Environmental Assessment for the SMUD Operations, Maintenance, and New Construction Habitat Conservation Plan

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Acronyms and Abbreviations

Act	Federal Endangered Species Act of 1973
AMM	avoidance and minimization measure
Assessment	Environmental Assessment
management practice	best management practice
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
CPUC	California Public Utilities Commission
Diversity Database	California Natural Diversity Database
Environmental Report	Draft Environmental Impact Report
GO	General Order
I-	Interstate
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
O&M	operations and maintenance
permit	incidental take permit
Plan	*Operations, Maintenance, and New Construction Habitat Conservation Plan*
Service	United States Fish and Wildlife Service
Sacramento Air District	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SMUD Bank	SMUD Nature Preserve Mitigation Bank
SR	State Route
SRA	State Responsibility Area
stormwater plan	Stormwater Pollution Prevention Plan
US	U.S. Highway

Executive Summary

The United States Fish and Wildlife Service (Service) has received an application from the Sacramento Municipal Utility District (SMUD) for an incidental take permit (permit) under section 10(a)(1)(B) of the Federal Endangered Species Act of 1973, as amended (16 U.S. Code 1531 et seq.). SMUD is seeking this authorization so that activities associated with implementing SMUD's proposed *Operations, Maintenance, and New Construction Habitat Conservation Plan* (Plan) comply with the Endangered Species Act, while providing protection for seven species that are either listed under the Endangered Species Act, could become listed during the Permit Term, or will provide a conservation benefit. A complete list of the five wildlife species and two plant species that are proposed for coverage under the Plan (Covered Species) is included in Appendix E of this Environmental Assessment (Assessment).

The Proposed Action considered in this Assessment is the Service's issuance of a permit for SMUD's Covered Activities in the Plan. Because the proposed issuance of a permit for the Plan would be a federal action that may affect the human environment, the issuance of a permit is considered a federal action subject to review under the National Environmental Policy Act (NEPA). NEPA provides an interdisciplinary framework for federal agencies to evaluate environmental consequences of programs and projects over which they have discretionary authority. The Service is the Lead Agency under NEPA for proposed issuance of the permit. The Service's issuance of the permit would authorize the incidental take of federally-listed threatened and endangered species during implementation of SMUD's operations and maintenance as well as minor new construction activities on or near its existing facilities in Sacramento County and portions of Placer, Yolo, Amador and San Joaquin Counties over the requested 30-year term of the permit. This Assessment evaluates the impacts of issuing the permit and implementing the Plan.

ES.1 Purpose and Need

The purpose of the Proposed Action is to respond to SMUD's application for a permit while permanently protecting high-quality habitat for the seven Covered Species within the Plan Permit Area. See Section 1.6 for the purpose and need statement.

ES.2 Alternatives

This Assessment analyses a No Action Alternative and the Proposed Action. A brief summary of each alternative is provided below, and more detail on each alternative is provided in Chapter 2.

- No Action Alternative: The Service would not issue a permit and SMUD would continue to conduct its activities according to current environmental practices in compliance with any required permits or licenses. Any incidental take would be permitted (through section 7 or 10) on a project-by-project basis.
- Proposed Action: The Service would issue a permit for the Covered Species with a 30-year Permit Term for SMUD's activities and the Conservation Strategy described in the Plan.

ES.2.1 Potential Effects of Alternatives

The following resources and resource categories may be affected by the Service's issuance of a permit and are analyzed in Chapter 3: visual resources, air quality and climate change, biological resources, cultural resources, geology, soils and paleontological resources, noise, public health and hazards, and transportation. The impact analysis concludes that the Proposed Action will not result in significant impacts on the human environment.

Chapter 1
Purpose and Need

1.1 Introduction

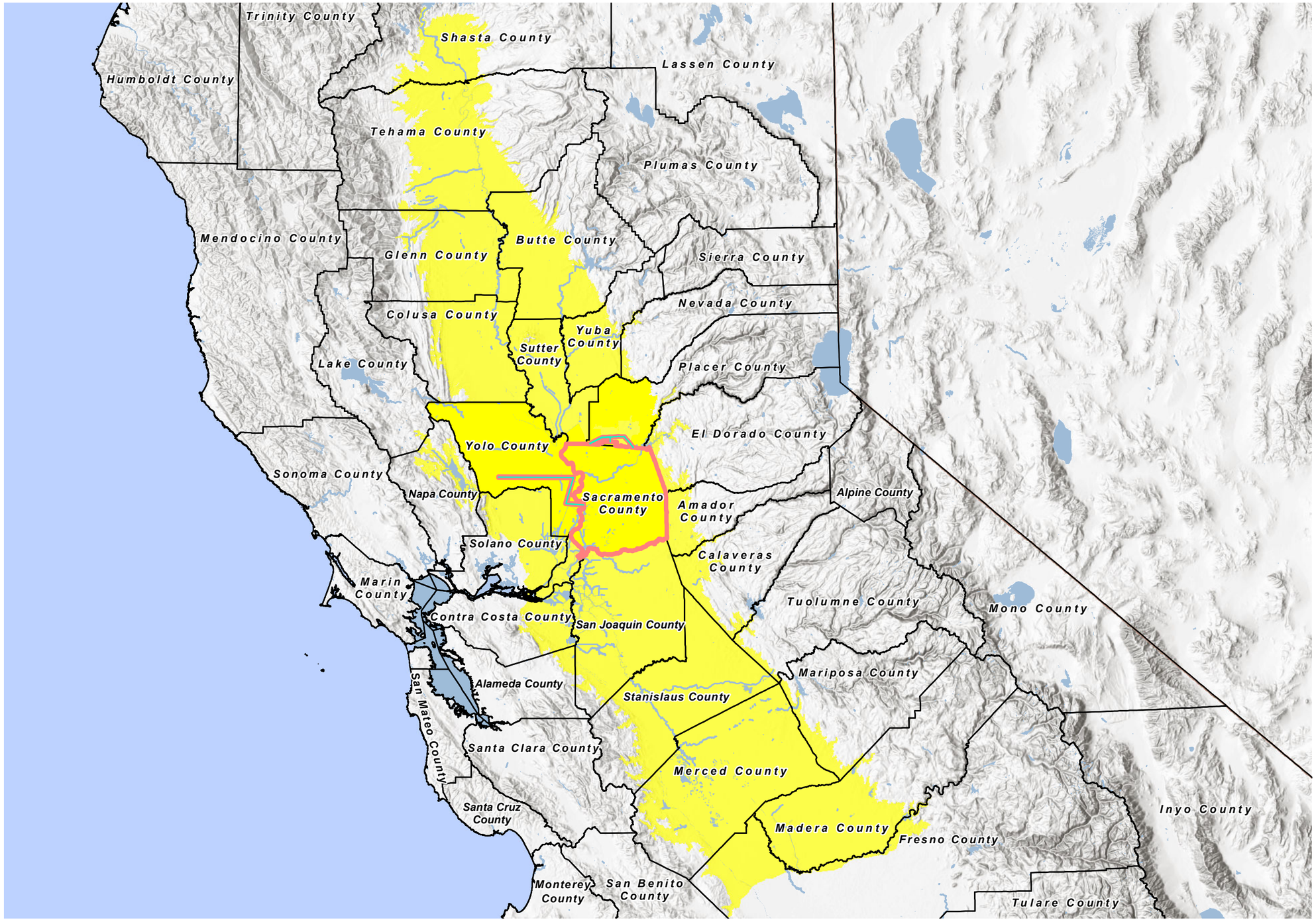
The United States Fish and Wildlife Service (Service) prepared this Environmental Assessment (Assessment) in compliance with the National Environmental Policy Act (NEPA). This Assessment evaluates the effects of issuing an incidental take permit (permit) under section 10(a)(1)(B) of the Federal Endangered Species Act of 1973, as amended (16 U.S. Code 1531 et seq.) (Act) to the Sacramento Municipal Utility District (SMUD) for activities covered by SMUD's proposed *Operations, Maintenance, and New Construction Habitat Conservation Plan* (Plan). Issuance of a section 10 permit constitutes a discretionary federal action by the Service and is therefore subject to NEPA, which requires that federal agencies assess the effects of their actions on the human environment.

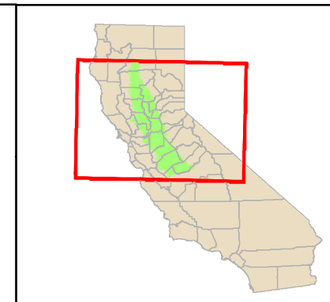
SMUD, in coordination with the Service, prepared the Plan in compliance with section 10(a)(2)(A) of the Act, which requires any application for a permit include a conservation plan that details the potential impacts on covered species and the approach to minimize and mitigate those impacts to the maximum extent practicable. To meet document length requirements of the Council on Environmental Quality NEPA Implementing Regulations, this Assessment makes many references to content that is presented in detail in the Plan, which is available for public review on regulations.gov website and the Environmental Conservation Online System at https://ecos.fws.gov/ecp/report/conservation-plans-type-region.

The Service's issuance of the permit would authorize the incidental take of federally listed threatened and endangered animal species from Plan Covered Activities over the requested 30-year term of the permit, including the conservation measures provided in the Plan. The study area for this Assessment includes SMUD's service territory, which consists of most of Sacramento County, and portions of Placer, Yolo, Amador, and San Joaquin Counties (Figure 1, *Plan Area and Permit Area*).

1.1.1 Incorporation by Reference

SMUD has prepared a Environmental Impact Report (Environmental Report) to cover its California Environmental Quality Act (CEQA) compliance requirements related to this permit and the Plan. The Environmental Report presents information on the environmental effects of permit issuance by the Service and the California Department of Fish and Wildlife, implementation of those permits, and approval and implementation of the proposed Plan. The Environmental Report also discloses reasonably foreseeable impacts associated with implementation of Covered Activities. The Environmental Report covers aesthetics, agricultural and forestry resources, air quality, biological resources, cultural resources, energy, geology, soils, and paleontological resources, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, wildfire, environmental justice, cumulative impacts, significant irreversible environmental changes, and growth-inducing impacts. Resource topics were developed to focus on and compare environmental impacts to baseline conditions. Each resource topic detailed analysis and discussion of the probable environmental consequences, or impacts, of





Legend

- County Boundary
- Major Water Features
- SMUD Plan Area

Permit Area

- SMUD Permit Area
- Gas or Transmission Line Corridors

Notes: The portion of the Permit Area in Yolo County represents SMUD's natural gas pipeline buffered by 1,000 feet, but does not show the actual pipeline alignment. The actual location of the gas pipeline could not be depicted for security reasons.

N

0 10 20 30 40 50 Miles

1:2,000,000

Source: SMUD (2017), USFS (2023)

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Figure 1
Plan Area and Permit Area
SMUD HCP

permit issuance and implementation, and approval and implementation of the proposed Plan. Impacts analysis in the Environmental Report concluded that there would be no significant and unavoidable impacts. The EIR also assessed the impacts of a no project alternative.

Two Covered Activities would take place at the SMUD Bank. These activities were identified as a part of the SMUD Nature Preserve Mitigation Bank Project and addressed in the CEQA document (IS/MND) for that project. The SMUD Nature Preserve Mitigation Bank IS/MND has been incorporated by reference in this Assessment.

The *SMUD Nature Preserve Mitigation Bank IS/MND* and the *SMUD Operations, Maintenance, and New Construction Habitat Conservation Plan Draft EIR* (State Clearinghouse No. 2018092030) are hereby incorporated by reference pursuant to 40 Code of Federal Regulations (CFR) 1501.12 and can be found online at: smud.org/CEQA.

1.2 Background

SMUD is a municipal utility district, a not-for-profit local agency with more than 75 years of experience as an energy provider. SMUD generates, transmits, and distributes electric power to serve an approximately 900-square-mile service territory that includes most of Sacramento County and a small portion of Placer County. In addition, SMUD has limited electrical facilities adjacent to SMUD's service territory in Amador, San Joaquin, and Yolo Counties. SMUD also owns and operates 76 miles of natural gas pipeline in Sacramento County and Yolo County that serve five natural gas–fired thermal generation and cogeneration power plants. Additionally, SMUD owns and operates a 200-mile telecommunication system located on existing electrical line poles and towers. An overview of SMUD's electrical and natural gas transmission systems is included in Chapter 2 of the Plan.

To deliver energy reliably and safely to its customers, SMUD must perform operations and maintenance (O&M) and new construction activities (Covered Activities) on an ongoing basis to deliver reliable electricity.

1.3 Regulatory Setting

SMUD's Covered Activities are subject to a wide range of legal and regulatory requirements that cover many resource areas (refer to Appendix C, *Regulatory Overview*, of this Assessment for a summary).

1.4 Proposed Action Addressed in this Assessment

The Proposed Action considered in this Assessment is the Service's issuance of a section 10(a)(1)(B) permit for SMUD's Covered Activities based on implementation of conservation measures and the Conservation Strategy provided in the Plan. In issuing the permit, the Service would not authorize SMUD's Covered Activities, but rather the incidental take resulting from those activities. "Take" is defined in section 3 of the Act (16 U.S. Code 1532(19)) and "incidental" is defined in the implementing regulations for section 7 of the Act (50 CFR 402.02). Please refer to Chapter 2, *Alternatives Including the Proposed Action*, of this Assessment for more details.

1.4.1 NEPA Action Area and Plan Permit Area

SMUD's Plan addresses SMUD's routine O&M as well as new construction activities on or near its electric and natural gas system in SMUD's service territory. Implementation of the Plan entails a Plan Area and a Permit Area (Figure 1, *Plan Area and Permit Area*).

1.4.1.1 Permit Area

The Permit Area includes approximately 577,554 acres in Sacramento, Placer, Yolo, Amador, and San Joaquin Counties (Figure 1, *Plan Area and Permit Area*). The Permit Area primarily consists of SMUD's service territory in Sacramento County. A complete description of the Permit Area is as follows.

- All of Sacramento County, except for the area south of U.S. Highway 160 and Walnut Grove, which extends into the Sacramento–San Joaquin River Delta (approximately 566,547 acres).
- Portions of southwestern Placer County (approximately 4,000 acres), to which SMUD provides electricity, and a transmission line outside of the area SMUD serves, approximately 17.5 miles long.
- A portion of Yolo County (approximately 4,495 acres) that encompasses the natural gas pipeline between Winters and cogeneration power plants in Sacramento County.
- Small portions of Amador County and San Joaquin County adjacent to Sacramento County.

1.4.1.2 Plan Area

The Plan Area includes the areas where mitigation could occur to mitigate potential impacts on Covered Species resulting from Covered Activities. The Plan Area includes the Permit Area and the following permitted conservation/mitigation banks and other habitat conservation plans areas that SMUD may partner with to accomplish the Conservation Strategy (1, *Plan Area and Permit Area*).

- Nicholas Ranch Valley Elderberry Longhorn Beetle (Beetle) Conservation Bank
- River Ranch Beetle Conservation Bank
- French Camp Beetle Conservation Bank
- Bryte Ranch Conservation Bank
- Clay Station Mitigation Bank
- Yolo Habitat Conservation Plan/Natural Community Conservation Plan Area
- Western Placer Habitat Conservation Plan/Natural Community Conservation Plan Area
- Natomas Basin Habitat Conservation Plan Area

In addition, the Plan Area includes other areas in northern California where future or existing banks not listed above may be used to accomplish the Conservation Strategy with Wildlife Agencies' approval. When identifying mitigation banks in the Plan Area other than those listed above, SMUD would implement the following principles:

- The closest Mitigation Banks to the Permit Area will be the top priority for purchasing mitigation.

- Approved Mitigation Banks which help to consolidate small, fragmented sensitive species compensation projects into large contiguous preserves that have much higher wildlife habitat values will be used.
- Where it makes biological sense to be farther away, the justification and rationale supporting the proposal will be provided to the Wildlife Agencies for their approval.

The establishment of new management and operation of existing mitigation and conservation banks is not an Plan Covered Activity and is not covered by the Plan permits.

1.5 Species Covered by the Plan

The Plan presents a Conservation Strategy and monitoring, reporting, and adaptive management program to avoid, minimize, and mitigate for the potential effects on five covered wildlife species and two covered plant species (collectively, "Covered Species") and associated critical habitat for six Covered Species as a result of SMUD's Covered Activities. Species proposed to be covered under the Plan include those species that are federally listed as threatened or endangered, are known to occur or have a high potential to occur in the Permit Area, have a potential to be affected by the Covered Activities, and have sufficient data available to estimate effects.

Wildlife and plant species proposed to be covered by the Plan include two plant species: slender Orcutt grass (*Orcuttia tenuis*) and Sacramento Orcutt grass (*O. viscida*); and five wildlife species: vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), valley elderberry longhorn beetle (*Desmocerus californica dimorphus*), California tiger salamander (*Ambystoma californiense*), and giant garter snake (*Thamnophis gigas*). Detailed species accounts for the species are provided in Appendix E, *Covered Species Status, Habitat, and Distribution in the Plan Area*. The Plan provides a strategy for protecting threatened and endangered species during the proposed 30-year term of the permit (Permit Term).

In determining which species to cover in the Plan, SMUD initially evaluated approximately 210 plant and animal species with potential to occur in the study area. SMUD compiled the list using information from several sources including the California Natural Diversity Database (Diversity Database), the California Native Plant Society database, biological experts, and the Service. SMUD further considered species included in multiple habitat conservation plans and recovery plans that covered areas within the study area. Appendix B of the Plan details the species that were considered for inclusion and the rationale for inclusion or exclusion. More information on the selection process for proposed covered species can be found in Plan Section 3.5.1.

1.6 Purpose and Need

1.6.1 Action Agency

NEPA (40 CFR 1502.13) requires an Assessment to briefly describe the underlying purpose and need for the agency's proposed and alternative actions. This purpose and need establishes the basis for determining a reasonable range of alternatives to the Proposed Action. The purpose and need for the Proposed Action is to:

- Respond to SMUD's application for a section 10(a)(1)(B) permit for the seven Covered Species (five wildlife species and two plant species) based on the Covered Activities described in the Plan.
- Protect and preserve the seven Covered Species by protecting and enhancing high-quality habitat for all Covered Species in the Permit Area.
- Conserve the ecosystems on which the Covered Species depend by partnering with other habitat conservation plans in the Plan's regional planning areas to preserve large, contiguous areas of the Covered Species' habitat, including designated critical habitat.
- Ensure the long-term survival of the Covered Species through protection and management of the species and their habitats in the Plan's regional planning areas by contributing to the network of permanently protected and managed lands that support populations of Covered Species.

1.6.2 Applicant

In addition to the above, the Service also considered the applicant's stated purposes that it intends to achieve in developing the Plan:

- Avoid, minimize, and mitigate temporary and permanent impacts on threatened and endangered species resulting from SMUD's Covered Activities in the Plan Area.
- Provide the basis for incidental take authorization pursuant to the Act for SMUD's Covered Activities in the Permit Area.

The Service also considered the applicant's objective to continue operating and maintaining SMUD's natural gas and electrical infrastructure in the Plan Area, including approximately 17,420 miles of underground electrical transmission, subtransmission and distribution lines; 76 miles of natural gas pipelines; and 200 miles of telecommunication fiber optic cables.

Chapter 2
Alternatives Including the Proposed Action

2.1 Introduction

As referenced in the Council on Environmental Quality NEPA regulations regarding the contents of an Assessment (40 CFR 1508.9(b)), NEPA Section 102(E) requires federal agencies to develop, study, and briefly describe alternatives to any proposed action with the potential to result in unresolved resource conflicts. This chapter describes the alternatives considered by the Service in this EA, specifically the Proposed Action, the No Action Alternative, and alternatives considered but eliminated from further evaluation.

2.2 Alternatives Evaluated in Detail

SMUD's electric, natural gas, and telecommunication facilities are existing, currently operated and maintained, and must remain in or near SMUD's existing rights-of-way. With consideration of these conditions and criteria, the Service considered alternatives that would meet the Service's purpose and need, as well as the applicant's objectives, while minimizing project-related environmental effects, including take of federally listed animal species.

2.2.1 Alternative 1: Proposed Action

As described in Chapter 1, *Purpose and Need*, the Proposed Action considered in this Assessment is the Service's issuance of a section 10(a)(1)(B) permit for Covered Activities identified in the Plan based on implementation of the conservation strategy provided therein. Additional details regarding the Covered Activities; construction methods and techniques; proposed measures to avoid, minimize, and mitigate adverse effects on the covered plant and wildlife species and their habitats; and the overall conservation approach are provided in the Plan. A summary of the Plan is included in the following sections.

2.2.1.1 Covered Activities

As detailed in Plan Chapter 2, the Covered Activities include SMUD's O&M activities and new construction activities related to its electric facilities, natural gas facilities, vegetation management, and telecommunications systems that may result in take of Covered Species in the Permit Area. The Conservation Strategy includes biological surveys and handling of Covered Species as required to implement the Plan. Covered Activities do not include the generation, transmission, or distribution of electricity or gas. Typical O&M activities include inspecting, monitoring, and testing existing equipment; operating valves and switches; and repairing and replacing existing facilities, structures, wires, and pipelines. They also include emergency repair and replacement, and vegetation management, including tree removal and pruning. O&M activities are ongoing and will continue with or without implementation of the Plan.

New construction activities include installing infrastructure to extend service to new residential or commercial customers. SMUD expects to construct 150 miles of new subtransmission lines and 225

miles of new distribution lines over the Permit Term outside of existing easements. Activities associated with the construction of new or relocated subtransmission and distribution lines would include: survey and staking of the new easement; removal of woody vegetation from the new easement (if necessary); and identification of pole sites, pull and tension sites, construction access routes, and temporary work areas for storing construction equipment and materials. Planned new construction over the course of the 30-year Permit Term includes construction of four new transmission substations (typically approximately 11 acres per substation), 45 new distribution substations (0.5 acre each in size), and two new communication towers.

2.2.1.2 Conservation Strategy

As detailed in Chapter 5 of the Plan, the primary objective of the conservation strategy is to first avoid and minimize adverse effects on Covered Species. When effects are unavoidable, SMUD will offset or mitigate impacts by conserving lands of high conservation value. Key elements of SMUD's Conservation Strategy are summarized below.

Pre-Project Planning and Screening: SMUD has developed species-specific habitat models based on available data to estimate the amount and location of habitat for Covered Species in the Permit Area. SMUD will incorporate these models into the company's existing environmental review, planning, and screening process to avoid or reduce impacts on habitat areas when possible and apply avoidance and minimization measures (AMMs) when needed. Plan Section 5.3.1 provides a description of SMUD's dedicated review process.

Avoidance and Minimization Measures: SMUD will avoid and minimize the effects associated with Covered Activities through the use of defined AMMs and best management practices (management practice). See Plan Section 5.3.2 and Plan Table 5-1.

Training: SMUD will require annual environmental awareness training for staff and third-party contractors who conduct or supervise Covered Activities in the Permit Area to ensure compliance with the Plan requirements. See Plan Section 5.3.3.

Mitigation: SMUD will fund the acquisition, enhancement, management, and restoration of habitat to mitigate impacts on Covered Species in the Permit Area. Mitigation is subject to Service approval and will prioritize large, high-quality, and high-conservation-value mitigation parcels contiguous to existing protected areas and other non-protected areas of suitable habitat to promote species recovery. SMUD will address mitigation through a number of approaches, including use of existing credits at the SMUD Bank; purchasing credits at other conservation/mitigation banks; participating in an overlapping Plan; and enhancing Sacramento Orcutt grass population and introducing slender Orcutt grass at the SMUD Bank. Additional conservation/mitigation banks may be established in the future outside of the Plan Area that provide mitigation credits for Covered Species. SMUD would ensure that any new bank satisfies the Plan Conservation Strategy and permit and would also require Service approval. See Plan Sections 5.4.5, 5.5, and 6.4.3.

