Mitigation Monitoring and Reporting Program

Introduction

The California Environmental Quality Act (CEQA) requires that when a public agency approves a project for which an Environmental Impact Report (EIR) has identified significant environmental effects, and the agency adopts mitigation measures (MMs) to avoid or substantially lessen those effects, the agency must adopt a program to ensure that such measures are implemented. This requirement is set forth in Public Resources Code (PRC) Section 21081.6 and the CEQA Guidelines, Section 15097. As the lead CEQA agency, the California Public Utilities Commission (CPUC) has prepared this Mitigation Monitoring and Reporting Program (MMRP) for the Collinsville 500/230 kV Substation Project (project). The MMRP is intended to ensure that all adopted MMs are implemented, monitored, and, where necessary, enforced during construction and operation of the project.

The MMRP includes applicant proposed measures (APMs) identified by LS Power Grid California, LLC (LSPGC) and construction measures (CMs) identified by Pacific Gas and Electric (PG&E), which are established in the EIR as part of the project and must be implemented in addition to MMs following a CPUC decision to approve the project. LSPGC and PG&E would be responsible for implementing and complying with APMs or CMs and MMs identified as applicable for the project components they would each construct and operate (refer to Table 1 in Section 1.3.5).

The MMRP establishes the CPUC's framework to verify implementation of APMs, CMs, and MMs through monitoring and/or reporting methods for each project alternative scenario that could be approved by the CPUC (e.g., Proposed Project and/or Alternatives 1, 2, 3, 4, 5, and 6a/6b). This framework includes a description of roles and responsibilities, procedures), and a Mitigation Monitoring and Reporting Matrix (Table 1).

If the CPUC approves the Proposed Project or an alternative and adopts the MMRP, a detailed Mitigation Monitoring, Compliance, and Reporting Program (MMCRP) would be developed following the CPUC's decision. The MMCRP would further define the framework outlined in the MMRP and establish specific guidelines and expectations. The MMCRP would be developed and implemented to ensure compliance with the adopted MMRP, and that the approved project is carried out as described in the EIR and the CPUC's decision.

Roles and Responsibilities

The CPUC, LSPGC, and PG&E, including their contractors, are collectively responsible for ensuring the project is implemented as approved according to the CPUC decision, and that all project activities are compliant with APMs, CMs, MMs, and permit conditions. LSPGC and PG&E are primarily responsible for implementing requirements associated with their project components and managing their contractors and construction workforce to ensure compliance. The CPUC is primarily responsible for monitoring and verifying compliance and enforcing appropriate corrective actions if the project is not in compliance. Additionally, some monitoring responsibilities may be assumed by responsible agencies, for resources under their jurisdiction occur. The general roles and responsibilities of the MMRP are summarized in the following sections.

CPUC

The CPUC is responsible for verifying the project is constructed and operated as approved and defined in the EIR and CPUC decision; verifying implementation/compliance with APMs, CMs, and MMs through monitoring and/or reporting procedures; executing specific actions assigned to the CPUC in the EIR measures; verifying key permits identified in the EIR are obtained and implemented as required; implementing compliance enforcement actions if necessary; and, developing and implementing the MMRP and MMCRP. The CPUC may delegate duties and responsibilities for monitoring to environmental monitors or consultants working on behalf of the CPUC.

The CPUC and its designated environmental monitors have the authority to halt any construction activity associated with the project if the activity is inconsistent with the approved project or conflicts with resource protection requirements or permit conditions. If significant CEQA violations occur, the CPUC has the authority to exercise the CEQA Citation Program adopted by the CPUC in Resolution E-4550. The program delegates authority to CPUC staff to draft and issue citations and levy fines for noncompliance with CEQA requirements. The resolution allows the CPUC to efficiently issue fines when needed to quickly address compliance incidents.

Responsible and Trustee Agencies

In addition to the CPUC, responsible and trustee agencies have jurisdiction over aspects of the project or certain environmental resources, and they would be responsible for issuing and administering various permits for the project (refer to Table 2-11: Potential Permits and Approvals in Section 2: Project Description). Some of these agencies also have defined roles in APMs, CMs, and MMs, such as reviewing and approving materials or issuing permits as applicable. The CPUC would coordinate with other agencies as necessary regarding permit requirements; agency roles and responsibilities defined in the APMs, CMs, and MMs; and mitigation monitoring and reporting activities.

LSPGC

LSPGC is the project applicant, and would construct and operate the Collinsville Substation, Collinsville-Pittsburg 230 kV Transmission Line (overhead, submarine, and underground segments), and the telecommunication interconnection lines. LSPGC would be responsible for implementing the approved project consistently with the EIR and CPUC decision; complying with APMs and MMs identified as applicable for project components that LSPGC would construct and operate (refer to Table 1); obtaining required permits; and following procedures established in the MMRP and MMCRP, including submitting compliance reports to the CPUC that document construction and compliance activities. LSPGC would also be responsible for ensuring their staff and contractors, including all construction personnel, comply with the environmental requirements and procedures established for the project.

In addition, LSPGC would be responsible for assigning qualified staff to oversee and implement environmental compliance tasks for LSGPC project components, monitoring LSPGC construction activities, and covering the required specialty roles described in applicable APMs and MMs.

PG&E

PG&E is a key project participant because they would construct and operate multiple project components addressed in the EIR, which include the 500 kV interconnection lines, 500 kV transposition sites, 12 kV distribution lines, telecommunication yard (collocated with the Collinsville Substation), and modifications of their existing substations. PG&E would be responsible for implementing the approved project consistently with the EIR and CPUC decision as they apply to PG&E, as well as any associated CPUC permits or Notices of Construction to authorize PG&E's activities related to the project; complying with CMs and MMs identified as applicable for the project components PG&E would construct and operate (refer to Table 1); and following procedures established in the MMRP and MMCRP, including submitting compliance reports to the CPUC that document construction and compliance activities. PG&E would also be responsible for ensuring their staff and contractors, including all construction personnel, comply with the environmental requirements and procedures established for the project.

In addition, PG&E would be responsible for assigning qualified staff to oversee and implement environmental compliance tasks for PG&E project components, monitoring PG&E construction activities, and covering the required specialty roles described in applicable CMs and MMs.

Procedures

Mitigation Monitoring

Mitigation monitoring refers to the ongoing, documented oversight by the lead agency (and, as applicable, responsible or trustee agencies) to verify that all adopted and required measures and project changes are implemented as conditions of project approval, and that the required

measures function as intended to avoid or substantially lessen significant environmental effects identified in the EIR. The CPUC's mitigation monitoring process for the project would include pre-construction compliance verification process, site inspections conducted by environmental monitors, and maintaining a record of compliance, as described in the following sections.

