow@fortsillapache-nsn.gov <Michael.darrow@fortsillapache-nsn.gov>; Naomi.hartford@fortsillapache-nsn.gov <Naomi.hartford@fortsillapache-nsn.gov>; jmann@easternshoshone.org <jmann@easternshoshone.org>; garrie.killsahundred@fsst.org <garrie.killsahundred@fsst.org>; Theodore Villicana <theodore.villicana@comanchenation.com>; Aaron Brien <Aaron.brien@crow-nsn.gov>; chrednose@c-a-tribes.org <chrednose@c-a-tribes.org>; Tashina.crstpres@outlook.com <tashina.crstpres@outlook.com>; stevev.crstpres@outlook.com <stevev.crstpres@outlook.com>; apacheculture510@yahoo.com <apacheculture510@yahoo.com>; atcp\_crystal@yahoo.com <atcp\_crystal@yahoo.com>; Dyan Youpee <d.youpee@fortpecktribes.net>; monica.murrell@santaana-nsn.gov <monica.murrell@santaana-</p> nsn.gov>; Emma Filesteel <emma.filesteel@ftbelknap.org>; boydgourneau@yahoo.com <boydgourneau@yahoo.com>; monica.murrell@santaana-nsn.gov <monica.murrell@santaanansn.gov>; mbear@c-a-tribes.org <mbear@c-a-tribes.org>; ahill@kiowatribe.org <ahill@kiowatribe.org>; sfox@spiritlakenation.com <sfox@spiritlakenation.com>; THPO@utetribe.com <THPO@utetribe.com> Cc: ROEMER, ERWIN JR CIV USAF USAFA 10 CES/CENP <erwin.roemer@us.af.mil> **Subject:** Follow-up for Government to Government Section 106 Consultation Request for Construct

Training Facilities for Combat Survival Training

Dear Tribal Historic Preservation Officers

The Government to Government communication regarding the construction of facilities to support Combat Survival Training for USAFA Cadets (attached) was sent to your office on October 16, 2023 for review and comment. By this current email, USAFA is checking to see if you will be replying by 16 November 2023, the end of the comment period. For questions or to request additional time, please respond by email to Mr. Schriever (bernard.schriever.ctr@us.af.mil) or by phone (719) 333-8375. We appreciate your time to collaborate with USAFA, and the advice and assistance you and your staff provide for other Section 106 consultations at USAFA.

Thank you,

Erwin Roemer, RPA USAF Academy Cultural Resource Manager 8120 Edgerton Drive, USAFA, CO 80840 erwin.roemer@us.af.mil teleworking pers cell 646-673-4642 Mountain Time Zone THIS PAGE INTENTIONALLY LEFT BLANK.

# **APPENDIX E:**

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

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## Proof of Publication

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#### STATE OF COLORADO, } ss. COUNTY OF EL PASO }

I, Ralph Routon, Interim Co-Publisher, or the undersigned Authorized Agent of the Interim Co-Publisher, do solemnly swear that I am the Interim Co-Publisher, or Authorized Agent of the Interim Co-Publisher of Sixty35 Media, LLC; that the same is a weekly newspaper printed, in whole or in part and published in the County of El Paso, State of Colorado, and has a general circulation therein; that said newspaper has been published continuously and uninterruptedly in said county of El Paso for a period of more than fifty-two consecutive weeks prior to the first publication of the annexed legal notice or advertisement; that said newspaper has been admitted to the United States mails as second-class matter under the provisions of the Act of March 3, 1879, or any amendments thereof, and that said newspaper is a weekly newspaper duly qualified for publishing legal notices and advertisements within the meaning of the laws of the State of Colorado.

That the annexed legal notice or advertisement was published in the regular and entire issue of every number of said weekly newspapers for the period of **1** consecutive insertion(s), and/or once each week and on the same days of each week; and that the first publication of said notice was in the issue of said newspaper dated,

#### 23, MARCH, A.D., 2023.

and that the last publication of said notice was in the issue of said newspaper dated

23, MARCH, A.D., 2023.

In witness whereof I have hereunto set my hand this 23rd day of March, A.D., 2023.

m End Monu

Interim Co-Publisher /Authorized Agent

Subscribed and sworn to before me, a notary public in and for the County of El Paso, State of Colorado, this 23rd day of March, A.D., 2023.

oben kil

Notary Public



#### 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 (USAF) is preparing an Environmental Assessment (EA) to evaluate the potential environmental impacts resulting from the implementation of a Combat Survival Training (CST) program at the U.S. Air Force Academy (USAFA) in El Paso County, (Proposed Colorado Action). The purpose of this Proposed Action is to follow the leadership directive to offer CST at USAFA, meet new standards for survival, evasion, resistance, and escape (SERE) training, and increase the overall SERE training capacity of the USAF. The Proposed Action is needed because the current USAF SERE program does not meet current and projected training demands, resulting in a backlog of all personnel waiting to complete accredited SERE training. Failure to implement a CST program at USAFA means the USAF's SERE training program would continue to operate at insufficient capacity and there would continue to be a backlog of USAFA Cadets and USAF Airmen waiting to complete required training.

The Proposed Action is subject to requirements and objectives of Executive Orders (EOs) 11990, Protection of Wetlands and 11988, Floodplain Management, as the project includes water-based The project training activities. sites are located next to a lake (man-made impoundment) with adjacent wetlands; the Proposed Action is anticipated to temporarily or permanently disturb up to 0.6 acre of wetlands, although USAFA would seek to minimize this potential disturbance during the project design phase. As the lake (impoundment) receives water primarily from a flow diversion culvert, and water height is regulated with a dam, it does not have an appreciable floodplain; however, given the potential for in-water construction, nealiaible floodplain impacts could be identified. The Proposed Action would not contribute to any measurable loss with regard to flood control capacity.