2.2.2 Alternative 2: No Action

Under the No Action Alternative, the Service would not issue a section 10(a)(1)(B) permit, and SMUD would continue to conduct O&M activities using current practices. Activities would be implemented in accordance with SMUD's existing environmental practices and in compliance with any required permits or licenses. SMUD would take action to avoid impacts on listed species;

however, a total reduction of effects would not be possible because of the public safety, regulatory, and site-specific requirements that are necessary to complete O&M work. The need for consultation with the Service would be determined on a project-by-project basis. If it is determined that an individual activity could result in take of federally listed animal species (or plants, if on federal lands) where a federal nexus exists, SMUD would seek incidental take exemption through section 7 of the Act. When a federal nexus does not exist, SMUD would seek incidental take authorization through the section 10 process of the Act, which would require development and public review of a project-specific Plan and associated NEPA document, as well as negotiation with the Service regarding appropriate mitigation. Issuance of individual section 10 permits would be evaluated on a case-by-case basis.

SMUD would continue its environmental planning and screening processes to avoid and minimize impacts, but site-specific AMMs (including numerous pre-activity surveys) would still be required for certain projects. Take of Covered Species could be similar to or the same as the Proposed Action. Individual projects and associated mitigation would likely result in higher costs and delays in O&M than the Proposed Action because each one would be reviewed and analyzed individually. Neither SMUD nor the Service have the staff or ability to efficiently conduct environmental review for numerous individual projects and project-by-project review could result in numerous delays and schedule disruptions.

Because of potential delays involved with permitting such a large volume of work, the No Action Alternative would be an impediment to the efficient and timely maintenance of SMUD facilities, potentially delaying reliability and safety improvements. This alternative was also deemed to be cost inefficient.

2.3 Alternatives Eliminated from Further Consideration

During the alternatives development process, the Service considered a variety of means to fulfill the Service's purpose and need, as described in Section 1.6, *Purpose and Need*, while also meeting the applicant's objectives. The alternatives described below were reviewed and eliminated from further analysis because they did not meet the purpose and need of the Proposed Action and/or the applicant's objectives.

2.3.1 Changed Practices

Under this alternative, the Services would issue the permit with conditions requiring SMUD to adjust current practices. SMUD would change construction activities, modify existing operations practices, restrict activities seasonally, and conduct pre-activity biological surveys and biological monitoring for a majority of Covered Activities to further reduce the take of Covered Species when conducting O&M and new construction activities. Eliminating impacts completely is unlikely and could be cost prohibitive due to the public safety, regulatory, and site-specific requirements that are necessary to complete O&M work. Changed practices may be ineffective at reducing take and could introduce new and inconsistent work practices into SMUD's operations. Some changed practices, such as seasonally restricting activities, could be infeasible given SMUD's need to ensure safety and reliability. Finally, SMUD already conducts environmental planning and screening processes and modifies practices based on environmental review on a project-by-project basis.

As a result, the Service determined that this alternative would not meet the purpose and need of the Proposed Action and it was eliminated from further consideration.

2.3.2 Large Projects (New Construction) Only

Under this alternative, the Service would issue a permit only for SMUD's larger new construction projects (mostly large gas and electric transmission construction projects) that have historically needed take coverage and coordination with multiple stakeholders. By covering fewer activities, SMUD's take request would be reduced for the section 10 permit. However, smaller construction projects would still need to be completed, as would ongoing O&M of SMUD's gas and electric systems; some of these projects would need take coverage for unavoidable effects on listed animal species. This approach would likely result in project delays for those activities requiring take exemptions and would not meet the Service's purpose and need or the applicant's objectives. Therefore, this alternative was eliminated from further consideration.

2.3.3 Participation in Existing/Overlapping Habitat Conservation Plans

Under this alternative, SMUD would seek to mitigate the take of Covered Species by participating in other conservation plans that are within the Permit Area. There are no other overlapping conservation plans that provide the entirety of the type of coverage needed for the Proposed Action In addition, some of these plans may not include SMUD's Covered Activities and therefore, SMUD would be unable to participate. Therefore, this alternative was dismissed from consideration.

2.3.4 Reduced Permit Duration

Under this alternative, the Service evaluated issuance of the permit for a reduced permit duration from 30 years to 20 years. However, given the current need for continued operation of the existing gas and electric system, the facilities are anticipated to remain in situ for the foreseeable future. Consequently, O&M activities would be required to continue over a long period of time under any permitting scenario. Furthermore, the Plan incorporates ongoing monitoring and adaptive management strategies, which allow modification of conservation practices to address potential changes in future environmental conditions. If any Covered Activities are determined to potentially jeopardize the continued existence of a Covered Species, the Service would be required to reevaluate the effects of Covered Activities on that species, regardless of the length of any permit.

Therefore, a shorter duration permit is not expected to provide additional protection of the Covered Species and would not reduce the effects of the Covered Activities on the Covered Species. A shorter-duration permit would not allow the same landscape-scale conservation in advance of impacts and would be contrary to the Plan's long-term conservation objectives. Ultimately, the Service determined that this alternative would not meet the purpose and need of the Proposed Action and it was eliminated from further consideration.

2.3.5 Operations and Maintenance Activities Only

Under this alternative, the Service would issue a permit only for SMUD's O&M activities. This alternative would not cover the new construction Covered Activities that SMUD undertakes, which could need take coverage for unavoidable effects on listed animal species. This approach would

likely result in project delays for new construction activities requiring take exemptions and would not meet the Service's purpose and need or the applicant's objectives. Therefore, this alternative was eliminated from further consideration.

2.3.6 Different Conservation Strategy

The Service considered the option of employing a different conservation strategy. However, it was decided that any other conservation strategy would come with its own set of challenges and impacts and no specific other strategies would reduce significant effects resulting from the Proposed Action. SMUD's proposed conservation strategy fully offsets take to the maximum extent practicable and utilizes the existing SMUD Nature Preserve Mitigation Bank (SMUD Bank), which was established primarily to serve SMUD's future mitigation needs, to mitigate under the proposed Plan for as many of the Covered Species as the SMUD Bank supports. For these reasons, the Service dismissed further consideration of this alternative.

2.3.7 Increased Number of Covered Species

Under this alternative, the Service would issue a permit for additional Covered Species. The take authorization would include all special-status plant and animal species that may occur in the Permit Area including all federally listed and special-status birds. This alternative would significantly increase the required AMMs, implementation costs, and may make some Covered Activities infeasible due to overlapping AMMs, which would restrict the type, extent, and timing of Covered Activities. In addition, feasible and meaningful conservation strategies to offset permanent, temporary, and indirect impacts on the additional Covered Species would be challenging without established mitigation strategies or banking in the Permit Area already in place. Even without the addition of covered species to the permit, SMUD would continue to use environmental planning and screening tools to determine appropriate avoidance and minimization measures for non-Covered Species and implement an avian protection program that provides guidance for protection of avian species, including compliance with state and federal nesting regulations. For all of these reasons, this alternative was dismissed from consideration.

2.3.8 Reduced Number of Covered Species

Under this alternative, the Service would issue a permit for a reduced number of Covered Species. However, Covered Activities would take place regardless of whether the take authorization covers fewer species because activities are required to maintain, repair, or upgrade existing facilities in order to maintain public safety. The same Covered Activities would occur regardless of how many species are covered by the take authorizations, although with fewer species covered, the opportunities for landscape-level mitigation would be reduced. Under this alternative SMUD would continue its environmental planning and screening processes and would apply for a project-specific permit if it is determined that take of a species not covered by the Plan permit could occur. This alternative would provide less species conservation and mitigation and would increase the effort to complete project-specific permitting for both SMUD and the regulatory agencies. For these reasons, this alternative was dismissed from consideration.

Chapter 3
Affected Environment and Environmental Consequences

This chapter presents an overview of the affected environment and the potential environmental consequences of the Proposed Action and No Action Alternative. NEPA and its implementing regulations require agencies to analyze the environmental impacts of proposed federal actions on the human environment. In this case, the federal action is the Service's issuance of a section 10(a)(1)(B) permit for SMUD's Covered Activities in the Permit Area, including conservation measures provided in the Plan. See Section 2.2.1.1, *Covered Activities*, of this Assessment and Plan Chapter 2 for a discussion of the Covered Activities.

3.1 Existing Conditions

This section describes existing conditions in the Permit Area, as defined in Plan Chapter 1, to establish the baseline condition that will persist with or without the federal Proposed Action.

3.1.1 Existing Facilities

The majority of SMUD's gas and electric infrastructure in the Permit Area is already in place and must remain in or near SMUD's existing utility rights-of-way. SMUD's existing gas and electric facilities in the Permit Area are part of existing environmental conditions.

3.1.1.1 Existing Regulatory Environment

SMUD's activities are subject to the jurisdiction of other state and federal agencies when the activities affect agency-jurisdictional resources or areas. Most of SMUD's maintenance activities currently performed regularly in the Permit Area do not require a federal action and are not subject to environmental review under NEPA.

The Service's issuance of the permit will not change SMUD's obligation to comply with all state and federal laws and permitting requirements, nor will it change permitting triggers or the obligations of state and federal agencies to comply with relevant laws and regulations. Appendix C of this Assessment provides brief summaries of environmental laws and regulations that are relevant to the Covered Activities. Similarly, the Plan does not change SMUD's land rights for existing facilities, or any notification and coordination procedures that have been established (or may be established in the future) with the many public and private landowners crossed by SMUD's existing facilities.

Issuance of a permit will not change the discretionary authority of state or federal land management agencies or permitting authorities to issue permits for Covered Activities when required by state and federal laws, or to develop permit conditions or mitigation measures related to Covered Species. For federal agencies taking federal actions with regard to Covered Activities (e.g., issuance of a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers [Corps] or a Special Use Permit from the National Park Service), issuance of a permit will not relieve the federal agency of the obligation to consult with the Service or the National Marine Fisheries Service under section 7 of the

Act if the action may affect federally listed species. Through the consultation process, the Service and the federal agency can determine whether the Plan will provide a streamlined framework for avoidance, minimization, and mitigation of potential adverse effects on federally listed species. If the federal agency determines that the Plan measures are not sufficient for the specific activity, an activity-specific biological opinion would be prepared to conclude the federal agency's section 7 consultation. Similarly, federal agencies can specify additional protection measures as conditions of the permit or land right that triggered the section 7 consultation.

3.1.2 Scope of the Analysis

The Service does not have jurisdiction over individual activities carried out by SMUD. Thus, in issuing the permit, the Service will not authorize SMUD to conduct the Covered Activities. Rather, the permit will authorize incidental take of Covered Species listed under the Act that could result from SMUD engaging in those activities. Without the permit, SMUD will continue to perform the same activities proposed for coverage under the Plan, but would seek project-by-project incidental take authorization through section 7 or section 10 of the Act for any activities that are likely to result in take of a federally listed animal species. Therefore, this Assessment uses project-by-project take authorization for each Covered Activity as the No Action Alternative and analyzes environmental impacts on the human environment resulting from issuance of the permit as the Proposed Action.

Because the Proposed Action is not a new project, but rather a change in the permitting and conservation approach to ongoing work, the scope of the NEPA analysis considers how impacts from Covered Activities may change as a result of issuance of the permit and implementation of the Plan Conservation Strategy. The analysis describes the environmental impacts of ongoing O&M activities as part of the current baseline that will continue under both the Proposed Action and No Action Alternative.

The location, scope, and configuration of SMUD's new construction activities are determined by the needs of the system and the customers SMUD serves, with appropriate environmental review over individual projects. The Covered Activities, when they take place as individual projects, may require discretionary permits or approvals from various responsible agencies in addition to coverage under the take authorizations.

Management activities on mitigation lands may be conducted to increase the habitat value of the mitigation properties for the benefit of the species. Some temporary adverse impacts could occur during habitat restoration and management activities, particularly any which involve use of machinery and equipment. These activities are Covered Activities under the Plan and are also considered in the impact analysis of this Assessment.

3.1.2.1 Resource Areas Not Included in the Assessment

For the following resource topics, the Proposed Action would result in little to no change from baseline conditions because issuance of the permit by the Service and implementation of the Plan will not change how SMUD performs its activities. This section briefly describes the rationale for dismissing these topics from further analysis in the Assessment.

Agricultural Resources

O&M Covered Activities would be conducted on existing facilities and therefore would not conflict with any existing use of agricultural lands. New construction activities would likely occur on or near existing SMUD easements or areas that local planning documents have identified for development. Facilities sited in such locations would not require modification of or otherwise conflict with existing zoning designation for agricultural use.

The Proposed Action would directly enable SMUD to implement the Plan Conservation Strategy; of the measures the conservation strategy proposes, only the Orcutt grass enhancement at SMUD Bank activity could result in physical environmental effects. The SMUD Bank is located in a nonurbanized area that does not encompass agricultural resources, and thus no impacts on existing agricultural lands would occur.

Hydrology and Water Quality

Covered Activities involving construction activities could result in short- and long-term adverse effects on water quality due to soil disturbance, water movement and increases in impervious area. However, construction impacts would mostly be temporary and SMUD would be required to comply with federal, state, and local stormwater management regulations. All construction activities would include erosion control and stormwater management practices, as implemented by AMMs in the Plan. See Appendix D for a description of these measures. For these reasons it is unlikely that adverse effects would occur.

Conservation Strategy activities in the SMUD Bank are not anticipated to require substantial grading or ground disturbance, vegetation removal, or onsite use or cleaning of equipment. Therefore, the Proposed Action would have no appreciable effect on hydrological resources and water quality.

Land Use and Planning

The Proposed Action would not have an appreciable effect on land use because SMUD's existing gas and electric facilities are part of the existing land use setting. Construction of new or relocated facilities to upgrade or extend services to new customers would represent an incremental change to existing land use and would not result in a substantial conflict with current land uses. Because these upgrades and extensions would be relatively small in scope and located within or adjacent to existing SMUD infrastructure and facilities, they are not anticipated to physically divide established communities. Management activities on the SMUD Bank would occur outside of any established community and would not result in the installation of structures that could physically divide an established community. Furthermore, the Service does not have jurisdiction over local land use decisions; therefore, the Proposed Action would not directly contribute to any conflicts with local land use or planning determinations.

Public Services

The Proposed Action would not result in an increase in the regional population that would require an increased demand for any public services such as fire protection services, police services, schools, parks, or other public services, nor would it affect service ratios for these public services.

Public Utilities

Covered Activities may generate soil or debris that would be moved offsite and disposed of at a landfill; however, issuance of the permit by the Service would not appreciably change the amount of waste generated or the disposal method. Further, utility O&M and construction activities typically generate a relatively small amount of waste and are handled in accordance with all applicable disposal regulations. The Proposed Action would not increase the demand for or require construction or expansion of any public utilities, such as water, wastewater, and telecommunications facilities, nor would it increase demand for SMUD's electric or gas facilities. SMUD constructs facilities in response to increased demand; it does not construct facilities to generate demand for its services. Consequently, any activities carried out under the Proposed Action would be in response to increased demand and would therefore not increase demand for any public utilities. Ground-disturbing Covered Activities that require excavation have the potential to encounter and damage other utilities. However, compliance with standard utility alert procedures and protocols should adequately minimize potential conflicts and damage.

Conservation Strategy activities in the SMUD Bank are not anticipated to require an increase demand for public utilities. Therefore, the Proposed Action would not result in a breach of federal, state, or local standards relating to solid waste or litter control, nor will it have an appreciable effect on public utilities.

Recreation

Covered Activities would generally occur within dedicated easements or public utility easements that already contain existing SMUD infrastructure and be implemented by existing SMUD staff or contractors. Covered Activities would not result in unplanned population growth or loss of recreational facilities, such that the use of existing recreational facilities would increase.

The existing SMUD Bank provides hiking and wildlife viewing opportunities along the Howard Ranch Trail that passes through the northeastern area of the SMUD Bank. Conservation Strategy activities in the SMUD Bank would neither require relocation of employees to the area nor result in unplanned population growth that could increase the use of this recreational facility.

3.1.2.2 Resource Areas Included in the Assessment

Covered Activities have the potential to cause impacts on the human environment for the following resource areas, which are discussed in more detail below.

- Section 3.3, *Air Quality and Climate Change*
- Section 3.4, *Biological Resources*
- Section 3.5, *Cultural Resources*
- Section 3.6, *Environmental Justice*
- Section 3.7, *Geology, Soils and Paleontological Resources*
- Section 3.8, *Noise*
- Section 3.9, *Public Health and Hazards*
- Section 3.10, *Transportation and Circulation*

- Section 3.11, *Visual Resources*

However, as detailed below, the Proposed Action is not likely to change how SMUD currently performs the Covered Activities such that there would be a significant impact on the human environment.

3.1.3 Cumulative Impact Assessment Methodology

Cumulative effects are defined as those effects on the environment resulting from the incremental effect of the Proposed Action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

The cumulative impact analysis in the following resource sections addresses both the combined effects resulting from more than one action and those resulting solely from the additive effect of repeated Covered Activities under the Proposed Action. Both types of effects are analyzed based on professional judgment informed by current standards of care specific to each resource topic. The analysis focuses on aspects of regional cumulative effects to which the Proposed Action has the potential to contribute; cumulative effects to which the Proposed Action will not contribute are not discussed or analyzed in detail.

The geographic boundaries of the cumulative effects area are generally those of the Permit Area, adjusted as appropriate based on the nature of the resources affected and the distance that such effects may travel. As an example, increased sedimentation of waterways that results from a project is limited to the watershed in which it occurs. As a result, it is only necessary to examine effects within that watershed. In contrast, air quality emissions from a project can travel over far greater distances and necessitate analysis on a county, air basin, or regional level.

There are two approaches to identifying cumulative projects and their associated impacts. The list approach identifies individual projects in order to identify potential cumulative impacts. The projection approach uses a summary of projections to identify potential cumulative impacts. This Assessment uses the projection approach because the list approach is infeasible given the number of local jurisdictions responsible for reviewing and approving development projects in the Plan study area, and the Covered Activities are not prescribed to occur at a specific time and location. Although Chapter 2, *Alternatives Including the Proposed Action*, of this Assessment and Chapter 2 of the Plan both describe the types of Covered Activities that SMUD will implement under the Proposed Action in the Permit Area, the specific locations, timing, or extent of these activities have not yet been specifically identified. Although the Plan will facilitate the Service's permitting process as it relates to take of Covered Species, the Plan does not set forth a detailed construction program that would aid in the assessment of cumulative effects. Nonetheless, it is assumed that Covered Activities would be implemented concurrent with projects implemented by both public and private entities throughout the Permit Area over the course of the 30-year Permit Term.

The California Department of Finance projects that during the duration of the 30-year permit, the state-wide population of California will increase by approximately 10.89% from 39.8 million to 44.1 million. Growth in and around the Permit Area is projected to increase at an even higher rate of 22.8% during that same timeframe, with total population increasing from 1.6 million to 1.9 million (California Department of Finance 2019). Continued human population growth in and around the

Permit Area is expected to drive further development of cities, industry, transportation, and water resources in the foreseeable future. The cumulative impact analyses in each section below considers the potential for the Proposed Action to result in a cumulatively considerable contribution to impacts for each resource area.

3.2 Environmental Consequences of the No Action Alternative (All Resource Topics)

Under the No Action Alternative, the Service would not issue a permit for the Plan. SMUD would be required to continue its existing program of O&M activities and new construction activities, with individual activities being subject to project-by-project evaluations. Implementation of the Plan and issuance of the permit by the Service would not change the location, frequency, or duration of SMUD's O&M activities, nor would it change the methods, vehicles, work force, hazardous materials, or equipment used to perform the activities. SMUD would continue its environmental planning and screening processes to avoid and minimize impacts, but site-specific AMMs (including numerous pre-activity surveys) would still be required for certain projects. Because SMUD's O&M activities would not change with implementation of the Plan and issuance of the permit, their continuation into the future is assumed to be part of the baseline conditions and No Action Alternative. Under the No Action Alternative, SMUD would continue to address federally listed species through either section 7 or section 10 of the Act when required.

Take of Covered Species could be similar or the same as the proposed Action Individual projects and associated mitigation would likely result in higher costs and delays in O&M as compared to the Proposed Action because each one would be reviewed and analyzed individually. Neither SMUD nor the wildlife agencies have the staff or ability to efficiently conduct environmental review for numerous individual projects and could result in numerous delays and schedule disruptions.

Since this alternative would not include the visual benefit of SMUD Bank restoration activities associated with the Plan, impacts on visual resources under the No Action Alternative would be slightly greater in magnitude than under the Proposed Action.

Under the No Action Alternative, short-term, limited emissions of criteria air pollutants and noise from use of vehicles for activities such as planting and monitoring as a part of the Conservation Strategy would not occur. However, SMUD would also continue its existing program of O&M and new construction activities. Impacts associated with noise and air quality would likely increase due to increases in SMUD's service area. The difference between impacts from the Conservation Strategy and air quality and noise impacts from the No Action Alternative is negligible Therefore, effects related to air quality and noise would increase as compared to existing conditions under the No Action Alternative.

Under the No Action Alternative, potential benefits to slender Orcutt grass and Sacramento Orcutt grass habitat would not occur and conservation of the species and habitats provided through the Conservation Strategy would not occur. Without implementation of the proposed Plan, impacts from Covered Activities would not be avoided, minimized, and mitigated as effectively and efficiently as under the proposed Plan, and the long-term benefits to the species would also be lessened by project-by-project small-scale mitigation. Therefore, impacts related to biological resources under the No Action Alternative would be somewhat greater than under the Proposed Action.

Ground-disturbing activities associated with planting as a part of the Conservation Strategy that have the potential to disturb archaeological resources would not occur. Therefore, impacts on cultural resources would be reduced under the No Action Alternative.

Under the No Action Alternative, additional personnel and equipment required for SMUD Bank enhancement (e.g., vegetation management and monitoring) would not generate new vehicle and truck trips and effects would be reduced under the No Action Alternative.

3.3 Air Quality and Climate Change

3.3.1 Affected Environment

The Permit Area is in the Sacramento Valley Air Basin. Air quality in the Sacramento Valley Air Basin is regulated by the U.S. Environmental Protection Agency, California Air Resources Board, and the Sacramento Metropolitan Air Quality Management District (Sacramento Air District) and its neighboring air districts. Agencies work jointly, as well as individually, to improve air quality through legislation, planning, policy-making, education, and a variety of programs. Appendix E, *Air Quality Attainment Status in the Study Area*, of this Assessment includes more information about the local air districts and air basin, as well as the attainment status for the Permit Area with respect to criteria pollutants. As shown in Appendix E, the four counties in which portions of the Plan Area are located are currently classified nonattainment areas (i.e., areas that do not meet air quality standards) for the state and federal ozone and particulate matter air quality standards. However, the Proposed Action is not subject to the General Conformity Rule, which requires federal actions in nonattainment areas to conform to applicable State Improvement Plans employed to bring an area into compliance with air quality standards. Approval and issuance of the permit by the Service will authorize the incidental take associated with SMUD's activities, some of which will result in emissions from equipment, including Conservation Strategy activities, construction, and O&M activities. However, the Service will not exercise practical control over those emissions after issuance of the permit. Therefore, a conformity analysis is not required to be performed for the federal action (40 CFR 93.153).