Notice to Proceed Process

LSPGC would be required to obtain CPUC authorization prior to initiating their construction activities through a Notice to Proceed (NTP) process. PG&E would also be required to obtain CPUC authorization prior to initiating their construction activities through a similar Advice Letter Process in accordance with GO 131-E, as described in the following section. The NTP process (and the PG&E Advice Letter Process) would ensure environmental conditions and tasks required before construction are completed appropriately, such as preparing pre-construction studies or plans and conducting pre-construction surveys, etc. This process would include the following steps:

- **Step 1 – Planning and Communication:** LSPGC reviews and completes all requirements in the "Before Construction" phase for each applicable APM, CM, and MM (refer to Table 1), or permit. The CPUC and LSPGC would participate in construction planning meetings (typically 60 to 90 days prior to the proposed construction start date) to go over the proposed construction schedule and activities, applicable pre-construction requirements, the NTP process, and compliance expectations.
- **Step 2 – Completion of Applicable Pre-Construction Requirements:** LSPGC submits project permits, plans, and other specified compliance documentation to the CPUC for review and approval according to the timing identified in Table 1 or relevant permits. If a submittal timeframe is not specified for pre-construction documents such as studies or plans, such documents should be submitted to the CPUC at least 60 days prior to the proposed start date of construction to ensure adequate review time, unless the CPUC agrees to a shorter review period. Failure to provide pre-construction documents with adequate review time or if the documents are incomplete may result in delays to construction.
- **Step 3 – Submittal of NTP Request:** LSPGC would submit an NTP request letter with supporting information to the CPUC for review. If necessary, one or more NTP requests may be submitted for separate project components or activities to reduce the scope of the pre-construction requirements that must be completed by the CPUC to issue an NTP; however, many of the larger project requirements (i.e., plans, permits, worker training program, etc.) may be applicable to all project activities. Note: all project activities must be consistent with the approved project and/or subsequent CPUC review and/or decisions. The required format of the NTP request will be described further in the MMCRP.

PG&E Advice Letter Process

PG&E would not submit an NTP request using the process described above for LSPGC because PG&E is not an applicant. Instead, PG&E's work would be covered by a Notice of Construction

filed with the CPUC as a Tier 2 advice letter in accordance with GO 131-E. However, prior to construction of the PG&E transmission components of the project, PG&E will submit a Pre-construction Letter Report attesting compliance with all applicable measures along with documentation of PG&E's compliance. The CPUC would confirm that PG&E has complied with all measures applicable to them and has obtained all appropriate approvals from other regulatory agencies. Construction is defined as all construction-related activities, including but not limited to site clearing; placement of signs, fences, structures, or other materials; or any mobilization activity that would move construction-related equipment and/or materials onto a site.

The CPUC may request that PG&E participate in pre-construction planning and coordination efforts, if necessary, such as those described for LSPGC in the NTP Process.

Progress Meetings

The CPUC, LSPGC, and PG&E (as appropriate) would participate in progress meetings throughout the construction phase to discuss construction and compliance activities, any incidents or performance issues and their resolutions, and any project change requests. LSPGC and PG&E representatives that are integrated into the construction and compliance teams would be required to attend the progress meetings with the CPUC Project Manager and the CPUC's environmental team. The frequency of progress meetings would be determined by CPUC.

Site Inspections

The CPUC would designate environmental monitors to conduct regular site inspections to verify all LSPGC and PG&E activities, including those conducted by their contractors and construction personnel, meet the compliance requirements for the project. The results of CPUC site inspections would be documented in daily and monthly compliance reports, and any incidents or performance issues would be incorporated into the Compliance Tracking Matrix, along with compliance documentation and reports submitted by LSPGC and PG&E.

Reporting

LSPGC and PG&E Reporting

LSPGC and PG&E are responsible for documenting their construction and compliance activities on a daily basis. LSPGC and PG&E shall each submit weekly compliance reports to the CPUC that identify each active workday and a description of the construction and compliance activities that occurred, with photos and attached documentation for key activities. The weekly compliance reports should be prepared to satisfy the specific documentation and reporting requirements described in APMs, CMs, MMs, and permits. Daily reports shall be submitted to the CPUC team upon request. Daily and weekly compliance reports shall document any incidents or performance issues that occurred during the reporting period. The frequency and format of the compliance reports may be adjusted at the discretion of the CPUC. In addition to the general compliance reports, specific reporting requirements are identified in the APMs, CMs, and MMs.

CPUC Reporting

Monitoring Reports

The CPUC, through their environmental monitoring team, shall prepare site inspection reports each time construction monitoring occurs. The CPUC monitoring team will prepare monthly monitoring reports using the information from the weekly conference calls, PG&E's compliance reports, and the field inspection reports. The CPUC's daily and monthly monitoring reports would document any incidents or performance issues that occurred during the reporting period. The monthly reports will be used to track the project's record of incidents. The frequency and format of the monitoring reports may be adjusted at the discretion of the CPUC.

Compliance Tracking Matrix

The CPUC would maintain a record of compliance with the measures in a Compliance Tracking Matrix that resembles Table 1, and identify any incidents or performance issues associated with the measures or permit conditions. The CPUC will also maintain a record of any project changes that are requested and if they were approved or denied.

Incident Reporting and Tracking

The CPUC, LSPGC, and PG&E would be responsible for reporting any compliance incidents, health and safety incidents, or public complaints that occur during the construction phase of the project. Compliance incidents include deviations or violations to the project's environmental requirements specified in APMs, CMs, MMs, and permit conditions. Each compliance incident would be assigned a severity level, such as the four described below or similar, as determined by the CPUC:

- **Level 1: Occurrence (Low Severity).** An event or observation that if left unaddressed has the potential to affect compliance.
- **Level 2: Minor Problem (Low to Moderate Severity).** An event or observation that slightly deviates from project requirements but does not put a resource at unpermitted risk.
- **Level 3: Compliance Issue (Moderate to High Severity).** An event or observation that slightly deviates from project requirements and puts a resource at minor unpermitted risk but is quickly corrected without impacting the resource.
- **Level 4: Noncompliance (High Severity).** An event or observation that violates project requirements and puts a resource at unpermitted risk.

Health and safety incidents are any issues (i.e., near misses, close calls, accidents) that involve worker or public safety. Any public complaints would also be documented in the compliance and monitoring reports. Health and safety incidents and public complaints would be tracked independently of compliance incidents.

Project Changes

Circumstances may arise that require changes to the approved project. The CPUC, along with their environmental monitors, would evaluate any project changes that may be proposed to determine if (a) they are minor and consistent with the CPUC's prior CEQA review and

authorizations, or if (b) additional CEQA review and authorizations are required. Depending on the CPUC's determination, the proposed changes may be processed as either a Minor Project Refinement (MPR) or a Petition for Modification (PFM). MPRs would be strictly limited to changes that do not require additional CEQA review, do not increase the severity of an impact or create a new significant impact, and are within the geographic scope of areas previously evaluated. If these criteria are not met, then a PFM would be required and the CPUC would determine what, if any, additional CEQA review and authorizations would be required. The MMCRP would further describe the MPR and PFM processes.

Dispute Resolution Process

The CPUC, LSPGC, and PG&E could have conflicting opinions regarding project requirements and procedures that could lead to disputes. It is expected that development of the MMCRP will reduce the potential for such disputes; however, disputes could still occur. Any disputes shall first be addressed informally at the field level or during regularly scheduled meetings. If the dispute cannot be resolved informally, the following steps shall be implemented:

- **Step 1:** Unresolved disputes shall be directed to the CPUC Project Manager for resolution.
- **Step 2:** The CPUC Project Manager may initiate enforcement actions, if needed, to address the dispute in order to bring the project into compliance.
- **Step 3:** Unsatisfied dispute participants may file a written "notice of dispute" with the CPUC Executive Director or their designee. The notice should be filed in order to resolve the dispute in a timely manner, with copies concurrently served on other dispute participants. Within 10 days of receiving a notice, the CPUC Executive Director or their designee shall meet with the dispute participants and attempt to resolve the dispute. The CPUC Executive Director shall then issue an Executive Resolution describing the resolution decision and serve it on the dispute participants.
- **Step 4:** If any dispute participants are still unsatisfied, they may appeal it to the CPUC via a procedure to be specified by the CPUC. Parties may also seek review by the CPUC through existing procedures specified in the CPUC's Rules of Practice and Procedure for formal and expedited dispute resolution, although a good faith effort should first be made to use the described dispute resolution process.

