

Draft

**ENVIRONMENTAL ASSESSEMENT
for the
DOOLITTLE POWER STATION REPAIR & UPGRADE
at
BEALE AIR FORCE BASE, CALIFORNIA**

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Project No. 00112



JULY 2024

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PRIVACY ADVISORY

This Environmental Assessment (EA) is provided for public comment in accordance with the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality (CEQ) NEPA Regulations (40 CFR §§ 1500 to 1508), and 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*.

The EIAP provides an opportunity for public input on Air Force decision-making, allows the public to offer inputs on alternative ways for the Air Force to accomplish what it is proposing, and solicits comments on the Air Force's analysis of environmental effects.

Public commenting allows the Air Force to make better, informed decisions. Letters or other written or oral comments provided may be published in the EA. As required by law, comments provided will be addressed in the final EA and made available to the public. Providing personal information is voluntary. Any personal information provided will be used only to identify your desire to make a statement during the public comment portion of any public meetings or hearings or to fulfill requests for copies of the draft EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the draft EA; however, only the names of the individuals making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the final EA.

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Executive Summary

INTRODUCTION

The United States (U.S.) Department of the Air Force (DAF) has prepared this Environmental Assessment (EA) to analyze potential environmental impacts associated with the Doolittle Power Station Repair & Upgrade project at Beale Air Force Base (AFB), CA.

This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C.] 4321 et seq.); the Council on Environmental Quality (CEQ) regulations implementing the procedural provisions of NEPA, 40 Code of Federal Regulations (CFR) §§ 1500–1580; Fiscal Responsibility Act of 2023, and the Air Force’s Environmental Impact Analysis Process (EIAP) (32 CFR Part 989).

This EA evaluates the potential impacts to the human and natural environment from implementing the Proposed Action. The No Action Alternative is also evaluated as a requirement of NEPA to serve as a baseline from which to analyze the effects of not implementing the Doolittle Power Station Repair & Upgrade project. Supported by the information and environmental analyses presented in this document, the DAF will decide whether to implement the Proposed Action. A detailed description of the Proposed Action and the alternatives and the affected environment and environmental consequences are presented in order to ascertain the environmental consequences of implementation. Additionally, all required agency consultation and coordination are summarized in this EA.

PURPOSE AND NEED FOR ACTION

The purpose of the action is 1) to ensure electric power supporting all facilities on the Flightline, the Munition Support Squadron (MUNS), Global Hawk Campus (GHC), and Mission Control Station (MCS) Pad at Beale AFB are maintained; 2) provide 100% electrical energy resiliency for the Global Hawk Mission operating 24/7/365; and 3) to isolate critical facilities at the GHC in the event of an electrical outage.

The action is needed because current base-wide energy usage and dilapidated energy infrastructure at Beale place the Flightline, MUNS, and GHC missions at severe risk of unexpected interruption due to potential weather incidents, wildfires, electrical failures, and/or targeted attacks. Failure to provide resilience to these missions on Beale AFB could result in unquantifiable impact to the AF mission. Additionally, backup power for these areas is reliant on fossil fuel generators which adds to the greenhouse gasses Beale exudes.

This action ensures compliance with applicable Unified Facilities Criteria and National Electrical Codes. This action also ensures compliance with Department of Defense Instruction 4170.11, *Installation Energy Management*, which notes that “[e]nergy resilience solutions are not limited to traditional standby or emergency generators” and provides further direction that “when selecting distributed and renewable energy systems... for energy resilience, they shall be properly designed to have the ability to prepare for and recover from energy disruptions that impact the mission impact assurance.”

DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action would demolish/replace the existing Doolittle Substation with an upgraded substation/switchyard and would install a new control building, smart microgrid, battery energy storage system (BESS), and a solar array to provide electrical energy resiliency to critical systems at Beale AFB. Construction would consist of the following:

- Demolish and replace an existing substation with an upgraded substation/switchyard that's enclosed with a concrete masonry unit perimeter wall (28,739 additional square-feet).
- Construct new 250-square-foot control building with HVAC, a microgrid, and a battery backup system.
- A 60' by 12' concrete pad (720 sf) for a 3 MW BESS.
- Install a new 2-megawatt photovoltaic array (284,282 square-feet) on undeveloped land covering approximately 9.5 acres.
- Install new perimeter fencing, gates, and driveways.
- Dig an 850-foot trench for solar array conduit.
- Alter an existing man-made runoff pipe from an adjacent water tower to route runoff from the site.
- Reroute an existing water main via trench that's 500 feet long, 5 feet deep, and 3 feet wide (7,500 ft³).

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

CEQ regulations, NEPA, and Air Force instructions for implementing NEPA, specify that an EA should address those resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact.

The following resource areas have been addressed in this EA: air quality, land use, soils and geology, water resources, biological resources, hazardous materials and wastes, infrastructure, cultural resources, public health and safety, and noise. Because potential impacts were considered to be nonexistent, the following resources were not evaluated in this EA: airspace management and use, coastal zone management, socioeconomics, environmental justice, wildfires, and floodplains.

Table ES-1-1 provides a brief summary and comparison of potential impacts under each alternative.

Table ES-1-1: Comparison of Environmental Consequences.

Resource Area	Proposed Action	No Action Alternative
Air Quality	<ul style="list-style-type: none"> Short-term, negligible adverse impacts Long-term, moderate beneficial direct and indirect impacts 	Intermittent, minor, adverse impacts
Land Use	Negligible — conversion of 3.15 acres of grazing land to open space.	None
Soils & Geology	Soils: Negligible long-term adverse impact Geology: None	Soils: None Geology: None
Water Resources	Surface Water: <ul style="list-style-type: none"> Negligible indirect adverse impacts to offsite waters Moderate adverse direct (0.031 acres) and indirect (0.01 acres) impacts to ephemeral surface waters Groundwater: None Waters of the U.S.: No impact	Surface Water: None Groundwater: None Waters of the U.S.: None

Resource Area	Proposed Action	No Action Alternative
Biological Resources	<p>Vegetation:</p> <ul style="list-style-type: none"> Short-term, minor direct adverse impacts Permanent, minor direct adverse impacts (loss of 0.7 acres of grasslands) Long-term, minor direct beneficial impacts <p>Wildlife:</p> <ul style="list-style-type: none"> Permanent loss of 0.7 acres of grassland habitat Short-term, minor, indirect adverse impacts to wildlife habitat Long-term, moderate, indirect beneficial impacts to invertebrate pollinators <p>Threatened and Endangered Species:</p> <ul style="list-style-type: none"> Short-term, negligible indirect adverse impacts Potential for future indirect impacts – negligible with effective AMMs Long-term, moderate, indirect beneficial impacts to monarch butterflies and other natural pollinators Direct and indirect adverse effects to Federally listed species, reduced to no effect through mitigation (ratio of 3:1 for direct impacts and 1:1 for indirect impacts) and AMMs. 	<p>Vegetation: None</p> <p>Wildlife: None</p> <p>Threatened and Endangered Species: None</p>
Hazardous Materials & Wastes	Short-term negligible adverse impacts.	None
Infrastructure	<ul style="list-style-type: none"> Short-term minor adverse impact to transportation Short-term, negligible adverse impacts to water and electrical utilities Long-term significant beneficial impacts to electrical infrastructure and utilities 	Negligible to moderate long-term adverse impacts to electrical utilities and infrastructure, respectively
Cultural Resources	None – no historic properties or tribal resources affected	None
Public Health & Safety	<ul style="list-style-type: none"> No impacts from construction Long-term, minor indirect beneficial impacts to maintenance personnel safety during operation 	None
Noise	<ul style="list-style-type: none"> Short-term, intermittent, minor adverse impacts during construction No impacts from operation 	None

Source: Draft EA Doolittle Power Station Repair & Upgrade, 2024

AVOIDANCE & MINIMIZATION MEASURES AND MITIGATION REQUIRED

The Proposed Action would result in 0.01 acres of direct and 0.004 acres of indirect impacts to suitable federally protected branchiopod habitat. Beale AFB is required to provide compensation for direct impacts at a 3:1 ratio (0.03 acres) and indirect impacts at a 1:1 ration (0.004 acres).

Additionally, avoidance and minimization measures (AMMs) are required to either avoid or minimize adverse impacts from the Proposed Action. Due to the extensive length of the AMMs, they are referenced instead (Appendix C).

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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym	Definition
AFB	Air Force Base
AFI	Air Force Instruction
AJD	Approved Jurisdictional Determination
AMM	Avoidance and Minimization Measure
AT&T	American Telephone and Telegraph Company
BA	Biological Assessment
BCC	Birds of Conservation Concern
BMP	Best Management Practice
BO	Biological Opinion
BWIP	Beale-WAPA Interconnection Project
CAAQS	California Ambient Air Quality Standards
CdTe	Cadmium telluride
CEMML	Center for Environmental Management Military Lands
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
DC	Direct Current
DoD	Department of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
EO	Executive Order
ES	Executive Summary

Acronym	Definition
ESA	Endangered Species Act
FE	Federally Listed Endangered Species
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FR	Federal Review
FY	Fiscal Year
GHG	Greenhouse Gas
GIS	Geographic Information System
HMMP	Hazardous Material Management Plan
HWMP	Hazardous Waste Management Plan
IPaC	Information for Planning and Consultation
kV	Kilovolt
kVA	Kilo-volt-ampere
LiDAR	Light Detection and Ranging
MAPS	Monitoring Avian Productivity and Survivorship
MBTA	Migratory Bird Treaty Act
MPH	Miles Per Hour
MW	Megawatt
MWh	Megawatt-hour
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NRM	Natural Resource Manager
PG&E	Pacific Gas & Electric
ppb	Part(s) per billion
ppm	Part(s) per million

Acronym	Definition
PV	Photovoltaic
Q-100	100-year
QSD	Qualified SWPPP Developer
SE	State Endangered
SHPO	State Historic Preservation Officer
SoC	Federal Species of Concern
SOP	Standard Operating Procedure
SSC	State Species of Special Concern
ST	State-Threatened
SWPPP	Storm Water Pollution Prevention Plan
TSCA	Toxic Substances Control Act
UFC	Unified Facility Code
USACE	United States Army Corps of Engineers
USAF	United States Air Force
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
VPFS	Vernal Pool Fairy Shrimp
VPTS	Vernal Pool Tadpole Shrimp
WAPA	Western Area Power Administration
WOTUS	Waters of the U.S.

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1.0 INTRODUCTION AND PURPOSE & NEED FOR ACTION

1.1 INTRODUCTION

The United States (U.S.) Department of the Air Force (DAF) has prepared this Environmental Assessment (EA) to analyze potential environmental impacts associated with the Doolittle Power Station Repair & Upgrade project at Beale Air Force Base (AFB), CA.

This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C.] 4321 et seq.); the Council on Environmental Quality (CEQ) regulations implementing the procedural provisions of NEPA, 40 Code of Federal Regulations (CFR) §§ 1500–1580; Fiscal Responsibility Act of 2023, and the Air Force’s Environmental Impact Analysis Process (EIAP) (32 CFR Part 989).

This EA evaluates the potential impacts to the human and natural environment from implementing the Proposed Action. The No Action Alternative is also evaluated as a requirement of NEPA to serve as a baseline from which to analyze the effects of not implementing the Doolittle Power Station Repair & Upgrade project. Supported by the information and environmental analyses presented in this document, the DAF will decide whether to implement the Proposed Action. A detailed description of the Proposed Action and the alternatives (Chapter 2) and the affected environment and environmental consequences (Chapter 3) are presented in order to ascertain the environmental consequences of implementation. Additionally, all required agency consultation and coordination are summarized in this EA (Section 1.5).

1.2 LOCATION

The project is located on approximately 12.7 acres of undeveloped and partially developed landscape within the Doolittle Substation and adjacent to the Doolittle Water Tower east of Doolittle Dr and north of Grumman Ave on Beale AFB, CA (Figure 1-1).

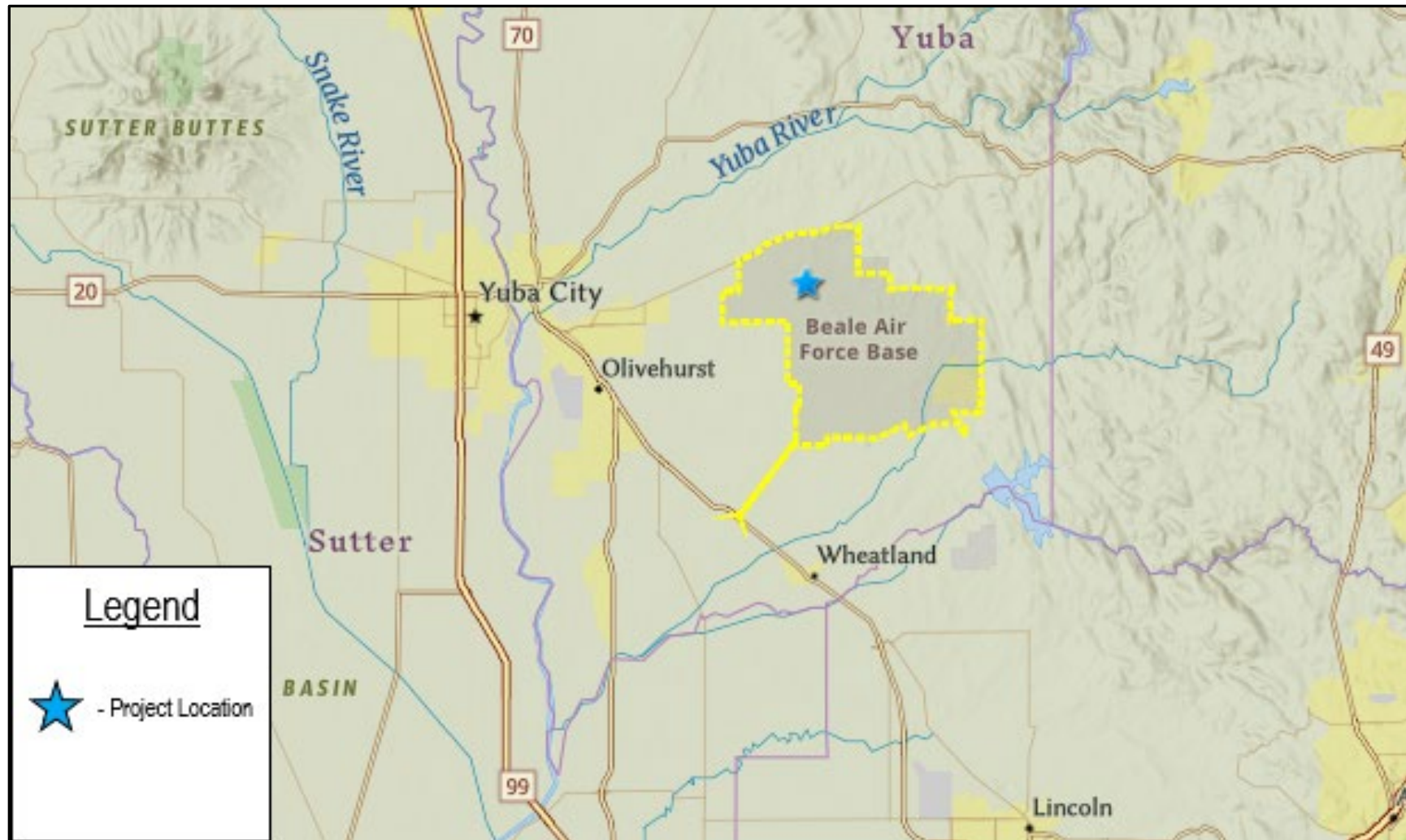


Figure 1-1: Beale Air Force Base, California.

1.3 PURPOSE AND NEED FOR ACTION

The purpose of the action is 1) to ensure electric power supporting all facilities on the Flightline, the Munition Support Squadron (MUNS), Global Hawk Campus (GHC), and Mission Control Station (MCS) Pad at Beale AFB are maintained; 2) provide 100% electrical energy resiliency for the Global Hawk Mission operating 24/7/365; and 3) to isolate critical facilities at the GHC in the event of an electrical outage.

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This action ensures compliance with applicable Unified Facilities Criteria and National Electric Codes. This action also ensures compliance with Department of Defense Instruction 4170.11, *Installation Energy Management*, which notes that “[e]nergy resilience solutions are not limited to traditional standby or emergency generators” and provides further direction that “when selecting distributed and renewable energy systems... for energy resilience, they shall be properly designed to have the ability to prepare for and recover from energy disruptions that impact the mission impact assurance.”

1.4 SUMMARY OF KEY ENVIRONMENTAL QUALITY COMPLIANCE REQUIREMENTS

1.4.1 National Environmental Policy Act

NEPA is a federal statute requiring the identification and analysis of potential environmental impacts associated with proposed federal actions before those actions are taken. The intent of NEPA is to help decision-makers make well-informed decisions based on an understanding of the potential environmental consequences, and take actions to protect, restore, or enhance the environment. NEPA established CEQ, which is charged with the development of implementing regulations and ensuring federal agency compliance with NEPA.

The CEQ regulations mandate that all federal agencies use a prescribed structured approach to environmental impact analysis. This approach also requires federal agencies to use an interdisciplinary and systematic approach in their decision-making process. This process evaluates potential environmental consequences associated with a Proposed Action and considers alternative courses of action.

Upon completion of the EA review and consultation process, the DAF will determine whether the Proposed Action would result in significant impacts to the human environment. If significant impacts are expected to result, the DAF would then be required to decide whether to move forward with the development of an Environmental Impact Statement (EIS) or to abandon the Proposed Action altogether. If no significant impacts are expected or significant impacts can be

mitigated, then the DAF can publish a Finding of No Significant Impact (FONSI) and move forward with the Proposed Action as such.

1.4.2 Applicable Environmental and Regulatory Compliance

Regulatory requirements relevant to the Proposed Action have been identified for the proposed project. Regulatory requirements under the following laws, among others, are assessed:

- Noise Control Act of 1972
- Clean Air Act (CAA) of 1970
- Clean Water Act (CWA) of 1972
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980
- National Historic Preservation Act (NHPA) of 1966, as amended
- Archaeological Resources Protection Act of 1979, as amended
- Endangered Species Act (ESA) of 1973, as amended
- American Indian Religious Freedom Act (1978), as amended
- Native American Graves Protection and Repatriation Act of 1990, as amended
- Bald and Golden Eagle Protection Act of 1940, as amended
- Federal Environmental Pesticide Act of 1972
- Federal Land Use Policy and Management Act
- Federal Noxious Weed Act of 1974
- Migratory Bird Treaty Act of 1918
- Soil and Water Conservation Act
- Sikes Act, as amended
- Resource Conservation and Recovery Act (RCRA) of 1989
- Toxic Substances Control Act (TSCA) of 1970
- Occupational Safety and Health Act (OSHA) of 1970
- Intergovernmental Coordination Act of 1976
- Fiscal Responsibility Act of 2023

The selected alternative must also comply with the following:

- Executive Order (EO) 11988, *Floodplain Management*
- EO 11990, *Protection of Wetlands*
- EO 11514, *Protection and Enhancement of Environmental Quality*
- EO 11593, *Protection and Enhancement of the Cultural Environment*
- EO 13007, *Protection and Accommodation of Access to "Indian Sacred Sites"*
- EO 13287, *Preserve America*
- EO 13112, *Exotic and Invasive Species*
- EO 13175, *Consultation and Coordination with Indian Tribal Governments*
- EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*

- DoD USFWS Memorandum of Understanding, Pursuant to EO 13186, September 5, 2014
- EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*
- EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*
- EO 12372, *Intergovernmental Review of Federal Programs*

AFI 32-1015, *Integrated Installation Planning*, and 32 CFR Part 989, EIAP provide policy and procedures for DAF officials to review environmental considerations when evaluating major DAF actions. The directive requires DAF components to integrate the NEPA process during the initial planning stages of proposed DAF actions to ensure that planning and decisions reflect environmental values.

AFMAN 32-7003, *Environmental Conservation* implements Air Force Policy Directive (AFPD) 32-70, *Environmental Considerations in Air Force Programs and Activities*, and supports Department of the Air Force Instruction (DAFI) 32-7001, *Environmental Management*. It provides guidance and procedures on how to implement NEPA for cultural resource and natural resource programs at Air Force installations via EIAP.

The Fiscal Responsibility Act of 2023 includes amendments to NEPA intended to clarify ambiguous provisions, reflect modern technologies, optimize interagency coordination, and facilitate a more efficient, effective, and timely environmental review process.

Due to wetlands occurring within the project footprint, discussion on why no other practicable alternative exists to avoid wetland impacts is required in the form of a Finding of Practicable Alternative (FONPA) within the FONSI, as prescribed by EO 11990, *Protection of Wetlands* and 32 CFR 989.14(g). This discussion can be found in the associated FONSI of this EA.

1.5 INTERGOVERNMENTAL COORDINATION, PUBLIC AND AGENCY PARTICIPATION

Beale AFB notified relevant Federal, state, and local agencies about the Proposed Action and Alternatives. The coordination process provided Beale AFB the opportunity to cooperate with and consider Federal, state, and local views in implementing the Proposed Action or Alternatives. Coordination letters containing a description of the Proposed Action and Alternatives were sent to 4 Federal, 9 state, and 6 local agencies. The details of agency scoping efforts, including a list of agencies contacted, copies of correspondence, and the comments received, are described in the Correspondence and Coordination report (Appendix A). Agency responses have been incorporated into the analysis of potential environmental impacts as part of the development of the EA.

1.5.1 U.S. Fish and Wildlife Service Consultation Under Section 7 of the Endangered Species Act

A formal consultation under Section 7 of the ESA was initiated with the United States Fish & Wildlife Service (USFWS) after a biological assessment (BA) was submitted on 20 November 2023 (Appendix D). The formal consult discussed potential effects that the Proposed Action may

have on federally listed species and also conferred with the USFWS on identifying and resolving any potential conflicts to candidate species.

The USFWS responded to the BA with a biological opinion (BO) on 3 May 2024 (Appendix D). The BO concurred with Beale AFB's determination that the Proposed Action is not likely to adversely affect monarch butterfly but is likely to adversely affect vernal pool tadpole shrimp and vernal pool fairy shrimp.

1.5.2 U.S. Army Corps of Engineers Jurisdictional Determination

Due to wetland features occurring within the project footprint, a request for an approved jurisdictional determination (AJD) was requested from the U.S. Army Corps of Engineers (USACE) on 21 Feb 2024 to determine if the features were considered Waters of the U.S. (WOTUS). A response from USACE was received on 9 July 2024 which affirmed that the aquatic features within the Proposed Action's footprint were not WOTUS (Appendix E). A CWA Section 404 permit was not required.

1.5.3 NHPA Section 106 Compliance and Tribal Consultation

Federal agencies must demonstrate compliance with NHPA. Section 106 of the NHPA requires a federal agency with jurisdiction over a project to evaluate the effect of the proposed project on properties listed in, or eligible for listing in, the National Register of Historic Places (NRHP). Federal agencies must also provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the effects of the proposed project to those properties.

A literature review, records searches, and cultural resources surveys has been completed to identify historic properties within the project Area of Potential Effect (APE). Beale AFB submitted a consultation package with a survey, a NRHP eligibility determination, and a determination on the area of potential effects, to the California State Historic Preservation Officer (SHPO) for review and concurrence on 11 January 2021. On 12 Feb 2021, the SHPO concurred with the Area of Potential Effects definition, concurred that efforts to identify historic properties was adequate, concurred that the Doolittle Water Tower and the Doolittle Electrical Substation are not eligible for NRHP inclusion, and concurs that a finding of no historic properties affected is appropriate pursuant to 36 CFR Part 800.4 (Appendix F).

1.5.4 Public Notification and Review

Due to the occurrence of wetlands within the project area, opportunity for early public review of the Proposed Action and alternatives was provided via notice in the Marysville Appeal-Democrat on 25 April 2024 as prescribed by EO 11990, *Protection of wetlands* (Appendix A).

A Notice of Availability was published in the Marysville Appeal-Democrat along with the release of the draft EA and FONSI on [REDACTED] and the review period lasted until [REDACTED] (Appendix B). The Notice of Availability initiated the 30-calendar day public review period for the draft EA and FONSI, as prescribed by 32 CFR 989.15(e)(2)(iii). XX public comments were received during the public comment period.

1.6 ORGANIZATION OF THIS DOCUMENT

This EA is organized into six chapters and includes seven appendices as follows:

- *Chapter 1* provides the background information, proposed project location, and purpose & need for the Proposed Action.
- *Chapter 2* contains a description of the Proposed Action and alternatives, including the No Action Alternative and alternatives eliminated from further discussion.
- *Chapter 3* contains a description of the environmental resources and baseline conditions that could potentially be affected by the Proposed Action & alternatives and will present an analysis of the potential environmental consequences of implementing the Proposed Action and the No Action Alternative.
- *Chapter 4* includes an analysis of potential cumulative and other impacts to the surrounding area.
- *Chapter 5* lists the preparers of this EA.
- *Chapter 6* lists the references used in the preparation of this document.
- *Appendix A* provides a list of agencies and tribes for the initial coordination, coordination letters, the notice of early public review, and any responses received.
- *Appendix B* provides the notices of availability.
- *Appendix C* describes the Avoidance and Minimization Measures (AMMs) that would be implemented as part of the Doolittle Power Station Repair & Upgrade Project.
- *Appendix D* provides the ESA Section 7 formal consultation with the USFWS.
- *Appendix E* provides the USACE approved AJD request and response.
- *Appendix F* provides the Section 106 consultation records.
- *Appendix G* provides details of the Air Quality Conformity Analysis.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action would replace the existing Doolittle Substation with an upgraded substation and would provide renewable energy through the primary circuitry to the GHC and MCS Pad. This would result in an electrical power load reduction and would accelerate proposed efficiency for the load demands of the Global Hawk critical facilities. The Proposed Action can be broken up into two portions: the Doolittle Substation and the solar/photovoltaic (PV) array (Figure 2-1). A chain-link security fence would surround the perimeter of the entire project area.

Doolittle Substation Portion

The Doolittle Substation work would include demolition/replacement of the existing Doolittle Substation and replacement with an upgraded substation/switchyard; construction of a new control building (25 feet wide x 10 feet long x 10 feet tall) with HVAC; a backup battery system, and smart-microgrid system; a 60- by 20-foot (720 ft²) concrete pad for a 3 MW battery energy storage system (BESS); and a concrete masonry unit (CMU) perimeter wall with gates encapsulating the substation/switchyard area (Figure 2-2). The entire area would be approximately 37,749 square feet (sf) and would have crushed rock as a base for the interior. The new switchyard would collect 60 kV feeds from the Western Area Power Administration (WAPA) Substation and allow for switching between the WAPA feed and the Central Switchyard. A 0.004-acre vernal pool to the northwest would be indirectly impacted by the construction of the new substation (see sections 3.5.1 and 3.6.3 for further discussion).

A water main containing potable water located next to the existing substation would also be rerouted to deconflict with the substation/switchyard's expanded footprint and allow ease of access for any potential future repairs needed on the water main. The water main would be rerouted along the outside of the new substation/switchyard's southern perimeter. A 500-foot-long, 5-foot-deep, and 3-foot-wide trench (7,500 ft³) would be required for the new line. The existing water line would be capped and abandoned in place.

2-Megawatt (MW) PV Array Portion

An undeveloped 9.5-acre area east and south of the Doolittle Substation would be prepared for solar panel placement (Figure 2-1). The solar array would consist of 6,144 solar panels on a ground mount racking system, totaling 284,282 sf. The PV array would be fed into an appropriate number of inverters and collected into 480V panelboard to feed into the microgrid switchgear. Solar panels would be mounted on steel ground screws and inverters & panelboards mounted on concrete pads.

The 2 MW energy capacity requirement necessitates 46 rows of solar panels from east to west with an 850-foot trench following the latitudinal break in the layout. The trench ranges from 34 inches deep and 32 inches wide to 30 inches deep and 18 inches wide depending on how many solar panel conduits are being collected at a specific point. Additionally, 24 solar panels would

1 be fed into 20A fused connections in DC combiner boxes. Each DC combiner box would collect
2 16 groups of 20 panels — or 384 panels per combiner. From the combiner, the DC output would
3 be fed into an inverter. Through a 480 VAC trench the inverters would be connected to a
4 collection switchgear, which would then be connected to a step-up transformer and from there
5 into the Doolittle Substation.

6 There would be allowable space at each end of the solar panel rows, within the designated
7 boundaries, for maintenance vehicle access. These access areas/routes, although drivable, would
8 be managed with native low growing vegetation to prevent surface erosion.

9 An existing drainpipe and associated man-made drainage ditch for the Doolittle Water Tower
10 would be rerouted to the west of the project area. Riprap would be added to the outflow to
11 diffuse flow. Rerouting is needed to prevent site erosion from water tower draining activities.

12 Under the Proposed Action, a 0.01-acre vernal pool and 0.021 acres of swales would be directly
13 impacted by the construction and placement of the solar array. Avoidance wasn't possible due to
14 the 2 MW energy capacity requirement severely limiting flexibility of orienting solar
15 panels/groupings into different formats as well as future maintenance activities of the solar array
16 posing a risk for wetlands due to proximity. Additionally, a 0.004-acre vernal pool would be
17 indirectly impacted from the proposed expansion of the Doolittle Substation. See sections 3.5.1
18 and 3.6.3 for further discussion.

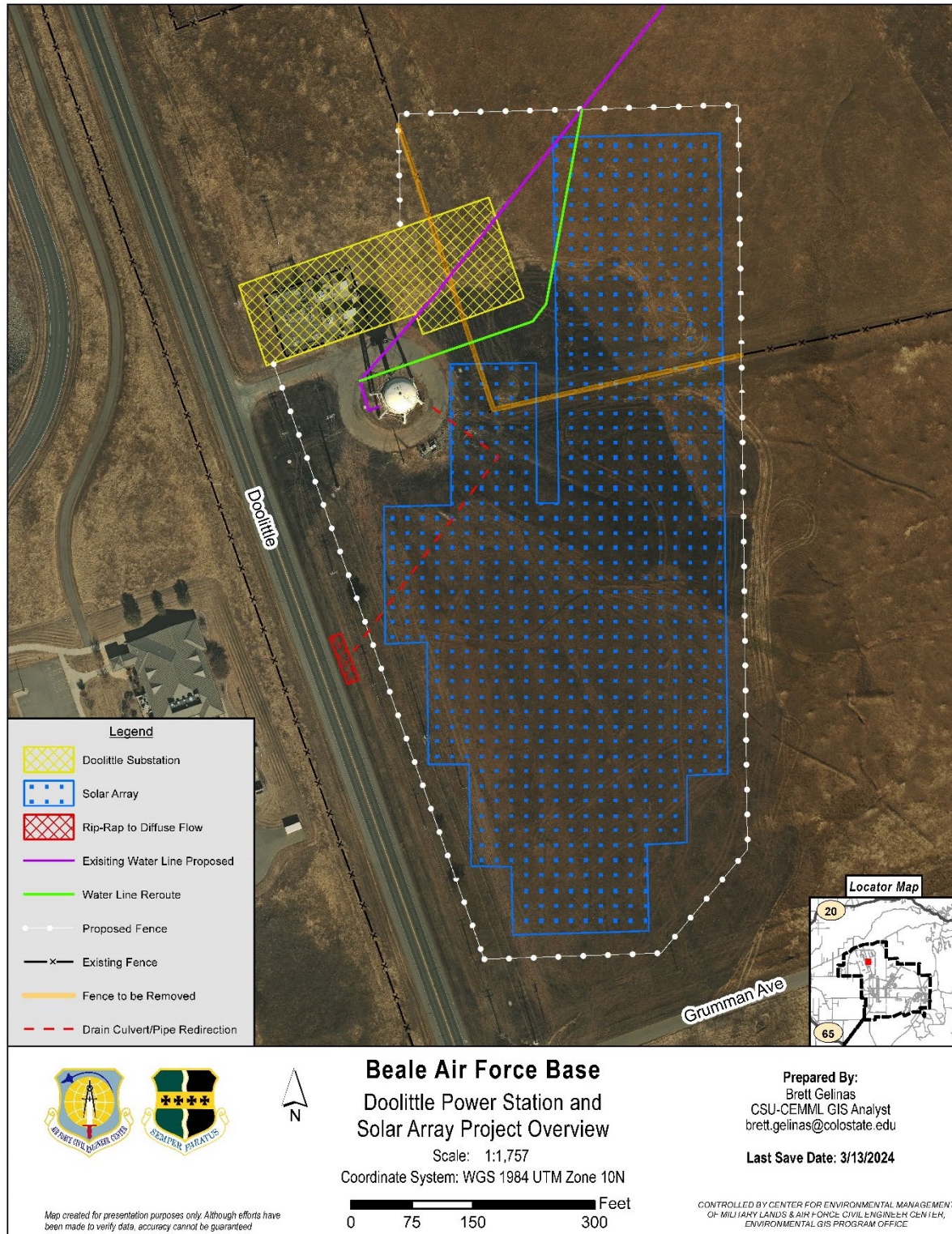


Figure 2-1: Overview Map of the Doolittle Power Station Proposed Action at Beale AFB, CA.

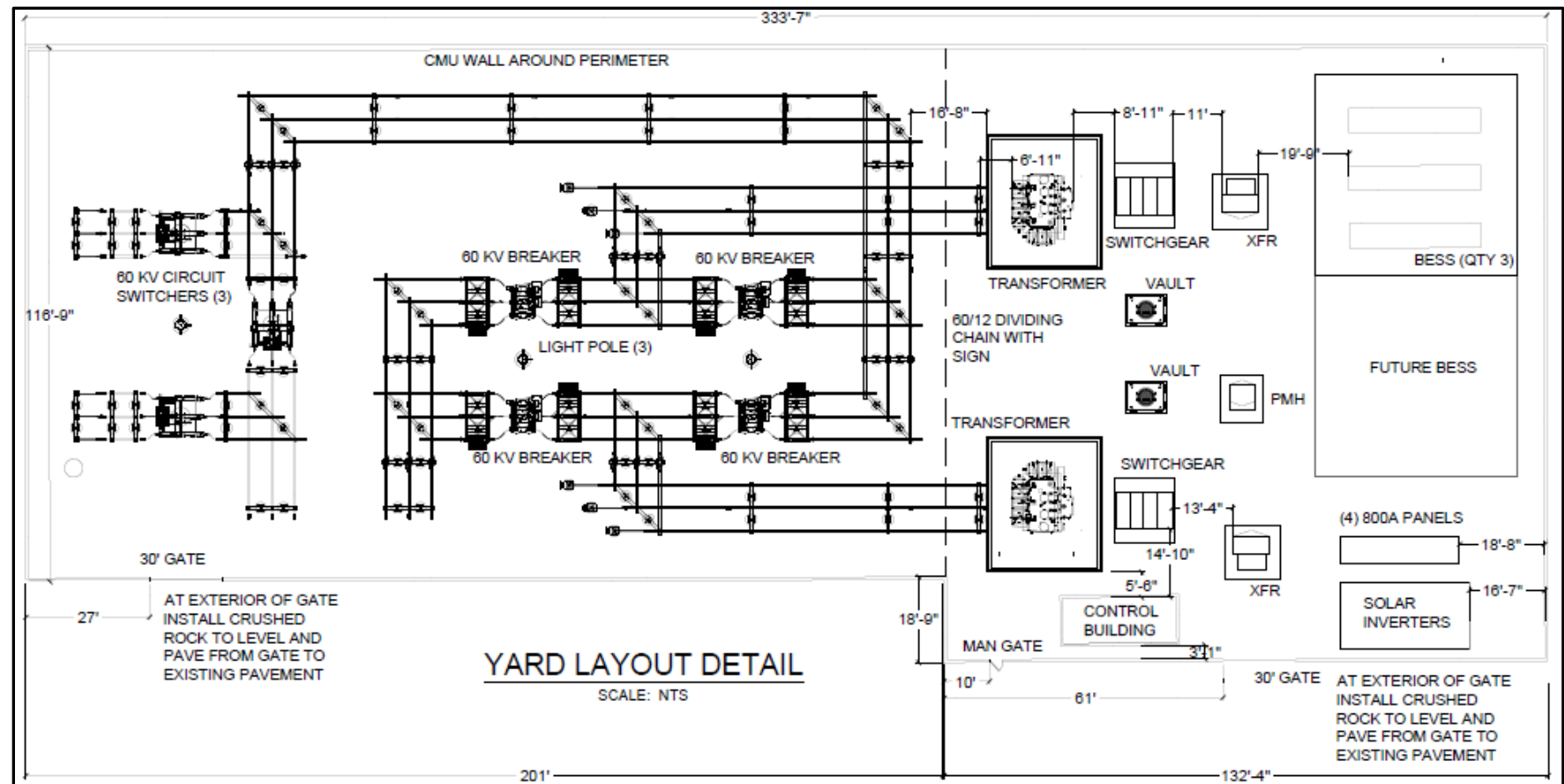


Figure 2-2: Layout of the Proposed Doolittle Substation and Switchyard at Beale AFB, CA.

2.2 NO ACTION ALTERNATIVE

Air Force regulations (32 CFR 989.8[d]) require consideration of the No Action Alternative for all Proposed Actions. The No Action Alternative serves as a baseline against which the impacts of the Proposed Action and other potential alternatives can be compared.

Under the No Action Alternative, the Doolittle Power Station and associated structures & equipment would not be constructed. Failure to accomplish this project would not provide greater resiliency to the electrical power distribution system required for supporting the growing missions at Beale AFB and reliance on fossil fuel powered generators would continue.

2.3 SELECTION STANDARDS

In accordance with 32 CFR 989.8(c), selection standards were developed to establish a means for determining the reasonableness of an alternative and whether an alternative should be carried forward for further analysis in the EA. Consistent with 32 CFR 989.8(c), the following selection standards meet the purpose of and need for the Proposed Action and were used to identify reasonable alternatives for analysis in this EA:

- PV array needs to attain a 2 MW energy capacity (*2 MW Capacity*).
- PV array requires level (or close to the) ground with a sloped terrain to allow for natural storm water runoff (*Level*).
- PV array and microgrid need to be close to Flightline to support associated missions (*Flightline Proximity*).
- PV array and microgrid need to be near a substation for connectivity (*Substation Proximity*).
- Relatively close to the 60kV WAPA transmission system on base for interconnection purposes (*WAPA 60kV Proximity*).
- Have less impacts to wetland features when compared to the Proposed Action (i.e., less than 0.031 direct and 0.004 indirect impacts) due to being the most deleterious impact associated with the Proposed Action (*Less Wetland Impacts*).
- Be economically feasible (*Economically Feasible*).

2.4 ALTERNATIVES ELIMINATED FROM FURTHER ANALYSIS

The following section describes alternatives which were considered due to meeting the purpose and need for the action but were eliminated due to failing to meet all the selection standards listed in Section 2.3. The table below (Table 2-1) illustrates each alternative and which selection standard(s) it does or doesn't meet.

1 **Table 2-1: Comparison of Alternatives to the Proposed Action.**

<i>Alternative</i>	Selection Standard						
	<i>2 MW Capacity</i>	<i>Level</i>	<i>Flightline Proximity</i>	<i>Substation Proximity</i>	<i>WAPA 60kV Proximity</i>	<i>Less Wetland Impacts</i>	<i>Economically Feasible</i>
<i>Grumm. Ave</i>	✓	✓	✓	✗	✓	✗	✓
<i>Parking Lot</i>	✗	✓	✓	✗	✗	✓	✓
<i>Reconfigure</i>	✗	✓	✓	✓	✓	✓	✓
<i>East Ext.</i>	✓	✓	✓	✓	✓	✗	✓

2 **Alternate Location South of Grumman Ave (*Grumm. Ave*)**

3 This alternative would relocate the proposed PV array to the opposite side (south) of Grumman
4 Ave (Figure 2-3). This alternative would indirectly impact the same 0.004-acre vernal pool to the
5 north of the existing substation (VP11119) and directly impact the 0.01-acre swale to the east (N-
6 SW4) that the Proposed Action would impact because the new substation/switchyard's design
7 wouldn't change between this alternative and the Proposed Action. This alternative was
8 eliminated due to an additional 0.329 acres of direct impacts and 0.02 acres of indirect impacts to
9 wetland features when compared to the Proposed Action (Table 2-2). These features would also
10 likely be considered jurisdictional under the CWA and are suitable habitat for federally listed
11 branchiopods. Moreover, the solar array would need to be connected to the Doolittle Substation
12 which would likely result in additional environmental impacts from trenching.

13 **Table 2-2: Wetland Impacts Associated with Alternate Location South of Grumman Ave,**
14 **Beale AFB, CA.**

Wetland ID	Impact Type	Acres
B-Di464	Direct	0.35
N-SW4	Direct	0.01
B-VS2369	Indirect	0.02
VP11119	Indirect	0.004

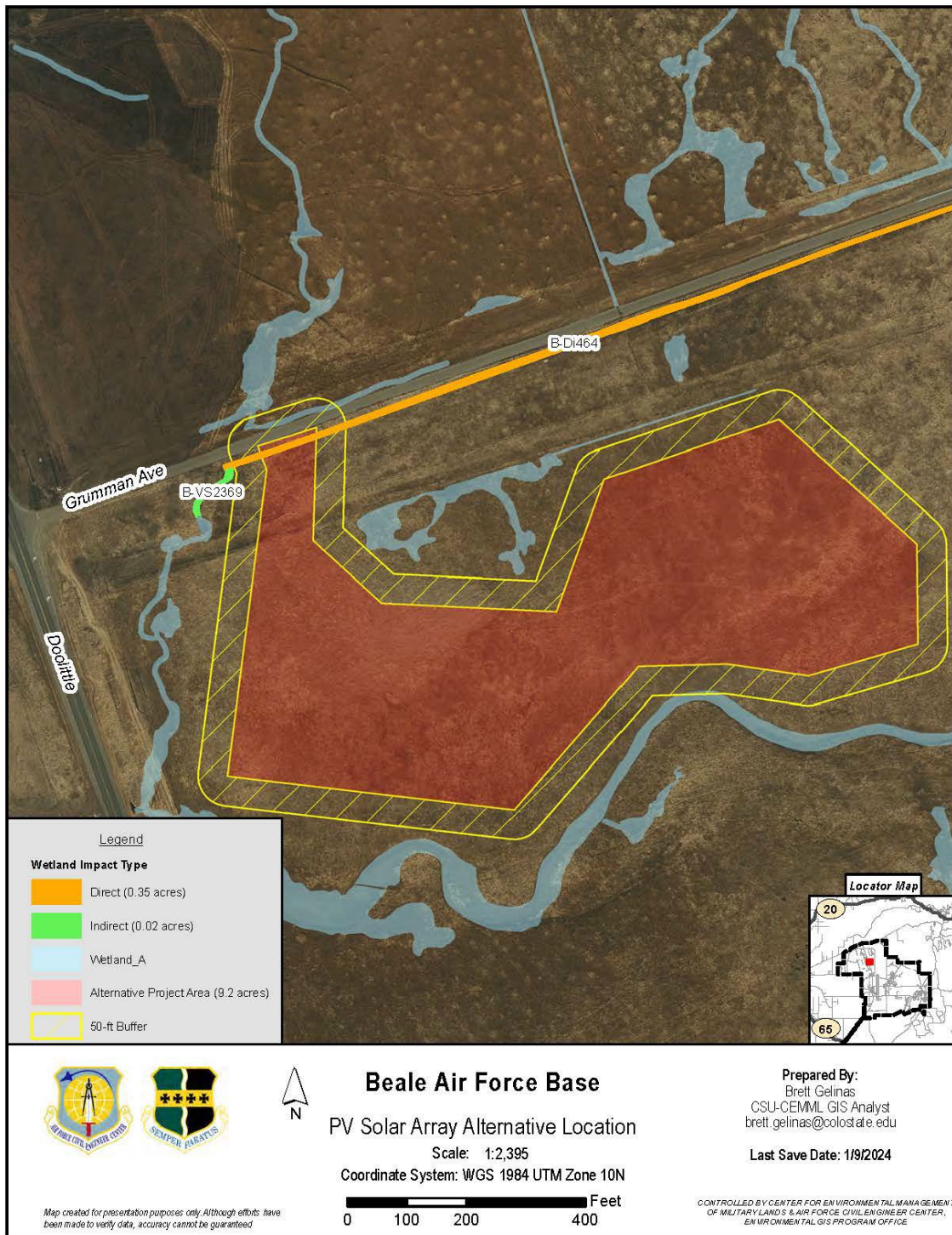


Figure 2-3: Alternate Location South of Grumman Ave, Beale AFB, CA.

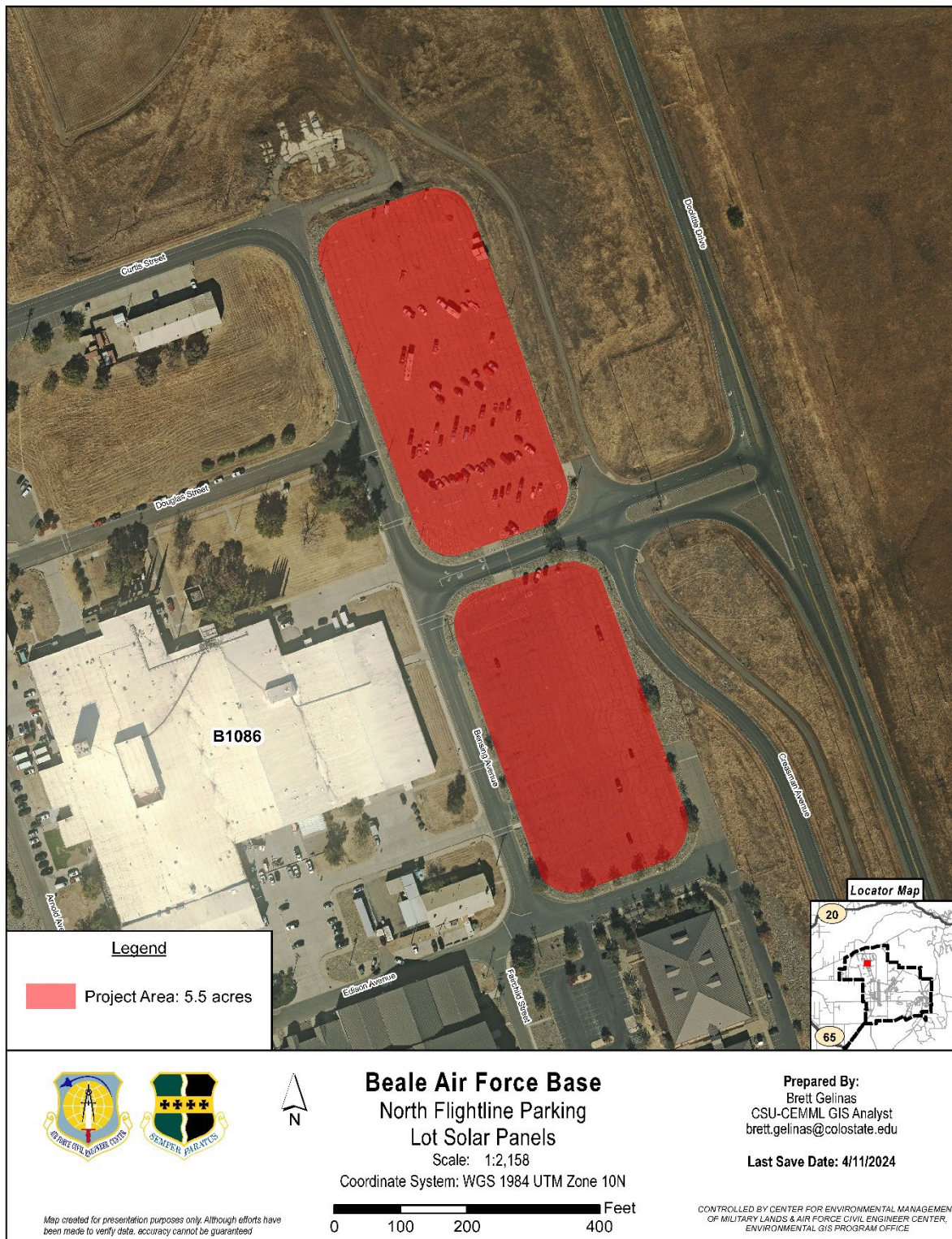
North Flightline Parking Lot Alt (*Parking Lot*)

This alternative would instead construct the PV array on top of new canopies covering existing parking spaces of the North Flightline Parking Lot which has 5.5 acres of available space (Figure 2-4). The proposed demo/upgrade of the Doolittle Substation would still be conducted under this alternative. Only 40-50% of the parking areas can be fully utilized for solar carport construction. To meet the 2 MW energy capacity requirement, the parking areas would need to be approximately 7.7 acres in size, which is 2.2 acres more than what the parking lot provides.

Connection between the parking lot solar array and the Doolittle Substation would likely result in additional environmental impacts. This alternative would also indirectly impact the same 0.004-acre vernal pool to the north of the existing substation (VP11119) and directly impact the 0.01-acre swale to the east (N-SW4) that the Proposed Action would impact because the new substation/switchyard's design wouldn't change between this alternative and the Proposed Action (Table 2-3). This would equate to 0.021 less direct impacts to wetlands when compared to the Proposed Action. However, this alternative was ultimately eliminated because the allowable space for solar panel placement was insufficient to meet the 2 MW energy capacity requirement, the cost for solar panel placement on top of car canopies (approximately 40% more expensive) wasn't economically feasible, and the location wasn't near an existing substation for seamless connectivity.

Table 2-3: Wetland Impacts Associated with North Flightline Parking Lot Alternative.

Wetland ID	Impact Type	Acres
N-SW4	Direct	0.01
VP11119	Indirect	0.004



1
2 **Figure 2-4: North Flightline Parking Lot Alternative.**

Reconfiguration of Solar Panels (*Reconfigure*)

This alternative would reconfigure and relocate solar panels located in wetland features as described in the Proposed Action. This alternative was ultimately eliminated due to the limited allowable area for solar panel placement and the 2 MW energy capacity requirement severely limiting flexibility in how solar panel groups can be oriented. Additionally, moving solar panels outside the project boundary would either intrude on a quantity distance (QD) arc to the north, impact much larger wetland complexes to the east, or would conflict with existing roadways to the south and west.

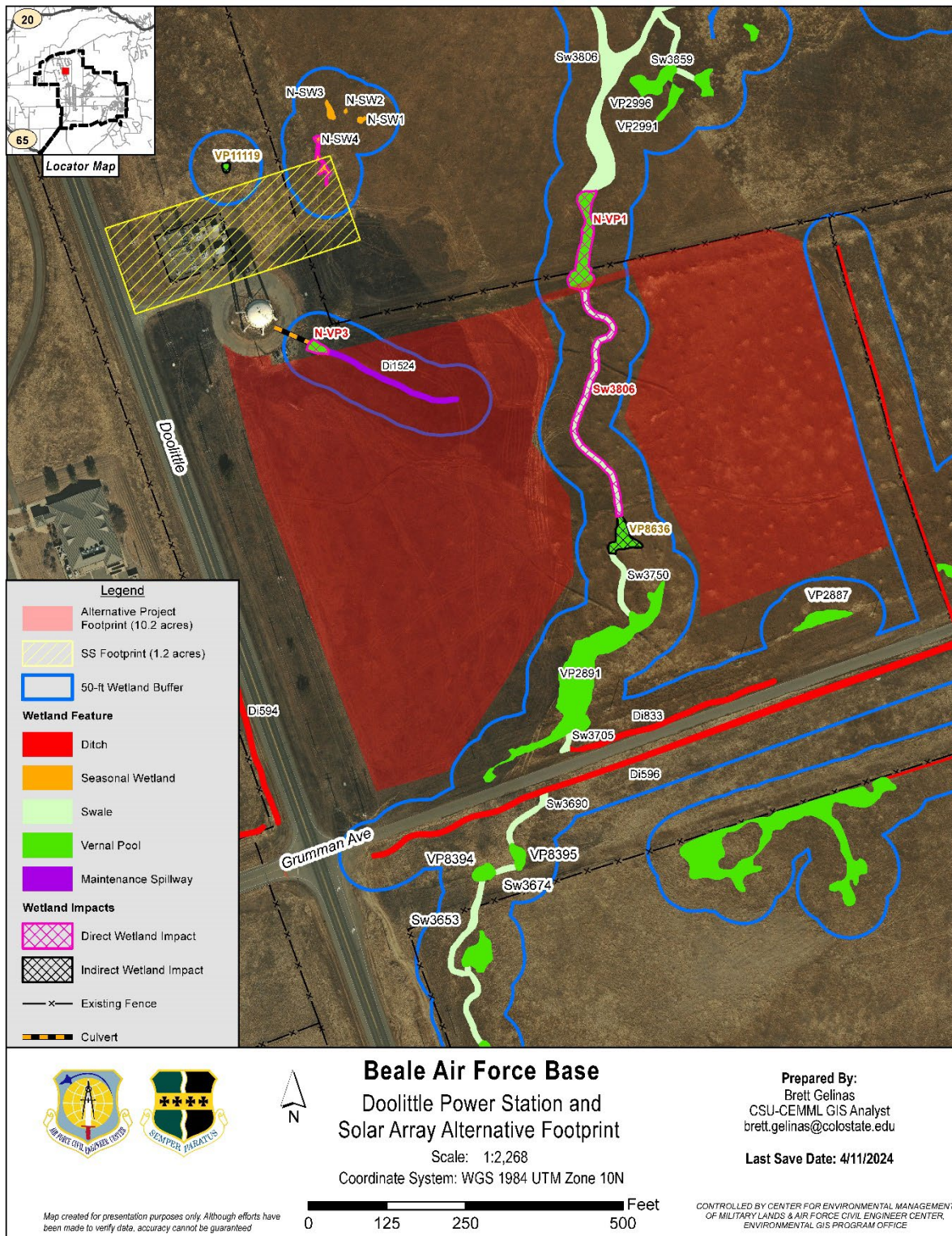
Solar Array Eastern Extension (*East Ext.*)

This alternative would utilize the 4.7-acre area east of the nearby wetland complex for solar panel placement in lieu of constructing towards the north — combined total of 10.2 acres for solar array construction. An access road and trenching for conduits over the nearby wetland complex would be required to provide connectivity to this eastern area (Figure 2-5).

This alternative would indirectly impact the same 0.004-acre vernal pool to the north of the existing substation (VP11119) and directly impact the same 0.01-acre swale to the east (N-SW4) that the Proposed Action would impact because the new substation/switchyard's design wouldn't change between this alternative and the Proposed Action (Table 2-4). The 0.01-acre vernal pool southeast of the water tower would also be impacted — much like the Proposed Action — because the water tower drainpipe would still need to be rerouted to prevent erosive complications with the new solar array downgradient. In total, this alternative would directly impact 0.918 acres and indirectly impact 0.034 acres of wetlands. This would equate to a 0.887– and 0.03–acre increase in impacts when compared to the Proposed Action for the respective impact type. Moreover, these additional wetland features are considered branchiopod habitat which would translate to impacts to federally listed species, necessitating compensatory mitigation. The wetland features might also be considered jurisdictional under the CWA due to connectiveness with downstream WOTUS — a CWA Section 404 permit and mitigation would be required, if so. As such, it was eliminated from further analysis due to these additional impacts.

Table 2-4: Wetland Impacts from Solar Array Eastern Extension Alternative.