SMUD's baseline O&M activities currently generate varying levels of criteria pollutants and greenhouse gases, depending on the type and duration of activity. Typically, emission sources for these activities include trucks and vehicles, off-road equipment, trenching, grading and ground-disturbing activities (which can cause airborne particulates during dry conditions), and paving.

3.3.2 Environmental Consequences

No new permanent emission-generating facilities would be installed as a result of issuance of the permit. Any replacement of existing facilities would be in-kind. Accordingly, there would be negligible changes in greenhouse gas emissions from Covered Activities compared with the No Action Alternative. Moreover, emissions of criteria pollutants and greenhouse gases are expected to decline over the 30-year life of the Plan as SMUD replaces its vehicles and construction equipment with more efficient, less polluting equipment.

Periodic criteria pollutant and precursor emissions from O&M Covered Activities would be generated by mobile and stationary equipment exhaust, employee and haul truck vehicle exhaust, and earthwork. The frequency and intensity of Covered Activities is expected to be short term and occur at varying locations over the long term. The Sacramento Air District developed operational screening levels for land uses such whose typical sources of emissions include motor vehicle trips by residents, shoppers, workers, and vendors; natural gas emissions for heating and cooking; ROG emissions from consumer products; and, fuel combustion from landscape maintenance equipment (SMAQMD 2020). The O&M activities would involve minimal emissions from occasional vehicle trips and intermittent light use of landscaping equipment, which do not rise to the level of intensity of

land uses contemplated in the operational screening levels. Therefore, emission-generating O&M activities would be far below the level of intensity in terms of equipment use and vehicle use than the land uses for which the Sacramento Air District and other air districts have developed operational screening levels. Therefore, although there would be emissions from O&M activities, these activities would likely result in emission levels less than operational screening levels identified by the applicable air quality management district. Management activities on mitigation lands are similarly anticipated to have negligible impacts on air quality because they would likely involve minimal ongoing earthwork or use of emission-generating equipment. SMUD would also implement construction practices aimed at reducing mass emissions, such as use of more fuel-efficient equipment, and Plan AMMs to reduce air quality–related effects. Table 5-1, *Avoidance and Minimization Measures* of the Plan and Appendix D of this Assessment provide a description of these measures.

Use of diesel-powered equipment during Covered Activities could generate particulate exhaust emissions, which are identified as a toxic air contaminant. However, emissions-generating activities would be relatively small, short term, and dispersed throughout the Permit Area. It is reasonably anticipated that with dust control measures and site compaction fugitive dust emissions would reduce over the duration of the activity. In addition, because health risks are generally associated with chronic exposure and are assessed over a 30-year exposure period (Office of Environmental Health Hazard 2015), emissions from vehicles and equipment during Covered Activities, which would generally last no longer than 2 years at one location—and often less than a few days—would have a limited potential to affect sensitive receptors.

Covered Activities may also generate odors from diesel-powered equipment and asphalt paving. Such odors would be temporary and would generally occur at magnitudes that would not affect substantial numbers of people.

Overall, Covered Activities typically generate negligible emissions dispersed across the Permit Area and issuance of the permit would not substantially change SMUD's emissions from the current baseline level. Therefore, the potential effect of the Proposed Action on air quality and climate change would be negligible.

3.3.3 Cumulative Effects

During the 30-year term of the permit, other activities that could contribute to cumulative air quality and climate change impacts in the Sacramento Valley Air Basin include agriculture, transportation, construction activities, industrial processes, and wildfires. Covered Activities would not generate new permanent sources of criteria air pollutants or greenhouse gases.

Emissions of criteria pollutants and greenhouse gases during Covered Activities would be diffuse over the relatively large Permit Area, short term in nature, and minimized with SMUD's air quality practices. Therefore, the Proposed Action would not result in a cumulatively considerable contribution to existing effects on criteria air pollutants or greenhouse gases.

3.4 Biological Resources

3.4.1 Affected Environment

3.4.1.1 Land-Cover Types in the Permit Area

Details of the methods used for mapping land cover within the Permit Area, which includes natural communities and other land cover types, are described in Section 3.4.1 of the proposed Plan.

The proposed Plan identifies 12 natural land cover types and 5 developed land cover types in the Permit Area. Detailed descriptions of each land cover type are provided in Section 3.4.2 of the proposed Plan. The communities and land cover types include woodlands (valley foothill riparian, blue oak foothill pine, blue oak woodland, valley oak woodland, mine tailing riparian woodland, eucalyptus woodland), herbaceous (pasture, grasses and forbs), aquatic (riverine, open water, vernal pool, seasonal wetland, depressional wetlands), agricultural (orchard/vineyard), cropland, (rice), and developed (urban and barren/disturbed). The predominant land covers in the Permit Area are urban (34%), herbaceous communities (33%), and agricultural (18%).

Aquatic Resources

Wetlands and non-wetland waters of the United States within the Permit Area include rivers, creeks, agricultural canals, vernal pools, seasonal wetlands, swales, and other depressional wetlands which may be in proximity to existing and proposed facilities or be intersected (i.e., crossed, either overhead or underground) by such facilities at one or more locations. Most of these waterbodies are presumed to be under federal jurisdiction and would be subject to regulation by the Corps.

3.4.1.2 Rare, Threatened, Endangered, and Fully Protected Species

Covered Species

Species covered under the Plan include two plant species: slender Orcutt grass (*Orcuttia tenuis*) and Sacramento Orcutt grass (*O. viscida*); and five wildlife species: vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), valley elderberry longhorn beetle (*Desmocerus californica dimorphus*), California tiger salamander (*Ambystoma californiense*), and giant garter snake (*Thamnophis gigas*). Detailed species accounts for the species are provided in Appendix C of the Plan.

Non-Covered Species

There are 102 rare, threatened, or endangered species that occur or have the potential to occur in the Permit Area. Sixty-nine of those species, not including Covered Species, have a moderate to high potential to occur in the Permit Area. Table 3.4-1 lists the common and scientific names, status, distribution, habitat, and likelihood of occurrence of Covered and non-covered, special-status species.

Table 3.4-1. Special-Status Species Identified as Having the Potential to Occur in the Permit Area

Common and Scientific Name	Legal Status	Habitat Distribution	Likelihood for Occurrence in the Permit Area	
Ione manzanita, *Arctostaphylos myrtifolia*	Federally Threatened California Native Plant Society 1B.2	Occurs in Central Sierra Nevada Foothills, Amador and Calaveras Counties. Acidic, lone soil, clay or sandy soils in chaparral and cismontane woodland; 60–580 meters; blooms Nov–Mar.	**Moderate;** suitable habitat may be present in small areas of chaparral within the mapped blue oak woodland in the Permit Area. A total of 5 Diversity Database (2020) occurrences, 2 of which are within 1 mile of the Permit Area.	No
Ferris's milk-vetch, *Astragalus tener* var. *ferrisiae*	California Mative Plant Society 1B.1	Historic range included the Central Valley from Butte to Solano County but currently only occurs in Butte, Glenn, Colusa, Sutter, and Yolo Counties. Seasonally wet areas in meadows and seeps, subalkaline flats in valley and foothill grassland; 2–75 meters; blooms Apr–May.	**High**; suitable habitat within seasonally wet habitats in somewhat alkaline soils in the Permit Area. A total of 5 Diversity Database (2020) occurrences, 1 of which is in the Permit Area.	No
Alkali milk-vetch, *Astragalus tener* var. *tener*	California Native Plant Society 1B.2	Southern Sacramento Valley, northern San Joaquin Valley, east San Francisco Bay Area. Playas, on adobe clay in valley and foothill grassland, vernal pools on alkaline soils; 1–60 meters cismontane woodland; 60–580 meters; blooms Mar–Jun.	**High**; suitable habitat in seasonally wet habitats on alkaline soils in the Permit Area. A total of 7 Diversity Database (2020) occurrences, 1 of which is in the Permit Area.	No
Heartscale, *Atriplex cordulata* var. *cordulata*	California Native Plant Society 1B.2	Western Central Valley and valleys of adjacent foothills. Saline or alkaline area in chenopod scrub, meadows and seeps, sandy soils in valley and foothill grassland; 0–560 meters; blooms Apr–Oct.	**High**; suitable habitat on alkaline soils in grasslands in the Permit Area. One Diversity Database (2020) occurrence within the Permit Area.	No
Brittlescale, *Atriplex depressa*	California Native Plant Society 1B.2	Western and eastern Central Valley and adjacent foothills on west side of Central Valley. Alkaline clay soils in chenopod scrub, playas, valley and foothill grasslands; 1–320 meters; blooms Apr–Oct.	**Moderate**; suitable habitat on alkaline soils in grasslands in the Permit Area. A total of 5 Diversity Database (2020) occurrences located within 5 miles of the Permit Area.	No
Big-scale balsamroot, *Balsamorhiza macrolepis*	California Native Plant Society 1B.2	Scattered occurrences in the Coast Ranges and Sierra Nevada Foothills. Sometimes on serpentine soils in chaparral, cismontane woodland, valley and foothill grassland; 45–1,555 meters; blooms Mar–Jun.	**Low**; suitable habitat in Permit Area in oak woodlands and grasslands, but there are no serpentine soils. One Diversity Database (2020) occurrence located within 1 mile of the Permit Area.	No

Common and Scientific Name	Legal Status	Habitat Distribution	Likelihood for Occurrence in the Permit Area	
Watershield, *Brasenia schreberi*	California Native Plant Society 2B.3	Scattered occurrences in north and central California; widespread across United States. Freshwater marshes; 30–2,200 meters; blooms Jun–Sep.	**High**; suitable habitat in freshwater marshes in the Permit Area. One Diversity Database (2020) occurrence located in the Permit Area.	No
Stebbins' morning-glory, *Calystegia stebbinsii*	Federally Endangered California Endangered California Native Plant Society 1B.1	Northern Sierra Nevada foothills with reported occurrences in El Dorado and Nevada Counties. Serpentine or gabbroic soils in chaparral openings, cismontane woodland; 185–1,090 meters; blooms Apr–Jul.	**Low**; Permit Area is outside of species known range. Suitable habitat in oak woodlands, but presence of suitable soils is unlikely in the Permit Area. One Diversity Database (2020) occurrence located within 5 miles of the Permit Area.	No
Bristly sedge, *Carex comosa*	California Native Plant Society 2B.1	Scattered occurrences throughout California; Oregon, Washington, and elsewhere. Coastal prairie, marshes and swamps at lake margins, valley and foothill grassland; 0–625 meters; blooms May–Sep.	**High**; suitable habitat in grasslands and marshes in the Permit Area. 16 Diversity Database (2020) occurrences located in the Permit Area.	No
Fleshy owl's clover, *Castilleja campestris* var. *succulenta*	Federally Threatened California Endangered California Native Plant Society 1B.2	Eastern edge of San Joaquin Valley and adjacent foothills, from Stanislaus to Fresno Counties. Vernal pools, often on acidic soils; 50–750 meters; blooms (Mar)Apr–May.	**Low**; suitable habitat in vernal pools in the Permit Area. Species is not known to occur in the Permit Area. One Diversity Database (2020) occurrence located within 1 mile of the Permit Area.	No
Pine Hill ceanothus, *Ceanothus roderickii*	Federally Endangered California Rare Plant California Native Plant Society 1B.1	Endemic to El Dorado County. Serpentine or gabbro soils in chaparral or cismontane woodland; 245–1,090 meters; blooms Apr–Jun.	**Low**; Permit Area is outside of species known range. Suitable habitat in oak woodlands, but there are no suitable soils in the Permit Area. 2 Diversity Database (2020) occurrences located within 5 miles of the Permit Area.	No
Pappose tarplant, *Centromadia parryi* ssp. *parryi*	California Native Plant Society 1B.2	North and central Coast Ranges, the southern Sacramento Valley; occurrences in Butte, Colusa, Glenn, Lake, Napa, San Mateo, Solano, and Sonoma Counties. Coastal prairie, meadows and seeps, coastal salt marshes and swamps, alkaline soils in vernally mesic valley and foothill grassland; 0–420 meters; blooms May–Nov.	**Moderate**; suitable habitat in grasslands and seasonally wet habitats on alkaline soils in the Permit Area. 2 Diversity Database (2020) occurrences located within 0.5 mile of the Permit Area.	No
Red Hills soaproot, *Chlorogalum grandiflorum*	California Native Plant Society 1B.2	North and central Sierra Nevada foothills: Amador, Butte, Calaveras, El Dorado, Placer, and Tuolumne Counties. Serpentine or gabbro soils in chaparral, lower montane	**Low**; Permit Area is outside of species known range. Suitable habitat in oak woodlands, but there are no suitable soils in the Permit Area.	No

Common and Scientific Name	Legal Status	Habitat Distribution	Likelihood for Occurrence in the Permit Area	
		coniferous forest, and cismontane woodland; 245–1,690 meters; blooms May–Jun.	One Diversity Database (2020) occurrence located within 5 miles of the Permit Area.	
Hispid bird's-beak, *Chloropyron molle* ssp. *hispidum*	California Native Plant Society 1B.1	Central Valley: Alameda, Fresno, Kern, Merced, Placer, and Solano Counties. Meadow and seeps, valley and foothill grassland, playa, on alkaline soils; 1–155 meters; blooms Jun–Sep.	**Low**; Permit Area is outside of species known range. Suitable habitat in seasonally wet habitats and grasslands on alkaline soils. One Diversity Database (2020) occurrence located within 3 miles of the Permit Area.	No
Palmate-bracted bird's-beak, *Chloropyron palmatum*	Federally Endangered California Endangered California Native Plant Society 1B.1	Livermore Valley and scattered locations in the Central Valley from Colusa County to Fresno County. Alkaline sites in grassland and chenopod scrub; 5–155 meters; blooms May–Oct.	**High**; suitable habitat in grasslands on alkaline soils in the Permit Area A total of 2 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 1 of which is located in the Permit Area.	No
Bolander's water-hemlock, *Cicuta maculata* var. *bolanderi*	California Native Plant Society 2B.1	Contra Costa, Marin, Sacramento, Solano Counties; also Arizona, New Mexico, Washington, (extirpated from Los Angeles, Santa Barbara, San Luis Obispo). Marshes and swamps, coastal, fresh or brackish water; 0–200 meters; blooms Jul–Sep.	**High**; suitable habitat in freshwater marsh habitats in the Permit Area. One Diversity Database (2020) occurrence located in the Permit Area.	No
Peruvian dodder, *Cuscuta obtusiflora* var. *glandulosa*	California Native Plant Society 2B.2	Not seen since 1948; occurrences in Butte, Los Angeles, Merced, (possibly Sacramento), and Sonoma Counties; extirpated from San Bernadino County; Occurs in Baja California and elsewhere. Freshwater marshes and swamps; 15–280 meters; blooms Jul–Oct.	**High**; suitable habitat in freshwater marsh habitats in the Permit Area. One Diversity Database (2020) occurrence located in the Permit Area.	No
Dwarf downingia, *Downingia pusilla*	California Native Plant Society 2B.2	Central Valley. Vernal pools and mesic valley and foothill grasslands; 15–1,110 meters; blooms Jun–Jul (Sep).	**High**; suitable habitat in mesic grasslands and seasonally wet habitats throughout the Permit Area. A total of 30 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 12 of which are located in the Permit Area.	No
Ione buckwheat, *Eriogonum apricum* var. *apricum*	Federally Endangered California Endangered California Native Plant Society 1B.1	Amador and Sacramento Counties. Openings in chaparral on Ione soil; 60–145 meters; blooms Jul–Oct.	**High**; suitable habitat in small areas of chaparral within the mapped blue oak woodland in the Permit Area. A total of 2 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 1 of which is located at the edge of the Permit Area in Amador County.	No

Common and Scientific Name	Legal Status	Habitat Distribution	Likelihood for Occurrence in the Permit Area	
Irish Hill buckwheat, *Eriogonum apricum* var. *prostratum*	Federally Endangered California Endangered California Native Plant Society 1B.1	Amador County. Openings in chaparral on Ione soil; 90–120 meters; blooms Jun–Jul.	**Moderate**; suitable habitat in small areas of chaparral within the mapped blue oak woodland in the Permit Area. A total of 2 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 1 of which is located within 1 mile of the Permit Area.	No
Jepson's coyote-thistle, *Eryngium jepsonii*	California Native Plant Society 1B.2	Alameda, Amador, Calaveras, Contra Costa, Fresno, Napa, San Mateo, Solano, Stanislaus, Tuolumne, and Yolo Counties. Vernal pools and mesic valley and foothill grassland; 3–300 meters; blooms Apr–Aug.	**Moderate**; suitable habitat in mesic grasslands and seasonally wet habitats throughout the Permit Area. 2 Diversity Database (2020) occurrences located within 5 miles of the Permit Area.	No
Tuolumne button-celery, *Eryngium pinnatisectum*	California Native Plant Society 1B.2	Amador, Calaveras, Sacramento, and Tuolumne Counties. Vernal pools and moist areas in cismontane woodland and lower montane coniferous forest; 70–915 meters; blooms May–Aug.	**High**; suitable habitat in mesic oak woodlands and seasonally wet habitats in the Permit Area. 6 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 1 of which is located in the Permit Area.	No
Stanislaus monkeyflower, *Erythranthe marmorata*	California Native Plant Society 1B.1	Calaveras and Fresno Counties (extirpated from Amador, Stanislaus, and Tuolumne Counties). Hillsides and rocky places in yellow-pine forest; 100–900 meters; blooms Mar–May.	**Low**; no yellow-pine forest habitat is present in the Permit Area. One Diversity Database (2020) occurrence located within 5 miles of the Permit Area.	No
San Joaquin spearscale, *Extriplex joaquinana*	California Native Plant Society 1B.2	West edge of Central Valley from Glenn County to Tulare County. Alkaline soils, chenopod scrub, meadows and seeps, playas, valley and foothill grassland; 1–835 meters; blooms Apr–Oct.	**High**; suitable habitat on alkaline soils in grasslands in the Permit Area. 7 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 1 of which is located in the Permit Area.	No
El Dorado bedstraw, *Galium californicum* ssp. *sierrae*	Federally Endangered California Rare Plant 1B.2	Endemic to El Dorado County. On gabbroic soils in chaparral, cismontane woodland, lower montane coniferous forest; 100–585 meters; blooms May–Jun.	**Low**; Permit Area may be outside of species known range. Suitable habitat in oak woodlands, but presence of suitable soils is unlikely in the Permit Area. 2 Diversity Database (2020) occurrences located within 5 miles of the Permit Area.	No
Boggs Lake hedge-hyssop, *Gratiola heterosepala*	California Endangered California Native Plant Society 1B.2	Inner North Coast Ranges, Central Sierra Nevada Foothills, Sacramento Valley and Modoc Plateau: Fresno, Lake, Lassen, Madera, Merced, Modoc, Placer, Sacramento, Shasta, Siskiyou, San Joaquin, Solano, Sonoma, and	**High**; suitable habitat in seasonally wet habitats, ponds, and lakes throughout the Permit Area. A total of 17 Diversity Database (2020) occurrences located within 5 miles of	No

Common and Scientific Name	Legal Status	Habitat Distribution	Likelihood for Occurrence in the Permit Area	
		Tehama Counties. Clay soils in areas of shallow water, lake margins of swamps and marshes, vernal pool margins; 10–2,375 meters; blooms Apr–Aug.	the Permit Area, 14 of which are located in the Permit Area.	
Woolly rose-mallow, *Hibiscus lasiocarpos* var. *occidentalis*	California Native Plant Society 1B.2	Scattered locations in central California in the Central and southern Sacramento Valley, deltaic Central Valley, from Butte to San Joaquin County. Freshwater marshes and swamps along rivers and sloughs, often in riprap on sides of levees; 0–120 meters; blooms Jun–Sep.	**High**; suitable habitat in freshwater marshes, canals, and sloughs in eastern Yolo County and on the western edge of Sacramento and San Joaquin Counties in the Permit Area. A total of 31 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 20 of which are located in the Permit Area.	No
Parry's horkelia, *Horkelia parryi*	California Native Plant Society 1B.2	Amador, Calaveras, El Dorado, and Mariposa Counties. Chaparral, or cismontane woodland openings, especially Ione formation, dry slopes; 80–1,070 meters; blooms Apr–Sep.	**Moderate**; suitable habitat in oak woodlands on suitable soils in the Permit Area. 4 Diversity Database (2020) occurrences located within 5 miles of the Permit Area.	No
Northern California Black walnut, *Juglans hindsii*	California Native Plant Society 1B.1	Last two native stands in Napa and Contra Costa Counties; historically more widespread through southern north inner Coast Range, southern Sacramento Valley, northern San Joaquin Valley, and San Francisco Bay region. Riparian forest, riparian woodland; 0–440 meters; blooms Apr–May.	**Low**; suitable habitat in riparian habitats in the Permit Area. Large numbers of individual walnut trees occur throughout the Permit Area, but species is protected only as native stands. No Diversity Database (2020) occurrences of native stands are recorded within 5 miles of the Permit Area.	No
Ahart's dwarf rush, *Juncus leiospermus* var. *ahartii*	California Native Plant Society 1B.2	Eastern Sacramento Valley, northeastern San Joaquin Valley with occurrences in Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba Counties. Wet areas in valley and foothill grassland, vernal pool margins; 30–229 meters; blooms Mar–May.	**High**; suitable habitat in seasonally wet habitats and mesic grasslands throughout the Permit Area. 2 Diversity Database (2020) occurrences located in the Permit Area.	No
Red Bluff dwarf rush, *Juncus leiospermus* var. *leiospermus*	California Native Plant Society 1B.1	Northern Sacramento Valley and Cascade Range foothills with occurrences in Butte, Placer, Shasta, and Tehama Counties. Seasonally wet areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; 35–1,250 meters; blooms Mar–Jun.	**Moderate**; suitable habitat in seasonally wet areas in woodland and grassland habitats and vernal pools in the Permit Area. One Diversity Database (2020) occurrence located within 5 miles of the Permit Area.	No
Delta tule pea,	California Native Plant Society 1B.2	San Francisco Bay region, also part of Central Valley in Alameda, Contra Costa, Napa,	**High**; suitable habitat in freshwater marshes in the western edge of Sacramento and San	No