Effectiveness Review

The CPUC may conduct a comprehensive review of measures which are not effectively mitigating impacts at any time it deems appropriate to fulfill the CPUC's statutory mandates to mitigate or avoid significant effects on the environment, including as a result of the Dispute Resolution Process. If the CPUC determines that any measures are not adequately mitigating significant environmental impacts caused by the project as intended, or that recent proven technological advances could provide more effective mitigation, then the CPUC may impose additional reasonable conditions to effectively mitigate significant environmental impacts.

These reviews will be conducted in a manner consistent with the CPUC's Rules of Practice and Procedure.

Mitigation Monitoring and Reporting Program Matrix

The MMRP matrix below (Table 1) includes all APMs, CMs, and MMs that would be required if the CPUC approves the project; however, the applicability of the measures would depend on which project scenario(s) the CPUC selects to approve. APMs and CMs superseded by MMs (refer to Table 2-12: LSPGC Applicant Proposed Measures and Table 2-13: PG&E Construction Measures in Section 2: Project Description) would not be required and have been excluded from the MMRP matrix. In addition to the full text of the measures, the MMRP matrix includes the following information:

- **Impact ID.** The impact criteria where the APM, CM, or MM is applied in the EIR analysis. Proposed APMs and CMs shown without an Impact ID were not applied in the EIR analysis.
- **Applicable Scenarios.** Project alternative scenarios that may be selected by the CPUC include the Proposed Project and Alternatives 1, 2, 3, 4, 5, and 6a/6b. The MMRP matrix identifies the measures that apply to each alternative scenario.
- **Applicable Components.** Identifies which project components and entity (LSPGC or PG&E) the measures apply to consistent with the EIR analysis.
- **Implementing Actions.** Summarizes the general compliance actions that LSPGC and PG&E would be responsible for implementing.
- **Monitoring/Verification Actions.** Summarizes the general monitoring and verification actions the CPUC would be responsible for implementing.
- **Timing.** The project implementation phases (e.g., before construction, during construction, after construction, operation and maintenance, decommissioning).