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 wellands and floodplains. The public comment period is 23 March to 22 April 2023. 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. Publication Date: March 23, 2023

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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

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Published in The Gazette March 23, 2023.

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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 (USAF) is preparing an Environmental Assessment (EA) to evaluate the potential environmental impacts resulting from the implementation of a Combat Survival Training (CST) program at the U.S. Air Force Academy (USAFA) in El Paso County, Colorado (Proposed Action). The purpose of this Proposed Action is to follow the leadership directive to offer CST at USAFA, meet new standards for survival, evasion, resistance, and escape (SERE) training, and increase the overall SERE training capacity of the USAF. The Proposed Action is needed because the current USAF SERE program does not meet current and projected training demands, resulting in a backlog of all personnel waiting to complete accredited SERE training. Failure to implement a CST program at USAFA means the USAF's SERE training program would continue to operate at insufficient capacity and there would continue to be a backlog of USAFA Cadets and USAF Airmen waiting to complete required training. The Proposed Action is subject to requirements and objectives of Executive Orders (EOs) 11990, Protection of Wetlands and 11988, Floodplain Management, as the project includes water-based training activities. The project sites are located next to a lake (man-made impoundment) with adjacent wetlands; the Proposed Action is anticipated to temporarily or permanently disturb up to 0.6 acre of wetlands, although USAFA would seek to minimize this potential disturbance during the project design phase. As the lake (impoundment) receives water primarily from a flow diversion culvert, and water height is regulated with a dam, it does not have an appreciable floodplain; however, given the potential for in-water construction, negligible floodplain impacts could be identified. The Proposed Action would not contribute to any measurable loss with regard to flood control capacity. The Proposed Action will be analyzed in the forthcoming EA and the public will have the opportunity to comment on the -

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# APPENDIX F:

# AIR CONFORMITY APPLICABILITY MODEL REPORTS

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**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 ACADEMYState:ColoradoCounty(s):El PasoRegulatory Area(s):NOT IN A REGULATORY AREA

**b. Action Titles:** Alternative 1: Consolidated Training Area on North Side of Kettle Lake #3 Alternative 2: Dispersed Training Facilities

c. Project Number/s (if applicable):

d. Projected Action Start Date: 3 / 2024

e.

#### **Alternative 1 Action Description:**

The USAF would construct consolidated training facilities for water survival training and emergency parachute training on the north bank of Kettle Lake #3.

#### **Alternative 2 Action Description:**

The water survival training facilities would be constructed along the southern bank of Kettle Lake #3 on the site of the previous water survival training facilities. Additionally, the emergency parachute training facility would either be constructed adjacent to Building 9204 at the Davis Airfield or in Jacks Valley. These sites (south bank of Kettle Lake #3, adjacent to Building 9204, and in Jacks Valley) all offer an adequate amount of space within the USAFA to conduct training activities and construct supporting infrastructure.

#### f. Point of Contact:

Name:	Caitlin Shaw
Title:	Contractor
Organization:	AECOM

**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:**

#### 2024 (Construction)

Pollutant	Action Emissi	ions (ton/yr)	INSIGNIFICANCE INDICATOR		
	Preferred Alternative	Alternative 2	Indicator (ton/yr)	Exceedance (Yes or	
				NO)	
NOT IN A REGULATORY AREA					
VOC	0.262	0.262	250	No	
NOx	1.317	1.317	250	No	
CO	2.075	2.075	250	No	

SOx	0.006	0.006	250	No
PM 10	3.062	1.980	250	No
PM 2.5	0.048	0.048	250	No
Pb	0.000	0.000	25	No
NH3	0.002	0.002	250	No
CO2e	479.7	479.7		

### 2025 and Beyond - (Steady State)

Pollutant	Preferred Alternative or	INSIGNIFICANCE INDICATOR		
	Alternative 2	Indicator (ton/yr)	Exceedance (Yes or No)	
	Action Emissions (ton/yr)			
NOT IN A REGULATORY	AREA			
VOC	0.087	250	No	
NOx	2.470	250	No	
CO	1.094	250	No	
SOx	0.157	250	No	
PM 10	0.224	250	No	
PM 2.5	0.206	250	No	
Pb	0.000	25	No	
NH3	0.001	250	No	
CO2e	468.6			

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.

Cattlin I Show

Caitlin Shaw, Contractor

\_\_\_\_10/6/2023\_\_\_\_ DATE

Unless noted all inputs and calculations were the same between Alternative 1 and 2. Only Site Preparation has different emission input.

- Act	livity List:	
Activity Type		Activity Title
2.	Construction / Demolition	Site Preparation
3.	Personnel	Cadets and staff
4.	Aircraft	Helicopter
5.	Construction / Demolition	Water Survival Training Building
6.	Construction / Demolition	Emergency Parachute Training Building
7.	Construction / Demolition	Warehouse
8	Emergency Generator	Power use at Water Survival Training Building

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: Site Preparation
- Activity Description: General site prep
- Activity Start Date Start Month: 3 Start Month: 2024
- Activity End Date

Indefinite:	False
End Month:	6
End Month:	2024

#### - Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.133134
SO <sub>x</sub>	0.002536
NO <sub>x</sub>	0.707632
CO	0.952245
PM 10	1.958785