Wetland ID	Impact Type	Acres
N-VP1	Direct	0.078
N-VP3	Direct	0.01
N-SW4	Direct	0.01
Sw3806	Direct	0.82
VP8636	Indirect	0.03
VP11119	Indirect	0.004



1
2 **Figure 2-5: Solar Array Eastern Extension Alternative.**

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The affected environment reviews the environmental setting or general environmental conditions of the proposed project area. It describes the environmental baseline against which the environmental effects can be evaluated. In compliance with NEPA and other relevant regulations, only those resource areas considered potentially subject to impacts, and with potentially significant issues, are discussed below. This chapter includes discussions of air quality, land use, soils and geology, water resources, biological resources, hazardous materials and wastes, infrastructure, cultural resources, public health and safety, and noise.

The following sections present a description of the environmental resources and baseline conditions that could potentially be affected from implementing the Proposed Action. In addition, an analysis of the potential environmental consequences of implementing the Proposed Action, as well as the No Action Alternative, is also presented.

Types of Impacts

The criteria below were used to analyze impacts on the resources. For the purposes of this report, the existing conditions are used as a baseline comparison for the Proposed Action or No Action Alternative impacts.

To further clarify the nature of the various impacts upon each resource in the Environmental Consequences subsections of this EA, the following terms were used in the analysis and are defined.

Short-Term or Long-Term - These characteristics would be determined on a case-by-case basis and do not refer to any rigid time period. In general, short-term impacts would be those that would occur only with respect to a particular activity, for a finite period, or only during the time required for proposed construction or installation activities. Long-term impacts would be those that would be more likely to be persistent and chronic.

Direct or Indirect - A direct impact would be caused by and occurs contemporaneously at or near the location of the Proposed Action. An indirect impact would result from the Proposed Action and might occur later in time or be farther removed in distance but still be a reasonably foreseeable outcome of the action. For example, a direct impact of erosion on surface water might include sediment-laden waters in the vicinity of the action, whereas an indirect impact of the same erosion might lead to lack of spawning and result in lowered reproduction rates of indigenous fish in nearby waters.

Negligible, Minor, Moderate, or Major - These relative terms are used to characterize the magnitude or intensity of an impact from a proposed activity. Negligible impacts would generally be those that might be perceptible but would be at the lower level of detection. A minor effect would be slight, but detectable. A moderate impact would be readily apparent. A major impact would be one that would be severely adverse or exceptionally beneficial.

- 1 *Adverse or Beneficial* - An adverse impact would result in unfavorable or undesirable outcomes
- 2 on the man-made or natural environment. A beneficial impact would result in positive outcomes
- 3 on the man-made or natural environment. A single act might result in adverse impacts on one
- 4 environmental resource and beneficial impacts on another resource.
- 5 Table 3-1 provides a brief summary and comparison of potential impacts under each alternative.

1 **Table 3-1: Comparison of Environmental Consequences.**

Resource Area	Proposed Action	No Action Alternative
Air Quality	<ul style="list-style-type: none"> Short-term, negligible adverse impacts Long-term, moderate beneficial direct and indirect impacts 	Intermittent, minor, adverse impacts
Land Use	Negligible — conversion of 3.15 acres of grazing land to open space.	None
Soils & Geology	Soils: Negligible long-term adverse impact Geology: None	Soils: None Geology: None
Water Resources	Surface Water: <ul style="list-style-type: none"> Negligible indirect adverse impacts to offsite waters Moderate adverse direct (0.031 acres) and indirect (0.01 acres) impacts to ephemeral surface waters Groundwater: None Waters of the U.S.: No impact	Surface Water: None Groundwater: None Waters of the U.S.: None
Biological Resources	Vegetation: <ul style="list-style-type: none"> Short-term, minor direct adverse impacts Permanent, minor direct adverse impacts (loss of 0.7 acres of grasslands) Long-term, minor direct beneficial impacts Wildlife: <ul style="list-style-type: none"> Permanent loss of 0.7 acres of grassland habitat Short-term, minor, indirect adverse impacts to wildlife habitat Long-term, moderate, indirect beneficial impacts to invertebrate pollinators Threatened and Endangered Species: <ul style="list-style-type: none"> Short-term, negligible indirect adverse impacts Potential for future indirect impacts – negligible with effective AMMs Long-term, moderate, indirect beneficial impacts to monarch butterflies and other natural pollinators Direct and indirect adverse effects to Federally listed species, reduced to no effect through mitigation (ratio of 3:1 for direct impacts and 1:1 for indirect impacts) and AMMs. 	Vegetation: None Wildlife: None Threatened and Endangered Species: None
Hazardous Materials & Wastes	Short-term negligible adverse impacts.	None

Resource Area	Proposed Action	No Action Alternative
Infrastructure	<ul style="list-style-type: none"> Short-term minor adverse impact to transportation Short-term, negligible adverse impacts to water and electrical utilities Long-term significant beneficial impacts to electrical infrastructure and utilities 	Negligible to moderate long-term adverse impacts to electrical utilities and infrastructure, respectively
Cultural Resources	None – no historic properties or tribal resources affected	None
Public Health & Safety	<ul style="list-style-type: none"> No impacts from construction Long-term, minor indirect beneficial impacts to maintenance personnel safety during operation 	None
Noise	<ul style="list-style-type: none"> Short-term, intermittent, minor adverse impacts during construction No impacts from operation 	None

1

3.1 SCOPE OF THE ANALYSIS

This section describes the current conditions of the environmental resources, either man-made or natural, that would be affected by implementing the Proposed Action or the No Action Alternative and the environmental consequences associated with them. Based on the scope of the Proposed Action, issues with no impacts were identified through a preliminary screening process. In accordance, the following describes those resource areas not carried forward for a detailed analysis in the EA, along with the rationale for their elimination:

- ***Airspace Management and Use:*** The tallest structures proposed for this project are the transformers, which may be up to 25 feet in height. Such a height would not interfere with air operations. The Air Force conducted numerous tests to determine if reflections from the PV panels on Nellis AFB would affect pilot performance. It was determined that “reflectivity from solar panels would be no greater than weathered white concrete and would not increase glare on aviators approaching or departing the airfield” (USAF 2011). The Proposed Action would not alter the current airspace configurations associated with Beale AFB; the frequency, tempo, and volume of current aircraft training and operations would not change. Therefore, airspace management and use is not evaluated further in this EA.
- ***Coastal Zone Management:*** Beale AFB is not located within or near the coastal zone; as such, there would be no measurable change/impacts to coastal zone management area.
- ***Socioeconomics:*** The Proposed Action would not change population in the region or create permanent new jobs; therefore, it would have no effects on housing or community resources and would have a negligible beneficial impact on economic activity. It would not result in a shift in population trends or notably affect regional employment, earnings, or community resources; therefore, it would have no effects on economic or demographic indicators in the region. The Proposed Action would not result in population growth or associated changes in demand for public services. As such, socioeconomics is not evaluated further in this EA.
- ***Environmental Justice:*** EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* requires that all Federal agencies analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by NEPA. The Proposed Action would occur only within the boundary of Beale AFB and construction noise is not expected to impact residential areas or sensitive receptors. There are no minority or low-income communities on or adjacent to the site of the Proposed Action — the nearest such community is over 5 miles away. There are no day cares or schools near the proposed project sites and standard construction site safety precautions would be implemented to ensure children would not be exposed to increased health or safety risks. Therefore, there are no potential impacts to minority or low-income communities associated with the Proposed Action. As such, Environmental Justice is not evaluated further in this EA.

- **Wildfires:** The Proposed Action would not increase the risk of wildfire in the area. The Proposed Action would replace non-native vegetation with native vegetation which stays green longer and would reduce fuel load. Faulty and dilapidated electrical infrastructure would be entirely replaced under the Proposed Action which would reduce the risk of equipment failure which could spark and cause a wildfire. Due to the beneficial reduction of possible wildfire events from the Proposed Action rather than adverse impacts, further discussion is not needed on wildfires.
- **Floodplains:** The Proposed Action is not within a floodplain; the Proposed Action would not result in increased peak flows which could affect floodplains downstream and would therefore not have any impact on floodplains.

3.2 AIR QUALITY

This section characterizes the existing conditions of the air quality environment in the Project area, specifically the current concentrations of criteria pollutants in the air basin. The study area for air quality related to this Project consists of the Feather River Air Quality Management District within the greater Sacramento Valley Air Basin. Beale AFB and the Project area are entirely within this air basin and air quality management district.

3.2.1 Definition of the Resource

In accordance with the CAA (42 U.S.C. 7409) requirements, the air quality in a given region or area is measured by the concentration of criteria pollutants in the atmosphere. Air quality depends on the types and quantities of atmospheric pollutants and pollutant sources in an area, as well as surface topography, the size of the topological “air basin,” and the prevailing meteorological conditions.

National Ambient Air Quality Standards – Under the CAA, the U.S. Environmental Protection Agency developed National Ambient Air Quality Standards (NAAQS) for pollutants that have been determined to affect human health and the environment (Table 3-2). The NAAQS set thresholds for the maximum allowable concentrations for six primary pollutants: particulate matter less than 10 microns in diameter (PM₁₀) and less than 2.5 microns in diameter (PM_{2.5}), sulfur oxides, ozone, carbon monoxide, nitrogen oxides, and lead (40 CFR Part 50).

Table 3-2: National Ambient Air Quality Standards

Criteria Pollutant	Averaging Time	Federal Primary Standard	Secondary Federal Standard
Ozone	1 Hour	—	Same as primary
	8 Hour	0.070 ppm	
PM ₁₀	24 Hour	150 µg/m ³	Same as primary
	Annual	—	
PM _{2.5}	24 Hour	35 µg/m ³	Same as primary
	Annual	12 µg/m ³	15 µg/m ³

Criteria Pollutant	Averaging Time	Federal Primary Standard	Secondary Federal Standard
Carbon Monoxide	1 Hour	35 ppm	—
	8 Hour	9 ppm	—
Nitrogen Dioxide	1 Hour	100 ppm	—
	Annual	0.053 ppm	Same as primary
Sulfur Dioxide	1 Hour	75 ppb	—
	3 Hour	—	0.5 ppm
	24 Hour	0.14 ppm (for certain areas)	—
	Annual	0.030 ppm (for certain areas)	—
Lead	30 Day Average	—	—
	Calendar Quarter	15 µg/m ³ (for certain areas)	Same as primary
	Rolling 3-Month Average	15 µg/m ³	

Notes: µg/m³ = Microgram(s) per cubic meter

ppm = Part(s) per million

ppb = Parts(s) per billion

PM₁₀ and PM_{2.5} = particulate matter with size of 10 or 2.5 microns

Source: Environmental Protection Agency, 2020

California Ambient Air Quality Standards – The California Air Resources Board regulates air quality for the State of California, which includes regulating pollutants determined by the State of California to affect human health and the environment for the most sensitive populations (Table 3-3). Pollutants for which California Ambient Air Quality Standards (CAAQS) were established include PM₁₀, PM_{2.5}, ozone, nitrogen dioxide, sulfate, carbon monoxide, sulfur dioxide, visibility reducing particles, lead, hydrogen sulfide, and vinyl chloride.

California law continues to mandate CAAQS, although attainment of the NAAQS has precedence over attainment of the CAAQS due to federal penalties for failure to meet federal attainment deadlines. California law does not require that CAAQS be met by specified dates, as is the case with NAAQS. Rather, it requires incremental progress toward attainment (California Air Resources Board 2020).

Table 3-3: California Ambient Air Quality Standards

Pollutant	Averaging Time	State Standard
Ozone	1 Hour	0.09 ppm
	8 Hour	0.070 ppm
PM ₁₀	24 Hour	50 µg/m ³
	Annual	20 µg/m ³
PM _{2.5}	Annual	12 µg/m ³
Carbon Monoxide	1 Hour	20 ppm

Pollutant	Averaging Time	State Standard
	8 Hour	9.0 ppm
Nitrogen Dioxide	1 Hour	0.18 ppm
	Annual	0.030 ppm
Sulfur Dioxide	1 Hour	0.25 ppm
	24 Hour	0.04 ppm
Lead	30-day average	1.5 $\mu\text{g}/\text{m}^3$
Sulfates	24 Hour	25 $\mu\text{g}/\text{m}^3$
Hydrogen Sulfide	1 Hour	0.03 ppm
Vinyl Chloride	24 Hour	0.01 ppm

Notes: $\mu\text{g}/\text{m}^3$ = Microgram(s) per cubic meter

ppm = Part(s) per million

PM₁₀ and PM_{2.5} = particulate matter with size of 10 or 2.5 microns

Source: California Air Resource Board, 2020

Attainment versus Nonattainment – The Environmental Protection Agency classified the air quality in an air quality control region, or in subareas, according to whether the concentrations of criteria pollutants in ambient air exceed the NAAQS. Areas within each air quality control region are, therefore, designated as either “attainment”, “nonattainment,” “maintenance”, or “unclassified” for each of the six criteria pollutants. Attainment means the air quality within an air quality control region is better than the NAAQS. Nonattainment indicates that criteria pollutant levels exceed NAAQS. Maintenance indicates that an area was previously designated nonattainment but is now meeting attainment; and an unclassified air quality designation by the Environmental Protection Agency means that there is not enough information to appropriately classify an air quality control region, so the area is considered unclassified.

General Conformity – The General Conformity Rule ensures that federal agency actions do not hinder air quality state implementation plans. Under the rule, federal agencies must work with state, tribal, and local governments in nonattainment or maintenance areas to ensure their actions conform to the applicable air quality implementation plan. General Conformity does not apply for actions taken in attainment areas, and a general conformity determination is not needed for nonattainment and maintenance areas where the emissions associated with the action are below specified de minimis levels. CAA conformity is ensured when a federal action does not result in a new violation of the NAAQS, result in an increase to any current violations of the federal ambient air quality standards, or delay the attainment timeline or any progress milestones toward achieving compliance. The minimum thresholds for General Conformity consideration are provided in Table 3-4.

Table 3-4: Minimum General Conformity Air Quality Thresholds

Criteria Pollutant	Status	Classification	De minimis limit (tpy)
	Nonattainment	Serious	50

Criteria Pollutant	Status	Classification	De minimis limit (tpy)
Ozone (as volatile organic carbons or nitrous oxides)		Severe	25
		Extreme	10
		Other (inside transport region)	50
		Other (outside transport region)	100
Carbon Monoxide (CO)	Nonattainment or maintenance	All	100
Sulfur Dioxide (SO ₂)	Nonattainment or maintenance	All	100
NO ₂	Nonattainment or maintenance	All	100
PM ₁₀	Nonattainment	Moderate Serious Other classification	100 70 100
	Maintenance	All	100
PM _{2.5}	Nonattainment or maintenance	Moderate	100
		Serious	70
		Other	100
Lead	Nonattainment or maintenance	All	25

Notes: Units of measure for the de minimis limits are tons per year (tpy)

NO₂ = Nitrogen Dioxide

PM₁₀ and PM_{2.5} = particulate matter with size of 10 or 2.5 microns

Source & Date: Environmental Protection Agency, 2020

Federal Prevention of Significant Deterioration – Federal Prevention of Significant Deterioration regulation applies to any new major stationary source or a significant modification to a stationary source that will result in greater emissions within attainment areas. Prevention of Significant Deterioration can also apply if the project results in net emissions increases to an existing major source (i.e. source with the potential to emit 250 tons per year of any criteria pollutant), is within 10 kilometers of a national parks or wilderness areas (i.e. Class I Areas), concentration of any regulated pollutant in the Class I area of at least 1 milligram per cubic meter or more (40 CFR 52.21[b] [23] [iii]). Class I areas include national parks larger than 6,000 acres, national wilderness areas and national memorial parks larger than 5,000 acres, and international parks. Prevention of Significant Deterioration regulations also define ambient air increments, limiting the allowable increases to any area's baseline air contaminant concentrations, based on the area's Class designation (40 CFR 52.21 [c]).

Greenhouse Gas Emissions – Greenhouse gases are gaseous emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. The most common greenhouse gases include water vapor, carbon dioxide, methane, and nitrous oxide. The burning of fossil fuels, through industrial and biological processes, primarily produce greenhouse gases.

3.2.2 Existing Conditions

The following sections describe the general climate surrounding Beale AFB and attainment with NAAQS and CAAQS.

Climate

Beale AFB is located in the interior valley between the California coast and the Sierra Nevada Mountain ranges and has a regional climate described as Mediterranean subtropical. Because Beale AFB is located inland of the Pacific Ocean, the valley experiences hot, dry summers and cool, wet winters. May through October is considered the dry season and is characterized by low precipitation and warm temperatures. November through April is considered the wet season and is characterized by moderate precipitation, cool temperatures, and high northerly and southerly winds.

In 2023, Beale AFB received an annual precipitation of 19.69 inches, with 98 percent of all rainfall occurring from October through May (Table 3-5). Summer temperatures average in the high 90s, sometimes reaching above 100 degrees Fahrenheit. July is typically the hottest and driest month of the year (Table 3-5). Winters at Beale AFB are mild with average low temperatures in the 40s and 50s.

Table 3-5: 2023 Weather Data at Beale AFB

Month	Average Maximum Temperature (°F)	Average Mean Temperature (°F)	Average Minimum Temperature (°F)	Total Precipitation (in.)
January	56	48	40	6.81
February	57	46	37	0.00
March	58	50	42	4.04
April	71	59	46	0.22
May	78	65	52	1.70
June	85	72	57	0.02
July	96	80	63	0.00
August	93	80	64	0.13
September	84	71	59	0.32
October	78	64	52	1.21
November	67	54	39	0.68

Month	Average Maximum Temperature (°F)	Average Mean Temperature (°F)	Average Minimum Temperature (°F)	Total Precipitation (in.)
December	60	50	42	4.56

Notes: °F = Degree Fahrenheit

in. = inches

Source: Weather Underground, 2024

Air Quality Conditions

Beale AFB is located on federal jurisdictional land within Yuba County, California. The Feather River Air Quality Management District is responsible for implementing and enforcing state and federal air quality regulations in Yuba County, Sutter County, and portions of the Northern Sacramento Valley Air Basin.

Air quality in Yuba County has been assessed by Feather River Air Quality Management District for compliance with the CAAQS and NAAQS. Three air quality designations can be given to an area for a particular pollutant:

- **Attainment:** Applies when air quality standards have been achieved.
- **Nonattainment:** Applies when air quality standards have not been consistently achieved.
- **Maintenance:** Applies when an area was previously designated as non-attainment areas but has now met the standard (with U.S. EPA approval of a suitable air quality plan).
- **Unclassified:** Applies when there is not enough monitoring data to determine whether the area is in nonattainment or attainment.

Relevant ambient air quality standards and their attainment status for Yuba County are listed in Table 3-6.

Table 3-6: Area Designations for Yuba County

Criteria Pollutant	Averaging Time	CAAQS Standard	CAAQS Yuba Attainment Status	NAAQS Standard	NAAQS Yuba Attainment Status
Ozone	1-hour	0.09 ppm	Attainment	—	—
	8-hour	0.070 ppm		0.070 ppm	Attainment
Carbon Monoxide	1-hour	20 ppm	Attainment	35 ppm	Attainment
	8-hour	9 ppm		9 ppm	
Nitrogen Dioxide	1-hour	0.18 ppm	Attainment	100 ppb	Attainment
	Annual	0.030 ppm		0.053 ppb	
PM ₁₀	24-hour	50 µg/m ³	Nonattainment	150 µg/m ³	Unclassified
	Annual	20 µg/m ³		—	—

Criteria Pollutant	Averaging Time	CAAQS Standard	CAAQS Yuba Attainment Status	NAAQS Standard	NAAQS Yuba Attainment Status
PM _{2.5}	24-hour	—	—	35 µg/m ³	Unclassified
	Annual	12.0 µg/m ³	Attainment	12.0 µg/m ³	Maintenance
Lead	30-day Average	1.5 µg/m ³	Attainment	—	—
	Calendar Quarter	—	—	1.5 µg/m ³	Attainment
	Rolling 3-month Average	—	—	0.15 µg/m ³	Unclassified
Hydrogen Sulfide	1-hour	0.03 ppm/ 42 µg/m ³	Unclassified	No National Standard	
Sulfate	24-hour	25 µg/m ³	Attainment	No National Standard	
Sulfur Dioxide	1-hour	0.25 ppm	Attainment	75 ppb	Attainment
	24-hour	0.04 ppm	Attainment	0.14 ppm	Attainment
	Annual	—	—	0.030 ppm	Attainment
Vinyl Chloride	24-hour	0.01 ppm / 26 µg/m ³	Unclassified	No National Standard	

NOTES: µg/m³ = Microgram(s) per cubic meter
 ppm = Part(s) per million
 ppb = Part(s) per billion
 PM₁₀ and PM_{2.5} = particulate matter with size of 10 or 2.5 microns
 NAAQS = National Ambient Air Quality Standards
 CAAQS = California Ambient Air Quality Standards

Source: California Air Resources Board, 2020

Various sources on the installation emit criteria pollutants and hazardous air pollutants including generators, boilers, water heaters, fuel storage tanks, gasoline service stations, surface coating/paint booths, and miscellaneous chemical usage. The infrastructure at Beale AFB is sub-par and the mission requires diesel generators as its primary source of backup power. The air quality in Yuba County is characterized by the Environmental Protection Agency as maintenance for PM_{2.5} (2006) and as unclassified/attainment for all other criteria pollutants (EPA 2020). Beale AFB is not designated as a major source and is not located within 10 kilometers of a Class I area; therefore, Beale AFB is not a Title V permit holder and is not subject to the Prevention of Significant Deterioration regulation.

3.2.3 Environmental Consequences

Proposed Action

Operation of the PV project would result in long-term moderate beneficial impacts to air quality and overall GHG emissions at Beale and within the region. By off-setting a commensurate amount of electricity using solar-produced electricity, Beale would consume less fossil fuel-derived electricity attributable to the installation's electrical demand and would no longer need to

be reliant on diesel powered generators. The Doolittle Power Station Repair & Upgrade project would save approximately 860 kilograms (kg) of CO₂ per MW hour (MWh) of solar power production.

Air Conformity Applicability Model (ACAM) - General Conformity

Total reasonably foreseeable net change in direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" (highest annual emissions) and "steady state" (no net gain/loss in emission stabilized and the action is fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the Proposed Action according to the requirements of 40 CFR 93, Subpart B (Table 3-7 & Table 3-8).

Table 3-7: Conformity Analysis Summary for 2024.

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Yuba City-Marysville, CA			
VOC	0.110	100	No
NOx	0.942	100	No
CO	1.017	—	—
SOx	0.002	100	No
PM ₁₀	8.995	—	—
PM _{2.5}	0.041	100	No
Pb	0.000	—	—
NH3	0.001	100	No

Notes: VOC = Volatile organic compound

NO_x = Nitrogen oxides

CO = Carbon monoxide

SO_x = Sulfur oxides

Pb = Lead

NH₃ = Ammonia

Source & Date: Doolittle Power Station Record of Conformity Analysis (ROCA), 2024 (Appendix G).

Table 3-8: Conformity Analysis Summary for 2025.

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Yuba City-Marysville, CA			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000	—	—
SOx	0.000	100	No
PM10	0.000	—	—
PM2.5	0.000	100	No
Pb	0.000	—	—
NH3	0.000	100	No

Source & Date: Doolittle Power Station ROCA, 2024 (Appendix G).

All emissions estimates were derived from various sources using the methods, algorithms, and emission factors from the most current Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and/or Air Emissions Guide for Air Force

Transitory Sources. For greater details of this analysis, refer to the Detail ACAM Report (Appendix G).

None of the annual net change in estimated emissions associated with this action are above the general conformity rule threshold values established at 40 CFR 93.153 (b); therefore, the Proposed Action has a negligible impact on Air Quality and a General Conformity Determination is not applicable.

ACAM – GHG Emissions

ACAM was used to perform an analysis to estimate GHG emissions and assess the theoretical Social Cost of Greenhouse Gases (SC GHG) associated with the Proposed Action. The analysis was performed in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; EIAP, 32 CFR 989; and the USAF Air Quality EIAP Guide. The ACAM report provides a summary of GHG emissions and SC GHG analysis (Appendix G).

Total combined direct and indirect GHG emissions associated with the action were estimated through ACAM on a calendar-year basis from the action start through the expected life cycle of the action. The life cycle for Air Force actions with "steady state" emissions (SS, net gain/loss in emission stabilized and the action is fully implemented) is assumed to be 10 years beyond the SS emissions year or 20 years beyond SS emissions year for aircraft operations related actions.

The Air Force has adopted the Prevention of Significant Deterioration (PSD) threshold for GHG of 75,000 ton per year (ton/yr) of CO₂e (or 68,039 metric ton per year, mton/yr) as an indicator or "threshold of insignificance" for NEPA air quality impacts in all areas. The Proposed Action doesn't exceed this threshold and is therefore considered negligible.

To provide real-world context to the GHG and climate change effects on a global scale, an action's net change in GHG emissions is compared relative to the state (where action will occur) and U.S. annual emissions. The following table (Table 3-9) provides a relative comparison of the Proposed Action's net change in GHG emissions vs. state and U.S. projected GHG emissions for the same time period.

Table 3-9: Proposed Action's Net Change in GHG Emissions vs. State and U.S. GHG.

Total GHG Relative Significance (mton)					
		CO ₂	CH ₄	N ₂ O	CO ₂ e
2024-2035	State Total	336,950,322	1,567,526	55,459	338,573,307
2024-2035	U.S. Total	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2024-2035	Action	148	0.005963	0.001695	149
Percent of State Totals		0.00004398%	0.00000038%	0.00000306%	0.00004397%
Percent of U.S. Totals		0.00000289%	0.00000002%	0.00000011%	0.00000288%

Source & Date: Doolittle Power Station ACAM GHG Emissions, 2024 (Appendix G).

The table below (Table 3-10) provides a relative comparison between the Proposed Action's SC GHG vs. state and U.S. projected SC GHG for the same time period in 2020-dollars.

Table 3-10: Proposed Action’s SC GHG vs. State and U.S. SC GHG.

Total SC-GHG (\$K [In 2020 \$])					
		CO2	CH4	N2O	GHG
2024-2035	State Total	\$27,629,926.37	\$3,448,557.38	\$1,608,320.85	\$32,686,804.60
2024-2035	U.S. Total	\$421,189,242.68	\$56,379,205.70	\$43,520,521.44	\$521,088,969.82
2024-2035	Action	\$12.15	\$0.01	\$0.05	\$12.22
Percent of State Totals		0.00004398%	0.00000038%	0.00000306%	0.00003737%
Percent of U.S. Totals		0.00000289%	0.00000002%	0.00000011%	0.00000234%

Source & Date: Doolittle Power Station ACAM GHG Emissions, 2024 (Appendix G).

From a global context, the Proposed Action’s total SC GHG percentage of total global SC GHG for the same time period is 0.00000031%. This impact is considered negligible.

No Action Alternative

Under the No-Action Alternative, the Doolittle Power Station would not be constructed, and the Global Hawk mission would continue to rely on diesel powered generators as a source of backup energy; this would result in intermittent, minor, adverse impacts to air quality during events where backup power is needed.

3.3 LAND USE

3.3.1 Definition of the Resource

Land use generally refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational (Brady 2006).

3.3.2 Existing Conditions

Beale AFB contains improved, semi-improved, and unimproved land areas based on land classifications defined in AFMAN 32-7003. A variety of land uses can be found that are typical of military installations. Approximately 96 percent of the land use total for the installation includes open space, airfield, industrial, and housing (Beale AFB 2019). The land that the Proposed Action is located on is currently zoned as open space and much of it is used as grazing land for livestock.

3.3.3 Environmental Consequences

Proposed Action

The Proposed Action would not change the existing land use classification — it would remain as open space. However, approximately 3.15 acres of the proposed site is currently used as grazing land for cattle.

The impact of potentially changing 3.15 acres of outleased grazing land to a PV array field is considered to be negligible because the grazing program has 12,632 acres of space available for

cattle — this would amount to a decrease of approximately 0.025% in available land. The Proposed Action would marginally decrease funds to conservation use on base from this lease area. However, use of farmland for national defense is exempted from the requirement that Federal programs minimize the extent to which they contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses (7 U.S.C. § 4208(b) and 7 C.F.R. § 658.3(b)).

No Action Alternative

Under the No Action Alternative, the Doolittle Power Station would not be constructed and there would be no impacts to land use.

3.4 SOILS AND GEOLOGY

3.4.1 Definition of the Resources

Soil, in general, refers to unconsolidated earthen materials overlying bedrock and other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the ability for the ground to support structures and facilities. Soils typically are described in terms of their type, slope, physical characteristics, and relative compatibility or limitations regarding particular construction activities and types of land use.

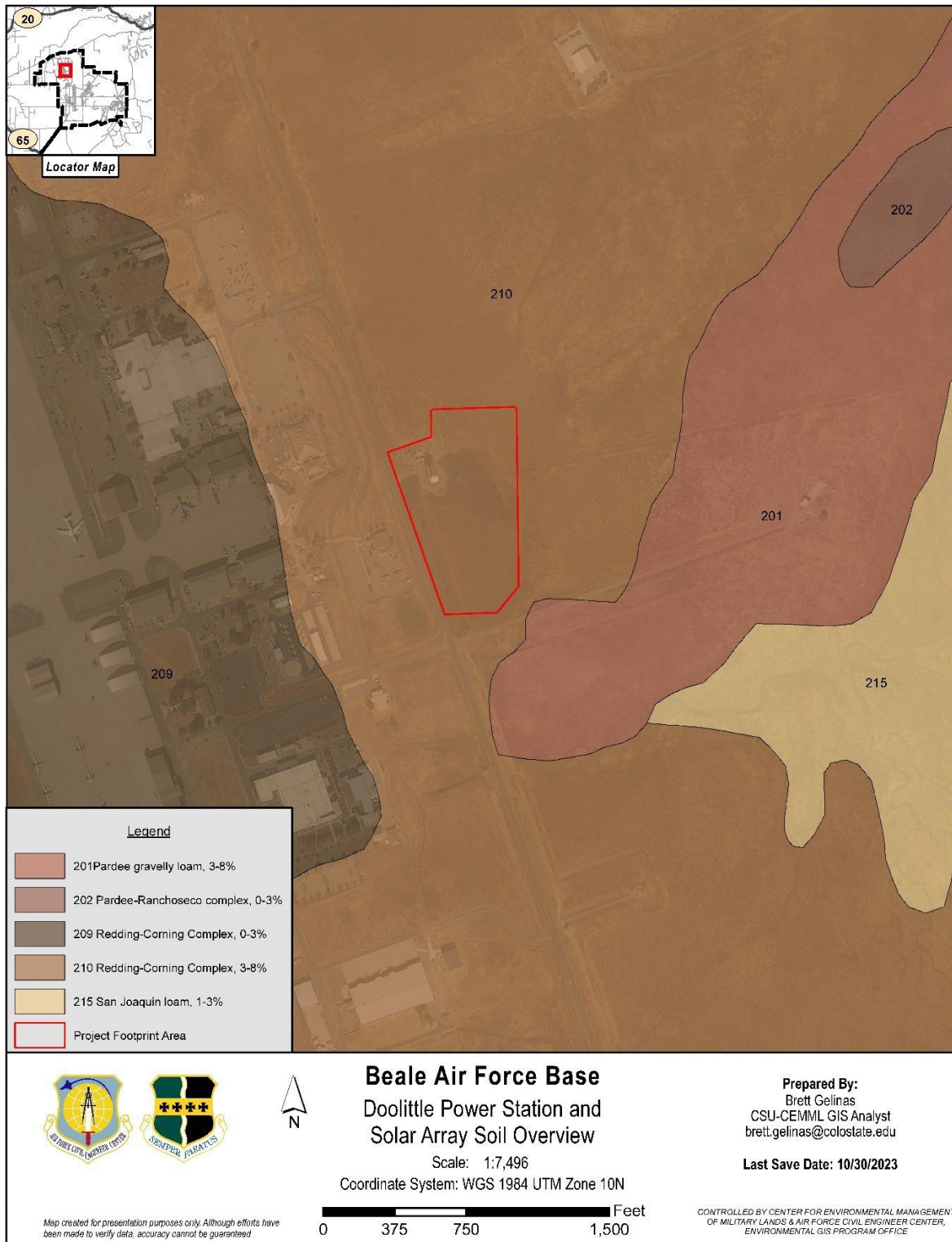
Geology refers to the structure and configuration of surface and subsurface features.

3.4.2 Existing Conditions

Soil Resources:

Data indicates that the near-surface (upper 10 to 20 feet) soils are typically silty sandy gravels or clayey sandy gravels with cobbles. The soils at Beale AFB commonly retain moisture for long periods of time and readily become unstable when disturbed by construction activities during and long after rainy/wet periods. Corrosivity testing was not performed for this project, however recent testing for the Hydrant Fuel project (located northwest of proposed site) and Bulk Fuel Farm project (located to the south of the proposed site) indicates moderate to severe corrosion potential (USACE 2019). There are 14 soil map units of soil series or soil complexes on Beale AFB that can be grouped into two main categories: Central Valley Terraces and Sierra Nevada Foothill. The Main Base and flight line are on the valley soils. Soils at Beale AFB contain a high amount of clay and have an underlying hardpan; therefore, the proposed construction period at the Base is limited to the dry season (May through October). The restricted operation period for earth-disturbing activities on Beale AFB is typically from November 1 through May 1 to avoid problems arising from saturated soils in work areas (Beale AFB 2019). Restrictions are soil depth (highly variable), slope (3 to 75 percent), and water erosion. The only soil series in the project area is Redding-Corning Complex, 3-8 % slopes (Figure 3-1). The soils have very severe limitations that reduces the choice of plants or that require very careful management. These soils are suitable for wildlife habitat and livestock grazing. Infiltration is limited on these soils and the erosion hazard is low. Soils are generally described as well-drained, gravelly loam with clay

- 1 layer typically occurring at 19 to 33 inches and duripan at 33 to 43 inches with mixed alluvium
- 2 occurring on fan terraces (USDA 2022).



1

2 **Figure 3-1: Soils in Project Footprint for the Doolittle Power Station.**

Geology

Beale AFB is situated on the boundary between the Sierra Nevada Geologic and the Great Valley provinces. The Great Valley Province was formed as a basin between the Coast Range Province on the west and the Sierra Nevada Province on the east. The basin has filled with alluvial deposits from the erosion of the Sierra Nevada and the Coast ranges. Because of its location on the boundary of the two provinces, Beale AFB contains characteristics of both the Great Valley and the Sierra Nevada Mountains. (USAF 2019)

The western and central portions of Beale AFB (flightline and Main Base) consist of relatively flat grasslands, characteristic of the topography of the Central Valley. The proposed project area is located on relatively flat grasslands of the Central Valley. (USAF 2019)

3.4.3 Environmental Consequences

Proposed Action

Soils

Construction of the proposed project would involve earthwork activities that could expose soils to erosion. The proposed project is located on relatively flat topography and would not involve grading steep slopes; however, earthmoving and construction activities could loosen soil, and the removal of vegetation could contribute to soil loss and erosion by wind and stormwater runoff.

Due to the amount of ground disturbing work that would be performed under the Proposed Action, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared and implemented. The SWPPP would specify Best Management Practices (BMPs) to prevent disturbed soils (such as topsoil), from moving offsite. Site grading for the Proposed Action would be designed to maintain the predevelopment hydrology. The Contractor would incorporate the low impact development (LID) for the site storm drainage system design in accordance with guidance provided in UFC 3-210-10, *Low Impact Development*, Figure 2-1, Option 2". Given the relatively flat nature and pervious surface of the project site, it is unlikely that soil erosion from water runoff would occur with implementation of the construction SWPPP and the required BMPs. Blanket mulch would be utilized as an effective way of revegetation in order to provide soils protection from erosion. As a result, the proposed project would have no adverse effects related to accelerated erosion.

During construction and maintenance activities, potential soil contamination due to spills of hazardous materials could occur (e.g., fuel spills from vehicles and equipment). With environmental protection measures, to include BMPs and Standard Operating Procedures, for preventing and responding to potential contamination, impacts would be anticipated to be negligible. In the unlikely event of a spill, containment measures and corrective actions would be implemented in accordance with the Beale AFB spill response plan. The soils in the project area are not known to have any fuel contamination although other contaminants such as aqueous film forming foam, frequently used in firefighting, may be present. Activities associated with the project would not be expected to allow workers to come in contact with contaminated soil or groundwater. Protective measures would be implemented during excavation. If the workers

encountered discolored soil or detected a chemical odor, work would be stopped until the source could be determined.

During operation and maintenance activities, accelerated soil erosion could occur as a result of natural processes (e.g., wind and rain) and from run-off related to module washing. To minimize potential effects, the system operator would monitor the array field and associated support infrastructure (e.g., transmission lines) to check for soil erosion. Additionally, the system operator would ensure that a vegetation cover is maintained under and around the solar array systems as much as possible to reduce any run-off related to module washing. Accelerated soil erosion, such as apparent sheet erosion or formation of rills would be remedied as appropriate. If erosion concerns were resulting from operations such as module washing, these operations would pause until soil protection measures were installed. Consequently, negligible long-term adverse impacts to soils would be anticipated as a result of operations and maintenance.

Geology

The Proposed Action is not located within an active seismic region and there are no active mining claims or mining activities allowed on Beale AFB. The Proposed Action would also not be digging deep enough to even have the potential of impacting these resources. The site is not located in an area undergoing fluid withdrawal that could generate a potential subsidence effect. Construction, operation, and maintenance of the Proposed Action would not induce seismic activity, nor would it affect any of the economically viable minerals in the applicable area. The Proposed Action would not result in impacts to geology.

No Action Alternative

Under the No Action Alternative, the Doolittle Power Station Repair & Upgrade project would not be constructed and neither soils nor geology would be impacted.

3.5 WATER RESOURCES

3.5.1 Surface and Storm Water

3.5.1.1 Definition of the Resource

Surface water is any body of water above ground, including streams, rivers, lakes, wetlands, reservoirs, and creeks. There are three types of surface water: perennial, ephemeral, and man-made. Perennial, or permanent, surface water persists throughout the year and is replenished with groundwater when there is little precipitation. Ephemeral, or semi-permanent, surface water exists for only part of the year. Ephemeral surface water includes small creeks, lagoons, and water holes. Man-made surface water is found in artificial structures, such as dams and constructed wastewater treatment ponds.

3.5.1.2 Existing Conditions

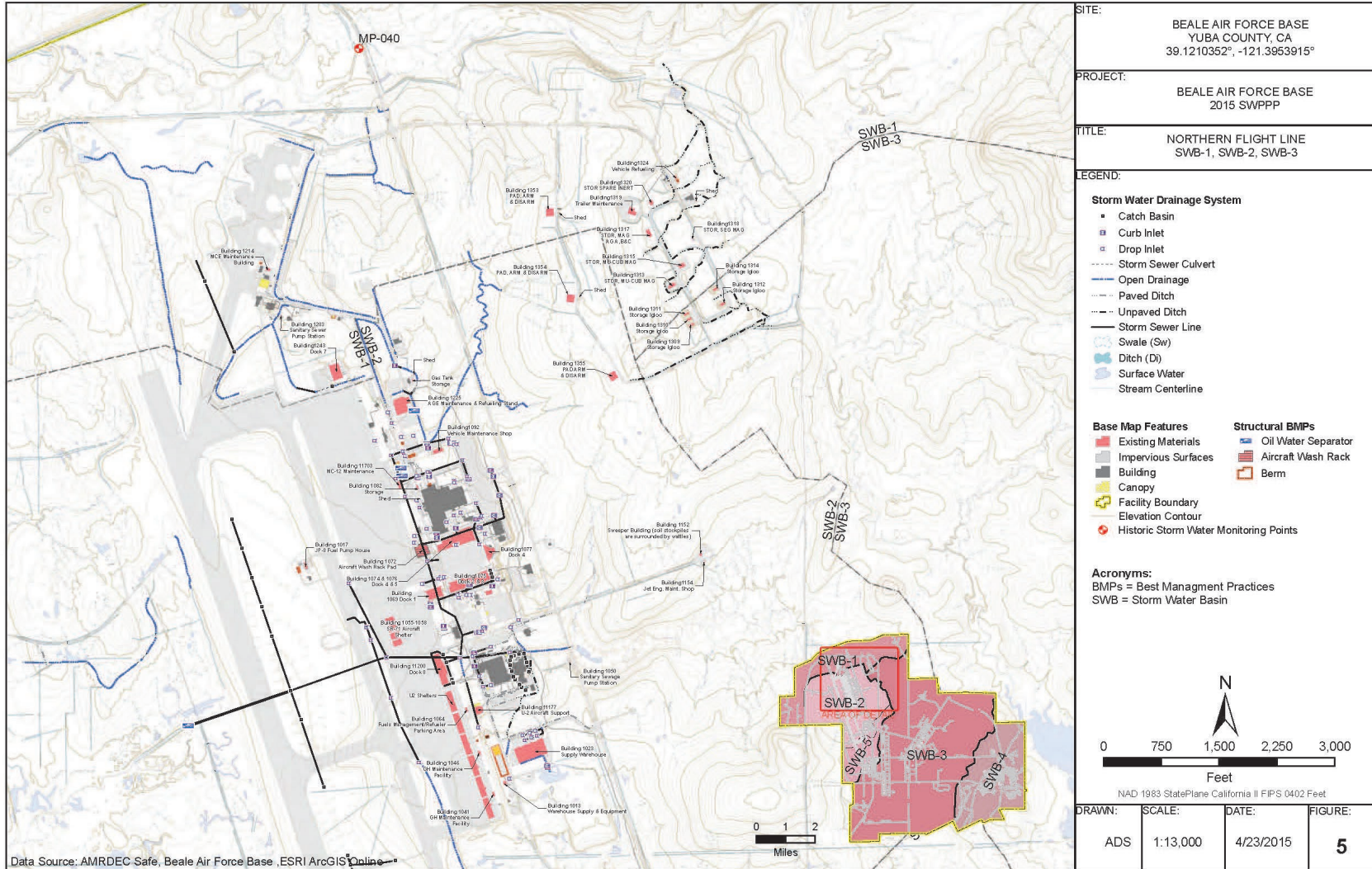
Beale AFB is subdivided into five storm water drainage basins (SWB-1 through SWB-5) based on geologic conditions and topographic characteristics. Two basins — SWB-2 and SWB-5 — are completely contained within the Base boundaries, the other three basins receive up-gradient

1 stream and alluvial run-on from Reeds Creek (SWB-1), numerous unnamed small tributaries
2 (SWB-3), and Dry Creek (SWB-4). The Proposed Action is within SWB-2. SWB-2 is located in
3 the northwestern portion of Beale AFB and consists primarily of the Flightline and supporting
4 industrial activities (Figure 3-2). This 3,290-acre basin contains approximately 12.5%
5 impervious surfaces consisting of paved runways, taxiways, roads, and building structures;
6 undeveloped grassy areas are located adjacent to the flight line activities (Beale AFB 2019).

7 A man-made drainage ditch (Di1524) with an underground pipe originating from the water tank
8 is present. The tank pipe ends with an 8-inch flapper beyond a concrete retainer wall. It is used
9 for emergency use only if the water tower experiences damage. Outflow from the pipe is routed
10 towards the stream channel and wetlands to the southeast of the Doolittle Water Tower.

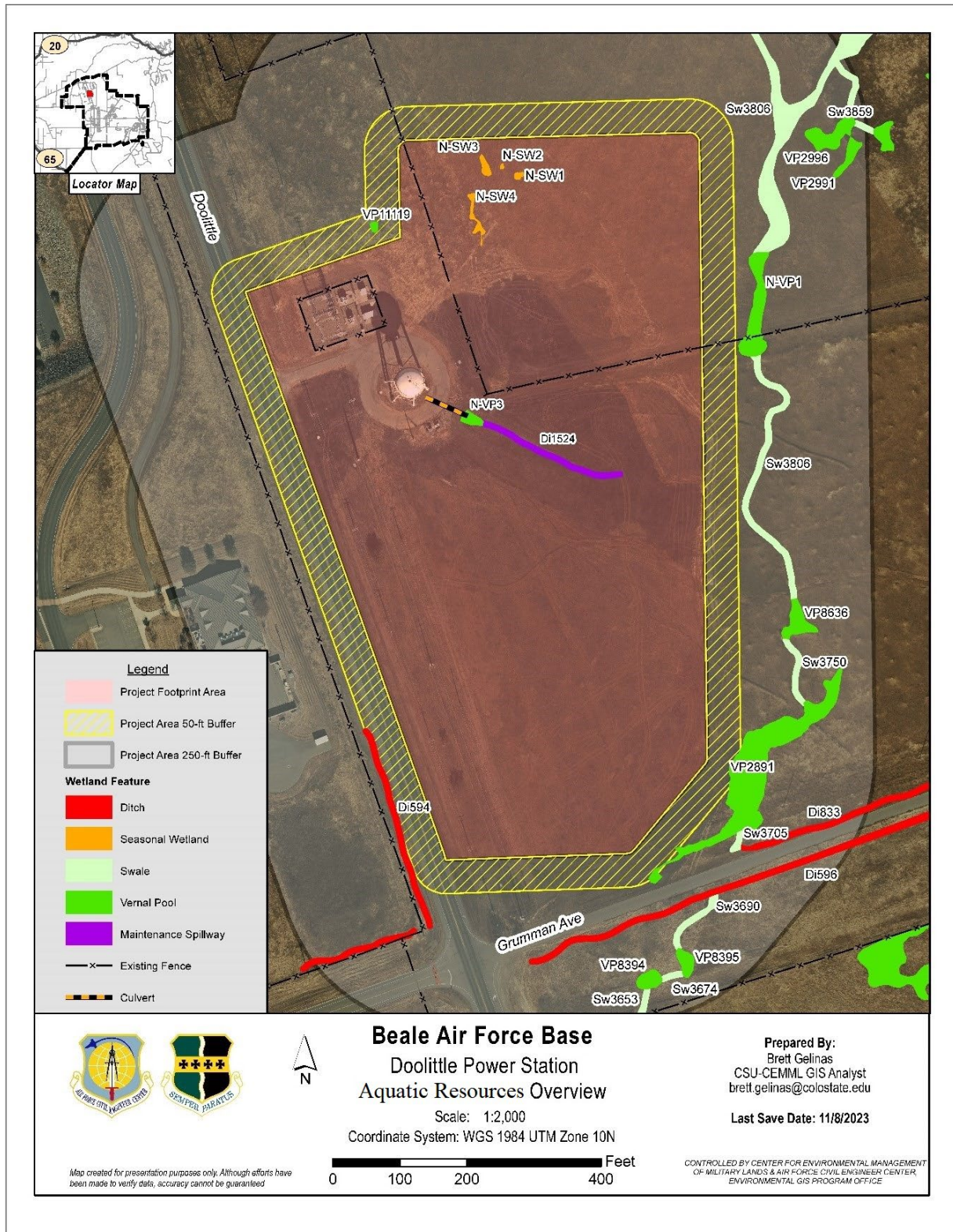
11 During a wetland field study conducted in March and May of 2023 (Marty, 2023), aquatic
12 features were discovered within the project footprint. These features include one vernal pool (N-
13 VP3) and four swales (N-SW1, N-SW2, N-SW3, and N-SW4) and are depicted in Figure 3-3.
14 Additionally, a vernal pool (VP11119) is located north of the existing Doolittle Substation.

15 There are drainage/vernal pools/vernal swales bordering the eastern edge of the project footprint.
16 However, the Proposed Action was designed with a 50-foot buffer to avoid these features.



1

2 **Figure 3-2: Storm Water Drainage Basins on Beale AFB, California.**



1
2 **Figure 3-3: Aquatic Resources within 250 feet of the Proposed Action, Beale AFB,**
3 **California.**

3.5.1.3 Environmental Consequences

Proposed Action

Under the Proposed Action, a 0.01-acre vernal pool, 0.021 acres of swales, and a 0.06-acre ditch would be directly impacted by the construction and placement of the solar array. Additionally, a 0.004-acre vernal pool to the northwest would be indirectly impacted by the construction of the new substation (Table 3-11). These features were determined to be non-jurisdictional features under the most recent definition of WOTUS due to a lack of continuous surface connections to WOTUS (see Section 3.6.3.1 for definition of WOTUS). A request for an AJD of these features was submitted to the USACE on 21 Feb 2024 and a response from USACE was received on 9 July 2024 which affirmed that the features were not WOTUS (Appendix E). Impacts to surface water, specifically ephemeral features, would be adverse, moderate, and permanent. Avoidance of these features was impractical due to required grouping of solar panels limiting possible orientations of solar panel groupings and future maintenance of the solar array's potential to indirectly impact the features due to close proximity of each other.

Table 3-11: Impacts to Aquatic Features from the Proposed Action.

ID	Feature Type	Acreage	Direct Impacts	Indirect Impacts
N-VP3	Vernal Pool	0.01	0.01	—
VP11119	Vernal Pool	0.004	—	0.004
N-SW1	Swale	0.003	0.003	—
N-SW2	Swale	0.001	0.001	—
N-SW3	Swale	0.007	0.007	—
N-SW4	Swale	0.01	0.01	—
Di1524	Ditch	0.06	0.06	—

The construction of the project could impact offsite water quality through erosion and sedimentation resulting directly from earthwork or an alteration in drainage pattern caused by earthwork. Site grading for the Proposed Action would be designed to maintain the predevelopment hydrology. The Contractor would incorporate the low impact development (LID) for the site storm drainage system design, per UFC 3-210-10, *LID*, Figure 2-1, Option 2. Implementation of a storm water pollution prevention plan (SWPPP) would be required during construction (Beale AFB 2021b). In addition to project design criteria, the SWPPP would identify and implement site-specific BMPs to reduce or prevent pollutants associated with industrial activities in storm water discharges in an effort to comply with federal, state, and local regulations. This would include scheduling, good housekeeping, and erosion and sediment control BMPs, such as maintaining groundcover with blanket mulch, project boundary fencing, and reducing slope length that would prevent the occurrence of accelerated erosion or siltation onsite and offsite. With the implementation of project design criteria and following the SWPPP, the impact of project construction on offsite water quality would be negligible and indirect.

Project operation would involve the use and storage of hazardous chemicals onsite that have the potential to contaminate surface runoff if poorly managed. These materials would include oils, lubricants, paints, solvents, degreasers and other cleaners, and transformer Type II mineral oil. The contractor would be required to develop a Hazardous Materials Management Plan which

would delineate hazardous material and hazardous waste storage areas and describe procedures for handling and disposing of hazardous materials used during operation. Best management practices within the Industrial SWPPP would outline procedures to ensure protection of water quality.

During operation, the presence of the project structures, including impervious surfaces that would result from construction of maintenance buildings, various concrete pads for inverters and/or substation/switchyard components, and solar panel surfaces (which result in a dripline), would have minor and localized effects on the site's existing drainage pattern, which could lead to erosion, siltation or flooding onsite or offsite. Up to 12.22 acres of the project site would be developed. Development would mainly consist of individual panels mounted on poles, grading, and expansion of the substation's footprint. Thus, with the exception of the new control room and concrete foundations, much of the project site would continue to allow stormwater percolation. Further, the solar array would be designed to maintain the predevelopment hydrology. Additionally, the contractor would prepare a grading plan that would detail the implementation of drainage devices and erosion control features designed to minimize excess runoff and reduce erosion and sedimentation. With implementation of mitigation measures, operation of the project would comply with all General Plan and Specific Plan requirements pertaining to surface water quality and drainage patterns. No adverse effects related to erosion or siltation are expected.

No Action Alternative

Under the No Action Alternative, the proposed project would not be undertaken and conditions would remain as they are currently. No direct or indirect impacts to surface water are expected with the implementation of the No Action Alternative.

3.5.2 Groundwater

3.5.2.1 Definition of the Resource

Groundwater resources consist of water located beneath the ground surface in soil pore space, bedrock fractures, and subterranean drainage (i.e., karst dissolution features).

3.5.2.2 Existing Conditions

The groundwater table at Beale AFB is deepest in the western portion of the Base adjacent to the flight line and shallowest in the eastern portion of the Base. Groundwater for drinking purposes at Beale AFB occurs 300 to 500 feet below ground surface and is presumed to originate in unconfined aquifer material with local clay/silt lenses overlying the Central Valley groundwater basin. Groundwater in the northern portion of Beale AFB is recharged from the Yuba River drainage basin and is considered to be the highest quality groundwater on the installation because it contains low levels of total dissolved solids, nitrates, and sulfates (Beale AFB 2014b). Groundwater in the central portion of Beale AFB contains higher levels of total dissolved solids and nitrates. Groundwater from the southern portion of Beale AFB, which receives its recharge from Dry Creek and Bear River, has a water quality between that of the northern and central portions of the installation.

Groundwater in some places at Beale AFB has been contaminated with chemicals such as petrochemicals and solvents due to historical Army and Air Force activities. More than 1,000 groundwater monitoring wells, extraction wells, and piezometers are now located throughout the Base (Beale AFB 2019). Groundwater contaminant levels are monitored at 7 sites consisting of 18 plumes using regulatory Monitoring and Reporting Program requirements that are included in the Annual Base-wide Groundwater Monitoring Program Report (CH2MHill 2018).

3.5.2.3 Environmental Consequences

Proposed Action

No dewatering or other disturbance of groundwater is proposed and therefore would not impact groundwater storage. No short-term or long-term environmental consequences related to groundwater resources are anticipated from the Proposed Action.

No Action Alternative

Under the No Action Alternative, the Doolittle Power Station would not be constructed. There would be no impacts to groundwater from the No Action Alternative.

3.5.3 Waters of the United States

3.5.3.1 Definition of the Resource

The CWA protects “navigable waters”, defined in the statutes as WOTUS. WOTUS establishes the geographic scope of federal jurisdiction under the Act. However, the Act itself does not define WOTUS. The EPA and the Department of the Army developed the first definition of WOTUS in the late 1970s. Since then, several Supreme Court decisions have addressed the definition of WOTUS. On August 29, 2023, the EPA and Department of the Army issued a final rule to amend the final “Revised Definition of ‘Waters of the United States’” rule, published in the Federal Register on January 18, 2023. This final rule conforms the definition of WOTUS to the Supreme Court’s most recent opinion in *Sackett v. Environmental Protection Agency*. WOTUS are currently interpreted as:

- 1) Waters which are:
 - i) Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
 - ii) The territorial seas; or
 - iii) Interstate waters;
- 2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (5) of this definition.
- 3) Tributaries of waters identified in paragraph (1) or (2) of this definition that are relatively permanent, standing or continuously flowing bodies of water;
- 4) Wetlands adjacent to the following waters:
 - i) Waters identified in paragraph (1) of this definition; or

- 1 ii) Relatively permanent, standing or continuously flowing bodies of water identified in
2 paragraph (2) or (3) of this definition and with a continuous surface connection to those
3 waters;
4 5) Intrastate lakes and ponds not identified in paragraphs (1) through (4) of this definition that
5 are relatively permanent, standing or continuously flowing bodies of water with a continuous
6 surface connection to the waters identified in paragraph (1) or (3) of this definition.
- 7 Section 404 of the CWA regulates the discharge of dredge or fill into WOTUS. Encroachment
8 into WOTUS typically requires a permit from the state and the federal government.