Table 1 Mitigation Monitoring and Reporting Program Matrix

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
Aesthetics						
Impact AES-3	**APM AES-1: Staging Area Maintenance and Restoration.** All project sites would be maintained in a clean and orderly state. Temporary nighttime lighting would be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of project construction, staging and temporary work areas would be returned to pre-project conditions, including regrading of the site and revegetation or repaving of disturbed areas to match pre-existing contours and conditions.	Proposed Project Alternative 1 Alternative 2	LSPGC: all work areas.	Maintain work areas in clean and orderly state. Follow temporary lighting guidelines. Restore temporary work areas.	Inspect work areas during construction. Verify work area restoration.	During construction After construction
Impact AES-4	**APM BIO-12** (See Biological Resources)					
Impact AES-3	**APM GEO-1** (See Geology, Soils, and Paleontological Resources)					
Impact AES-3	**CM AES-1: Aesthetics.** All work areas would be maintained in a clean and orderly state.	Proposed Project Alternative 1 Alternative 2	PG&E: all work areas.	Maintain work areas in clean and orderly state.	Verify work areas are maintained in a clean and orderly state.	During construction
Impact AES-4	**CM BIO-11** (See Biological Resources)					
Impact AES-3	**MM BIO-2** (See Biological Resources)					
Agriculture and Forestry Resources						
Impact AG-2 Impact AG-5	**APM AG-1: Landowner Coordination.** LSPGC would coordinate with landowners prior to construction and during restoration efforts. Measures to be implemented may include, but are not limited to, the following: • Notice would be provided to landowners outlining construction activities and restoration efforts. • Areas disturbed by construction of the project would be restored in accordance with lease agreements, applicable O&M standards, and environmental permit requirements. • In areas containing permanent crops (e.g., grapevines and orchard crops) that must be removed to gain access to pole sites for construction purposes, LSPGC would provide compensation to the farmer and/or landowner in coordination with the landowner.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: work areas and overland access roads where agricultural activities occur.	Coordinate with landowners. Restore temporary work areas. Provide compensation for crop loss.	Verify coordination with landowners. Verify work area restoration. Verify compensation for crop loss.	Before construction During construction After construction
Impact AG-2 Impact AG-5	**CM AG-1: Landowner Coordination.** PG&E would coordinate with landowners prior to construction and during restoration efforts. Measures to be implemented may include, but are not limited to, the following: • Provide notice to landowners outlining construction activities and restoration efforts. • Areas disturbed by construction of the project restored in accordance with lease agreements, applicable operation and maintenance standards, and environmental permit requirements. • In areas containing permanent crops (i.e., grape vines, orchard crops, etc.) that must be removed to gain access to pole sites for construction purposes, PG&E may provide compensation to the farmer and/or landowner in coordination with the landowner.	Proposed Project Alternative 1 Alternative 2	PG&E: work areas and overland access roads where agricultural activities occur.	Coordinate with landowners. Restore temporary work areas. Provide compensation for crop loss.	Verify coordination with landowners. Verify work area restoration. Verify compensation for crop loss.	Before construction During construction After construction
Impact AG-2 Impact AG-5	**MM AG-1: Agricultural Mitigation** LSPGC shall allow existing agricultural activities to continue on undeveloped portions of the LSPGC Collinsville Substation property following construction, except where such activities would be unsafe or conflict with operation and maintenance of the project. Where agricultural land is permanently converted or agricultural activities cannot continue at the substation property, LSPGC shall preserve agricultural land at a ratio of 1.5:1 (mitigation:impact) for impacts on grazing lands as set forth in the Solano County Agricultural Mitigation Program. Mitigation lands shall meet the following criteria: • Be assigned an agricultural land use designation under the Solano County general plan; • Be assigned an agricultural zoning district under the Solano County Code;	Proposed Project Alternative 1 Alternative 2	LSPGC: Collinsville Substation.	Allow existing agricultural activities to continue where feasible. Mitigate for the loss of agricultural land through an agricultural conservation easement.	Verify continuation of agricultural activities where feasible. Verify agricultural conservation easement for loss of agricultural land.	After construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	• Any legal nonconforming use of the land has been or will be abandoned prior to execution of the agricultural conservation easement or, if maintained, will not interfere with agricultural use of the mitigation land; • Be of adequate size, configuration, and location to be viable for continued agricultural operations and use; • Be of substantially equivalent FMMP farmland classification or better compared to the land being converted; • Have an adequate water supply available for continued agricultural operations and use; • The mitigation land is not already subject to an encumbrance or interest that would legally or practicably prevent converting the land, in whole or in part, to a nonagricultural use, such as a conservation easement, open space easement, flowage easement, navigation easement, long-term agricultural lease, profit, or an interest in the subsurface estate that would preclude development of the surface estate. A contract entered pursuant to the Land Conservation Act, Government Code Section 51200 et seq. (Williamson Act) shall not constitute an encumbrance for purposes of this section; • Lack physical conditions or contamination that would legally or practicably prevent converting the land, in whole or in part, to a nonagricultural use; • The mitigation land does not have an existing home, unless the land proposed for conversion includes an existing home. The applicant shall grant an agricultural conservation easement anywhere in the unincorporated area of Solano County. The agricultural mitigation plan detailing the proposed agricultural mitigation location and how it meets the criteria of this measure shall be submitted to the CPUC for review and approval at least 120 days prior to operation of the Collinsville Substation.					
Impact AG-2 Impact AG-5	**MM BIO-2** (See Biological Resources)					
Air Quality						
Impact AQ-2 Impact AQ-3	**APM AIR-1: Tier 4 Construction Equipment.** Construction equipment with a rating between 100 and 750 hp would be required to use engines compliant with EPA Tier 4 non-road engine standards. In the event that enough Tier 4 equipment is not available, documentation of the unavailability would be provided and engines utilizing a lower standard would be used.	Proposed Project Alternative 1 Alternative 2	LSPGC: all work areas and access roads.	Implement Tier 4 construction equipment guidelines.	Verify implementation of Tier 4 equipment guidelines.	Before construction During construction
Impact AQ-2 Impact AQ-3	**CM AIR-1: Tier 4 Construction**: Equipment Construction equipment with a rating between 100 and 750 hp would be required to use engines compliant with Environmental Protection Agency Tier 4 non-road engine standards. In the event that enough Tier 4 equipment is not available, documentation of the unavailability would be provided and engines utilizing a lower standard would be used.	Proposed Project Alternative 1 Alternative 2	PG&E: all work areas and access roads.	Implement Tier 4 construction equipment guidelines.	Verify implementation of Tier 4 equipment guidelines.	Before construction During construction
Impact AQ-1 Impact AQ-2 Impact AQ-3	**MM AQ-1: Fugitive Dust Control** To minimize construction-related fugitive dust emissions, LSPGC and PG&E shall implement all dust control BMPs recommended by the Bay Area Air Quality Management District (BAAQMD). These measures shall be implemented throughout all phases of ground-disturbing activity and shall include, at a minimum, the following: 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas) shall be watered at least twice daily, or more frequently as necessary to prevent visible dust emissions. 2. All haul trucks transporting soil, sand, or other loose material off site shall be covered to prevent material loss during transit. 3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. 4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour. 5. All inactive disturbed areas (e.g., disturbed soils that remain idle for more than one day) shall be stabilized using water, soil binders, tarps, or other dust control methods. 6. Excavation, grading, and demolition activities shall be suspended when average wind speeds exceed 20 miles per hour and dust control measures are not effective at preventing visible dust emissions.	Proposed Project Alternative 1 Alternative 2 Alternative 3 Alternative 4 Alternative 6a/6b	LSPGC: all work areas and access roads. PG&E: all work areas and access roads.	Install required signage at public access locations near major work areas. Implement dust control BMPs. Respond to and address any dust complaints within 48 hours.	Verify signage installation and responses to dust complaints. Inspect construction activities and implementation of dust control BMPs.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	7. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways, especially during grading or stockpiling. 8. The area of disturbed surfaces at any one time shall be minimized to the extent feasible to limit the potential for fugitive dust generation. 9. Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.					
Impact AQ-2	**MM AQ-2: Watercraft Emission Reduction** LSPGC shall use marine vessels (e.g., tug boards and support vessels) that meet U.S. Environmental Protection Agency (EPA) Tier 4 engine standards to the extent commercially and regionally available and operating in California during construction and that can be operated within the Sacrament–San Juaquin Delta with the risk of introduction of invasive mussels. If marine vessels with EPA Tier 4 engines are not available within these constraints, LSPGC shall submit to the CPUC evidence documenting good faith effort to obtain watercraft with EPA Tier 4 engines. Where watercraft with Tier 4 engines are not commercially and regionally available, LSPGC shall ensure that all marine vessels used during in-water construction activities are powered by engines that meet EPA Tier 3 emission standards for marine compression-ignition engines, as defined in Title 40 of the Code of Federal Regulations (CFR) Part 1042. Additionally, LSPGC shall pay a mitigation fee and an administrative fee to SMAQMD to address NOx emissions in exceedance of the SMAQMD threshold. The mitigation fee shall be calculated based on the SMAQMD off-site mitigation fee schedule at the time of fee payment in accordance with the SMAQMD "Construction Off-site Mitigation Fees" program. The mitigation and administrative fees shall be paid in full at least 30 days prior to installation of the submarine cable in SMAQMD jurisdiction. Evidence of the mitigation fee payment and supporting calculations shall be submitted to the CPUC prior to submarine cable installation.	Proposed Project Alternative 5	LSPGC: 230 kV submarine segment.	Implement Tier 4 and/or Tier 3 watercraft guidelines.	Verify implementation of Tier 4 and/or Tier 3 watercraft guidelines.	Before construction During construction
Biological Resources						