Common and Scientific Name	Legal Status	Habitat Distribution	Likelihood for Occurrence in the Permit Area	
Lathyrus jepsonii var. *jepsonii*		(extirpated from Santa Clara), San Joaquin, Solano, and Sonoma Counties. Coastal and estuarine marshes (freshwater and brackish); 0–5 meters; blooms May–Jul (Aug–Sep).	Joaquin Counties in the Permit Area. A total of 9 Diversity Database (2020) occurrences located within 2.5 miles of the Permit Area, 5 of which are located in the Permit Area.	
Legenere, *Legenere limosa*	California Native Plant Society 1B.1	Primarily in the lower Sacramento Valley, also from north Coast Ranges, northern San Joaquin Valley and the Santa Cruz Mountains. Deep, seasonally wet habitats such as vernal pools, ditches, marsh edges, and riverbanks; 1–880 meters; blooms Apr–Jun.	**High**; suitable habitat in seasonally wet habitats throughout the Permit Area. A total of 42 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 35 of which are located in the Permit Area.	No
Heckard's pepper-grass, *Lepidium latipes* var. *heckardii*	California Native Plant Society 1B.2	Southern Sacramento Valley, in Glenn, Merced, Sacramento, Solano, and Yolo Counties. On margins of alkali scalds in annual grassland; 2–200 meters; blooms Mar–May.	**High**; suitable habitat in alkaline grasslands in the Permit Area. A total of 7 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 3 of which are located in the Permit Area.	No
Mason's lilaeopsis, *Lilaeopsis masonii*	California Rare Plant California Native Plant Society 1B.1	Southern Sacramento Valley, Sacramento–San Joaquin River Delta, northeast San Francisco Bay area in Alameda, Contra Costa, Marin, Napa, Sacramento, San Joaquin, Solano, and Yolo Counties. Freshwater or brackish marsh, riparian scrub, in tidal zone; 0–10 meters; blooms Apr–Nov.	**High**; suitable habitat on tidal mudflats in marsh and riparian habitats in the Permit Area. A total of 7 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 3 of which are located in the Permit Area.	No
Delta mudwort, *Limosella australis*	California Native Plant Society 2B.1	Deltaic Central Valley: Contra Costa, Sacramento, San Joaquin, and Solano Counties; Oregon. Muddy or sandy intertidal flats and marshes, streambanks in riparian scrub generally at sea level; 0–3 meters; blooms May–Aug.	**High**; suitable habitat on tidal mudflats in marsh and riparian habitats in the Permit Area. A total of 7 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 2 of which are located in the Permit Area.	No
Baker's navarretia, *Navarretia leucocephala* ssp. *bakeri*	California Native Plant Society 1B.1	Inner North Coast Range and western Sacramento Valley: Colusa, Glenn, Lake, Lassen, Mendocino, Marin, Napa, Solano, Sonoma, Tehama, and Yolo Counties. Vernal pools and swales in woodland, lower montane coniferous forest, mesic meadows, and grassland; 5–1,740 meters; blooms Apr–Jul.	**Moderate**; suitable habitat in seasonally wet areas in woodland and grassland habitats and vernal pools in the Permit Area. 3 Diversity Database (2020) occurrences located within 5 miles of the Permit Area.	No

Common and Scientific Name	Legal Status	Habitat Distribution	Likelihood for Occurrence in the Permit Area	
Pincushion navarretia, *Navarretia myersii* ssp. *myersii*	California Native Plant Society 1B.1	Central Valley in Amador, Calaveras, Merced, Placer, and Sacramento Counties. Edges of vernal pools; 20–330 meters; blooms Apr–May.	**High**; suitable habitat in vernal pools in the Permit Area. A total of 8 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 6 of which are located in the Permit Area.	No
Colusa grass, *Neostapfia colusana*	Federally Threatened California Endangered California Native Plant Society 1B.1	Central Valley: (extirpated from Colusa), Glenn, Merced, Solano, Stanislaus, and Yolo Counties. Adobe soils of vernal pools; 5–200 meters; blooms May–Aug.	**Low**; suitable habitat in vernal pools, but presence of suitable soils is unlikely in the Permit Area. 2 Diversity Database (2020) occurrences located within 5 miles of the Permit Area.	No
Slender Orcutt grass, *Orcuttia tenuis*	Federally Threatened, California Endangered California Native Plant Society 1B.1	Sierra Nevada and Cascade Range foothills from Siskiyou to Sacramento Counties. Vernal pools; 35–1760 meters; blooms May–Sep.	**High**; suitable habitat in vernal pools in the Permit Area. 3 Diversity Database (2020) occurrences located in the Permit Area. Critical Habitat within the Permit Area.	Yes
Sacramento Orcutt grass, *Orcuttia viscida*	Federally Threatened, California Endangered California Native Plant Society 1B.2	Endemic to Sacramento County. Vernal pools; 30–100 meters; blooms Apr–July.	**High**; suitable habitat in vernal pools in the Permit Area.12 Diversity Database (2020) occurrences located in the Permit Area. Critical Habitat within the Permit Area.	Yes
Layne's ragwort, *Packera layneae* (Also called *Senecio layneae*)	Federally Threatened California Rare Plant California Native Plant Society 1B.2	Northern Sierra Nevada foothills, Butte, El Dorado, Placer, Tuolumne, and Yuba Counties. Rocky serpentinite or gabbro soils in chaparral and foothill woodland; 200–1,085 meters; blooms Apr–Aug.	**Low**; Permit Area may be outside of species known range. Suitable habitat in oak woodlands, but presence of suitable soils is unlikely in the Permit Area. 5 Diversity Database (2020) occurrences located within 5 miles of the Permit Area.	No
California alkali grass, *Puccinellia simplex*	California Native Plant Society 1B.2	Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, (extirpated from Kings), Kern, Lake, Los Angeles, Madera, Merced, Napa, San Bernardino, Santa Clara, Santa Cruz, San Luis Obispo, Solano, Stanislaus, Tulare, Yolo Counties; Utah. Alkaline soils, vernally mesic sinks, flats, lake margins in chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools; 2–930 meters; blooms Mar–May.	**High**; suitable habitat in mesic alkaline grasslands and margins of lakes and ponds in the Permit Area. A total of 9 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 2 of which are located in the Permit Area.	No
Sanford's arrowhead, *Sagittaria sanfordii*	California Native Plant Society 1B.2	Scattered locations in Central Valley and Coast Ranges. Freshwater marshes, sloughs, canals, and other slow-moving water	**High**; suitable habitat in freshwater marshes, sloughs, and canals in the Permit Area. A total of 63 Diversity Database (2020) occurrences	No

Common and Scientific Name	Legal Status	Habitat Distribution	Likelihood for Occurrence in the Permit Area	
		habitats; 0–650 meters; blooms May–Oct (Nov).	located within 5 miles of the Permit Area, 57 of which are located in the Permit Area.	
Marsh skullcap, *Scutellaria galericulata*	California Native Plant Society 2B.2	Northern high Sierra Nevada and Modoc Plateau: El Dorado, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, San Joaquin, and Siskiyou Counties; Oregon and elsewhere. Marshes, mesic meadows, seeps, lower montane coniferous forest; 0–2,100 meters; blooms Jun–Sep.	**High**; suitable habitat in marshes and mesic grasslands in the Permit Area. 2 Diversity Database (2020) occurrences located in the Permit Area.	No
Side-flowering skullcap, *Scutellaria lateriflora*	California Native Plant Society 2B.2	Known in California from only three occurrences in northern San Joaquin Valley and east of the Sierra Nevada in Inyo, Sacramento, and San Joaquin Counties; New Mexico, Oregon, and elsewhere. Mesic meadows, marshes and swamps; 0–500 meters; blooms Jul–Sep.	**High**; suitable habitat in mesic grasslands and marshes in the Permit Area. A total of 10 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 8 of which are located in the Permit Area.	No
Keck's checkermallow, *Sidalcea keckii*	Federally Endangered California Native Plant Society 1B.1	Known from only three occurrences in Fresno, Merced, and Tulare Counties; plants from inner North Coast Ranges in Colusa, Napa, Solano, and Yolo Counties may be *Sidalcea diploscypha*, needs study. Serpentine clay soils in cismontane woodland, valley and foothill grassland; 75–650 meters; blooms Apr–May (Jun).	**Low**; suitable habitat in oak woodlands and grasslands, but there are no suitable soils in the Permit Area. 4 Diversity Database (2020) occurrences located within 5 miles of the Permit Area.	No
Suisun Marsh aster, *Symphyotrichum lentum*	California Native Plant Society 1B.2	Sacramento–San Joaquin Delta, Suisun Marsh, Suisun Bay: Contra Costa, Napa, Sacramento, San Joaquin, and Solano Counties. Brackish and freshwater marshes and swamps; 0–3 meters; blooms (Apr) May–Nov.	**High**; suitable habitat in marshes in the western edge of Sacramento and San Joaquin Counties in the Permit Area. A total of 10 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 2 of which are located in the Permit Area.	No
Saline clover, *Trifolium hydrophilum*	California Native Plant Society 1B.2	Sacramento Valley, central western California. Salt marsh, mesic alkaline areas in valley and foothill grasslands, vernal pools, marshes and swamps; 0–300 meters; blooms Apr–Jun.	**High**; suitable habitat in mesic, alkaline grasslands, seasonally wet areas, and marshes in the Permit Area. A total of 7 Diversity Database (2020) occurrences located within 5 miles of the Permit Area, 5 of which are located in the Permit Area.	No

Common and Scientific Name	Legal Status	Habitat Distribution	Likelihood for Occurrence in the Permit Area	
Solano grass, *Tuctoria mucronata*	Federally Endangered California Endangered California Native Plant Society 1B.1	Southwestern Sacramento Valley: Solano and Yolo Counties. Vernal pools, mesic grassland; 5–10 meters; blooms Apr–Aug.	**Moderate**; suitable habitat in mesic grassland and vernal pools in the Permit Area. One Diversity Database (2020) occurrence located within 5 miles of the Permit Area.	No
El Dorado County mule ears, *Wyethia reticulata*	California Native Plant Society 1B.2	El Dorado and Yuba Counties. On clay or gabbroic soils in chaparral, cismontane woodland, and lower montane coniferous forest; 85–630 meters; blooms Apr–Aug.	**Low**; suitable habitat in small areas of chaparral within the mapped blue oak woodland in the Permit Area. 7 Diversity Database (2020) occurrences located within 5 miles of the Permit Area.	No

3.4.1.3 Wildlife Corridors

Wildlife corridors are defined as areas that connect suitable habitat for species movement or dispersal between multiple habitats in a region otherwise fragmented by developed or rugged terrain, changes in vegetation, or human disturbance. These corridors provide (but are not required to contain) sufficient habitat for all life history requirements of a species, especially habitat for reproduction (Rosenberg et al. 1995, 1997). Wildlife corridors are considered sensitive areas by resource and conservation agencies. Open areas of natural lands, riparian, and stream corridors throughout the Permit Area provide habitat connectivity and are likely important for wildlife movement.

3.4.2 Environmental Consequences

3.4.2.1 Methodology for NEPA Impact Analysis

Information used to conduct the environmental consequences analysis came primarily from information available in the proposed Plan and associated geographic information system (GIS) data but also included information obtained from available databases (e.g., the Diversity Database), other mapping sources, and available reports and literature. Methods used to evaluate permanent and temporary direct effects and indirect effects on biological resources in this section are largely similar to those used in the proposed Plan effects analysis (Plan Chapter 4). Impacts on proposed Covered Species were estimated and quantified based on the projected disturbance or loss of habitat modeled for each proposed Covered Species in the Permit Area. Effects on sensitive biological resources not covered in the proposed Plan were similarly evaluated, relying on the same land cover mapping.

3.4.2.2 Effects on Covered Plant Species and their Habitats

Plant species covered by the Plan are slender Orcutt grass and Sacramento Orcutt grass.

Covered Activities

Covered Activities could result in direct and indirect effects on covered plant species, including critical habitat for these species. These effects include impacts on habitat and direct loss of individual plants from temporary and permanent vegetation removal or ground disturbance, vehicle and equipment movement, hazardous materials exposure, and placement or stockpiling of staging materials in or near covered suitable or occupied habitat. Additional impacts could result from O&M of new facilities, new construction, vegetation management, and miscellaneous activities. These activities could also affect these plants later in time due to increased temporary runoff that leads to increased sedimentation; permanent changes in hydrology or stormwater runoff that alters the hydroperiod; spread of invasive or nonnative plants that replace native species and alters the physical or chemical characteristic of aquatic habitat; increased human activities that result in long-term disturbances, hazardous materials exposure, and placement of materials (e.g., debris, sand) that could be carried into nearby habitats.

The proposed Plan would require that Covered Activities be conducted in accordance with the AMMs developed for the Plan, to avoid and minimize indirect impacts on slender Orcutt grass and

Sacramento Orcutt grass modeled habitat. See Chapter 5 of the Plan and Appendix D of this Assessment for a complete list of measures.

Conservation Strategy

The Conservation Strategy for the Plan includes Orcutt grass enhancement through the introduction of slender Orcutt grass and Sacramento Orcutt grass seeds into vernal pools at the SMUD Bank. The Conservation Strategy would require seed collection from potential onsite and offsite locations, which could result in the mortality of individual seeds (embryos) and would be considered take under the Act and California Endangered Species Act. Collection (capture) and storage of slender Orcutt grass seeds have the potential to affect the viability of the seeds and reduce germination success. However, benefits of invasive species management and enhancement of the Orcutt grasses include improvement of habitat conditions for the species at the SMUD Bank, improvement of the condition of the species themselves at the SMUD Bank by increasing their distribution and abundance, and support of the recovery of the Orcutt grasses. Conservation actions for vernal pool fairy shrimp, vernal pool tadpole shrimp, and the California tiger salamander under the Plan would be conducted through ongoing operations and management at the SMUD Bank or through purchase of credits at another Conservation/Mitigation Bank, which would protect modeled habitat for the Orcutt grasses and ensure that some management of those areas would be conducted. While the Orcutt grasses may not be present in those areas protected and managed for vernal pool wildlife species, the areas could be used as future introduction sites. Conservation actions for valley elderberry longhorn beetle and giant garter snake would be conducted through the purchase of credits at another Conservation/Mitigation Bank or participation in another habitat conservation plan and are not expected to affect the Orcutt grasses because they do not co-occur, and vernal pool habitats are unlikely to be modified either into perennial wetlands or riparian habitats.

Issuance of the permit and implementation of the Plan could result in adverse effects on covered plants; however, these effects would be reduced through AMMs and the Conservation Strategy.

3.4.2.3 Effects on Non-covered Plant Species and their Habitats

Covered Activities

Covered Activities could result in direct and indirect effects on 36 non-covered plant species. These effects include impacts on habitat and direct loss of individual plants from temporary and permanent vegetation removal or ground disturbance, vehicle and equipment movement, hazardous materials exposure, and placement or stockpiling of staging materials in or near suitable or occupied habitat. Additional impacts could result from O&M of new facilities, new construction, vegetation management, and miscellaneous activities. These activities could also affect these plants later in time due to increased temporary runoff that leads to increased sedimentation; permanent changes in hydrology or stormwater runoff that alters the hydroperiod; spread of invasive or nonnative plants that replace native species and alters the physical or chemical characteristic of a habitat; increased human activities that result in long-term disturbances, hazardous materials exposure, and placement of materials (e.g., debris, sand) that could be carried into nearby habitats.

The proposed Plan would require that Covered Activities be conducted in accordance with the AMMs developed for the Plan, to avoid and minimize direct and indirect impacts on Covered Species, which could also reduce potential impacts on non-covered special-status plants if Covered Species co-occur with non-covered, special-status plants.

Conservation Strategy

The Conservation Strategy for the Plan includes Orcutt grass enhancement through the introduction of slender Orcutt grass and Sacramento Orcutt grass seeds) at the SMUD Bank. The Conservation Strategy could include inoculation of vernal pools and invasive plant management that could result in temporary disturbance of vernal pools that are occupied by non-covered special-status plants. However, invasive species management for the Orcutt grasses would improve habitat conditions for non-covered special-status plant species that are present in vernal pools at the SMUD Bank. Conservation actions for vernal pool fairy shrimp, vernal pool tadpole shrimp, and the California tiger salamander under the Plan would be conducted through ongoing operations and management at the SMUD Bank or through purchase of credits at another Conservation/Mitigation Bank which would protect and manage habitat for non-covered special-status plant species if present. Conservation actions for valley elderberry longhorn beetle and giant garter snake would be conducted through the purchase of credits at another Conservation/Mitigation Bank or participation in another habitat conservation plan and are not expected to affect non-covered special-status plant species because these actions would not result in any additional physical alteration of habitat.

Issuance of the permit and implementation of the Plan could result in adverse effects on non-covered plant species; however, these effects would be reduced through the AMMs and the Conservation Strategy. In addition to Conservation Strategy AMMs, SMUD would continue to perform environmental review and screening as part of its Work Flow Integration process for Covered Activities. Based on this review, measures would be identified and implemented to avoid or reduce impacts on non-covered special-status plants if an adverse effect is identified through the Work Flow Integration process.

3.4.2.4 Effects on Covered Wildlife Species and their Habitats

Wildlife species covered by the Plan are vernal pool fairy shrimp, vernal pool tadpole shrimp, valley elderberry longhorn beetle, California tiger salamander, and giant garter snake.

Covered Activities

Covered Activities could result in direct and indirect effects on covered wildlife species, including critical habitat for vernal pool fairy shrimp, vernal pool tadpole shrimp, valley elderberry longhorn beetle, and California tiger salamander. These effects include impacts on habitat and injury or mortality of individuals from temporary and permanent vegetation removal or ground disturbance, vehicle and equipment movement, hazardous materials exposure, and placement or stockpiling of staging materials in or near covered suitable or occupied habitat. Additional impacts could result from O&M of new facilities, new construction, vegetation management, and miscellaneous activities. These activities could also affect covered wildlife species later in time due to increased temporary runoff that leads to increased sedimentation; permanent changes in hydrology or stormwater runoff that alters the hydroperiod; spread of invasive or nonnative plants that replace native species and alters the physical or chemical characteristic of a habitat; increased human activities that result in long-term disturbances, hazardous materials exposure, and placement of materials (e.g., debris, sand) that could be carried into nearby habitats.

The proposed Plan would require that Covered Activities be conducted in accordance with the AMMs developed for the Plan, to avoid and minimize direct and indirect impacts on vernal pool fairy

shrimp, vernal pool tadpole shrimp, valley elderberry longhorn beetle, California tiger salamander, and giant garter snake.

Conservation Strategy

The Conservation Strategy for the Plan includes Orcutt grass enhancement through the introduction of slender Orcutt grass and Sacramento Orcutt grass seeds into vernal pools at the SMUD Bank. The Conservation Strategy has the potential to result in direct or indirect effects on vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander modeled habitat and designated critical habitat if inoculation of vernal pools, invasive plant management, or monitoring activities occur in or near modeled habitat and designated critical habitat or in vernal pools that are occupied by these species. Management and enhancement activities for the Orcutt grasses would ultimately also improve habitat conditions for vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander. The Conservation Strategy also includes ongoing operations and management at the SMUD Bank or the purchase of credits at another Conservation/Mitigation Bank for vernal pool fairy shrimp, vernal pool tadpole shrimp, and the California tiger salamander. Conservation actions for the Orcutt grasses and for vernal pool fairy shrimp, vernal pool tadpole shrimp, and the California tiger salamander would not be conducted within valley elderberry longhorn beetle or giant garter snake modeled habitat; therefore, there would be no effects on valley elderberry longhorn beetle or giant garter snake from implementation of the Conservation Strategy.

Conservation actions for valley elderberry longhorn beetle and giant garter snake would be conducted through the purchase of credits at another Conservation/Mitigation Bank or participation in another habitat conservation plan and are not expected to affect covered wildlife species because these actions would not result in any additional physical alteration of habitat.

Issuance of the permit and implementation of the Plan could result in adverse effects on covered wildlife species; however, these effects would be reduced through AMMs and the Conservation Strategy.

3.4.2.5 Effects on Non-Covered Wildlife Species and Their Habitats

Covered Activities

Covered Activities could result in direct and indirect effects on non-covered wildlife species. These effects include impacts on habitat and injury or mortality of individuals from temporary and permanent vegetation removal or ground disturbance, vehicle and equipment movement, hazardous materials exposure, and placement or stockpiling of staging materials in or near covered suitable or occupied habitat. Additional impacts could result from O&M of new facilities, new construction, vegetation management, and miscellaneous activities. These activities could also affect non-covered wildlife species later in time due to increased temporary runoff that leads to increased sedimentation, permanent changes in hydrology or stormwater runoff that alters the hydroperiod, spread of invasive or nonnative plants that replace native species and alters the physical or chemical characteristic of a habitat, increased human activities that result in long-term disturbances, hazardous materials exposure, and placement of materials (e.g., debris, sand) that could be carried into nearby habitats.

The proposed Plan would require that Covered Activities be conducted in accordance with the AMMs developed for the Plan, to avoid and minimize direct and indirect impacts on Covered Species,

which would also reduce potential impacts on non-covered special-status wildlife that occur at the same locations as Covered Species and modeled habitat.

Conservation Strategy

The Conservation Strategy for the Plan includes Orcutt grass enhancement through the introduction of slender Orcutt grass and Sacramento Orcutt grass seeds into vernal pools at the SMUD Bank. The Conservation Strategy has the potential to result in direct or indirect effects on non-covered wildlife if inoculation of vernal pools, invasive plant management, monitoring, or ground-disturbing activities occur in or near occupied habitat. Management and enhancement activities for the Orcutt grasses may also improve habitat conditions for non-covered wildlife species that use vernal pool habitat. The Conservation Strategy also includes ongoing operations and management at the SMUD Bank or the purchase of credits at another Conservation/Mitigation Bank for vernal pool fairy shrimp, vernal pool tadpole shrimp, and the California tiger salamander which would benefit non-covered wildlife species that use vernal pool habitat. Conservation actions for valley elderberry longhorn beetle and giant garter snake would be conducted through the purchase of credits at another Conservation/Mitigation Bank or participation in another habitat conservation plan and are not expected to affect non-covered wildlife species because these actions would not result in any additional physical alteration of habitat.

Issuance of the permit and implementation of the Plan could result in adverse effects on non-covered wildlife species; however, these effects would be reduced through the AMMs and the Conservation Strategy. In addition to Conservation Strategy AMMs, SMUD would continue to perform environmental review and screening as part of their Work Flow Integration process for Covered Activities. Based on this review, measures for western spadefoot, western pond turtle, migratory birds and raptors, roosting bats, and American badger would be implemented to avoid or reduce impacts if an adverse effect is identified.

3.4.2.6 Effects on Sensitive Natural Communities

Covered Activities

Covered Activities actions could result in direct and indirect effects on sensitive natural communities. These effects include impacts from temporary and permanent vegetation removal or ground disturbance, vehicle and equipment movement, hazardous materials contamination, and placement or stockpiling of staging materials in or near sensitive natural communities. Additional impacts could result from the operations and maintenance of new facilities, new construction, vegetation management, and miscellaneous activities. These activities could also affect sensitive natural communities later in time due to increased temporary runoff that leads to increased sedimentation; permanent changes in hydrology or stormwater runoff that alters the hydroperiod, spread of invasive or nonnative plants that replace native species and alters the physical or chemical characteristic of a sensitive natural community, increased human activities that result in long-term disturbances, hazardous materials exposure, and placement of materials (e.g., debris, sand) that could be carried into nearby sensitive natural communities.

The proposed Plan would require that Covered Activities be conducted in accordance with the AMMs developed for the Plan, to avoid and minimize direct permanent and temporary impacts on Plan modeled habitats that could contain sensitive natural communities.

Conservation Strategy

The Conservation Strategy for the Plan includes Orcutt grass enhancement through the introduction of slender Orcutt grass and Sacramento Orcutt grass seeds at the SMUD Bank, and it could include inoculation of vernal pools and invasive plant management within vernal pools that could be classified as a sensitive natural community. However, implementation of the Conservation Strategy would ultimately result in a net benefit to vernal pools through management and enhancement activities conducted through Orcutt grass enhancement, through ongoing operations and management at the SMUD Bank, or through purchase of credits at another Conservation/Mitigation Bank for vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander. Conservation actions for valley elderberry longhorn beetle and giant garter snake would be conducted through the purchase of credits at another Conservation/Mitigation Bank or participation in another habitat conservation plan and would not negatively affect sensitive natural communities because these actions would not result in any additional physical alteration of habitat.

Issuance of the permit and implementation of the Plan could result in adverse effects on sensitive natural communities; however, these effects would be reduced through the AMMs and the Conservation Strategy.