9 **3.5.3.2 Existing Conditions**

10 From 2006-2009, Light Detection and Ranging (LiDAR) was used to develop a preliminary
11 jurisdictional delineation of water features at Beale AFB (USACE 2012) in order to develop a
12 Base-wide inventory of aquatic features and WOTUS. In 2019 and 2020, the LiDAR data for the
13 project area and a 250-foot buffer were ground-truthed and verified (e.g., examined for hydric
14 soils, vegetation, and evidence of ponding as well as contours, slope, and depth) by Beale AFB
15 biologists. This was done to confirm the location and classification of wetland features within the
16 project area and buffer. The aquatic features just outside the eastern edge of the project area are
17 presumed WOTUS for the purposes of this EA as there are no expected impacts from project
18 implementation. An AJD would be required to verify jurisdiction if they were to be impacted.

19 However, wetlands were identified within the project footprint in March and May of 2023
20 (Marty, 2023). An AJD was requested from the USACE on 21 Feb 2024 and a response from
21 USACE was received on 9 July 2024 which affirmed that the aquatic features within the project
22 footprint were not WOTUS (Appendix E).

23 **3.5.3.3 Environmental Consequences**

24 **Proposed Action**

25 Under the Proposed Action, no WOTUS would be impacted. The aquatic features within the
26 Proposed Action's footprint are not considered jurisdictional. Impacts to WOTUS more than 30
27 feet away from the activity footprint are considered avoidable using AMMs if 1) the feature is
28 higher than the proposed ground disturbance; or 2) the feature is lower in elevation, not
29 hydrologically connected to an impacted feature, and ground disturbance would not penetrate the
30 hardpan (≤ 5 ft). This includes all aquatic features just east of the Proposed Action's boundary.

31 The following AMMS (Appendix C) apply to the Proposed Action:

- 32 • GM-1 through GM-8, GM-18 through GM-32, WR-1 through WR-2, and VP-1 through
33 VP-3.

34 **No Action Alternative**

35 The No Action Alternative would not construct the Doolittle Power Station and therefore would
36 not have any impacts to WOTUS.

37 **3.6 BIOLOGICAL RESOURCES**

Beale AFB is in the ecological and geographic transition zone between the flat agricultural lands of the Sacramento Valley and the foothills of the western slope of the Sierra Nevada Mountains. The installation is within the Humid Temperate Mediterranean California Dry Steppe ecoregion (Beale AFB 2019). This ecoregion is characterized by hot, dry summers and mild winters. Beale AFB is within the alluvial plains of the Sacramento and San Joaquin valleys. Vegetation communities within the Sacramento Valley include forested oak woodlands, grasslands, and riparian areas found along the riverine systems (Beale AFB 2019). Vernal pools are also present and provide important habitat for several listed species. Much of the land surrounding Beale AFB has been converted to agricultural use, including cropland, pasture, and rural communities. This land use provides some wildlife habitat in irrigation ditches and canals, fallow and flooded fields, and hedgerows.

Beale AFB is adjacent to the Spenceville Wildlife Management Area and borders three conservation easement areas. These wildlife areas and undeveloped land within Beale AFB provide habitat for wildlife and plant communities, as well as rare, threatened, and endangered species.

3.6.1 Vegetation

3.6.1.1 Definition of the Resource

Vegetation resources refer to the plant communities at any scale including grasses, herbs, forbs, shrubs, vines, and trees.

3.6.1.2 Existing Conditions

The vegetation in and around the project area is dominated by grassland species. Most of the grassland species at Beale AFB are naturalized grasses, with native bunch grasses found in varying densities in the pastures and along roadsides. Typical non-native grassland species found in the area include ripgut brome (*Bromus diandrus*), Italian ryegrass (*Lolium multiflorum*), soft chess (*Bromus hordeaceus*), medusahead grass (*Elymus caput-medusae*), annual fescue (*Vulpia myuros*), and foxtail barley (*Hordeum jubatum*). Interspersed with the grassland are a few ephemeral wetlands, which may provide habitat for the vernal pool fairy shrimp and the vernal pool tadpole shrimp. The dominant wetland plant taxa at Beale AFB are coyote thistle (*Eryngium vaseyi*), Fremont goldfields (*Lasthenia fremontii*), white-flowered navarretia (*Navarretia leucocephala*), annual hairgrass (*Deschampsia danthonioides*), fields owl's-clover (*Castilleja campestris*), and ornate downingia (*Downingia ornatissima*).

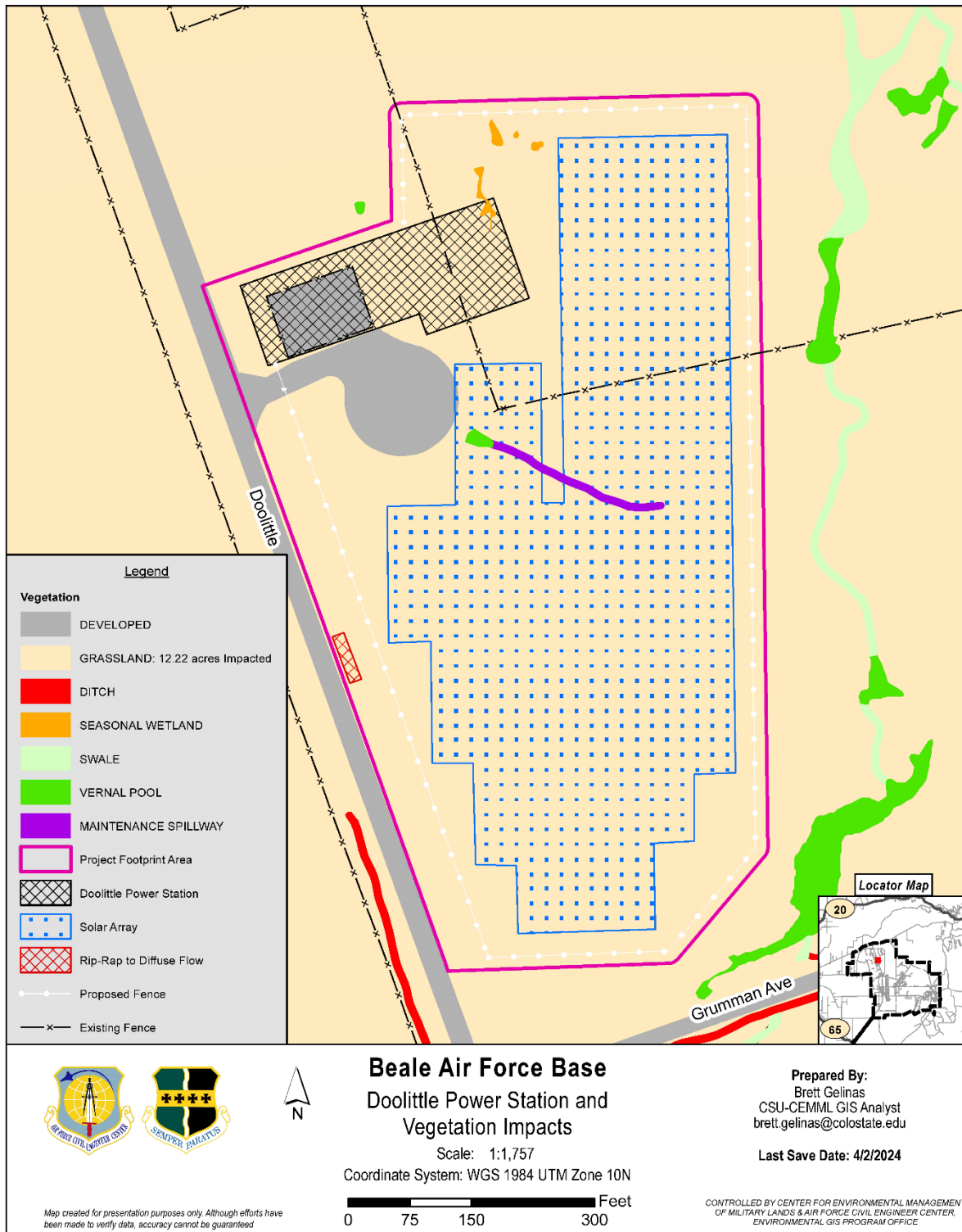
3.6.1.3 Environmental Consequences

Proposed Action

Under the Proposed Action, approximately 12.22 acres of grassland would be removed during construction of the PV array system and upgraded substation/switchyard (Figure 3-4). However, standard AMMs would be employed to ensure that all upland vegetated areas disturbed by construction will be revegetated with the Beale AFB-approved native seed mix (Appendix C). Exposed soil will be hydro-seeded and depending on slope, covered with a biodegradable geotextile to prevent sediments from entering waterways. Any straw used for erosion control

1 materials will be “certified weed free.” Reseeded areas will be monitored and maintained by the
2 contractor as needed until there is 70% survival of plantings and 70% vegetated ground cover in
3 the seeded area. Species selected for vegetation would be low in height to reduce the need for
4 mowing.

5 Effective execution of AMMs would regenerate vegetation in disturbed areas with native flora
6 which would result in a more beneficial vegetative landscape than what already exists. This
7 would result in long-term, minor beneficial direct impacts to vegetation. However, expansion of
8 the substation outside its current footprint and construction of concrete foundations under the PV
9 array portion would result in a permanent loss of approximately 0.7 acres of grassland.



1
2 **Figure 3-4: Impacts to Vegetation from the Proposed Action.**
3 **No Action Alternative**

The No Action Alternative would not result in any changes to conditions at the site and would not result in impacts to vegetation. The existing vegetative communities would not be altered.

3.6.2 Wildlife

3.6.2.1 Definition of the Resource

Wildlife resources refer to the animal communities that have been specifically observed or are considered likely to utilize the habitats that occur within the site. The wildlife community at Beale AFB and the surrounding region includes several species of fish, amphibians, reptiles, birds, and mammals.

3.6.2.2 Existing Conditions

Beale AFB and the areas surrounding the Proposed Action provide habitat that supports a variety of wildlife species. Grassland habitats that dominate the vicinity of the Proposed Action provide nesting, breeding, and foraging habitat for birds, as well as habitat for mammals, amphibians, reptiles, and invertebrate species. In addition to grassland habitats, the surrounding area also includes seasonal wetland habitats such as swales, ditches, and vernal pools. This section focuses on the species most likely present in the grasslands and seasonal wetland habitats found within, and adjacent to, the Proposed Action.

Grassland Habitat: Grasslands on Beale AFB provide important breeding and foraging habitat for many bird species. Birds that frequent grasslands on Beale AFB include the American kestrel (*Falco sparverius*), western bluebird (*Sialia mexicana*), rough-legged hawk (*Buteo lagopus*), western meadowlark (*Sturnella neglecta*), savannah sparrow (*Passerculus sandwichensis*), horned lark (*Eremophila alpestris*), red-tailed hawk (*Buteo jamaicensis*), dove (*Zenaida macroura*), and Brewer's blackbird (*Euphagus cyanocephalus*). Birds of special interest that have been observed foraging in the annual grasslands at Beale AFB include Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*) and Tricolored blackbird (*Agelaius tricolor*). Owls including great-horned (*Bubo virginianus*), barn (*Tyto alba*) and short-eared (*Asio flmmeus*) have been observed foraging in the grasslands at night. Barn owls are abundant, often nesting in human-made structures adjacent to open areas. Grasslands are also an important habitat for common rodents and large and small predators, including the gray fox (*Urocyon cinereoargenteus*), black-tailed deer (*Odocoileus hemionus*), black-tailed hare (*Lepus californicus*), cottontail rabbit (*Sylvilagus audobonii*), Botta's pocket gopher (*Thomomys bottae*), deer mouse (*Peromyscus maniculatus*), California vole (*Microtus californicus*), California ground squirrel (*Otospermophilus beecheyi*), and coyote (*Canis latrans*). Reptiles also inhabit the grasslands, including the gopher snake (*Pituophis catenifer*), western rattlesnake (*Crotalus oreganus*), western yellow-bellied racer (*Coluber constrictor*), common king snake (*Lampropeltis getula*), alligator lizard (*Elgaria coerulea*), western fence lizard (*Sceloporus occidentalis*), and western skink (*Plestiodon skiltonianus*). The grasslands of Beale AFB also provide habitat for many important pollinator species, including the monarch butterfly (*Danaus plexippus*).

Seasonal Wetland Habitat: A variety of seasonal wetland habitats can also be found within and adjacent to the footprint of the Proposed Action, including vernal pools, swales, and ditches.

These seasonal wetlands contain similar wildlife species to the annual grasslands, in addition to a suite of species adapted to the seasonally saturated conditions. During the wet season, from late fall to early spring, this habitat supports a higher diversity of invertebrates, birds, mammals, reptiles, and amphibians than adjacent grasslands. When inundated, these seasonal wetlands attract waterfowl, shorebirds, and waterbirds. Amphibians such as the pacific treefrog (*Pseudacris sierra*) and western toad (*Anaxyrus boreas*) also use vernal pools and other seasonal wetlands while they are inundated, and predators such as garter snakes (*Thamnophis spp.*), raccoons (*Procyon lotor*), and large waterbirds feed on these amphibians. Vernal pools provide habitat for a highly diverse assortment of copepods, amphipods, crustaceans, and insects. These invertebrates are important prey for many of the species listed above.

3.6.2.3 Environmental Consequences

Proposed Action

Under the Proposed Action, short-term and long-term impacts to wildlife habitat would occur during, and following, site preparation and construction activities. However, direct impacts to wildlife would not be expected because wildlife would likely move away from the Proposed Action during construction and would likely return to the site following project completion.

Demolition of the existing substation and construction of the new switchyard, substation, control room, and BESS would expand the footprint of the existing infrastructure. Construction of the new switchyard and substation would result in a permanent removal of 0.66 acres of vegetation. Following demolition of the existing substation, the site would be graded and prepared for construction of the new switchyard and substation foundation. Access to the area would be from the existing paved surface surrounding the water tower.

Overall, this activity would result in a permanent loss of wildlife habitat which would equate to long-term indirect adverse impacts — however, these impacts are expected to be minor due to the poor quality of the removed habitat and the insignificant size of the lost habitat.

Preparation for construction of the solar panel array would include grading around the designated solar panel rows, excavation for panel foundations, and trenching throughout the site for conduit and rerouting of the water main and water tank drainpipe. This disturbance would result in short-term loss of wildlife habitat during construction. Except for the solar panel foundations (approximately 0.04 acres), the entire site would be reseeded with Beale AFB-approved native seed mix to restore native vegetation throughout the site. No gravel or herbicide would be used to suppress vegetation under, or in the vicinity of, the solar panels in the management of this solar field. Site maintenance would include mowing/weed eating of the PV field at least once a year to reduce fire hazards and to ensure vegetation does not cover solar panels. The combination of site restoration using native seed and regular mowing would encourage native forbs and reduce buildup of non-native grass thatch, thereby resulting in long-term, moderate, indirect beneficial impacts to invertebrate pollinators.

Existing fencing at the site would be removed and a new, 6 foot tall, chain link fence would be established for security, with gates along Grumman Ave and near the proposed switchyard. It

would be anticipated that the minimal number of small sized terrestrial wildlife currently inhabiting this grassland area within an active airfield would move away from the Proposed Action during demolition and construction activities. While the new fence may limit movement of larger animals in and out of the solar array facility, smaller animals would still be able to move through the area in the vicinity of the gates or through the chain link fencing.

No Action Alternative

Under the No Action Alternative, construction of the Doolittle Power Station would not occur and wildlife would be untouched. No direct or indirect impacts to wildlife are associated with the No Action Alternative.

3.6.3 Threatened & Endangered Species and Species of Concern

3.6.3.1 Definition of the Resource

The ESA (16 U.S.C. 1531 et seq.) establishes a federal program to protect and recover imperiled species and the ecosystems upon which they depend. The ESA requires federal agencies, in consultation with USFWS and the National Marine Fisheries Service (NMFS), to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. An endangered species is defined by the ESA as any species in danger of extinction throughout all or a significant portion of its range. A threatened species is defined by the ESA as any species likely to become an endangered species in the foreseeable future. The ESA also prohibits any action that causes a take of any listed species. “Take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or attempt to engage in any such conduct. Listed plants are not protected from take, although it is illegal to collect or maliciously harm them on federal land.

Critical habitat is designated if USFWS or NMFS determines that the habitat is essential to the conservation of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must ensure that their activities do not adversely modify critical habitat to the point that it would no longer aid in the species’ recovery.

3.6.3.2 Existing Conditions

A preliminary list of species for consideration was compiled from official species lists maintained by USFWS, available in its Information for Planning and Consultation (IPaC) tool, and data from special status species surveys of Beale AFB. Federally listed species with the potential to occur in or near the Proposed Action were evaluated to determine if the Proposed Action could affect the species or their habitat (Table 3-12). Potential ESA habitat can visually be seen in Figure 3-3.

Table 3-12: ESA-Listed Species with Potential to Occur at Beale AFB, California.

Common Name	Scientific Name	Federal Status	State Status	Known to Occur at Beale AFB	Potential to Occur within Proposed Action
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Crustaceans					
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	Threatened	None	Yes	Yes
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	Endangered	None	No	No
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	Endangered	None	Yes	Yes
Insects					
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	Threatened	None	Yes	No
Monarch butterfly	<i>Danaus plexippus</i>	Candidate	None	Yes	Yes
Amphibians					
California red-legged frog	<i>Rana draytonii</i>	Threatened	None	No	No
Birds					
Western yellow-billed cuckoo	<i>Coccyzus americanus</i>	Threatened	Endangered	Unknown	No
Source: California Department of Fish and Wildlife (CDFW) 2019, USFWS IPaC Tool Dec 2, 2020 (USFWS 2020a).					

Of the species listed in Table 3-12, only vernal pool fairy shrimp (VPFS), vernal pool tadpole shrimp (VPTS), and monarch butterfly have the potential to be present near the Proposed Action and therefore, are considered in this section.

Vernal pool fairy shrimp (*Branchinecta lynchi*): The nearest known VPFS occurrence is approximately 980 feet from the Proposed Action. However, potential habitat exists within 250 feet of the Proposed Action (Beale AFB 2019).

Vernal pool tadpole shrimp (*Lepidurus packardii*): The nearest VPTS occurrence is approximately 1,280 feet from the Proposed Action. However, potential habitat exists within 250 feet of the Proposed Action (Beale AFB 2019).

Monarch butterfly (*Danaus plexippus*): There are no records of monarchs within 250 feet of the project area. Additionally, there is no suitable breeding habitat (milkweed plant patches) or roosting sites (trees) for monarchs within 250 feet of the project area. The nearest known patch of milkweed plants is more than one mile from the Proposed Action (CEMML 2020a). There are, however, potential nectaring sources on the site in the form of annual wildflowers and native perennial bulbs (e.g., *Dichlostema* & *Brodiaea* spp.).

The remaining four species were excluded from further consideration for the following reasons:

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*): No elderberry exists within the Proposed Action. The nearest blue elderberry shrub (*Sambucus nigra* subsp. *caerulea*) occurrence is located more than one mile from the Proposed Action (CEMML 2020b). Therefore, this species was eliminated from further consideration.

Conservancy fairy shrimp (*Branchinecta conservatio*): This species is not likely to occur on Beale AFB, and there are no known occurrences of the species within 10 miles of the Base (Beale AFB 2020b). Therefore, this species was eliminated from further consideration.

California red-legged frog (*Rana draytonii*): An amphibian assessment of Beale AFB, did not find any California red-legged frogs (CRLF) on Base and they are believed to be historically present but extirpated (EDAW 2006, URS Corporation 2008). Although CRLF habitat may have been present on Beale AFB in the past, poor habitat conditions and the presence of predators including the American bullfrog (*Lithobates catesbeianus*) do not allow populations to persist. The nearest recorded observation of CRLF was 32.5 miles from Beale AFB (CDFW 2019). Therefore, this species was eliminated from further consideration.

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*): The western distinct population segment of the yellow-billed cuckoo was evaluated due to its relatively recent ESA listing as threatened. A habitat assessment for yellow-billed cuckoo was conducted on Beale AFB in 2018 (Halterman 2019) and additional surveys were performed in the summer of 2020 (CEMML 2020c). Additionally, the closest suitable habitat is greater than two miles from the Proposed Action. Therefore, this species was eliminated from further consideration.

3.6.3.3 Environmental Consequences

Proposed Action

A formal consultation was initiated with the USFWS after a BA was submitted on 20 November 2023. The formal consult discussed potential effects that the Proposed Action may have on federally listed species (Appendix D). Even though candidate species (e.g., monarch butterfly) receive no statutory protection under the ESA, the DAF conferred with the USFWS on identifying and resolving any potential conflicts to the monarch butterfly resultant from the Proposed Action in anticipation of the species becoming formally listed. The Proposed Action would not likely adversely affect monarch butterfly (*Danaus plexxipus*); however, the Proposed Action would likely adversely affect VPTS (*Lepidurus packardi*) and VPFS (*Branchinecta lynchi*) due to wetlands within the project area.

Table 3-13 below summarizes the determinations of the analysis of the species with potential to occur in the Proposed Action.

Table 3-13: Summary of Endangered Species Act Determinations Under the Proposed Action.

Species	Endangered Species Act Determination
Vernal Pool Fairy Shrimp (<i>Branchinecta lynchi</i>)	Likely to Adversely Affect
Vernal Pool Tadpole Shrimp (<i>Lepidurus packardi</i>)	Likely to Adversely Affect
Monarch Butterfly (<i>Danaus plexxipus</i>)	May Affect, Not Likely to Adversely Affect

The USFWS responded to the BA submitted by Beale AFB with a BO on 3 May 2024 (Appendix D). The BO concurred with Beale's determination that the Proposed Action may affect but is not likely to adversely affect the monarch butterfly and is likely to adversely affect the vernal pool fairy and tadpole shrimps.

Effects of the Proposed Action on Monarch Butterflies

The Proposed Action has limited potential for indirect impacts to western monarchs from short-term loss of nectar sources during construction of the new solar array; however, the erosion control seed mix prescribed for restoration of disturbed areas associated with this project includes native flowers that can serve as nectar sources. This would ultimately improve the site for pollinators overall.

The Proposed Action would not jeopardize the continued existence of monarch butterflies because:

- No overwintering habitat would be affected.
- There are no known breeding sites in the project area.
- Any impacts on monarchs would not be sufficient to preclude both the survival and recovery of the population as a whole.
- Outside the activity footprints, baseline conditions of the habitat would be maintained.

If the monarch becomes listed before the project is complete, a provisional effects determination is provided in Table 3-13.

Effects of the Proposed Action on Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

VPFS and VPTS (vernal pool branchiopods) may be present in some portions of the Proposed Action based on habitats and proximity of previous observations of these species. Direct and indirect effects on vernal pool branchiopods were evaluated based on USFWS definitions; direct effects are those that occur as an immediate result of the Proposed Action, while indirect effects are those that are caused by, or would result from, the Proposed Action, but are still reasonably certain to occur at a later time (50 CFR §402.02).

All aquatic features (e.g., vernal pools, swales, seasonal wetlands, ditches, and streams) within 250 feet of the Proposed Action were evaluated for the potential for direct or indirect impacts (Table 3-14). A total of 26 features encompassing 2.14 acres of wetland were analyzed for potential impacts. Each habitat feature was evaluated for habitat and assigned one of three impact categories: Avoided, Direct, or Indirect. Each feature was assigned a single category; for example, if a vernal pool lies partially within an activity footprint, it was categorized as a direct impact for the entire feature. The assignments were based on the location of the feature relative to the activity footprint, the relative elevations of the feature, and the nature of the activity. Impact categories are described as follows:

Avoided: This category was chosen for features that could be avoided through project design or by using AMMs. Impacts to wetland features more than 30 feet away from the activity footprint are considered avoidable using AMMs if 1) the feature is higher than the proposed ground disturbance, or 2) the feature is lower in elevation, not hydrologically connected to an impacted feature, and ground disturbance would not penetrate the hardpan (≤ 5 ft).

Direct Impacts: Direct impacts are those that would occur when a feature overlaps with the activity footprint and disturbance cannot be avoided.

Indirect Impacts: Indirect impacts may occur within habitat features that are outside the activity footprint but downgradient or hydrologically connected to features that would be directly affected. These effects would occur later, after ground disturbing activities have ceased, and could include alteration of watershed topography; damage to the impervious soil layer that supports vernal pool hydrology; alteration of the amount, duration, and timing of surface water runoff; introduction of invasive plants or animals that alter the quality of habitat for vernal pool branchiopods; and degradation of water quality. Elevation and relative gradients were established using Light Detection and Ranging (LiDAR) contours dated October 2021.

Indirect impacts could also occur on habitat features not hydrologically connected to features intersecting the footprint if the features are downgradient and AMMs could not be used to avoid impacts.

The Proposed Action includes: 1) installing a perimeter fence, 2) constructing the solar array, 3) re-routing water tower drainpipe, 4) expanding an existing switchyard, and 5) rerouting an existing water main. There are a total of seventeen aquatic features (1.47 acres) identified as vernal pool branchiopod habitat within the Proposed Action and associated 250-foot buffer, including nine swales (1.03 acres) and eight vernal pools (0.43 acres). All seventeen features are lower or equal in elevation to the proposed activities, however only five features are within 100 feet of the proposed activities (N-VP3, VP11119, VP2891, SwN-VP1, Sw3806). All other features are not hydrologically connected to features within the project area and are either separated from the Proposed Action by more than 100 feet of upland vegetation or separated from the Proposed Action by a paved roadway (Table 3-14).

Of the five features within 100 feet of the Proposed Action, three features (VP2891, Sw3806, and SwN-VP1) could be protected from nearby fence installation activities using silt fence placed a minimum of 20 feet from the feature. The nearest construction activity to each of these would be installation of a six-foot-tall chain-link fence, with the greatest ground disturbance resulting from setting fence posts.

Of the two remaining features, N-VP3 (0.01 acres) would be subject to direct impacts, as it is within the footprint of both the solar array installation and the re-routing of the water tower drainpipe. N-VP3 would be disturbed and filled because of the Proposed Action.

In addition, VP11119 would be subject to indirect impacts. While VP11119 would be protected using silt fence, the feature is close enough (19.4 feet) to the ground disturbing activities associated with expanding an existing switchyard that some sedimentation resulting from the project is likely. Although the switchyard expansion would include footings to support a perimeter CMU wall, the footings (3 feet deep) would not penetrate the hardpan nor alter subsurface hydrology.

Future indirect impacts could come from routine maintenance to clean and repair the solar arrays, as well as mowing/weed eating. Proper timing of this maintenance — during the summer months when vernal pools are dry and most grassland plants are dormant — should minimize any damaging effects to nectar sources. Ideally, the site would primarily be maintained using

weed-whacking, with limited mowing. As long as it does not increase the fire risk, this would allow workers to trim vegetation to 7–8 inches high, which would allow some low-growing late-season blooms to remain.

There is the potential for long-term indirect effects to vernal pool species from increased runoff and erosion from the site. However, with the implementation of AMMs specifying native plants be used as ground cover, the long-term erosion and runoff risk would be minimal. If emergency maintenance or repair is required during the wet season, access routes, and AMMs would be determined by the NRM or qualified biologist.

The following AMMS (Appendix C) apply to this Project:

- Install Perimeter Fence: GM-1 through GM-11, GM-13, GM-14, GM-16 through GM-27, VP-1 through VP-3, and MB-1 through MB-6.
- Construct Solar Array: GM-1 through GM-14, GM-16 through GM-32, VP-1 through VP-3, and MB-1 through MB-6.
- Re-route Water Tower Drainage: GM-1 through GM-32, VP-1 through VP-3, and MB-1 through MB-6.
- Switchyard Expansion: GM-1 through GM-32, VP-1 through VP-3, and MB-1 through MB-6.

1 **Table 3-14: Impacts and Determination Justification for Wetland Features within 250 ft of Proposed Action.**

ID	Wetland Type	Distance to Proposed Action (ft)	Acreage	Relative Elevation	Branchiopod Habitat	Direct Impacts	Indirect Impacts	Justification
Compensation and or Protection Required								
N-VP3	Vernal Pool	0	0.01	Equal	Y	0.01	N/A	This feature is low quality habitat that has developed at the water tower drain outlet. N-VP3 would be filled in to accommodate the solar array.
11119	Vernal Pool	19.4	0.004	Lower	Y	N/A	0.004	Small, isolated vernal pool northwest of the Proposed Action. Lower than Proposed Action, but not hydrologically connected to other wetland features. This feature would be protected using silt fence but could be subject to indirect impacts.
VP2891	Vernal Pool	34.1	0.29	Lower	Y	N/A	N/A	Silt fence will be placed a minimum of 20 feet from this feature to protect from potential impacts. The only work within 50 feet of this feature would be fence installation.
N-VP1	Swale	54.1	0.078	Lower	Y	N/A	N/A	The nearest construction activity (fence installation) would be more than 50 feet from this feature. BMP's will be placed a minimum of 20 feet from this feature to protect from potential impacts (Conservation Measure WVP #2).
3806	Swale	56.1	0.82	Lower	Y	N/A	N/A	Large swale that acts as the main drainage for the vernal pool/swale complex east of the Proposed Action. The nearest construction activity (fence installation) would be more than 50 feet from this feature. BMP's will be placed a minimum of 20 feet from this feature to protect from potential impacts (Conservation Measure WVP #2).
No Compensation or Protection Required								
1524	Ditch	0	0.06	Equal	N	N/A	N/A	Man-made ditch within Proposed Action through which outflow pipe would be extended. Some facultative wetland plants present, but no obligate species, mixed with upland vegetation. Slope of ditch such that potential for ponding is limited.
N-SW1	Swale	0	0.003	Equal	N	N/A	N/A	This feature would be impacted by the proposed action but does not retain water long enough to be branchiopod habitat.
N-SW2	Swale	0	0.001	Equal	N	N/A	N/A	This feature would be impacted by the proposed action but does not retain water long enough to be branchiopod habitat.

ID	Wetland Type	Distance to Proposed Action (ft)	Acres	Relative Elevation	Branchiopod Habitat	Direct Impacts	Indirect Impacts	Justification
N-SW3	Swale	0	0.007	Equal	N	N/A	N/A	This feature would be impacted by the proposed action but does not retain water long enough to be branchiopod habitat.
N-SW4	Swale	0	0.01	Equal	N	N/A	N/A	This feature would be impacted by the proposed action but does not retain water long enough to be branchiopod habitat.
594	Ditch	41	0.07	Lower	N	N/A	N/A	Located across Doolittle Dr. from Proposed Action. Shallow drainage ditch on the edge of road, west of the Proposed Action. Does not support vernal pool hydrology or flora.
596	Ditch	94.4	0.4	Lower	N	N/A	N/A	Located across Grumman Avenue. from the Project Area. Shallow drainage ditch that drains into Sw3705. Does not support vernal pool hydrology or flora.
3705	Swale	101.8	0.008	Lower	Y	N/A	N/A	Small swale that is a part of the vernal pool/swale complex southeast of the Proposed Action. This feature is separated from the nearest activity (fence installation) by more than 100 feet of upland vegetation.
591	Ditch	111	0.04	Lower	N	N/A	N/A	Located across Doolittle Dr. from Proposed Action. Shallow drainage ditch on the edge of road, west of the Proposed Action. Does not support vernal pool hydrology or flora.
8636	Vernal Pool	113.6	0.03	Lower	Y	N/A	N/A	Moderate-sized vernal pool that is part of the vernal pool/swale complex east of the Proposed Action. This feature is separated from the nearest activity (fence installation) by more than 100 feet of upland vegetation.
3750	Swale	114.7	0.02	Lower	Y	N/A	N/A	Small swale that is part of the vernal pool/swale complex east of the Proposed Action. This feature is separated from the nearest activity (fence installation) by more than 100 feet of upland vegetation.
833	Ditch	118.2	0.08	Lower	N	N/A	N/A	Shallow drainage ditch that drains into Sw3705. Does not support vernal pool hydrology or flora.
3690	Swale	129.7	0.02	Lower	Y	N/A	N/A	Small swale that is a part of the vernal pool/swale complex south of the Proposed Action across Grumman Avenue. This feature is separated from the nearest activity (fence installation) by a paved roadway.

1 **Note:** Features beyond 150 ft are only included if hydrologically connected to impacted features, or if impacts are not avoidable.

1 Conclusion and Compensation

2 The Proposed Action has limited potential for short-term impacts to nectar sources that could be
3 used by monarch butterflies. Any short-term impacts would be offset through restoration of the
4 project area using a seed mix designed for pollinators (AMMs: GM-12 and MB-3).

5 The Proposed Action would have both direct and indirect impacts on federally listed vernal pool
6 species habitat (Table 3-15, Figure 3-5).

7 Beale AFB proposes mitigation compensation based on wetland location and impact type (Table
8 3-15). Mitigation for wetland features that provide habitat to VPFS and VPTS will be at a ratio
9 of 3:1 for direct impacts and 1:1 for indirect impacts. Prior to project initiation, mitigation will be
10 compensated using Beale AFB on-site designated preservation acreage.

1 **Table 3-15: Summary of Impacts on Branchiopod Habitat and Compensation associated with the Proposed Action, Beale Air**
 2 **Force Base, California.**

Project	Implementation Date	In BCRA?	Direct Impacts on Suitable Habitat (acres)	Proposed Compensation for Direct Impacts: 3:1 ratio	Indirect Impacts on Suitable Habitat (acres)	Proposed Compensation for Indirect Impacts: 1:1 ratio	Total Proposed Compensation (acres)
Doolittle Power Station Repair/upgrade Project	May 2024	No	0.01	$0.01 \times 3 = 0.03$	0.004	0.004	0.034

3

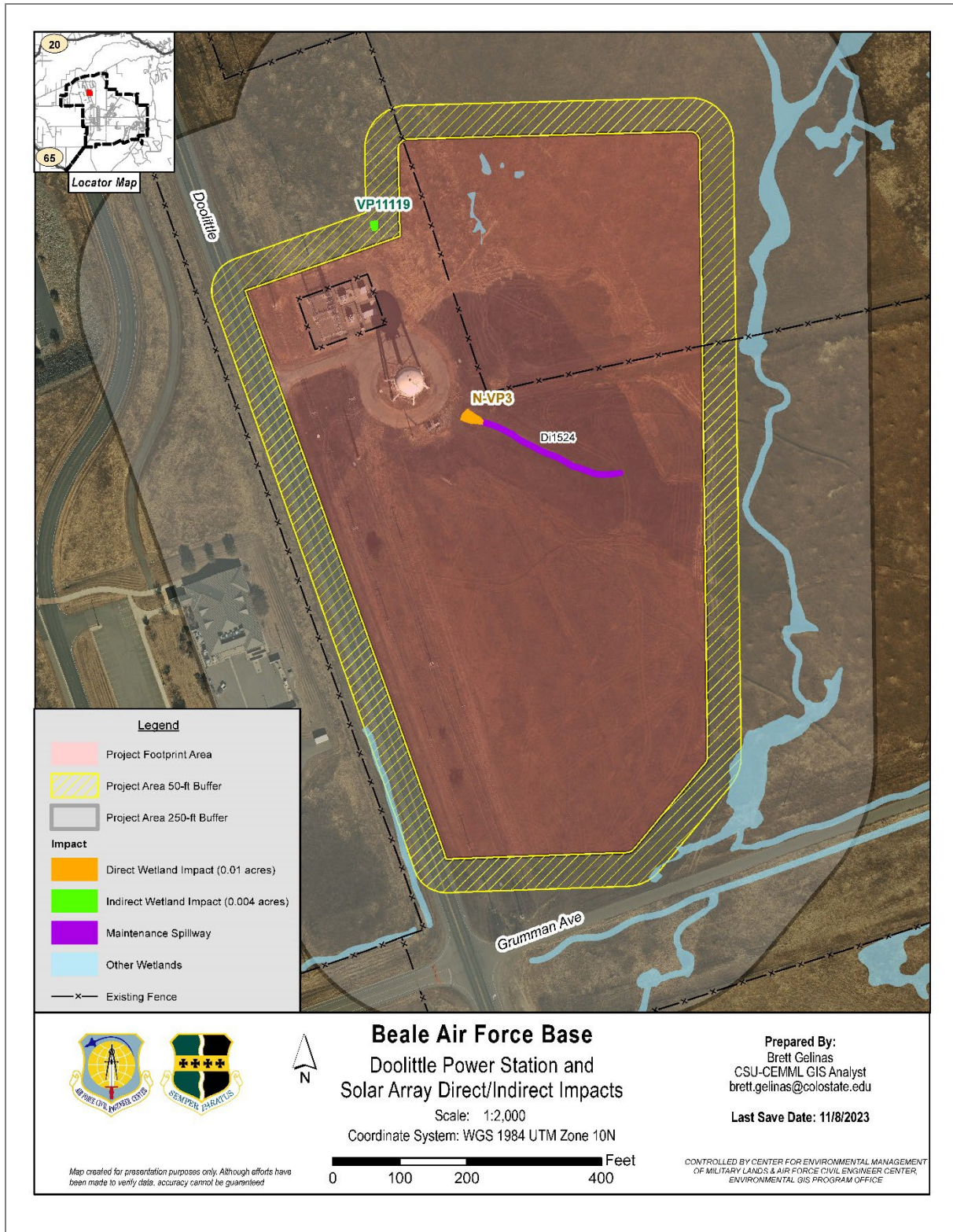


Figure 3-5: Impacts to ESA Listed Branchiopod Species Habitat Under the Proposed Action.

No Action Alternative

Under the No Action Alternative, the Doolittle Power Station would not be constructed. No impacts to threatened and endangered species would result from implementation of the No Action Alternative.

3.7 HAZARDOUS MATERIALS AND WASTES

3.7.1 Definition of the Resource

A hazardous substance, pursuant to CERCLA (42 U.S. C. 9601(14)), is defined as any substance designated pursuant to Section 1321(b)(2)(A) of Title 33; any element, compound, mixture, solution, or substance designated pursuant to Section 9602 of this title; any hazardous substance having the characteristics identified under or listed pursuant to Section 3001 of RCRA (42 U.S. Code 6921); any toxic pollutant listed under Section 1317(a) of Title 33; any hazardous air pollutant listed under Section 112 of the CAA; and any imminently hazardous chemical substance or mixture with respect to which the Administrator of the EPA has taken action pursuant to Section 2606 of Title 15. The term does not include petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance; and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas) [42 U.S.C. 6903(5)].

Hazardous materials are defined by 49 CFR Part 171.8 as “hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR Part 172.101), and materials that meet the defining criteria for hazard classes and divisions.” Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations within 49 CFR Parts 105–180. RCRA defines a hazardous waste as “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.”

Non-hazardous waste means any garbage or refuse, construction and demolition waste, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities. Non-hazardous waste may be excluded from hazardous waste regulations. It is important to note that the definition of solid waste is not limited to wastes that are physically solid. Many solid wastes are liquid, semi-solid, or contained gaseous material.

3.7.2 Existing Conditions

Hazardous Materials

Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*, establishes procedures and standards that govern management of hazardous materials throughout the U.S. Air Force (USAF). This direction applies to all USAF personnel who authorize, procure, issue, use, or dispose of hazardous materials, and those who manage, monitor, or track any of those activities. Under this regulation, the USAF has established roles, responsibilities, and requirements for the hazardous material management program. The purpose of the program is to control the procurement and use of hazardous materials to support USAF missions, ensure the safety and health of personnel and surrounding communities, minimize USAF dependence on hazardous materials, and maintain compliance with laws and regulations for hazardous material usage. The Base's Hazardous Material Management Plan (HMMP) applies to all hazardous materials brought onto Beale AFB.

Hazardous Waste

The Beale AFB Hazardous Waste Management Plan (HWMP) is required under Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*, and complies with 40 CFR Parts 260 to 272. It prescribes the roles and responsibilities of all members of Beale AFB and organization assigned to Beale AFB with respect to the waste stream inventory, waste analysis plan, hazardous waste management procedures, training, emergency response, and pollution prevention. The plan establishes procedures to comply with applicable federal, state, and local standards for solid waste and hazardous waste management. The plan outlines procedures for transport, storage, and disposal. The Hazardous Waste Stream Inventory is maintained as part of the Beale HWMP. Beale AFB is a permitted Large Quantity Generator of hazardous waste. The most common hazardous wastes generated at Beale AFB include waste oil, photographic waste, and contaminated wastewater.

3.7.3 Environmental Consequences

Proposed Action

Under the Proposed Action, the project would be installing two new 15MVA ONAF 60kV/12.47kV transformers to replace the two existing transformers, a new 6.25 MVA ONAF 12.47kV/480V transformer, 3 SF₆ switches, and a battery bank; potentially triggering State Hazardous Materials Business Planning rules. For hazardous waste purposes, waste solar panels (as of Jan 2021) are now identified as Universal Waste. If any panels are taken out of service or broken, they are to be dealt with as a Universal Waste.

The Beale AFB HWMP would be implemented if wastes are deemed hazardous. The plan establishes procedures to comply with applicable federal, state, and local standards for solid and hazardous waste management. The HMMP would also be implemented if hazardous materials are brought onto Beale AFB during the construction period (Beale AFB 2021a). The Integrated Solid Waste Management Plan would establish procedures for the recycling and disposal of non-hazardous wastes (Beale AFB 2020c).

The Proposed Action would require limited quantities of hazardous materials to be used and stored. These materials would include oils, lubricants, paints, solvents, degreasers and other

cleaners, and transformer mineral oil. Transformer mineral oil would be stored at the onsite substation; all other hazardous materials would be stored in offsite warehouses.

The Proposed Action may use solar panels that contain crystalline silicon or cadmium telluride (CdTe). Because crystalline silicon is in a solid and non-leachable state, crystalline silicon PV panels, including broken panels, would not be a source of pollution to surface water, stormwater, or groundwater. Also, it has been demonstrated that standard operation of CdTe PV systems does not result in cadmium emissions to air, water, or soil. If solar panels containing CdTe are used at the project site, CdTe releases would unlikely occur as a result of accidental damage to the crystalline silicon PV panels. Similarly, fire damage would not result in the release of CdTe.

Any hazardous materials used onsite would be stored in appropriate storage locations and containers. Flammable materials, such as paints and solvents, would be stored in nonflammable material storage cabinets with built-in containment sumps.

Even though hazardous wastes may be generated, and hazardous materials would be used, impacts would be short-term and negligible due to the implementation of the Beale AFB HWMP and HMMP.

No Action Alternative

Under the No Action Alternative, the Doolittle Power Station would not be constructed, and no hazardous materials or wastes would be generated. No impacts to hazardous materials or wastes are anticipated from implementation of the No Action Alternative.

3.8 INFRASTRUCTURE

3.8.1 Definition of Resource

Infrastructure is defined as the physical and organizational structures that enable operational, societal, and enterprise activities to occur. Such structures include buildings, roads, bridges, utilities, and more.

3.8.2 Existing Conditions

PG&E is currently the primary supplier of electrical power to Beale AFB. Power is delivered by three transmission lines to two metering points. These lines enter Beale AFB at the Grass Valley Substation. All substations, except for the Doolittle Substation, have two transformers each which are individually capable of supporting the full load of the substation.

The Global Hawk mission is located on the flight line with other buildings identified as critical by the installation. The primary power distribution sources for the flight line are circuits 5, 7, 8, 9. These circuits have a history of outages and need additional backup support. From 2010-2016 there were 87 outages on these circuits averaging 3 hours each. The outages totaled over 260 hours. The current backup system for Global Hawk consists of three 500kW backup generators with around 7 days of fuel storage. Actual backup capabilities fluctuate based on electrical load.

The existing Doolittle Substation (F1149) converts the 60kV transmission to 12.47kV for distribution via five feeders for all U-2 hangars, five mission control elements and one launch

and recovery element for the RQ-4, the KC-135 aircraft fuel dispensing network, all navigational aid facilities, the Munitions Area, and the water well field. The substation also provides power to the flight line fire department, air traffic control tower, all aircraft maintenance facilities, and to the airfield lighting. The flight line substation is a key component in the electrical infrastructure for ensuring mission resiliency in the event of a power outage due to a natural (or unnatural) disaster. The Doolittle Substation was constructed approximately 70 years ago and has exceeded its service life. Over a five-year span, 90.5 man-hours have been spent maintaining the substation. Last year, a scheduled outage required generator support for an additional 85 hours. The layout of the substation is not designed to allow for maintenance while it is shut off. The overhead bus work is lower than required by the National Electric Safety Codes & the Institute of Electrical & Electronics Engineers (which is a safety risk), the high voltage switchgear is located outside, and there is no switching capability to reroute power for transformer maintenance — the only way to perform maintenance on the substation equipment is to shut power off completely.

Drinking water is supplied by seven on-base wells, which draw from local groundwater sources. The wells are in the Well Fields sub-district of the district, approximately two miles west of the Flightline. The wells convey water to the base water treatment plant, from which treated water is ultimately distributed to four service areas or pressure zones on the base. The Airfield District has its own water pressure zone (Flightline Pressure Zone). The base typically runs only three or four of the wells at any given time. According to the 2012 Natural Infrastructure Assessment Report (Beale 2012), the wells are capable of drawing 5.76 million gallons per day (gpd).

The base has its own water treatment plant that has capacity to treat up to five million gpd. Peak water demand is approximately four million gpd which results in one million gpd of headroom. The Natural Infrastructure Assessment Report concluded that the water supply system for the base is adequate, with a distribution system capacity of 125 percent of peak demand (Beale 2012).

3.8.3 Environmental Consequences

Proposed Action

Under the Proposed Action, a short-term minor adverse impact to transportation in the form of increases traffic wait times is anticipated during the demolition and construction phases of the project. However, there would be no perceptible increase in vehicle traffic associated with the operation and maintenance of the Doolittle Power Station once completed.

Construction of a PV project and ancillary power control systems would replace some of the gas and electrical energy used on the installation with electricity produced by solar, thereby reducing the installation's reliance on fossil fuels. The Proposed Action may also improve energy security for the installation. On average, across the US, the capacity factor of solar is 24.5% (Freeing Energy, 2021). This means that solar panels will generate 24.5% of their potential output, assuming the sun shone perfectly brightly 24 hours a day. 2 MW of solar panels would generate 4,292 MWh of solar energy per year, although this value is impacted by the location of the array (how far north and amount of sun).

Increasing the capacity of the Doolittle Substation would provide the electrical support necessary to upgrade the high-altitude weapon systems infrastructure (2 MW), upsize the fuel hydrant system (0.5 MW), modernize the hangars (0.75 MW), expand munitions training (0.2 MW), and relocate the JP-8 fuel depot (0.2 MW). It also would enable enhanced interconnection to the national grid by allowing the use of dual 30 MW feeds, which would provide an increase of 60kV power to the entire installation. The Proposed Action would result in long-term and significantly beneficial impacts from the replacement of currently dilapidated electrical systems and associated infrastructure along with the introduction of new a new solar power source to provide energy resiliency to missions on base.

Water required for the Proposed Action would be for dust control associated with construction which would result in short-term, negligible adverse impacts to the water supply. Water would also be used to wash O&M equipment. Water would also be required for cleaning of the solar panels, but the amount would be negligible due to low frequency of maintenance. An existing water main crossing through the project footprint would be rerouted to be away from where the upgraded substation would be (Figure 2-1). The water main provides service to the MUNS; however, it's not the only source of water as the line is part of a loop which also connects MUNS to the main water distribution system at a point in the Flightline Area. Impacts to water utilities at MUNS are expected to be negligible and short-term while the water main is rerouted during the Proposed Action. Once the replacement water main is operational, water utilities would function as they currently do with no discernable difference.

The Proposed Action would have no impact on natural gas or wastewater systems as none of these systems are located within the project area.

No Action Alternative

Implementing the No Action Alternative would result in a long-term negligible, adverse impact on electricity utilities because of the continued use of power plants based on fossil fuel combustion. The existing water main would not be rerouted, and its service would not be temporarily impacted. There would be no change to other existing utilities under the No Action Alternative. A moderate, long-term adverse impact to infrastructure would be expected under the No Action Alternative due to the continued deterioration of existing infrastructure and electrical systems which puts the affected missions at risk for power outages.

3.9 CULTURAL RESOURCES

3.9.1 Definition of the Resource

Cultural resources is an “umbrella term” for many heritage-related resources, including Native American and historic sites, buildings, structures, districts, objects, or any other physical evidence of human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious, or any other reason. This section discusses project analysis of cultural resources under Federal statutes.

Federal Regulations

Several Federal laws and regulations govern protection of cultural resources, including the NHPA, the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), the Native American Graves Protection and Repatriation Act (1990), EO 13007 Indian Sacred Sites (1996), EO 11593 Protection and Enhancement of the Cultural Environment (1971), EO 13175 Consultation and Coordination with Indian Tribal Governments (2000) and EO 13287 Preserve America (2003). Cultural resources are commonly subdivided into archaeological resources (Native American or historic sites where human activity has left physical evidence of that activity, but no structures remain standing), architectural resources (buildings or other structures or groups of structures that are of historic architectural, or other significance), and traditional cultural resources (for example, traditional gathering areas).

The NHPA and its implementing regulations (36 CFR Part 800) require federal agencies to consult with stakeholders and federally recognized Indian tribes when an undertaking has the potential to adversely affect properties of religious and/or cultural significance to Indian tribes. In addition, under Department of Defense Instruction 4710.02, *Interactions with Federally Recognized Tribes*, and DAFI 90-2002, *Air Force Interaction with Federally Recognized Tribes*, federally recognized tribes historically affiliated with lands in the vicinity of proposed and alternative actions have been invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes.

The NHPA defines historic properties as properties eligible for or listed in the NRHP. The NRHP is the official listing of properties significant in U.S. history, architecture, or prehistory, and includes both publicly and privately owned properties. The NRHP list is administered by the National Park Service. Historic properties might be buildings, structures, Native American or historic archaeological sites, districts, or objects that are generally 50 years of age or older, are historically significant, and that retain integrity that conveys this significance. More recent resources, such as Cold War-era buildings, might warrant listing if they have the potential to gain significance in the future or if they meet “exceptional” significance criteria.

Section 106 of the NHPA requires agencies to consider the effect of their undertakings on properties listed in or eligible for listing in the NRHP and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking.

3.9.2 Existing Conditions

Beale AFB submitted a consultation package with a survey, a NRHP eligibility determination, and a determination on the area of potential effects, to the California SHPO for review and concurrence in January 2021. The SHPO concurred with the APE definition, concurred that efforts to identify historic properties was adequate, concurred that the Doolittle Water Tower and the Doolittle Electrical Substation are not eligible for NRHP inclusion, and concurs that a finding of no historic properties affected is appropriate pursuant to 36 CFR Part 800.4 (Appendix F). The SHPO also requested that Beale AFB notify the SHPO of any issues or substantive comments resulting from consultation with tribal partners.

Beale AFB has initiated consultation with the Nisenan and Maidu descendants of the region’s indigenous populations. Specifically, this includes the Enterprise Rancheria, Shingle Springs

Rancheria, Berry Creek Rancheria, Mooretown Rancheria, and United Auburn Indian Community. All these tribes are federally recognized. Additionally, Beale AFB's common practice is to consult non-federally recognized groups and interested parties. All consultation to Beale AFB's Native American partners was initiated via U.S. Mail in January 2021, and follow-up emails and telephone call communications were placed in January 2021. Letters to these communities, a contact record, and responses are included in Appendix F, Native American Consultations. United Auburn Indian Community stated no known resources are located in the area of potential effects but may exist in the vicinity. Requested to be informed of any findings, Mooretown Rancheria stated no awareness of any known cultural resources on this site and to contact them if tribal cultural items or Native American human remains are found. Shingle Springs Rancheria, stated no awareness of cultural resources in the area, however, would like continued consultation through updates, as the project progresses. Shingle Springs Rancheria also requested any and all completed record searches and surveys done for the project and to be informed about new information or human remains found during the project. Strawberry Valley Rancheria stated that no comments or questions came up after information had been circulated. Colfax-Todds Valley Consolidated Tribe stated unaware of any cultural resources in the area.

3.9.3 Environmental Consequences

Proposed Action

A cultural resources pedestrian survey was conducted on November 2020 which covered the developed and undeveloped areas where the 9.5-acre 2 MW PV array and new Doolittle Substation are proposed. With the current investigation, the aforementioned Doolittle Water Tower (Tower) and Doolittle Substation (Substation) were determined to have now achieved 50-years of age and are therefore treated as cultural resources. The Tower (constructed prior to 1964) and Substation (constructed in 1966) date to the Cold War era of development at Beale AFB. The substation would be demolished for this project. These historic resources have been evaluated and were determined ineligible for listing in the NRHP (Appendix F). These facilities need not be considered further. Through consultation under Section 106 with Beale AFB Native American partners, there are no known prehistoric sites or Native American Traditional Cultural Properties (TCPs) (Appendix F). With implementation of protective measures (AMMs CR-1–4 in Appendix C), the Proposed Action would not impact cultural resources.

No Action Alternative

Under the No Action Alternative, the Doolittle Power Station Repair & Upgrade project would not be constructed. There would be no excavation that could potentially damage a known or unknown archaeological site and no historic structures would be changed/impacted. As such, there would be no impact to cultural resources.

3.10 PUBLIC HEALTH AND SAFETY

3.10.1 Definition of the Resource

Public health and safety refers to measures and initiatives undertaken by governments, organizations, and communities to protect and promote the health and well-being of the general

population. It involves a range of activities, such as disease prevention, health promotion, environmental protection, emergency preparedness, and injury prevention. Public health and safety efforts aim to identify and address health risks and hazards in the community, implement policies and regulations to mitigate these risks, and promote behaviors and practices that contribute to overall health and safety for everyone.

The Occupational Safety and Health Act requires employers to provide a workplace free from recognized hazards that cause, or are likely to cause, death or serious physical harm to employees. AFI 91-202, *The US Air Force Mishap Prevention Program* implements these safety and health requirements for personnel and contractors conducting activities on USAF bases.

3.10.2 Existing Conditions

Current health and safety considerations at the project location are from high voltage concerns associated with the existing Doolittle Substation. No other known environmental contamination exists at the site and there are no PV panels currently installed at this location.

3.10.3 Environmental Consequences

Proposed Action

Construction activities associated with the Proposed Action would meet all applicable protocols, standards, controls, and measures to minimize safety and health risks to construction workers.

The Proposed Action would not pose an operational safety risk to the military mission of Beale AFB. As necessary, construction activities would be de-conflicted with other activities on the Base. Safety risks to or from military activities taking place concurrently with the Proposed Action would be manageable under established protocols and procedures. Additionally, the Proposed Action was designed to be outside of any quantity-distance (QD) arcs. Proper execution of safety & occupational health BMPs would result in no adverse impacts during construction if they're effectively carried out.

Operation/maintenance of the new Doolittle Substation would pose the same risks as those from the existing substation. Continued adherence to the existing standard protocols would preclude any additional impacts from operation/maintenance of the new substation.

Risks associated with PV array maintenance would be negligible because PV arrays are benign systems with no moving parts. Further, the frequency of unsafe electrical maintenance would be reduced which would result in long-term, minor indirect beneficial impacts to maintenance personnel safety.

No Action Alternative

Under the No Action Alternative, the Doolittle Power Station Repair & Upgrade project would not be constructed and there would be no change to current public health and safety.

3.11 NOISE

3.11.1 Definition of the Resource

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and interferes with or disrupts normal activities. The effects of noise on people can be grouped into four general categories:

- Subjective effects (dissatisfaction, annoyance);
- Interference effects (communication, sleep, and learning interference);
- Physiological effects (startle response); and
- Physical effects (hearing loss).