Impact BIO-1C	**APM BIO-1: Avoid Environmentally Sensitive Areas.** Biological field surveys (i.e., surveys to identify vegetation communities and land cover, aquatic features, and potential terrestrial habitat for special-status plant and wildlife species, as well as fully floristic botanical surveys) would be performed for any portion of the project area not yet surveyed (e.g., areas that did not have landowner access, new or modified staging areas, pull sites, or other work areas). Sensitive biological resources or areas discovered during surveys would be subject to a buffer from construction activities in accordance with the applicable project APMs. The findings of all biological field surveys on portions of the project area not yet surveyed would be provided to the CPUC prior to construction commencing within those areas.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: all work areas and access roads.	Conduct biological field surveys in project areas not yet surveyed. Delineate and avoid sensitive biological resource areas.	Verify completion of biological field surveys prior to construction, and avoidance of sensitive biological resource areas.	Before construction During construction
Impact BIO-1B Impact BIO-1C Impact BIO-1G Impact BIO-2	**APM BIO-3: Worker's Environmental Awareness Program (WEAP) Training**. All workers on the project site would be required to attend a WEAP training. Training would inform all construction personnel of the resource protection and avoidance measures, as well as procedures to be followed upon the discovery of environmental resources. Additionally, the WEAP would train all construction personnel on hazardous materials management, hazardous wastes and stained or odiferous soils identification, and applicable regulations. The WEAP training would include, at a minimum, the following topics so crews would understand their obligations: • Environmentally sensitive area boundaries, • Housekeeping (i.e., trash and equipment cleaning), • Safety, • Work stoppage, • Communication protocol, and • Consequences of non-compliance.	Proposed Project Alternative 1 Alternative 2Alternative 4 Alternative 5 Alternative 6a/6b	LSPGC: all work areas and access roads.	Develop WEAP training materials. Provide WEAP training to all on-site workers before they begin work.	Verify WEAP training materials meet requirements. Verify that all on-site workers receive WEAP training.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
Impact BIO-1C Impact BIO-2	**APM BIO-4: Delineation of Sensitive Resources.** All sensitive biological areas (e.g., aquatic resources and special-status plants) within project work areas would be clearly marked prior to construction to restrict construction activities and equipment from entering these areas. Signage would be placed along regular intervals of this delineation prohibiting entry by project personnel and identifying the delineated area as a sensitive resource. A buffer of at least 5 feet from all construction activities would be established around these areas. These buffers would be inspected regularly to ensure that they remain in place.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: work areas and access roads where sensitive biological resources occur.	Implement appropriate delineations to protect sensitive resources. Inspect and maintain delineations.	Verify implementation of appropriate delineations that protect sensitive resources.	Before construction During construction
NA	**APM BIO-7: Vehicle Cleaning.** All construction equipment and vehicles that would travel outside of approved access roads/designated parking areas (e.g., staging yards) would be cleaned prior to their initial arrival on the project site to avoid spread of noxious weeds and non-native invasive plant species.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: unpaved work areas and access roads.	Implement vehicle cleaning procedures.	Verify implementation of vehicle cleaning procedures.	During construction
NA	**APM BIO-8: Vehicle Travel.** Vehicles would adhere to a speed limit of 15 mph on unpaved access roads without a posted speed limit, project-specific construction routes, and within temporary work areas. In addition, construction employees would be required to stay on established and clearly marked and existing roads and within the limits of disturbance (except when not feasible due to physical or safety constraints) and would be advised that care should be exercised when commuting to and from the project area to reduce accidents and animal road mortality.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: all work areas and access roads.	Instruct workers to use only designated access routes. Follow posted vehicle speed limits; otherwise limit speeds to 15 mph or less.	Verify use of approved access roads and adherence to speed limits.	During construction
Impact BIO-1B Impact BIO-1C	**APM BIO-9: Trapped Animal Prevention.** All excavated holes/trenches that are not filled at the end of a workday would be covered, or a wildlife escape ramp would be installed to prevent the inadvertent entrapment of wildlife species.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: excavation areas (e.g., holes and trenches).	Adequately cover or install wildlife escape ramp at open excavations at the end of each workday.	Verify excavations are adequately covered or escape ramps are installed at the end of a workday.	During construction
NA	**APM BIO-10: Delineation of Work Areas.** All work areas within the project area would be clearly delineated prior to construction commencing with fencing, staking, or flags. Construction activities would be restricted to delineated work areas and all delineation would be maintained in working order until completion of construction.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: all work areas.	Implement and maintain adequate work area delineations.	Verify implementation of adequate work area delineations.	During construction
Impact BIO-1B Impact BIO-1C Impact BIO-1D Impact BIO-1F	**APM BIO-11: Pre-Construction Wildlife Surveys.** Prior to initial vegetation clearance and ground-disturbing activities within suitable habitat for special-status wildlife, a biologist would conduct pre-construction surveys within project work areas for special-status wildlife. Within wetland habitats or other areas suitable for northwestern pond turtle occupation, a qualified biologist would examine potential basking sites for adult turtles, as well as potential nest sites in sandy or sparsely vegetated substrates; turtle nests would be flagged for avoidance. In pickleweed habitats or other areas suitable for salt marsh harvest mouse occupation, a qualified biologist would carefully inspect vegetation prior to vegetation clearance and ground disturbing activities to ensure no salt marsh harvest mouse individuals or nests are present and to encourage mice residing within or adjacent to the project work areas to move into adjacent habitats prior to impacts commencing each day. The monitor/inspector would have the authority to stop work activities upon the discovery of sensitive biological resources and allow construction to proceed after the identification and implementation of steps required to avoid or minimize impacts to sensitive resources.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: work areas and access roads where ground disturbance and vegetation removal occurs.	Implement pre-construction surveys prior to use of work areas and/or vegetation clearance. Identify and delineate sensitive wildlife areas (i.e., nests and sensitive habitat areas, etc.) as specified.	Verify a qualified biologist is retained to perform pre-construction surveys of work areas. Verify identification, delineation, and avoidance of sensitive wildlife areas.	Before construction During construction
NA	**APM BIO-12: Project Lighting.** The use of outdoor lighting during construction would be minimized whenever practicable. Photocell-controlled lighting (i.e., motion detection) would be provided at a level sufficient to provide safe entry and exit to the	Proposed Project Alternative 1 Alternative 2	LSPGC: Collinsville Substation.	Implement temporary and permanent outdoor lighting requirements.	Verify temporary and permanent outdoor lighting requirements.	During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	proposed LSPGC Collinsville Substation and control enclosures. All lighting would be selectively placed, shielded, and directed downward and away from sensitive habitat and resources to the maximum extent practicable.					After construction
Impact BIO-1D	**APM BIO-15: Wetland Birds.** To the greatest extent feasible, work within wetland habitats suitable for California black rail or Ridgway's rail occupation would be limited to a work window of September 1 through January 15, which is outside of the breeding season for these species.	Proposed Project Alternative 4 Alternative 6a/6b	LSPGC: 230 kV submarine segment.	Avoid work within wetland habitats during wetland bird breeding season.	Verify wetland habitats are avoided during wetland bird breeding season.	During construction
NA	**APM BIO-16: Vegetation and Tree Trimming/Removal.** Vegetation and tree trimming/removal would be limited to the minimum area necessary to allow construction to proceed and to provide adequate vegetation removal to meet initial electrical clearance and wildfire prevention requirements. Where feasible, shrubs and other woody vegetation would be cut at the base to preserve the existing root system and facilitate resprouting following the conclusion of project construction.	Proposed Project	LSPGC: work areas and access roads where vegetation removal or trimming occurs.	Limit vegetation clearing and trimming to the minimum necessary.	Verify vegetation clearing and trimming is limited to the minimum necessary.	During construction
Impact BIO-1G Impact BIO-4	**APM BIO-18: In-Water Work Window.** To minimize potential impacts to fish during in-water work (i.e., disturbance to the Delta substrate or placement of construction materials below the waterline) both from general disturbance or from the potential introduction of deleterious materials that may disrupt both migratory events and cause impacts to species during key times of year when more sensitive life stages (i.e., eggs and fry) are present, a work window of July 1 to November 30 would be enacted.	Proposed Project Alternative 5	LSPGC: 230 kV submarine segment.	Restrict in-water work to occur between July 1 to November 30.	Verify in-water work occurs between July 1 to November 30.	During construction
Impact BIO-1H Impact BIO-5	**APM BIO-19: Intake Screening.** To minimize the potential for fish to be entrained by the project, any pumps or water intakes used by the project would be screened in accordance with the following CDFW and NMFS screening requirements for water diversions within the Delta (CDFG 2000, NMFS 1997). If any variation from these criteria is necessary, the Proponent would consult with the agency responsible for the species for recommendations to protect fish.	Proposed Project Alternative 5	LSPGC: 230 kV submarine segment.	Screen any pumps or water intakes in accordance with CDFW and NMFS requirements.	Verify any pumps or water intakes are screened in accordance with CDFW and NMFS requirements.	Before construction
Impact BIO-1G Impact BIO-1H Impact BIO-4	**APM BIO-20: Invasive Species Management for In-Water Work.** To help reduce the potential effects of invasive species from construction of the project the following measures would be implemented: • Aquatic vessels brought to the study area from ports outside of San Francisco Bay and/or the Delta for aquatic construction would follow all maritime regulations relating to the exchange of ballast water to prevent the spread of invasive species from outside ports. • Any in-water fill materials (e.g., piles) would be new and not salvaged from areas outside of San Francisco Bay. • Any pumps or in-water equipment that may be needed during construction would be cleaned and dried for at least 72 hours prior to first being used on the project. Continual presence on site would not require drying between uses.	Proposed Project Alternative 5	LSPGC: 230 kV submarine segment.	Implement invasive species management measures for in-water work equipment and vessels.	Verity invasive species management measures for in-water work equipment and vessels.	Before construction During construction