Pollutant	<b>Total Emissions (TONs)</b>
PM 2.5	0.026854
Pb	0.000000
NH <sub>3</sub>	0.000339
CO <sub>2</sub> e	245.6

#### 2.1 Site Grading Phase

#### 2.1.1 Site Grading Phase Timeline Assumptions

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- Phase Start Date
Start Month: 3
Start Quarter: 1
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Start rear.	2024	
- Phase Duration		
Number of Mo	onth: 3	
Number of Da	ys: 0	
2.1.2 Site Gradin	ng Phase Assumptions	
- General Site Gra	ding Information for Alternative 1:	
- General Site Gra Area of Site to	ding Information for Alternative 1: be Graded (ft <sup>2</sup> ):	79340
- General Site Gra Area of Site to Amount of Ma	ding Information for Alternative 1: be Graded (ft <sup>2</sup> ): aterial to be Hauled On-Site (yd <sup>3</sup> ):	79340 0
- General Site Gra Area of Site to Amount of Ma Amount of Ma	ding Information for Alternative 1: be Graded (ft <sup>2</sup> ): aterial to be Hauled On-Site (yd <sup>3</sup> ): aterial to be Hauled Off-Site (yd <sup>3</sup> ):	79340 0 0
- General Site Gra Area of Site to Amount of Ma Amount of Ma - General Site Gra	ding Information for Alternative 1: be Graded (ft <sup>2</sup> ): aterial to be Hauled On-Site (yd <sup>3</sup> ): aterial to be Hauled Off-Site (yd <sup>3</sup> ): ding Information for Alternative 2:	79340 0 0
- General Site Gra Area of Site to Amount of Ma Amount of Ma - General Site Gra Area of Site to	ding Information for Alternative 1: be Graded (ft <sup>2</sup> ): aterial to be Hauled On-Site (yd <sup>3</sup> ): aterial to be Hauled Off-Site (yd <sup>3</sup> ): ding Information for Alternative 2: be Graded (ft <sup>2</sup> ):	79340 0 0 34000
- General Site Gra Area of Site to Amount of Ma Amount of Ma - General Site Gra Area of Site to Amount of Ma	ding Information for Alternative 1: be Graded (ft <sup>2</sup> ): aterial to be Hauled On-Site (yd <sup>3</sup> ): aterial to be Hauled Off-Site (yd <sup>3</sup> ): ding Information for Alternative 2: be Graded (ft <sup>2</sup> ): aterial to be Hauled On-Site (yd <sup>3</sup> ):	79340 0 0 34000 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 <sup>3</sup> ):	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)

Graders Composite								
	VOC	SOx	NO <sub>x</sub>	СО	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2</sub> e
<b>Emission Factors</b>	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Other Construction Equipment Composite								
	VOC	SOx	NO <sub>x</sub>	СО	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2</sub> e
Emission Factors	0.0461	0.0012	0.2243	0.3477	0.0079	0.0079	0.0041	122.61
-------------------------------------	--------	--------	--------	--------	--------	--------	--------	-------------------
Rubber Tired Dozers Composite								
	VOC	SOx	NOx	СО	PM 10	PM 2.5	CH4	CO <sub>2</sub> e
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	SOx	NOx	CO	PM 10	PM 2.5	CH4	CO <sub>2</sub> e
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	SOx	NO <sub>x</sub>	CO	PM 10	PM 2.5	Pb	NH <sub>3</sub>	CO <sub>2</sub> e
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<sub>FD</sub>: 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<sub>POL</sub>: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF<sub>POL</sub>: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

#### - Vehicle Exhaust Emissions per Phase

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

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

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

V<sub>POL</sub>: Vehicle Emissions (TONs)
 VMT<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles)
 0.002205: Conversion Factor grams to pounds

EF<sub>POL</sub>: 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<sub>WT</sub>: 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<sub>POL</sub>: Vehicle Emissions (TONs)
VMT<sub>WT</sub>: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

## 2.2 Trenching/Excavating Phase

## 2.2.1 Trenching / Excavating Phase Timeline Assumptions

#### - Phase Start Date

Start Month:	3
Start Quarter:	1
Start Year:	2024

- Phase Duration Number of Month: 3 Number of Days: 1

2.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information for Alte Area of Site to be Trenched/Excavated (ft <sup>2</sup> ): Amount of Material to be Hauled On-Site (yd <sup>3</sup> ):	<b>rnative 1:</b> 21400 0
Amount of Material to be Hauled Off-Site (yd <sup>3</sup> ):	0
- General Trenching/Excavating Information for Alte	rnative 2:
Area of Site to be Trenched/Excavated (ft <sup>2</sup> ):	30400
Amount of Material to be Hauled On-Site (vd <sup>3</sup> ):	0
Amount of Material to be Hauled Off-Site (yd <sup>3</sup> ):	0
- Trenching Default Settings	
Default Settings Used: Yes	
Average Day(s) worked per week: 5 (default)	

- Construction Exhaust (default)

Equipment Name

Number Of Hours Per Day

	Equipment	
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd <sup>3</sup> ):	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

## 2.2.3 Trenching / Excavating Phase Emission Factor(s)

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

Graders Composite								
	VOC	SOx	NO <sub>x</sub>	СО	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2</sub> e
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Other Construction Equipment Composite								
	VOC	SOx	NOx	СО	PM 10	PM 2.5	CH4	CO <sub>2</sub> e
<b>Emission Factors</b>	0.0461	0.0012	0.2243	0.3477	0.0079	0.0079	0.0041	122.61
Rubber Tired Dozers Composite								
	VOC	SOx	NO <sub>x</sub>	СО	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2</sub> e
<b>Emission Factors</b>	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	SOx	NO <sub>x</sub>	СО	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2</sub> e
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	Pb	$\mathbf{NH}_3$	CO <sub>2</sub> e
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