3.4.2.7 Effects on Wetlands and Other Waters of the United States

Covered Activities

Covered Activities could result in direct and indirect effects on wetlands and other regulated aquatic resources. These effects include impacts from temporary and permanent vegetation removal or ground disturbance, vehicle and equipment movement, hazardous materials contamination, and placement or stockpiling of staging materials in or near wetlands and other regulated aquatic resources. Additional impacts could result from O&M of new facilities, new construction, vegetation management, and miscellaneous activities. These activities could also affect wetlands and other regulated aquatic resources later in time due to increased temporary runoff that leads to increased sedimentation, permanent changes in hydrology or stormwater runoff that alters the hydroperiod, spread of invasive or nonnative plants that replace native species and alters the physical or chemical characteristic of aquatic habitat, increased human activities that result in long-term disturbances, hazardous materials exposure, and placement of materials (e.g., debris, sand) that could be carried into nearby wetlands and other regulated aquatic resources.

The proposed Plan would require that Covered Activities be conducted in accordance with the AMMs developed for the Plan, to avoid and minimize direct permanent and temporary impacts on Plan modeled habitats that include wetlands and other regulated aquatic resources. The list of applicable measures can be found in Appendix D of this Assessment.

Conservation Strategy

The Conservation Strategy for the Plan includes Orcutt grass enhancement through the introduction of slender Orcutt grass and Sacramento Orcutt grass seeds at the SMUD Bank. Enhancement activities could include inoculation of vernal pools and invasive plant management which could modify or disturb wetlands and other regulated aquatic resources. Orcutt grass enhancement and conservation actions for vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander under the Plan (which would be conducted through ongoing operations and

management at the SMUD Bank or through purchase of credits at another Conservation/Mitigation Bank) would protect and manage vernal pool habitats and enhancement and introduction activities could potentially introduce new populations of sensitive plant species that would enhance the overall habitat value. Conservation actions for valley elderberry longhorn beetle and giant garter snake would be conducted through the purchase of credits at another Conservation/Mitigation Bank or participation in another habitat conservation plan and are not expected to affect wetlands or other regulated aquatic resources because these actions would not result in any additional physical alteration of habitat.

Issuance of the permit and implementation of the Plan could result in adverse effects on wetlands and other regulated aquatic resources; however, these effects would be reduced through the AMMs and the Conservation Strategy.

3.4.2.8 Effects on Wildlife Corridors

Covered Activities

Covered Activities could result in direct and indirect effects on native wildlife movement or native wildlife nursery sites. These effects include impacts from vegetation removal, ground disturbance, and increased human activity associated with Covered Activities that may cause native animals to avoid active work areas or impede wildlife movement through the work area. O&M of new facilities, new construction, vegetation management, and miscellaneous activities that that remove trees, shrubs, forbs, and grasses could result in the permanent and temporary loss of breeding and foraging habitat for resident and migratory wildlife.

The proposed Plan would require that Covered Activities be conducted in accordance with the AMMs developed for the Plan, to avoid and minimize direct permanent and temporary impacts on Covered Species, which would also provide protections for other species of resident and migratory wildlife when conducting activities within the same habitats.

Conservation Strategy

The Conservation Strategy for the Plan includes Orcutt grass enhancement through the introduction of slender Orcutt grass and Sacramento Orcutt grass seeds at the SMUD Bank; it could include inoculation of vernal pools and invasive plant management. Increased human presence within the enhancement and introduction areas could temporarily disturb localized wildlife movements and active ground-nesting birds if these activities occur during the breeding season and active nests are present in the vicinity of enhancement and introduction activities. Conservation actions for vernal pool fairy shrimp, vernal pool tadpole shrimp, and California tiger salamander (ongoing operations and management at the SMUD Bank or purchase of credits at another Conservation/Mitigation Bank) and for valley elderberry longhorn beetle and giant garter snake (purchase of credits at another Conservation/Mitigation Bank or participation in another habitat conservation plan) would not affect established native resident or migratory wildlife corridors or nursery sites.

Issuance of the permit and implementation of the Plan could result in adverse effects on native wildlife movement or native wildlife nursery sites; however, these effects would be reduced through the AMMs and the Conservation Strategy.

3.4.2.9 Conflicts with Local Ordinances Protecting Biological Resources

The Permit Area overlaps five regional general plan areas, including Sacramento County General Plan, Yolo County General Plan, Placer County General Plan, Amador County General Plan, and San Joaquin County General Plan. These general plans contain goals and policies related to biological resources within the Permit Area and inform local ordinances aimed at protecting sensitive resources.

Covered Activities

Construction of facilities for the production and transmission of electrical energy by a local agency like SMUD is exempt from county and city zoning and building ordinances (Government Code 53091(d, e)), except that for transmission projects equal to or greater than 100 kilovolts, a city or county may require such projects to undergo a consistency determination. SMUD considers the policies of local jurisdictions that are intended to reduce or avoid significant environmental impacts.

Conservation Strategy

The Conservation Strategy would avoid, minimize, and offset impacts on sensitive biological resources covered under regional general plans and associated policies and local ordinances. Therefore, issuance of the permit and implementation of the Plan would not conflict with any local policies or ordinance protecting biological resources.

3.4.2.10 Conflicts with an Adopted Habitat Conservation Plan/Natural Community Conservation Plan or other Approved Local, Regional, or State Habitat Conservation Plan

The Permit Area overlaps six other regional habitat conservation plans and Natural Community Conservation Plans (NCCPs), including the Natomas Basin Plan, Metro Air Park Plan, the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan, Western Placer Plan/NCCP, South Sacramento Plan, and the Yolo Plan/NCCP.

Covered Activities

Land cover types, habitats, and lists of covered species from overlapping regional habitat conservation plans and NCCPs were evaluated for inclusion in SMUD's Plan. Many of the Covered Activities within the SMUD Plan are not included in the other habitat conservation plans, and SMUD cannot participate in those plans for take authorization for their projects. SMUD's Plan is not anticipated to conflict with the overlapping plans because SMUD facilities do not include substantial overlap with the biological resources covered by these other plans, and SMUD's Covered Activities result in small and repeated effects in previously disturbed habitat. Further, the SMUD Plan includes measures to protect Covered Species and other sensitive biological resources on protected lands (Appendix D). Not all species included in the overlapping PLANS were selected for inclusion in SMUD's Plan, because some of these species do not occur near SMUD facilities or utility easements. If full mitigation cannot be achieved for a Covered Species at the SMUD Bank or other conservation/mitigation banks, SMUD may collaborate with the implementing entity of another Plan to accomplish the remaining mitigation within the SMUD Plan Area, upon wildlife agency approval.

Conservation Strategy

The Conservation Strategy for the Plan includes Orcutt grass enhancement through the introduction of slender Orcutt grass and Sacramento Orcutt grass seeds and management and monitoring activities the SMUD Bank, and ongoing operations and management at the SMUD Bank or at another Conservation/Mitigation Bank to benefit vernal pool fairy shrimp, vernal pool tadpole shrimp, and The California tiger salamander. These conservation actions

would not conflict with other adopted Plans or Plan/NCCPs and would enhance vernal pool habitats. Conservation actions for valley elderberry longhorn beetle would be conducted through the purchase of credits at another Conservation/Mitigation Bank and would also not conflict with other adopted Plans or Plan/NCCPs. SMUD has proposed collaborating with an overlapping plan to obtain mitigation for giant garter snake. This collaboration would only occur with willing participation from the other plan and would provide greater conservation benefit to the snake. Therefore, issuance of the permit and implementation of the Plan would not conflict with provisions of adopted Plans and NCCPs.

3.4.3 Cumulative Effects

Like much of the rest of California, the Permit Area is subject to significant cumulative impacts related to loss and degradation of habitat as a result of land use practices over the past 150 years. Conversion to agricultural use and urbanization have been the primary factors in loss of the Permit Area's native grassland, woodland, riparian, and wetland habitats. The Permit Area's aquatic habitats have been affected by various types of pollutants, including agricultural and petrochemical pollutants from urban runoff, and increased sediment resulting from ground disturbance for construction and agriculture. Although aquatic habitats could also be further degraded as a result of in-channel construction activities associated with the Covered Activities, most of these impacts would be limited to very small areas, and SMUD would implement other permit conditions that are authorized on a case-by-case basis, including compensatory mitigation for impacts on Covered Species, waters of the United States and waters of the state, and riparian habitat loss.

The Covered Activities would contribute incrementally to cumulative impacts of temporary and permanent loss of habitat for Covered Species. SMUD proposes to avoid and minimize adverse effects on these species and their habitats, to the extent practicable, through the applicable AMMs. Mitigation to offset impacts on Covered Species as provided in the Conservation Strategy may also benefit non-covered special-status species using the same habitat as Covered Species. With these protections and compensation mechanisms in place, Covered Activities would not make a cumulatively considerable contribution to regional loss of natural habitats for Covered Species under the take authorizations as well as other species with similar habitat requirements. Rather, the proposed Plan is expected to result in a net long-term benefit regarding cumulative regional habitat loss.

3.5 Cultural Resources

3.5.1 Affected Environment

Cultural resources, including built environment resources as well as early Native American and historic-era archaeological resources, could occur throughout the Permit Area. No fieldwork or in-depth cultural resources studies were conducted for the Proposed Action. The Historic Resources Inventory and the Archaeological Determinations of Eligibility are the primary sources used to gather information on known significant archaeological and architectural/built environment properties in the Permit Area.

Architectural/built environment resources that may be present in the Permit Area are associated with mining, transportation, agriculture, and municipalities. Historic-period sites are likely to be located near areas that were used for farming, ranching, mining, settlement, or transportation corridors. There are 3,466 built properties listed in the California Historic Resources Inventory in Sacramento County and of those, 104 resources have been listed on the National Register of Historic Places, indicating that there are significant cultural resources in the Permit Area.

In general, early Native American habitation sites are more likely to be near streams or other water sources and in sheltered, flat areas. However, early Native American campsites or special use sites may be located anywhere on the landscape. Additional early Native American cultural deposits may be buried in natural buried contexts such as under alluvial deposits and in cultural buried contexts such as below or within constructed levees. In Sacramento County, 129 archaeological sites have been listed on the Office of Historic Preservation's Archaeological Determinations of Eligibility.

3.5.1.1 Consultation with Local Tribe Organizations

Secretarial Order 3206, *American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act*, seeks to strengthen government-to-government relations, streamline the consultation process, and ensure full tribal representation. Consultation with federally recognized tribes (Appendix G, *Federally Recognized Tribes*) is occurring concurrently with NEPA review of the Plan. Tribal notification letters were sent to four Tribes listed below on October 28, 2022 (Appendix G, Federally Recognized Tribes). The letters were intended to inform the Tribes of the Plan and to determine if any Tribes wanted to engage in formal consultation. No requests for formal consultation have been received, to date. The Yocha Dehe Wintun Nation requested a conversation, which took place in early 2023. As a result of that conversation, no additional engagement was requested by the Yocha Dehe Wintun Nation.

- Wilton Rancheria, California
- Yocha Dehe Wintun Nation, California
- United Auburn Indian Community of the Auburn Rancheria of California
- Buena Vista Rancheria of Me-Wuk Indians of California

3.5.2 Environmental Consequences

3.5.2.1 Historical Resources

No historical resources were identified in the SMUD Bank. Therefore, the Conservation Strategy, including introduction of slender Orcutt grass and Sacramento Orcutt grass seeds at SMUD Bank would not adversely affect historical resources.

Covered Activities include construction of new facilities, which could require trenching and boring along existing or new gas pipelines or electrical easements and creating temporary access roads. However, almost all new construction would be done in urban settings (i.e., previously disturbed areas). Additionally, SMUD is required to complete environmental review for these projects pursuant to CEQA, ensuring no significant impacts on historical resources would occur.

To ensure ground-disturbing activities do not affect historical resources, SMUD will implement standard avoidance and unanticipated discovery measures to protect cultural resources such as worker environmental awareness training (specific to cultural resources), minimizing the work area footprint, preconstruction subsurface investigations, construction monitoring, and stopping work if cultural resources are inadvertently uncovered. If warranted, implementing one or a combination of these measures would reduce adverse effects on historical resources. Thus, if ground-disturbing activities would result in damaging historic resources resulting in a substantial adverse change to the significance of a historical resources, appropriate mitigation would reduce impacts.

3.5.2.2 Archaeological Resources

Conservation actions involve physical actions that would involve invasive plant management at the SMUD Bank, which could involve ground-disturbing activities such as removal of underground plant roots that could have an adverse change in the significance of a known or unknown unique archaeological resource. Mitigation Measures CUL-1, CUL-2, and CUL-3, as described in the SMUD Nature Preserve Mitigation Bank IS/MND, will continue to be implemented at the SMUD Bank. With compliance with regulations and the measures described above, SMUD's activities would not cause an adverse effect on unique archaeological resources. See Appendix D for descriptions of applicable measures.

Covered Activities would involve grading, excavation, trenching and other ground-disturbing activities. Such ground disturbance and construction activities could result in damage, physical demolition, destruction, relocation, or alteration of buildings or structures, which could result in a substantial adverse change to significant archaeological resources. SMUD will implement similar measures described above for historical resources, which would minimize adverse effects on archaeological resources. In addition, Covered Activities would be subject to review and approval by SMUD, including environmental review required under CEQA.

Continued implementation of standard measures described above, and Mitigation Measure CUL-4 identified in the SMUD Nature Preserve Mitigation Bank IS/MND, would reduce adverse effects on human remains at the SMUD Bank.

3.5.3 Cumulative Effects

If damage to cultural resources from the Proposed Action is coupled with additional damage from another project on the same cultural resource, the damage could potentially contribute to a cumulative impact on cultural resources. However, based on the standard avoidance and unanticipated discovery procedures described above, the contribution of Covered Activities to a cumulative impact would be avoided, minimized, and mitigated to the extent practicable. Any remaining effect would not represent a cumulatively considerable contribution, nor would it result in a cumulatively considerable effect.

3.6 Environmental Justice

3.6.1 Affected Environment

3.6.1.1 Environmental Justice

Environmental justice embodies the concept that disadvantaged populations must not experience disproportionate adverse impacts as a result of any federal action. Disproportionate adverse impacts on minority and/or low-income populations are generally referred to as environmental justice impacts in this EA. Environmental justice issues are addressed in both state and federal regulations, and compliance with NEPA requires analysis of environmental justice impacts.

EPA's Environmental Justice Screening and Mapping Tool identifies areas with socioeconomic disadvantages or health disadvantages such as multiple sources of pollution. The EJScreen Report analyzes current data to indicate the local areas most likely to be underserved or in distress from environmental burdens, income, housing, employment opportunities, transportation, and more. The EJScreen Report provides an analysis of current datasets for the Permit Area in comparison to the State and U.S. using percentiles (U.S. Environmental Protection Agency 2022).

As shown in Table 3.6-1, EJScreen results indicate that less than 50% of the State population have higher values for eight of the 12 EJ indexes than the average person in the Permit Area.

Table. 3.6-1 EJ Screen report for Sacramento County

Selected Variables	State Percentile	USA Percentile
EJ Index for Particulate Matter 2.5	73	87
EJ Index for Ozone	62	87
EJ Index for Diesel Particulate Matter*	51	72
EJ Index for Air Toxics Cancer Risk*	65	78
EJ Index for Air Toxics Respiratory HI*	70	81
EJ Index for Traffic Proximity	50	65
EJ Index for Lead Paint	44	59
EJ Index for Superfund Proximity	66	81
EJ Index for RMP Facility Proximity	63	77
EJ Index for Hazardous Waste Proximity	47	78
EJ Index for Underground Storage Tanks	74	37
EJ Index for Wastewater Discharge	36	62

As part of its Sustainable Communities Initiative, SMUD created and maintains the Sustainable Communities Resource Priorities Map, (SMUD n.d.) which reflects several datasets related to community attributes that SMUD uses to identify historically underserved communities. One of the key components of the map is CalEnviroScreen Version 3.0, which identifies communities facing socioeconomic disadvantages or health disadvantages such as multiple sources of pollution. The Sustainable Communities Resource Priorities Map provides an analysis of current datasets to

indicate areas ranging from low to high sensitivity. This map analyzes current data to indicate the local areas most likely to be underserved or in distress from environmental burdens, lack of community development, income, housing, employment opportunities, transportation, and more.

3.6.2 Environmental Consequences

The Conservation Strategy involving physical actions would take place primarily at the SMUD Bank, which does not have existing environmental justice conditions. The Covered Activities would occur throughout the Permit Area, which encompasses SMUD's facilities in its service territory.

In general, areas with greater concentrations of environmental justice populations (defined as minority and/or low-income) are primarily in the city of Sacramento and neighboring urban areas. Covered Activities required to provide and maintain service could result in construction-related impacts from noise, traffic delays, and air quality emissions; however, these impacts would be temporary and spread out over the Permit Area, not concentrated in any one place for the duration of activities. Effects would be generally similar for all communities throughout SMUD's service area. Therefore, the Proposed Action would not result in disproportionately high and adverse effects on any environmental justice populations.

3.6.3 Cumulative Effects

As detailed above, incremental impacts related to environmental justice are expected to be minimal throughout the 30-year permit term. Covered Activities will be distributed across the Permit Area and will not differ substantially from impacts that currently occur and would persist with or without the Proposed Action. With implementation of SMUD's Sustainable Communities Initiative, the Proposed Action is not expected to result in cumulatively considerable environmental justice impacts.

3.7 Geology, Soils, and Paleontological Resources

3.7.1 Affected Environment

The Permit Area is situated within two physiographic regions: the Sierra Nevada foothills and the lower Sacramento Valley (U.S. Department of Agriculture Soil Conservation Service 1993), encompassing a diversity of existing land cover types, including urban land covers, grasses and forbs, cropland, woodlands, and different aquatic features. HCP Section 3.2.2 provides more background on the geologic setting of the Permit Area.

The Permit Area lies in a seismically active area. However, no known faults traverse the Permit Area, and known Quaternary faults are located outside the Permit Area. Similarly, the Permit Area is considered low risk for seismic ground shaking due to its distance from active fault lines.

The majority of the Permit Area has not been evaluated for liquefaction, but annual minimum groundwater is high in some portions of the Permit Area, which may increase the risk of liquefaction. The related risk of lateral spreading is greatest in portions of the Permit Area consisting of cohesionless sandy sediments where groundwater level is high and an open face such as a cliff or streambank is nearby. The Permit Area exhibits a range of elevations and slopes, with the area near the foothill region of the Sierra Nevada exhibiting the highest elevations.

The potential to encounter expansive soils (e.g., soils with high clay contact) is greatest in the Permit Area extending east through Yolo County, though other areas may be affected as well. The majority of the Permit Area is generally at a low risk of landslide. However, small areas in the northeastern portion of the Permit Area near Orangevale and in the southeastern portion near Rancho Murieta are considered at a high risk of landslide.

Several geologic units with potential to contain paleontological resources occur throughout the Permit Area.

3.7.2 Environmental Consequences

3.7.2.1 Geology and Soils

Orcutt grass enhancement at the SMUD Bank as a part of the Conservation Strategy would involve invasive plant management, which could also involve ground-disturbing activities such as removal of underground plant root roots on potentially erodible soils. Covered Activities such as excavation for installation and replacement of facilities; grading, trenching, and directional boring; and vegetation management could cause potential substantial adverse effects related to soil erosion or loss of topsoil include. The risk of potential adverse effects from these activities would vary depending on the specific activity, but these activities would pose a minimal risk as most of the Permit Area is underlain with soils exhibiting only a low to moderate susceptibility to erosion by wind and water.

SMUD AMMs to minimize effects related to erosion include G-AMM2 (Minimize work area footprint), G-AMM3 (Limit access to previous disturbed areas), G-AMM6 (Implement erosion and sediment control measures to prevent construction runoff into sensitive aquatic habitats), G-AMM11

(Stabilize disturbed areas and remove temporary fill or debris), and G-AMM15 (Minimize vegetation clearing and grading for temporary vehicle access). In addition, Covered Activities will comply with relevant construction stormwater permit requirements under state and federal laws, including preparation and implementation of a Stormwater Pollution Prevention Plan (stormwater plan) with appropriate erosion and sediment control measures for any activities with the potential to disturb an area greater than 1 acre.

3.7.2.2 Paleontological Resources

Implementing the Conservation Strategy could involve ground-disturbing activities such as removal of underground plant root roots or preparing the ground for planting or seeding on geologic units with high paleontological sensitivity exposed at shallow depths. Covered Activities that involve ground disturbance, including excavation, in geologic units with high paleontological sensitivity have potential to destroy significant and therefore potentially unique paleontological resources.

SMUD AMMs to minimize effects on paleontological resources include G-AMM2 (Minimize work area footprint), G-AMM3 (Limit access to previous disturbed areas), G-AMM6 (Implement erosion and sediment control measures to prevent construction runoff into sensitive aquatic habitats), G-AMM11 (Stabilize disturbed areas and remove temporary fill or debris), and G-AMM15 (Minimize vegetation clearing and grading for temporary vehicle access). See Appendix D for AMMs.

Where sites are determined to be sensitive for paleontological resources, SMUD will employ standard measures, including stopping work immediately within 100 feet of the area of paleontological resources uncovered during any onsite construction, and retaining a Professional Paleontologist to evaluate the deposits and consult with the SMUD project manager. With SMUD's standard environmental practices and Plan AMMs listed above, as well as compliance with applicable state and federal laws, the potential effect of the Proposed Action on paleontological resources will be negligible. See Appendix C for applicable regulations.

3.7.3 Cumulative Effects

3.7.3.1 Geology and Soils

In general, a project's potential impacts related to geology and soils are individual and localized, depending on the project site and underlying soils, the level of excavation, cut-and-fill work, and grading, along with other factors. Past, present, and reasonably foreseeable projects similarly have localized geological and soil impacts. It is also safe to assume that other projects will comply with industry construction standards and regulations (e.g., stormwater plan) such that cumulative effects related to seismic and other geologic and soil hazards would not be considerable

3.7.3.2 Paleontological Resources

During the 30-year term of the permit, other activities in the Permit Area that could affect paleontological resources include urban and transportation development, and mining. The scale of SMUD's Covered Activities under the Proposed Action is minimal compared with large-scale development projects and mining operations, and effects on paleontological resources will not be cumulatively considerable over the 30-year Permit Term.

3.8 Noise

3.8.1 Affected Environment

Portions of the Permit Area are adjacent to developed areas, including residential communities, commercial and industrial parks, roadways, and freeways and highways. Residences and other buildings are present in some more developed areas of the treatable landscape. Scattered residences exist in the more rural areas of the Permit Area. No noise-sensitive receptors exist at the SMUD Bank. SMUD's baseline O&M activities require periodic use of noise-generating equipment, such as generators, construction equipment, and work vehicles.

3.8.2 Environmental Consequences

Orcutt grass enhancement and introduction sites would be accessed by pickup trucks and utility vehicles, which generate minor vehicular noise. However, any short-term noise generated would not be substantial and would be more than 1,000 feet from any existing sensitive receptor.