Impact BIO-1G Impact BIO-1H Impact BIO-4 Impact BIO-5	**APM BIO-21: Aquatic Sediment Screening and Testing.** Prior to installation of cables, screening of the cable alignment based on available background resources (e.g., EnviroStor) would be conducted to determine if there have been any known spills or other hazardous materials releases that potentially intersect with the alignment. If any known spills or other hazardous materials releases are discovered, an aquatic sediment screening and testing program would be developed to evaluate the risk of exposing hazardous sediments to the marine environment. The program would entail the following: • Representative aquatic sediment samples would be collected at a minimum of three locations placed evenly along the alignment. The depth of the samples would be consistent with the depth of trenching at each sample location. • Sediment samples would be tested according to methods prescribed in the Guidelines for Implementation of the Inland Testing Manual in San Francisco Bay or updated similar manual approved by the San Francisco Bay Dredge Material Management Office (DMMO) (DMMO 2001). The results of this test would be compared to concentrations allowed for in-bay disposal by the San Francisco Bay DMMO to determine if sediments are clean or require special handling. • Aquatic sediments that exceed San Francisco Bay DMMO testing standards would: • Be avoided by the cable installation route, or - Be removed through dredging and disposed of at an appropriate facility approved by the RWQCB, or	Proposed Project Alternative 5	LSPGC: 230 kV submarine segment.	Implement aquatic sediment screening and testing along submarine segment alignment to identify potentially hazardous sediments. If hazardous sediments are found, implement impact avoidance and minimization requirements.	Verify aquatic sediment screening and testing occurs, and impact avoidance and minimization requirements are implemented if found.	Before construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	- Be controlled via use of a silt curtain or other appropriate BMP approved by the RWQCB. • Cable installation and hydroplow use would be limited to the specified areas and the minimum length necessary.					
Impact BIO-1G Impact BIO-1H Impact BIO-4 Impact BIO-5	**APM BIO-22: Aquatic Spill Prevention and Control.** A spill prevention and control plan would be developed and implemented for the project throughout all phases of construction. This plan would, at a minimum, include the following parameters to reduce potential effects from spills: • Procedures to ensure any equipment used in water (e.g., hydroplow or excavators) are cleaned of excess lubricants and fuels. • Identification of any hazardous materials used by the project. • Storage locations and procedures for such materials. • Spill prevention practices, as well as BMPs, employed for various activities. • Requirements to inspect equipment regularly such that it is maintained to be free of leaks. • Spill kit location, cleanup, and notification procedures.	Proposed Project	LSPGC: 230 kV submarine segment.	Develop and implement an aquatic spill prevention and control plan.	Verify development and implementation of aquatic spill prevention and control plan.	Before construction During construction
Impact BIO-1H	**APM BIO-23: Overwater Concrete Casting.** The following measure would be implemented during the casting of overwater concrete: • All overwater concrete would be poured into water-tight forms, and isolated from waters of the Delta until concrete has fully cured (typically 30 days). • Commercial sealants may be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If sealant is used, water would be excluded from the site until the sealant is dry. • Any water used to keep concrete moist during the curing process would not be allowed to run off of the structure. Concrete forms would also be sufficiently designed to catch and hold any such cure water. • At all times when concrete is being poured or when working with wet concrete, a monitor would be present to inspect the containment structures and ensure that no concrete or cure water escapes the containment structure.	Proposed Project Alternative 5	LSPGC: 230 kV submarine segment.	Implement measure requirements during casting of overwater concrete.	Verify implementation of measure requirements during casting of overwater concrete.	During construction
Impact BIO-1A Impact BIO-1F	**APM AES-1** (See Aesthetics)					
Impact BIO-1A Impact BIO-1B Impact BIO-1C Impact BIO-1D Impact BIO-1E Impact BIO-1F Impact BIO-2 Impact BIO-3	**APM FIRE-1** (See Wildfire)					
Impact BIO-1C Impact BIO-1E	**CM BIO-1: Vernal Pool and Waters Avoidance.** Prohibit vehicular and equipment refueling 250 feet from the edge of vernal pools, and 100 feet from the edge of other wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas. Maintain a buffer of 250 feet from the edge of vernal pools and 50 feet from the edge of wetlands, ponds, or riparian areas. If maintaining the buffer is not possible because the areas are either in or adjacent to facilities, the field crew would implement other measures as prescribed by the land planner, biologist, or HCP administrator to minimize impacts by flagging access, requiring foot access, restricting work until dry season, or requiring a biological monitor during the activity.	Proposed Project	PG&E: work areas and access roads within 250 feet of vernal pools and 100 feet of other wetlands, streams, or waterways.	Clearly identify and establish specified avoidance buffers for vernal pools, wetlands, and other water features. Implement impact avoidance and minimization requirements as specified.	Verify adequate avoidance of vernal pools, wetlands, and other water features through buffers and other minimization requirements.	During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
Impact BIO-2	**CM BIO-2: Revegetation.** If the covered activity disturbs 0.1 acre or more of habitat for a covered species in grasslands, the field crew would revegetate the area with a commercial "weed free" seed mix.	Proposed Project Alternative 3	PG&E: work areas and overland access roads in grasslands.	Revegetate disturbed grasslands equal to or greater than 0.1 acre.	Verify revegetation of disturbed grassland equal to or greater than 0.1 acre.	After construction
Impact BIO-1B Impact BIO-1C Impact BIO-2	**CM BIO-3: Worker's Environmental Awareness Training.** All workers on the project site would be required to attend a Workers Environmental Awareness Program (WEAP) training. Training would inform all construction personnel of the resource protection and avoidance measures, as well as procedures to be followed upon the discovery of environmental resources. The WEAP training would include, at a minimum, the following topics so crews would understand their obligations: • Environmentally sensitive area boundaries, • Housekeeping (i.e., trash and equipment cleaning), • Safety, • Work stoppage, • Communication protocol, and • Consequences of non-compliance.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all work areas and access roads.	Develop WEAP training materials. Provide WEAP training to all on-site workers before they begin work.	Verify WEAP training materials meet requirements. Verify that all on-site workers receive WEAP training.	Before construction During construction
Impact BIO-1C Impact BIO-1D Impact BIO-1D	**CM BIO-4: Delineation and Avoidance of Sensitive Habitat Features.** A Designated Biologist would clearly identify sensitive resources that crews must avoid for the duration of the activities with posted signs, posting stakes, flags, and/or rope or cord, and place fencing as necessary to minimize or avoid disturbance.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: work areas and access roads near sensitive biological resources.	Require a Designated Biologist to identify and delineate sensitive resources for avoidance.	Verify a Designated Biologist identifies and delineates sensitive resources for avoidance.	Before construction
NA	**CM BIO-5: Special-Status Plant Species.** Occurrences of special-status plant species would be avoided to the extent practicable and would include performance of project activities in special-status plant habitat after senescence. PG&E has created "Map Book zones" for the 13 state or federally listed plants that are covered in the O&M HCP. A Map Book zone is defined as an area of occupied or potentially occupied the HCP-covered plant species habitat as determined by PG&E botanical surveys. When rare and endangered plant species subject to the NPPA cannot be avoided, PG&E would follow the requirements of California Fish and Game Code Sections 1913(b) and 1913(c) concerning notification to CDFW at least 10 days in advance and provide an opportunity to salvage such species. If a special-status plant is found or known to occur, the plant would be avoided if feasible (i.e., O&M objectives could still be met). If feasible to avoid, avoidance would include establishing a buffer around the plants and demarcation of the buffer by a qualified biologist or botanist using flagging. Consideration of site-specific environmental factors such as terrain, site hydrology, light, and potential introduction of invasive plants may inform the avoidance approach.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: work areas and access roads near special-status plant species.	Follow the avoidance areas mapped in PG&E's Map Book zones and avoid any special-status plants if found or known to occur. Where plants cannot be avoided, adhere to California Fish and Game Code Sections 1913(b) and 1913(c) and provide an opportunity to salvage rare and endangered plant species. Implement appropriate buffer distances from plants flagged by a qualified biologist.	Verify PG&E's special-status plant avoidance and minimization requirements per measure.	During construction
NA	**CM BIO-6: Biological Monitor.** For Covered Activities in Covered Species modeled habitat that require work over a period of two weeks or greater, a General Biological Monitor would conduct compliance inspections, at a minimum, once every week after clearing, grubbing, and grading are completed and during periods of inactivity.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: work areas and overland access roads in Covered Species modeled habitat.	Conduct biological monitoring inspections at least once per week.	Verify biological monitoring inspections occur at least once per week.	During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
NA	**CM BIO-7: Clean Equipment and Materials**. PG&E would implement the following for activities that involve ground disturbance: • Mud and/or accumulated soils would be removed from equipment and vehicles to the maximum extent practicable. • Vehicles and equipment would be cleaned or washed before entering a new work site. • A log would be kept for each work site and would be completed to document each cleaning or washing of vehicles or equipment before entering each new work site. • Vehicles would be staged and stored on paved or cleared areas to the extent practicable. • Certified weed-free mulch, straw, hay bales, or equivalent materials would be used where necessary.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: work areas and access roads where ground disturbance occurs.	Implement vehicle and equipment cleaning measures prior to arriving on site and maintain cleaning log. Store vehicles on paved or cleared areas. Use certified weed-free materials.	Verify equipment is cleaned of soils adequately prior to arriving on site.	During construction
Impact BIO-1E	**CM BIO-8: Vehicle Travel**. PG&E would: • Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt). • Use existing access and ROW roads. Minimize the development of new access and ROW roads, including clearing and blading for temporary vehicle access in areas of natural vegetation. • Locate off-road access routes and work sites to minimize impacts on plants, shrubs, and trees, small mammal burrows, and unique natural features (e.g., rock outcrops). • Limit vehicle speeds on unpaved roads to 15 miles per hour.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all work areas and access roads.	Implement vehicle travel and parking guidelines.	Verify implementation of vehicle travel and parking guidelines.	During construction