## 2.2.4 Trenching / Excavating Phase Formula(s)

#### - Fugitive Dust Emissions per Phase

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

PM10<sub>FD</sub>: 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<sub>POL</sub>: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF<sub>POL</sub>: 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<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles) HA<sub>OnSite</sub>: Amount of Material to be Hauled On-Site (yd<sup>3</sup>) HA<sub>OffSite</sub>: Amount of Material to be Hauled Off-Site (yd<sup>3</sup>) HC: Average Hauling Truck Capacity (yd<sup>3</sup>) (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd<sup>3</sup>) HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

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

#### - Worker Trips Emissions per Phase

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

VMT<sub>WT</sub>: 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<sub>VE</sub>: Worker Trips Vehicle Miles Travel (miles) 0.002205: Conversion Factor grams to pounds EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile) VM: Worker Trips On Road Vehicle Mixture (%) 2000: Conversion Factor pounds to tons

## 3. Personnel

#### 3.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add
- Activity Location County: El Paso

Regulatory Area(s): Colorado Springs, CO

- Activity Title: Cadets and staff
- Activity Description: training staff
- Activity Start Date Start Month: 5 Start Year: 2024
- Activity End Date

Indefinite:	Yes
End Month:	N/A
End Year:	N/A

#### - Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.016436
SO <sub>x</sub>	0.000113
NO <sub>x</sub>	0.014892
CO	0.183405
PM 10	0.000455

Pollutant	<b>Emissions Per Year (TONs)</b>
PM 2.5	0.000410
Pb	0.000000
NH <sub>3</sub>	0.001039
CO <sub>2</sub> e	16.4

#### 3.2 Personnel Assumptions

30
0
0
0
0

- Average Personnel Round Trip Commute (mile): 5

- Personnel Work Schedule

Active Duty Personnel:	5 Days Per Week
Civilian Personnel:	5 Days Per Week
Support Contractor Personnel:	5 Days Per Week
Air National Guard (ANG) Personnel:	4 Days Per Week
<b>Reserve Personnel:</b>	4 Days Per Month

## 3.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9

GOVs	54.49	37.73	4.67	0	0	3.11	0

## 3.4 Personnel Emission Factor(s)

#### - On Road Vehicle Emission Factors (grams/mile)

	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	Pb	NH <sub>3</sub>	CO <sub>2</sub> e
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

## **3.5** Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year

 $VMT_P = NP * WD * AC$ 

VMT<sub>P</sub>: Personnel Vehicle Miles Travel (miles/year) NP: Number of Personnel WD: Work Days per Year AC: Average Commute (miles)

#### - Total Vehicle Miles Travel per Year

 $VMT_{Total} = VMT_{AD} + VMT_{C} + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$ 

VMT<sub>Total</sub>: Total Vehicle Miles Travel (miles)
 VMT<sub>AD</sub>: Active Duty Personnel Vehicle Miles Travel (miles)
 VMT<sub>C</sub>: Civilian Personnel Vehicle Miles Travel (miles)
 VMT<sub>SC</sub>: Support Contractor Personnel Vehicle Miles Travel (miles)
 VMT<sub>ANG</sub>: Air National Guard Personnel Vehicle Miles Travel (miles)
 VMT<sub>AFRC</sub>: Reserve Personnel Vehicle Miles Travel (miles)

#### - Vehicle Emissions per Year

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

V<sub>POL</sub>: Vehicle Emissions (TONs)
VMT<sub>Total</sub>: Total Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile)
VM: Personnel On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

# 4. Aircraft (Helicopter emissions were calculated using AFCEC June 2021 Guide)

#### 4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

- Activity Title: Helicopter
- Activity Description:
- Activity Start Date

Start Month:	5
Start Year:	2024

- Activity End Date

Indefinite:	Yes
End Month:	N/A
End Year:	N/A

#### - Activity Emissions:

Pollutant	<b>Emissions Per Year (TONs)</b>
VOC	0.065410
SO <sub>x</sub>	0.152605
NO <sub>x</sub>	2.431980
CO	0.895103
PM 10	0.218868

Pollutant	<b>Emissions Per Year (TONs)</b>
PM 2.5	0.200422
Pb	0.000000
NH <sub>3</sub>	0.000000
CO <sub>2</sub> e	449.47307

#### - Activity Emissions [Flight Operations (includes Trim Test & APU) part]:

Pollutant	<b>Emissions Per Year (TONs)</b>
VOC	0.003271
SO <sub>x</sub>	0.137678
NO <sub>x</sub>	1.398717
CO	0.717728
PM 10	0.163450

Pollutant	<b>Emissions Per Year (TONs)</b>
PM 2.5	0.146599
Pb	0.000000
NH <sub>3</sub>	0.000000
CO <sub>2</sub> e	413.6240

#### - Activity Emissions [Aerospace Ground Equipment (AGE) part]:

Pollutant	Emissions Per Year (TONs)	Pollutant	Emissions Per Year (TONs)
VOC	0.062139	PM 2.5	0.053823
SO <sub>x</sub>	0.014927	Pb	0.000000
NO <sub>x</sub>	1.033263	NH <sub>3</sub>	0.000000
CO	0.177375	CO <sub>2</sub> e	35.84911
PM 10	0.055418		

## 4.2 Aircraft & Engines

## 4.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine	
Aircraft Designation:	Blackhawk UH-60
Engine Model:	GE T700
<b>Primary Function:</b>	Various Training
Aircraft has After burn:	No
Number of Engines:	2