Other noise-generating Covered Activities include inspections, maintenance, repair, and replacement of SMUD-owned electrical and natural gas facilities, construction of new facilities, vegetation management such as tree and bush trimming, and miscellaneous activities that would involve minor maintenance activities at existing SMUD-owned power plant and properties. Noise levels from these activities would vary depending on the specific activity, but all activities would be short term in nature and periodic. New substations and trenching for relocated gas pipelines and new underground subtransmission and distribution lines would involve the greatest use of heavy-duty equipment and associated activities that would generate the loudest noise levels. These activities may involve the use of excavators, graders, drill rigs, jackhammers, delivery trucks, cranes, and paving equipment. Generally, construction activities that occur during daytime hours are not considered to substantially increase noise due to their short-term duration and transient nature. Vegetation management activities might include backhoes, work trucks, a chipper, a chainsaw, and small mowers. Installation of the test stations and new valve would require some ground disturbance and earth movement, stockpiling, and the construction of a temporary access road, which may require the use of heavy-duty noise-generating equipment such as an excavator, backhoe, work trucks, and a crane.

Some new facilities could result in a new permanent noise increase associated with corona and substation noise. Corona noise associated with new overhead lines could result in noise levels of up to 30 A-weighted decibels, which would not exceed daytime or nighttime noise standards for any county within the Permit Area. New substations could potentially exceed applicable noise standards, depending on actual location and proximity to sensitive receptors. Measures similar to those identified above, as refined as part of project-specific environmental review pursuant to CEQA, could achieve compliance with applicable noise standards.

The use of heavy graders/dozers associated with substation construction and vegetation clearing would result in the highest vibration levels. Regarding the potential for structural damage, pile driving and blasting activities having the potential to result in structural damage would not occur.

All Covered Activities would be subject to a site-specific noise impact analysis that considers impacts on nearby noise-sensitive receptors, and noise reduction measures will be implemented (e.g., setback distances, equipment enclosures, soundwalls) to reduce effects of noise on sensitive receptors. Depending on the anticipated noise levels and proximity to receptors, one or a combination of these measures could be required to ensure compliance with applicable noise standards.

Regarding the potential for construction activities to disturb sensitive receptors, it is highly unlikely that dozer use or drilling would occur within 50 feet of an existing sensitive receptor. However, if dozer use or drilling did occur within 50 feet of an existing receptor, construction activities would occur during the daytime hours, would be short term and temporary, and only occur in any one location for a very limited period of time.

3.8.3 Cumulative Effects

The geographic context of the cumulative noise analysis encompasses the Permit Area. The Proposed Action would not result in any permanent increase in ambient noise levels. Therefore, cumulative noise impacts would be limited to short-term ambient noise and vibration increases during Covered Activities. Both the Conservation Strategy and the Covered Activities could generate noise and vibration within the Permit Area. Examples of related projects that could combine to result in significant cumulative noise impacts are ongoing agricultural, roadway, and urban development as well as SMUD's new construction activities. The cumulative noise impact of these activities would be significant to the extent they exceed noise standards established in the relevant local general plan or noise ordinance, or applicable standards of other agencies, or vibration substantially affects existing sensitive receptors.

The potential for the Proposed Action to expose sensitive receptors to a substantial temporary increase in ambient noise levels is limited to the immediate vicinity of the SMUD Bank, which is also located away from developed land uses and sensitive receptors and does not typically experience existing significant noise impacts in exceedance of any established threshold.

Site-specific information to complete a detailed impact analysis is not available at this time. Noise levels for these activities are expected to be similar, however, to existing levels for ongoing O&M, vegetation maintenance, and new construction activities currently implemented by SMUD. Noise levels will increase at locations with new facilities as a result of O&M of those new facilities. However, these increases are expected to be negligible because they would be short-term, distributed throughout the Permit Area, and infrequent. Covered Activities will be distributed across the Permit Area. Because of the activities' wide geographic distribution and short-term, intermittent nature, the Proposed Action is not expected to result in a cumulatively considerable effect on noise conditions.

3.9 Public Health and Environmental Hazards

3.9.1 Affected Environment

The Permit Area encompasses a variety of land uses and numerous transportation corridors that contain various potential hazards that pose risks to human health and safety. Some of these hazards are natural, such as open areas susceptible to wildfire, while others are a result of human activities, such as hazardous material sites, pesticide use in agricultural areas, and facilities located in high fire hazard areas.

Contaminants associated with the various uses in the Permit Area include a variety of fuels and other petroleum distillates; pesticides, fertilizers, and other agricultural chemicals; and lead. The U.S. Environmental Protection Agency and the California Department of Toxic Substances Control maintain lists of hazardous materials sites, and both agencies are responsible for monitoring clean-up efforts and ensuring the sites do not pose substantial hazards to the environment or people. Numerous hazardous materials sites have been recorded in the Permit Area, including Aerojet, a federal Superfund site, undergoing remediation for extensive soil and groundwater contamination (California Department of Toxic Substances Control 2020).

The Permit Area contains a mixture of urban areas and open space; the area where development is adjacent to open space is referred to as the wildland urban interface. Wildfire can threaten communities and buildings in this interface. The state maps fire hazard severity and identifies wildfire threat areas. Land areas identified as State Responsibility Areas (SRA) and Local Responsibility Areas are divided into fire hazard severity zones which include areas of Moderate, High, and Very High fire hazard risk. The majority of the Permit Area is not located within Moderate, High, or Very High fire hazard severity zones, though such lands are present in generally isolated areas within the Permit Area. Though there is limited wildfire potential within fire hazard severity zones in and near the Permit Area, there have historically been few wildfires in the Sacramento area and its vicinity.

Existing SMUD facilities in the Permit Area are located in wildfire threat areas and wildland urban interfaces. Some facilities are likely to be located near hazardous material sites or other hazardous areas, such as airports or airstrips. The facilities themselves also pose hazards, which may result from fire caused by electrical facility damage or gas leaks from pipelines. Damage to the facilities could result in damage to nearby buildings or structures or pose safety risks to people. The facilities are exposed to various environmental and human-posed hazards. SMUD performs routine maintenance of its facilities to keep them in proper working condition and minimize public health or safety risks, as well as the risk of damage to other buildings or structures.

SMUD's baseline operations and maintenance activities require regular use of substances meeting the California Code, Health and Safety Code 25260 definition of hazardous materials, including vehicle fuels, lubricants, and hydraulic fluid for vehicles and equipment; concrete, epoxy, and/or asphalt used for paving; paints, adhesives, and waterproofing compounds; and other substances needed for specific projects. However, consistent with applicable laws and regulations, as discussed in Appendix C, *Regulatory Overview*, the transportation, handling, and disposal of these materials would be compliant with regulations enforced by the Certified Unified Program Agency and the California Division of Occupational Safety and Health. Also, continued implementation of Mitigation

Measures HAZ-1 and HAZ-2 identified in the SMUD Nature Preserve Mitigation Bank IS/MND would reduce the potential for adverse effects when using hazardous materials at the SMUD Bank. See Appendix D of this Assessment for a complete list of measures.

3.9.2 Environmental Consequences

Covered Activities will require use of the same types of hazardous materials that are used for SMUD's baseline O&M activities. Spills or releases of any of these substances could result in localized contamination and could contribute to degradation of surface water and groundwater quality and result in potential health effects. SMUD will continue to comply with applicable state and federal laws, regulations, and requirements pertaining to hazardous materials and hazardous wastes, such as the Federal Toxic Substances Control Act; Clean Water Act; California Accidental Release Prevention Program; and Comprehensive Environmental Responsibility, Compensation, and Liability Act (Appendix C provides more information on these laws).

If a proposed Covered Activity would disturb more than 1 acre, SMUD would be required to obtain coverage under the Construction General Permit before the onset of any construction activities. A stormwater plan would be developed and implemented prior to the issuance of any grading permit. The stormwater plan will contain management practices to prevent, control, and minimize the spillage of hazardous substances; describe transport, storage, and disposal procedures for these substances; and outline procedures to be followed in case of a spill of a hazardous material.

SMUD also implements its own hazardous materials practices for all O&M and construction activities such as worker training for handling hazardous materials, preparation of a spill prevention, control, and countermeasures plan to identify specifications for storage and containment measures for spill events, and a hazardous materials business plan to specify protocol for hazardous materials used and provide an operation-specific emergency response plan. SMUD has on file a material safety data sheet for each hazardous material onsite. Employees are trained to respond to leaks, spills, and discharges. Depending on the extent to which hazardous materials would be used or encountered, one or a combination of these measures could be required to reduce the potential for adverse effects regarding hazardous materials.

Finally, SMUD will implement the following AMMs to reduce potential adverse effects involving hazardous materials: G-AMM8 (Clean up any hazardous materials spills) and G-AMM15 (Minimize vegetation clearing and grading for temporary vehicle access).

Any activities that involve public right-of-way would be required to obtain an encroachment permit from the applicable jurisdiction. As part of this encroachment permit application, SMUD will prepare and implement a traffic control plan, which requires the provision of temporary traffic controls and maintenance of emergency access during construction. As a result, Covered Activities would not interfere with emergency response or evacuation plans.

The greatest potential for fire hazard comes from welding activities and the use of internal combustion engines or sparking equipment in grass-covered areas. SMUD is required to clear vegetation at the base of poles located in a California Department of Forestry and Fire Protection SRA that have hardware with the potential to cause sparks, such as a switch, fuse, transformer, or lightning arrester (Public Resources Code 4292) and would maintain vegetation clearance in accordance with the local jurisdiction's setback requirements and standard SMUD perimeter vegetation maintenance. As a result, the potential for impacts associated with wildland fires during

O&M activities is considered low. The SMUD Bank and vicinity is in an area mapped as moderately hazardous for wildland fires. Mitigation Measure HAZ-3, as described in the SMUD Nature Preserve Mitigation Bank IS/MND and Appendix D, would continue to be implemented. With compliance with regulations and implementation of measures described above, SMUD's activities would not increase risks associated with wildfire hazards.

Issuance of the permit and implementation of the Plan would not substantially change public exposure to the hazards associated with SMUD's existing infrastructure and operations and maintenance practices. With Mitigation Measures HAZ-1, HAZ-2, and HAZ-3 described in the SMUD Nature Preserve Mitigation Bank IS/MND and Appendix D, and compliance with applicable state and federal regulations, (Appendix C) the potential effect of the Proposed Action on public health would be negligible.

3.9.3 Cumulative Effects

Considering the existing regulatory scheme, SMUD's existing standard practices, and the additional protection provided by Mitigation Measures HAZ-1, HAZ-2, and HAZ-3 and stormwater plan requirements, adverse effects related to spills or releases of hazardous materials and wildfire are expected to be minimal. To create an additive cumulative effect, multiple spills or releases would need to occur in the same area or in hydrologically connected areas. This is considered unlikely but could occur because SMUD's existing rights-of-way represent areas where similar activities are repeated over the long term. Thus, there is some, probably minor, potential for additive cumulative effects related to hazardous materials use along SMUD's existing rights-of-way. Because of regulatory clean-up and remediation requirements, the additive cumulative effect, if any, is not expected to be cumulatively considerable.

California has historically experienced periods of drought and high wildfire risk. SMUD's electric transmission infrastructure together with other human and natural activities in the Permit Area will continue to contribute to wildfire risk in the future. However, issuance of the permit and implementation of the Plan would not substantially change public exposure to the hazards associated with SMUD's existing infrastructure and O&M practices. SMUD's wildfire prevention strategies and programs, including vegetation management programs and inspection and maintenance programs, will continue on existing facilities, and any new facilities constructed following issuance of the permit will be incorporated into this program. Therefore, impacts of the Proposed Action are not anticipated to contribute to a cumulatively considerable impact.

3.10 Transportation and Circulation

3.10.1 Affected Environment

The three basic types of roadways in the Permit Area include interstate highways, state routes, and local roadways. The Permit Area has three interstate routes: Interstate (I-)5, I-80, and I-305. Interstate Business Loop 80, also called the Capital City Freeway, is a business loop of I-80 through Sacramento. U.S. Highway (US) 50, which begins in West Sacramento, runs from Sacramento to the Nevada state line in South Lake Tahoe. State highways in the Permit Area include State Routes (SR) 16, 84, 99, 104, 160, and 244, which are operated and maintained by the California Department of Transportation.

Public transit service is provided by various agencies throughout the Permit Area. Local and regional transit organizations offer a variety of transit options, including buses and light rail. Service is provided with varying frequency and cost. Passenger rail in the Permit Area is primarily provided by the Amtrak Sacramento Valley Station in downtown Sacramento. The Capitol Corridor train system has 18 stations in eight Northern California counties including Placer, Sacramento, Yolo, and Solano.

3.10.2 Environmental Consequences

The Proposed Action does not propose any changes to the roadway network in the Permit Area and would have no appreciable effect on transportation services or level of service on roadways. Covered Activities would not require the construction, re-design, or alteration of any public roadways, nor would it not occur adjacent to or within portions of public roadway rights-of-way. These activities would not generate any pedestrian, bicycle, or transit demand. Thus, there would be no conflict with a program, plan, ordinance, or policy addressing pedestrian, bicycle, transit, or roadway facilities.

Covered Activities are not anticipated to affect transportation and circulation because small crews would perform the activities with minimal use of construction equipment. O&M activities would involve crews conducting ground-based inspections or drive-by inspections in work trucks. These activities would be minor and temporary (i.e., less than a day in each location) and would not typically occur within or obstruct any public roadways. New construction activities would generate additional vehicular trips associated with the hauling of equipment and personnel driving to and from work areas dispersed throughout the permit area; however, like O&M activities, such trips would be localized and temporary. The duration of these activities would be short (i.e., less than a day in each location), would be implemented by a limited crew, typically one or two trucks, and would result in fewer than 110 trips per day across the Permit Area. SMUD will continue to obtain and comply with encroachment permits from local jurisdictions and the California Department of Transportation to ensure public safety and emergency access, and to limit traffic impacts where Covered Activities may require temporary work in roads or highways, including short-term detours or lane closures.

SMUD will implement measures to reduce the localized and temporary effects related to transportation hazards, obstruction of transportation ingress and egress and slowing of vehicular

traffic, such as preparing and implementing traffic control plans, scheduling activities outside of peak traffic times, delineating construction zones in a manner that protects vehicles, bicyclists and pedestrians.

3.10.3 Cumulative Effects

Examples of projects in the Permit Area that could combine to result in significant cumulative transportation impacts are ongoing roadway and urban development as well as SMUD's new construction activities. However, for a cumulative effect to occur, the Covered Activities would have to take place simultaneously with and near other projects that could potentially result in transportation effects. The Proposed Action will not require SMUD to hire additional staff and will not result in a permanent increase in vehicle trips or worker traffic near SMUD facilities. As described above, Covered Activities would be temporary and intermittent throughout the 30-year Permit Term. Additionally, ongoing efforts are being implemented by local governments throughout the Permit Area to reduce vehicle miles traveled. The vehicle miles traveled attributable to the Covered Activities is negligible in the cumulative context of vehicle miles traveled generated by cumulative activities in the Permit Area.

3.11 Visual Resources

3.11.1 Affected Environment

The Permit Area and vicinity are within California's Central Valley at the southern end of the Sacramento Valley. The visual setting of the Permit Area is characterized by a wide variety of land uses; dominant visual characteristics include open areas of the valley floor, urban areas, agriculture, rivers and creeks, and trees. Visual resources within the undeveloped portions of the Central Valley are predominantly agricultural, with expansive vistas consisting of open farmland and rangeland, orchards, vineyards, and distant views to the surrounding mountains. Large urban areas are also found throughout the Central Valley, including residential, commercial, and industrial development primarily concentrated around major roadways. Visual characteristics of these areas are dominated by human-made structures, including buildings, roadways, parking areas, airports, and utilities.

SMUD's infrastructure in the Permit Area is located in or adjacent to undeveloped land, agricultural areas, small and midsized communities, and urban centers. These facilities are part of the existing visual setting of the area, and the visibility of the facilities varies depending on their locations and proximity to key viewpoints. The SMUD Bank is located in southeastern Sacramento County and provides hiking and wildlife viewing opportunities along a trail passing through the northeastern area of the SMUD Bank.

SMUD's O&M activities can change the appearance of existing facilities by intersetting new structures, increasing the height of existing towers with cage extensions, replacing existing structures with taller structures, adding lighting to existing facilities or structures, and pruning and removal of trees for safety purposes. O&M activities typically result in a minor incremental change to the existing visual setting.

3.11.2 Environmental Consequences

The Proposed Action would not change baseline O&M activities on existing facilities or their potential to cause minor incremental changes to the existing visual setting. The specific location, nature, and scope of new construction activities have yet to be determined; therefore, site-specific information is not available and a detailed impact analysis is infeasible at this time. However, in general, Covered Activities requiring construction of underground infrastructure (e.g., gas pipeline extensions, underground lines) would result in visual effects during construction, such as removal of vegetation and staging of construction equipment. Although construction activities may result in changes to visual character, these effects would be relatively short term and temporary. Once construction activities are completed, disturbed areas would be restored to near pre-construction conditions. Operation of these facilities would not result in substantial permanent changes to visual character, although vegetation management would be required over buried facilities to prevent damage from tree roots.

Other Covered Activities, such as installation of new telecommunication towers and substations or expansion of existing facilities, may result in some permanent changes to visual character in the Permit Area. New or expanded structures or facilities would be located immediately adjacent to existing SMUD infrastructure and, therefore, are anticipated to be consistent with existing local

visual character. Substation expansions beyond the existing utility-owned property would require additional environmental review including a site-specific assessment of impacts on aesthetics. Management activities on the SMUD Bank are not anticipated to substantially change the visual character of the local setting.

SMUD would implement general AMMs identified in the Plan to minimize visual effects, including G-AMM2, G-AMM14, and G-AMM15. See Appendix D for a description of applicable measures.

3.11.3 Cumulative Effects

Although Covered Activities may result in some temporary and permanent changes to visual character in the Permit Area, the Proposed Action is not expected to result in a cumulatively considerable effect on visual resources because these activities will be widely distributed across the Permit Area and any potentially cumulatively considerable visual effects will be further reduced with the Plan AMMs.

Appendix A
List of Preparers

The individuals listed herein were involved with the preparation of this Environmental Assessment.

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Appendix B
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Appendix C
Regulatory Overview

Federal and state laws and regulations[1] relevant to the Environmental Assessment (Assessment) analysis of the Proposed Action are summarized by resource area below. Regulatory information for resources areas that have been excluded from detailed analysis in this EA is not included. Additional regulatory context and information is provided in Section 1.5 of the Sacramento Municipal Utility District (SMUD) *Operations, Maintenance, and New Construction Habitat Conservation Plan* (Plan).

C.1 Air Quality and Climate Change

C.1.1 Federal

Clean Air Act. Mandates that the U.S. Environmental Protection Agency develop rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies.

C.1.2 State

California Clean Air Act (Assembly Bill 2595, Stats. 1988, Chapter 1568). Requires nonattainment areas to achieve and maintain the state ambient air quality standards by the earliest practicable date and local air districts to develop plans for attaining those standards.

Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations. Minimizes the generation of asbestos from earth disturbance or construction activities

C.1.3 Regional

Regional air quality management districts in the Permit Area are responsible for implementing air quality regulations pursuant to delegated state and federal authority, including developing plans and control measures for stationary sources of air pollution to meet the National Ambient Air Quality Standards and California Ambient Air Quality Standards. They also enforce permit programs for the construction, modification, and operation of sources of air pollution.

[1] Through Article VII, Paragraph 5 of the California Constitution, the state legislature vests the California Public Utilities Commission (CPUC) with exclusive jurisdiction over the siting and design of gas and electric facilities. California Public Utilities Code 1007.5 and other California statutes and case law detail the nature and extent of this sole discretionary permitting authority. Because state law has preempted the field, SMUD is not subject to local land use planning or zoning requirements. While SMUD's utility-related activities are solely regulated by CPUC and are thus not subject to local zoning ordinances, SMUD consults with local cities and counties to ensure that local concerns and issues are considered during the project planning process; construction and operations and maintenance activities are developed and implemented to comply with existing local zoning ordinances, when feasible.

C.2 Biological Resources

Federal and state regulations relevant to biological resources are discussed in Section 1.5 of the HCP.

C.3 Cultural Resources

C.3.1 Federal

National Historic Preservation Act. Addresses potential impacts on historic properties (i.e., resources that are eligible for listing on the National Register of Historic Places).

Native American Graves Protection and Repatriation Act. Requires federal agencies to consult with the appropriate Native American tribes prior to the intentional or inadvertent excavation of human remains and funerary objects on federal and tribal lands.

Archaeological Resource Protection Act. Regulates the excavation of archaeological sites on federal and Indian lands in the United States, and the removal and disposition of archaeological resources.

American Antiquities Act. Prohibits appropriation, excavation, injury, and destruction of "any historic or prehistoric ruin or monument, or any object of antiquity" located on lands owned or controlled by the federal government, without permission of the secretary of the federal department having jurisdiction.

C.3.2 State

Assembly Bill 52. Establishes that tribal cultural resources must be considered by the lead agency under the California Environmental Quality Act (CEQA) and provides for additional Native American consultation requirements to be undertaken by the lead agency.

Native American Heritage Act. Establishes the Native American Heritage Commission and protects Native American religious values on state property.

Health and Safety Code and Public Resources Code (PRC). Requires that construction or excavation be stopped in the vicinity of discovered human remains until the county coroner can determine whether the remains are those of a Native American and establishes when a lead agency is required to work with appropriate Native American representatives (as identified by the Native American Heritage Commission) (Health and Safety Code 7050.5). Requires consultation with the State Historic Preservation Officer when a project may affect historical resources located on state-owned land (California PRC 5024).

C.4 Geology, Soils, and Paleontological Resources

C.4.1 Federal

Earthquake Hazards Reduction Act. Reduces the risks to life and property from future earthquakes through establishment and maintenance of the National Earthquake Hazards Reduction Program.

Disaster Mitigation Act of 2000. Encourages local and state pre-disaster planning and promotes integration of state and local planning to strengthen statewide hazard mitigation.

National Pollutant Discharge Elimination System. Controls water pollution by regulating point sources of pollution to waters of the United States. Projects that disturb 1 acre or more of soil must obtain coverage under the state's National Pollutant Discharge Elimination System General Permit for Discharges of Storm Water Associated with Construction Activity.

Paleontological Resource Preservation Act. Establishes requirements to manage and protect paleontological resources on federal lands by limiting collection of vertebrate fossils and other rare and scientifically significant fossils.

C.4.2 State

Alquist-Priolo Earthquake Fault Zoning Act. Requires the establishment of "earthquake fault zones" along known active faults in California. Regulations on development within these zones are enforced to reduce the potential for damage resulting from fault displacement.

Seismic Hazards Mapping Act. Addresses earthquake hazards other than fault rupture, including liquefaction and seismically induced landslides. Seismic hazard zones are to be mapped by the State Geologist to assist local governments in land use planning.

California Building Standards Code. Provides minimum standards for building design, regulates the excavation of building foundations and retaining walls, and specifies required geological reports.

California PRC, Chapter 1.7, Section 5097 et seq. Defines any unauthorized disturbance or removal of a fossil site or remains on public land as a misdemeanor and specifies that state agencies may undertake surveys, excavations, or other operations as necessary on state lands to preserve or record paleontological resources.

C.5 Noise

C.5.1 Federal

No federal or state regulations limit overall environmental noise levels; however, federal and state guidance documents that address environmental noise and regulations for specific noise sources provide some context for the impact analysis. For example, the Federal Highway Administration, U.S. Department of Transportation, Federal Railroad Administration, Federal Transit Administration, Federal Aviation Administration, and Federal Interagency Committee on Urban Noise provide regulations and guidelines for noise impacts resulting from federal highways, aircraft usage,

railroads, and other development. The California Department of Transportation establishes construction noise exposure/production limits and internal combustion engine requirements.