Impact BIO-1B Impact BIO-1C	**CM BIO-9: Trapped Animal Prevention.** Fit open trenches or steep-walled holes with escape ramps of plywood boards or sloped earthen ramps at each end if left open overnight. Field crews would search open trenches or steep-walled holes every morning prior to initiating daily activities to ensure wildlife are not trapped. If any wildlife are found, a biologist would be notified and would relocate the species to adjacent habitat or the species would be allowed to naturally disperse, as determined by a biologist. Minimize potential for covered species to seek refuge or shelter in pipes and culverts. Inspect pipes and culverts, of diameter wide enough to be entered by a covered species that could inhabit the area where pipes are stored, for wildlife species prior to moving pipes and culverts. Immediately contact a biologist if a covered species is suspected or discovered.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: areas of excavation (i.e., trenches or steep-walled holes) and open pipes, culverts, and poles.	Implement wildlife entrapment prevention measures in areas of excavation and where open pipes, culverts, and poles occur.	Verify wildlife entrapment prevention measures are implemented in areas of excavation and where open pipes, culverts, and poles occur.	During construction
NA	**CM BIO-10: Minimize Footprint.** Minimize the activity footprint and minimize the amount of time spent at a work location to reduce the potential for take of species.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all work areas and overland access roads.	Restrict activity footprint and time spent at work locations.	Verify impact areas are limited to approved workspaces.	During construction
Impact BIO-1F Impact BIO-5	**CM BIO-11: Construction Hours and Lighting.** Construction activities would cease 30 minutes before sunset and would not begin prior to 30 minutes after sunrise, where feasible. Night work would be limited in extent, duration, and brightness, to the extent feasible. If temporary construction lighting is required, PG&E would use shielded construction light fixtures, or otherwise screen or direct lighting away from nearby residences except in the cases of emergency.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all work areas.	Restrict construction activities 30 minutes before sunset and 30 minutes after sunset. Implement construction lighting restrictions.	Verify that construction activities are restricted 30 minutes before sunset and 30 minutes after sunrise.	During construction
NA	**CM BIO-13: Felling Trees.** Directionally fell trees away from an exclusion zone, if an exclusion zone has been defined. If this is not possible, remove the tree in sections. Avoid damage to adjacent trees to the extent possible. Avoid removal of snags and conifers with basal hollows, crown deformities, and/or limbs over 6 inches in diameter.	Proposed Project	PG&E: any location where tree removal occurs.	Implement tree felling procedures if and where appliable.	Verify tree felling procedures if and where applicable.	During construction
Impact BIO-4	**CM BIO-14: Conservation Landowner Notification.** Notify conservation landowner at least 2 business days prior to conducting covered activities on protected lands (state and federally owned wildlife areas, ecological reserves, or conservation areas); more notice would be provided if possible or if required by other permits. If the work is an emergency, as defined in PG&E's Utility Procedure ENV-8003P-01, PG&E would notify the conservation landowner within 48 hours after initiating emergency work. While	Proposed Project Alternative 1 Alternative 2	PG&E: any work areas that occur in state or federally owned	Coordinate with applicable agencies associated with any work in state or federally	Verify coordination with applicable state or federal agencies regarding worth within	Before construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	this notification is intended only to inform conservation landowner, PG&E would attempt to work with the conservation landowner to address landowner concerns.	Alternative 3	wildlife areas, ecological reserves, or conservation areas.	owned wildlife areas, ecological reserves, or conservation areas.	any wildlife areas, ecological reserves, or conservation areas.	During construction
NA	**CM BIO-15: Prohibitions.** Prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all work areas and access roads.	Implement standard work site prohibitions.	Verify standard worksite prohibitions.	During construction
Impact BIO-1A	**CM BIO-16: Erosion and Sediment Control BMPs.** Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's *Stormwater Field Manual for Construction Best Management Practices*) to prevent construction site runoff into waterways.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all work areas and access roads.	Implement standard erosion and sediment control BMPs to prevent construction site runoff.	Verify implementation of standard erosion and sediment control BMPs, and construction site runoff is prevented.	During construction
NA	**CM BIO-17: Soil Stockpiling.** Stockpile soil within established work area boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: work areas where excavation and/or soil stockpiling occurs.	Locate and cover soil stockpiles appropriately.	Verify soil stockpiles are located and covered adequately.	During construction
Impact BIO-1A Impact BIO-1B Impact BIO-1C Impact BIO-1D Impact BIO-1E Impact BIO-1F Impact BIO-2 Impact BIO-3	**CM FIRE-1** (See Wildfire)					
Impact BIO-1A	**CM HAZ-1** (See Hazards and Hazardous Materials)					
Impact BIO-1A Impact BIO-5	**MM BIO-1: Avoidance and Minimization of Impacts on Special-Status Plants** **Pre-construction surveys:** Where surveys have not been completed within 5 years prior to construction or vegetation disturbance, LSPGC/PG&E shall obtain CPUC approval of a qualified botanist to perform pre-construction surveys for state or federally listed plant species and those with a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, 2B that have the potential to occur in the project area during construction. These surveys shall be performed utilizing CNPS or other accepted botanical survey protocol. Special-status plant surveys shall be conducted during the appropriate blooming period for each species. Surveys shall occur prior to construction and operation and maintenance activities for all work areas occurring off existing access roads in natural areas, including overland travel routes, and areas of existing roads that require modifications. The surveys shall include a floristic inventory and focused search for special-status plants with potential to occur in Project areas where suitable habitat is present. The survey results shall be summarized in a report and provided to the CPUC no less than 30 days prior to commencement of construction. The survey report shall identify the botanists' names and qualifications, and a description of the survey dates, methods, and a description of the survey efforts, including a list of the species that were searched for, results of the plant	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: work areas and overland access roads where special-status plants may occur. PG&E: work areas and overland access roads where special-status plants may occur.	Complete pre-construction surveys for special-status plants where necessary. Submit preconstruction survey report(s) for CPUC review and approval. Implement special-status plant avoidance measures. If impacts to special-status plant species cannot be avoided,	Verify pre-construction surveys are completed for special-status plants, where required. Verify implementation of special-status plant avoidance measures. If impacts to special-status plant species cannot be avoided, review Salvage and Replanting Plan(s)	Before construction During construction After construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	inventory evaluation, and suitable habitat that was encountered. The report shall include maps (1: 3,000 scale) that identify final Project work areas and access routes and the extent of focused plant surveys that cover Project areas located in occupied habitat. Maps in the report shall identify point locations for individual plants and boundaries for plant populations. The report shall include specific recommendations for avoiding special-status plants. **Avoidance measures**: LSPGC/PG&E shall mark all populations of special-status plants within the work area and a 25-foot buffer site as *environmentally sensitive areas* (ESAs) on maps that are provided to contractors working near environmentally sensitive areas. All populations within 25 feet of a project work area and 20 feet of an access road shall be staked and flagged or fenced for avoidance by a qualified biologist or botanist prior to construction and shall be monitored by a qualified biologist or botanist during construction to ensure proper avoidance of the species. The project work areas shall be adjusted as needed to avoid any populations of special-status plants that occur within the work area to the extent feasible. All stakes and flagging shall be removed no later than 30 days after construction is complete in the area. Information about special-status plants and avoidance requirements shall be included in the Workers Environmental Awareness Training Program (APM BIO-3 and CM BIO-3). In the event of a discovery of previously undocumented species, the boundary of the occurrence will be flagged, avoided, and monitored as discussed above and the CPUC, CDFW, and/or USFWS will be notified if the species is state or federally listed. If the special-status plant species cannot be avoided, LSPGC/PG&E shall notify CPUC in writing, and LSPGC/PG&E shall submit a Salvage and Replanting Plan to CPUC and CDFW for approval as described below. No State or federally listed plant species shall be salvaged or relocated without obtaining permit authorization from CDFW and/or USFWS, as required. LSPGC/PG&E shall provide the CPUC with any permits and authorizations obtained from USFWS and CDFW. LSPGC shall relocate the species to areas within the easement that are outside of the long-term maintenance areas. If the species occurs in an area that is subject to temporary impacts, the species shall be included in the restoration of the site. **Salvage and replanting plan**: For impacts on state or federally listed or CRPR 1 or 2 plants that cannot be avoided, the qualified botanist shall prepare and implement a Salvage and Replanting Plan. The Salvage and Replanting Plan would specify, at a minimum, the following: • Location of the mitigation site(s) (extent of the plants within and adjacent to project areas and site conditions that support recolonization). • Procedures for procuring plants, if appropriate, such as transplanting or collecting seed from plants to be impacted, including storage locations and methods to preserve the plants. If collecting seed or transplanting plants is not appropriate, the plan shall document justification and propose alternative strategies (e.g., preserving topsoil or protecting adjacent populations to facilitate passive revegetation). • Procedures for propagating collected materials or topsoil storage and redistribution methods. • Quantity and species of plants to be planted or transplanted, if applicable. • Planting procedures, including the use of soil preparation and irrigation. • Schedule and action plan to maintain and monitor the mitigation site for a minimum 3-year period. • Reporting procedures, including the contents of annual progress reports. • List of criteria tailored to species-specific attributes (e.g., growth, plant cover, spatial extent, survivorship) by which to measure success of the plantings. • Contingency measures to implement if the plantings are not successful (i.e., weed removal, supplemental plantings, etc.). LSPGC/PG&E shall submit the Salvage and Replanting Plan to the CPUC for review and approval no less than 30 days prior to impacting or collecting special-status plants. At a minimum, the transplanted/created population(s) shall have approximately the same characteristics as the impacted population (within 10-percent density, total population number, and non-native/invasive). Seasonal population changes may be taken into account by identifying and documenting the characteristics of an appropriate representative reference site prior to impacting a population. Salvage of plants (seed) and replanting shall occur prior to impacts on the impacted plant communities. Reference sites that will be used must be identified and described in the Salvage and Replanting Plan.			prepare and implement a Salvage and Replanting Plan. Submit the plan to CPUC 30 days prior to salvage for review and approval. Conduct plant restoration monitoring and reporting for 3 years after replanting, if required, and ensure performance criteria is achieved.	prepared by LSPGC and/or PG&E. Verify plant restoration monitoring and reporting occurs for 3 years after replating, if required, and verify performance criteria is achieved.	