- Aircraft & Engine Surrogate Is Aircraft & Engine a Surrogate? No Original Aircraft Name: Original Engine Name:

# 4.2.2 Aircraft & Engines Emission Factor(s)

- Aircrait & Engine Emissions Factors (10/100010 fuel)								
	<b>Fuel Flow</b>	VOC	SOx	NO <sub>x</sub>	СО	PM 10	PM 2.5	CO <sub>2</sub> e
Ground Idle	134	0.5	1.07	3.36	46.24	1.48	1.33	3214.59
Flight Idle	469	0.02	1.07	10.95	5.12	1.26	1.13	3214.59
Flight Max	626	0.01	1.07	11.87	3.51	2.22	2	3214.59
Overspeed	725	0.01	1.07	11.43	2.81	2.61	2.33	3214.59

## - Aircraft & Engine Emissions Factors (lb/1000lb fuel)

# 4.3 Flight Operations

## 4.3.1 Flight Operations Assumptions

- Flight Operations	
Number of Aircraft:	1
Number of Annual LTOs (Landing and Take-off) cycles for all Aircraft:	44
Number of Annual TGOs (Touch-and-Go) cycles for all Aircraft:	0
Number of Annual Trim Test(s) per Aircraft:	0

#### - Default Settings Used: No

- Flight Operations TIMs (Time In Mode)	
Taxi/Idle Out [Idle] (mins):	8
Takeoff [Military] (mins):	2.27
Takeoff [After Burn] (mins):	0
Climb Out [Intermediate] (mins):	4.53
Approach [Approach] (mins):	6.80
Taxi/Idle In [Idle] (mins):	7

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim T	ſest
----------	------

Idle (mins):	360
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	0
AfterBurn (mins):	0

# 4.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for LTOs per Year AEM<sub>POL</sub> = (TIM / 60) \* (FC / 1000) \* EF \* NE \* LTO / 2000

AEM<sub>POL</sub>: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
LTO: Number of Landing and Take-off Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

#### - Aircraft Emissions for LTOs per Year

 $AE_{LTO} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$ 

AE<sub>LTO</sub>: Aircraft Emissions (TONs) AEM<sub>IDLE\_IN</sub>: Aircraft Emissions for Idle-In Mode (TONs) AEM<sub>IDLE\_OUT</sub>: Aircraft Emissions for Idle-Out Mode (TONs) AEM<sub>APPROACH</sub>: Aircraft Emissions for Approach Mode (TONs) AEM<sub>CLIMBOUT</sub>: Aircraft Emissions for Climb-Out Mode (TONs) AEM<sub>TAKEOFF</sub>: Aircraft Emissions for Take-Off Mode (TONs)

#### - Aircraft Emissions per Mode for TGOs per Year

AEM<sub>POL</sub> = (TIM / 60) \* (FC / 1000) \* EF \* NE \* TGO / 2000

AEM<sub>POL</sub>: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
TGO: Number of Touch-and-Go Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

#### - Aircraft Emissions for TGOs per Year

 $AE_{TGO} = AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$ 

AE<sub>TGO</sub>: Aircraft Emissions (TONs) AEM<sub>APPROACH</sub>: Aircraft Emissions for Approach Mode (TONs) AEM<sub>CLIMBOUT</sub>: Aircraft Emissions for Climb-Out Mode (TONs) AEM<sub>TAKEOFF</sub>: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year AEPS<sub>POL</sub> = (TD / 60) \* (FC / 1000) \* EF \* NE \* NA \* NTT / 2000

AEPS<sub>POL</sub>: Aircraft Emissions per Pollutant & Power Setting (TONs) TD: Test Duration (min) 60: Conversion Factor minutes to hours FC: Fuel Flow Rate (lb/hr) 1000: Conversion Factor pounds to 1000pounds EF: Emission Factor (lb/1000lb fuel) NE: Number of Engines NA: Number of Aircraft NTT: Number of Trim Test 2000: Conversion Factor pounds to TONs

#### - Aircraft Emissions for Trim per Year

 $AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$ 

AE<sub>TRIM</sub>: Aircraft Emissions (TONs) AEPS<sub>IDLE</sub>: Aircraft Emissions for Idle Power Setting (TONs) AEPS<sub>APPROACH</sub>: Aircraft Emissions for Approach Power Setting (TONs) AEPS<sub>INTERMEDIATE</sub>: Aircraft Emissions for Intermediate Power Setting (TONs) AEPS<sub>MILITARY</sub>: Aircraft Emissions for Military Power Setting (TONs)

AEPSAFTERBURN: Aircraft Emissions for After Burner Power Setting (TONs)

# 4.4 Auxiliary Power Unit (APU)

## 4.4.1 Auxiliary Power Unit (APU) Assumptions

## - Default Settings Used: Yes

#### - Auxiliary Power Unit (APU) (default)

	(			
Number of APU	<b>Operation Hours</b>	Exempt	Designation	Manufacturer
per Aircraft	for Each LTO	Source?		