C.6 Public Health and Environmental Hazards

C.6.1 Federal

Resource Conservation and Recovery Act. Provides the U.S. Environmental Protection Agency authority to control the generation, transportation, treatment, storage, and disposal of hazardous waste, including underground storage tanks storing hazardous substances.

Comprehensive Environmental Response, Compensation, and Liability Act. Provides the U.S. Environmental Protection Agency with the authority to identify hazardous sites, require site remediation, and recover the costs of site remediation from polluters. Also enabled the revision of the National Oil and Hazardous Substances Pollution Contingency Plan, which provides guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants.

Federal Water Pollution Control Act. Designates hazardous substances and determines quantities of designated hazardous substances that must be reported or that may be discharged into waters of the United States.

U.S. Department of Transportation Hazardous Materials Regulations. Regulates all aspects of hazardous materials packaging, handling, and transportation.

C.6.2 State

Hazardous Waste Control Law. Authorizes the California Environmental Protection Agency and the Department of Toxic Substances Control to regulate the generation, transportation, treatment, storage, and disposal of hazardous wastes.

Hazardous Substance Account Act. Addresses hazardous waste sites and apportions liability for them.

Occupational Health and Safety. Establishes workplace safety regulations within the state.

Title 26 Toxics of the California Code of Regulations (CCR). Compiles chapters or titles of the CCR that are related to hazardous materials management.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program. Consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities for hazardous materials programs.

Hazardous Waste Fee Health and Safety Code. Provides definition and guidance on wood waste (includes poles, crossarms, pilings, and fence posts that have been previously treated with a preservative) and its disposal (California Health and Safety Code Chapter 6.5, Section 25143 et seq.).

PRC Sections 4290–4293. Identifies construction, operation, and maintenance requirements to minimize fire hazards for structures located in State Responsibility Areas (SRAs).

Fire Prevention Standards for Electric Utilities. Provides definitions, maps, specifications, and clearance standards for projects under the jurisdiction of PRC Sections 4292 and 4293 in SRAs (14 CCR 1250–1258).

C.7 Transportation and Circulation

C.7.1 Federal

Transportation Improvement Program. Requires each metropolitan planning organization to develop a transportation improvement program listing upcoming transportation projects covering a period of at least 4 years.

C.7.2 State

California Department of Transportation Statewide Transportation Improvement Program. Multiyear, statewide, intermodal program of transportation projects that is consistent with the statewide transportation plan and planning processes and with the metropolitan plans.

PRC Section 21099. Stipulates that the state's Office of Planning and Research revise the CEQA Guidelines establishing criteria for determining the significance of transportation impacts of projects within transit priority areas and replaces the level of service metric with vehicle miles traveled as measure of vehicular capacity or traffic congestion.

C.8 Visual Resources

C.8.1 Federal

No federal regulations related to aesthetic or visual resources are applicable because the federal government does not explicitly regulate visual resources.

C.8.2 State

California Scenic Highway Program. Establishes highways that are either eligible for designation as scenic highways or have been designated as such with the goal of preserving and protecting the state's scenic highway corridors from changes that would diminish their aesthetic value.

California Public Utilities Code 320. Requires the undergrounding of all future electric and communication distribution facilities proposed to be erected in proximity to any highway designated a state scenic highway (Streets and Highways Code 260).

Appendix D

Avoidance, Minimization, and Mitigation Measures

G-AMM1	**Annual Environmental Training.** Employees and contractors performing Covered Activities (SMUD field crews) will receive annual environmental training on SMUD's HCP. This training will include a review of permit requirements, avoidance and minimization measures, and other relevant environmental laws and guidelines that must be followed by all personnel to avoid or minimize take of Covered Species during Covered Activities. Crews will be informed on the implementation of the HCP and conditions in the take permits, including use of SMUD's job packet (or equally effective documentation) and their responsibilities to ensure compliance. Training will include the importance of the Covered Species and the purpose and necessity of protecting them, handouts or cards containing Covered Species or Modeled Habitat information, as well as penalties for non- compliance. Information will also be presented to inform personnel of methods to minimize the spread of invasive or nonnative plants during Covered Activities. New employees will receive the training prior to the start of work on Covered Activities.
G-AMM2	**Minimize Impacts of Work Area.** To the extent possible, SMUD field crews will reduce the work area footprint and the duration of work at a work area to reduce the potential for take of Covered Species.
G-AMM3	**Work Area Access.** SMUD field crews will use existing paved and unpaved roads to access the work area where available. Vehicles and equipment will be parked on pavement, existing roads, or previously disturbed areas to the maximum extent feasible. When this is not feasible, SMUD will implement *G-AMM4: Off Road Speed Limit*, *VP-AMM1: Avoid Driving through Vernal Pools*, and *VP-AMM2: Minimize Vehicle Impacts on Vernal Pools*.
G-AMM4	**Off Road Speed Limit.** When driving off of paved roads in Covered Species habitat, vehicles will not exceed a speed limit of 15 miles per hour.
G-AMM5	**Work Area General Guidelines.** Trash dumping, littering, open fires (such as barbecues), hunting, and pets will be prohibited in Covered Activity work areas. All garbage will be removed from the project site at the end of each workday.
G-AMM6	**Erosion Control Measures.** SMUD field crews will utilize standard erosion and sediment control BMPs (pursuant to the most current version of the *California Stormwater Best Management Practices Handbook*) to prevent construction site runoff into SMUD HCP Riverine; Open Water/Fringe; Other Depressional Wetland; and Vernal Pool, Seasonal Wetland, and Swale land cover types when Covered Activities are the source of potential erosion. Soil will be stockpiled within established work area boundaries, and stockpiles will be located so as not to enter water bodies, stormwater inlets, or other standing bodies of water. Stockpiled soil will be covered prior to precipitation events. Erosion control materials will be removed once the site has been stabilized.
G-AMM7	**Equipment Refueling.** SMUD field crews will not refuel or conduct equipment maintenance activities within 250 feet of SMUD HCP Vernal Pool, Seasonal Wetland, and Swale, and within 100 feet of any Riverine, Open Water/Fringe, or Other Depressional Wetlands land cover types. If refueling must be conducted closer to wetlands, SMUD field crews will construct a secondary containment area subject to review by an environmental specialist and/or biologist. SMUD field crews will maintain spill prevention and cleanup equipment in refueling areas.
G-AMM8	**Hazardous Materials Clean Up.** SMUD field crews will clean up any spilled oil, fuel, or other automotive fluids. SMUD field crews will ensure that all construction areas have proper spill clean-up materials (absorbent pads, sealed containers, booms, etc.) to contain the movement of any spilled substances.

G-AMM9	**HDD Drilling Fluids Management.** For Covered Activities that require horizontal directional drilling (HDD) located in or within 50 feet of aquatic Modeled Habitats, SMUD field crews will install preventative measures such as secondary containment and follow a frac-out contingency plan as directed by SMUD Environmental Services to avoid the runoff or intrusion of any drilling fluids (i.e., bentonite or polymer material) into water ways. Following the completion of Covered Activities that involve HDD, SMUD field crews will remove and properly dispose of all drilling fluids and related materials from the launching and receiving pits. Open pits will be filled with soils, and disturbed areas will be stabilized by compacting soils and returning to pre-project contours so that they are commensurate with the topography of the surrounding soil.
G-AMM10	**Covered Species Entrapment Prevention.** SMUD field crews will cover any open trenches and/or holes at the end of the workday to prevent the accidental entrapment of California tiger salamander or giant garter snake. Any excavations that cannot easily be covered will be ramped and/or sloped at the end of the workday to allow trapped animals an escape route. Prior to the start of work activities and each day any trenches and/or holes are open, SMUD field crews or an approved biologist will inspect any open trench or hole for trapped Covered Species. If necessary, an approved biologist will relocate any trapped individuals.
G-AMM11	**Stabilization of Disturbed Areas.** SMUD field crews will remove any temporary fill or construction debris and will backfill all excavation sites with native soil, and with crushed gravel around the bases of poles for compaction, following completion of Covered Activities. Disturbed areas will be stabilized by compacting soils and returning to pre-project contours so that the areas are commensurate with the topography of the surrounding soil, or qualified stormwater personnel will prescribe BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non- stormwater discharges from the site during construction. SMUD field crews will not move weed-infested gravel, rock, and other fill materials to undisturbed areas that are relatively free of weeds, but will focus fill in areas that have previously been disturbed.
G-AMM12	**Excess Soil.** When excess soil is spread out following an excavation activity, SMUD will not place soil in SMUD HCP Riverine; Open Water/Fringe; Other Depressional Wetlands; or Vernal Pool, Seasonal Wetland, and Swale land cover types or in Covered Species Modeled Habitat that contains burrows.
G-AMM13	**Soil Management.** SMUD field crews will stockpile soil within established work area boundaries and position stockpiles so as not to enter SMUD HCP Riverine; Open Water/Fringe; Other Depressional Wetlands; or Vernal Pool, Seasonal Wetland, and Swale land cover types or in Modeled Habitat with burrows. SMUD field crews will cover stockpiled soil with visquen or tarps prior to precipitation events.
G-AMM14	**Revegetation of Work Areas.** If a Covered Activity temporarily disturbs 0.1 acre or more of Modeled Habitat for a Covered Species that contains herbaceous vegetation, SMUD field crews will revegetate the area with a native weed free seed mix within 6 months of disturbance.
G-AMM15	**Temporary Vehicle Access to Work Areas.** SMUD field crews will minimize clearing vegetation and grading for temporary vehicle access to the maximum extent feasible. Any temporary road will be returned to pre- project contours and the soil compacted for stabilization, or qualified stormwater personnel will prescribe BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the site during construction.

G-AMM16	**Chipped Plant Material Management.** SMUD field crews will either remove chipped plant matter created during vegetation management activities from the work area or leave it in place at the request of the landowner. If left in place, SMUD field crews will not place it in or within 100 feet of SMUD HCP Riverine; Open Water/Fringe; Other Depressional Wetland; or Vernal Pool, Seasonal Wetland, and Swale land cover types (dry or inundated).
G-AMM17	**Night Lighting.** For Covered Activities that occur at night, SMUD field crews will position any temporary lights needed away from any Covered Species habitat. For lighting at permanent facilities, such as substations, all lighting will be oriented downward towards major equipment to minimize glare onto surrounding property.
G-AMM18	**Unanticipated Covered or ESA and CESA -Listed Species.** SMUD field crews will stop work and contact SMUD Environmental Services if a species listed under the Federal Endangered Species Act (ESA) and California Endangered Species Act (CESA) or a Covered Species is found within the work area or within 100 feet of a work area. SMUD Environmental Services will have authority to stop activities, and will do so, until appropriate corrective measures have been completed or it is determined that the individual ESA and CESA-listed or Covered Species will not be taken (including harmed). If the ESA and CESA-listed or Covered Species is in immediate danger, only a qualified biologist can capture and relocate the Covered Species. The Service must be contacted if the species is ESA and CESA-listed, but is not a Covered Species.
G-AMM19	**Discharge of Hydrostatic Test Water.** Following a hydrostatic testing event SMUD field crews will not allow discharging of water into Vernal Pool, Seasonal Wetland, or Swale land cover type. For discharge of hydrostatic test water within 250 feet of Vernal Pool, Seasonal Wetland, or Swale land cover type, a biological monitor will be present to ensure that the hydrostatic test water discharged does not enter into any Vernal Pool, Seasonal Wetland, or Swale land cover type.
VP-AMM1	**Avoid Driving through Vernal Pools**. SMUD field crews will avoid driving through SMUD HCP Vernal Pool, Seasonal Wetland, and Swale land cover to the maximum extent feasible. When this is not feasible, SMUD will implement *VP-AMM2: Minimize Vehicle Impacts on Vernal Pools*.
VP-AMM2	**Minimize Vehicle Impacts on Vernal Pools**. If a Covered Activity work area or access to the work area is located on SMUD HCP Vernal Pool, Seasonal Wetland, and Swale land cover, SMUD field crews will evaluate site conditions and determine if soil moisture is present. If soil moisture is present, the field crew will coordinate with the Environmental Services team to identify alternative measures to minimize disturbance of Covered Species Modeled Habitat. Alternative measures may include laying down rubber matting, creating temporary bridges over swales, or using alternate access routes as prescribed by SMUD Environmental Services to minimize impacts. If it is not feasible for SMUD to avoid driving through Vernal Pool, Seasonal Wetland, and Swale land cover while moisture is present, SMUD will track the acres of disturbance, and those acres will count toward take limits provided in Chapter 4, *Impact Analysis and Levels of Take*, and mitigated consistent with Section 5.4, *Mitigation*.

VP-AMM3	**Vernal Pool Covered Species Soil Stockpile**. For Covered Activities in SMUD HCP Vernal Pool, Seasonal Wetland, and Swale land cover, SMUD field crews will stockpile the upper 4 inches of topsoil from within the ordinary high water mark of any aquatic features separately during excavations. This topsoil will be replaced within the aquatic feature and manipulated so as to restore the original contours within the aquatic feature. Soil compaction will be minimized to the extent consistent with utility standards. Erosion control measures such as straw wattles, coconut fiber rolls/blankets, silt fencing, and as determined by the qualified biologist, will be implemented where necessary to protect topsoil stockpiles and keep the seed bank and/or cysts in the stockpiled soil viable.
VP-AMM4	**Avoid Occupied Orcutt Grass Habitat**. SMUD Environmental Services will review design plans to ensure that no new poles or other facilities are placed in vernal pools that are known (as noted in an up to date (current at time of project implementation) California Natural Diversity Database query) to support slender Orcutt grass or Sacramento Orcutt grass.
VP-AMM5	**Avoid Vernal Pools during Trenching.** SMUD Environmental Services will review design plans to ensure that no trenching occurs in SMUD HCP Vernal Pool, Seasonal Wetland, and Swale land cover. SMUD field crews will avoid trenching through SMUD HCP Vernal Pool, Seasonal Wetland, and Swale land cover.
VP-AMM6	**Covered Vernal Pool Invertebrate Work Window.** When Vernal Pool Invertebrate Covered Species Modeled Habitat is present within 250 feet of Covered Activities, Environmental Services will schedule the Covered Activity to occur in the dry season (approximately April 15 through October 15) and prior to the first significant rain (0.25 inch in 24 hours) to the maximum extent feasible. If the Covered Activity cannot be performed in the dry season, the field crew will implement additional measures as prescribed by SMUD Environmental Services to avoid or minimize impacts. Additional measures could include, but are not limited to, directing crews on access, use of erosion/sediment fencing, use of access mats or other techniques to avoid direct or indirect effects, requiring foot access, or requiring a biological monitor during the activity. If additional measures do not result in total avoidance, SMUD will mitigate at a 0.5:1 ratio for temporary and/or 3:1 for permanent direct habitat disturbance or loss.
VP-AMM7	**Vernal Pool Biological Monitor.** If Covered Activities will directly impact SMUD HCP Vernal Pool, Seasonal Wetland, and Swale land cover (modeled habitat), a qualified biologist will be present onsite and monitor the Covered Activity to ensure that all applicable AMMs are implemented correctly and that no unnecessary ground disturbance or take of species occurs. The qualified biologist will have the authority to stop all activities that could result in such take or destruction, and will do so, until appropriate corrective measures have been completed. SMUD will report any unauthorized take to USFWS and/or CDFW within 24 hours.
VELB-AMM1	**Park outside the Drip Zone**. If use of a bucket truck is necessary to trim an elderberry shrub, SMUD field crews will park the bucket truck outside of the drip line of the elderberry shrub to avoid root damage.
VELB-AMM2	**Avoid Trimming during Valley Elderberry Longhorn Beetle Active Period**. SMUD field crews will conduct trimming activities between November and February. If work must be done outside this period to maintain public safety, SMUD field crews will implement other measures as prescribed by SMUD Environmental Services including vegetation removal by hand, keeping off-road vehicle speeds below 15 miles per hour, and an onsite biological monitor during the activity. Impacts to the shrub will be mitigated at a permanent mitigation ratio.

VELB-AMM3	**Follow Shrub Removal Protocols**. SMUD Environmental Services will oversee elderberry shrub removal. If SMUD determines that the shrub is habitat for valley elderberry longhorn beetle because they have stems greater than 1 inch in diameter, then the 2017 *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (USFWS 2017) or the currently approved protocol will be followed for any shrubs to be removed.
VELB-AMM4	**Preconstruction Elderberry Survey**. For Covered Activities occurring in valley elderberry longhorn beetle Modeled Habitat, SMUD Environmental Services or a qualified biologist will survey proposed project sites for the presence of elderberry shrubs. If elderberry shrubs are found on or within 165 feet of the project site, the habitat will be assessed to determine if the project area is in riparian or non-riparian habitat. Depending on the size, duration, and/or type of proposed project, the larger area surrounding the project site may also be surveyed for the presence and number of elderberry shrubs. If the project site is non-riparian and contains elderberry shrubs, exit hole surveys will be used to evaluate the site for potential occupancy. In the absence of exit holes, a qualified biologist will evaluate the project area using the following criteria: 1. Is there a riparian area or are there elderberry shrubs or known valley elderberry longhorn beetle records within 2,526 feet of the proposed project? 2. Was the site continuous with a historical riparian corridor?
VELB-AMM5	**Elderberry Exclusion Buffer.** Activities that may damage or kill an elderberry shrub (e.g., trenching, paving) may need an avoidance area of at least 20 feet from the drip-line, depending on the type of activity. A qualified biologist will monitor any activity within 20 feet of an elderberry shrub, work with personnel to minimize effects on the shrub, report on any potential effects on the shrub, and report the number of times this AMM is implemented.
VELB-AMM6	**Fencing.** All areas to be avoided during construction activities will be fenced and/or flagged at the avoidance boundary (i.e., the distance at which adverse effects would be avoided – for example in the case of an individual shrub the drip line of that shrub)**.**
VELB-AMM7	**Mowing**. Mowing by SMUD field crews within the drip-line of the shrub will be limited to the season when adults are not active (August–February) and will avoid damaging the elderberry (e.g., stripping away bark through careless use of mowing/trimming equipment). Elderberry shrubs will be flagged and a qualified biological monitor will be present.
VELB-AMM8	**Chemical Usage**. Herbicides will not be used within the drip-line of the shrub. Insecticides will not be used within 98 feet (30 meters) of an elderberry shrub. All chemicals will be applied using a backpack sprayer or similar direct application method. No take of ESA-listed or Covered Species from application of any chemical may result from pesticide use.

CTS-AMM1	**Daily California Tiger Salamander Avoidance Measures**. If construction activities must occur within suitable tiger salamander habitat during the Wet Season (generally November 1 - April 30), such construction will avoid all suitable aquatic habitat. No construction activities will be conducted in modeled upland habitat areas where tiger salamanders may occur regardless of the month if there is a greater than 70% chance of rain based on the National Oceanic and Atmospheric Administration's National Weather Service forecast or within 48 hours following a rain event greater than 0.25 inch, unless approved by the qualified biological monitor. Earthmoving and construction activities will cease no less than 30 minutes before sunset and will not begin again until no less than 30 minutes after sunrise. Except when necessary for driver or pedestrian safety, artificial lighting at a worksite will be prohibited during the hours of darkness. Where lighting is necessary, lighting will be directed inwards towards the construction footprint and will not be cast on California tiger salamander habitat outside of the construction area.
CTS-AMM2	**Pre-Work Clearance Survey**. When a Covered Activity would occur between October 15 and July 15 in California tiger salamander Modeled Habitat within Conservation Lands or for activities greater than 0.1 acre with modeled habitat, the qualified biologist will conduct a pre-work clearance survey for California tiger salamander. The clearance survey will be conducted 24 hours prior to the start of the Covered Activity. Any California tiger salamander found in the work area will be relocated, in accordance with *CTS-AMM7: California Tiger Salamander Handling*.
CTS-AMM3	**California Tiger Salamander Biological Monitoring.** A qualified biologist will be onsite during Covered Activities in California tiger salamander Modeled Habitat (a) when the activities is on Conservation Lands, or (2) other locations if the activities are greater than 0.1 acre within Modeled Habitat, and will have the authority to stop work if personnel are out of compliance with the AMMs until corrective actions are taken to be in compliance with the AMMs. If a California tiger salamander is observed in the work area and there is a risk that injury or mortality may occur, the biological monitor will halt work and implement relocation protocols described in CTS-AMM7. Prior to the start of work each day the monitor will perform a preconstruction survey of the work area.
CTS-AMM4	**Avoid Inundated California Tiger Salamander Habitat**. SMUD field crews will not perform Covered Activities within California tiger salamander aquatic Modeled Habitat when water is present.
CTS-AMM5	**California Tiger Salamander Exclusion Fencing**. California tiger salamanders are most likely to be dispersing between October 15 and July 15 on nights that are wet (either from rainfall or fog). If SMUD field crews must perform Covered Activities during this period in upland Modeled Habitat and the Covered Activity is going to take more than 1 week, amphibian exclusion fencing must be installed around the work area to minimize the potential for California tiger salamander to enter the work area.
CTS-AMM6	**Avoid Usage of Plastic Mono-filament Erosion Control Materials in California Tiger Salamander Modeled Habitat**. SMUD field crews will not use erosion control materials that contain plastic mono-filament in California tiger salamander Modeled Habitat. SMUD field crews will use tightly woven fiber netting (with a mesh size less than 0.25 inch) or similar material for erosion control or other purposes in California tiger salamander Modeled Habitat to ensure that California tiger salamanders do not get trapped. Coconut coir matting/rolls is an acceptable erosion control material.

CTS-AMM7	**California Tiger Salamander Handling**. California tiger salamanders found at Rancho Seco facilities will be relocated in accordance with a wildlife agency-approved relocation plan developed for Rancho Seco, and individuals will be relocated sites identified in the SMUD HCP CTS Relocation Plan (Appendix G). For activities greater than 0.1 acre that occur in CTS Modeled Habitat, a CTS relocation plan shall be prepared and approved by the Wildlife agencies within 30 days or it can be assumed approved. The relocation plan shall follow the format of the *SMUD HCP CTS Relocation Plan* in Appendix G. Only a qualified biologist may capture or handle California tiger salamander. Bare hands will be used to capture California tiger salamanders. Qualified biologists will not use soaps, oils, creams, lotions, repellents, or solvents of any sort on their hands within 2 hours before and during periods when they are capturing and relocating individuals. To avoid transferring disease or pathogens of handling of the amphibians, qualified biologists will follow the Declining Amphibian Populations Task Force's *Code of Practice* or currently accepted protocols. The qualified biologist will immediately relocate any California tiger salamanders found to suitable habitat a minimum of 300 feet outside of the work area but within the same habitat patch affected if feasible, at a location predetermined prior to commencement of construction. If no suitable location can be identified at least 300 feet from the Covered Activity and within the same habitat patch affected, SMUD will coordinate with the wildlife agencies prior to the activity to identify an alternative site for relocating California tiger salamanders and develop a CTS site specific relocation plan (see Appendix G, *SMUD HCP CTS Relocation Plan*).
CTS-AMM8	**Install and maintain permanent wildlife exclusion fencing around perimeter of the Cosumnes Power Plant**. SMUD would install and maintain a permanent California tiger salamander exclusion fence around the perimeter of the Cosumnes Power Plant to avoid impacting California tiger salamander during operation and maintenance of Cosumnes Power Plant (CPP). The fencing would be metal flashing at least 2 feet tall above the soil surface and buried to a minimum depth of 4 inches below the soil surface. The barrier would be designed to prevent California tiger salamander from climbing over it or under it through burrows or cracks. SMUD would monitor the exclusion fencing and maintain it for the life of CPP, checking it annually prior to each rainy season. If the metal flashing does not perform as expected, SMUD will use adaptive management to implement a more effective barrier such as a concrete curb. Cover board will be placed on the outside of the CPP fence and in areas most frequented by California tiger salamanders to provide refuge to migrating CTS that have been redirected by the fencing.
CTS-AMM9	**Cover holes, trenches, and perform inspections.** All excavated steep- walled holes and trenches (more than 6 inches deep) will be covered with plywood (or similar material) and/or provided with one or more escape ramps at an angle of ≤ 30 degree, constructed of earth fill or wooden planks at the end of each workday or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes and trenches will be inspected by the Qualified Biologist each morning (including non-workdays) that the trench or hole is open to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within California tiger salamander modeled habitat will be inspected for California tiger salamander by the qualified biologist prior to being moved.