The Noise Control Act of 1972 (42 U.S.C. § 4901 et seq.) established a national policy to promote an environment for all Americans free from noise that jeopardizes their health and welfare. The Act also serves to (1) establish a means for effective coordination of federal research and activities in noise control; (2) authorize the establishment of federal noise emission standards for products distributed in commerce; and (3) provide information to the public respecting the noise emission and noise reduction characteristics of such products.

While primary responsibility for control of noise rests with state and local governments, federal action is essential to deal with major noise sources in commerce, control of which requires national uniformity of treatment. USEPA is directed by Congress to coordinate the programs of all federal agencies relating to noise research and noise control.

AFI 48-127, *Occupational Noise and Hearing Conservation Program* administers the Air Force Hearing Conservation Program to prevent occupational illness and injuries under federal and DoD references. The Air Force Hearing Conservation Program is a component of the Occupational and Environmental Health Program and is a command-driven program designed to reduce or eliminate hazardous noise exposure to workers and protect workers from the harmful effects of hazardous noise, while enhancing combat and operational capabilities. All DAF Active Duty, Reserve, and National Guard military and civilian personnel (including Reserve technicians and Reserve Component military Reserve technicians) are covered by this instruction. Contractors must comply with state and federal noise standards and are exempt from compliance with this instruction.

Occupational Safety and Health Administration (OSHA). Section 1910.95 Occupational Noise Exposure: Protection against the effects of noise exposure shall be provided when the sound levels exceed 90 A-weighted decibels (dBA) when measured on the A scale of a standard sound level meter at slow response. Employers shall make hearing protectors available to all employees exposed to an 8-hour time-weighted average of 85 decibels (dB) or greater at no cost to the employees. Hearing protectors shall be replaced as necessary.

3.11.2 Existing Conditions

Noise from Beale AFB operations has been measured and mapped through Air Installation Compatible Use Zones (AICUZ) planning studies. The most recent Beale AFB AICUZ study was conducted in 2020. Most areas within 0.85 mile of the Beale AFB airstrip have a community noise equivalent level (CNEL) of 60 dBA or greater (Beale AFB 2020d). The 60 dB CNEL contour extends beyond the northern boundary of the installation approximately 2.2 miles to the

northwest, within unincorporated areas of Yuba County. It also extends approximately 0.6 mile beyond the western boundary of the installation south of North Beale Road in unincorporated areas of the county. The 65 dB CNEL contour extends beyond the installation boundary approximately 1.9 miles to the northwest and 0.4 mile to the west, within unincorporated Yuba County. Approximately 1,456 acres and 66 people off the installation would be exposed to a minimum of 60 dB CNEL noise zones, with approximately 97% of this acreage and population located within the 60-64 dB CNEL and 65-69 dB CNEL noise zones. Less than 50 acres and approximately two people would be in the 70-74 dB CNEL noise zone. (Beale AFB 2020d)

Ambient/background noise sources in the vicinity of the Project site are primarily vehicle traffic, military aircraft, and bioacoustic noise from wildlife such as birds, rabbits, and grasshoppers.

3.11.3 Environmental Consequences

Proposed Action

Under the Proposed Action, construction-related noise is anticipated to be short-term and would only take place during daylight hours (sunrise to sunset), when higher sound levels are more tolerable. The primary noise sensitive receptor for the Proposed Action would be the construction workers. Construction workers would use properly fitted earplugs or muffs which would reduce noise by 15 to 30 dBA for the construction workers. Noise attenuates by 6 dBA at each doubling of the distance away from the source. For example, if the source is 85 dBA 50 feet away, it would be expected to be 79 dBA at 100 feet away and 73 dBA at 200 feet away. Considering that the noise level at the project site during construction would be reduced below 90 dBA (OSHA threshold) with the use of hearing protectors and the construction phase would be short-term, it is anticipated that noise produced by the Proposed Action during construction would have a negligible impact to construction workers.

Construction-related noise is anticipated to be short-term and would only take place during daylight hours (sunrise to sunset), when higher sound levels are more tolerable. As shown in Table 3-16, the average noise levels at 50 feet for typical equipment would range up to 89 dBA for the type of equipment normally used for this type of project. The closest receptor not related to the Proposed Action is the personnel working inside B11603 which is approximately 250 feet east of the Proposed Action. Accounting for noise attenuation, B11603 personnel would be exposed to noise up to 75 dBA. Considering hearing loss only starts after being exposed to +85 dBA for more than 8 hours, B11603 personnel would not be subject to potentially damaging noise but it could be considered a nuisance for these personnel. Coupled with the fact that noise attenuates even more once inside a building due to masonry (i.e., where B11603 personnel normally work), construction noise from the Proposed Action would be short-term, intermittent, and mostly indiscernible to B11603 personnel. As such, the Proposed Action would result in short-term, intermittent, minor adverse noise impacts during construction.

1 **Table 3-16: Construction Equipment Noise Emission Levels**

Equipment	Typical Sound Level (dBA) 50 Feet from Source
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
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Pneumatic Tool	85
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Truck	88
<i>Source: FTA 2006.</i>	

2 Operation of the PV array would not create any discernible noise while operation of the new
3 Doolittle Substation would be consistent with levels currently emitted by the existing substation.
4 Therefore, the Proposed Action would have no noise impacts associated with operations.

5 **No Action Alternative**

6 Under the No Action Alternative, the Doolittle Power Station would not be constructed and no
7 noise would be generated.

4.0 CUMULATIVE AND OTHER IMPACTS

4.1 CUMULATIVE IMPACTS / MANDATORY FINDINGS OF SIGNIFICANCE

The CEQ regulations stipulate the cumulative effects analysis is an essential component of NEPA analysis, as it allows agencies and the public to understand how the incremental impacts of a proposed action contribute to cumulative environmental problems. Cumulative effects, which are effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR 1508.1(g)(3)).

To identify cumulative effects, the analysis needs to address two questions:

1. Does a relationship exist such that affected resource areas of the Proposed Action or alternatives might interact with the affected resource areas or past, present, or reasonably foreseeable actions?
2. If such a relationship exists, does an EA or an EIS reveal any potential significant impacts not identified when the Proposed Action is considered alone?

The scope of the cumulative effects analysis involves both timeframe and geographic extent in which effects could be expected to occur, and a description of what resources could potentially be cumulatively impacted. For the purposes of this analysis, the temporal span of the Proposed Action would be 1 to 2 years, which would encompass removal/replacement of the existing substation and construction of a new PV array. For most resources, the spatial areas for consideration of cumulative impacts were confined to the Limits of Disturbance depicted in Figure 2-1, though a larger area was considered for some resources (e.g., air quality).

4.1.1 Past, Present, and Reasonably Foreseeable Actions

No non-DAF actions were identified for cumulative impact analysis. Below is a list of past, present, and reasonably foreseeable actions that have the potential for cumulative impacts when accounting for the impacts analyzed within this EA:

Beale- WAPA Interconnection Project (BWIP)

This project intends to interconnect with WAPA's existing Cottonwood-Roseville line to provide Beale AFB with an electricity supply that would support their current and future missions. The project totals approximately 4.3 miles of transmission line; approximately 0.9 mile located off Beale AFB and 3.4 miles on Beale AFB. It would also consist of approximately 1.8 miles of overhead installation (0.9 mile off Beale AFB and 0.9 mile on Beale AFB) and 2.5 miles of underground installation (all within Beale AFB boundaries). A new 7-acre substation and switchyard would be constructed north of the Flightline and would be owned, maintained, and operated by WAPA. The underground portion involving the 60 kV line is along the eastern side

of Doolittle Dr and would connect to the work being performed under the Doolittle Power Station Repair and Upgrade project once it is executed. This project is currently in construction.

9th Physiological Support Squadron Building Storm Drainage System Project (B1029 Storm Drainage Project)

This project would repair the upstream storm drainage system to correct issues that lead to clogging and subsequent flooding of Building 1029. This drainage system is located south of the Grumman Ave drainage which is connected to the Proposed Action. This project is expected to begin in 2025.

New Flightline Fitness Center

This project would construct an 80,729-gross-square-foot physical fitness center to meet the Air Force Joint Chiefs of Staff physical fitness requirements in the Flightline area. The fitness center would be sited in the southwestern quadrant of Doolittle Dr/Grumman Ave intersection which is directly kitty-corner from the Proposed Action. This project is expected to begin in 2027.

AT&T FIRST NET Antenna Panel on Water Tower B1150

AT&T FIRST NET would provide a dedicated frequency for emergency telecommunications. This project would add antenna panels to the existing water tower counter siding Verizon's current broadband antennas on the handrail of the elevated tank. It would also construct a 600-square-foot ground equipment area on the southeastern side. This project is located within the water tower footprint that exists within the Proposed Action's boundary. This project is expected to begin in mid-2024.

4.1.2 Assessment of Cumulative Impacts by Resource

Air Quality— Use of construction equipment and vehicles during the construction of the Proposed Action, BWIP, B1029 Storm Drainage Project, and New Flightline Fitness Center would all result in emission of criteria air pollutants. ACAM was ran for the BWIP under the BWIP EA and for B1029 Storm Drainage Project & New Flightline Fitness Center under the Flightline IDP EA — their cumulative total didn't exceed the de minimis limits. The highest cumulative value was PM₁₀ which would be significantly reduced through effective BMPs (e.g., fugitive dust control). Additionally, each project is temporally separate from the Proposed Action, bar the BWIP. Therefore, no long-term adverse cumulative impacts are anticipated. Furthermore, reduction in the reliance of fuel powered generators due to solar generation would result in beneficial cumulative effects to air quality and greenhouse gasses.

Soils and Geology – Under the Proposed Action, the construction of the PV array and substation could create short-term, minor, adverse impacts to soils. When these impacts are considered as a compound to similar impacts created by other past, present, and reasonably foreseeable future actions they are not cumulatively significant as none of the actions involved would remove a significant amount of soil and most of the soil being disturbed would be revegetated and have its original contours returned to the baseline.

Water Resources – Under the Proposed Action, the construction of additional impermeable surfaces and disturbance of the site’s existing drainage pattern could lead to erosion, siltation, or flooding onsite or offsite. This could cause a cumulative impact to water resources when combined with the work described within both the B1029 Storm Drain project and the New Flightline Fitness Center project. However, with the implementation of Project Design Criteria and following the SWPPP, the cumulative adverse impact from these projects on water quality would be minor. The New Flightline Fitness Center would cause the lion’s share of these impacts due to its entire footprint equating to the amount of new impermeable surfaces — the other two projects would add a comparably marginal fraction of impermeable surfaces. Runoff generated from the new impermeable surfaces created by the New Flightline Fitness Center would drain into a separate system than that of the Doolittle Power Station, thereby making impacts isolated when comparing both projects.

Biological Resources – There are three other projects expected to occur within the vicinity of the Proposed Action that may also affect listed species. The BWIP, B1029 Storm Drainage Project, and the New Flightline Fitness Center.

The BWIP is a large project that includes the installation of an electrical transmission line with portions aboveground and underground, and a substation on Beale AFB to allow access to power from an existing WAPA transmission line located west of the Base. The new line ends at a manhole in Doolittle Drive adjacent to the Proposed Action. The BWIP has already received a biological opinion from the USFWS (USFWS 2020b) and the portion of the project adjacent to the Proposed Action is not expected to adversely impact listed species.

The B1029 Storm Drainage project involves the repair of a culvert headwall and storm drainage basin downstream of the wetland complex adjacent to the Proposed Action, to prevent catastrophic flooding of nearby structures. Estimated ESA habitat impacts from this project include direct effects (0.11 acres) to all or portions of two aquatic features (SW3601 and VP2806), as well as indirect effects (0.87 acres) to one feature (VP8397). Prior to initiation of this project, these features would be mitigated at different ratios depending on type of habitat impact i.e., 3:1 for direct effects and 1:1 for indirect effects. Total compensation is estimated to be 6.79 acres. Due to compensatory mitigation and associated ratio requirements implemented by both the Doolittle Power Station and B1029 Storm Drainage projects, the cumulative impacts to biological resources — ESA listed branchiopod habitat, specifically — would not be significant.

The New Flightline Fitness Center involves the construction of an 80,729-gross-square-foot physical fitness center in the grassland directly southwest of the Proposed Action.

Impacts from the four projects within the vicinity of the Proposed Action are not expected to result in any adverse impacts to listed species or their habitats and therefore would not cumulatively add to the impacts of the Proposed Action.

Removal of existing vegetation during construction for all projects would result in adverse cumulative impacts to vegetation. However, the BWIP, B1029 Storm Drain Project, and Proposed Action all intend on reseeding disturbed vegetation with a native seed mix after construction has concluded which would result in beneficial impacts that would effectively

mitigate previous impacts imposed by each project. Reseeding under the New Flightline Fitness Center project is not an option as its entire footprint would be new construction. However, the cumulative effects of all four projects would not be significant as the New Flightline Fitness Center would have the greatest weight of adverse impacts to vegetation which would be minor to moderate in effect. The four projects are also spatially separated to an extent that effects on vegetation from one to the other would be marginally connected.

Infrastructure – Short-term, negligible adverse impacts to electrical utilities associated with taking systems offline during construction under the Doolittle Power Station and BWIP projects would be phased in such a way that they wouldn't interplay with one another and wouldn't create cumulative adverse impacts.

Long-term beneficial impacts to electrical utilities are expected under the Proposed Action and the BWIP due to modernization and replacement of existing dilapidated utilities and associated infrastructure as well as increased resilience towards power outage events. Significant, long-term beneficial cumulative impacts to electrical utilities and infrastructure would be expected.

Hazardous Materials and Wastes – The Proposed Action and the BWIP would create short-term, negligible impacts to hazardous material and non-hazardous waste through the use of hazardous materials and the generation of solid wastes. Cumulative impacts are expected to be negligible.

Cultural Resources – The implementation of mitigation measures identified under the Proposed Action and the other four projects would help prevent significant impacts on any unknown cultural resources. Cumulative impacts to cultural resources would not be anticipated.

Public Health and Safety – Short-term adverse impacts to public health and safety would be expected during construction of all four projects due to inherent risks associated with construction activities. However, these impacts would not be cumulative as each project area would have separate contractors/personnel working on them and risks wouldn't be shared.

Long-term beneficial impacts would be expected with the improvement of electrical utility infrastructure under the Proposed Action and the BWIP which would lower the frequency of maintenance & repair events which are dangerous for personnel. The B1029 Storm Drain project would also cumulatively add to the long-term beneficial impacts by stopping flood waters from overtopping Doolittle Dr and putting motorists in danger. Additionally, the AT&T FIRST NET would provide a dedicated frequency for emergency telecommunications which would have long-term beneficial impacts to human health & safety across base.

Noise – During construction, noise at the Doolittle Power Station site would only constitute a minor localized increase in noise levels. All other nearby projects are far enough in distance that cumulative noise generation would be indiscernible from that of each individual project.

4.2 UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse effects would result from implementation of the Proposed Action:

Air Quality - The Proposed Action would result in negligible unavoidable impacts due to the use of construction equipment and travel along the access roads. Following completion of the proposed project, the air quality would fall to a level slightly lower than existing ambient levels due to a reduced reliance on generators for backup power.

Soils - The Proposed Action would result in minor adverse impacts to soils due to compaction from the use of construction vehicles. Impacts would also result from soil disturbance from the creation of the proposed access roads, excavation, and removal of vegetation. Although unavoidable, effects on soil at the proposed project site would not be considered significant or long-term.

Vegetation and Wildlife - The Proposed Action would result in unavoidable adverse effects to vegetation from the clearing of vegetation for construction, although these effects would be short-term as replacement of the vegetation would ensue once construction is completed. Some areas, however, won't be reseeded as paved surface shall replace them. This would result in a permanent loss of 0.7 acres of grassland and therefore a permanent loss of 0.7 acres of potential habitat for wildlife.

Threatened and Endangered Species – Adverse impacts to threatened and endangered species — specifically, branchiopod — habitat would be unavoidable due to capacity requirements of the solar array necessitating a specific arrangement and large number of solar panels near a substation. However, compensatory mitigation would be required for these impacted features and the degree of impacts would be reduced.

4.3 COMPATIBILITY OF PROPOSED ACTION AND ALTERNATIVES WITH THE FEDERAL, REGIONAL, STATE, AND LOCAL LAND USE PLANS, POLICIES, AND CONTROLS

The Proposed Action would be consistent with existing and future land uses. The Proposed Action would replace the existing substation with a new one and would construct a new photovoltaic solar array.

4.4 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The relationship between short-term uses and enhancement of long-term productivity from implementation of the Proposed Action is evaluated from the standpoint of short-term effects and long-term effects. Short-term effects would be those associated with the construction activities to construct the solar microgrid, battery storage, and replacement substation. The long-term enhancement of productivity would be those effects associated with mitigation of historical outages of the utility lines and a decreased reliance of fossil fuel generators.

The Proposed Action represents an enhancement of long-term productivity for operations at the Beale AFB. The negative effects of short-term operational changes during construction activities would be minor compared to the positive benefits from generation of renewable energy at Beale AFB. Immediate and long-term benefits would be realized for operation and maintenance after completion of the Proposed Action.

4.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

This EA identifies any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action if implemented. An irreversible effect results from the use or destruction of resources (e.g., energy) that cannot be replaced within a reasonable time. An irretrievable effect results from loss of resources (e.g., endangered species) that cannot be restored as a result of the Proposed Action. The short-term irreversible commitments of resources that would occur under the Proposed Action would include planning and engineering costs, building materials and supplies and their cost, use of energy resources during construction, labor, generation of fugitive dust emissions, and creation of short-term construction noise. Although the Proposed Action would result in permanent impacts to listed species habitat, these lost features would be mitigated with the intention of replacing them with much larger and higher quality features. However, avoidance of non-jurisdictional/non-ESA habitat wetlands was not possible due to no practical alternatives to the Proposed Action. As such, long-term irretrievable commitments of resources would result from the Proposed Action.

5.0 LIST OF PREPARERS AND REVIEWERS

This EA was prepared by the staff of the Beale AFB Environmental Element (9 CES/CEIE) and GIS support from the Colorado State University's Center for Environmental Management Military Lands (CEMML). The individuals who contributed to the preparation of this document are listed in Table 5-1 below.

Table 5-1: Contributors and Developers of the Doolittle Power Station Repair & Upgrade Project EA.

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1 **APPENDIX A CORRESPONDENCE AND COORDINATION**

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NATIVE AMERICAN CONTACTS

Native American Contacts

Enterprise Rancheria

Colfax-Todds Valley Consolidated Tribe

Mooretown Rancheria

United Auburn Indian Community

Strawberry Valley Rancheria

Konkow Valley Band of Maidu

Berry Creek Rancheria

Shingle Springs Rancheria

Butte Tribal Council

REPRESENTATIVE NATIVE AMERICAN IICEP LETTER



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Julia L. Riley
Environmental Element Chief
9 CES/CEIE
6425 B Street, Bldg. 25390
Beale AFB CA 95903-1616

JUN 23 2022

Mr. Francis Steele
Chairperson
Berry Creek Rancheria
5 Tyme Way
Oroville, CA 95966

Dear Mr. Steele

The United States Air Force (USAF) is in the process of preparing a Draft Environmental Assessment in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended; Council on Environmental Quality Regulations (40 Code of Federal Regulations 1500-1508); and USAF Environmental Impact Analysis Process (32 Code of Federal Regulations Part 989).

Under the Proposed Action, the USAF is seeking to demolish the existing Doolittle Electrical Substation and replace it with a new electrical substation and switchyard which would connect to the underground transmission line from Beale-Western Area Power Administration Interconnection Project (BWIP) to interface with new fiber lines. The Proposed Action also includes the construction of a new 9.5 acre 2 megawatt (MW) photovoltaic solar array field, and a 4 MW smart microgrid with battery energy storage system surrounded by chain-link security perimeter fencing on undeveloped land.

The Environmental Assessment will assess the environmental consequences of two alternative options for the Proposed Action: repairing and upgrading the Doolittle Power Station alternative and the No Action Alternative.

The USAF requests your input on the Proposed Action as part of the environmental assessment process with relevant agencies, property owners, and stakeholders. The USAF is contacting you to notify you of the Proposed Action and invites you to provide comments. This is the initial step in the NEPA review process, and a draft of the Environmental Assessment will be released once specific details on each Alternative have been developed.

This is separate from and in addition to government-to-government consultation offered under Section 106 of the National Historic Preservation Act (54 United States Code (U.S.C.) § 306108) and 36 Code of Federal Regulations (CFR) Part 800. The Section 106 consultation process for this project was initiated last year in January 2021 under the title "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project".

Please address all questions and comments to Mr. Chantz Risse, NEPA Program Manager, at (530) 634-9568, chantz.risse.1@us.af.mil, 9 CES/CEIE, 6425 B Street, Bldg. 25390, Beale AFB, CA 95903-1708.

Sincerely



JULIA L. RILEY, GS-13, DAF
Environmental Element Chief
9th Civil Engineer Squadron

AGENCY CONTACTS

FEDERAL CONTACTS

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Region 9 Director, Officer of Federal
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San Francisco, CA 94105

U.S. Army Corps of Engineers, Sacramento
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California/Nevada Operations Office
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Quality Control Board
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District 1 Supervisor
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Feather River Air Quality Management
District
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Yuba County Water Agency
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Marysville, CA 95901

REPRESENTATIVE AGENCY IICEP LETTER



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

JUN 23 2022

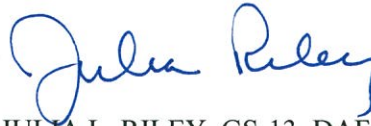
MEMORANDUM FOR CALIFORNIA AIR RESOURCES BOARD
AIR QUALITY AND TRANSPORTATION DIVISION
1001 I Street
P.O. Box 2815
Sacramento, CA 95812

FROM: 9 CES/CEIE
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

SUBJECT: Notification and Solicitation of Comments for Doolittle Power Station Repair & Upgrade Project on Beale Air Force Base, Yuba County, California

1. The United States Air Force (USAF) is in the process of preparing a Draft Environmental Assessment in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended; Council on Environmental Quality Regulations (40 Code of Federal Regulations 1500-1508); and USAF *Environmental Impact Analysis Process* (32 Code of Federal Regulations Part 989).
2. Under the Proposed Action, the USAF is seeking to demolish the existing Doolittle Substation and replace it with a new substation & switchyard which would connect to the underground transmission line from Beale-Western Area Power Administration Interconnection Project (BWIP) to interface with new fiber lines. The Proposed Action also includes the construction of a new 9.5 acre 2 megawatt (MW) photovoltaic solar array field, and a 4 MW smart microgrid with battery energy storage system surrounded by chain-link security perimeter fencing on undeveloped land.
3. The Environmental Assessment will assess the environmental consequences of two alternative options for the Proposed Action: repairing and upgrading the Doolittle Power Station alternative and the No Action Alternative.
4. The USAF requests your input on the Proposed Action as part of the consultation process with relevant agencies, property owners, and stakeholders. This process is formally referred to as the Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) process. Through this notice, the USAF is contacting you to notify you of the Proposed Action and to solicit comments. This is the initial step in the review process, and a draft of the Environmental Assessment will be released once specific details on each Alternative have been developed.

5. Please address all questions and comments to Mr. Chantz Risse, NEPA Program Manager, at (530) 634-9568, chantz.risse.1@us.af.mil, 9 CES/CEIE, 6425 B Street, Bldg. 25390, Beale AFB, CA 95903-1708.



JULIA L. RILEY, GS-13, DAF
Environmental Element Chief
9th Civil Engineer Squadron

RESPONSES TO IICEP NOTIFICATIONS



Mooretown Rancheria

#1 Alverda Drive

Oroville, CA 95966

(530) 533-3625 Office

(530) 533-3680 Fax

January 27, 2021

Ms. Tamara Gallentine
Cultural Resource Manager
9 CES/CEIEC
6425 B St., Bldg. 25390
Beale AFB, CA 95903-1708

Re: Proposed (MW Solar Photovoltaic Array) Project – Beale AFB. Yuba Co, CA.

Dear Ms. Gallentine:

Thank you for your letter dated, January 11, 2021, seeking information regarding the proposed Photovoltaic Array project in Yuba County, California. Based on the information provided, the Mooretown Rancheria is not aware of any known cultural resources on this site. However, as the project progresses, if any new information or human remains are found, we do have a process to protect such important and sacred artifacts (especially near rivers or streams).

Please contact the following individuals if tribal cultural items or Native American human remains are found:

THPO
Mooretown Rancheria
1 Alverda Drive
Oroville, CA 95966
(530) 533-3625 Office
(530) 533-3680 Fax
E-mail: matthew.hatcher@mooretown.org

Thank you for providing us with this notice and opportunity to comment.

Sincerely,

Matthew Hatcher
Tribal Historic Preservation Officer

"Concow - Maidu"

GALLENTE, TAMARA A GS-12 USAF ACC 9 CES/CEIEC

Subject: RE: Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project

Good morning,

Thank you for the notifications for the above referenced project. We appreciate the opportunity to consult and review the project. Our records show two cultural resources recorded in proximity to the project area but none that we are aware of that are in. If any are identified, even isolates, during the cultural study, please let us know immediately so we can discuss treatment.

Thank you,
Anna

The United Auburn Indian Community is now accepting electronic consultation request, project notifications, and requests for information! Please fill out and submit through our website. Do not mail hard copy letters or documents. <https://auburnrancheria.com/programs-services/tribal-preservation>



Anna M. Starkey, M.A., RPA
Cultural Regulatory Specialist
Tribal Historic Preservation Department | UAIC
10720 Indian Hill Road
Auburn, CA 95603
Direct line: (916) 251-1565 | Cell: (530) 863-6503
astarkey@auburnrancheria.com | www.auburnrancheria.com

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From: [Katie Solorio](#)
To: [GALLETINE, TAMARA A GS-12 USAF ACC 9 CES/CEIEC](#)
Cc: [Kara Perry](#)
Subject: [Non-DoD Source] Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid
Date: Tuesday, February 2, 2021 1:05:20 PM
Attachments: [Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid.pdf](#)

Good Afternoon,

Please see the response letter regarding the Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid. For any questions regarding this letter, please contact Site Protection Manager Kara Perry, who is copied on this e-mail.

Thank you,



Katie Solorio

Administrative Assistant
Cultural Resources Department

Phone: (530) 698-1555
Fax: (530) 558-2034
Email: KSolorio@ssband.org

Shingle Springs Band of Miwok Indians | P.O. Box 1340, Shingle Springs, CA 95682

SSBMI Disclaimer: This email (Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid) is from Shingle Springs Band of Miwok Indians: Cultural Resources Department and is intended for tamara.gallentine.2@us.af.mil. Any attachments thereto may contain private, confidential, and privileged material. Any review, copying, or distribution of this email (or any attachments thereto) by parties other than the Shingle Springs Band of Miwok Indians (and its affiliated departments or programs) or the intended recipient(s) is strictly prohibited. If you properly received this e-mail as an employee of the Shingle Springs Band of Miwok Indians, outside legal counsel or retained expert, you should maintain its contents in confidence in order to preserve the attorney-client or work product privilege that may be available to protect confidentiality.

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Shingle Springs Band of Miwok Indians

Shingle Springs Rancheria (Verona Tract), California

5281 Honpie Road • Placerville, CA 95667

(530) 698-1400 • shinglespringsrancheria.com

CULTURAL RESOURCES

February 1, 2021

Beale Air Force Base
Tamara Gallentine
6425 B St., Bldg. 25390
Beale AFB, CA 95903-1708

RE: Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid

Dear Tamara Gallentine,

Thank you for your letter dated January 11, 2021 in regard to the above mentioned project. Based on the information provided, the Shingle Springs Band Of Miwok Indians is not aware of any known cultural resources on this site. However, SSR would like to have continued consultation through updates, as the project progresses. This will foster a greater communication between the Tribe and your agency.

SSR would also like to request any and all completed record searches and or surveys that were done in or around the project area up to and including environmental, archaeological and cultural reports. If during the progress of the project new information or human remains are found, we would like to be able to go over our process with you to protect such important and sacred artifacts (especially near rivers and streams).

If such finds are made, please contact Kara Perry, Site Protection Manager, at (530) 488-4049 or kperry@ssband.org.

Thank you for providing us with this notice and opportunity to comment.

Sincerely,

Daniel Fonseca
Tribal Historic Preservation Officer (THPO)
Most Likely Descendant (MLD)

NOTICE OF EARLY PUBLIC REVIEW

PROOF OF PUBLICATION

APPEAL-DEMOCRAT

1530 Ellis Lake Drive, Marysville, CA 95901 * (530) 749-4700

STATE OF CALIFORNIA * Counties of Yuba and Sutter

I am not a party to, nor interested in the above entitled matter. I am the principal clerk of the printer and publisher of THE APPEAL-DEMOCRAT, a newspaper of general circulation, printed and published in the City of Marysville, County of Yuba, to which Newspaper has been adjudged a newspaper of general circulation by The Superior Court of the County of Yuba, State of California under the date of November 9, 1951, No. 11481, and County of Sutter to which Newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sutter, State of California under the date of May 17, 1999, Case No. CVPT99-0819. The Notice, of which the annexed is a copy, appeared in said newspaper on the following dates:

April 25 & 26, 2024

I declare under penalty of perjury that the foregoing is true and correct.

April 29, 2024

Kathy Lannethill

Date

Signature

Beale AFB 9CES/CEIEC

Notice Doolittle Power Station

COPY:

**NOTICE FOR EARLY PUBLIC REVIEW OF A PROPOSED ACTION
WITHIN WETLANDS UNITED STATES DEPARTMENT OF THE AIR FORCE
2024 Environmental Assessment for the Doolittle Power Station Repair &
Upgrade Project at Beale Air Force Base, CA**

The U.S. Department of the Air Force (DAF) invites public input on any practicable alternatives of a Proposed Action within wetlands at Beale Air Force Base (AFB), California. The Proposed Action would replace the existing Doolittle Substation and would construct a 9.5-acre photovoltaic solar array, a new smart microgrid, and a battery energy storage system which would provide electrical energy resiliency to critical systems at Beale AFB.

Wetlands are located where portions of the photovoltaic solar array and replacement substation would be constructed. Implementation of the Proposed Action would result in approximately 0.031 acres of direct and 0.004 indirect impacts to wetlands.

The DAF is performing supplemental environmental analysis in accordance with the National Environmental Policy Act (NEPA) and its implementing regulations. This early public notice is required by Executive Order 11990, Protection of Wetlands. The DAF prepared and made this notice available to the public in accordance with 32 CFR 989 and Air Force Manual 32-7003 for actions proposed within wetlands. Subsequent public notice required by NEPA will be made once the draft EA is available for review and comment.

Written comments and inquiries should be directed to 9 CES/CEIE, 6425 B Street, Bldg 25390, Beale AFB, CA 95903. Emailed comments can be submitted to chantz.risse.1@us.af.mil. Comments may also be submitted on the phone at (530) 634-9568.

TheAppeal

LOCAL

This page is dedicated to local community news, The Appeal contact information and our Calendar of Events. The calendar covers two days of events happening in Yuba, Sutter and Colusa counties.

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TAXES / From A1

Washington research group.

The high tax state moniker has clung to California for some time. Its top income tax rate and gasoline tax are routinely among the nation's highest each year recently, and officials in low-tax Texas and Florida are constantly blasting California for its tax burden.

For families with incomes of \$145,900 or less, though, the tax burden is close to or above the national average. And for the wealthiest people, California is clearly a high tax state.

Gov. Gavin Newsom has countered that it's wrong to paint California as a high tax state, noting that middle and lower class residents pay the same or less than Texans and people in Florida. Last year, he said California's tax rates "are lower than the state of Texas" adding that California's very wealthy do pay

higher rates than in other states.

ITEP, which conducted the new study, researched the impact of state and local taxes on families across the income spectrum in every state. It found that very few states can "neatly be categorized as low tax or high tax for families across the board."

"The highest earners usually pay higher taxes in California than elsewhere," wrote Eli Byerly-Duke, ITEP state policy analyst and Carl Davis, ITEP research director.

For families in the bottom 80% of the income scale—those with annual incomes of \$145,900 or less—overall tax rates are within a percentage point of the national average.

But as incomes grow, so does the tax burden.

The next 15% of income earners in California, or families with incomes between \$145,900 to \$352,300, will pay 10.8% of their income in taxes this year.

The U.S. average is 9.5%.

People can expect to pay less if they're residents of Texas, where the taxes are 7.2% of income, and Florida, 6.4%.

The difference is more stark among the top 1%, or those in California earning more than \$862,100.

The U.S. average is 7.2%. The rich Californians pay 12% of their income. That's partly because the top income tax rate in California for millionaires is 13.3%.

In Texas, the top 1% pay an average of 4.6% in taxes, while people in Florida pay 2.7%. Neither has a state income tax.

The news for Californians gets better for people making far less than the very rich. "California has lower taxes for its bottom 40% of earners than either Texas or Florida," the study says.

For lower and middle class wage earners, the biggest category of state and local taxes are consumption taxes, such as state and local sales taxes, and then property

tax on their homes and cars. In California, a smaller share of income goes to those taxes, as the income tax makes up most of their overall state and local payments.

The middle 20%, or those earning \$48,800 to \$86,100, pay 10.4% in taxes, roughly the same as the national average. That's still above Texas' 9.9% and Florida's 9.5%.

The bottom 20% of income earners, those making less than \$25,200, pay 11.7% in taxes in California, slightly higher than the U.S. average, but well below Texas' 12.8% and Florida's 13.2%.

WalletHub had similar findings last month. It reported that the annual state and local taxes for a median California household cost \$9,612.

A Californian's tax burden ranks ninth highest in the country. Texas is Texas' 32nd ranking and Florida is 45th. Tax burden is the property, individual income and sales and excise tax as a share of personal income.

TODAY IN HISTORY

Appeal Staff Report			
Ella Fitzgerald Ella Jane Fitzgerald was born on April 25, 1917, in Newport News, Virginia. She was one of the leading jazz singers of all time. In her lifetime, she won 13 Grammys — two from the first Grammy Awards in 1958 (best jazz individual and best female pop vocal performer). Her recordings have sold more than 40 million albums. <p>Fitzgerald's career began on Amateur Night at Harlem's Apollo Theater. She soon went on to sing with the Chick Webb orchestra and made her first recordings in 1935. After Webb's death in 1939, she led the band for about three years before launching out on her own.</p> <p>From the mid-1950s to the mid-1960s her career was managed by jazz impresario Norman Granz. During this time</p>	<p>Fitzgerald recorded a series of 19 albums and her inimitable style became nationally recognized. Granz also arranged for her to tour extensively and to work closely with the Oscar Peterson Trio.</p> <p>Fitzgerald's mastery of "scat," in which the singer improvises nonsense syllables to imitate a musical instrument, is heard throughout her recordings. Although the history of scatting may date back to West Africa, trumpeter Louis Armstrong made it popular in the U.S. When he accompanied blues singer Bessie Smith, for example, Armstrong used his trumpet to sound out vocalizations; conversely, Fitzgerald likened her voice to a musical instrument, a saxophone. Through recordings, concerts, and television appearances, both figures brought scat to a broad public</p>	<p>audience.</p> <p>Fitzgerald recorded hundreds of songs composed by great American lyricists such as Cole Porter, George Gershwin, Johnny Mercer, Irving Berlin, and Richard Rogers. She performed with many great musical talents of her day including Duke Ellington, Benny Goodman, and Dizzy Gillespie.</p>	<p>for independence.</p> <p>Within months, Spain's overseas empire, which had begun with Columbus's voyages of discovery, finally collapsed under the United States' two-pronged war strategy. Commodore George Dewey sailed to the Pacific the day war was declared. On May 1 the Spanish fleet was defeated in the Philippines. The U.S. Marines and other troops, including Teddy Roosevelt and the Rough Riders, helped defeat Spanish forces in the Americas.</p> <p>The U.S. and Spain signed a peace treaty in December 1898. Spain gave up its claims to Puerto Rico, Cuba, and Guam, and for \$20 million, transferred the Philippines to the U.S. The U.S. emerged from the war as a significant player on the world stage.</p>
		US declares war on Spain On April 25, 1898, the United States formally declared war against Spain. The Monroe Doctrine, which since 1823 had viewed any European intervention in the Americas as a threat to U.S. security, coupled with the sinking of the U.S.S. Maine in Havana harbor, precipitated U.S. engagement. Coverage by Hearst newspapers and the nascent film industry solidified public support for involvement in Cuba's struggle	Source: Library of Congress

POLICE BLOTTER

Appeal Staff Report			
DUI ARRESTS Geneva Williams, 60, of Yuba City, was arrested by the Yuba City Police Department at 2:16 a.m. April 23 at Butte House	Road and Howlett Road. She was booked into Sutter County Jail.	California Highway Patrol at 2:40 a.m. April 23 at STE 99 and Franklin Avenue. He was booked into Sutter County Jail.	River Drive, Rio Oso, was arrested by the California Highway Patrol at 9:48 a.m. April 23 at State Highway 99 north of Queens Avenue. He was booked into Sutter County Jail.
	Ryan Liesch, 32, of the 600 block of Main Street, Yuba City, was arrested by the	Jonathan Salinas-Nunez, 41, of the 3300 block of Bear	

CALENDAR of EVENTS

TODAY GOVERNMENT MEETINGS – Sutter County Board of Supervisors has a special meeting/study session at 6 p.m. at 1201 Civic Center Blvd., Yuba City. – Public Works/Support Services Committee has a standing meeting at 8:30 a.m. at 1160 Civic Center Blvd., STE. A, Yuba City. – Olivehurst Public Utility District has a meeting at 4:30 p.m. at 1970 9th Ave., Olivehurst.	 – First Five Story Time Tuesdays- Thursdays begins at 10 a.m. at the Yuba County Library. Story Time is a caregiver and child story time for children 0- to 5-years old. This month's theme will be on colors. Registration is required. – Local members of the Catholic Daughters of the Americas will hold its annual salad and potato bar fundraiser at 11 a.m. at the St. Joseph Catholic Church in Marysville.	4 p.m. at the Yuba County Library for anyone over six-years-old. Join us for this fun-filled event exploring the library while searching for hidden poems. Registration is required.
EVENTS	FRIDAY EVENTS – Poem Scavenger Hunt begins at	SUPPORT GROUP MEETINGS – Overeaters Anonymous (OA) has a face-to-face meeting at 5:30 p.m. at 1390 Franklin Road, Yuba City. For more information call Ellie S. at 530-635-3507.

We hope you find this daily calendar helpful. You can help by notifying us of any events that should be listed. Email us at ADnewsroom@appealdemocrat.com or call 749-6552.

NOTICE FOR EARLY PUBLIC REVIEW OF A PROPOSED ACTION
WITHIN WETLANDS UNITED STATES DEPARTMENT OF THE AIR FORCE
2024 Environmental Assessment for the Doolittle Power Station Repair & Upgrade Project at Beale Air Force Base, CA

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Written comments and inquiries should be directed to 9 CES/CEIE, 6425 B Street, Bldg 25390, Beale AFB, CA 95903. Emailed comments can be submitted to chantz.risse.1@us.af.mil. Comments may also be submitted on the phone at (530) 634-9568.

ONLINE POLL

WHAT DO YOU THINK?

If you could only listen to one album for the rest of your life, which would you choose?

☐ The Beatles: "Abbey Road"

☐ Fleetwood Mac: "Rumours"

☐ Michael Jackson: "Thriller"

☐ Nirvana: "Nevermind"

☐ Eminem, "The Marshall Mathers LP"

☐ Adele, "21"

☐ Other

To participate, go to appealdemocrat.com.

LOTTERY

The winning numbers from the California State Lottery on Tuesday:

MEGA Millions
11, 17, 33, 39, 43, 14

Fantasy 5
9, 24, 25, 28, 31

Daily 3
Afternoon – 4, 9, 4
Evening – 7, 5, 2

Daily 4
2, 3, 7, 6

Daily Derby
1st: 5 - California Classic
2nd: 1 - Gold Rush
3rd: 9 - Winning Spirit
Race time: 1:46.03



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TheAppeal

LOCAL

This page is dedicated to local community news, The Appeal contact information and our Calendar of Events. The calendar covers two days of events happening in Yuba, Sutter and Colusa counties.

CONTACT US



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TODAY IN HISTORY

Appeal Staff Report

Frederick Law Olmsted
Frederick Law Olmsted, America's foremost landscape architect of the 19th century, was born on April 26, 1822. Son of a well-to-do Hartford, Connecticut merchant, Olmsted spent much of his childhood enjoying rural New England scenery. Weakened eyesight due to illness forced him to abandon plans to attend Yale University. Instead, young Olmsted studied engineering and scientific farming, eventually putting his agricultural and managerial theories into practice on a Staten Island farm his father purchased for him.

A tour of England and the Continent inspired Olmsted's Walks and Talks of an American Farmer in England of 1852, and a new career in journalism. That year, the founding editor of the New-York Daily Times (soon renamed the New York Times), Henry J. Raymond, engaged Olmsted to report on conditions

in the slaveholding states. His articles were subsequently published as A Journey in the Seaboard Slave States (1856), A Journey through Texas (1857), A Journey in the Back Country (1860), and in a two-volume compilation of material from all three books, The Cotton Kingdom (1861). Olmsted's keen observations created the most complete contemporary portrait of the American South on the eve of the Civil War, wherein he concluded that slavery harmed the whole of Southern society.

By the late 1850s, a publishing house Olmsted joined had gone bankrupt, disappointing his hopes for a literary life. Encouraged to apply for the superintendency of New York City's nascent Central Park, Olmsted embarked on a new career that tapped his managerial skills and his knowledge of engineering and horticulture while providing an opportunity to recreate the beautiful landscapes he had seen at home and abroad.

Olmsted was engaged in clearing Central Park's 770-acre Manhattan site when architect Calvert Vaux suggested collaborating on a plan for the park's design competition. Their winning "Greensward" plan (1858) allowed New Yorkers to experience the beauty and benefits of the countryside without leaving the island city.

Creating such a pastoral landscape required shifting nearly 5 million cubic yards of earth and stone, blasting rock with 260 tons of gunpowder, and planting 270,000 trees and shrubs. First opened to visitors in 1859, when it was as yet very much under construction, Central Park today still offers vistas across the Sheep Meadow, strolling along wooded paths, climbing The Ramble, and people-watching on the terraces and promenades Olmsted and Vaux provided. The Greensward plan included innovative transverse roads that allowed cross-town traffic to pass through the park on lanes

constructed below grade. Ample but distinct pedestrian paths and carriage roads likewise allowed visitors to move through the landscape without fear of collision.

In 1863, Olmsted's renowned administrative abilities brought an opportunity to manage California's vast Mariposa Estate gold mines, formerly owned by John C. Frémont. Olmsted did not confine his activities to the Mariposa mines, however. When he was appointed one of the first commissioners for the land that eventually became Yosemite National Park, his task was to protect, rather than create, an exquisite natural setting. In his Draft of Preliminary Report upon the Yosemite and Big Tree Grove, Olmsted developed the idea that democratic governments are morally responsible for preserving extraordinary landscapes for the benefit of the people.

Source: Library of Congress

CALENDAR of EVENTS

TODAY EVENTS

– Poem Scavenger Hunt begins at 4 p.m. at the Yuba County Library for anyone over six-years-old. Join us for this fun-filled event exploring the library while searching for hidden poems. Registration is required.

SUPPORT GROUP MEETINGS

– Overeaters Anonymous (OA) has a face-to-face meeting at 5:30 p.m. at 1390 Franklin Road, Yuba City. For more information call Ellie S. at 530-635-3507.

SATURDAY EVENTS

– The Rotary Club of Yuba City District Speech Contest semifinal is set for 9 a.m. at the Sutter Theater Center for the Arts, 754 Plumas St., Yuba City. It's free admission and will feature contestants giving speeches with the theme "Create Hope in the World." The contest will be judged with winners earning a spot in the finals May 18 in Reno.

– A gold rush event, Smartsville's Pioneer Day, is returning for its 15th annual festival from 9 a.m. to 3 p.m. at 8445 Hammonton Smartsville Road, Smartsville. Pioneer Day offers historic guided tours, music, and a story-telling area where historical characters and pioneer family members will present insights into early life in the area. There also will be exhibits, a blacksmith demonstration and children's activities. Smartsville Church will reopen its doors for the event, and proceeds from the festival will go toward the historic church's restoration efforts. For more information, visit Smartsvillehistoricchurch.org.

– Día de los Niños means day of the child and on the last day of April over 25 Yuba County government agencies celebrated the close of National Child Abuse Prevention Month by providing Yuba-Sutter's next generation with a party filled with food, fun and a little bit of knowledge starting at 10 a.m. at POW/MIA Park at 1790 Edgewater Circle in Marysville. No registration is necessary.

– Colusa Assembly of God's community craft event runs from 8 a.m. to 2 p.m. where participants have the opportunity to discover unique, handmade goodies crafted by talented locals. The church is located at 1747 State Highway 20, Colusa.

You can notify us of any events that should be listed for the general public. Email ADnewsroom@appealdemocrat.com or call 749-6552.

Paper Mache

By David Read

Last weekend, I was part of an event like nothing I could have ever imagined. I'm talking about the Mural Marathon, Art and Health Festival that occurred at the Sutter Theater Center for the Arts in Yuba City. The event centered on the creation of five 450 square foot murals by five different artists in just 48 hours.

In our work at Yuba Sutter Arts & Culture, we have commissioned many murals over the years. Typically, the artists take a week or two to complete a mural. In this case, watching artists start on Friday afternoon and finish on Sunday was really breathtaking. I refer to it as the creation of public art as a spectator sport.

In picking the five mural artists, the committee faced the daunting task of reviewing over 100 renderings submitted by 54 different artists. Thanks to the A-D for the great article on Tuesday about the event, but I wanted to provide some additional background information about the project. Wearing my Rotary hat for a moment, our Yuba Sutter Rotary Night Club received a \$47,500 grant to pay artists to create the murals and the musicians who played music during the festival on Saturday. The funding for the project came from the Upstate division of the statewide CA Creative Corps program. A key requirement was that the grant had to be used to pay artists and reflect the following themes in the artwork; health awareness, environmental issues, social justice, or community engagement. Yuba Sutter Arts & Culture was on board from the start and offered up the wall on the Church Street side of its theater. Our friends at the Partnership for Health Equity and Inclusion acted as the fiscal sponsor.

Along with the muralists, we invited many local artists to display their work on Saturday. We also invited health information vendors to share their resources with the community that addressed a variety of

David Read

healthcare needs. And we scheduled live music all afternoon with the Yuba Sutter Big Band rounding out the evening to a standing room only crowd.

As work on the murals progressed over the weekend, social media platforms lit up with images and videos of the artwork. The outpouring of enthusiastic and positive comments about what this means for the community were quite overwhelming. However, one comment caught my attention. It went something like "These murals look woke to me." Woke has come to have a negative connotation indicative of a liberal bias. Currently used as a derisive politically charged slang term, it actually means "aware of and attentive to important societal facts and issues, especially issues of racial and social justice," according to Merriam-Webster. Woke is an adjective derived from African-American Vernacular English (AAVE) originally meaning alertness to racial prejudice and discrimination. It has come to encompass awareness of social inequalities such as racial injustice, sexism, and denial of LGBTQ rights. Conservatives use woke primarily as an insult and increasingly to criticize liberals. That said, the murals are proudly woke and speak to a variety of important social and environmental issues.

Witnessing all the events of the weekend, I became quite emotional on several occasions. Pulling an all-nighter on Friday probably contributed to my altered state, but it was all for a great cause. Our little Rotary Club that could, or I should say, the little Rotary Club that did, has left a lasting legacy on our community to be admired and appreciated for years to come. These thought provoking works of art are worthy of a close look and consideration by all.

ONLINE POLL

WHAT DO YOU THINK?

If you could only listen to one album for the rest of your life, which would you choose?

- ☐ The Beatles: "Abbey Road"
- ☐ Fleetwood Mac: "Rumours"
- ☐ Michael Jackson: "Thriller"
- ☐ Nirvana: "Nevermind"
- ☐ Eminem, "The Marshall Mathers LP"
- ☐ Adele, "21"
- ☐ Other

To participate, go to appealdemocrat.com.

LOTTERY

The winning numbers from the California State Lottery on Wednesday:

Powerball
2, 20, 22, 26, 47
Red: 21
SuperLOTTO Plus
13, 14, 27, 38, 45
PLUS: 23
Fantasy 5
4, 6, 8, 16, 23
Daily 3
Afternoon – 8, 2, 7
Evening – 8, 6, 2
Daily 4
1, 0, 3, 1
Daily Derby
1st: 10, Solid Gold
2nd: 7 Eureka
3rd: 1, Gold Rush
Race time: 1:40.97

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NOTICE FOR EARLY PUBLIC REVIEW OF A PROPOSED ACTION
WITHIN WETLANDS UNITED STATES DEPARTMENT OF THE AIR FORCE
2024 Environmental Assessment for the Doolittle Power Station Repair & Upgrade Project at Beale Air Force Base, CA

The U.S. Department of the Air Force (DAF) invites public input on any practicable alternatives of a Proposed Action within wetlands at Beale Air Force Base (AFB), California. The Proposed Action would replace the existing Doolittle Substation and would construct a 9.5-acre photovoltaic solar array, a new smart microgrid, and a battery energy storage system which would provide electrical energy resiliency to critical systems at Beale AFB.

Wetlands are located where portions of the photovoltaic solar array and replacement substation would be constructed. Implementation of the Proposed Action would result in approximately 0.031 acres of direct and 0.004 indirect impacts to wetlands.

The DAF is performing supplemental environmental analysis in accordance with the National Environmental Policy Act (NEPA) and its implementing regulations. This early public notice is required by Executive Order 11990, Protection of Wetlands. The DAF prepared and made this notice available to the public in accordance with 32 CFR 989 and Air Force Manual 32-7003 for actions proposed within wetlands. Subsequent public notice required by NEPA will be made once the draft EA is available for review and comment.

Written comments and inquiries should be directed to 9 CES/CEIE, 6425 B Street, Bldg 25390, Beale AFB, CA 95903. Emailed comments can be submitted to chantz.risse.1@us.af.mil. Comments may also be submitted on the phone at (530) 634-9568.

APPENDIX B NOTICES OF AVAILABILITY

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NOTICE OF AVAILABILITY

Draft Environmental Assessment for Doolittle Power Station Repair & Upgrade (Project 00112) Beale Air Force Base, California

A Draft Environmental Assessment (EA) and proposed Finding of No Significant Impact (FONSI) and Finding of No Practicable Alternative (FONPA) have been prepared by the United States Department of the Air Force (DAF) to analyze the potential impacts to the human and natural environment from implementing the proposed Doolittle Power Station Repair & Upgrade project at Beale Air Force Base (AFB).

The Proposed Action would demolish/replace the existing Doolittle Substation with an upgraded substation/switchyard and would install a new control building, smart microgrid, battery energy storage system (BESS), and a 9.5-acre solar array to provide electrical energy resiliency to critical systems at Beale AFB.

The Draft EA and proposed FONSI/FONPA are available at the Beale AFB website:

<https://www.beale.af.mil/Library/Units/Environmental-Information/>

Please provide any comments within 30 days from the date of this Notice of Availability. Please note that in accordance with Privacy Act provisions, the DAF will not publish personal information of commenters, such as home addresses, e-mail addresses, or phone numbers. Please mail or e-mail comments or requests for information to:

Mr. Chantz Risse
Beale NEPA Program Manager
9 CES/CEIE
6425 B Street Bldg. 25390
Beale AFB, CA 95903-1708
chantz.risse.1@us.af.mil

Public Affairs
9rw.pa@us.af.mil

1 **APPENDIX C AVOIDANCE AND MINIMIZATION MEASURES**

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Avoidance and Minimization Measures

The Environmental Office has identified which avoidance and minimization measures (AMMs) to be implemented as part of the Doolittle Power Station Repair & Upgrade project. Assessment of potential impacts of the Proposed Action is based on the implementation of these measures. Table 1 lists the acronyms and abbreviations used in the AMMs and Table 2 lists the AMMs in groups based on what function they serve.

Table 1. List of Appendix C Acronyms and Abbreviations.

Acronyms/Abbreviations	Definition
AFB	Air Force Base
AHERA	Asbestos Hazard Emergency Response Act
AMMs	Avoidance Minimization Measures
ATC	Authority to Construct
BMPs	Best Management Practices
BOLs	Bill of Ladings
CAA	Clean Air Act
CARB	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
C&D	Construction and Demolition
CRHR	California Register of Historical Resources
CRM	Cultural Resources Manager
CVC	California Vehicle Code
CVRWQCB	Central Valley Regional Water Quality Control Board
DLA	Defense Logistics Agency
DOD	Department of Defense
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FRAQMD	Feather River Air Quality Management District
HUC	Hydraulic Unit Code
HVAC	Heating, Ventilation and Air Conditioning
HW	Hazardous Waste
IAW	In accordance with
LBP	Lead-based Paint
LDRs	Land Disposal Restrictions
M&OP	Management and Operating Plan
NAHC	Native American Heritage Commission
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
NRM	Natural Resources Manager
ODS	Ozone Depleting Substance
OSHA	Occupational Safety and Health Administration
PERP	Portable Equipment Registration Program
SHPO	State Historic Preservation Officer

Acronyms/Abbreviations	Definition
SWPPP	Storm Water Pollution Prevention Plan
USFWS	United States Fish and Wildlife Service
UW	Universal Waste

Table 2: Avoidance and Minimization Measures.