## 4.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (AP	U) Emission	Factor (lb.	/hr)					
Designation	<b>Fuel Flow</b>	VOC	SOx	NO <sub>x</sub>	CO	PM 10	PM 2.5	CO <sub>2</sub> e

## 4.4.3 Auxiliary Power Unit (APU) Formula(s)

## - Auxiliary Power Unit (APU) Emissions per Year

 $APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$ 

APU<sub>POL</sub>: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF<sub>POL</sub>: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

# 4.5 Aerospace Ground Equipment (AGE)

# 4.5.1 Aerospace Ground Equipment (AGE) Assumptions

#### - Default Settings Used: Yes

#### - AGE Usage

#### Number of Annual LTO (Landing and Take-off) cycles for AGE: 1

#### - Aerospace Ground Equipment (AGE) (default)

Total Number of	<b>Operation Hours</b>	Exempt	AGE Type	Designation
AGE	for Each LTO	Source?		
1	5	No	Generator Set	A/M32A-86D
1	0.5	No	Start Cart	A/M32A-95
1	2	No	Air Conditioner	MA-3D
1	2	No	Heater	H1
1	2.5	No	Hydraulic Test Stand	MJ-1-1
1	1	No		MJ-2/TTU-228
1	4	No	Light Cart	FL-1D
1	1	No	Air Compressor	MC-1A
1	2.5	No		MC-2A

## 4.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/Sortie)

Designation	VOC	SOx	NO <sub>x</sub>	СО	PM 10	PM 2.5	CO <sub>2</sub> e
A/M32A-86D	0.294	0.047	6.102	0.457	0.091	0.089	146.08
A/M32A-95	0.074	0.264	1.47	5.86	0.11	0.107	205.14
MA-3D	0.053	0.052	4.167	0.317	0.167	0.162	160.76
H1	0.105	0.003	0.16	0.18	0.006	0.006	8.81
MJ-1-1	0.026	0.018	0.757	0.043	0.167	0.162	56.9
MJ-2/TTU-228	0.195	0.054	3.396	0.794	0.089	0.086	167.76
FL-1D	0.008	0.018	0.03	0.025	0.167	0.162	13.9
MC-1A	0.267	0.008	0.419	0.267	0.071	0.068	24.61
MC-2A	0.177	0.009	0.496	0.234	0.167	0.162	26.87

## 4.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year

 $AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$ 

AGE<sub>POL</sub>: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs) AGE: Total Number of Aerospace Ground Equipment OH: Operation Hours for Each LTO (hour) LTO: Number of LTOs EF<sub>POL</sub>: Emission Factor for Pollutant (lb/hr) 2000: Conversion Factor pounds to tons

# 5. Construction / Demolition

# 5.1 General Information & Timeline Assumptions

- Activity Location

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

- Activity Title: Water Survival Training Building
- Activity Description: Water Survival Training Support Facilities Construction
- Activity Start Date Start Month: 3 Start Month: 2023
- Activity End Date

Indefinite:	False
End Month:	6
End Month:	2024

#### - Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.030641
SO <sub>x</sub>	0.000612
NO <sub>x</sub>	0.154921
CO	0.255304
PM 10	0.005177

Pollutant	Total Emissions (TONs)
PM 2.5	0.005161
Pb	0.000000
NH <sub>3</sub>	0.000187
CO <sub>2</sub> e	59.0

## 5.1 Building Construction Phase

#### 5.1.1 Building Construction Phase Timeline Assumptions

- Phase Start Date Start Month: 4 Start Quarter: 1 Start Year: 2024

- Phase Duration Number of Month: 3 Number of Days: 0

#### 5.1.2 Building Construction Phase Assumptions

- General Building Construction Information					
<b>Building Category:</b>	Office or Industrial				
Area of Building (ft <sup>2</sup> ):	960				
Height of Building (ft):	40				
Number of Units:	N/A				

#### - Building Construction 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
Cranes Composite	1	4
Forklifts Composite	2	6
Tractors/Loaders/Backhoes Composite	1	8

#### - Vehicle Exhaust

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

- Vendor Trips

Average Vendor Round Trip Commute (mile): 40 (default)

#### - Vendor Trips Vehicle Mixture (%)

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

#### 5.1.3 Building Construction Phase Emission Factor(s)

Cranes Composite								
	VOC	SOx	NOx	CO	PM 10	PM 2.5	CH4	CO <sub>2</sub> e
Emission Factors	0.0715	0.0013	0.4600	0.3758	0.0161	0.0161	0.0064	128.78
Forklifts Composite								
	VOC	SOx	NOx	CO	PM 10	PM 2.5	CH4	CO <sub>2</sub> e
Emission Factors	0.0246	0.0006	0.0973	0.2146	0.0029	0.0029	0.0022	54.451
Tractors/Loaders/Backhoes Composite								
	VOC	SOx	NOx	CO	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2</sub> e
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

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

	VOC	SOx	NO <sub>x</sub>	CO	PM 10	PM 2.5	Pb	$\mathbf{NH}_3$	CO <sub>2</sub> e
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

## 5.1.4 Building Construction Phase Formula(s)

#### - Construction Exhaust Emissions per Phase

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

CEE<sub>POL</sub>: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF<sub>POL</sub>: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

#### - Vehicle Exhaust Emissions per Phase

VMT<sub>VE</sub> = BA \* BH \* (0.42 / 1000) \* HT

VMT<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft<sup>2</sup>)
BH: Height of Building (ft)
(0.42 / 1000): Conversion Factor ft<sup>3</sup> to trips (0.42 trip / 1000 ft<sup>3</sup>)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

V<sub>POL</sub>: Vehicle Emissions (TONs)
VMT<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

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

VMT<sub>WT</sub>: 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<sub>POL</sub>: Vehicle Emissions (TONs)
VMT<sub>WT</sub>: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase VMT<sub>VT</sub> = BA \* BH \* (0.38 / 1000) \* HT