GGS-AMM1	**Giant Garter Snake Biological Monitor.** A qualified biologist will be on site during Covered Activities in giant garter snake Modeled Habitat on Conservation Lands or for activities greater than 0.1 acre in Modeled Habitat or for Covered Activities initiated in the inactive season. The qualified biologist will have the authority to stop work if personnel are out of compliance with the AMMs and until corrective actions are taken to be in compliance with AMMs, or if there is a risk that incidental take (mortality) of giant garter snake may occur. Prior to the start of work each day the monitor will perform a preconstruction survey of the work area and will flag burrows to avoid stockpiling soil over burrows.
GGS-AMM2	**Giant Garter Snake Seasonal Work Windows**. Covered Activities in giant garter snake upland Modeled Habitat will be initiated between May 1 and October 1. This is the active period for giant garter snakes, and direct mortality is lessened because snakes are expected to actively move and avoid danger. If limiting work to the period from May 1 to October 1 is not feasible, new temporary and permanent impacts will be mitigated at the direct permanent impact ratio of 3:1. That is, a higher mitigation ratio will be required for areas where new ground disturbance occurs between October 2 and April 30. If limiting work to the period from May 1 to October 1, is infeasible, a qualified biologist will monitor activities in giant garter snake habitat. If a giant garter snake is encountered, construction activities shall immediately cease. SMUD will notify the Wildlife Agencies immediately. The GGS should be allowed to leave the area on its own accord and construction activities may not start back up until the GGS has safely moved out of harms way. If the GGS cannot move out of harms way on its own, then the designated biologist shall relocate individuals as necessary consistent with the Giant Garter Snake Relocation Plan (Appendix G).
GGS-AMM3	**Minimize Vegetation Clearing**. SMUD field crews will minimize vegetation clearing to the minimal area necessary to facilitate Covered Activities within upland and aquatic Modeled Habitat. For work in giant garter snake aquatic Modeled Habitat, SMUD field crews will use hand tools to clear vegetation or debris.
GGS-AMM4	**Dewatering**. If dewatering of giant garter snake aquatic Modeled Habitat is necessary, the work area will remain dry for at least 15 consecutive days between March 15 and October 15, and prior to excavating or filling of the dewatered habitat. After aquatic habitat has been dewatered 15 days prior to Covered Activities, exclusion fencing will be installed extending a minimum of 300 feet into adjacent uplands to isolate both the aquatic and adjacent upland habitat. Exclusionary fencing will be erected 36 inches above ground and buried at least 6 inches below the ground to prevent snakes from attempting to move under the fence into the construction area. In addition, high-visibility fencing will be erected to identify the construction limits and to protect adjacent habitat from encroachment of personnel and equipment. GGS habitat outside construction fencing will be avoided by all construction personnel. The fencing and the work area will be inspected by the Approved Biologist to ensure that the fencing is intact and that no snakes have entered the work area before the start of each workday. The fencing will be maintained by the contractor until completion of the project.
Mitigation Measure CUL-1	**Avoidance and Archaeological Monitoring**. The northern portion of the SMUD Bank holds the most potential for uncovering early Native American cultural resources. If possible, soil disturbance in this area should be avoided. If avoidance is not possible, a qualified archaeologist must be present during any ground disturbance or excavation. This area includes that portion of the SMUD Bank north of latitude 38° 20’ 37.00” N or UTM 424560N (Zone 10). This east-west line would occur approximately just north of the reservoir that exists roughly 1,000 feet northwest of the lake and approximately 2,000 feet southeast of the ranch buildings adjacent to the northwest portion of the SMUD Bank.

Mitigation Measure CUL-2	**Environmental Awareness Training**. Prior to working onsite, individuals who are involved in soil moving and handling must attend environmental awareness training provided by a qualified professional archaeologist. This training would provide information on the types and extent of cultural resources that may be located onsite. Individuals conducting any excavation or other substantial subsurface disturbance activities onsite shall also attend the environmental awareness training.
Mitigation Measure CUL-3	**Stop Work if Archaeological Resources are Encountered.** Should any evidence of early Native American or historic cultural resources be discovered during excavation or other substantial subsurface disturbance activities, all work should immediately cease, and a qualified archaeologist must be consulted to assess the significance of the cultural materials.
Mitigation Measure CUL-4	**Stop Work if Human Remains Are Discovered during Ground Disturbing Activities**. If human remains are discovered during excavation or other substantial subsurface disturbance activities, all work must immediately cease and the local coroner must be contacted. Should the remains prove to be of cultural significance, the NAHC in Sacramento, California, must be contacted with additional notification going to the most likely descendants.
Mitigation Measure HAZ-1	**Protocol for accidental spills.** Inspect equipment containing hazardous materials daily for signs of spills or leakage. A spill response kit shall be kept on the construction site at all times and shall include oil absorbent materials (i.e., pads, pillows, and socks) and disposable bags. If an accidental release of petroleum fuel occurs during refueling or a spill occurs during construction of the Proposed Project, the release shall be cleaned up immediately and hazardous materials shall be removed from the site, disposed of at an approved hazardous materials acceptance facility, and reported in accordance with SMUD Environmental Management Procedure EM 2-08.
Mitigation Measure HAZ-2	**No soil disturbance shall occur within 100 feet of placer mine features.**
Mitigation Measure HAZ-3	**Fire Prevention Measures.** No smoking in open areas or near fuel tanks shall occur, spark arrestors will be present on equipment, and fire extinguishers will be onsite at all times during construction.

Appendix E

Covered Species Status, Habitat, and Distribution in the Permit Area

Appendix E
Species Proposed for Coverage in the Permit Area

Common Name *Scientific Name*	Legal Status[a] Federal/State	Habitat and Distribution	Likelihood for Occurrence in the Permit Area[b]
Invertebrates			
Vernal pool tadpole shrimp *Lepidurus packardi* Critical Habitat	FE/--	Occupies a variety of vernal pool habitats Central Valley of California and San Francisco Bay Area.	High; suitable vernal pool habitat is present throughout the Permit Area. Known to occur at the SMUD Mitigation Bank and 104 CNDDB (2020) occurrences within the Permit Area. Critical Habitat present in the Permit Area.
Vernal pool fairy shrimp *Branchinecta lynchi* Critical Habitat	FT	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County. Common in vernal pools and swales; also found in sandstone rock outcrop pools.	High; suitable vernal pools and swales are present throughout the Permit Area. Known to occur at the SMUD Mitigation Bank and 136 CNDDB (2020) occurrences within the Permit Area. Critical Habitat present in the Permit Area.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus* Critical Habitat	FT/--	Elderberry shrubs, typically in riparian habitats. Central Valley, including the Permit Area, below approximately 500 feet elevation.	High; elderberry shrubs (host plant) are present throughout the Permit Area. 39 CNDDB (2020) occurrences within the Permit Area. Critical Habitat present in the Permit Area.
Amphibians			
California tiger salamander *Ambystoma californiense* Critical Habitat	FT/ST	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to northeastern San Luis Obispo County. Small ponds, lakes, or vernal pools in grasslands and oak woodlands for reproduction and larval development; rodent burrows, rock crevices, or fallen logs for cover for adults and juveniles for summer dormancy.	High; seasonal ponds in the southern and eastern portions of the Permit Area represent suitable habitat. 20 CNDDB (2020) occurrences within the Permit Area. Known to occur at the SMUD Mitigation Bank. Critical Habitat present in the Permit Area.

Common Name *Scientific Name*	Legal Status[a] Federal/State	Habitat and Distribution	Likelihood for Occurrence in the Permit Area[b]
Reptiles			
Giant garter snake *Thamnophis gigas*	FT/ST	Forages in slow-moving streams, sloughs, ponds, marshes, inundated floodplains, rice fields, and irrigation/drainage ditches; also requires upland refugia not subject to flooding during the snake's inactive season. Range spans the southern Sacramento and northern San Joaquin Valleys.	High; westernmost portion of the Permit Area dominated by rice field agriculture represents suitable habitat. 61 CNDDB (2020) occurrences within the Permit Area.
Plants			
Slender Orcutt grass *Orcuttia tenuis* Critical Habitat	FT/SE	Found in vernal pools in the Sierra Nevada and Cascade Range foothills from Siskiyou to Sacramento Counties	High; suitable habitat in vernal pools in the Permit Area. 3 CNDDB (2020) occurrences located in the Permit Area. Critical habitat within the Permit Area.
Sacramento Orcutt grass *Orcuttia viscida* Critical Habitat	FE/SE	Grows in vernal pools and swales, and is endemic to Sacramento County	High; suitable habitat in vernal pools in the Permit Area.12 CNDDB (2020) occurrences located in the Permit Area. Critical habitat within the Permit Area.

Sources: California Department of Fish and Wildlife (CNDDB) (2020), California Native Plant Society (CNPS) (2020), California Consortium of Herbaria (CCH) (2020), SMUD (2010).

[a] Federal
E = Listed as endangered under the federal Endangered Species Act.
T = Listed as threatened under the federal Endangered Species Act.
– = No listing.

State
E = Listed as endangered under the California Endangered Species Act.
R = Listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.
– = No listing.

[b] Likelihood for Occurrence in Permit Area:

Low: The Permit Area is outside of the species' range; or, if within species' range, suitable habitat for the species might or might not occur in the Permit Area and species was not recorded in the Permit Area.

Moderate: The Permit Area is within the species' range, and suitable habitat for the species is present in the Permit Area, but records for the species are either outside of the Permit Area or are only historic or uncertain.

High: The Permit Area is within the species' range, suitable habitat for the species is present in the Permit Area, and there are one or more recent records of the species in the Permit Area.

Appendix F
Air Quality Attainment Status in the Study Area

California is divided into 15 air basins based on geographic features that create distinctive regional climates. Meteorological and topographical conditions, as well as atmospheric conditions (e.g., wind speed, wind direction, air temperature gradients) interact with the physical features of the landscape (e.g., mountains) to determine the movement and dispersal of air pollutants within and between air basins.

The Permit Area is located in the Sacramento Valley Air Basin (SVAB). The SVAB includes all of Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and Yuba Counties; the western portion of Placer County; and the northern portion of Solano County. Air flows into the SVAB through the Carquinez Strait, the only breach in the western mountain barrier, and moves across the Sacramento River–San Joaquin River Delta (Delta) from the San Francisco Bay Area.

The Mediterranean climate type of the SVAB is characterized by hot, dry summers and cool, rainy winters. During the summer, daily temperatures range from 50 degrees Fahrenheit (°F) to more than 100°F. The inland location and surrounding mountains shelter the area from much of the ocean breezes that keep the coastal regions moderate in temperature. Most precipitation in the area results from air masses that move in from the Pacific Ocean, usually from the west or northwest, during the winter months. More than half the total annual precipitation falls during the winter rainy season (November through February); the average winter temperature is a moderate 49°F. Also characteristic of SVAB winters are periods of dense and persistent low-level fog, which are most prevalent between storms. The prevailing winds are moderate in speed and vary from moisture-laden breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which leads to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution. The highest frequency of poor air movement occurs in the fall and winter when high-pressure cells are present over the SVAB. The lack of surface wind during these periods, combined with the reduced vertical flow caused by a decline in surface heating, reduces the influx of air and leads to the concentration of air pollutants under stable metrological conditions. Surface concentrations of air pollutant emissions are highest when these conditions occur in combination with agricultural burning activities or with temperature inversions, which hamper dispersion by creating a ceiling over the area and trapping air pollutants near the ground.

Regional air districts oversee local air quality regulations within air basins to ensure the requirements of federal and state air quality laws are met. Compliance with federal and state air quality laws is accomplished primarily through air districts adopting air quality attainment plans and issuing air quality analysis guidance. Each air district in California has also adopted its own rules and regulations to comply with state and federal laws. Depending on the quantity and types of air pollutants that will be emitted, O&M activities and minor new construction associated with the Proposed Action may be subject to air district rules and regulations.

Existing air quality conditions within the Permit Area can be characterized in terms of the federal and state air quality standards by monitoring data collected. The U.S. Environmental Protection Agency and California Air Resources Board maintain an extensive network of monitoring stations

throughout California. Measurements of criteria pollutant concentrations at monitoring stations are used to designate regions throughout California as attainment, maintenance, or nonattainment with the national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS). Table F-1 summarizes the current federal and state attainment status of counties within the Permit Area.

Table F-1. Nonattainment Designations in Sacramento, Yolo, Placer, and San Joaquin Counties

County	NAAQS	CAAQS
Sacramento	8-hour ozone (2008, 2015 standards) PM2.5 (2006 standard)	Ozone, PM10
Yolo	8-hour ozone (2008, 2015 standards), PM2.5 (2006 standard)	Ozone (transitional), PM10
Placer	8-hour ozone (2008 standard), PM2.5 (2006 standard)	Ozone, PM10
San Joaquin	8-hour ozone (2008, 2015 standards), PM2.5 (1997, 2006, 2012 standards)	Ozone, PM2.5, PM10

Sources: U.S. Environmental Protection Agency 2020; California Air Resources Board 2019
PM2.5 = particulate matter 2.5 microns or less in diameter; PM10 = particulate matter 10 microns or less in diameter

Appendix G
Federally Recognized Tribes

Tribal notification letters were sent to the following Tribes:

- Wilton Rancheria, California
- Yocha Dehe Wintun Nation, California
- United Auburn Indian Community of the Auburn Rancheria of California
- Buena Vista Rancheria of Me-Wuk Indians of California

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846
SFWO_mail@fws.gov

In Reply Refer to
2022-0022625

October 28, 2022

Subject: Advance notice of Habitat Conservation Plan under development by the Sacramento Municipal Utility District

Dear Chairperson:

The U.S. Fish and Wildlife Service (Service) would like to coordinate with you on the review of the draft Environmental Assessment (Assessment) being prepared for the draft Sacramento Municipal Utility District (SMUD) Operations, Maintenance and New Construction Habitat Conservation Plan (SMUD Plan). The SMUD Plan activities (i.e., development related activities and associated mitigation actions) will be implemented primarily in Sacramento County, with fewer activities occurring in Yolo, Placer, and San Joaquin Counties (Attachment).

The SMUD Plan is part of an application for an incidental take permit (permit), pursuant to section 10(a)(1)(B) of the federal Endangered Species Act (Act) of 1973, as amended. The SMUD Plan provides the basis for the issuance of a proposed 30-year permit for activities described in the draft SMUD Plan (Covered Activities) that could impact and result in take of the following federally-listed species:

1) Sacramento Orcutt grass (*Orcuttia viscida*) – endangered
2) Slender Orcutt grass (*Orcuttia tenuis*) – threatened
3) Vernal pool fairy shrimp (*Branchinecta lynchi*) – threatened
4) Vernal pool tadpole shrimp (*Lepidurus packardi*) – endangered
5) Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) – threatened
6) California tiger salamander, Central California distinct population segment (*Ambystoma californica*) – threatened
7) Giant garter snake (*Thamnophis gigas*) – threatened

This invitation is extended pursuant to Secretarial Order 3206 to harmonize actions taken under the Act with Tribes. Further, actions taken under the authority of the Act that affect, or may affect, Indian lands, tribal trust resources, or the exercise of American Indian tribal rights, require consultation with potentially affected Tribes in furtherance of government-to-government relationships.

Although the geographic scope of the SMUD Plan encompasses all or portions of the four counties mentioned above, the Plan Area within which the Covered Activities would occur encompasses a smaller area of 577,554 acres. SMUD facilities in the Plan Area are in urban (79.9%), natural (16.2%), and agricultural land-cover types (3.9%). Covered Activities are limited to SMUD natural gas and electric transmission and distribution facilities, telecommunications facilities, rights-of-

way, the lands owned by SMUD and/or subject to SMUD easements to maintain these facilities, private access routes associated with SMUD's routine maintenance, a buffer around the rights-of-way, and mitigation areas acquired to mitigate for impacts resulting from Covered Activities. The Covered Activities would be limited as follows:

- *Operation activities* include inspecting, monitoring, testing, and operating valves, enclosures, switches, and other components. These activities involve utility personnel working at facilities; personnel typically use existing access roads.
- *Maintenance activities* include repairing and replacing facilities, structures, and access roads. This work includes reconductoring electric transmission and distribution projects and gas pipeline replacement. They also include emergency repair and replacement and vegetation management, including tree pruning and removal.
- *Minor new construction activities* include installing new or replacement structures to upgrade existing facilities or extend service to new residential or commercial customers. When conducted in natural vegetation or agricultural lands that contain suitable habitat for Covered Species, upgrades to existing facilities and new electric or gas line extensions are limited to 2 miles or less from an existing line. New or replacement structures to upgrade existing facilities are limited to 1 acre or less of new gas pressure limiting stations and 11 acres or less per electric substation expansion.

The draft SMUD Plan and draft Assessment are under preparation with distribution targeted Winter 2022. Availability of these documents will be noticed in the Federal Register and electronic copies of the draft documents will be made available on https://www.regulations.gov. Additionally, hardbound copies of the draft documents will be available for viewing, or for partial or complete duplication. The locations where those may be accessed have yet to be determined and will be identified in the Federal Register notice.

We would appreciate your review and any comments you may have on this project, including potential impacts to any unidentified Native American Sacred Sites, Traditional Cultural Properties, or other cultural resources that you may be aware of within the project area. If you have any concerns about this proposed project and/or potential impacts on cultural resources, we would appreciate your feedback by the end of the public inspection period for the draft SMUD Plan, which will be published in the Federal Register as noted above.

Your participation in the coordination process, including reviewing and commenting on the draft SMUD Plan and draft Assessment is voluntary, and the level of your participation is at your discretion. We will make every effort to accommodate your needs and input. The Service and our partner the SMUD are willing to meet with you at your convenience to further discuss the details of the draft Assessment and SMUD Plan. In keeping with our trust responsibility, we shall protect, to the maximum extent practicable, Tribal information that has been disclosed to or collected by us. However, please be aware that any information kept in our files is subject to public disclosure under specific circumstances (e.g., through a Freedom of Information Act request). Please let us know if there are any other considerations for safeguarding sensitive Tribal information. If the Tribe prefers to maintain certain information exclusively in your files, we would like to explore options for reviewing and referencing that information in the final SMUD Plan.

If you have questions or would like to request a meeting with the Service to discuss the SMUD Plan, please contact Nora Papian, Senior Biologist, by calling (916) 414-6600 or by email at nora_papian@fws.gov. We look forward to working with you to promote the conservation of our native fish and wildlife while ensuring the protection of tribal lands, trust resources, rights, and cultural and religious values.

Sincerely,

MICHAEL FRIS Digitally signed by MICHAEL FRIS
Date: 2022.10.28 10:07:51 -07'00'

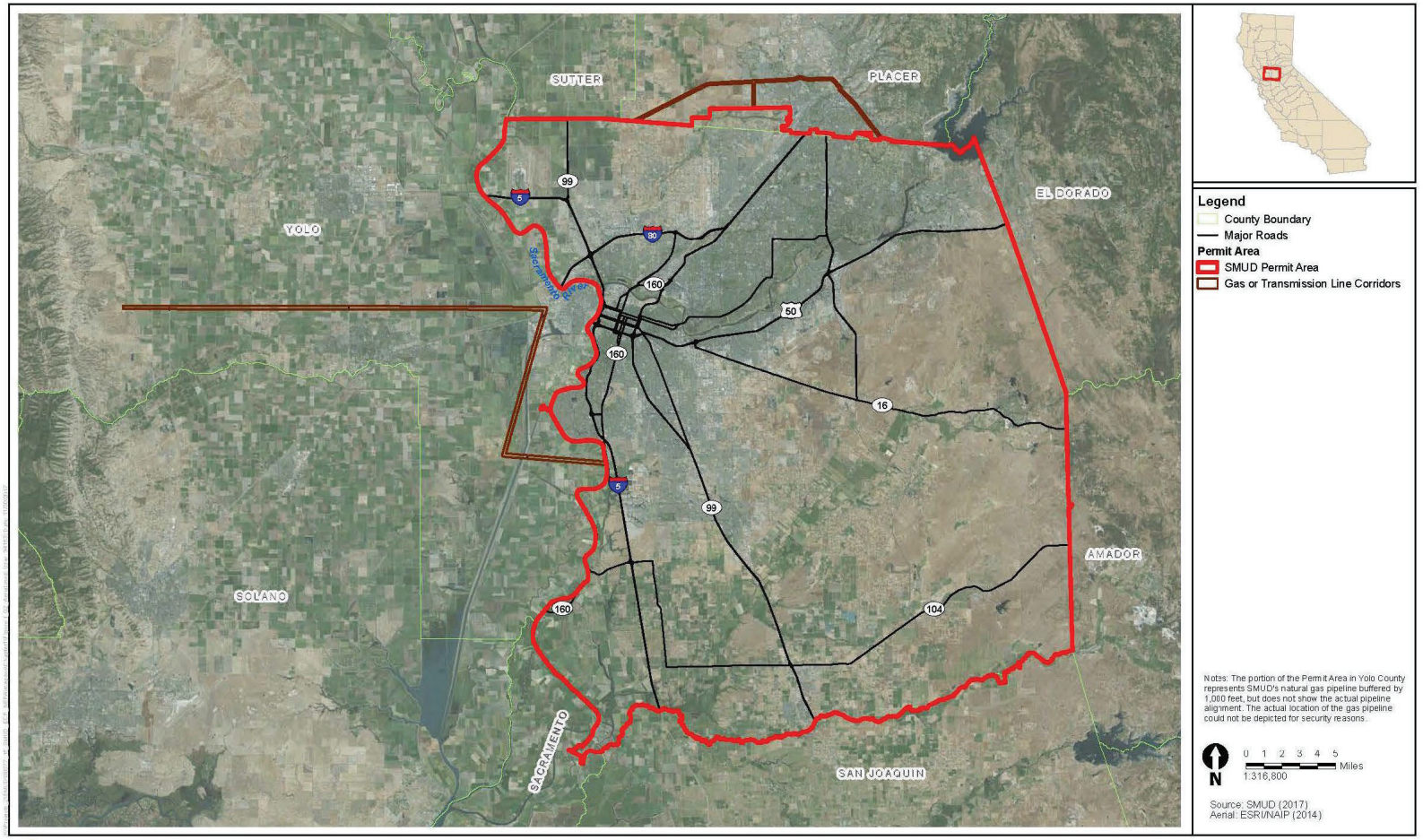
Michael Fris
Field Supervisor

Enclosure

SMUD HCP Proposed Project Area

SMUD®

Habitat Conservation Plan
November 2020



ICF

Figure 1-2
Permit Area, Aerial View
SMUD HCP