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>AQ-1: Fugitive Emissions</p> <p>The Contractor shall comply with Feather River Air Quality Management District (FRAQMD) “Standard Mitigation Measures for All Projects” and “Fugitive Dust Control Mitigation Measures” during construction. Reference FRAQMD Rule 3.16 Fugitive Dust Emissions.</p>	<p>Activity:</p> <p>Comply with FRAQMD Rule 3.16 Fugitive Dust Emissions</p> <p>Timing:</p> <p>During construction.</p> <p>Frequency:</p> <p>As required.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>AQ-2: Stationary Air Emission Sources</p> <p>Any air emission source (boiler, heater, generator, petroleum storage tank, refrigeration unit, parts washer, etc.) installed or modified in this project must meet FRAQMD requirements at https://ww3.arb.ca.gov/drdb/fr/cur.htm . The Contractor must work with the Base Air Quality Program Manager (530-634-2844) to obtain an Authority to Construct (ATC) permit from FRAQMD prior to installation of new equipment or modification/removal of existing equipment. The Contractor is responsible for payment of the ATC permit and inspection fee. Notify 9 CES/CEIER Air Quality Program Manager (530-634-2844 or susan.stewart.7@us.af.mil) before installing, modifying, relocating, or removing emission source equipment.</p>	<p>Activity:</p> <p>Obtain <i>Authority to Construct</i> permit from FRAQMD.</p> <p>Timing:</p> <p>When installing new equipment or modification/ removal of existing equipment.</p> <p>Frequency:</p> <p>Once per emission source.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	FRAQMD	
<p>AQ-3: Portable Diesel Equipment</p> <p>Any portable diesel internal combustion engines brought on to Beale AFB require registration documentation from California Air Resources Board (CARB) Portable Equipment Registration Program (PERP). PERP Registration numbers</p>	<p>Activity:</p> <p>Provide PERP registration numbers to 9 CES/CEIER Air Quality Manager for any portable</p>	<p>Project Contractor</p> <hr/> <p>Initials</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p>	CARB & possibly FRAQMD	

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
must be provided to 9 CES/CEIER Air Quality Manager (530-634-2844) within three (3) business days of arriving on Beale AFB. The portable equipment will be subject to inspection by FRAQMD.	<p>diesel internal combustion engines brought on to Beale AFB.</p> <p>Timing:</p> <p>Within 3 days after bringing a portable diesel internal combustion engine onto Beale AFB.</p> <p>Frequency:</p> <p>Once per engine.</p>	<hr/> <p>Date</p>	<hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>AQ-4: Manufacturer's Equipment Specifications and Emissions Data</p> <p>The Contractor will furnish copies of the manufacturer's equipment specifications and emissions data for fuel burning equipment (such as boilers, heaters, and generators) and any other documents submitted to FRAQMD to the Base Air Quality Program Manager to document meeting FRAQMD Air Permit requirements.</p>	<p>Activity:</p> <p>Furnish copies of manufacturer's equipment specifications and emission data to the Base Air Quality Program Manager.</p> <p>Timing:</p> <p>During construction.</p> <p>Frequency:</p> <p>As required.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
AQ-5: Contractor Vehicles California Vehicle Code (CVC), Section 4000, requires that any vehicle based in California or primarily used on California highways shall be registered in California. Vehicles must be smog tested and registered in CA within 30 calendar days of arriving in the state. Contractors and their employees are advised that failure to have their vehicles smog tested and registered in CA within 30 calendar days of arrival may result in enforcement action by local/state authorities.	Activity: Comply with <i>California Vehicle Code (CVC), Section 4000</i> . Timing: Within 30 days of arriving in the state. Frequency: Per each contractor vehicle.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date	CA DMV	

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
AQ-6: Idle Policy In accordance with Title 13 California Code of Regulations (CCR), Section 2485, all diesel-fueled commercial vehicles operating in the State of California with a gross vehicular weight of greater than 10,000 lbs. must not be idled for greater than five (5) minutes at any location.	Activity: Comply with <i>Title 13 California Code of Regulations (CCR), Section 2485</i> . Timing: Anytime on Beale AFB. Frequency: Every 5 minutes of idling	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		
AQ-7: Refrigerant Compliance and Ozone Depleting Substances a. Any relocation, modification, or removal of existing building Heating, Ventilation and Air Conditioning (HVAC) system will require the Ozone Depleting Substance (ODS) (refrigerant) to be recovered and tracked for the amount removed and replaced. The recovery equipment will also need to have an U.S. Environmental	Activity: Comply with refrigerant compliance and ozone depleting	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>Protection Agency (EPA) Refrigerant Recovery or Recycling Device Acquisition Certification readily available on site.</p> <p>b. Regulations governing disposal of Ozone Depleting Substances (ODS), are covered in the "Defense Materiel Disposition Manual" (Department of Defense (DOD) 4160.21 -M), "Storage and Handling of Liquefied and Gaseous Compressed Gasses and Their Full and Empty Cylinders" (DLAI 4145.25 / AFJMAN 23-227(I)) and the Department of Defense "Ozone Depleting Substances Turn-In Procedures". All Class I ODSs, Halons and R-22 must be recovered and retained by the Air Force. These refrigerants may not be transferred/sold/given to anyone outside of the DOD, regardless of where/how the material is stored (storage cylinders, within equipment, or any other configuration). Covered materials that which are not necessary to support installation activities must be returned to the Defense Logistics Agency (DLA) ODS Reserve.</p>	<p>substances regulations.</p> <p>Timing: During construction.</p> <p>Frequency: As required.</p>				

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>c. Regardless of material or disposition, all ODSs and their "non-ODS" alternatives must be maintained in accordance with all Clean Air Act (CAA) regulations; including but not limited to, record keeping, storage, labeling and any other applicable requirements. These requirements can be found in Section 608 of the CAA. Records pertaining to recovery of disposition of these materials must be developed and maintained to ensure compliance with CAA record keeping requirements.</p> <p>d. Refrigerant commodities, which are not required to be returned to the DLA ODS Reserve, must also be maintained IAW with DOD and California requirements, however these materials are not required to be transferred to the DLA ODS Reserve. Care should be taken to ensure proper record keeping as well as compliance with all Federal Acquisition Regulations.</p> <p>e. Properly certified civilian, military or contract personnel must perform maintenance and Recovery activities.</p>					

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
f. The Refrigerant Management Module within the AF Air Program Information Management System (APIMS) will be utilized for tracking refrigerant management activities, including HVAC maintenance, equipment disposal and other situations covered by the California.					
<p>HAZ-1: Hazardous Wastes</p> <p>Must be identified and disposed of properly in accordance with local, state and federal regulations. Contractors or generating organizations must be aware of, account for and immediately notify 9 CES/CEIER regarding all processes that may create Hazardous Waste (HW.) Sampling of all wastes (Hazardous or non-Hazardous) will be coordinated with 9 CES/CEIER. Profiles and waste acceptance documents (to include SDSs and/or sampling results) will be reviewed and signed by 9 CES/CEIER prior to shipping HW from Beale AFB. HW and Universal Waste (UW) shipments and all shipping documents (manifests, bill of lading (BOLs), Land Disposal Restrictions (LDRs), etc.) will be inspected and signed by 9 CES/CEIER before leaving base. The contractor</p>	<p>Activity:</p> <p>Hazardous wastes must be identified and disposed of properly in accordance with local, state, and federal regulations.</p> <p>Timing:</p> <p>During construction.</p> <p>Frequency:</p> <p>As required.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>or generating organization will complete manifests with the following information: EPA ID# CA7570024508; Beale 24-hr. emergency phone number 530-634-8675; generator mailing address- 9 CES/CEIER, 6425 B St., Beale AFB, CA, 95903; POC- 530-634-2644 Mr. Eric Maresh. Alternate POC phone is 530-634-4452.</p>					
<p>HAZ-2: Non-Hazardous Wastes</p> <p>Non-HWs requiring shipment from Beale AFB (examples include treated wood waste, liquid wastes, and excess soil) must be identified and disposed of properly in accordance with local, state and federal regulations. The contractor or generating organization must be aware of, account for and notify 9 CES/CEIER regarding all processes that may create non-hazardous wastes. Sampling of all non-HWs will be coordinated with 9 CES/CEIER. Profiles and waste acceptance documents (to include SDSs and/or sampling results) will be reviewed and signed by 9 CES/CEIER prior to shipping non-HWs from Beale AFB. Non-HW shipments and all shipping documents (non-HW manifests, BOL's, etc.) will be inspected and signed by 9 CES/CEIER before leaving base. The contractor</p>	<p>Activity:</p> <p>Non-hazardous wastes to be shipped must be identified and disposed of properly in accordance with</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>or generating organization will complete shipping documents with the following information: generator mailing address- 9 CES/CEIE, 6425 B St., Beale AFB, CA, 95903; POC 530-634-2644 Mr. Eric Maresh. Alternate POC phone 530-634-4452.</p>	<p>local, state and federal regulations</p> <p>Timing: During construction.</p> <p>Frequency: As required.</p>				

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>HAZ-3: Recycled Materials</p> <p>A Construction and Demolition (C&D) Debris Diversion and Disposal Report must be submitted monthly for the project. For more information, and a copy of the form, contact the 9 CES/CEIER Qualified Recycling Program Manager, Mr. Shane Morris (acting) at 530-634-0744.</p>	<p>Activity:</p> <p>Submit C&D Debris Diversion and Disposal Report to the 9 CES/CEIER Qualified Recycling Program Manager.</p> <p>Timing:</p> <p>During construction.</p> <p>Frequency:</p> <p>Monthly.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>HAZ-5: Demolition Written Notification</p> <p>Written notification of demolition or renovation operations is required. The notification is required for demolition even if there is no asbestos present. Notify USEPA and California Air Resources Board via certified mail at least 10 calendar days prior to any demolition. Notify the Feather River Air Quality Management District (FRAQMD) five business days prior to any demolition. Only complete notification forms are acceptable, and incomplete notification can result in enforcement action. The Contractor must comply with the NESHAP regulation, and provide copies of all notification forms to 9 CES/CEIER prior to sending them to the regulatory agencies.</p>	<p>Activity:</p> <p>Write notification of demolition or renovation operations; notify USEPA and CARB; comply with NESHAP regulation.</p> <p>Timing:</p> <p>Prior to any demolition; at least 10 calendar days for USEPA & CARB and 5 business days for FRAQMD.</p> <p>Frequency:</p> <p>Once per demo site.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>CARB, USEPA, and FRAQMD.</p>	

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
WR-1: Storm Water Pollution Prevention Plan If more than 1 acre of land is disturbed during the project, a project-specific storm water pollution prevention plan (SWPPP) is required prior to construction. The Contractor is responsible for preparing the SWPPP. Contact 9 CES/CEIER at 530-634-4398 for more information.	Activity: Produce a SWPPP. Timing: If more than 1 acre of land is disturbed during the project. Frequency: Once exceeding 1 acre of land disturbed.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date	US EPA	

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
WR-2: Clean Water Act Sections 401 and 404 If Waters of the US are impacted by project activities of any type, a Clean Water Act permit (Sections 401 and 404) may be required. Contractor is to provide completed draft application forms. Contact 9 CES/CEIER at 530-634-4398 for more information.	Activity: Obtain CWA permit. Timing: If/when Waters of the US (WotUS) are impacted by project activities of any type. Frequency: Once wetlands or WotUS are impacted.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date	US Army Corps of Engineers.	
CR-1: Cultural Resources Awareness Training All construction personnel will receive cultural resources awareness training by the Beale AFB Environmental Office regarding the appropriate work practices necessary to protect cultural resources prior to starting work. Training will be provided at the start of the construction project and prior to any new worker's arrival on the project. This training will address federal, state, and local laws regarding cultural resources; the importance of these resources and the purpose	Activity: Construction personnel receive cultural resources awareness training from Beale AFB	Project Contractor <hr/> Initials <hr/>	BEALE AFB <hr/> Initials <hr/>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>and necessity of protecting them; and the appropriate methods for reporting and protecting inadvertently discovered cultural resources. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all mitigation measures. These forms will be filed at Beale AFB offices and will be accessible to the appropriate resource agencies. It is the construction contractor's responsibility to seek training from the Beale AFB Environmental Office for personnel as they join the project.</p>	<p>Environmental Office.</p> <p>Timing:</p> <p>Prior to starting construction.</p> <p>Frequency:</p> <p>Once before construction and prior to any new worker's arrival on the project.</p>	<p>Date</p>	<p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>CR-2: Monitor for Archeological Resources</p> <p>The environmental contractor will provide an archaeological monitor to witness ground-disturbing activities. The monitor will meet the Secretary of the Interior Standards for an Archaeological Technician, with a minimum of a Bachelor's degree or comparable experience. In the event of an inadvertent discovery, the monitor will (in conjunction with the tribal monitor) notify the Beale AFB Cultural Resources Manager (CRM).</p>	<p>Activity:</p> <p>Environmental contractor provided archaeological monitor shall witness ground-disturbing activities and will notify the Beale AFB CRM in the event of an inadvertent discovery.</p> <p>Timing:</p> <p>During construction.</p> <p>Frequency:</p> <p>As required.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>CR-3: Tribal Monitor for Tribal Cultural Resources</p> <p>Tribal partners upon request may provide a tribal monitor to witness project activities. The monitor will be provided by the requesting tribe. The Beale AFB CRM will notify the interested tribal partners two weeks in advance of the project initiating earthwork. In the event of an inadvertent discovery of a suspected Tribal Cultural Resource, the tribal monitor is invited to inform the archaeological monitor to alert the Beale AFB CRM and Mitigation Measure CR-4 will be instituted. If the Tribal monitor is not present and the archaeological monitor suspects the presence of a Tribal Cultural Resource, the archaeological monitor will alert the Beale AFB CRM and Mitigation Measure CR-4 will be instituted.</p>	<p>Activity:</p> <p>Allow tribal monitor to witness project activities.</p> <p>Timing:</p> <p>Upon request from tribes.</p> <p>Frequency:</p> <p>As needed.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		
<p>CR-4: Inadvertent Discovery of Archeological and Tribal Cultural Resources</p> <p>In the event that human remains, artifacts, or other archaeological materials, or suspected Tribal Cultural Resources are discovered during the course of any action or activity associated with the project, all ground-disturbing activity at the point of discovery, and within a 100 ft</p>	<p>Activity:</p> <p>In the event of an inadvertent discovery, halt all ground-disturbing activity at the point of discovery and within a 100 ft exclusionary area</p>	<p>Project Contractor</p> <hr/> <p>Initials</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p>	Possibly the CVRWQCB (where applicable), the SHPO, and the consulting tribal partners	

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>exclusionary area, must be halted, and the Beale AFB CRM notified. Any inadvertent discovery will be initially assumed potentially eligible for the NRHP (if applicable CRHR), and afforded appropriate protection until it is determined to be otherwise. The Beale AFB CRM will notify the Beale AFB Wing Commander, the CVRWQCB (where applicable), the SHPO, and the consulting tribal partners, if discovery is a suspected Tribal Cultural Resource. In the case of a suspected Tribal Cultural Resource, a tribal representative of the consulting tribal partners is invited to determine if the find is a Tribal Cultural Resource and make recommendations regarding treatment. Treatment measures determined to be necessary and feasible by the Beale AFB CRM will be implemented. If the find proves to be human remains, additional legal responsibilities are instituted and the appropriate county coroner, Beale AFB Wing Commander, and the CVRWQCB (where applicable) will be notified by the Beale AFB CRM (Beale AFB 2020: SOP 7.4). If the county coroner identifies the remains as Native American, they are required to notify the NAHC within 24 hours in accordance with California Health & Safety Code 7050.5(c). The</p>	<p>— notify the Beale AFB CRM.</p> <p>Timing: During construction.</p> <p>Frequency: As required.</p>	<hr/> <p>Date</p>	<hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
NAHC will then identify the most likely descendants.					
GM-1: Pre-project Surveys A qualified biologist will conduct pre-project surveys of all ground disturbance areas in sensitive habitats, 2 weeks prior to the start of the project to confirm the information in this document is still correct and conditions have not changed. If any sensitive species are found during the pre-project surveys, the qualified biologist will contact the Beale AFB NRM (Natural Resources Manager) who will coordinate with the Service. No project activities will begin until proponents have received written approval from the Service (USFWS) that the biologist(s) is qualified to conduct the work.	Activity: Pre-project surveys conducted by a qualified biologist. Timing: 2 weeks prior to start of project. Frequency: Once.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date	Potentially USFWS	
GM-2: Biological Monitor A qualified biologist will monitor construction activities in or adjacent to sensitive habitats. The biological monitor will ensure compliance with these Avoidance and Minimization Measures, required for protected species and their habitats. If protected species are found that are likely to be affected by work activities, the qualified biologist	Activity: Qualified biologist will monitor construction activities in or	Project Contractor <hr/> Initials <hr/>	BEALE AFB <hr/> Initials <hr/>	Potentially USFWS	

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
will have the authority to stop any aspect of the proposed action that could result in unauthorized take of a protected species. If the qualified biologist exercises this authority, the biologist will notify the Beale AFB NRM who will then contact the Service by telephone and email within 1 working day.	adjacent to sensitive habitats. Timing: During construction. Frequency: As needed/required.	Date	Date		
GM-3: Conservation Measure Review for Project Managers (at project kickoff): Beale NRM will provide Conservation Measure review to contractor project managers, Beale project managers, contracting officer, and key personnel during pre-construction kickoff meeting. Contractor project managers will acknowledge review and understanding of Avoidance and Minimization Measures by signature.	Activity: Conservation Measure review to contractor project managers, Beale project managers, contracting officer, and key personnel. Timing: During pre-construction kickoff meeting. Frequency: Once.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>GM-4: Environmental Awareness Training</p> <p>Environmental awareness training will be provided for all construction/field personnel working on the proposed project by the qualified biologist/monitor. All personnel will participate in training before activities begin and as new workers join the proposed project activities. The program will consist of a briefing on environmental issues related to the proposed project. The training program will include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each sensitive species that may occur in the action area. The presentation will also include a discussion of the legal protection for endangered species under the Endangered Species Act (ESA), including penalties for violations. A fact sheet conveying this information will be distributed to all personnel who enter the project site. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all avoidance and minimization measures. These forms will be maintained at Beale AFB and will be accessible to the appropriate resource agencies.</p>	<p>Activity:</p> <p>Environmental awareness training.</p> <p>Timing:</p> <p>Before any personnel participates in proposed project activities.</p> <p>Frequency:</p> <p>Once per personnel.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
GM-5: Restricted Operations Period No work will be conducted between 1 November and 1 May. This includes all aspects of the proposed project.	Activity: No work allowed. Timing: 1 Nov-1 May Frequency: Everyday within period.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		
GM-6: Rainfall After a rain of greater than 0.2 inches, work will occur only after the soil surface has dried sufficiently and no sooner than 12 hours after the rain ends; if rain exceeds 0.5 inches, work will only resume once soil conditions have dried sufficiently and not sooner than 48 hours after the rain ends. Soil is sufficiently dried when a clump of soil from the site crumbles when rolled in the palm of the hand.	Activity: Stop work if rainfall exceeds given amounts. Timing: When precipitation occurs. Frequency: 48 hours after rainfall.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>GM-7: Submission of Compliance Reports</p> <p>Beale AFB will notify the Service of construction starting 14 days prior to start of a project activity via email. A final report will be submitted to the Service 60 days upon project activity completion and include: a map of pools that were affected and protected and other information documenting that the project activity followed all conservation measures.</p>	<p>Activity: Notify Service of construction.</p> <p>Timing: 14 days before construction.</p> <p>Frequency: Once before. Final report 60 days after project completion.</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>USFWS</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>USFWS</p>	

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>GM-8: Demarcation of Access Routes, Work and Staging Areas, and Sensitive Areas</p> <p>Prior to initiation of the proposed project, boundaries of access routes, work areas, staging areas, and sensitive areas (water features, habitat for sensitive species), will be clearly demarcated with orange construction barrier fencing (or an appropriate alternative method) by the contractor. The NRM will coordinate with a qualified biologist to stake and flag the boundaries of all access routes, work areas, and staging areas that are within sensitive habitat buffers. These areas will be treated as exclusion zones where construction activities may not occur. The flagging and fencing will be clearly marked as identifying an environmentally sensitive area. The contractor will remove fencing, stakes, and flagging within 60 calendar days of project completion.</p>	<p>Activity:</p> <p>Demarcate access routes, work and staging areas, and sensitive areas.</p> <p>Timing:</p> <p>Prior to initiation of the proposed project.</p> <p>Frequency:</p> <p>Once, repair/maintain as needed.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		
<p>GM-9: Location of Work and Staging Areas</p> <p>All materials, vehicle parking and staging areas shall be designated by the Beale Environmental Office and located at least 50 feet away from drainages and wetland features or contained on hardscape surface. Storage of all construction</p>	<p>Activity:</p> <p>Have materials, vehicle parking and staging areas designated by the Beale</p>	<p>Project Contractor</p> <hr/> <p>Initials</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
material/debris will be kept to the designated storage/staging area. The number and size of staging areas and the total area of the activity will be limited to the minimum area necessary to achieve the project goal.	Environmental Office. Timing: Before work begins. Frequency: Once.	<hr/> Date	<hr/> Date		
GM-10: Minimization of Off-Road Access Routes Offroad access routes will only be established in upland areas greater than 250 feet from vernal pool habitat and road length will be the minimum necessary. Off-pavement access routes can only be used if the soil is dry. Any ruts or furrows caused by operations shall be raked level by hand, compacted and restored to normal grade. Access routes will be restored as closely as possible to preconstruction contours and elevations. This will be done prior to leaving the current area of operation.	Activity: Minimize off-road access routes. Timing: During entire project. Frequency: Always.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>GM-11: Additional Access Routes</p> <p>If a new vehicle access route is required in special status species habitat, the route will be pre-surveyed by a qualified biologist to minimize impacts to sensitive resources and reviewed by the NRM. If routes will be reused over multiple years, they will be assessed annually to ensure that they are clear of special-status species.</p>	<p>Activity:</p> <p>Pre-survey additional access routes.</p> <p>Timing:</p> <p>When new routes are needed.</p> <p>Frequency:</p> <p>As needed.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		
<p>GM-12: Trenches and Holes</p> <p>No trenches or holes greater than 6 inches deep will be left open at the end of the day and will be covered (for example plywood, or other material) or an egress will be provided in coordination with NRM to prevent trapping animals. Trenched areas and holes will be compacted and restored to normal grade.</p>	<p>Activity:</p> <p>Cover trenches or holes greater than 6 inches deep.</p> <p>Timing:</p> <p>End of each workday.</p> <p>Frequency:</p> <p>As needed.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
GM-13: Revegetation All upland vegetated areas disturbed by construction will be revegetated with the Beale AFB-approved native seed mix. Exposed soil must be hydro-seeded and depending on slope, covered with a biodegradable geotextile (no plastics) to prevent sediments from entering waterways. Any straw used for erosion control materials will be “certified weed free.” Reseeded areas will be monitored and maintained by the contractor as needed until there is 70% survival of plantings and 70% vegetated ground cover in the seeded area.	Activity: Revegetate all upland vegetated areas disturbed by construction. Timing: After construction. Frequency: As needed until AMM goal is met.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>GM-14: Seed Mixes to Support Native Pollinators</p> <p>Include in seed mixes annual and short-lived perennial native forb species; these seeds will bloom in the first year and provide forage for native bees. Native wildflower mixes that bloom during different times of the year and in different flower colors will be given the highest preference.</p>	<p>Activity:</p> <p>Include in seed mixes annual and short-lived perennial native forb species.</p> <p>Timing:</p> <p>During revegetation.</p> <p>Frequency:</p> <p>See AMM GM-10.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
GM-15: Suitable Material No activity may use unsuitable material (e.g., trash, debris, car bodies asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts.	Activity: Do not use unsuitable materials. Timing: During entire project. Frequency: Always.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		
GM-16: Speed Limits All vehicle operators will follow the posted speed limit on paved roads and a 15 miles per hour speed limit on unpaved roads. Off-road travel, if approved, will follow a 5 miles per hour speed limit and must be approved by NRM.	Activity: Follow posted speed limits. Timing: During project. Frequency: Always.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
GM-17: Garbage Removal During construction activities, all trash will be properly contained, removed from the work site daily, and disposed of properly. Following construction, all refuse and construction debris will be removed from work areas. All garbage and construction-related materials in construction areas will be removed immediately following project completion.	Activity: Remove garbage. Timing: During project implementation. Frequency: As needed to meet AMM.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date	Possibly the USFWS.	
GM-18: Green Waste Disposal All plant debris potentially containing reproductive parts (i.e., seeds or plant fragments for species that reproduce vegetatively) will be disposed of at an off-site landfill or green waste facility. It will be transported in a manner that prevents the spread of invasive plants to other locations. This action may require, but is not limited to, bagging the material before it is transported off-site.	Activity: Dispose of green waste at an off-site landfill or green waste facility. Timing: During project. Frequency: As needed.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date	Possibly the USFWS.	

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>GM-19: Invasive Species</p> <p>A qualified biologist will monitor and ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When practicable, invasive plants found in the action area will be removed using non-chemical methods. Specifically, equipment will be thoroughly cleaned of soil and vegetation before being delivered to the site to minimize the potential for spreading pathogens or exotic/invasive species. Equipment will be inspected by the qualified biologist and may be rejected if the qualified biologist determines that it is has not been adequately cleaned.</p>	<p>Activity:</p> <p>Qualified biologist shall monitor for invasive species.</p> <p>Timing:</p> <p>During project implementation.</p> <p>Frequency:</p> <p>As needed.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		
<p>GM-20: Invasive Species Monitoring</p> <p>The site will be added to the Annual Invasive Species Management work plan and will be surveyed and maintained with the existing weed program at Beale AFB.</p>	<p>Activity:</p> <p>Site shall be surveyed and maintained with the existing weed</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
	<p>program at Beale AFB.</p> <p>Timing: During project implementation.</p> <p>Frequency: As needed.</p>	Date	Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>GM-21: Fueling and Servicing in Designated Areas</p> <p>Motor vehicles and equipment will only be fueled and serviced in designated service areas. All fueling and maintenance of vehicles and other equipment will occur on a paved surface or at least 100 feet from any wetland feature/drainage, sensitive habitat, or water body, with spill containment. Prior to the onset of work, a plan will be prepared to allow a prompt and effective response to any accidental spills. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.</p>	<p>Activity:</p> <p>Refuel/service motor vehicles and equipment in designated service areas.</p> <p>Timing:</p> <p>During project implementation.</p> <p>Frequency:</p> <p>Whenever servicing/refueling motor vehicles and equipment.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>GM-22: Spill Plan</p> <p>A Spill Prevention Control and Countermeasure Plan will be prepared prior to the project implementation. All machinery will be properly maintained and cleaned to prevent spills and leaks. Any spills or leaks from the equipment/vehicles will be reported and cleaned up in accordance with applicable local, state and federal regulations. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. The spill plan will be submitted to the Beale AFB Environmental Office for approval.</p>	<p>Activity:</p> <p>Prepare a spill prevention control and countermeasure plan.</p> <p>Timing:</p> <p>Prior to project implementation.</p> <p>Frequency:</p> <p>Once.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
GM-23: Equipment Condition Prior to use, all equipment will be cleaned to remove external oil, grease, fuels, dirt, or mud. All construction equipment/vehicles must be inspected daily, in good working condition, showing no signs of leaks. Equipment will be left onsite or inspected at return to the area. All equipment will have drip pans placed where potential leaks could occur and if equipment is idle for longer than 8 hours. All leaks will be repaired off-site or in a suitable location prior to resumption of construction activity.	Activity: Inspect and maintain construction equipment conditions. Timing: During project implementation. Frequency: Daily.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
GM-24: Fire Prevention and Suppression Plan A fire prevention and suppression plan will be prepared prior to the proposed project implementation. The fire prevention and suppression plan shall be submitted to the NRM for Wildland Fire Chief approval.	Activity: Prepare and implement fire prevention and suppression plan. Timing: Before project implementation. Frequency: Once.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		
GM-25: Erosion Control Systems Site-specific erosion control measures (i.e., hay bales, silt fencing) will be installed, maintained in effective operating condition and in place at all times during construction to protect drainage ditches, storm drains, wetlands and water bodies from sedimentation resulting from construction activity. All wetlands/ drainages/ vernal pools will have erosion control measures installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland. All	Activity: Employ and maintain site-	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
exposed soil and other fills must be permanently stabilized at the earliest practicable date. Erosion control devices will not contain plastic, plastic netting, or any other non-natural materials, and will be “certified weed free” to prevent the spread of invasive species.	specific erosion control measures. Timing: During project implementation. Frequency: As needed.				
GM-26: Dust Control All unpaved road areas will be watered, or alternative dust control measures will be used, during project construction to prevent excessive dust from silting nearby vernal pools. No chemical dust control or tackifiers will be used.	Activity: Water or use alternative dust control measures on unpaved road areas. Timing: During project implementation. Frequency: As needed to meet goal of AMM.	Project Contractor _____ Initials _____ Date	BEALE AFB _____ Initials _____ Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
GM-27: Excess Soil Protection Excess soil temporarily stored on-site during construction must be covered with geotextile stabilization blankets/tarp and wattles/gravel bags/socks to prevent exposure to the elements and to lessen chances of sedimentation due to storm water runoff and wind erosion. All remaining fill material will be removed in its entirety according to disposal requirements and the affected areas will be revegetated.	Activity: Protect excess soils on-site. Timing: During project implementation. Frequency: As needed.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>GM-28: Use of Excavated Soil on Base</p> <p>If excess materials, after appropriate testing has been conducted, are to be used on Beale AFB, the NRM will contact the Service before hauling the materials to ensure that the disposal site will not affect any sensitive species.</p>	<p>Activity:</p> <p>Test excess materials before reuse. Notify NRM of reuse.</p> <p>Timing:</p> <p>During project implementation.</p> <p>Frequency:</p> <p>Whenever excess materials are reused.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	USFWS	

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>GM-29: Disposal of Excavated Soil</p> <p>All excess soil excavated during construction will be removed and disposed of at a landfill located off Beale AFB. If soil is contaminated, then Beale AFB Environmental Office will coordinate with the Army Corps of Engineers and/or Sacramento Regional Water Quality Control Board, as appropriate prior to disposal of excavated soil.</p>	<p>Activity:</p> <p>Remove and dispose of excess soils at an off-site landfill.</p> <p>Timing:</p> <p>During project implementation.</p> <p>Frequency:</p> <p>Whenever excess soils are to be disposed of.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>USACE and/or RWQCB.</p>	

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>GM-30: Upland Buffers</p> <p>A 50-foot upland vegetated buffers will be established and maintained around all wetlands.</p>	<p>Activity:</p> <p>Establish and maintain upland vegetated buffers.</p> <p>Timing:</p> <p>During project implementation.</p> <p>Frequency:</p> <p>As needed.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>GM-31: Trenching Controls</p> <p>In unimproved areas, the top 6 to 12 inches of the trench or hole should normally be backfilled with topsoil from the trench.</p>	<p>Activity:</p> <p>Backfill top 6 to 12 inches of trench or hole in unimproved areas.</p> <p>Timing:</p> <p>During project implementation.</p> <p>Frequency:</p> <p>As needed.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>GM-32: Temporary Fills</p> <p>Temporary fills must be removed in their entirety, and the affected areas returned to pre-construction elevations. The affected areas must be revegetated as appropriate.</p>	<p>Activity:</p> <p>Remove temporary fills — return affected areas to pre-construction elevations.</p> <p>Timing:</p> <p>During project implementation.</p> <p>Frequency:</p> <p>As needed.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>VP-1: Wetland Erosion Control:</p> <p>All work conducted within 50 feet of a wetland feature shall have construction boundaries designated with fencing to ensure no equipment will be in the vicinity of a drainage/wetland/vernal pool. All wetlands/drainages/vernal pools will have erosion control measures (straw wattles, hay bales, silt fencing) installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland feature. Soil erosion and sediment control must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date.</p>	<p>Activity:</p> <p>Employ erosion control measures for work within 50 feet of a wetland feature.</p> <p>Timing:</p> <p>Before project begins.</p> <p>Frequency:</p> <p>Once, maintain/repair as needed.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>VP-2: Wetland Pre-Project Vegetation Clearing</p> <p>If the project site is within 50 feet of a wetland feature, the pre-project clearing of vegetation will be done with hand equipment. Mechanical clearing of vegetation is prohibited during the wet season.</p>	<p>Activity:</p> <p>Clear vegetation with hand equipment when within 50 feet of wetland feature.</p> <p>Timing:</p> <p>Before project begins.</p> <p>Frequency:</p> <p>Once.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>VP-3: Wetland Feature Protection:</p> <p>Intrusive work adjacent to or within branchiopod habitat will have protection (plastic tarps) covering the aquatic feature to ensure the soil being removed and backfilled during the excavation process does not adversely impact habitat.</p>	<p>Activity:</p> <p>Protect branchiopod habitat by using plastic tarps.</p> <p>Timing:</p> <p>Before project implementation.</p> <p>Frequency:</p> <p>As needed to maintain integrity of protection measure.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
VP-4: Compensation: Beale will compensate for effects to 0.01 acre of vernal pool habitat at a ratio of 3:1 and 0.004 acre of vernal pool habitat at a ratio of 1:1, totaling 0.034 acre of mitigation. Mitigation will be compensated using Beale AFB on-site designated preservation acreage.	Activity: Compensate for effects to vernal pool habitat. Timing: Before project implementation. Frequency: Once.	BEALE AFB <hr/> Initials <hr/> Date	USFWS <hr/> Initials <hr/> Date	USFWS	
MB-1: Pre-Project Survey Preconstruction surveys to identify the presence of monarch host plants and to determine if any monarch eggs are present within the project footprint will be performed by a qualified biologist. If monarch eggs are detected during surveys, they will be flagged with a 25-foot avoidance buffer. A qualified biologist will monitor the buffer areas and construction in proximity to the host plant may resume after the caterpillars have metamorphosed.	Activity: Conduct preconstruction survey. Timing: Before construction begins. Frequency: Once.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>MB-2: Milkweed Awareness Training</p> <p>As part of the Environmental Awareness Training, all individuals conducting work within the buffer area (100 or 250 feet as defined above) will receive training from a Qualified Biologist on the identification of milkweed plants and a description of both adult and larval monarchs in order to avoid milkweed and monarchs during all activities.</p>	<p>Activity:</p> <p>All individuals conducting work within the buffer area shall receive Milkweed Awareness Training.</p> <p>Timing:</p> <p>Before work begins.</p> <p>Frequency:</p> <p>Once per individual.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>MB-3: Milkweed Mitigation:</p> <p>Milkweed numbers and species will be assessed in project areas where impacts to milkweed may occur due to construction or restoration activities.</p> <ul style="list-style-type: none"> a. The impacts of milkweed removal in known monarch breeding areas will be minimized by planting equivalent milkweed species at a 3:1 ratio. The impacts of milkweed removal in habitat not known to be used by monarchs will be minimized by planting milkweed at a 2:1 ratio. b. Areas within or adjacent to occupied habitat (within 250 feet of a documented monarch breeding or roosting location), lacking extensive milkweed, where successful control of invasive species has been achieved, will be prioritized for planting. c. All newly planted milkweed will be regionally native and preferably of the same species removed. Milkweed species selection and replanting location will be at the discretion of the NRM. 	<p>Activity:</p> <p>Assessment and mitigation of milkweed.</p> <p>Timing:</p> <p>Before and after construction.</p> <p>Frequency:</p> <p>As needed.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>MB-4: Milkweed Buffer:</p> <p>A 2-foot buffer will be maintained around extant milkweed plants during off-road vehicle access, restoration and habitat enhancement planting, construction and ground-disturbing activities to protect monarch breeding habitat.</p>	<p>Activity:</p> <p>Maintain 2-foot buffer around extant milkweed plants.</p> <p>Timing:</p> <p>During project implementation.</p> <p>Frequency:</p> <p>Once, maintain as needed.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
MB-5: Reseeding/Habitat Enhancement: Projects within 250 feet to known monarch breeding locations will incorporate native plants important for monarchs (e.g., milkweeds, late-season flowering shrubs) as part of the landscape or revegetation plans. Reseeding and other habitat improvements will be prioritized away from roads and will avoid areas of frequent human activity to minimize the potential for incidental take. All seed mixes must be approved by the NRM.	Activity: Incorporate native plants in seed mix. Timing: During revegetation. Frequency: As needed.	Project Contractor <hr/> Initials <hr/> Date	BEALE AFB <hr/> Initials <hr/> Date		

Avoidance and Minimization Measure	Monitoring Activity/Timing/ Frequency/ Schedule	Implementation Responsibility/ Verification	Responsibility for Oversight of Compliance/ Verification	Outside Agency Coordination	Comments
<p>MB-6: Mowing:</p> <p>Generally, mowing will not be conducted within 100 feet of areas with suitable monarch habitat during the active season (15 March through 31 October).</p> <p>a. If mowing must be conducted (i.e., for habitat restoration projects benefiting Monarchs or other listed species) and vehicle access must be allowed, all milkweed plants will be identified and avoided.</p> <p>b. Additionally, if mowing occurs from March to June near areas where breeding occurs, mowing height will be set to a minimum of 10-12 inches to avoid cutting newly emerged plants.</p>	<p>Activity:</p> <p>No mowing within 100 feet of areas with suitable monarch habitat.</p> <p>Timing:</p> <p>15 March through 31 October</p> <p>Frequency:</p> <p>Whenever mowing.</p>	<p>Project Contractor</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>	<p>BEALE AFB</p> <hr/> <p>Initials</p> <hr/> <p>Date</p>		

1 **APPENDIX D FORMAL ESA SECTION 7 CONSULTATION**

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FORMAL BIOLOGICAL ASSESSMENT FOR DOOLITTLE POWER STATION



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MEMORANDUM FOR U.S. FISH AND WILDLIFE SERVICE

ATTN: MR. MICHAEL FRIS
2800 Cottage Way, Room W2605
Sacramento, CA 95825-1846

FROM: 9 CES/CEIE
6425 B Street, Bldg. 25390
Beale AFB, CA 95903-1708

SUBJECT: Formal Consultation (IPaC #2024-0016890) – Doolittle Power Station
Repair/Upgrade & Installation of 2-Megawatt Photo Voltaic Solar Array and
Microgrid with Battery Storage Project at Beale Air Force Base (AFB), California

1. The intent of this letter is to submit a formal biological assessment (BA, IPaC #2024-0016890) to the U.S. Fish and Wildlife Service (USFWS) to initiate consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973 (16 United States Code [U.S.C.] 1536) for the Doolittle Power Station Repair/Upgrade & Installation of 2-Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage Project at Beale Air Force Base (AFB), California. Beale AFB has prepared a formal BA document summarizing the details and effects of the project (Attachment).
2. The activities that will be authorized under this formal BA are not likely to adversely affect monarch butterfly (*Desmocerus californicus dimorphus*) but are likely to adversely affect vernal pool tadpole shrimp (*Lepidurus packardii*) and vernal pool fairy shrimp (*Branchinecta lynchi*). Beale AFB does not believe this project is likely to affect other candidate or federally listed species occurring in the general region of the action area on Beale AFB. This determination is based on field observations, prior consultations with USFWS, and experience with other past projects.
3. Please review the enclosed documents and if you have comments or need additional information on this project, contact Eli Rose, Beale AFB Natural & Cultural Resources Program Manager, at (530) 634-2382 or eli.rose.1@us.af.mil.

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BLAZE BAKER, 9 CES/CEI, USAF
Installation Management Flight Chief

Attachment:

Formal Consultation (IPaC #2024-0016890) – Doolittle Power Station Repair/Upgrade & Installation of 2-Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage Project at Beale Air Force Base (AFB), California

**DOOLITTLE POWER STATION REPAIR/UPGRADE &
INSTALLATION OF 2-MEGAWATT PHOTO VOLTAIC SOLAR
ARRAY & MICROGRID WITH BATTERY STORAGE
AT
BEALE AIR FORCE BASE, CALIFORNIA**

**Formal Biological Assessment
(IPaC Project Code # 2024-0016890)**

NOVEMBER 2023



PREPARED BY:

**BEALE AIR FORCE BASE
9 CES/CEIE
6425 B STREET
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ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
CM	Avoidance and Minimization Measure
BESS	Battery Energy Storage System
BWIP	Beale-Western Area Power Administration Interconnection Project
Dr	Drive
ESA	Endangered Species Act
ft	feet
HVAC	heating, ventilation, and air conditioning
IPaC	Information, Planning, and Consultation System
lbs	pounds
LiDAR	Light Detection and Ranging
MW	Megawatt
PV	Photo Voltaic
USFWS/Service	United States Fish and Wildlife Service

1.0 INTRODUCTION

The purpose of this formal consultation is to review the proposed Doolittle Power Station Repair/Upgrade and Installation of 2-Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage (Proposed Action) at Beale Air Force Base (AFB) in sufficient detail to determine to what extent the Proposed Action may affect threatened and endangered species and designated or proposed critical habitats under the Endangered Species Act (ESA). This formal consultation has been prepared for the United States Fish and Wildlife Service (USFWS) in accordance with legal requirements set forth under regulations for implementing Section 7 of the ESA (50 CFR 402.13; 16 USC 1536 (c)). As noted on the official USFWS planning lists, there is no designated or proposed critical habitat for any species within the Proposed Action Area (USFWS 2020a).

The Proposed Action Area is within the boundary of Beale AFB, Yuba County, California. The purpose of the Proposed Action is to improve electrical infrastructure and provide electrical energy resiliency to critical Global Hawk Campus systems at Beale AFB. The Proposed Action includes upgrades to the Doolittle Substation, the installation of a new 9.5-acre photo voltaic (PV) solar array, and a microgrid with battery energy storage system (BESS). Construction consists of the following:

- Demolish existing Doolittle Substation
- Construct new switch yard with cinderblock perimeter wall
- Connect underground transmission line from Beale-Western Area Power Administration Interconnection Project (BWIP) to interface with new fiber lines
- Install a new 9.5 acre 2-megawatt (MW) PV solar array field with chain-link security perimeter fence
- Install a new prefabricated structure with heating, ventilation, and air conditioning (HVAC) to house the new microgrid and BESS
- Pave two new parking spaces
- Install an aggregate driveway on Grumman Avenue and improve and widen pavements of the existing driveway on Doolittle Drive and around the water tank
- Alter an existing man-made drainage ditch with a water tower drainpipe valve to prevent site erosion from tank draining activities
- Install underground conduit

The following listed species may be affected by the Proposed Action and are addressed in this formal consultation:

- Vernal pool fairy shrimp (VPFS - *Branchinecta lynchi*) – **Federally Threatened**
- Vernal pool tadpole shrimp (VPTS - *Lepidurus packardii*) – **Federally Endangered**
- Monarch Butterfly (monarch - *Danaus plexippus*) – **Candidate Species**

The following species were eliminated from consideration for the reasons described in section 4.6 of this document:

- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) – **Federally Threatened**
- Conservancy fairy shrimp (*Branchinecta conservatio*) – **Federally Endangered**
- California red-legged frog (*Rana draytonii*) – **Federally Threatened**
- Western Yellow-billed Cuckoo (*Coccyzus americanus*) – **Federally Threatened**

There are no known occurrences of federally listed species in or within 250 feet (ft) of the Action Area, but there are features considered habitat. Adherence to the Avoidance and Minimization Measures (AMMs) included in the project description would prevent the Proposed Action from negatively impacting listed species and their habitats. For this reason, Beale AFB believes the Proposed Action warrants a determination of May Affect, Not Likely to Adversely Affect.

2.0 DESCRIPTION OF PROPOSED ACTION

2.1 Proposed Action

2.1.1 Overview

The PV solar array would be constructed on undeveloped land adjacent to the Doolittle Substation and the water tower east of Doolittle Drive. The proposed project location was selected because it is adjacent to the Doolittle Substation that supplies power to the flightline. The Proposed Action would occur on approximately 10 acres of land east and south of the existing Doolittle Substation and the Water Tower, and within the proposed, approved, designated location (Figure 1). The installation of the PV solar array, microgrid, and BESS adjacent to the Doolittle Substation, was determined to be the best location due to the proximity to the substation that provides energy to the Global Hawk Campus. Additionally, the proposed site includes disturbed, level to southwest sloped terrain, for natural stormwater runoff and solar efficiency.

The Proposed Action consists of the demolition of the existing Doolittle Substation, construction of a new switchyard surrounded by a cinder block wall, the installation of a new PV solar array, and a prefabricated structure with HVAC to house the new microgrid and BESS. Upgrades to the Doolittle Substation would consist of replacing transformers, switchgears, and adding a control room in a new switchyard constructed over and extending east of the existing substation. In addition, these upgrades would include trenching to run underground power and fiber communication lines from the Beale-Western Area Power Administration Interconnection Project (BWIP) transmission line project, in Doolittle Drive, to interface with the switchyard from the water tower driveway. The Proposed Action consists of the construction of a 2 MW PV solar array and installation of a prefabricated structure with HVAC to house the new 4 MW BESS that includes a smart microgrid to distribute renewable energy through the primary circuitry to the Global Hawk Campus. Currently, Global Hawk flying activities at Beale AFB are at risk of power failure and periods of non-operation in the event of a power failure because the mission lacks reliable backup power sources.

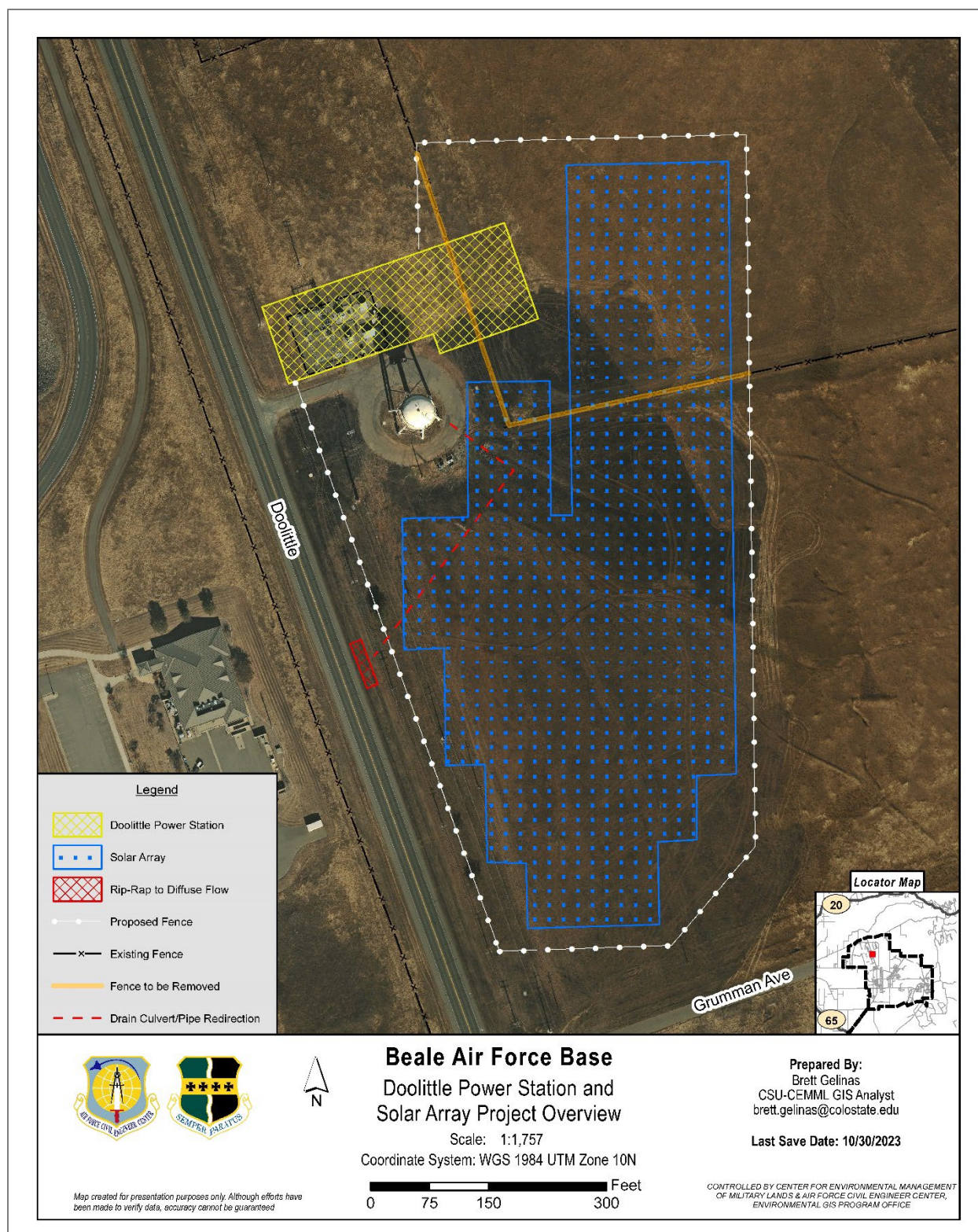


Figure 1: Overview of the Proposed Action Area, Beale AFB, California.

2.1.2 Demolition and Site Preparation

Site demolition would include existing chain-link and barbed wire fencing, electrical power equipment, power cabling, some pavement removal to construct paved entrances, and water tank drainpipe valve removal in the ditch line. The existing Doolittle Substation would be completely demolished before construction of the new switchyard is initiated, since it would be located on the existing substation footprint. All components shall be disposed of, or recycled off-Base. The 'B' and 'C' street substations shall provide electrical power to maintain the mission on the flightline during construction of the new Doolittle Power Station.

The existing five-strand barbed wire cattle fence would be relocated to make room for the installation of the PV solar panels located east and south of the Doolittle Substation (Figure 1). Preparation for the installation of the PV solar array would include grading portions of the area to lay a suitable aggregate (i.e., gravel, crushed granite, etc.) and pavements (i.e., concrete, asphalt) in three locations (shown as gray polygons in Figure 1). This would provide access for maintenance vehicles and to the new structures. All borrow soil would be tested for contaminants and approved by 9 CES/CEI prior to use. All excess materials would be tested for contaminants and disposed at an approved location. The contractor would submit material certification for approval prior to placement. There is an underground pipe originating from the water tank that ends at a concrete retainer wall at the top of a man-made drainage ditch. The drainpipe ends with a flapper eight inches beyond the concrete retainer wall. The drainpipe is used only if the water tower experiences damage and requires draining. The drainpipe would remain upslope of the proposed solar array and would include a flapper and diverter to reduce water flow pressure. Water from the site drain through the culverts under Grumman Avenue, then flows through culverts under Doolittle Drive.

2.1.3 Construction

Preparation of the area would include grading the portions around the designated solar panel rows and portions of the new switchyard to provide passageways for maintenance and emergency vehicles to pass, excavating for panel foundations, and trenching for utility lines throughout the site.

Creating site access would include a paved ingress/egress on Doolittle Drive (widening of the existing driveway) and installing a 30-ft wide gate at the access location. Two new paved parking spaces would be included for utility vehicles near the existing water tower. A new 6-ft chain-link security fence would be installed around the perimeter of the proposed site.

The solar panels of the PV array system would be installed at an angle facing southward to maximize sun exposure and potential power generation. The solar panel rows would be separated to ensure utility vehicles can access the panel assemblies during installation and maintenance. In addition to space between solar panel rows, there would be space around their perimeter to allow for vehicle access. These access areas/routes, although drivable during the dry season, would be managed with native low-growing vegetation to prevent surface erosion. Blanket mulch would be used to help restore vegetation and to protect from erosion resulting from drips off of panels. No gravel or herbicide would be used beneath the solar panels during site preparation or future site maintenance. Because the center rows and perimeter would remain vegetated, there would be very little new impervious surface created by the Proposed Action. The specific layout of the PV modules on the support structures would be determined during design. All modules and support structures would be within the designated boundary (Figure 1), and therefore different layouts would not alter the environmental effects disclosed in Section 4.

The new Doolittle Switchyard would be built within the footprint of the existing substation and extend eastward. The new switchyard would include new transformers, switch gears, and a prefabricated structure to house the microgrid and BESS. A concrete pad would be built inside the switchyard for the prefabricated structure and transformers. The prefabricated structure with HVAC would house the Smart Microgrid, BESS, and electrical distribution switchgear. A 6-ft high cinder block wall with raccoon exclusion on top would be built around the perimeter of the new switchyard. The new switchyard would have trenched underground conduits and power cables interconnected to the PV array, the incoming power supply lines, and outgoing power lines to the Global Hawk Campus.

A new aggregate apron would serve as an entrance south of the solar array along Grumman Avenue. Concrete pads would be constructed where PV inverters and transformers are installed. Underground conduit and cabling would be installed up to 30 to 36 inches deep to interconnect each panel row, inverters, transformers, and the switchgear. Revegetation of disturbed areas would consist of regionally native plants in a Beale AFB approved native seed mix.

The design would ensure that excess storm water runoff resulting from construction would not adversely affect surrounding areas. The storm drainage system could include, but would not be limited to, inlets, pipes, culverts, earthen swales, and splash blocks.

2.1.4 Staging Area

The staging area and laydown for the Proposed Action would occur within the Proposed Action Area (see Figure 1) and would have erosion control measures installed (e.g., wattles, silt fence) to prevent impacts to nearby wetlands.

2.1.5 Access Routes

The Proposed Action Area would be accessed via the driveway off of Doolittle Dr., along Doolittle Dr., and the new entrance off of Grumman Avenue.

2.1.6 Maintenance

Maintenance associated with the Proposed Action would consist of cleaning the solar arrays and mowing/weed eating the PV field at least once a year to ensure vegetation does not cover solar panels and to reduce fire hazards. Other than the access points, no gravel or herbicide will be used to suppress vegetation under, or in the vicinity of, the solar panels in the management of this solar field.

2.2 Avoidance and Minimization Measures

The Proposed Action would implement applicable Avoidance and Minimization Measures (AMM's) based upon similar construction projects conducted on Base that have received USFWS concurrence. The assessment of the potential impacts of the Proposed Action is based on the implementation of these measures.

Beale AFB and its contractors would implement the following AMM's to reduce the potential for adverse effects to vernal pool fairy shrimp, vernal pool tadpole shrimp, monarch butterflies, and their habitat. For the purposes of this consultation, a "qualified biologist," as referenced in this document, refers to an individual who, at a minimum, holds a four-year degree in a relevant biological field and who has demonstrated knowledge of and experience with vernal pool and monarch conservation. The NRM will review the resume(s) for sufficiency prior to submitting to the Service. The Service has five (5) working days to refuse the submittal.

Note: USFWS is referred to as the Service in this sub-section.

2.2.1 General Measures (GM)

- GM-1. **Pre-project Surveys:** A qualified biologist will conduct pre-project surveys of all ground disturbance areas in sensitive habitats, 2 weeks prior to the start of the project to confirm the information in this document is still correct and conditions have not changed. If any sensitive species are found during the pre-project surveys, the qualified biologist will contact the Beale AFB NRM who will coordinate with the Service. No project activities will begin until proponents have received written approval from the Service that the biologist(s) is qualified to conduct the work.
- GM-2. **Biological Monitor:** A qualified biologist will monitor construction activities in or adjacent to sensitive habitats. The biological monitor will ensure compliance with these Avoidance and Minimization Measures, required for protected species and their habitats. If protected species are found that are likely to be affected by work activities, the qualified biologist will have the authority to stop any aspect of the proposed action that could result in unauthorized take of a protected species. If the qualified biologist exercises this authority, the biologist will notify the Beale AFB NRM who will then contact the Service by telephone and email within 1 working day.
- GM-3. **Conservation Measure Review for Project Managers (at project kickoff):** Beale NRM will provide Conservation Measure review to contractor project managers, Beale project managers, contracting officer, and key personnel during pre-construction kickoff meeting. Contractor project managers will acknowledge review and understanding of Avoidance and Minimization Measures by signature.
- GM-4. **Environmental Awareness Training:** Environmental awareness training will be provided for all construction/field personnel working on the proposed project by the qualified biologist/monitor. All personnel will participate in training before activities begin and as new workers join the proposed project activities. The program will consist of a briefing on environmental issues related to the proposed project. The training program will include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each sensitive species that may occur in the action area. The presentation

will also include a discussion of the legal protection for endangered species under the ESA, including penalties for violations. A fact sheet conveying this information will be distributed to all personnel who enter the project site. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all avoidance and minimization measures. These forms will be maintained at Beale AFB and will be accessible to the appropriate resource agencies.

GM-5. Restricted Operations Period: No work will be conducted between 1 November and 1 May, unless specifically approved by the Beale AFB NRM and the Service; if weather continues to be fair. Work continuation is dependent on prevailing conditions, forecasted weather, and whether or not activities will damage soil or vegetative cover. The NRM must be contacted to obtain permission to work after each storm event. Permission to work after 1 November will not be granted once vernal pool wetlands are activated (standing water present). The only outdoor work allowed 12 hours before or after a storm event is the inspection, installation, and/or maintenance of erosion controls.

GM-6. Demarcation of Access Routes, Work and Staging Areas, and Sensitive Areas: Prior to initiation of the proposed project, boundaries of access routes, work areas, staging areas, and sensitive areas (water features, habitat for sensitive species), will be clearly demarcated with orange construction barrier fencing (or an appropriate alternative method). Coordinate with the qualified biologist to stake and flag the boundaries of all access routes, work areas, and staging areas that are within sensitive habitat buffers, as exclusion zones where construction activities may not occur, to indicate where to install appropriate boundary and containment materials for the project. The flagging and fencing will be clearly marked as identifying an environmentally sensitive area. The contractor will remove fencing, stakes, and flagging within 60 calendar days of project completion.