 $\begin{array}{l} VMT_{VT}: \ Vender \ Trips \ Vehicle \ Miles \ Travel \ (miles) \\ BA: \ Area \ of \ Building \ (ft^2) \\ BH: \ Height \ of \ Building \ (ft) \\ (0.38 \ / \ 1000): \ Conversion \ Factor \ ft^3 \ to \ trips \ (0.38 \ trip \ / \ 1000 \ ft^3) \\ HT: \ Average \ Hauling \ Truck \ Round \ Trip \ Commute \ (mile/trip) \end{array}$ 

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

 $V_{POL}$ : Vehicle Emissions (TONs) VMT<sub>VT</sub>: Vender Trips Vehicle Miles Travel (miles) 0.002205: Conversion Factor grams to pounds EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile) VM: Worker Trips On Road Vehicle Mixture (%) 2000: Conversion Factor pounds to tons

# 6. Construction / Demolition

#### 6.1 General Information & Timeline Assumptions

- Activity Location County: El Paso Regulatory Area(s): Colorado Springs, CO
- Activity Title: Emergency Parachute Training Building

- Activity Description: Emergency Parachute Training Building Construction

- Activity Start Date Start Month: 3 Start Month: 2024

- Activity End Date Indefinite: False

End Month: 6 End Month: 2024

#### - Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.040676
SO <sub>x</sub>	0.000811
NO <sub>x</sub>	0.204672
CO	0.339771
PM 10	0.006840

Pollutant	Total Emissions (TONs)
PM 2.5	0.006824
Pb	0.000000
NH <sub>3</sub>	0.000239
$CO_2e$	78.1

# 6.1 Building Construction Phase

6.1.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month:	3
Start Quarter:	1
Start Year:	2024

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

## 6.1.2 Building Construction Phase Assumptions

#### - General Building Construction Information

<b>Building Category:</b>	Office or Industrial
Area of Building (ft <sup>2</sup> ):	1000
Height of Building (ft):	30
Number of Units:	N/A

# Building Construction Default Settings Default Settings Used: Yes Average Day(s) worked per week: 5 (default)

#### - Construction Exhaust (default)

Equipment Name	Number Of	Hours Per Day	
	Equipment		
Cranes Composite	1	4	
Forklifts Composite	2	6	
Tractors/Loaders/Backhoes Composite	1	8	

- Vehicle Exhaust

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

#### - Vendor Trips

Average Vendor Round Trip Commute (mile): 40 (default)

#### - Vendor Trips Vehicle Mixture (%)

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

# 6.1.3 Building Construction Phase Emission Factor(s)

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

Cranes Composite								
	VOC	SOx	NO <sub>x</sub>	CO	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2</sub> e
<b>Emission Factors</b>	0.0715	0.0013	0.4600	0.3758	0.0161	0.0161	0.0064	128.78
Forklifts Composite								
	VOC	SOx	NO <sub>x</sub>	CO	PM 10	PM 2.5	CH <sub>4</sub>	CO <sub>2</sub> e
Emission Factors	0.0246	0.0006	0.0973	0.2146	0.0029	0.0029	0.0022	54.451
Tractors/Loaders/Backhoes Composite								
	VOC	SOx	NOx	СО	PM 10	PM 2.5	CH4	CO <sub>2</sub> e
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	Pb	NH <sub>3</sub>	CO <sub>2</sub> e
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

#### 6.1.4 Building Construction Phase Formula(s)

#### - Construction Exhaust Emissions per Phase

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

CEE<sub>POL</sub>: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF<sub>POL</sub>: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

 $VMT_{VE} = BA * BH * (0.42 / 1000) * HT$ 

VMT<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft<sup>2</sup>)
BH: Height of Building (ft)
(0.42 / 1000): Conversion Factor ft<sup>3</sup> to trips (0.42 trip / 1000 ft<sup>3</sup>)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

V<sub>POL</sub>: Vehicle Emissions (TONs)
VMT<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

#### - Worker Trips Emissions per Phase

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

VMT<sub>WT</sub>: 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<sub>POL</sub>: Vehicle Emissions (TONs)
VMT<sub>WT</sub>: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

#### - Vender Trips Emissions per Phase

 $VMT_{VT} = BA * BH * (0.38 / 1000) * HT$ 

VMT<sub>VT</sub>: Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft<sup>2</sup>)
BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft<sup>3</sup> to trips (0.38 trip / 1000 ft<sup>3</sup>)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

 $V_{POL}$ : Vehicle Emissions (TONs) VMT<sub>VT</sub>: Vender Trips Vehicle Miles Travel (miles) 0.002205: Conversion Factor grams to pounds EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile) VM: Worker Trips On Road Vehicle Mixture (%) 2000: Conversion Factor pounds to tons

# 7. Construction / Demolition

#### 7.1 General Information & Timeline Assumptions

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

- Activity Title: Warehouse
- Activity Description: Warehouse Construction
- Activity Start Date Start Month: 3 Start Month: 2024
- Activity End Date Indefinite: False End Month: 6 End Month: 2024

#### - Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.042115
SO <sub>x</sub>	0.000850
NO <sub>x</sub>	0.219822
CO	0.344859
PM 10	0.007344

Pollutant	Total Emissions (TONs)
PM 2.5	0.007289
Pb	0.000000
NH <sub>3</sub>	0.000323
CO <sub>2</sub> e	82.6

## 7.1 Building Construction Phase

#### 7.1.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month:3Start Quarter:1Start Year:2024

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

## 7.1.2 Building Construction Phase Assumptions

- General Building Construction Information					
<b>Building Category:</b>	Office or Industrial				
Area of Building (ft <sup>2</sup> ):	10000				
Height of Building (ft):	20				
Number of Units:	N/A				

Building Construction Default Settings
 Default Settings Used: Yes
 Average Day(s) worked per week: 5 (default)

#### - Construction Exhaust (default)

Equipment Name	Number Of	Hours Per Day
	Equipment	
Cranes Composite	1	4
Forklifts Composite	2	6
Tractors/Loaders/Backhoes Composite	1	8

#### - Vehicle Exhaust

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

- Vendor Trips

Average Vendor Round Trip Commute (mile): 40 (default)

#### - Vendor Trips Vehicle Mixture (%)

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

## 7.1.3 Building Construction Phase Emission Factor(s)

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

Cranes Composite								
	VOC	SOx	NOx	СО	PM 10	PM 2.5	CH4	CO <sub>2</sub> e
Emission Factors	0.0715	0.0013	0.4600	0.3758	0.0161	0.0161	0.0064	128.78
Forklifts Composite	Forklifts Composite							
	VOC	SOx	NOx	СО	PM 10	PM 2.5	CH4	CO <sub>2</sub> e
Emission Factors	0.0246	0.0006	0.0973	0.2146	0.0029	0.0029	0.0022	54.451
Tractors/Loaders/Ba	Tractors/Loaders/Backhoes Composite							
	VOC	SOx	NOx	СО	PM 10	PM 2.5	CH4	CO <sub>2</sub> e
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	SO <sub>x</sub>	NO <sub>x</sub>	CO	PM 10	PM 2.5	Pb	NH <sub>3</sub>	CO <sub>2</sub> e
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

## 7.1.4 Building Construction Phase Formula(s)

#### - Construction Exhaust Emissions per Phase

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

CEE<sub>POL</sub>: Construction Exhaust Emissions (TONs) NE: Number of Equipment WD: Number of Total Work Days (days) H: Hours Worked per Day (hours) EF<sub>POL</sub>: Emission Factor for Pollutant (lb/hour)

2000: Conversion Factor pounds to tons

# - Vehicle Exhaust Emissions per Phase $VMT_{VE} = BA * BH * (0.42 / 1000) * HT$

VMT<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft<sup>2</sup>)
BH: Height of Building (ft)
(0.42 / 1000): Conversion Factor ft<sup>3</sup> to trips (0.42 trip / 1000 ft<sup>3</sup>)
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<sub>VE</sub>: Vehicle Exhaust Vehicle Miles Travel (miles) 0.002205: Conversion Factor grams to pounds EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile) VM: Worker Trips On Road Vehicle Mixture (%) 2000: Conversion Factor pounds to tons

#### - Worker Trips Emissions per Phase

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

VMT<sub>WT</sub>: 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<sub>WT</sub>: Worker Trips Vehicle Miles Travel (miles) 0.002205: Conversion Factor grams to pounds EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile) VM: Worker Trips On Road Vehicle Mixture (%) 2000: Conversion Factor pounds to tons

## - Vender Trips Emissions per Phase

 $VMT_{VT} = BA * BH * (0.38 / 1000) * HT$ 

VMT<sub>VT</sub>: Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft<sup>2</sup>)
BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft<sup>3</sup> to trips (0.38 trip / 1000 ft<sup>3</sup>)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

 $V_{POL}$ : Vehicle Emissions (TONs) VMT<sub>VT</sub>: Vender Trips Vehicle Miles Travel (miles) 0.002205: Conversion Factor grams to pounds EF<sub>POL</sub>: Emission Factor for Pollutant (grams/mile) VM: Worker Trips On Road Vehicle Mixture (%) 2000: Conversion Factor pounds to tons

# 8. Emergency Generator

#### 8.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

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

#### - Activity Description:

Emergency generator use at the Water Survival Training Building

- Activity Start Date Start Month: 5 Start Year: 2025
- Activity End Date

Indefinite:	Yes
End Month:	N/A
End Year:	N/A

#### - Activity Emissions:

Pollutant	<b>Emissions Per Year (TONs)</b>
VOC	0.005650
SO <sub>x</sub>	0.004759
NO <sub>x</sub>	0.023288
CO	0.015552
PM 10	0.005083

Pollutant	<b>Emissions Per Year (TONs)</b>
PM 2.5	0.005083
Pb	0.000000
NH <sub>3</sub>	0.000000
CO <sub>2</sub> e	2.7

- 8.2 Emergency Generator Assumptions
- Emergency Generator
   Type of Fuel used in Emergency Generator: Diesel
   Number of Emergency Generators: 1
- Default Settings Used: Yes
- Emergency Generators Consumption
   Emergency Generator's Horsepower: 135 (default)
   Average Operating Hours Per Year (hours): 30 (default)

#### 8.3 Emergency Generator Emission Factor(s)

- Emergency Generators Emission Factor (1D/np-ni	- ]	Emergency	Generators	Emission	Factor	(lb/hp-hr	)
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VOC	SOx	NOx	CO	PM 10	PM 2.5	Pb	NH <sub>3</sub>	CO <sub>2</sub> e
0.00279	0.00235	0.0115	0.00768	0.00251	0.00251			1.33

## 8.4 Emergency Generator Formula(s)

- Emergency Generator Emissions per Year

 $AE_{POL} = (NGEN * HP * OT * EF_{POL}) / 2000$ 

AE<sub>POL</sub>: Activity Emissions (TONs per Year) NGEN: Number of Emergency Generators HP: Emergency Generator's Horsepower (hp) OT: Average Operating Hours Per Year (hours) EF<sub>POL</sub>: Emission Factor for Pollutant (lb/hp-hr)