GM-7. Location of Work and Staging Areas: All materials, vehicle parking and staging areas shall be designated by the Beale Environmental Office and located at least 50 feet away from drainages and wetland features, or contained on hardscape surface. Storage of all construction material/debris will be kept to the designated storage/staging area. The number and size of staging areas and the total area of the activity will be limited to the minimum area necessary to achieve the project goal.

GM-8. Minimization of Off-Road Access Routes: Off-road access routes will be established in upland areas as much as possible, and road length will be the minimum necessary, to reduce adverse effects on wetland features. Where it is necessary for access routes to go through a wetland feature, weight-dispersing mats will be placed over the wetland feature to avoid any effects to sensitive species and/or sensitive habitats. Off-pavement access routes can only be used if the soil is dry. Any ruts or furrows caused by operations shall be raked level by hand, compacted and restored to normal grade. Access routes will be restored as closely as possible to preconstruction contours and elevations. This will be done prior to leaving the current area of operation.

GM-9. Trenches and Holes: No trenches or holes greater than 6 inches deep will be left open at the end of the day and will be covered (for example plywood, or other material) or an egress will be provided in coordination with NRM to prevent trapping animals. Trenched areas and holes will be compacted and restored to normal grade.

- GM-10. **Revegetation:** All upland vegetated areas disturbed by construction will be revegetated with the Beale AFB-approved native seed mix. Exposed soil must be hydro-seeded and depending on slope, covered with a biodegradable geotextile (no plastics) to prevent sediments from entering waterways. Any straw used for erosion control materials will be “certified weed free.” Reseeded areas will be monitored and maintained by the contractor as needed until there is 70% survival of plantings and 70% vegetated ground cover in the seeded area.
- GM-11. **Seed Mixes to Support Native Pollinators:** Include in seed mixes annual and short-lived perennial native forb species; these seeds will bloom in the first year and provide forage for native bees. Native wildflower mixes that bloom during different times of the year and in different flower colors will be given the highest preference.
- GM-12. **Suitable Material:** No activity may use unsuitable material (e.g., trash, debris, car bodies asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts.
- GM-13. **Pets/Firearms:** No pets or nonmilitary firearms will be allowed in the Action Area during proposed project implementation.
- GM-14. **Garbage Removal:** During construction activities, all trash will be properly contained, removed from the work site daily, and disposed of properly. Following construction, all refuse and construction debris will be removed from work areas. All garbage and construction-related materials in construction areas will be removed immediately following project completion.
- GM-15. **Green Waste Disposal:** All plant debris potentially containing reproductive parts (i.e., seeds or plant fragments for species that reproduce vegetatively) will be disposed of at an off-site landfill or green waste facility. It will be transported in a manner that prevents the spread of invasive plants to other locations. This action may require, but is not limited to, bagging the material before it is transported off-site.
- GM-16. **Invasive Species:** A qualified biologist will monitor and ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When practicable, invasive plants found in the action area will be removed using non-chemical methods. Specifically, equipment will be thoroughly cleaned of soil and vegetation before being delivered to the site to minimize the potential for spreading pathogens or exotic/invasive species. Equipment will be inspected by the qualified biologist and may be rejected if the qualified biologist determines that it has not been adequately cleaned.
- GM-17. **Invasive Species Monitoring:** The site will be added to the Annual Invasive Species Management work plan and will be surveyed and maintained with the existing weed program at Beale AFB.
- GM-18. **Fueling and Servicing in Designated Areas:** Motor vehicles and equipment will only be fueled and serviced in designated service areas. All fueling and maintenance of vehicles and other equipment will occur on a paved surface or at least 100 feet from any wetland feature/drainage, sensitive habitat, or water body, with spill containment. Prior to the onset of work, a plan will be prepared to allow a prompt and effective response to any

accidental spills. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

- GM-19. **Spill Plan:** A Spill Prevention Control and Countermeasure Plan will be prepared prior to the project implementation. All machinery will be properly maintained and cleaned to prevent spills and leaks. Any spills or leaks from the equipment/vehicles will be reported and cleaned up in accordance with applicable local, state and federal regulations. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. The spill plan will be submitted to the Beale AFB Environmental Office for approval.
- GM-20. **Equipment Condition:** Prior to use, all equipment will be cleaned to remove external oil, grease, fuels, dirt, or mud. All construction equipment/vehicles must be inspected daily, in good working condition, showing no signs of leaks. Equipment will be left on site, or inspected at return to the area. All equipment will have drip pans placed where potential leaks could occur and if equipment is idle for longer than 8 hours. All leaks will be repaired off-site or in a suitable location prior to resumption of construction activity.
- GM-21. **Erosion Control Systems:** Site-specific erosion control measures (i.e., hay bales, silt fencing) will be installed, maintained in effective operating condition and in place at all times during construction to protect drainage ditches, storm drains, wetlands and water bodies from sedimentation resulting from construction activity. All wetlands/ drainages/ vernal pools will have erosion control measures installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland. All exposed soil and other fills must be permanently stabilized at the earliest practicable date. Erosion control devices will not contain plastic, plastic netting, or any other non-natural materials, and will be “certified weed free” to prevent the spread of invasive species.
- GM-22. **Dust Control:** All unpaved road areas will be watered, or alternative dust control measures will be used, during project construction to prevent excessive dust from silting nearby vernal pools. No chemical dust control or tackifiers will be used.
- GM-23. **Excess Soil Protection:** Excess soil temporarily stored on-site during construction must be covered with geotextile stabilization blankets/tarp and wattles/gravel bags/socks to prevent exposure to the elements and to lessen chances of sedimentation due to storm water runoff and wind erosion. All remaining fill material will be removed in its entirety according to disposal requirements and the affected areas will be revegetated.
- GM-24. **Use of Excavated Soil on Base:** If excess materials, after appropriate testing has been conducted, are to be used on Beale AFB, the NRM will contact the Service before hauling the materials to ensure that the disposal site will not affect any sensitive species.
- GM-25. **Disposal of Excavated Soil:** All excess soil excavated during construction will be removed and disposed of at a landfill located off Beale AFB. If soil is contaminated, then Beale AFB Environmental Office will coordinate with the Army Corps of Engineers and/or Sacramento Water Regional Control Board, as appropriate prior to disposal of excavated soil.
- GM-26. **Upland Buffers:** Upland vegetated buffers will be established and maintained, to the maximum extent practicable, next to all preserved open waters, streams and wetlands

including created, restored, enhanced, or preserved Waters of the US. Except in unusual circumstances, vegetated buffers will be at least 50 feet in width.

GM-27. **Report Kills/Injuries:** Any worker who inadvertently kills or injures a protected species, or finds one injured or trapped, will immediately report the incident to the biological monitor. The biological monitor will notify Beale AFB NRM who will then verbally notify the Service within 3 business days and will provide written notification via email of the incident within 5 business days.

GM-28. **Trenching Controls:** In unimproved areas, the top 6 to 12 inches of the trench or hole should normally be backfilled with topsoil from the trench.

GM-29. **Temporary Fills:** Temporary fills must be removed in their entirety, and the affected areas returned to pre-construction elevations. The affected areas must be revegetated as appropriate.

2.2.2 Wetland and Vernal Pool Measures (VP)

VP-1. **Wetland Restricted Operations Period:** No work will be conducted within 100 feet of streams or wetland features between 1 November and 1 May.

VP-2. **Wetland Erosion Control:** All work conducted within 50 feet of a wetland feature shall have construction boundaries designated with fencing to ensure no equipment will be in the vicinity of a drainage/wetland/vernal pool. All wetlands/drainages/vernal pools will have erosion control measures (straw wattles, hay bales, silt fencing) installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland feature. Soil erosion and sediment control must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date.

VP-3. **Wetland Pre-project Vegetation Clearing:** If the project site is within 50 feet of a wetland feature, the pre-project clearing of vegetation will be done with hand equipment to ensure no subsurface disturbance below 6 inches occurs in or near the wetland. Mechanical clearing of vegetation is prohibited during the wet season.

VP-4. **Vernal Pool Invasive Species Removal:** If invasive species removal is required within a vernal pool (e.g., *Glyceria* infestations), only hand-pulling or hand tools will be used, with the minimum amount of soil disturbance required to remove target invasive species. All non-native biomass removed will be disposed of in a landfill. All soil will be replaced/left in the vernal pool it came from.

2.2.3 Monarch Butterfly Measures (MB)

MB-1. **Pre-Project Survey:** Preconstruction surveys to identify the presence of monarch host plants and to determine if any monarch eggs are present within the project footprint will be performed by a qualified biologist. If monarch eggs are detected during surveys, they will be flagged with a 25-foot avoidance buffer. A qualified biologist will monitor

the buffer areas and construction in proximity to the host plant may resume after the caterpillars have metamorphosed.

- MB-2. **Milkweed Awareness Training:** As part of the Environmental Awareness Training, all individuals working in the area will receive training from a qualified biologist on the identification of milkweed plants and a description of both adult and larval monarchs in order to avoid milkweed and monarchs during all activities.
- MB-3. **Milkweed Mitigation:** Milkweed numbers and species will be assessed in project areas where impacts to milkweed may occur due to construction or restoration activities.
- The impacts of milkweed removal in known monarch breeding areas will be minimized by planting equivalent milkweed species at a 3:1 ratio. The impacts of milkweed removal in habitat not known to be used by monarchs will be minimized by planting milkweed at a 2:1 ratio.
 - Areas within or adjacent to occupied habitat (within 250 feet of a documented monarch breeding or roosting location), lacking extensive milkweed, where successful control of invasive species has been achieved, will be prioritized for planting.
 - All newly planted milkweed will be regionally native and preferably of the same species removed. Milkweed species selection and replanting location will be at the discretion of the NRM.
- MB-4. **Milkweed Buffer:** A 2-foot buffer will be maintained around extant milkweed plants during off-road vehicle access, restoration and habitat enhancement planting, construction and ground-disturbing activities to protect monarch breeding habitat.
- MB-5. **Reseeding/Habitat Enhancement:** Projects within 250 feet to known monarch breeding locations will incorporate native plants important for monarchs (e.g., milkweeds, late-season flowering shrubs) as part of the landscape or revegetation plans. Reseeding and other habitat improvements will be prioritized away from roads and will avoid areas of frequent human activity to minimize the potential for incidental take. All seed mixes must be approved by the NRM.
- MB-6. **Mowing:** Generally, mowing will not be conducted within 100 feet of areas with suitable monarch habitat during the active season (15 March through 31 October).
- If mowing must be conducted (i.e., for habitat restoration projects benefiting Monarchs or other listed species) and vehicle access must be allowed, all milkweed plants will be identified and avoided.
 - Additionally, if mowing occurs from March to June near areas where breeding occurs, mowing height will be set to a minimum of 10-12 inches to avoid cutting newly emerged plants.

3.0 AFFECTED ENVIRONMENT

Beale AFB is in Yuba County, approximately 40 miles north of Sacramento. The Action Area is on the Brown's Valley 7.5-minute U.S. Geological Survey topographic quadrangle. The Proposed Action Area is located on the eastern side of Doolittle Drive, across from the flightline (Figure 1).

3.1 Vegetative Community

The vegetation in and around the Action Area is dominated by grassland species. Most of the grassland species at Beale AFB are naturalized grasses, with native bunch grasses found in varying densities in the pastures and along roadsides. Typical non-native grassland species found in the area include ripgut brome (*Bromus diandrus*), Italian ryegrass (*Lolium multiflorum*), soft chess (*Bromus hordeaceus*), medusahead grass (*Elymus caput-medusae*), annual fescue (*Vulpia myuros*), and foxtail barley (*Hordeum jubatum*). Interspersed with the grassland are a few ephemeral wetlands, which may provide habitat for the vernal pool fairy shrimp and the vernal pool tadpole shrimp. The dominant wetland plant taxa at Beale AFB are coyote thistle (*Eryngium vaseyi*), Fremont goldfields (*Lasthenia fremontii*), white-flowered navarretia (*Navarretia leucocephala*), annual hairgrass (*Deschampsia danthonioides*), fields owl's-clover (*Castilleja campestris*), and ornate downingia (*Downingia ornatissima*).

3.2 Site Soils

The soil type in the Action Area consist primarily of Redding-Corning Complex, 3 to 8 % slopes (Figure 3). Redding-Corning Complex soils are categorized as a well-drained soil with a low runoff classification. These soils are typically found in high fan terraces with slopes of 3 to 8 %. The hazard of soil erosion in this complex is slight. The depth to restrictive layer, typically a duripan, is from 20 to 40 inches (USDA 1998).

In March 2008, Beale AFB conducted a soil aquitard study to determine soil aquitard depth Base-wide. Various geological formations on Beale AFB feature soil aquitards, which are defined as subsurface soil horizons that restrict root growth and inhibit movement of water through the horizon. Results from this study indicate a high degree of variation in depth to soil aquitard, including within similar geomorphic formations (URS 2008).

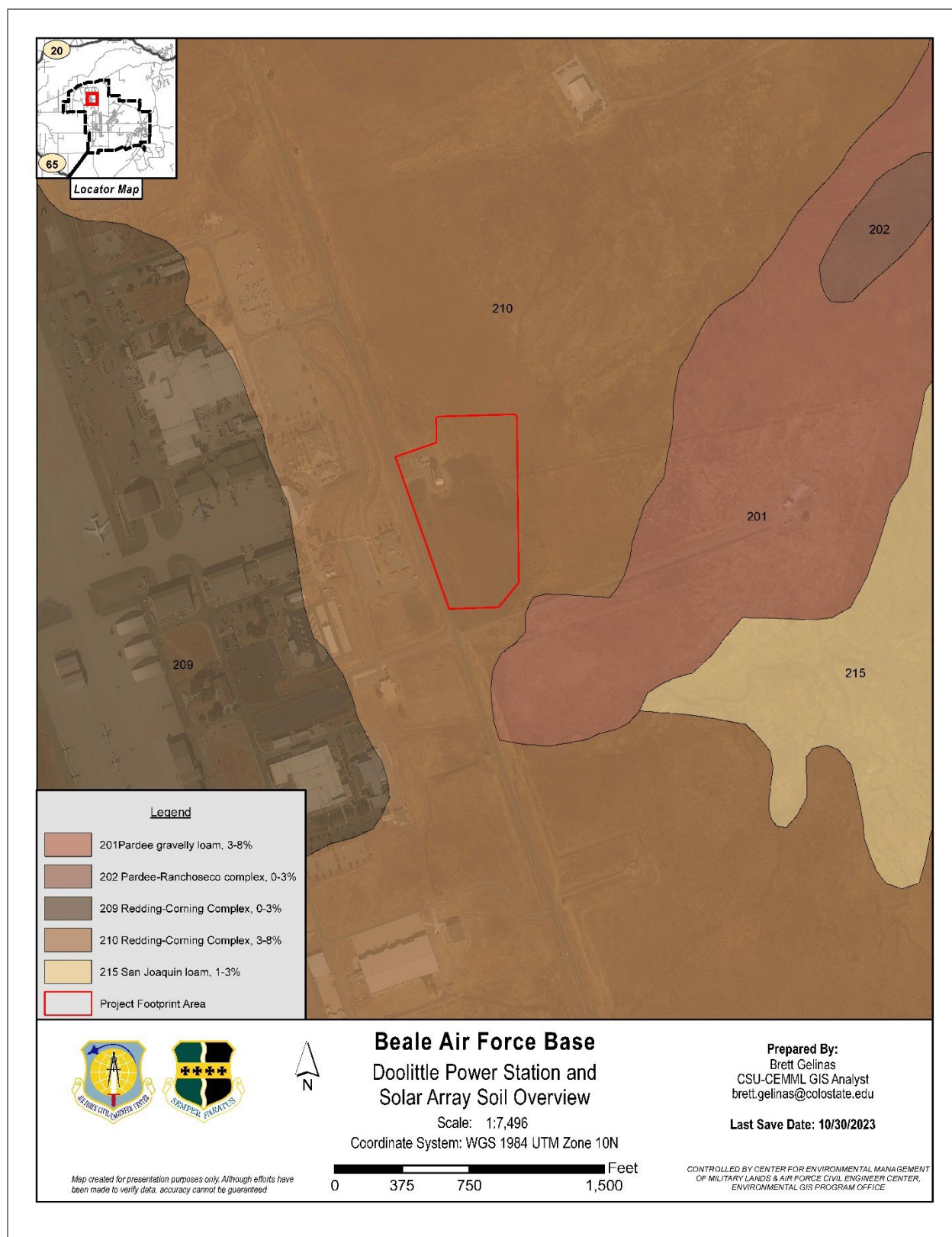


Figure 2. Site soils, Beale AFB, California.

3.3 Topography and Wetland Features

The topography of the area is moderately sloped, ranging from 2 to 8 %. The Proposed Action would occur on a largely undisturbed area of upland annual grassland. The site slopes east and south towards the drainage that runs beneath Grumman Avenue.

From 2006-2009, Light Detection and Ranging (LiDAR) was used to develop a preliminary jurisdictional delineation of wetland and water features at Beale AFB (USACE 2012) in order to develop a Base-wide inventory of aquatic features and Waters of the United States. In 2019 and 2020, the LiDAR data for the Proposed Action Area and a 250 ft buffer were ground-truthed and verified (e.g., examined for hydric soils, vegetation, and evidence of ponding as well as contours, slope, and depth) by Beale AFB biologists. This was done to confirm the location and classification of wetland features within the Proposed Action Area and buffer. Field observations verified the presence of all wetland features originally identified by LiDAR (Figure 3). One feature was originally delineated as a swale, but upon inspection was found to be a man-made ditch (Di1524) that is the drainage for the underground pipe extending from the water tower.

There are 26 wetlands within the Proposed Action Area and a 250 ft buffer (Table 1). They consist of five ditches, thirteen swales, and eight vernal pools. Most of the swales and vernal pools are hydrologically connected and make up a small portion of a vernal pool/seasonal swale complex that drains the eastern portion of the Base. All of the wetland features within 250 ft of the Proposed Action Area are lower in elevation than the Action Area.

Table 1. Aquatic features within 250 feet of the proposed Action Area.

Wetland Type	# of Features	Acreage
Ditch	5	0.65
Swale	13	1.053
Vernal Pool	8	0.434
Total	26	2.14

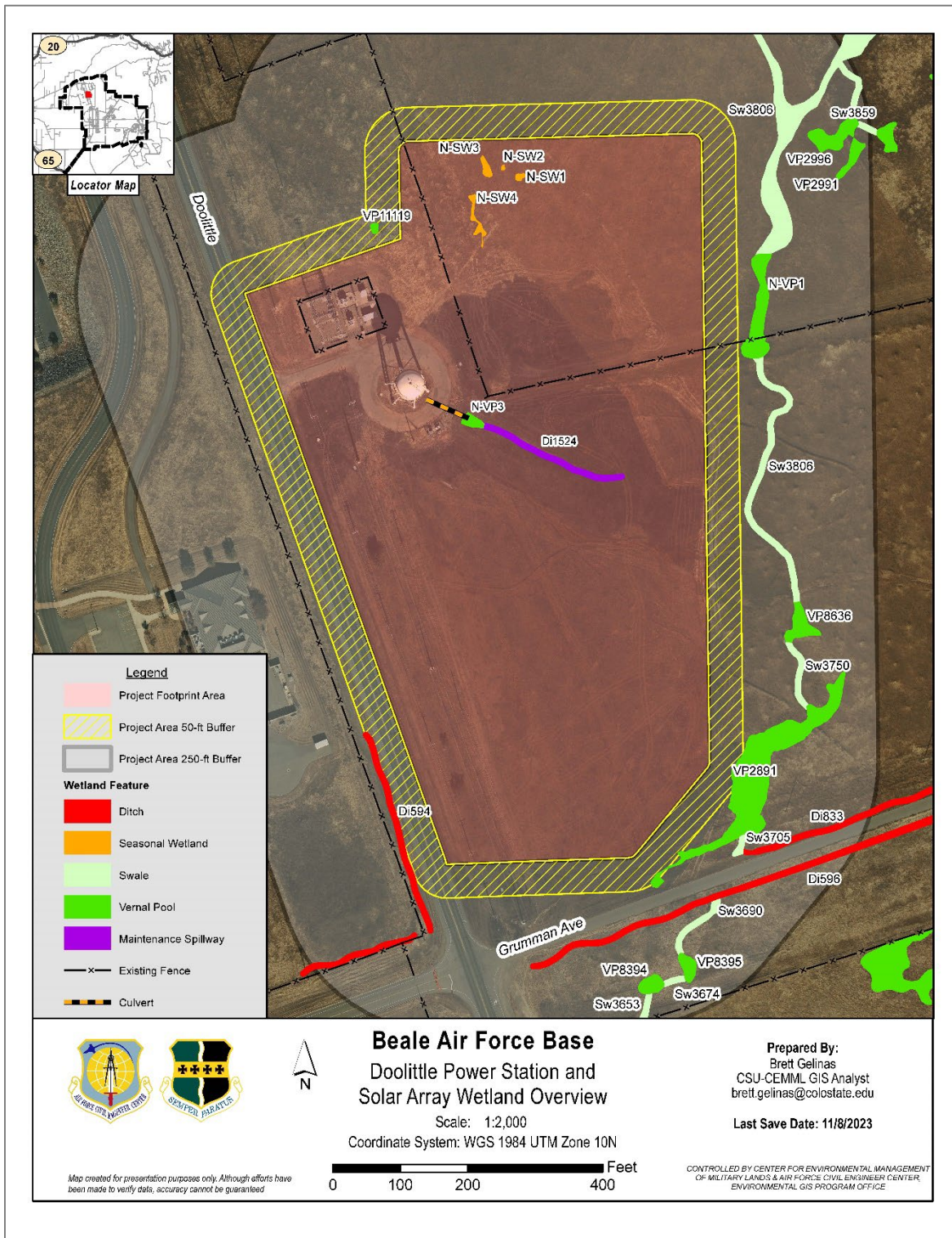


Figure 3. Wetlands within 250 ft of the Proposed Action Area, Beale AFB, California.

3.4 Threatened and Endangered Species/Habitat Considered

A preliminary list of species for consideration was compiled from official species lists maintained by USFWS, available in its Information for Planning and Consultation (IPaC) tool, and data from special status species surveys of Beale AFB. Federally-listed species with the potential to occur in or near the Action Area were evaluated to determine if the Proposed Action could affect the species or their habitat (Table 2).

Table 2. ESA-Listed Species with Potential to Occur at Beale AFB, California

Common Name	Scientific Name	Federal Status	State Status	Known to Occur at Beale AFB	Potential to Occur within Action Area
Crustaceans					
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	Threatened	None	Yes	Yes
Conservancy fairy shrimp	<i>Branchinecta conservatio</i>	Endangered	None	No	No
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	Endangered	None	Yes	Yes
Insects					
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	Threatened	None	Yes	No
Monarch Butterfly	<i>Danaus plexippus</i>	Candidate	None	Yes	Yes
Amphibians					
California red-legged frog	<i>Rana draytonii</i>	Threatened	None	No	No
Birds					
Western yellow-billed cuckoo	<i>Coccyzus americanus</i>	Threatened	Endangered	Unknown	No
Source: California Department of Fish and Wildlife (CDFW) 2019, USFWS IPaC Tool Dec 2, 2020 (USFWS 2020a).					

Of the species listed in Table 2, only vernal pool fairy shrimp, vernal pool tadpole shrimp, and monarch butterfly have the potential to be present in or near the Proposed Action Area and therefore, are considered in this consultation.

Vernal pool fairy shrimp (*Branchinecta lynchi*): The nearest known vernal pool fairy shrimp occurrence is approximately 980 ft from the Action Area. However, habitat exists within 250 ft of the Proposed Action (Beale AFB 2019).

Vernal pool tadpole shrimp (*Lepidurus packardii*): The nearest vernal pool tadpole shrimp occurrence is approximately 1,280 ft from the Action Area. However, habitat exists within 250 ft of the Proposed Action (Beale AFB 2019).

Monarch butterfly (*Danaus plexippus*): There are no records of monarchs within 250 ft of the project area. Additionally, there is no suitable breeding habitat (milkweed plant patches) or roosting sites (trees) for monarchs within 250 ft of the project area. The nearest known patch of milkweed plants is more than one mile from the Proposed Action Area (CEMML 2020a). There

are however, nectaring sources on the site in the form of annual wildflowers and native perennial bulbs (e.g., *Dichlostema* & *Brodiaea* spp.).

The remaining four species were excluded from further consideration for the following reasons:

Valley elderberry longhorn beetle (*Desmocerus californicus dimorphis*): No elderberry exists within the Action Area. The nearest blue elderberry shrub (*Sambucus nigra* subsp. *caerulea*) occurrence is located more than one mile from the Action Area (CEMML 2020b). Therefore, this species was eliminated from further consideration.

Conservancy fairy shrimp (*Branchinecta conservatio*): This species is not likely to occur on Beale AFB, and there are no known occurrences of the species within 10 miles of the Base (Beale AFB 2020). Therefore, this species was eliminated from further consideration.

California red-legged frog (*Rana draytonii*): An amphibian assessment of Beale AFB, did not find any California red-legged frogs (CRLF) on Base and they are believed to be historically present but extirpated (EDAW 2006, URS Corporation 2008b). Although CRLF habitat may have been present on Beale AFB in the past, poor habitat conditions and the presence of predators including the American bullfrog (*Lithobates catesbeianus*) do not allow populations to persist. The nearest recorded observation of CRLF was 32.5 miles from Beale AFB (CDFW 2019). Therefore, this species was eliminated from further consideration.

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*): The western distinct population segment of the yellow-billed cuckoo was evaluated due to its relatively recent ESA listing as threatened. A habitat assessment for yellow-billed cuckoo was conducted on Beale AFB in 2018 (Halterman 2019) and additional surveys were performed in the summer of 2020 (CEMML 2020c). The Dry Creek area was determined to be poor to marginal habitat for yellow-billed cuckoo and not likely to support a breeding population of the species. If cuckoos occasionally occur in this area, it is likely only as a part of a migration. Additionally, the closest suitable habitat is greater than two miles from the Proposed Action Area. Therefore, this species was eliminated from further consideration.

4.0 ANALYSIS OF PROPOSED ACTIONS

The following subsections provide a summary of the anticipated direct and indirect effects to listed species that may occur as a result of the Proposed Action. Direct and indirect effects on listed species are evaluated based on USFWS definitions; direct effects are those that occur as an immediate result of the Proposed Action; while indirect effects are those reasonably certain to occur later in time, that are caused by or resulting from the Proposed Action [50 Code of Federal Regulations (CFR) §402.02].

4.1 Effects of the Proposed Action on Monarch Butterflies

The Proposed Action has limited potential for indirect impacts to western monarchs from temporary loss of nectar sources during construction of the new solar array, however, the erosion control seed mix prescribed for restoration of disturbed areas associated with this project includes native flowers that can serve as nectar sources. This would ultimately improve the site for pollinators overall.

The Proposed Action would not jeopardize the continued existence of monarch butterflies because:

- No overwintering habitat would be affected.
- There are no known breeding sites in the Action Area.
- Any impacts on monarchs would not be sufficient to preclude both the survival and recovery of the population as a whole.
- Outside the activity footprints, baseline conditions of the habitat would be maintained.

If the monarch becomes listed before the project is complete, a provisional effects determination is provided in Chapter 5.

4.2 Effects of the Proposed Action on Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

VPFS and VPTS (vernal pool branchiopods) may be present in some portions of the Action Area based on habitats and proximity of previous observations of these species. Direct and indirect effects on vernal pool branchiopods are evaluated based on USFWS definitions; direct effects are those that occur as an immediate result of the Proposed Action, while indirect effects are those that are caused by, or will result from, the Proposed Action, but are still reasonably certain to occur at a later time (50 Code of Federal Regulations [CFR] §402.02).

All aquatic features (e.g., vernal pools, swales, seasonal wetlands, ditches, and streams) within 250 feet of the Proposed Action Area were evaluated for the potential for direct or indirect impacts (Table 3). A total of 26 features encompassing 2.14 acres of wetland were analyzed for potential impacts. Each habitat feature was evaluated for habitat and assigned one of three impact categories: Avoided, Direct, or Indirect. Each feature was assigned a single category; for example, if a vernal pool lies partially within an activity footprint, it was categorized as a Direct impact for the entire feature. The assignments were based on the location of the feature relative to the activity footprint, the relative elevations of the feature, and the nature of the activity. Impact categories are described as follows:

Avoided: This category was chosen for features that could be avoided through project design or by using AMM's. Impacts to wetland features more than 30 feet away from the activity footprint are considered avoidable using AMMs if 1) the feature is higher than the proposed ground disturbance, or 2) the feature is lower in elevation, not hydrologically connected to an impacted feature, and ground disturbance would not penetrate the hardpan (≤ 5 ft).

Direct Impacts: Direct impacts are those that would occur when a feature overlaps with the activity footprint and disturbance cannot be avoided.

Indirect Impacts: Indirect impacts may occur within habitat features that are outside the activity footprint but downgradient or hydrologically connected to features that would be directly affected. These effects would occur later, after ground disturbing activities have ceased, and could include alteration of watershed topography; damage to the impervious soil layer that supports vernal pool hydrology; alteration of the amount, duration, and timing of surface water runoff; introduction of invasive plants or animals that alter the quality of habitat for vernal pool branchiopods; and degradation of water quality. Elevation and relative gradients were established using LiDAR contours dated October 2021.

Indirect impacts could also occur on habitat features not hydrologically connected to features intersecting the footprint if the features are downgradient and AMMs could not be used to avoid impacts.

4.2.1 Listed Branchiopod Impacts

The Proposed Action includes: 1) installing a perimeter fence, 2) constructing the solar array, 3) re-routing water tower drainpipe, and 4) expanding an existing switchyard. There is a total of seventeen aquatic features (1.47 acres) identified as vernal pool branchiopod habitat within the Proposed Action area and associated 250 feet buffer, including nine swales (1.03 acres) and eight vernal pools (0.43 acres). All seventeen features are lower or equal in elevation to the proposed activities, however only five features are within 100 feet of the proposed activities (N-VP3, VP11119, VP2891, SwN-VP1, Sw3806). All other features are not hydrologically connected to features within the Action Area and are either 1) separated from the Action Area by more than 100 feet of upland vegetation or 2) separated from the Action Area by a paved roadway.

Of the five features within 100 feet of the Action Area, three features (VP2891, Sw3806, and SwN-VP1) can be protected from nearby fence installation activities using silt fence placed a minimum of 20 feet from the feature. The nearest construction activity to each of these would be installation of a six-foot-tall chain-link fence, with the greatest ground disturbance resulting from setting fence posts.

Of the two remaining features, N-VP3 (0.01 acres) will be subject to direct impacts, as it is within the footprint of both the solar array installation and the re-routing of the water tower drainpipe. N-VP3 will be disturbed and filled because of the Proposed Action.

In addition, VP11119 will be subject to indirect impacts. While VP11119 will be protected using silt fence, the feature is close enough (19.4 feet) to the ground disturbing activities associated with expanding an existing switchyard that some sedimentation resulting from the project is likely. Although the switchyard expansion will include footings to support a perimeter CMU wall, the footings (3' deep) would not penetrate the hardpan nor alter subsurface hydrology.

The following Conservation Measures apply to this Project:

- Install Perimeter Fence: GM-1 through GM-11, GM-13, GM-14, GM-16 through GM-27, VP-1 through VP-6, MB-1 through MB-6.
- Construct Solar Array: GM-1 through GM-14, GM-16 through GM-29, VP-1 through VP-6, MB-1 through MB-6.
- Re-route Water Tower Drainage: GM-1 through GM-29, VP-1 through VP-6, MB-1 through MB-6.
- Switchyard Expansion: GM-1 through GM-29, VP-1 through VP-6, MB-1 through MB-6.

Table 3: Impacts and determination justification for wetland features within 250 ft of Proposed Action Area, Beale AFB, California. Wetlands and determination justifications for potentially impacted features within 250 ft of proposed action area. Features beyond 150 ft are only included if hydrologically connected to impacted features, or if impacts are not avoidable.

ID	Wetland Type	Distance to Action Area (ft)	Acreage	Relative Elevation	Branchiopod Habitat	Direct Impacts	Indirect Impacts	Justification
Compensation and or Protection Required								
N-VP3	Vernal Pool	0	0.01	Equal	Y	0.01	N/A	This feature is low quality habitat that has developed at the water tower drain outlet. N-VP3 will be filled in to accommodate the solar array.
11119	Vernal Pool	19.4	0.004	Lower	Y	N/A	0.004	Small, isolated vernal pool northwest of the Action Area. Lower than Action Area, but not hydrologically connected to other wetland features. This feature will be protected using silt fence but could be subject to indirect impacts.
VP2891	Vernal Pool	34.1	0.29	Lower	Y	N/A	N/A	Silt fence will be placed a minimum of 20 feet from this feature to protect from potential impacts. The only work within 50 feet of this feature will be fence installation.
N-VP1	Swale	54.1	0.08	Lower	Y	N/A	N/A	The nearest construction activity (fence installation) will be more than 50 feet from this feature. BMP's will be placed a minimum of 20 feet from this feature to protect from potential impacts (Conservation Measure WVP #2).
3806	Swale	56.1	0.82	Lower	Y	N/A	N/A	Large swale that acts as the main drainage for the vernal pool/swale complex east of the Action Area. The nearest construction activity (fence installation) will be more than 50 feet from this feature. BMP's will be placed a minimum of 20 feet from this feature to protect from potential impacts (Conservation Measure WVP #2).
No Compensation or Protection Required								
1524	Ditch	0	0.06	Equal	N	N/A	N/A	Man-made ditch within Action Area through which outflow pipe would be extended. Some facultative wetland plants present, but no obligate species, mixed with upland vegetation. Slope of ditch such that potential for ponding is limited.
N-SW1	Swale	0	0.003	Equal	N	N/A	N/A	This feature will be impacted by the proposed action but does not retain water long enough to be branchiopod habitat.
N-SW2	Swale	0	0.001	Equal	N	N/A	N/A	This feature will be impacted by the proposed action but does not retain water long enough to be branchiopod habitat.

ID	Wetland Type	Distance to Action Area (ft)	Acreage	Relative Elevation	Branchiopod Habitat	Direct Impacts	Indirect Impacts	Justification
N-SW3	Swale	0	0.007	Equal	N	N/A	N/A	This feature will be impacted by the proposed action but does not retain water long enough to be branchiopod habitat.
N-SW4	Swale	0	0.01	Equal	N	N/A	N/A	This feature will be impacted by the proposed action but does not retain water long enough to be branchiopod habitat.
594	Ditch	41	0.07	Lower	N	N/A	N/A	Located across Doolittle Dr. from Action Area. Shallow drainage ditch on the edge of road, west of the Action Area. Does not support vernal pool hydrology or flora.
596	Ditch	94.4	0.4	Lower	N	N/A	N/A	Located across Grumman Avenue. from the Project Area. Shallow drainage ditch that drains into Sw3705. Does not support vernal pool hydrology or flora.
3705	Swale	101.8	0.008	Lower	Y	N/A	N/A	Small swale that is a part of the vernal pool/swale complex southeast of the Action Area. This feature is separated from the nearest activity (fence installation) by more than 100 feet of upland vegetation.
591	Ditch	111	0.04	Lower	N	N/A	N/A	Located across Doolittle Dr. from Action Area. Shallow drainage ditch on the edge of road, west of the Action Area. Does not support vernal pool hydrology or flora
8636	Vernal Pool	113.6	0.03	Lower	Y	N/A	N/A	Moderate-sized vernal pool that is part of the vernal pool/swale complex east of the Action Area. This feature is separated from the nearest activity (fence installation) by more than 100 feet of upland vegetation.
3750	Swale	114.7	0.02	Lower	Y	N/A	N/A	Small swale that is part of the vernal pool/swale complex east of the Action Area. This feature is separated from the nearest activity (fence installation) by more than 100 feet of upland vegetation.
833	Ditch	118.2	0.08	Lower	N	N/A	N/A	Shallow drainage ditch that drains into Sw3705. Does not support vernal pool hydrology or flora.
3690	Swale	129.7	0.02	Lower	Y	N/A	N/A	Small swale that is a part of the vernal pool/swale complex south of the Action Area across Grumman Avenue. This feature is separated from the nearest activity (fence installation) by a paved roadway.

4.2 Future Effects

Future indirect impacts could come from routine maintenance to clean and repair the solar arrays, as well as mowing/weed eating. Proper timing of this maintenance – during the summer months, when vernal pools are dry and most grassland plants are dormant – should minimize any damaging effects to nectar sources. Ideally, the site would primarily be maintained using weed-whacking, with limited mowing. As long as it does not increase the fire risk, this would allow workers to trim vegetation to 7-8 inches high, which would allow some low-growing late-season blooms to remain.

There is the potential for long-term indirect effects to vernal pool species from increased runoff and erosion from the site. However, with the implementation of AMMs specifying native plants be used as ground cover, the long-term erosion and runoff risk would be minimal. If emergency maintenance or repair is required during the wet season, access routes and AMMs will be determined by the NRM or qualified biologist.

4.3 Cumulative Effects

Under ESA, cumulative effects are defined as those effects of future private, state, and tribal activities in addition to the current project effects, not involving federal activities under these projects, which are reasonably certain to occur in the Action Area of the federal action subject to consultation (50 CFR §402.02). This definition applies only to Section 7 analyses and should not be applied to the consideration of cumulative effects in the context of documents prepared in compliance with the National Environmental Policy Act or other environmental laws. Future federal actions that are unrelated to the Proposed Action would require separate consultation pursuant to Section 7 of the ESA. Since all actions occurring on Beale AFB are federal actions and are analyzed separately for impacts on threatened and endangered species, no cumulative effects would occur.

4.4 Conclusion and Compensation

The Proposed Action has limited potential for temporary impacts to nectar sources that could be used by monarch butterflies. Any temporary impacts would be offset through restoration of the Action Area using a seed mix designed for pollinators (AMM's: GM-12 and MB-3).

The proposed action will have both direct and indirect impacts on federally listed vernal pool species habitat (Table 4, Figure 4).

Beale AFB proposes mitigation compensation based on wetland location and impact type (Table 4). Mitigation for wetland features that provide habitat to vernal pool fairy shrimp and vernal pool tadpole shrimp will be at a ratio of 3:1 for direct impacts and 1:1 for indirect impacts. Prior to project initiation, mitigation will be compensated using Beale AFB on-site designated preservation acreage.

Table 4. Summary of Impacts on Branchiopod Habitat and Compensation associated with the Proposed Action, Beale Air Force Base, California.

Project	Implementation Date	In BCRA?	Direct Impacts on Suitable Habitat (acres)	Proposed Compensation for Direct Impacts: 3:1 ratio	Indirect Impacts on Suitable Habitat (acres)	Proposed Compensation for Indirect Impacts: 1:1 ratio	Total Proposed Compensation (acres)
Doolittle Power Station Repair/upgrade & Installation of 2 MW Photo Voltaic Solar Array & Microgrid with Battery Storage	May 2024	No	0.01	$0.01 \times 3 = 0.03$	0.004	0.004	0.034

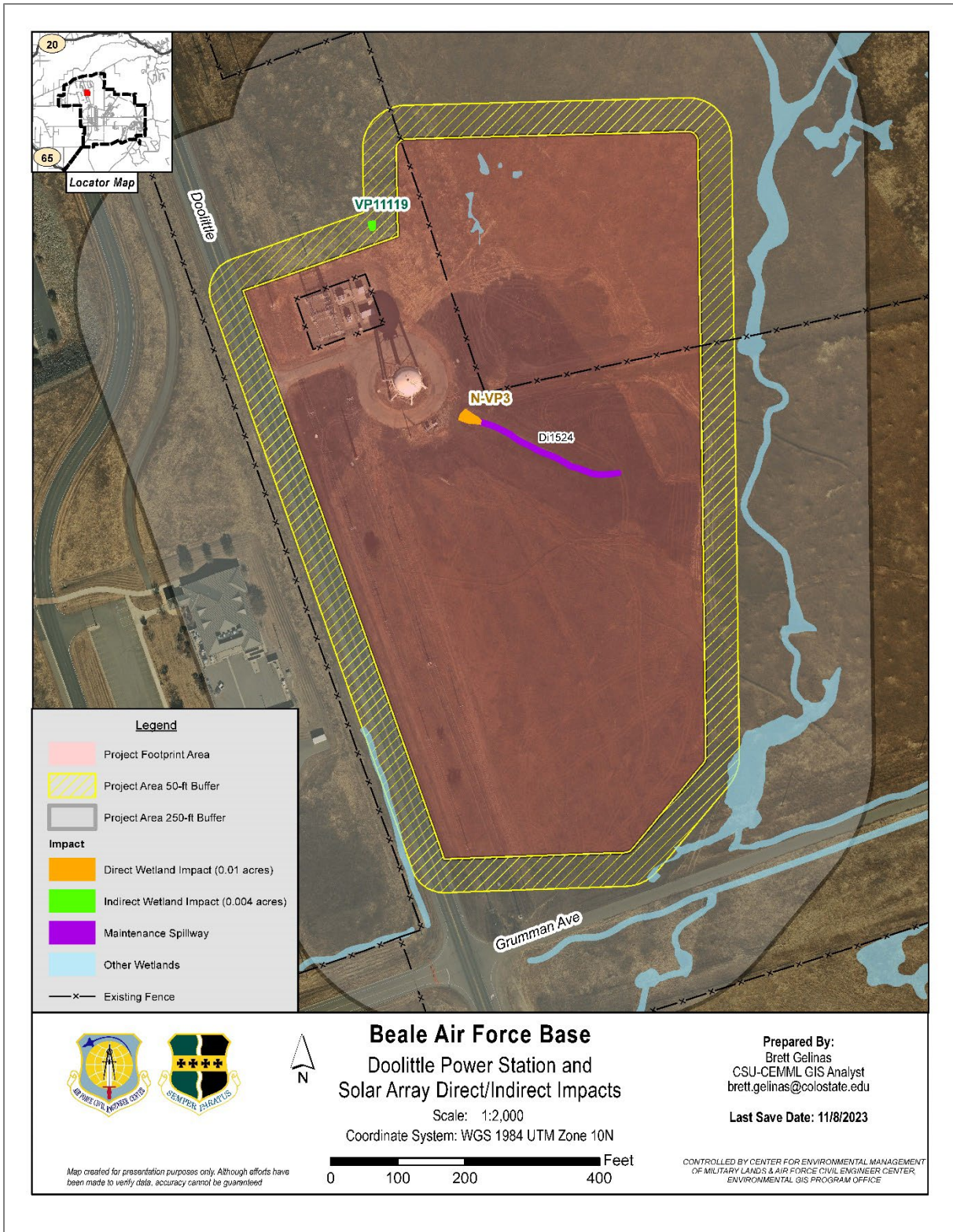


Figure 4. Impacts to ESA listed branchiopod species habitat within Proposed Action Area on Beale Air Force Base, California.

5.0 SUMMARY OF DETERMINATIONS

The information and analysis presented in this document formed the basis for the finding that the Proposed Action warrants the following effects determination for species listed under the ESA with the potential to occur within or near the Proposed Action Area. Beale AFB has determined that the Proposed Action is likely to adversely affect vernal pool fairy shrimp and vernal pool tadpole shrimp, and may affect, but is not likely to adversely affect monarch butterfly, which occur or have the potential to occur within the Proposed Action Area. Table 5 summarizes the determinations of the analysis of the species with potential to occur in the Action Area and included in this consultation.

Table 5: Summary of Endangered Species Act determinations at the 2 Megawatt Photo Voltaic Solar Array and Microgrid Action Area, Beale AFB, California

Species	Endangered Species Act Determination
Vernal Pool Fairy Shrimp (<i>Branchinecta lynchi</i>)	Likely to Adversely Affect
Vernal Pool Tadpole Shrimp (<i>Lepidurus packardi</i>)	Likely to Adversely Affect
Monarch Butterfly (<i>Danaus plexxipus</i>)	May Affect, Not Likely to Adversely Affect

6.0 REFERENCES

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- U.S. Fish and Wildlife Service (USFWS). 2020a. IPaC Resource List. <https://ecos.fws.gov/ipac/location/XVLXIYWUMFB63HMB4GKDFVHC4Y/resources>. Accessed April 1, 2020.
- U.S. Fish and Wildlife Service (USFWS). 2020b. Formal Consultation on the Beale-Western Area Power Administration Interconnection Project, Beale Air Force Base, Yuba County, California. May 7, 2020. Reference #08ESMF00-2019-F-0633.

FORMAL BIOLOGICAL OPINION FOR DOOLITTLE POWER STATION



United States Department of the Interior

FISH AND WILDLIFE SERVICE
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In Reply Refer to:
2022-0044492-S7-001-R001

May 3, 2024
Sent-Electronically

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Subject: Formal Consultation on the Doolittle Power Station Repair/Upgrade & Installation of 2-Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage Project at Beale Air Force Base, Yuba County, California

Dear Blaze Baker:

This letter is in response to the Beale Air Force Base (Beale AFB) November 16, 2023, request to initiate formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Doolittle Power Station Repair Solar Array Project (proposed project), at Beale AFB in Yuba County, California. Your request was received November 17, 2023. The Service and Beale AFB previously completed a July 11, 2022, informal consultation (2022-0044492) on the same project. Since the informal consultation was completed, the project description has changed and additional effects were discovered to vernal pool habitat. At issue are the proposed project's effects on the federally-listed as threatened vernal pool fairy shrimp (*Branchinecta lynchi*) (fairy shrimp) and the federally-listed as endangered vernal pool tadpole shrimp (*Lepidurus packardii*) (tadpole shrimp). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act) and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

The federal action on which we are consulting are upgrades to the Doolittle Substation, the installation of a new 9.5-acre photo voltaic (PV) solar array, and a microgrid with battery energy storage system (BESS). Pursuant to 50 CFR 402.12(j), you submitted documents for our review and requested concurrence with the findings presented therein. These findings conclude that the proposed project may affect and is likely to adversely affect the fairy shrimp and tadpole shrimp. The proposed project is not within designated or proposed critical habitat for any federally-listed species.

In considering your request, we based our evaluation on the following: (1) your November 16, 2023, letter initiating consultation; (2) the November 2023, *Doolittle Power Station Repair/Upgrade & Installation of 2-Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage Project at Beale Air Force Base Biological Assessment*; (3) updates to the November 2023, *Doolittle Power Station Repair/Upgrade & Installation of 2-Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage Project at Beale Air Force Base Biological Assessment*; (4) email and telephone correspondence between the Service and Beale AFB between December 2022 and March 2024; and (4) other information available to the Service.

Consultation History

November 17, 2023: The Service received a letter from Beale AFB requesting initiation of formal consultation.

November 21, 2023: The Service conducted a site visit to the action area.

The remainder of this document provides our biological opinion on the effects of the proposed project on the fairy shrimp and the tadpole shrimp.

BIOLOGICAL OPINION

Description of the Proposed Action

The proposed project is located on Beale AFB approximately 40 miles north of Sacramento, 8 miles east of Marysville and 20 miles west of Grass Valley in Yuba County, California. The purpose of the proposed project is to improve electrical infrastructure and provide electrical energy resiliency to critical Global Hawk Campus systems at Beale AFB. The proposed project upgrades to the Doolittle Substation, the installation of a new 9.5-acre PV solar array, and a microgrid with BESS. Construction consists of the following:

- Demolish existing Doolittle Substation
- Construct new switch yard with cinderblock perimeter wall.
- Connect underground transmission line from Beale-Western Area Power Administration Interconnection Project to interface with new fiber lines.
- Install a new 9.5 acre 2-megawatt PV solar array field with chain-link security perimeter fence.
- Install a new prefabricated structure with heating, ventilation, and air conditioning (HVAC) to house the new microgrid and BESS.
- Pave two new parking spaces.
- Improve and widen pavements of the existing driveway on Doolittle Drive and around the water tank.
- Alter an existing man-made drainage ditch with a water tower drainpipe valve to prevent site erosion from tank draining activities; and
- Install underground conduit.

Demolition and Site Preparation

The existing Doolittle Substation will be completely demolished in order to build the new switchyard on the existing substation footprint. All components shall be disposed of, or recycled off-base. The 'B' and 'C' street substations shall provide electrical power to maintain the mission on the flightline during construction of the new Doolittle Power Station.

The existing five-strand barbed wire cattle fence will be relocated to make room for the installation of the PV solar panels located east and south of the Doolittle Substation. Preparation for the installation of the PV solar array will include grading portions of the area to lay a suitable aggregate (i.e., gravel, crushed granite, etc.) and pavements (i.e., concrete, asphalt). This will provide access for maintenance vehicles to the new structures. Prior to construction the proposed project site will be leveled and any fill that needs to be brought in from off the proposed project site will be tested for contaminants and approved by 9 CES/CEI prior to use. All excess materials will be tested for contaminants and disposed at an approved location. The contractor will submit material certification for approval prior to placement. Water from the site drains through the culverts under Grumman Avenue, then flows through culverts under Doolittle Drive.

Construction

Preparation of the area will include grading the portions around the designated solar panel rows and portions of the new switchyard to provide passageways for maintenance and emergency vehicles to pass, excavating for panel foundations, and trenching for utility lines throughout the site.

Site access will include improvements to the existing paved driveway on Doolittle Drive and widening by 12 feet. A 30-foot wide gate will be installed at each access location. Two new 5-foot by 18-foot (total 360 square feet) paved parking spaces will be included for utility vehicles near the existing water tower. A new 6-foot chain-link security fence will be installed around the perimeter of the proposed site.

The solar panels of the PV array system will be installed at an angle facing southward to maximize sun exposure and potential power generation. The solar panel rows will be separated to ensure utility vehicles can access the panel assemblies during installation and maintenance. In addition to space between solar panel rows, there will be space around their perimeter to allow for vehicle access. These access areas/routes, although drivable during the dry season, will be managed with native low-growing vegetation to prevent surface erosion. Blanket mulch will be used to help restore vegetation and to protect from erosion resulting from drips off of panels. No gravel or herbicide will be used beneath the solar panels during site preparation or future site maintenance. The center rows and perimeter will remain vegetated, and the impervious surface area created by the installation of PV array system will be less than 200 square feet. Therefore, no change in the catchment area or hydrology are anticipated.

The new Doolittle Switchyard will be built within the footprint of the existing substation and extend eastward. A concrete pad will be built inside the switchyard for the prefabricated structure and transformers resulting in approximately 0.87 acre of impervious surface. A 6-foot-high cinder block wall with raccoon exclusion on top will be built around the perimeter of the new switchyard. The new switchyard will have trenched underground conduits and power cables interconnected to the PV array, the incoming power supply lines, and outgoing power lines to the Global Hawk Campus.

Concrete pads will be constructed where PV inverters and transformers are installed. Underground conduit and cabling will be installed 30 to 36 inches deep to interconnect each panel row, inverters, transformers, and the switchgear. Revegetation of disturbed areas will consist of regionally native plants in a Beale AFB approved native seed mix.

Staging Area

The staging area and laydown for the proposed project will occur within the proposed action area and will have erosion control measures installed (e.g., wattles, silt fence) to prevent impacts to nearby wetlands.

Access Routes

The proposed action area will be accessed via the driveway off of Doolittle Drive, along Doolittle Drive, and the new entrance off of Grumman Avenue.

Maintenance

Maintenance associated with the proposed project will consist of cleaning the solar arrays and mowing/weed eating the PV field at least once a year to ensure vegetation does not cover solar panels and to reduce fire hazards. Other than the access points, no gravel or herbicide will be used to suppress vegetation under, or in the vicinity of, the solar panels in the management of this solar field. Any plant invasive (weed) management will follow all parameters and recommendations outlined in the 2020 Non- Native and Noxious Plant Species Management Consultation (08ESMF00 2020-I-1563).

Conservation Measures

Beale AFB and its contractors will implement the following measures to reduce the potential for adverse effects to fairy shrimp, tadpole shrimp and their habitat. For the purposes of this consultation, a “qualified biologist,” as referenced in this document, refers to an individual who, at a minimum, holds a four-year degree in a relevant biological field and who has demonstrated knowledge and experience with fairy shrimp and tadpole shrimp and vernal pool habitat.

General Conservation Measures (GM)

GM-1: Pre-Project Surveys - A qualified biologist will conduct pre-project surveys of all ground disturbance areas in sensitive habitats, 2 weeks prior to the start of the project to confirm the information in this document is still correct and conditions have not changed. If any sensitive species are found during the pre-project surveys, the qualified biologist will contact the Beale AFB Natural Resource Manager (NRM) who will coordinate with the Service.

GM-2: Biological Monitor - A qualified biologist will monitor construction activities in or adjacent to sensitive habitats. The biological monitor will ensure compliance with these conservation measures, required for protected species and their habitats. If protected species are found that are likely to be affected by work activities, the qualified biologist will have the authority to stop any aspect of the proposed action that could result in unauthorized take of a protected species. If the qualified biologist exercises this authority, the biologist will notify the NRM who will then contact the Service by telephone and email within 1 working day.

GM-3: Conservation Measure Review for Project Managers (at project kickoff) - Beale NRM will provide Conservation Measure review to contractor project managers, Beale project managers, contracting officer, and key personnel during pre-construction kickoff meeting. Contractor project managers will acknowledge review and understanding of conservation measures by signature. These measures will be provided to Beale AFB project managers and Beale AFB contracting officers for inclusion in all contracts.

GM-4: Environmental Awareness Training - Environmental awareness training will be provided for all construction/field personnel working on the proposed project by the qualified biologist/monitor. All personnel will participate in training before activities begin and as new workers join the proposed project activities. The program will consist of a briefing on environmental issues related to the proposed project. The training program will include an overview of the legal status, biology, distribution, habitat needs, and compliance requirements for each sensitive species that may occur in the action area. The presentation will also include a discussion of the legal protection for endangered species under the ESA, including penalties for violations. A fact sheet conveying this information will be distributed to all personnel who enter the project site. Upon completion of the orientation, employees will sign a form stating that they attended the program and understand all Conservation Measures. These forms will be maintained at Beale AFB and will be accessible to the appropriate resource agencies.

GM-5: Restricted Operations Period – No work will be conducted between 1 November and 1 May. This includes all aspects of the proposed project.

GM-6: Rainfall - After a rain of greater than 0.2 inch, work will occur only after the soil surface has dried sufficiently and no sooner than 12 hours after the rain ends; if rain exceeds 0.5 inch, work will only resume once soil conditions have dried sufficiently and not sooner than 48 hours after the rain ends. Soil is sufficiently dried when a clump of soil from the site crumbles when rolled in the palm of the hand.

GM-7: Submission of Compliance Reports - Beale AFB will notify the Service of construction starting 14 days prior to start of a project activity via email. A final report will be submitted to the Service 60 days upon project activity completion and include: a map of pools that were affected and protected and other information documenting that the project activity followed all conservation measures.

GM-6: Demarcation of Access Routes, Work and Staging Areas, and Sensitive Areas - Prior to initiation of the proposed project, boundaries of access routes, work areas, staging areas, and sensitive areas (water features, potential habitat for sensitive species), will be clearly demarcated with orange construction barrier fencing (or an appropriate alternative method). The NRM will coordinate with the qualified biologist to stake and flag boundaries of all access routes, work areas, and staging areas within sensitive habitat buffers. These areas will be treated as exclusion zones where construction activities may not occur. The flagging and fencing will be clearly marked as identifying an environmentally sensitive area. The contractor will remove fencing, stakes and flagging within 60 calendar days of project completion.

GM-7: Location of Work and Staging Area - All materials, vehicle parking and staging areas will be designated by the Beale Environmental Office and located at least 50 feet away from drainages and wetland features, or contained on hardscape surface. Storage of all construction material/debris will be kept to the designated storage/staging area. The number and size of

staging areas and the total area of the activity will be limited to the minimum area necessary to achieve the project goal.

GM-8: Minimization of Off-Road Access Routes - Off-road access routes will be established in upland areas greater than 250 feet from vernal pool habitat and road length will be the minimum necessary, to reduce adverse effects on wetland features. Where it is necessary for access routes to go through a wetland feature, weight-dispersing mats will be placed over the wetland feature to avoid any potential effects to sensitive species and/or sensitive habitats. Off-pavement access routes can only be used if the soil is dry. Any ruts or furrows caused by operations shall be raked level by hand, compacted and restored to normal grade. Access routes will be restored as closely as possible to preconstruction contours and elevations. This will be done prior to leaving the current area of operation.

GM-9: Additional Access Routes - If a new vehicle access route is required in special status species habitat, the route will be pre-surveyed by a qualified biologist to minimize impacts to sensitive resources, and reviewed by the NRM. If routes will be reused over multiple years, they will be assessed annually to ensure that they are clear of special-status species.

GM-10: Trenches and Holes - No trenches or holes greater than 6 inches deep will be left open at the end of the day and will be covered (for example, plywood, or other material) or an egress will be provided in coordination with NRM to prevent trapping animals. Trenched areas and holes will be compacted and restored to normal grade.

GM-11: Revegetation - All upland vegetated areas disturbed by construction will be revegetated with the Beale AFB-approved native seed mix. Exposed soil must be hydro-seeded and depending on slope, covered with a biodegradable geotextile to prevent sediments from entering aquatic habitats. Any straw used for erosion control materials will be “certified weed free.” Reseeded areas will be monitored and maintained by the contractor as needed until there is 70% vegetated ground cover in the seeded area.

GM-12: Seed Mixes to Support Native Pollinators - Include in seed mixes annual and short-lived perennial native forb species; these seeds will bloom in the first year and provide forage for native bees. Native wildflower mixes that bloom during different times of the year and in different flower colors will be given the highest preference.

GM-13: Suitable Material - No activity may use unsuitable material (e.g., trash, debris, car bodies asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts.

GM-13: Speed Limits: All vehicle operators will follow the posted speed limit on paved roads and a 15 miles per hour speed limit on unpaved roads. Off-road travel, if approved, will follow a 5 miles per hour speed limit and must be approved by NRM.

GM-14: Garbage Removal - During construction activities, all trash will be properly contained, removed from the work site daily, and disposed of properly. Following construction, all refuse and construction debris will be removed from work areas. All garbage and construction-related materials in construction areas will be removed immediately following project completion.

GM-15: Green Waste Disposal - All plant debris potentially containing reproductive parts (i.e., seeds or plant fragments for species that reproduce vegetatively) will be disposed of at an off-site

landfill or green waste facility. It will be transported in a manner that prevents the spread of invasive plants to other locations. This action may require, but is not limited to, bagging the material before it is transported off-site.

GM-16: Invasive Species - A qualified biologist will monitor and ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When practicable, invasive plants found in the action area will be removed using non-chemical methods. Specifically, equipment will be thoroughly cleaned of soil and vegetation before being delivered to the site to minimize the potential for spreading pathogens or exotic/invasive species. Equipment will be inspected by the qualified biologist and may be rejected if the qualified biologist determines that it has not been adequately cleaned.

GM-17: Invasive Species Monitoring - The site will be added to the Annual Invasive Species Management work plan and will be surveyed and maintained with the existing weed program at Beale AFB.

GM-18: Fueling and Servicing in Designated Areas - Motor vehicles and equipment will only be fueled and serviced in designated service areas. All fueling and maintenance of vehicles and other equipment will occur on a paved surface or at least 100 feet from any wetland feature/drainage, sensitive habitat, or water body, with spill containment. Prior to the onset of work, a plan will be prepared to allow a prompt and effective response to any accidental spills. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

GM-19: Spill Plan - A Spill Prevention Control and Countermeasure Plan will be prepared prior to the project implementation. All machinery will be properly maintained and cleaned to prevent spills and leaks. Any spills or leaks from the equipment/vehicles will be reported and cleaned up in accordance with applicable local, state and federal regulations. Workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. The spill plan will be submitted to the Beale AFB Environmental Office for approval.

GM-20: Equipment Condition - Prior to use, all equipment will be cleaned to remove external oil, grease, fuels, dirt, or mud. All construction equipment/vehicles must be inspected daily, in good working condition and showing no signs of leaks. Equipment will be left on site or inspected prior to returning to the area. All equipment will have drip pans placed where potential leaks could occur. All leaks will be repaired off-site or in a suitable location prior to resumption of construction activity.

GM-21 Fire Prevention and Suppression Plan - A fire prevention and suppression plan will be prepared prior to the proposed project implementation. The fire prevention and suppression plan shall be submitted to the NRM for Wildland Fire Chief approval.

GM-22: Erosion Control Systems - Site-specific erosion control measures (i.e., hay bales, silt fencing) will be installed, maintained in effective operating condition, and in place at all times during construction to protect drainage ditches, storm drains, wetlands and water bodies from sedimentation resulting from construction activity. All wetlands/ drainages/ vernal pools will have erosion control measures installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland. All exposed soil and other fills must be permanently stabilized at the earliest practicable date.

Erosion control devices will not contain plastic netting and will be “certified weed free” to prevent the spread of invasive species.

GM-23: Dust Control - All unpaved road areas will be watered, or alternative dust control measures will be used, during project construction to prevent excessive dust from silting nearby wetlands. No chemical dust control or tackifiers will be used adjacent to vernal pools.

GM-24: Excess Soil Protection - Excess soil temporarily stored on-site during construction must be covered with geotextile stabilization blankets/tarp and wattles/gravel bags/socks to prevent exposure to the elements and to lessen chances of sedimentation due to storm water runoff and wind erosion. All remaining fill material will be removed in its entirety according to disposal requirements and the affected areas will be revegetated.

GM-25: Use of Excavated Soil on Base - If excess materials, after appropriate testing has been conducted, are to be used on Beale AFB, the NRM will contact the Service before hauling the materials to ensure that the disposal site will not affect any sensitive species.

GM-26: Disposal of Excavated Soil - All excess soil excavated during construction will be removed and disposed of at a landfill located off Beale AFB. If soil is contaminated, then Beale AFB Environmental Office will coordinate with the Army Corps of Engineers and/or Sacramento Water Regional Control Board, as appropriate prior to disposal of excavated soil.

GM-27: Upland Buffers – A 50-foot upland vegetated buffers will be established and maintained around all wetlands.

GM-28: Trenching Controls - In unimproved areas, the top 6 to 12 inches of the trench or hole will be backfilled with topsoil from the trench.

GM-29: Temporary Fills - Temporary fills must be removed in their entirety, and the affected areas returned to pre-construction elevations. The affected areas must be revegetated as appropriate.

Wetland and Vernal Pool Conservation Measures (VP)

VP-1: Wetland Erosion Control - All work conducted within 50 feet of a wetland feature shall have construction boundaries designated with fencing to ensure no equipment will be in the vicinity of a drainage/wetland/vernal pool. All wetlands/drainages/vernal pools will have erosion control measures (straw wattles, hay bales, silt fencing) installed when work is within 50 feet of a wetland feature or where hydrological continuity exists between the construction activities and the wetland feature. Soil erosion and sediment control must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date.

VP-2: Wetland Pre-Project Vegetation Clearing - Pre-project clearing of vegetation within 50 feet of a wetland feature will be done with hand equipment to ensure no subsurface disturbance below 6 inches occurs in or near the wetland. Mechanical clearing of vegetation is prohibited during the wet season.

VP-3: Wetland Feature Protection - Intrusive work adjacent to or within branchiopod habitat will have protection (plastic tarps) covering the aquatic feature to ensure the soil being removed and backfilled during the excavation process does not adversely impact habitat.

VP-4: Compensation - Beale will compensate for effects to 0.01 acre of vernal pool habitat at a ratio of 3:1 and 0.004 acre of vernal pool habitat at a ratio of 1:1, totaling 0.034 acre of mitigation. Mitigation will be compensated using Beale AFB on-site designated preservation acreage.

Action Area

The action area is defined in 50 CFR § 402.02, as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.” For the proposed project, the action area encompasses 9.5 acres of project construction with a 250-foot buffer.

Analytical Framework for the Jeopardy Determination

Section 7(a)(2) of the Act requires that federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. “Jeopardize the continued existence of” means to engage in an action that reasonably will be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

The jeopardy analysis in this biological opinion considers the effects of the proposed federal action, and any cumulative effects, on the rangewide survival and recovery of the listed species. It relies on four components: (1) the *Status of the Species*, which describes the current rangewide condition of the species, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which analyzes the current condition of the species in the action area without the consequences to the listed species caused by the proposed action, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines all consequences to listed species that are caused by the proposed federal action; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-federal activities in the action area on the species. The *Effects of the Action* and *Cumulative Effects* are added to the *Environmental Baseline* and in light of the status of the species, the Service formulates its opinion as to whether the proposed action is likely to jeopardize the continued existence of the listed species.

Status of the Species

For the most recent comprehensive assessment of the species’ range-wide status, please refer to the *Vernal Pool Fairy Shrimp (Branchinecta lynchi) 5-Year Review: Summary and Evaluation* (Service 2007a) and the *Vernal Pool Tadpole Shrimp (Lepidurus packardii) 5-year Review: Summary and Evaluation* (Service 2007b) for the current status of the species. No change in the species’ listing status was recommended in these 5-year reviews. Threats such as the loss of vernal pool habitat primarily due to widespread urbanization continue to act on the fairy shrimp and is discussed in the 5-year review. The construction of infrastructure associated with urbanization, including the construction of roads, also has contributed greatly to the loss and fragmentation of vernal pool species. Habitat loss exacerbates the highly fragmented distribution of this species. Direct losses of habitat generally represent an irreversible damage to vernal pools. The alteration and destruction of habitat disrupts the physical processes conducive to functional vernal pool ecosystems. Vernal pool hydrology may be altered by further changes to the patterns of surface and subsurface flow due to the increase in the runoff associated with

infrastructure. The Service is in the process of finalizing its most current 5-year review for the fairy shrimp and tadpole shrimp.

Environmental Baseline

Environmental baseline refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

Beale AFB is in the Southeastern Sacramento Valley Vernal Pool Region, as described in the Recovery Plan. The Southeastern Sacramento Valley Vernal Pool Region contains almost 15% of the remaining vernal pool grasslands in the State of California (Keeler-Wolf et al. 1998). The proposed project is not located in either critical habitat or a recovery plan core area for the fairy shrimp and tadpole shrimp.

The proposed project area is in the western portion of Beale AFB across from the flightline on the eastern side of Doolittle Drive. The proposed project area is away from the Beale main base area. Past land use practices and grading activities on Beale AFB have altered much of the topography. The proposed project area is an undeveloped field that has mostly been grazed. Some man-made ditches may have features of seasonal wetlands, may have characteristics of vernal pools, and may harbor federally-listed crustaceans. Other areas on Beale AFB have classic mima-mound topography that supports surface flow hydrology of vernal pools.

The dominant vegetation communities present within the proposed project area is grassland/herbaceous. This plant community is dominated by non-native annual grasses and a variety of native and non-native forbs. Native annual grasses, occurring in base pastures and roadsides, include oldfield three-awn (*Aristida oligantha*) and Pacific fescue (*Fescua microstachys*). Native perennial bunchgrasses include purple needle grass (*Stipa pulchra*).

In March 2008, Beale AFB conducted a soil aquitard study to determine soil aquitard (claypan) depth. Results from this study indicate a high degree of variation in depth to soil aquitard, with an average depth greater than 47 inches (URS 2008). There are 26 wetlands within the proposed action area and a 250-foot buffer (Table 1). They consist of five ditches, thirteen swales and eight vernal pools.

Table 1. Aquatic features within the Action Area

Wetland Type	Number of Features	Acreage
Ditch	5	0.65
Swale	13	1.053
Vernal Pool	8	0.434
Total	26	2.14

Fairy shrimp and tadpole shrimp occur in the proposed project area. Vernal pools at Beale AFB occur in association with four geologic formations: Laguna, Riverbank, Modesto, and Mehrten

formations (Smith and Verrill, 1998). These formations are primarily located in the western two-thirds of Beale AFB, which is near where the proposed project is located. The nearest recorded occurrences of fairy shrimp are approximately 980 feet from the proposed project; however, habitat exists within 250 feet for the proposed project area. The nearest recorded occurrence of tadpole shrimp is approximately 1,280 feet from the proposed project; however, habitat exists within 250 feet for the proposed project area (Beale AFB 2019).

Because the proposed project is within the range of the fairy shrimp, suitable vernal pool habitat for the species exists within the action area, and the species is known to occur nearby and within the action area, it is reasonably likely that the fairy shrimp is present within the action area.

Effects of the Action

The proposed project contains a total of seventeen aquatic features totally 1.47 acres identified as vernal pool branchiopod habitat. All seventeen features are lower or equal in elevation to the activities of the proposed project. Twelve features are either farther than 100 feet away from project activities or are separated from activities by a paved roadway. By using construction fence and erosion control, wetlands greater than 100 feet from ground disturbance are unlikely to be subject to sedimentation when separated by upland habitat and not hydrologically connected.

Of the five features within 100 feet, three features will be protected from fence installation activities using silt fence placed a minimum of 20 feet from the features. Additionally, these three wetland features will not be affected by the installation of the chain-link fence, given the small footprint necessary to install the posts of the fence. Switchyard expansion will include footings to support a perimeter CMU wall. The foot deep footings will not penetrate the hardpan nor alter subsurface hydrology because ground excavation is less than 47 inches in depth.

The area where the concrete pad will be installed is not hydrologically connected to listed branchiopod habitat. It is higher in elevation and it is upslope from the single closest other wetland that is a ditch. From the concrete pad the natural flow of water runs down slope and there is an approximately 3-foot tall mound between the concrete pad and wetland feature.

Installation of the solar array will require leveling of the site which will completely fill N-VP3. This will result in the loss of 0.01 acre of vernal pool branchiopod habitat. Construction activities will be 19.4 feet from VP-1119 including leveling, excavation, and post installation which will result in dust that will enter the 0.004 acre vernal pool. This layer of soil may result in a reduction in cysts hatching in future years.

As noted previously in the Description of the Action section, the project proponent has also proposed a set of conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effect on the species of the proposed project's anticipated incidental take, resulting from the permanent loss and temporary degradation of habitat described above. Beale will compensate for effects to vernal pools by permanently protecting 0.034 acre of vernal pool habitat. Mitigation will be compensated using Beale AFB on-site designated preservation acreage.

This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The compensatory lands will provide suitable habitat for breeding, feeding, or sheltering commensurate with or better than habitat lost as a result of the proposed project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land may contribute to other recovery efforts for the species.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. 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 Act. During this consultation, the Service did not identify any future non-federal actions that are reasonably certain to occur in the action area of the proposed project.

Conclusion

After reviewing the current status of fairy shrimp and tadpole shrimp, the environmental baseline for the action area, the effects of the proposed Doolittle Power Station Repair/Upgrade & Installation of 2-Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage Project, and the cumulative effects, it is the Service's biological opinion that the Doolittle Power Station Repair/Upgrade & Installation of 2-Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage Project, as proposed, is not likely to jeopardize the continued existence of the fairy shrimp and tadpole shrimp. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species based on the following: (1) the fairy shrimp and tadpole shrimp habitat affected by the proposed project represents a small portion of habitat available to the fairy shrimp and tadpole shrimp; (2) the on-site compensatory mitigation credits up to 0.034 acre; (3) sensitive time periods for listed species will be avoided to the extent practicable; and (4) all conservation and minimization measures will be implemented.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary and must be undertaken by Beale AFB so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. Beale AFB has a continuing duty to regulate the activity covered by this incidental take statement. If Beale AFB (1) fails to assume and implement the terms and conditions or (2) fails to require the contractor to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the contract, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Beale AFB must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

Amount or Extent of Take

The Service anticipates that incidental take of fairy shrimp and tadpole shrimp will be difficult to detect due to the fact that it is not possible to know how many cysts (eggs) are in the soil of the wetland feature. The life stage affected by this action will be the fairy shrimp's and the tadpole shrimp's cysts (eggs), which are embedded in the soil and are difficult to detect without a detailed microscopic analysis. Therefore, due to the fact that it is not possible to know how many eggs are in the soil of any wetland feature, or how many eggs will occupy any wetland feature later in time, the Service cannot quantify the total number of fairy shrimp eggs and tadpole shrimp eggs that we anticipate will be taken as a result of the proposed project. In instances in which the total number of eggs anticipated to be taken cannot be determined, the Service may use the acreage of habitat impacted as a surrogate for the take of eggs. Therefore, the Service anticipates take incidental of the proposed project as the 0.014 acre of fairy shrimp and tadpole shrimp habitat that will be destroyed and degraded by the proposed project at Beale AFB in the form of mortality and harm. Upon implementation of the following *Reasonable and Prudent Measure*, incidental take of fairy shrimp and tadpole shrimp associated with the proposed project will become exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the fairy shrimp and tadpole shrimp.

Reasonable and Prudent Measures

All necessary and appropriate measures to avoid or minimize effects on the federally-listed species resulting from implementation of this project have been incorporated into the project's proposed conservation measures. Therefore, the Service believes the following reasonable and prudent measure is necessary and appropriate to minimize incidental take of the fairy shrimp and tadpole shrimp:

- 1) All conservation measures, as described in the biological assessment and restated here in the *Project Description* section of this biological opinion, shall be fully implemented, and adhered to. Further, this reasonable and prudent measure shall be supplemented by the *Terms and Conditions* below.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Beale AFB must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1. Beale AFB will fully implement and adhere to the project description and conservation measures, as a condition of any permit or contract issued for the proposed project. Beale AFB shall require that all personnel associated with this project are made aware of the conservation measures and the responsibility to implement them fully.
2. For those components of the action that will result in habitat degradation or modification whereby incidental take in the form of harm is anticipated, Beale AFB shall provide a precise accounting of the total acreage of habitat impacted by activity after the activity is completed to the Service. This can be in the form of an email.
3. Beale AFB shall immediately contact the Service's Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6590 to report direct encounters between listed species and project workers and their equipment whereby incidental take in the form of, harm, injury, or death occurs. If the encounter occurs after normal working hours, Beale AFB shall contact the SFWO at the earliest possible opportunity the next working day.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. Beale AFB should work with the Service to assist in meeting the goals of the Recovery Plan for the fairy shrimp and the tadpole shrimp as outlined in the *December 2005, Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Service 2005).
2. Beale AFB will work with the Service to strategize about vernal pool habitat quality and conservation.
3. Beale AB will work with the Service to design and implement vernal pool conservation management objectives that support vernal pool habitat quality and biodiversity.
4. Beale AFB will work with the Service to design and implement projects that address climate change and to minimize impacts of climate change.
5. Beale AFB should work with the Service to implement the Integrated Natural Resource Management Plan.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation.

REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the Doolittle Power Station Repair/Upgrade & Installation of 2-Megawatt Photo Voltaic Solar Array and Microgrid with Battery Storage Project at Beale Air Force Base. As provided in 50 CFR §402.16(a), reinitiation of consultation is required and shall be requested by the federal agency or by the Service where discretionary federal involvement or control over the action has been retained or is authorized by law, and:

- 1) If the amount or extent of taking specified in the incidental take statement is exceeded;
- 2) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
- 3) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or written concurrence, or
- 4) If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have any questions regarding this biological opinion, please contact Cathy Johnson at cathy_s_johnson@fws.gov or Jennifer Hobbs at Jennifer_hobbs@fws.gov.

Sincerely,

Michael Fris
Field Supervisor

cc:

Eli Rose, Department of the Air Force, Beale Air Force Base, CA

LITERATURE CITED

- Beale Air Force Base (Beale AFB). 2019. Integrated Natural Resources Management Plan for Beale Air Force Base & the Lincoln Receiver Site. November. Prepared by CEMML (Center for Environmental Management Military Lands). Fort Collins, CO.
- Keeler-Wolf, T., D.R. Elam, K. Lewis, and S.A. Flint. 1998. California vernal pool assessment preliminary report. California Department of Fish and Game, Sacramento, California.
- Smith, D.W., and W. Verrill. 1998. Vernal Pool-Soil-Landform Relationships in the Central Valley.
- URS Group, Inc. (URS). 2008. *Soil Aquitard Study for Beale Air Force Base*. July.
- USFWS. 2007a. Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) 5-year review: SuGMary and evaluation. Sacramento Fish and Wildlife Office, Sacramento, CA. 76 pp.
- USFWS. 2007b. Vernal Pool Tadpole Shrimp (*Lepidurus packardi*) 5-year review: SuGMary and evaluation. Sacramento Fish and Wildlife Office, Sacramento, CA. 50 pp.

1 **APPENDIX E USACE APPROVED JURISDICTIONAL**
2 **DETERMINATION**

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DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

July 9, 2024

Regulatory Division (SPK-2024-00184)

Beale Air Force Base
Attn: Mr. Blaze Baker
6425 B Street; B25390
Beale AFB, California 95903-1515
blaze.baker.1@us.af.mil

Dear Mr. Baker:

We are responding to your March 5, 2024, request for an approved jurisdictional determination for the BAFB Doolittle Solar Project site. The approximately 6 acres review area is located near an existing water tower and electrical infrastructure facility, on Doolittle Drive, Latitude: 39.14852°, Longitude: -121.42553°, within Beale Air Force Base, Yuba County, California.

Based on available information, we concur with your aquatic resources delineation for the site, as depicted on the enclosed April 17, 2024, *Doolittle Solar Project: Wetland Sampling* drawing prepared by Beale Air Force Base (enclosure 1). Approximately 0.03-acre of aquatic resources, consisting of 0.02-acre of Vernal Pools and 0.01-acre of Seasonal Wetland are present within the survey area. This letter verifies that the location and boundaries of wetlands were delineated consistent with the wetland definition at 33 CFR §328.3(c)(16), the 1987 *Corps of Engineers Wetlands Delineation Manual* (Wetlands Research Program Technical Report Y-87-1) and the applicable regional supplements; and the location and boundaries of non-tidal waters conform with the ordinary high water mark definition at 33 CFR §328.3(c)(7), Regulatory Guidance Letter 05-05, and any applicable regional guide.

Of these aquatic resources, we have determined that those five (5) features totaling 0.03-acre are not waters of the U.S. regulated under Section 404 of the Clean Water Act or under Section 10 of the Rivers and Harbors Act. The five features are not waters of the U.S. because the wetlands do not have a continuous surface connection with an (a)(3), (a)(2), or (a)(1) water. We are enclosing a copy of the Memorandum for Record prepared to support this Approved Jurisdictional for your site (enclosure 2). This approved jurisdictional determination is valid for five years from the date of this letter unless new information warrants revision of the determination before the expiration date.

If you object to this determination, you may request an administrative appeal under Corps regulations at 33 Code of Federal Regulations (CFR) Part 331. A *Notification of Appeal Process (NAP) and Request for Appeal (RFA) Form* is enclosed (enclosure 3). If you request to appeal this determination, you must submit a completed RFA form to the South Pacific Division Office at the following address: Administrative Appeal Review Officer,

Army Corps of Engineers, South Pacific Division, CESPDPDO, 1455 Market Street, 2052B, San Francisco, California 94103-1399, Telephone: 415-503-6574, FAX: 415-503-6646.

In order for an RFA to be accepted by the Corps, we must determine that the form is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that the form was received by the Division Office within 60 days of the date of the NAP. It is not necessary to submit an RFA form to the Division Office unless you object to the determination in this letter.

The delineation included herein has been conducted to identify the location and extent of the aquatic resource boundaries and/or the jurisdictional status of aquatic resources for purposes of the Clean Water Act for the particular site identified in this request. This delineation and/or jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center, prior to starting work. We recommend that you provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

Please refer to identification number SPK-2024-00184 in any correspondence concerning this project. If you have any questions, please contact Gabriel Leggieri by email at gabriel.j.leggieri@usace.army.mil, or telephone at (916) 577-5120. For program information or to complete our Customer Survey, visit our website at www.spk.usace.army.mil/Missions/Regulatory.aspx.

Sincerely,



Matthew Roberts
Chief, CA North Section

Enclosures

cc (w/encls):

Joshua Avery, Beal Air Force Base, joshua.avery.9@us.af.mil

Central Valley Water Quality Control Board, centralvalleysacramento@waterboards.gov

Joseph Morgan, United States Environmental Protection Agency, Morgan.Joseph@epa.gov

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Beal Air Force Base, Attn: Mr. Blaze Baker	File No.: SPK-2024-00184	Date: July 9, 2024
Attached is:		See Section below
<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
<input type="checkbox"/>	PERMIT DENIAL	C
<input checked="" type="checkbox"/>	APPROVED JURISDICTIONAL DETERMINATION	D
<input type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/cecw/pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

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

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

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

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

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

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

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

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

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Gabriel Leggieri
Project Manager
U.S. Army Corps of Engineers
1325 J Street Room 860
Sacramento, CA 95814-2922
Phone: (916) 577-5120, FAX 916-557-7803
Email: gabriel.j.leggieri@usace.army.mil

If you only have questions regarding the appeal process you may also contact:

Travis Morse
Administrative Appeal Review Officer
U.S. Army Corps of Engineers
South Pacific Division
Phillip Burton Federal Building, Post Office Box 36023
450 Golden Gate Avenue
San Francisco, California 94102
Phone: 970-243-1199x1014, FAX: 971-241-2358
Email: W.Travis.Morse@usace.army.mil

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

Signature of appellant or agent.

Date:

Telephone number:

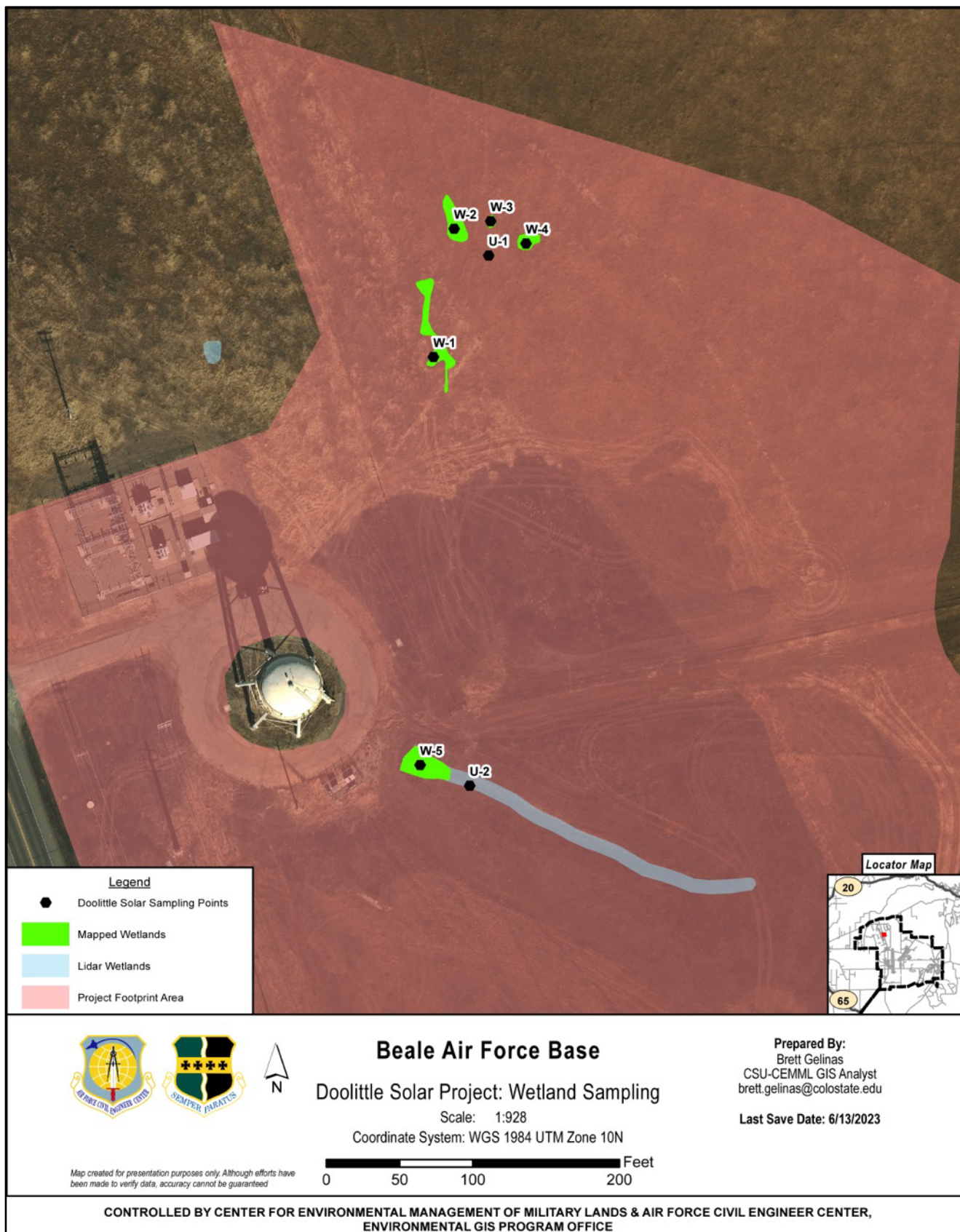


Figure 1. Doolittle Power Station Upgrade Project Wetland Map.

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APPENDIX F SECTION 106 CONSULTATIONS

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**NATIVE AMERICAN CONTACT LOG FOR NATIONAL
HISTORIC PRESERVATION ACT SECTION 106
CONSULTATIONS**

Native American Contact Log
Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project

Name	Affiliation, per NAHC	Date Contacted				Confirmation of Letter Received? (medium/date)	Letter or Verbal Response Received?		Comments
		1. Letter (sender's name)	2. Phone (caller's name)	3. Phone (caller's name)	Letter emailed		If yes, Date	If Letter, Post-mark Date	
Estom Yumeka Maidu Tribe of the Enterprise Rancheria Ms. Glenda Nelson, Chairperson 2133 Monte Vista Avenue Oroville, CA 95966 530-532-9214 530-532-1768 Fax info@enterpriserancheria.org	Maidu	Dated and sent on 01/11/21	01/25/2021, 1:45 PM, DC	02/05/2021, 2:30 PM, DC	1/20/2021, 5:05 PM, via email with mail receipt				01/20/2021, 5:05 PM, DC sent letter and map attachment via email. Addressed to Mr. Franklin. 01/25/2021, 1:45 PM, DC called and got the front desk. Front desk transferred to a voicemail. DC left voicemail. 02/05/2021, 2:30 PM, DC called and got the front desk. DC was transferred to voicemail and left a message.
Estom Yumeka Maidu Tribe of the Enterprise Rancheria Mr. Reno Franklin, THPO 2133 Monte Vista Avenue Oroville, CA 95966 530-532-9214 707-694-4783 Cell info@enterpriserancheria.org	Maidu	Dated and sent on 01/11/21	01/25/2021, 1:45 PM, DC	02/05/2021, 2:25 PM, DC	1/20/2021, 5:05 PM, via email with mail receipt				01/20/2021, 5:05 PM, DC sent letter and map attachment via email. Addressed to Mr. Franklin. 01/25/2021, 1:45 PM, DC called and got the front desk. Front desk transferred to voicemail. DC left a voicemail. 02/05/2021, 2:25 PM, DC called cell phone and left a voicemail
Shingle Springs Band of Miwok Indians, Shingle Springs Rancheria Ms. Regina Cuellar, Chairperson PO Box 1340 Shingle Springs CA 95682 530-676-8010 office 530-676-8033 fax	Miwok, Maidu	Dated and sent on 01/11/21	01/25/2021, 1:55 PM, DC		01/20/2021, 5:50 PM, via email with read receipt	Confirmation by email reply, 02/01/2021, DC	Letter, 02/01/2021, DC		01/20/2021, 5:50 PM, DC sent letter and map attachment via email. Addressed to Mr. Fonseca. 01/25/2021, 1:55 PM, DC called office number and left a voicemail. 02/01/2021, 7:55 AM, DC received email verification with letter from Mr. Fonseca below.
Shingle Springs Band of Miwok Indians, Shingle Springs Rancheria Ms. Annie Jones, Vice Chairperson PO Box 1340 Shingle Springs CA 95682	Miwok, Maidu	Dated and sent on 01/11/21	01/25/2021, 1:55 PM, DC		01/20/2021, 5:50 PM, via email with read receipt	Confirmation by email reply, 02/01/2021, DC	Letter, 02/01/2021, DC		01/20/2021, 5:50 PM, DC sent letter and map attachment via email. Addressed to Mr. Fonseca. 01/25/2021, 1:55 PM, DC called office number above and left a voicemail. 02/01/2021, 7:55 AM, DC received email verification with letter from Mr. Fonseca below.
Shingle Springs Band of Miwok Indians, Shingle Springs Rancheria Mr. Daniel Fonseca, Director Language Preservation/THPO PO Box 1340 Shingle Springs CA 95682 530-698-1460 dfonseca@ssband.org	Miwok, Maidu	Dated and sent on 01/11/21	01/25/2021, 2:00 PM, DC		01/20/2021, 5:50 PM, via email with read receipt	Confirmation by email reply, 02/01/2021, DC	Letter, 02/01/2021, DC		01/20/2021, 5:50 PM, DC sent letter and map attachment via email. Addressed to Mr. Fonseca. 01/25/2021, 2:00 PM, DC called and left a voicemail. 02/03/2021, 7:55 AM, DC received email verification of letter receipt with attached letter stating that they are unaware of cultural resources in the area but they would like to receive updates of the project progress and any record searches that have been completed.
Berry Creek Rancheria of Maidu Indians Mr. Francis Steele, Chairperson 5 Tyme Way Oroville, CA 95966 530-534-3859 530-534-1151 Fax fsteele@berrycreekrancheria.com	Maidu	Dated and sent on 01/11/2021	01/25/2021, 2:05 PM, DC	02/05/2021, 2:35 PM, DC	01/20/2021, 11:40 AM, via email with read receipt				01/20/2021, 11:40 AM, DC sent letter and map attachment via email. 01/25/2021, 2:05 PM, DC called and left a voicemail. 02/04/2021, 10:40 AM, DC received read receipt that email sent 01/20/2021 had been deleted and not read. 02/05/2021, 2:35 PM, DC called and left a voicemail.

Native American Contact Log
Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project

Name	Affiliation, per NAHC	Date Contacted				Confirmation of Letter Received? (medium/date)	Letter or Verbal Response Received?		Comments
		1. Letter (sender's name)	2. Phone (caller's name)	3. Phone (caller's name)	Letter emailed		If yes, Date	If Letter, Post-mark Date	
Mooretown Rancheria of Maidu Indians Mr. Benjamin Clark, Chairperson #1 Alverda Drive Oroville, CA 95966 530-533-3625 office 530-533-3680 Fax frontdesk@mooretown.org	Maidu, KonKow/Concow	Dated and sent on 01/11/21	01/25/2021, 2:10 PM, DC	02/05/2021 2:40 PM, DC	01/20/2021, 5:30 PM, via email with read receipt		Letter	01/27/2021	01/20/2021, 5:30 PM, DC sent letter and map attachment via email. 01/25/2021, 2:10 PM, DC called office and was told Mr. Clark was not available. Left a voicemail with Mr. Hatcher below. 02/05/2021, 2:40 PM, DC called and left a voicemail at office number. Letter stated no awareness of any known cultural resources on this site and to contact them if tribal cultural items or Native American human remains are found.
Mooretown Rancheria of Maidu Indians Mr. Matthew Hatcher, THPO #1 Alverda Drive Oroville, CA 95966 530-533-3625 office matthew.hatcher@mooretown.org	Maidu, KonKow/Concow	Dated and sent on 01/11/21	01/25/2021, 2:10 PM, DC	02/05/2021 2:40 PM, DC	01/20/2021, 5:35 PM, via email with read receipt		Letter	01/27/2021	01/20/2021, 5:35 PM, DC sent letter and map attachment via email. 01/25/2021, 2:10 PM, DC called office and was told Mr. Hatcher was not available. Left a voicemail. 02/05/2021, 2:40 PM, DC called and left a voicemail at office number. Letter stated no awareness of any known cultural resources on this site and to contact them if tribal cultural items or Native American human remains are found.
United Auburn Indian Community of the Auburn Rancheria Mr. Gene Whitehouse, Chairperson 10720 Indian Hill Road Auburn, CA 95603 (530) 883-2390 (530) 883-2380 Fax bguth@auburnrancheria.com	Maidu Miwok	Dated and sent on 01/11/21	01/25/2021, 2:30 PM, DC	02/05/2021, 2:15 PM, DC	01/20/2021, 6:00 PM, via email with read receipt 01/21/2021 via e-notification system	Confirmation by e-notification system, 01/21/2021, DC Confirmation by email read receipt, 01/21/2021, DC	Email, 02/01/2021, DC		01/20/2021, 5:35 PM, DC sent letter and map attachment via email. 01/21/2021, 9:15 AM, DC completed online notification system form and attached letter and map. 01/25/2021, 2:30 PM, DC called and left a voicemail. 02/05/2021, 2:15 PM, DC called and talked to the secretary. She stated Mr. Whitehouse was not in and she would relay the call to him so he could get back about the project. 02/05/21, 9:40 AM, Email received from Anna Starkey stating no known resources are located in the APE but may exist in the vicinity. Requested to be informed of any findings.
United Auburn Indian Community of the Auburn Rancheria Matthew Moore, THPO 10720 Indian Hill Road Auburn, CA 95603 (530) 883-2320 (530) 401-6821 Cell mmoore@auburnrancheria.com	Maidu Miwok	Dated and sent on 01/11/21	01/25/2021, 2:25 PM, DC	02/05/2021, 2:10 PM, DC	01/20/2021, 6:05 PM, via email with read receipt 01/21/2021 via e-notification system	Confirmation by e-notification system, 01/21/2021, DC	Email, 02/01/2021, DC		01/20/2021, 6:05 PM, DC sent letter and map attachment via email. 01/21/2021, 9:15 AM, DC completed online notification system form and attached letter and map. 01/25/2021, 2:25 PM, DC called and was unable to leave a voicemail due to full inbox. 02/05/2021, 2:10 PM, DC called and left a voicemail at cell number. 02/05/21, 9:40 AM, Email received from Anna Starkey stating no known resources are located in the APE but may exist in the vicinity. Requested to be informed of any findings.
Konkow Valley Band of Maidu Ms. Jessica Lopez, Chairperson 2136 Meyers Street Oroville, CA 95966 530-777-8094 jessica@konkowmaidu.org	Konkow Maidu	Dated and sent on 01/11/2021			01/20/2021, 5:15 PM, via email with read receipt				01/20/2021, 5:15 PM, DC sent letter and map attachment via email.
Konkow Valley Band of Maidu Mr. Eric Josephson, NAGPRA Coordinator PO Box 938 Cottonwood, CA 96022 530-347-5022 eric@maidu.com	Konkow Maidu	Dated and sent on 01/11/21	01/25/2021, 2:40 PM, DC		01/20/2021, 5:25 PM, via email with read receipt	Confirmation by phone conversation, 01/25/2021, DC	Verbal, 01/25/2021, DC		01/20/2021, 5:25 PM, DC sent letter and map attachment via email. 01/25/2021, 2:40 PM, DC called and spoke with Mr. Josephson. He confirmed receiving the letter and attachments. He said he had questions about the digging to a depth of 3 feet in one area. DC directed him to Tamara Gallentine and he said he would give her a call about his question. No plans on sending letter back.

Native American Contact Log
Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project

Name	Affiliation, per NAHC	Date Contacted				Confirmation of Letter Received? (medium/date)	Letter or Verbal Response Received?		Comments
		1. Letter (sender's name)	2. Phone (caller's name)	3. Phone (caller's name)	Letter emailed		If yes, Date	If Letter, Post-mark Date	
Pakan'yani Maidu of Strawberry Valley Rancheria Ms. Tina Goodwin Chairperson P.O. Box 984 Marysville, CA 95901 916-501-4472 tinagoodwin@washoetanf.org	Maidu Miwok	Dated and sent on 01/11/21			01/20/2021, 6:15 PM, via email with read receipt				01/20/2021, 6:15 PM, DC sent letter and map attachment via email. 02/05/2021, 2:00 PM, DC spoke with Mr. Dinsmore below.
Pakan'yani Maidu of Strawberry Valley Rancheria Mr. Scott Dinsmore Tribal Chair Members P.O. Box 984 Marysville, CA 95901 617-417-2166 sdinsmore@strawberryvalleymaidu.org	Maidu Miwok	Dated and sent on 01/11/21	02/05/2021, 2:00 PM, DC		01/20/2021, 6:25 PM, via email with read receipt	Confirmation by email reply, 01/25/2021 DC	Verbal, 02/05/2021, DC		01/20/2021, 6:25 PM, DC sent letter and map attachment via email. 01/24/2021, 10:45 AM, DC received email from Mr. Dinsmore confirming he received email and that he would forward on to the council for review. 02/02/2021, 3:30 PM Mailed letter returned as undeliverable to Beale AFB. Entered by DC. 02/05/2021, 2:00 PM, DC talked to Mr. Dinsmore. He stated that the information had been circulated to the tribe and no comments or questions came up. He also stated that email would be fine for future project contacts. Also inquired about an updated address. He said he would get back to me.
Colfax-Todds Valley Consolidated Tribe Ms. Pamela Cubbler, Treasurer PO Box 4884 Auburn, CA 95604 pcubbler@colfaxrancheria.com	Miwok Maidu	Dated and sent on 01/11/21	01/25/2021, 3:45 PM, DC		01/20/2021, 5:00 PM, via email with read receipt	Confirmation by phone call, 01/25/2021 DC	Verbal, 01/25/2021, DC		01/20/2021, 5:00 PM, DC sent letter and map attachment via email. 01/25/2021, 3:45 PM, DC talked to Ms. Cubbler and she confirmed receipt of the letter. She said she is unaware of any cultural resources in that area, but she was waiting to hear back from a cultural person she works with. She would contact again after hearing from him.
Colfax-Todds Valley Consolidated Tribe Mr. Clyde Prout, Chairperson PO Box 4884 Auburn, CA 95604 miwokmaidu@yahoo.com	Miwok Maidu	Dated and sent on 01/29/2021			01/29/2021, 7:10 AM, via email with read receipt				01/29/2021, 7:10 AM, DC sent letter and map attachment via email. 01/29/2021, 8:45 AM, DC sent email revising error that stated Mr. Prout had received the letter by mail on 01/11/2021.
Butte Tribal Council Ren Reynolds, Chairperson 1671 Mt. Ida Rd. Oroville, CA 95966		Dated and sent on 01/11/21	01/25/2021, 3:55 PM, DC	02/05/2021, 1:55 PM, DC	1/20/2021, 4:50 PM, via email with mail receipt				01/20/2021, 4:50 PM, DC sent letter and map attachment via email. 01/25/2021, 3:55 PM, DC called and left a voicemail. 02/05/2021, 1:55 PM, DC called and left a voicemail.

DC = Derrick Cole, Jacobs Engineering Group

**NATIVE AMERICAN NATIONAL HISTORIC
PRESERVATION ACT SECTION 106 CONSULTATION
LETTERS**



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Francis Steele
Chairperson
Berry Creek Rancheria
5 Tyme Way
Oroville, CA 95966

Dear Mr. Steele,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties*, is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

Beale AFB is situated on the eastern margin of the Sacramento Valley, approximately 35 miles north-northeast of Sacramento (Attachment 1). The Base is more than 23,000 acres in size and is located in the Southern Maidu (Nisenan) culture area. Beale AFB is home to the 9th Reconnaissance Wing, which maintains and monitors feedback from fleets of manned and unmanned surveillance aircraft.

With this Undertaking, the USAF proposes to develop a power back-up system at Beale AFB to secure electrical reliability for an aspect of their current mission. The project will include construction of a photovoltaic (PV) solar array, which will occupy approximately 9.2 acres. Infrastructure will connect the PV solar array to an energy storage system which in turn will direct the energy into the existing adjacent Doolittle Road Substation. The Undertaking footprint area will be contoured to achieve necessary drainage, with run-off directed towards extant wetlands to the east. An existing water tank release valve and associated ditch will be extended beyond the solar array footprint as part of the Undertaking. Security fencing, maintenance access, and parking will also be included in this development.

The Area of Potential Effects (APE) for this Undertaking includes the full extent of all ground disturbing, staging, and laydown areas (Attachment 2). The APE totals approximately 17.5

acres and was subjected to pedestrian cultural resources survey on 6 November 2020. The vertical APE will be to a depth of 3 feet below ground surface.

No archaeological properties were identified during the cultural resources survey; two Cold War-era structures were identified, and determined to be not eligible for listing in the National Register of Historic Places (Attachment 2, Attachment 3). Beale AFB is currently unaware of any Native American Traditional Cultural Properties (TCPs) within the APE. Nevertheless, we ask for your assistance in identifying any TCPs, particularly those which may be affected by the Undertaking described above.

At this time, we respectfully request your comments and input under the NHPA for the Undertaking. It will not affect the handling or disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony under the Native American Graves Protection and Repatriation Act. In the event such items are discovered, we will contact you regarding their handling and disposition.

If you have any questions or desire additional information, please contact Ms. Tamara Gallentine, Cultural Resources Manager, 9 CES/CEIEC, 6425 B St., Bldg. 25390, Beale AFB, CA 95903-1708, tamara.gallentine.2@us.af.mil, (530) 913-2975 or Cultural Resources Specialist, Mr. William Norton at (707) 424-8629, william.norton.9.ctr@us.af.mil. Please refer to the 2 MW Solar PV Microgrid Project in any correspondence.

Sincerely,

GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer
Squadron

Attachments:

1. Solar PV Microgrid Project: Vicinity Map
2. Solar PV Microgrid Area of Potential Effects and Cultural Survey Area Map
3. Norton 2020, *Memorandum for Record: Cultural Resources Survey for the Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project, Yuba County, California*. Prepared for US Air Force, Air Combat Command, 9th Reconnaissance Wing, Beale Air Force Base, California.



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Ren Reynolds
Chairperson
Butte Tribal Council
1671 Mt. Ida Road
Oroville, CA 95966

Dear Mr. Reynolds,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties*, is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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With this Undertaking, the USAF proposes to develop a power back-up system at Beale AFB to secure electrical reliability for an aspect of their current mission. The project will include construction of a photovoltaic (PV) solar array, which will occupy approximately 9.2 acres. Infrastructure will connect the PV solar array to an energy storage system which in turn will direct the energy into the existing adjacent Doolittle Road Substation. The Undertaking footprint area will be contoured to achieve necessary drainage, with run-off directed towards extant wetlands to the east. An existing water tank release valve and associated ditch will be extended beyond the solar array footprint as part of the Undertaking. Security fencing, maintenance access, and parking will also be included in this development.

The Area of Potential Effects (APE) for this Undertaking includes the full extent of all ground disturbing, staging, and laydown areas (Attachment 2). The APE totals approximately 17.5

acres and was subjected to pedestrian cultural resources survey on 6 November 2020. The vertical APE will be to a depth of 3 feet below ground surface.

No archaeological properties were identified during the cultural resources survey; two Cold War-era structures were identified, and determined to be not eligible for listing in the National Register of Historic Places (Attachment 2, Attachment 3). Beale AFB is currently unaware of any Native American Traditional Cultural Properties (TCPs) within the APE. Nevertheless, we ask for your assistance in identifying any TCPs, particularly those which may be affected by the Undertaking described above.

At this time, we respectfully request your comments and input under the NHPA for the Undertaking. It will not affect the handling or disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony under the Native American Graves Protection and Repatriation Act. In the event such items are discovered, we will contact you regarding their handling and disposition.

If you have any questions or desire additional information, please contact Ms. Tamara Gallentine, Cultural Resources Manager, 9 CES/CEIEC, 6425 B St., Bldg. 25390, Beale AFB, CA 95903-1708, tamara.gallentine.2@us.af.mil, (530) 913-2975 or Cultural Resources Specialist, Mr. William Norton at (707) 424-8629, william.norton.9.ctr@us.af.mil. Please refer to the 2 MW Solar PV Microgrid Project in any correspondence.

Sincerely,



GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer
Squadron

Attachments:

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2. Solar PV Microgrid Area of Potential Effects and Cultural Survey Area Map
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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Ms. Pamela Cubbler
Treasurer
Colfax-Todds Valley Consolidated Tribe
PO Box 4884
Auburn, CA 95604

Dear Ms. Cubbler,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties*, is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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With this Undertaking, the USAF proposes to develop a power back-up system at Beale AFB to secure electrical reliability for an aspect of their current mission. The project will include construction of a photovoltaic (PV) solar array, which will occupy approximately 9.2 acres. Infrastructure will connect the PV solar array to an energy storage system which in turn will direct the energy into the existing adjacent Doolittle Road Substation. The Undertaking footprint area will be contoured to achieve necessary drainage, with run-off directed towards extant wetlands to the east. An existing water tank release valve and associated ditch will be extended beyond the solar array footprint as part of the Undertaking. Security fencing, maintenance access, and parking will also be included in this development.

The Area of Potential Effects (APE) for this Undertaking includes the full extent of all ground disturbing, staging, and laydown areas (Attachment 2). The APE totals approximately 17.5

acres and was subjected to pedestrian cultural resources survey on 6 November 2020. The vertical APE will be to a depth of 3 feet below ground surface.

No archaeological properties were identified during the cultural resources survey; two Cold War-era structures were identified, and determined to be not eligible for listing in the National Register of Historic Places (Attachment 2, Attachment 3). Beale AFB is currently unaware of any Native American Traditional Cultural Properties (TCPs) within the APE. Nevertheless, we ask for your assistance in identifying any TCPs, particularly those which may be affected by the Undertaking described above.

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Sincerely,



GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer
Squadron

Attachments:

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Clyde Prout
Chairperson
Colfax-Todds Valley Consolidated Tribe
PO Box 4884
Auburn, CA 95604

Dear Mr. Prout,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties*, is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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Sincerely,



GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer
Squadron

Attachments:

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Reno Franklin
THPO
Enterprise Rancheria
2133 Monte Vista Avenue
Oroville, CA 95966

Dear Mr. Franklin,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties*, is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

Beale AFB is situated on the eastern margin of the Sacramento Valley, approximately 35 miles north-northeast of Sacramento (Attachment 1). The Base is more than 23,000 acres in size and is located in the Southern Maidu (Nisenan) culture area. Beale AFB is home to the 9th Reconnaissance Wing, which maintains and monitors feedback from fleets of manned and unmanned surveillance aircraft.

With this Undertaking, the USAF proposes to develop a power back-up system at Beale AFB to secure electrical reliability for an aspect of their current mission. The project will include construction of a photovoltaic (PV) solar array, which will occupy approximately 9.2 acres. Infrastructure will connect the PV solar array to an energy storage system which in turn will direct the energy into the existing adjacent Doolittle Road Substation. The Undertaking footprint area will be contoured to achieve necessary drainage, with run-off directed towards extant wetlands to the east. An existing water tank release valve and associated ditch will be extended beyond the solar array footprint as part of the Undertaking. Security fencing, maintenance access, and parking will also be included in this development.

The Area of Potential Effects (APE) for this Undertaking includes the full extent of all ground disturbing, staging, and laydown areas (Attachment 2). The APE totals approximately 17.5

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No archaeological properties were identified during the cultural resources survey; two Cold War-era structures were identified, and determined to be not eligible for listing in the National Register of Historic Places (Attachment 2, Attachment 3). Beale AFB is currently unaware of any Native American Traditional Cultural Properties (TCPs) within the APE. Nevertheless, we ask for your assistance in identifying any TCPs, particularly those which may be affected by the Undertaking described above.

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If you have any questions or desire additional information, please contact Ms. Tamara Gallentine, Cultural Resources Manager, 9 CES/CEIEC, 6425 B St., Bldg. 25390, Beale AFB, CA 95903-1708, tamara.gallentine.2@us.af.mil, (530) 913-2975 or Cultural Resources Specialist, Mr. William Norton at (707) 424-8629, william.norton.9.ctr@us.af.mil. Please refer to the 2 MW Solar PV Microgrid Project in any correspondence.

Sincerely,



GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer
Squadron

Attachments:

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Ms. Glenda Nelson
Chairperson
Enterprise Rancheria
2133 Monte Vista Avenue
Oroville, CA 95966

Dear Ms. Nelson,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties*, is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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Sincerely,



GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer
Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Ms. Jessica Lopez
Chairperson
Konkow Valley Band of Maidu
2136 Meyers Street
Oroville, CA 95966

Dear Ms. Lopez,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties*, is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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Environmental Element Chief, 9th Civil Engineer
Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Eric S. Josephson
NAGPRA Coordinator
Konkow Valley Band of Maidu
PO Box 938
Cottonwood, CA 96022

Dear Mr. Josephson,

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GWENDOLYN E. VERGARA, GS-13, DAF
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Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Benjamin Clark
Chairperson
Mooretown Rancheria
#1 Alverda Drive
Oroville, CA 95966

Dear Mr. Clark,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties*, is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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Environmental Element Chief, 9th Civil Engineer
Squadron

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Prepared for US Air Force, Air Combat Command, 9th Reconnaissance Wing, Beale Air Force Base, California.



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Matthew Hatcher
THPO
Mooretown Rancheria
#1 Alverda Drive
Oroville, CA 95966

Dear Mr. Hatcher,

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Ms. Regina Cuellar
Chairperson
Shingle Springs Rancheria
PO Box 1340
Shingle Springs, CA 95682

Dear Ms. Cuellar,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties*, is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Daniel Fonseca
Cultural Resources Director/THPO
Shingle Springs Rancheria
PO Box 1340
Shingle Springs, CA 95682

Dear Mr. Fonseca,

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If you have any questions or desire additional information, please contact Ms. Tamara Gallentine, Cultural Resources Manager, 9 CES/CEIEC, 6425 B St., Bldg. 25390, Beale AFB, CA 95903-1708, tamara.gallentine.2@us.af.mil, (530) 913-2975 or Cultural Resources Specialist, Mr. William Norton at (707) 424-8629, william.norton.9.ctr@us.af.mil. Please refer to the 2 MW Solar PV Microgrid Project in any correspondence.

Sincerely,



GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer
Squadron

Attachments:

1. Solar PV Microgrid Project: Vicinity Map
2. Solar PV Microgrid Area of Potential Effects and Cultural Survey Area Map
3. Norton 2020, *Memorandum for Record: Cultural Resources Survey for the Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project, Yuba County, California.*
Prepared for US Air Force, Air Combat Command, 9th Reconnaissance Wing, Beale Air Force Base, California.



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Ms. Annie Jones
Vice Chairperson
Shingle Springs Rancheria
PO Box 1340
Shingle Springs, CA 95682

Dear Ms. Jones,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties*, is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

Beale AFB is situated on the eastern margin of the Sacramento Valley, approximately 35 miles north-northeast of Sacramento (Attachment 1). The Base is more than 23,000 acres in size and is located in the Southern Maidu (Nisenan) culture area. Beale AFB is home to the 9th Reconnaissance Wing, which maintains and monitors feedback from fleets of manned and unmanned surveillance aircraft.

With this Undertaking, the USAF proposes to develop a power back-up system at Beale AFB to secure electrical reliability for an aspect of their current mission. The project will include construction of a photovoltaic (PV) solar array, which will occupy approximately 9.2 acres. Infrastructure will connect the PV solar array to an energy storage system which in turn will direct the energy into the existing adjacent Doolittle Road Substation. The Undertaking footprint area will be contoured to achieve necessary drainage, with run-off directed towards extant wetlands to the east. An existing water tank release valve and associated ditch will be extended beyond the solar array footprint as part of the Undertaking. Security fencing, maintenance access, and parking will also be included in this development.

The Area of Potential Effects (APE) for this Undertaking includes the full extent of all ground disturbing, staging, and laydown areas (Attachment 2). The APE totals approximately 17.5

acres and was subjected to pedestrian cultural resources survey on 6 November 2020. The vertical APE will be to a depth of 3 feet below ground surface.

No archaeological properties were identified during the cultural resources survey; two Cold War-era structures were identified, and determined to be not eligible for listing in the National Register of Historic Places (Attachment 2, Attachment 3). Beale AFB is currently unaware of any Native American Traditional Cultural Properties (TCPs) within the APE. Nevertheless, we ask for your assistance in identifying any TCPs, particularly those which may be affected by the Undertaking described above.

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Sincerely,



GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer
Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Scott Dinsmore
Tribal Chair Member
Strawberry Valley Rancheria
PO Box 984
Marysville, CA 95901

Dear Mr. Dinsmore,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties*, is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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acres and was subjected to pedestrian cultural resources survey on 6 November 2020. The vertical APE will be to a depth of 3 feet below ground surface.

No archaeological properties were identified during the cultural resources survey; two Cold War-era structures were identified, and determined to be not eligible for listing in the National Register of Historic Places (Attachment 2, Attachment 3). Beale AFB is currently unaware of any Native American Traditional Cultural Properties (TCPs) within the APE. Nevertheless, we ask for your assistance in identifying any TCPs, particularly those which may be affected by the Undertaking described above.

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Sincerely,



GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer
Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Ms. Tina Goodwin
Chairperson
Strawberry Valley Rancheria
PO Box 984
Marysville, CA 95901

Dear Ms. Goodwin,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties*, is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer
Squadron

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Matthew Moore
THPO
United Auburn Indian Community
10720 Indian Hill Road
Auburn, CA 95603

Dear Mr. Moore,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties*, is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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Environmental Element Chief, 9th Civil Engineer
Squadron

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Prepared for US Air Force, Air Combat Command, 9th Reconnaissance Wing, Beale Air Force Base, California.



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH RECONNAISSANCE WING (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

Ms. Gwendolyn Vergara
Environmental Element Chief
9 CES/CEIE
6425 B Street, Building 25390
Beale AB, CA 95903-1708

JAN 11 2021

Mr. Gene Whitehouse
Chairperson
United Auburn Indian Community
10720 Indian Hill Road
Auburn, CA 95603

Dear Mr. Whitehouse,

The U.S Air Force (USAF), Beale Air Force Base (AFB), in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and 36 Code of Federal Regulations (CFR) Part 800, *Protection of Historic Properties*, is writing to ask for your assistance in identifying historic properties of religious and cultural significance to your tribe, for the "Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project" located at Beale AFB, in Yuba County, California (Undertaking).

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Sincerely,



GWENDOLYN E. VERGARA, GS-13, DAF
Environmental Element Chief, 9th Civil Engineer
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Prepared for US Air Force, Air Combat Command, 9th Reconnaissance Wing, Beale Air Force Base, California.

NATIVE AMERICAN RESPONSE TO NATIONAL HISTORIC PRESERVATION ACT SECTION 106 CONSULTATION



Mooretown Rancheria

#1 Alverda Drive

Oroville, CA 95966

(530) 533-3625 Office

(530) 533-3680 Fax

January 27, 2021

Ms. Tamara Gallentine
Cultural Resource Manager
9 CES/CEIEC
6425 B St., Bldg. 25390
Beale AFB, CA 95903-1708

Re: Proposed (MW Solar Photovoltaic Array) Project – Beale AFB. Yuba Co, CA.

Dear Ms. Gallentine:

Thank you for your letter dated, January 11, 2021, seeking information regarding the proposed Photovoltaic Array project in Yuba County, California. Based on the information provided, the Mooretown Rancheria is not aware of any known cultural resources on this site. However, as the project progresses, if any new information or human remains are found, we do have a process to protect such important and sacred artifacts (especially near rivers or streams).

Please contact the following individuals if tribal cultural items or Native American human remains are found:

THPO
Mooretown Rancheria
1 Alverda Drive
Oroville, CA 95966
(530) 533-3625 Office
(530) 533-3680 Fax
E-mail: matthew.hatcher@mooretown.org

Thank you for providing us with this notice and opportunity to comment.

Sincerely,

Matthew Hatcher
Tribal Historic Preservation Officer

"Concow - Maidu"

GALLENTINE, TAMARA A GS-12 USAF ACC 9 CES/CEIEC

Subject: RE: Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with Battery Storage Project

Good morning,

Thank you for the notifications for the above referenced project. We appreciate the opportunity to consult and review the project. Our records show two cultural resources recorded in proximity to the project area but none that we are aware of that are in. If any are identified, even isolates, during the cultural study, please let us know immediately so we can discuss treatment.

Thank you,
Anna

The United Auburn Indian Community is now accepting electronic consultation request, project notifications, and requests for information! Please fill out and submit through our website. Do not mail hard copy letters or documents. <https://auburnrancheria.com/programs-services/tribal-preservation>



Anna M. Starkey, M.A., RPA
Cultural Regulatory Specialist
Tribal Historic Preservation Department | UAIC
10720 Indian Hill Road
Auburn, CA 95603
Direct line: (916) 251-1565 | Cell: (530) 863-6503
astarkey@auburnrancheria.com | www.auburnrancheria.com

Nothing in this e-mail is intended to constitute an electronic signature for purposes of the Electronic Signatures in Global and National Commerce Act (E-Sign Act), 15, U.S.C. §§ 7001 to 7006 or the Uniform Electronic Transactions Act of any state or the federal government unless a specific statement to the contrary is included in this e-mail.

From: [Katie Solorio](#)
To: [GALLETINE, TAMARA A GS-12 USAF ACC 9 CES/CEIEC](#)
Cc: [Kara Perry](#)
Subject: [Non-DoD Source] Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid
Date: Tuesday, February 2, 2021 1:05:20 PM
Attachments: [Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid.pdf](#)

Good Afternoon,

Please see the response letter regarding the Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid. For any questions regarding this letter, please contact Site Protection Manager Kara Perry, who is copied on this e-mail.

Thank you,



Katie Solorio

Administrative Assistant
Cultural Resources Department

Phone: (530) 698-1555
Fax: (530) 558-2034
Email: KSolorio@ssband.org

Shingle Springs Band of Miwok Indians | P.O. Box 1340, Shingle Springs, CA 95682

SSBMI Disclaimer: This email (Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid) is from Shingle Springs Band of Miwok Indians: Cultural Resources Department and is intended for tamara.gallentine.2@us.af.mil. Any attachments thereto may contain private, confidential, and privileged material. Any review, copying, or distribution of this email (or any attachments thereto) by parties other than the Shingle Springs Band of Miwok Indians (and its affiliated departments or programs) or the intended recipient(s) is strictly prohibited. If you properly received this e-mail as an employee of the Shingle Springs Band of Miwok Indians, outside legal counsel or retained expert, you should maintain its contents in confidence in order to preserve the attorney-client or work product privilege that may be available to protect confidentiality.

If you are not the intended recipient, please notify the sender immediately and permanently delete the email and any attachments thereto. Do not forward, copy, disclose, or otherwise reproduce its contents to anyone.



Shingle Springs Band of Miwok Indians

Shingle Springs Rancheria (Verona Tract), California

5281 Honpie Road • Placerville, CA 95667

(530) 698-1400 • shinglespringsrancheria.com

CULTURAL RESOURCES

February 1, 2021

Beale Air Force Base
Tamara Gallentine
6425 B St., Bldg. 25390
Beale AFB, CA 95903-1708

RE: Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid

Dear Tamara Gallentine,

Thank you for your letter dated January 11, 2021 in regard to the above mentioned project. Based on the information provided, the Shingle Springs Band Of Miwok Indians is not aware of any known cultural resources on this site. However, SSR would like to have continued consultation through updates, as the project progresses. This will foster a greater communication between the Tribe and your agency.

SSR would also like to request any and all completed record searches and or surveys that were done in or around the project area up to and including environmental, archaeological and cultural reports. If during the progress of the project new information or human remains are found, we would like to be able to go over our process with you to protect such important and sacred artifacts (especially near rivers and streams).

If such finds are made, please contact Kara Perry, Site Protection Manager, at (530) 488-4049 or kperry@ssband.org.

Thank you for providing us with this notice and opportunity to comment.

Sincerely,

Daniel Fonseca
Tribal Historic Preservation Officer (THPO)
Most Likely Descendant (MLD)

STATE HISTORIC PRESERVATION OFFICER CORRESPONDENCE



**DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION**

Armando Quintero, Director

Julianne Polanco, State Historic Preservation Officer

1725 23rd Street, Suite 100, Sacramento, CA 95816-7100

Telephone: (916) 445-7000

FAX: (916) 445-7053

calshpo.ohp@parks.ca.gov

www.ohp.parks.ca.gov

February 12, 2021
[VIA EMAIL]

In reply refer to: USAF_2021_0114_001

Ms. Gwendolyn Vergara, Environmental Element Chief
Attention: Tamara Gallentine and William Norton
Department of the Air Force
Headquarters 9th Reconnaissance Wing (ACC)
9 CES/CEIEC, 6425 B St., Bldg. 25390
Beale Air Force Base, CA 95903-1708

Subject: Construct 2 Megawatt Solar Photovoltaic Array and Install Microgrid with
Battery Storage Project (2 MW Solar PV Microgrid Project)

Dear Ms. Vergara:

The California State Historic Preservation Officer received the consultation submittal for the above referenced undertaking for our review and comment pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations in 36 CFR § 800. The U.S. Air Force (USAF), Beale Air Force Base requested the SHPO's concurrence: on the defined Area of Potential Effects (APE) pursuant to 36 CFR 800.4(a)(1); on efforts to identify historic properties, pursuant to 36 CFR 800.4(b); on the National Register of Historic Places (NRHP) eligibility of two potential historic properties, Doolittle Road Water Tower and Doolittle Road Electrical Substation, pursuant to 36 CFR 800.4(c)(1), and; on the determination that there are No Historic Properties Affected by the proposed undertaking, pursuant to 36 CFR § 800.4(d)(1).

Undertaking

Your letter informed us of the proposed undertaking to develop a power back-up system at Beale AFB by constructing a Photovoltaic (PV) solar array, that will occupy 9.2 acres within the APE. The PV solar array will connect to a Battery Energy Storage System (BESS). A Smart Grid will control the power from the BESS, directing the energy into the existing adjacent Doolittle Road Substation. The BESS and Smart Grid will occupy a 60 x 60 feet concrete pad enclosed with security fencing. Cable interconnecting the components will be installed at a depth of three feet. Additional fencing, maintenance access, and parking will also be included in this development.

Area of Potential Effects (APE)

Pursuant to 36 CFR § 800.4(a)(1), USAF determined the APE as a total of 17.5 acres, with a vertical depth of three feet below ground surface. All ground disturbance, staging, and laydown areas are within the defined APE.

- Pursuant to 26 CFR 800.4(a)(1), I have no comments on USAF's APE.

Identification of Historic Properties

Your submittal package included a Memorandum for Record by the Center for Environmental Management of Military Lands (CEMML), compiled by William L. Norton, MA, RPA detailing the investigation for cultural resources within the APE, dated December, 2020. The APE had been previously inspected in 2018, 2015, and 1995. A survey was performed for the current investigation using 15-meter survey transects. No archaeological sites were identified. Your consultation letter stated that USAF is consulting with tribal partners on this undertaking and will notify the SHPO of any issues or substantive comments resulting from that consultation.

Two historic structures were present and treated as cultural resources: the Doolittle Road Water Tower (pre-1964) and the Doolittle Road Electrical Substation (1966).

Eligibility for the National Register of Historic Places

USAF determined that both structures were **not eligible** for listing on the NRHP, under:

- Criterion A: Neither structure is associated with an important moment in American prehistory or history, or a pattern of events that made a significant contribution to the development of a community, a state, or the nation.
- Criterion B: Neither structure is associated with an individual important within a local, state, or national historic context.
- Criterion C: Neither structure embodies distinctive characteristics of a type, period, or method of construction. Neither represents the work of a master, and neither possesses high artistic value.
- Criterion D: Neither structure has information to contribute to our understanding of human history or prehistory.

- Pursuant to 36 CFR 800.4(b), I find that USAF has made a reasonable and good faith effort to identify historic properties within the area of potential effects.

- Pursuant to 36 CFR 800.4(c)(2), USAF has determined Doolittle Road Water Tower and Doolittle Road Electrical Substation are not eligible for the NRHP under Criteria A-D. **I concur.**

Determination of No Historic Properties Affected

USAF made a finding of No Historic Properties Affected by this undertaking, based on:

- 1) Present and previous cultural resources investigations that revealed no historic properties within the APE.
- 2) A determination that the two structures within the APE are not eligible for the NRHP.
- 3) Ongoing consultations with Tribal partners regarding this undertaking. USAF's consultation letter states that any substantive comments or issues from tribes will be forwarded to the SHPO, and the consultation will be reopened if necessary.

Pursuant to 36 CFR 800.4(d)(1) USAF has made a finding of No Historic Properties Affected. **I do not object.**

If you have questions, please contact Susan Negrete, State Historian I, with the Local Government and Environmental Compliance Unit at (916) 445-7042 or by email at Susan.Negrete@parks.ca.gov.

Note that we are sending this letter in electronic format. Please confirm receipt of this letter. If you would like a hard copy mailed to you, respond to this email to request a hard copy be mailed.

Sincerely,



Julianne Polanco
State Historic Preservation Officer

Ms. Gwendolyn Vergara
February 12, 2021
Page 4

USAF_2021_0114_001

cc: Tamara Gallentine, tamara.gallentine.2@us.af.mil
William Norton, william.norton.9.ctr@us.af.mil

1 **APPENDIX G AIR QUALITY CONFORMITY ANALYSIS**

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ACAM REPORT - RECORD OF CONFORMITY ANALYSIS (ROCA)

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

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

Report generated with ACAM version: 5.0.23a

a. Action Location:

Base: BEALE AFB

State: California

County(s): Yuba

Regulatory Area(s): Yuba City-Marysville, CA; NOT IN A REGULATORY AREA

b. Action Title: Doolittle Power Station Repair and Upgrade

c. Project Number/s (if applicable):

d. Projected Action Start Date: 5 / 2024

e. Action Description:

The Proposed Action would replace the existing Doolittle Substation with an upgraded substation/switchyard and would install a new control building, smart microgrid, battery energy storage system (BESS), and solar array to provide electrical energy resiliency to critical systems at Beale AFB. Construction would consist of the following:

The Proposed Action would replace the existing Doolittle Substation with an upgraded substation/switchyard and would install a new control building, smart microgrid, battery energy storage system (BESS), and solar array to provide electrical energy resiliency to critical systems at Beale AFB. Construction would consist of the following:

- Demolish existing substation equipment and replace/upgrade substation and switchyard with a CMU perimeter wall (28,739 additional square-feet). Requires 2-inch surface grading of approximately 37,749 total square-feet.
- Construct new 600-square-foot control building with a 4 MW microgrid and battery storage area.
- Install a new 2 MW PV solar array (284,282 square-feet) on undeveloped land.
- Install new perimeter fencing, gates, and aggregate driveways (non-asphalt).
- Construct a 850 feet long and approx. 3 feet wide trench (2,550 square-feet) for solar array conduit.
- Reroute an existing water main, which will require trenching an area that is 500 feet long and 3 foot wide (1,500 square-feet)

No Action Alternative:

The CEQ regulations require consideration of the No Action alternative for all Proposed actions. The No Action alternative serves as a baseline against which the impacts of the Proposed Action and other potential alternatives can be compared.

Under the No Action alternative, the Doolittle Power Station and associated structures & equipment would not be constructed. Failure to accomplish this project would not provide greater resiliency to the electrical power distribution system required for supporting the growing missions at Beale AFB and reliance on fossil fuel powered generators would continue.

All other alternatives were eliminated from further analysis.

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

f. Point of Contact:

Name: Susan Stewart
Title: CIV / Air Quality Program Manager
Organization: 9 CES/CEIE
Email: susan.stewart.7@us.af.mil
Phone Number: (530) 634-2844

2. Analysis: Total reasonably foreseeable net change in direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" (highest annual emissions) and "steady state" (no net gain/loss in emission stabilized and the action is 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.

All emissions estimates were derived from various sources using the methods, algorithms, and emission factors from the most current *Air Emissions Guide for Air Force Stationary Sources*, *Air Emissions Guide for Air Force Mobile Sources*, and/or *Air Emissions Guide for Air Force Transitory Sources*. For greater details of this analysis, refer to the Detail ACAM Report.

_____ applicable
 X not applicable

Conformity Analysis Summary:

2024

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Yuba City-Marysville, CA			
VOC	0.110	100	No
NOx	0.942	100	No
CO	1.017		
SOx	0.002	100	No
PM 10	8.995		
PM 2.5	0.041	100	No
Pb	0.000		
NH3	0.001	100	No
NOT IN A REGULATORY AREA			
VOC	0.078		
NOx	0.708		
CO	0.758		
SOx	0.001		
PM 10	8.594		
PM 2.5	0.031		
Pb	0.000		
NH3	0.001		

2025 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Yuba City-Marysville, CA			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000		

AIR CONFORMITY APPLICABILITY MODEL REPORT

RECORD OF CONFORMITY ANALYSIS (ROCA)

SO _x	0.000	100	No
PM 10	0.000		
PM 2.5	0.000	100	No
Pb	0.000		
NH ₃	0.000	100	No
NOT IN A REGULATORY AREA			
VOC	0.000		
NO _x	0.000		
CO	0.000		
SO _x	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH ₃	0.000		

The Criteria Pollutants (or their precursors) with a General Conformity threshold listed in the table above are pollutants within one or more designated nonattainment or maintenance area/s for the associated National Ambient Air Quality Standard (NAAQS). These pollutants are driving this GCR Applicability Analysis. Pollutants exceeding the GCR thresholds must be further evaluated potentially through a GCR Determination.

The pollutants without a General Conformity threshold are pollutants only within areas designated attainment for the associated NAAQS. These pollutants have an insignificance indicator for VOC, NO_x, CO, SO_x, PM 10, PM 2.5, and NH₃ of 250 ton/yr (Prevention of Significant Deterioration major source threshold) and 25 ton/yr for Pb (GCR de minimis value). Pollutants below their insignificance indicators are at rates so insignificant that they will not cause or contribute to an exceedance of one or more NAAQSs. These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Refer to the *Level II, Air Quality Quantitative Assessment Insignificance Indicators* for further details.

None of the annual net change in estimated emissions associated with this action are above the GCR threshold values established at 40 CFR 93.153 (b); therefore, the proposed Action has an insignificant impact on Air Quality and a General Conformity Determination is not applicable.

Susan Stewart, CIV / Air Quality Program Manager

Apr 17 2024

Name, Title

Date

ACAM REPORT - GREENHOUSE GAS (GHG) EMISSIONS

AIR CONFORMITY APPLICABILITY MODEL REPORT

GREENHOUSE GAS (GHG) EMISSIONS

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to estimate GHG emissions and assess the theoretical Social Cost of Greenhouse Gases (SC GHG) associated with the action. The analysis was performed 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 USAF Air Quality Environmental Impact Analysis Process (EIAP) Guide. This report provides a summary of GHG emissions and SC GHG analysis.

Report generated with ACAM version: 5.0.23a

a. Action Location:

Base: BEALE AFB

State: California

County(s): Yuba

Regulatory Area(s): Yuba City-Marysville, CA; NOT IN A REGULATORY AREA

b. Action Title: Doolittle Power Station Repair and Upgrade

c. Project Number/s (if applicable):

d. Projected Action Start Date: 5 / 2024

e. Action Description:

The Proposed Action would replace the existing Doolittle Substation with an upgraded substation/switchyard and would install a new control building, smart microgrid, battery energy storage system (BESS), and solar array to provide electrical energy resiliency to critical systems at Beale AFB. Construction would consist of the following:

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- Demolish existing substation equipment and replace/upgrade substation and switchyard with a CMU perimeter wall (28,739 additional square-feet). Requires 2-inch surface grading of approximately 37,749 total square-feet.
- Construct new 600-square-foot control building with a 4 MW microgrid and battery storage area.
- Install a new 2 MW PV solar array (284,282 square-feet) on undeveloped land.
- Install new perimeter fencing, gates, and aggregate driveways (non-asphalt).
- Construct a 850 feet long and approx. 3 feet wide trench (2,550 square-feet) for solar array conduit.
- Reroute an existing water main, which will require trenching an area that is 500 feet long and 3 foot wide (1,500 square-feet)

No Action Alternative:

The CEQ regulations require consideration of the No Action alternative for all Proposed actions. The No Action alternative serves as a baseline against which the impacts of the Proposed Action and other potential alternatives can be compared.

Under the No Action alternative, the Doolittle Power Station and associated structures & equipment would not be constructed. Failure to accomplish this project would not provide greater resiliency to the electrical power distribution system required for supporting the growing missions at Beale AFB and reliance on fossil fuel powered generators would continue.

All other alternatives were eliminated from further analysis.

AIR CONFORMITY APPLICABILITY MODEL REPORT GREENHOUSE GAS (GHG) EMISSIONS

f. Point of Contact:

Name: Susan Stewart
Title: CIV / Air Quality Program Manager
Organization: 9 CES/CEIE
Email: susan.stewart.7@us.af.mil
Phone Number: (530) 634-2844

2. Analysis: Total combined direct and indirect GHG emissions associated with the action were estimated through ACAM on a calendar-year basis from the action start through the expected life cycle of the action. The life cycle for Air Force actions with "steady state" emissions (SS, net gain/loss in emission stabilized and the action is fully implemented) is assumed to be 10 years beyond the SS emissions year or 20 years beyond SS emissions year for aircraft operations related actions.

GHG Emissions Analysis Summary:

GHGs produced by fossil-fuel combustion are primarily carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (NO₂). These three GHGs represent more than 97 percent of all U.S. GHG emissions. Emissions of GHGs are typically quantified and regulated in units of CO₂ equivalents (CO₂e). The CO₂e takes into account the global warming potential (GWP) of each GHG. The GWP is the measure of a particular GHG's ability to absorb solar radiation as well as its residence time within the atmosphere. The GWP allows comparison of global warming impacts between different gases; the higher the GWP, the more that gas contributes to climate change in comparison to CO₂. All GHG emissions estimates were derived from various emission sources using the methods, algorithms, emission factors, and GWPs from the most current Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and/or Air Emissions Guide for Air Force Transitory Sources.

The Air Force has adopted the Prevention of Significant Deterioration (PSD) threshold for GHG of 75,000 ton per year (ton/yr) of CO₂e (or 68,039 metric ton per year, mton/yr) as an indicator or "threshold of insignificance" for NEPA air quality impacts in all areas. This indicator does not define a significant impact; however, it provides a threshold to identify actions that are insignificant (de minimis, too trivial or minor to merit consideration). Actions with a net change in GHG (CO₂e) emissions below the insignificance indicator (threshold) are considered too insignificant on a global scale to warrant any further analysis. Note that actions with a net change in GHG (CO₂e) emissions above the insignificance indicator (threshold) are only considered potentially significant and require further assessment to determine if the action poses a significant impact. For further detail on insignificance indicators see Level II, Air Quality Quantitative Assessment, Insignificance Indicators (April 2023).

The following table summarizes the action-related GHG emissions on a calendar-year basis through the projected life cycle of the action.

Action-Related Annual GHG Emissions (mton/yr)						
YEAR	CO ₂	CH ₄	N ₂ O	CO ₂ e	Threshold	Exceedance
2024	148	0.00596338	0.00169532	149	68,039	No
2025 [SS Year]	0	0	0	0	68,039	No

The following U.S. and State's GHG emissions estimates (next two tables) are based on a five-year average (2016 through 2020) of individual state-reported GHG emissions (Reference: State Climate Summaries 2022, NOAA National Centers for Environmental Information, National Oceanic and Atmospheric Administration. <https://statesummaries.ncics.org/downloads/>).

State's Annual GHG Emissions (mton/yr)				
YEAR	CO ₂	CH ₄	N ₂ O	CO ₂ e
2024	336,950,322	1,567,526	55,459	338,573,307
2025 [SS Year]	0	0	0	0

AIR CONFORMITY APPLICABILITY MODEL REPORT

GREENHOUSE GAS (GHG) EMISSIONS

U.S. Annual GHG Emissions (mton/yr)				
YEAR	CO ₂	CH ₄	N ₂ O	CO ₂ e
2024	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2025 [SS Year]	0	0	0	0

GHG Relative Significance Assessment:

A Relative Significance Assessment uses the rule of reason and the concept of proportionality along with the consideration of the affected area (yGba.e., global, national, and regional) and the degree (intensity) of the proposed action's effects. The Relative Significance Assessment provides real-world context and allows for a reasoned choice against alternatives through a relative comparison analysis. The analysis weighs each alternative's annual net change in GHG emissions proportionally against (or relative to) global, national, and regional emissions.

The action's surroundings, circumstances, environment, and background (context associated with an action) provide the setting for evaluating the GHG intensity (impact significance). From an air quality perspective, context of an action is the local area's ambient air quality relative to meeting the NAAQSs, expressed as attainment, nonattainment, or maintenance areas (this designation is considered the attainment status). GHGs are non-hazardous to health at normal ambient concentrations and, at a cumulative global scale, action-related GHG emissions can only potentially cause warming of the climatic system. Therefore, the action-related GHGs generally have an insignificant impact to local air quality.

However, the affected area (context) of GHG/climate change is global. Therefore, the intensity or degree of the proposed action's GHG/climate change effects are gauged through the quantity of GHG associated with the action as compared to a baseline of the state, U.S., and global GHG inventories. Each action (or alternative) has significance, based on their annual net change in GHG emissions, in relation to or proportionally to the global, national, and regional annual GHG emissions.

To provide real-world context to the GHG and climate change effects on a global scale, an action's net change in GHG emissions is compared relative to the state (where action will occur) and U.S. annual emissions. The following table provides a relative comparison of an action's net change in GHG emissions vs. state and U.S. projected GHG emissions for the same time period.

Total GHG Relative Significance (mton)					
		CO ₂	CH ₄	N ₂ O	CO ₂ e
2024-2035	State Total	336,950,322	1,567,526	55,459	338,573,307
2024-2035	U.S. Total	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2024-2035	Action	148	0.005963	0.001695	149
Percent of State Totals		0.00004398%	0.00000038%	0.00000306%	0.00004397%
Percent of U.S. Totals		0.00000289%	0.00000002%	0.00000011%	0.00000288%

From a global context, the action's total GHG percentage of total global GHG for the same time period is: 0.00000039%.*

* Global value based on the U.S. emits 13.4% of all global GHG annual emissions (2018 Emissions Data, Center for Climate and Energy Solutions, accessed 7-6-2023, <https://www.c2es.org/content/international-emissions>).

Climate Change Assessment (as SC GHG):

On a global scale, the potential climate change effects of an action are indirectly addressed and put into context through providing the theoretical SC GHG associated with an action. The SC GHG is an administrative and

AIR CONFORMITY APPLICABILITY MODEL REPORT

GREENHOUSE GAS (GHG) EMISSIONS

theoretical tool intended to provide additional context to a GHG's potential impacts through approximating the long-term monetary damage that may result from GHG emissions affect on climate change. It is important to note that the SC GHG is a monetary quantification, in 2020 U.S. dollars, of the theoretical economic damages that could result from emitting GHGs into the atmosphere.

The SC GHG estimates are derived using the methodology and discount factors in the "Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990," released by the Interagency Working Group on Social Cost of Greenhouse Gases (IWG SC GHGs) in February 2021.

The speciated IWG Annual SC GHG Emission associated with an action (or alternative) are first estimated as annual unit cost (cost per metric ton, \$/mton). Results of the annual IWG Annual SC GHG Emission Assessments are tabulated in the IWG Annual SC GHG Cost per Metric Ton Table below:

IWG SC GHG Discount Factor: 2.5%

IWG Annual SC GHG Cost per Metric Ton (\$/mton [In 2020 \$])			
YEAR	CO2	CH4	N2O
2024	\$82.00	\$2,200.00	\$29,000.00
2025 [SS Year]	\$83.00	\$2,200.00	\$30,000.00

Action-related SC GHG were estimated by calendar-year for the projected action's lifecycle. Annual estimates were found by multiplying the annual emission for a given year by the corresponding IWG Annual SC GHG Emission value (see table above).

Action-Related Annual SC GHG (\$K/yr [In 2020 \$])				
YEAR	CO2	CH4	N2O	GHG
2024	\$12.15	\$0.01	\$0.05	\$12.22
2025 [SS Year]	\$0.00	\$0.00	\$0.00	\$0.00

The following two tables summarize the U.S. and State's Annual SC GHG by calendar-year. The U.S. and State's Annual SC GHG are in 2020 dollars and were estimated by each year for the projected action lifecycle. Annual SC GHG estimates were found by multiplying the U.S. and State's annual five-year average GHG emissions for a given year by the corresponding IWG Annual SC GHG Cost per Metric Ton value.

State's Annual SC GHG (\$K/yr [In 2020 \$])				
YEAR	CO2	CH4	N2O	GHG
2024	\$27,629,926.37	\$3,448,557.38	\$1,608,320.85	\$32,686,804.60
2025 [SS Year]	\$0.00	\$0.00	\$0.00	\$0.00

U.S. Annual SC GHG (\$K/yr [In 2020 \$])				
YEAR	CO2	CH4	N2O	GHG
2024	\$421,189,242.68	\$56,379,205.70	\$43,520,521.44	\$521,088,969.82
2025 [SS Year]	\$0.00	\$0.00	\$0.00	\$0.00

Relative Comparison of SC GHG:

To provide additional real-world context to the potential climate change impact associate with an action, a Relative Comparison of SC GHG Assessment is also performed. While the SC GHG estimates capture an indirect approximation of global climate damages, the Relative Comparison of SC GHG Assessment provides a better perspective from a regional and global scale.

AIR CONFORMITY APPLICABILITY MODEL REPORT

GREENHOUSE GAS (GHG) EMISSIONS

The Relative Comparison of SC GHG Assessment uses the rule of reason and the concept of proportionality along with the consideration of the affected area (yGba.e., global, national, and regional) and the SC GHG as the degree (intensity) of the proposed action's effects. The Relative Comparison Assessment provides real-world context and allows for a reasoned choice among alternatives through a relative contrast analysis which weighs each alternative's SC GHG proportionally against (or relative to) existing global, national, and regional SC GHG. The below table provides a relative comparison between an action's SC GHG vs. state and U.S. projected SC GHG for the same time period:

Total SC-GHG (\$K [In 2020 \$])					
		CO2	CH4	N2O	GHG
2024-2035	State Total	\$27,629,926.37	\$3,448,557.38	\$1,608,320.85	\$32,686,804.60
2024-2035	U.S. Total	\$421,189,242.68	\$56,379,205.70	\$43,520,521.44	\$521,088,969.82
2024-2035	Action	\$12.15	\$0.01	\$0.05	\$12.22
Percent of State Totals		0.00004398%	0.00000038%	0.00000306%	0.00003737%
Percent of U.S. Totals		0.00000289%	0.00000002%	0.00000011%	0.00000234%

From a global context, the action's total SC GHG percentage of total global SC GHG for the same time period is: 0.00000031%.*

* Global value based on the U.S. emits 13.4% of all global GHG annual emissions (2018 Emissions Data, Center for Climate and Energy Solutions, accessed 7-6-2023, <https://www.c2es.org/content/international-emissions>).

Susan Stewart, CIV / Air Quality Program Manager

Apr 17 2024

Name, Title

Date

ACAM REPORT – DETAILS

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: BEALE AFB

State: California

County(s): Yuba

Regulatory Area(s): Yuba City-Marysville, CA; NOT IN A REGULATORY AREA

- Action Title: Doolittle Power Station Repair and Upgrade

- Project Number/s (if applicable):

- Projected Action Start Date: 5 / 2024

- Action Purpose and Need:

The purpose of the action is 1) to ensure electric power supporting all facilities on the flightline, the Munition support Squadron (MUNS), Global hawk Campus (GHC), and Mission Control Station (MCS) Pad at Beale AFB are maintained; 2) provide 100% electrical energy resiliency for the Global Hawk Mission operating 24/7/365; and 3) to isolate critical facilities at the GHC in the event of an electrical outage.

The action is needed because hangers and buildings on the flightline, MUNS, and GHC at Beale AFB are at risk of periods of non-operation in the event of a power failure. Additionally, backup power for these areas is reliant on fossil fuel generators.

This action ensures compliance with all United Facilities Criteria and National electrical Codes, Department of Defense Instruction 4170.11, Energy Resilience update to be 'not limited to traditional standby and emergency generators', and the direction, 'when selecting distributed and renewable energy systems...for energy resilience, they shall be properly designed to have the ability to prepare for and recover from energy disruptions that impact the mission impact assurance.

- Action Description:

The Proposed Action would replace the existing Doolittle Substation with an upgraded substation/switchyard and would install a new control building, smart microgrid, battery energy storage system (BESS), and solar array to provide electrical energy resiliency to critical systems at Beale AFB. Construction would consist of the following:

The Proposed Action would replace the existing Doolittle Substation with an upgraded substation/switchyard and would install a new control building, smart microgrid, battery energy storage system (BESS), and solar array to provide electrical energy resiliency to critical systems at Beale AFB. Construction would consist of the following:

- Demolish existing substation equipment and replace/upgrade substation and switchyard with a CMU perimeter wall (28,739 additional square-feet). Requires 2-inch surface grading of approximately 37,749 total square-feet.
- Construct new 600-square-foot control building with a 4 MW microgrid and battery storage area.
- Install a new 2 MW PV solar array (284,282 square-feet) on undeveloped land.
- Install new perimeter fencing, gates, and aggregate driveways (non-asphalt).
- Construct a 850 feet long and approx. 3 feet wide trench (2,550 square-feet) for solar array conduit.
- Reroute an existing water main, which will require trenching an area that is 500 feet long and 3 foot wide (1,500 square-feet)

No Action Alternative:

The CEQ regulations require consideration of the No Action alternative for all Proposed actions. The No Action alternative serves as a baseline against which the impacts of the Proposed Action and other potential alternatives can be compared.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Under the No Action alternative, the Doolittle Power Station and associated structures & equipment would not be constructed. Failure to accomplish this project would not provide greater resiliency to the electrical power distribution system required for supporting the growing missions at Beale AFB and reliance on fossil fuel powered generators would continue.

All other alternatives were eliminated from further analysis.

- Point of Contact

Name: Susan Stewart
Title: CIV / Air Quality Program Manager
Organization: 9 CES/CEIE
Email: susan.stewart.7@us.af.mil
Phone Number: (530) 634-2844

Report generated with ACAM version: 5.0.23a

- Activity List:

Activity Type		Activity Title
2.	Construction / Demolition	2 MW Photo Voltaic (PV) Solar Array System Construction Activities
3.	Construction / Demolition	Doolittle Substation, West Switch Yard, Micogrid/BESS Switch Yard Construction Activities

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: Yuba
Regulatory Area(s): Yuba City-Marysville, CA; NOT IN A REGULATORY AREA

- Activity Title: 2 MW Photo Voltaic (PV) Solar Array System Construction Activities

- Activity Description:

The Proposed Action the new construction of a two (2) megawatt (MW) photo voltaic (PV) solar array system. Solar array footprint will be approximately 284,282 square feet on undeveloped land. Construction activities would include site grading of 284,282 square feet, trenching approximately 2,550 square feet for solar array conduit, and putting down utilizing suitable loose aggregate (non-asphalt) for a driving surface.

- Activity Start Date

Start Month: 5
Start Month: 2024

- Activity End Date

Indefinite: False
End Month: 10
End Month: 2024

- Activity Emissions:

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Pollutant	Total Emissions (TONs)
VOC	0.077603
SO _x	0.001112
NO _x	0.708007
CO	0.758124

- Activity Emissions of GHG:

Pollutant	Total Emissions (TONs)
CH ₄	0.004822
N ₂ O	0.001402

- Global Scale Activity Emissions for SCGHG:

Pollutant	Total Emissions (TONs)
CH ₄	0.004822
N ₂ O	0.001402

Pollutant	Total Emissions (TONs)
PM 10	8.593728
PM 2.5	0.030600
Pb	0.000000
NH ₃	0.000853

Pollutant	Total Emissions (TONs)
CO ₂	120.074782
CO ₂ e	120.613064

Pollutant	Total Emissions (TONs)
CO ₂	120.074782
CO ₂ e	120.613064

2.1 Site Grading Phase

2.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date

Start Month: 5
Start Quarter: 2
Start Year: 2024

- Phase Duration

Number of Month: 3
Number of Days: 0

2.1.2 Site Grading Phase Assumptions

- General Site Grading Information

Area of Site to be Graded (ft²): 284282
Amount of Material to be Hauled On-Site (yd³): 0
Amount of Material to be Hauled Off-Site (yd³): 1754

- Site Grading Default Settings

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

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	1	8
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8
Tractors/Loaders/Backhoes Composite	2	7

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
--	------	------	------	------	------	------	----

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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 Criteria Pollutant Emission Factors (g/hp-hour) (default)

Graders Composite [HP: 148] [LF: 0.41]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.36076	0.00489	3.17634	3.40450	0.17539	0.16136
Other Construction Equipment Composite [HP: 82] [LF: 0.42]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.34346	0.00488	3.24084	3.56285	0.20853	0.19184
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.40864	0.00491	4.01022	3.25251	0.17852	0.16424
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.21500	0.00489	2.19159	3.49485	0.09716	0.08939

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Graders Composite [HP: 148] [LF: 0.41]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02151	0.00430	530.17041	531.98982
Other Construction Equipment Composite [HP: 82] [LF: 0.42]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02144	0.00429	528.45375	530.26726
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02159	0.00432	532.20301	534.02939
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02150	0.00430	529.93313	531.75173

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

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.12781	0.00289	0.07715	1.20980	0.01679	0.00591	0.03374
LDGT	0.21838	0.00358	0.16638	1.85474	0.01854	0.00671	0.03626
HDGV	0.29343	0.00517	0.28218	2.18542	0.02703	0.00971	0.03601
LDDV	0.03024	0.00219	0.26972	0.36265	0.03375	0.02212	0.00310
LDDT	0.01911	0.00283	0.12722	0.17319	0.02552	0.01370	0.00310
HDDV	0.16743	0.00948	2.81456	0.64388	0.13402	0.07179	0.14942
MC	6.09683	0.00213	0.78848	19.80890	0.01910	0.00811	0.00843

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

	CH ₄	N ₂ O	CO ₂	CO ₂ e
LDGV	0.01091	0.00892	292.78541	295.71702
LDGT	0.01748	0.01354	362.00479	366.47714
HDGV	0.02417	0.01955	522.97939	529.41090

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LDDV	0.00140	0.03639	230.96773	241.84679
LDDT	0.00089	0.04697	298.13884	312.15866
HDDV	0.00778	0.15776	1001.30651	1048.51229
MC	0.29086	0.05001	215.30579	237.47949

2.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM_{10FD} = (20 * ACRE * WD) / 2000$$

PM_{10FD}: 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

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

HP: Equipment Horsepower

LF: Equipment Load Factor

EF_{POL}: Emission Factor for Pollutant (g/hp-hour)

0.002205: Conversion Factor grams to pounds

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

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

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)

HA_{OffSite}: Amount of Material to be Hauled Off-Site (yd³)

HC: Average Hauling Truck Capacity (yd³)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Vehicle Exhaust On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

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

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works

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NE: Number of Construction Equipment

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

V_{POL} : Vehicle Emissions (TONs)

VMT_{WT} : Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL} : Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

2.2 Trenching/Excavating Phase

2.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date

Start Month: 8

Start Quarter: 1

Start Year: 2024

- Phase Duration

Number of Month: 3

Number of Days: 0

2.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information

Area of Site to be Trenched/Excavated (ft²): 2550

Amount of Material to be Hauled On-Site (yd³): 0

Amount of Material to be Hauled Off-Site (yd³): 0

- Trenching Default Settings

Default Settings Used: Yes

Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³): 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
--	------	------	------	------	------	------	----

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

POVs	50.00	50.00	0	0	0	0	0
------	-------	-------	---	---	---	---	---

2.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.41507	0.00542	3.50127	4.19664	0.11916	0.10962
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.54521	0.00542	3.85582	4.77621	0.16518	0.15196
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.21500	0.00489	2.19159	3.49485	0.09716	0.08939

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02382	0.00476	587.31685	589.33237
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02386	0.00477	588.15144	590.16982
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02150	0.00430	529.93313	531.75173

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

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.12781	0.00289	0.07715	1.20980	0.01679	0.00591	0.03374
LDGT	0.21838	0.00358	0.16638	1.85474	0.01854	0.00671	0.03626
HDGV	0.29343	0.00517	0.28218	2.18542	0.02703	0.00971	0.03601
LDDV	0.03024	0.00219	0.26972	0.36265	0.03375	0.02212	0.00310
LDDT	0.01911	0.00283	0.12722	0.17319	0.02552	0.01370	0.00310
HDDV	0.16743	0.00948	2.81456	0.64388	0.13402	0.07179	0.14942
MC	6.09683	0.00213	0.78848	19.80890	0.01910	0.00811	0.00843

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

	CH ₄	N ₂ O	CO ₂	CO ₂ e
LDGV	0.01091	0.00892	292.78541	295.71702
LDGT	0.01748	0.01354	362.00479	366.47714
HDGV	0.02417	0.01955	522.97939	529.41090
LDDV	0.00140	0.03639	230.96773	241.84679
LDDT	0.00089	0.04697	298.13884	312.15866
HDDV	0.00778	0.15776	1001.30651	1048.51229
MC	0.29086	0.05001	215.30579	237.47949

2.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

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

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

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

ACRE: Total acres (acres)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

WD: Number of Total Work Days (days)

2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

HP: Equipment Horsepower

LF: Equipment Load Factor

EF_{POL}: Emission Factor for Pollutant (g/hp-hour)

0.002205: Conversion Factor grams to pounds

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

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

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)

HA_{OffSite}: Amount of Material to be Hauled Off-Site (yd³)

HC: Average Hauling Truck Capacity (yd³)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Vehicle Exhaust On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

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

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works

NE: Number of Construction Equipment

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

V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

3. Construction / Demolition

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

3.1 General Information & Timeline Assumptions

- Activity Location

County: Yuba

Regulatory Area(s): Yuba City-Marysville, CA

- Activity Title: Doolittle Substation, West Switch Yard, Micogrid/BESS Switch Yard Construction Activities

- Activity Description:

Proposed Action activities include demolition, replacement of the existing Doolittle Substation and associate equipment. Construct a new single story 600 square feet control room (20 feet wide x 30 feet long x 10 feet tall) , and a four (4) MW smart microgrid with battery energy storage system (BESS). Grade 37,749 square foot area. Trench an area of 1500 square feet for water main reroute. Construction activities include site grading, water main reroute trenching, and building construction.

- Activity Start Date

Start Month: 5

Start Month: 2024

- Activity End Date

Indefinite: False

End Month: 9

End Month: 2024

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.032848
SO _x	0.000401
NO _x	0.234316
CO	0.259264

Pollutant	Total Emissions (TONs)
PM 10	0.401546
PM 2.5	0.010120
Pb	0.000000
NH ₃	0.000305

- Activity Emissions of GHG:

Pollutant	Total Emissions (TONs)
CH ₄	0.001751
N ₂ O	0.000467

Pollutant	Total Emissions (TONs)
CO ₂	43.294392
CO ₂ e	43.477273

- Global Scale Activity Emissions for SCGHG:

Pollutant	Total Emissions (TONs)
CH ₄	0.001751
N ₂ O	0.000467

Pollutant	Total Emissions (TONs)
CO ₂	43.294392
CO ₂ e	43.477273

3.1 Site Grading Phase

3.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date

Start Month: 5

Start Quarter: 2

Start Year: 2024

- Phase Duration

Number of Month: 2

Number of Days: 0

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3.1.2 Site Grading Phase Assumptions

- General Site Grading Information

Area of Site to be Graded (ft²): 37749
 Amount of Material to be Hauled On-Site (yd³): 0
 Amount of Material to be Hauled Off-Site (yd³): 232

- 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 (yd³): 20 (default)
 Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

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

- Worker Trips

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

- Worker Trips Vehicle Mixture (%)

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

3.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Graders Composite [HP: 148] [LF: 0.41]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.36076	0.00489	3.17634	3.40450	0.17539	0.16136
Other Construction Equipment Composite [HP: 82] [LF: 0.42]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.34346	0.00488	3.24084	3.56285	0.20853	0.19184
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.40864	0.00491	4.01022	3.25251	0.17852	0.16424
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.21500	0.00489	2.19159	3.49485	0.09716	0.08939

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Graders Composite [HP: 148] [LF: 0.41]			
	CH ₄	N ₂ O	CO ₂
Emission Factors	0.02151	0.00430	530.17041

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Other Construction Equipment Composite [HP: 82] [LF: 0.42]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02144	0.00429	528.45375	530.26726
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02159	0.00432	532.20301	534.02939
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02150	0.00430	529.93313	531.75173

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

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.12781	0.00289	0.07715	1.20980	0.01679	0.00591	0.03374
LDGT	0.21838	0.00358	0.16638	1.85474	0.01854	0.00671	0.03626
HDGV	0.29343	0.00517	0.28218	2.18542	0.02703	0.00971	0.03601
LDDV	0.03024	0.00219	0.26972	0.36265	0.03375	0.02212	0.00310
LDDT	0.01911	0.00283	0.12722	0.17319	0.02552	0.01370	0.00310
HDDV	0.16743	0.00948	2.81456	0.64388	0.13402	0.07179	0.14942
MC	6.09683	0.00213	0.78848	19.80890	0.01910	0.00811	0.00843

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

	CH ₄	N ₂ O	CO ₂	CO ₂ e
LDGV	0.01091	0.00892	292.78541	295.71702
LDGT	0.01748	0.01354	362.00479	366.47714
HDGV	0.02417	0.01955	522.97939	529.41090
LDDV	0.00140	0.03639	230.96773	241.84679
LDDT	0.00089	0.04697	298.13884	312.15866
HDDV	0.00778	0.15776	1001.30651	1048.51229
MC	0.29086	0.05001	215.30579	237.47949

3.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

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

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

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

ACRE: Total acres (acres)

WD: Number of Total Work Days (days)

2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

HP: Equipment Horsepower

LF: Equipment Load Factor

EF_{POL}: Emission Factor for Pollutant (g/hp-hour)

0.002205: Conversion Factor grams to pounds

2000: Conversion Factor pounds to tons

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Vehicle Exhaust Emissions per Phase

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

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)

HA_{OffSite}: Amount of Material to be Hauled Off-Site (yd³)

HC: Average Hauling Truck Capacity (yd³)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Vehicle Exhaust On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

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

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works

NE: Number of Construction Equipment

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

V_{POL}: Vehicle Emissions (TONs)

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

3.2 Trenching/Excavating Phase

3.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date

Start Month: 7

Start Quarter: 2

Start Year: 2024

- Phase Duration

Number of Month: 2

Number of Days: 0

3.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information

Area of Site to be Trenched/Excavated (ft²): 1500

Amount of Material to be Hauled On-Site (yd³): 0

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Amount of Material to be Hauled Off-Site (yd³): 0

- Trenching Default Settings

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

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

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

- Worker Trips

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

- Worker Trips Vehicle Mixture (%)

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

3.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.41507	0.00542	3.50127	4.19664	0.11916	0.10962
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.54521	0.00542	3.85582	4.77621	0.16518	0.15196
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.21500	0.00489	2.19159	3.49485	0.09716	0.08939

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02382	0.00476	587.31685	589.33237
Other General Industrial Equipmen Composite [HP: 35] [LF: 0.34]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02386	0.00477	588.15144	590.16982
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02150	0.00430	529.93313	531.75173

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

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
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LDGV	0.12781	0.00289	0.07715	1.20980	0.01679	0.00591	0.03374
LDGT	0.21838	0.00358	0.16638	1.85474	0.01854	0.00671	0.03626
HDGV	0.29343	0.00517	0.28218	2.18542	0.02703	0.00971	0.03601
LDDV	0.03024	0.00219	0.26972	0.36265	0.03375	0.02212	0.00310
LDDT	0.01911	0.00283	0.12722	0.17319	0.02552	0.01370	0.00310
HDDV	0.16743	0.00948	2.81456	0.64388	0.13402	0.07179	0.14942
MC	6.09683	0.00213	0.78848	19.80890	0.01910	0.00811	0.00843

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

	CH ₄	N ₂ O	CO ₂	CO ₂ e
LDGV	0.01091	0.00892	292.78541	295.71702
LDGT	0.01748	0.01354	362.00479	366.47714
HDGV	0.02417	0.01955	522.97939	529.41090
LDDV	0.00140	0.03639	230.96773	241.84679
LDDT	0.00089	0.04697	298.13884	312.15866
HDDV	0.00778	0.15776	1001.30651	1048.51229
MC	0.29086	0.05001	215.30579	237.47949

3.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

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

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

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

ACRE: Total acres (acres)

WD: Number of Total Work Days (days)

2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

HP: Equipment Horsepower

LF: Equipment Load Factor

EF_{POL}: Emission Factor for Pollutant (g/hp-hour)

0.002205: Conversion Factor grams to pounds

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

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

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)

HA_{OffSite}: Amount of Material to be Hauled Off-Site (yd³)

HC: Average Hauling Truck Capacity (yd³)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

V_{POL}: Vehicle Emissions (TONs)

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

- Worker Trips Emissions per Phase

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

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

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

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

3.3 Building Construction Phase

3.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month: 8
Start Quarter: 1
Start Year: 2024

- Phase Duration

Number of Month: 1
Number of Days: 0

3.3.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial
Area of Building (ft²): 600
Height of Building (ft): 10
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

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- 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

3.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.21025	0.00487	2.13057	1.68023	0.08573	0.07887
Forklifts Composite [HP: 82] [LF: 0.2]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.29170	0.00487	2.75083	3.61458	0.15732	0.14473
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5
Emission Factors	0.21500	0.00489	2.19159	3.49485	0.09716	0.08939

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02140	0.00428	527.53174	529.34210
Forklifts Composite [HP: 82] [LF: 0.2]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02138	0.00428	527.03976	528.84843
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH ₄	N ₂ O	CO ₂	CO ₂ e
Emission Factors	0.02150	0.00430	529.93313	531.75173

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

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.12781	0.00289	0.07715	1.20980	0.01679	0.00591	0.03374
LDGT	0.21838	0.00358	0.16638	1.85474	0.01854	0.00671	0.03626
HDGV	0.29343	0.00517	0.28218	2.18542	0.02703	0.00971	0.03601
LDDV	0.03024	0.00219	0.26972	0.36265	0.03375	0.02212	0.00310
LDDT	0.01911	0.00283	0.12722	0.17319	0.02552	0.01370	0.00310
HDDV	0.16743	0.00948	2.81456	0.64388	0.13402	0.07179	0.14942

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MC	6.09683	0.00213	0.78848	19.80890	0.01910	0.00811	0.00843
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- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH ₄	N ₂ O	CO ₂	CO _{2e}
LDGV	0.01091	0.00892	292.78541	295.71702
LDGT	0.01748	0.01354	362.00479	366.47714
HDGV	0.02417	0.01955	522.97939	529.41090
LDDV	0.00140	0.03639	230.96773	241.84679
LDDT	0.00089	0.04697	298.13884	312.15866
HDDV	0.00778	0.15776	1001.30651	1048.51229
MC	0.29086	0.05001	215.30579	237.47949

3.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

HP: Equipment Horsepower

LF: Equipment Load Factor

EF_{POL}: Emission Factor for Pollutant (g/hp-hour)

0.002205: Conversion Factor grams to pounds

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

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

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

BA: Area of Building (ft²)

BH: Height of Building (ft)

(0.42 / 1000): Conversion Factor ft³ to trips (0.42 trip / 1000 ft³)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: 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_{WT}: Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works

NE: Number of Construction Equipment

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

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

- Vender Trips Emissions per Phase

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

VMT_{VT} : Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft²)
BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft³ to trips (0.38 trip / 1000 ft³)
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_{VT} : Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
 EF_{POL} : Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

3.4 Architectural Coatings Phase

3.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date

Start Month: 8
Start Quarter: 2
Start Year: 2024

- Phase Duration

Number of Month: 1
Number of Days: 0

3.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information

Building Category: Non-Residential
Total Square Footage (ft²): 600
Number of Units: N/A

- Architectural Coatings Default Settings

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

- Worker Trips

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

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
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POVs	50.00	50.00	0	0	0	0	0
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3.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	NH ₃
LDGV	0.12781	0.00289	0.07715	1.20980	0.01679	0.00591	0.03374
LDGT	0.21838	0.00358	0.16638	1.85474	0.01854	0.00671	0.03626
HDGV	0.29343	0.00517	0.28218	2.18542	0.02703	0.00971	0.03601
LDDV	0.03024	0.00219	0.26972	0.36265	0.03375	0.02212	0.00310
LDDT	0.01911	0.00283	0.12722	0.17319	0.02552	0.01370	0.00310
HDDV	0.16743	0.00948	2.81456	0.64388	0.13402	0.07179	0.14942
MC	6.09683	0.00213	0.78848	19.80890	0.01910	0.00811	0.00843

- Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH ₄	N ₂ O	CO ₂	CO ₂ e
LDGV	0.01091	0.00892	292.78541	295.71702
LDGT	0.01748	0.01354	362.00479	366.47714
HDGV	0.02417	0.01955	522.97939	529.41090
LDDV	0.00140	0.03639	230.96773	241.84679
LDDT	0.00089	0.04697	298.13884	312.15866
HDDV	0.00778	0.15776	1001.30651	1048.51229
MC	0.29086	0.05001	215.30579	237.47949

3.4.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase

$$VMT_{WT} = (1 * WT * PA) / 800$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

1: Conversion Factor man days to trips (1 trip / 1 man * day)

WT: Average Worker Round Trip Commute (mile)

PA: Paint Area (ft²)

800: Conversion Factor square feet to man days (1 ft² / 1 man * day)

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

V_{POL}: Vehicle Emissions (TONs)

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase

$$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$$

VOC_{AC}: Architectural Coating VOC Emissions (TONs)

BA: Area of Building (ft²)

2.0: Conversion Factor total area to coated area (2.0 ft² coated area / total area)

0.0116: Emission Factor (lb/ft²)

2000: Conversion Factor pounds to tons