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	If CPUC or CDFW determines that the Salvage and Replanting Plan is not likely to be successful (due to the species' life form, habitat requirements, or other factors), then LSPGC/PG&E shall provide compensation lands consisting of habitat occupied by the impacted CRPR 1 or 2, ranked plant occurrences at a 1:1 ratio of acreage for any occupied habitat affected by the project. Occupied habitat will be calculated on the project site and on the compensation lands as including each special-status plant occurrence. If compensation is required as a means of mitigating special-status plant impacts, it may be accomplished by purchasing credit in an established mitigation bank, acquiring conservation easements, or direct purchase and preservation of compensation lands. Compensation for these impacts may be "nested" or "layered" with compensation for habitat loss, which describes the practice of utilizing compensation lands for multiple different mitigation requirements (e.g., special-status plant habitat and special-status wildlife habitat) (Gardner and Fox 2013). **Annual reporting:** Annual salvage and replanting monitoring reports shall be submitted to CPUC for a period of 3 years after transplanting to ensure success of the transplanted populations. Where transplantation has not been successful under the criteria set forth in the performance standards below, compensation shall be provided on an acreage basis at a 1:1 ratio to offset the loss of transplanted special-status plant populations. Annual reports shall include, details of plants or propagules salvaged, stored, and transplanted (salvage and transplanting locations, species, number, size, condition, etc.); adaptive management efforts implemented (date, location, type of treatment, results, etc.); and evaluation of success of transplantation. Salvage status and success will be described in the annual report. **Performance Standards:** Where impacts on special-status plants are unavoidable, the transplanted/created population(s) must have approximately the same characteristics as the impacted population (within 10-percent density, total population number, and non-native/invasive species).					
Impact BIO-1A Impact BIO-2 Impact BIO-5	**MM BIO-2: Habitat Restoration** LSPGC/PG&E shall prepare and implement a Revegetation, Restoration, and Monitoring Plan that addresses procedures for revegetation and/or restoration. The plan shall also address the requirements for restoration in MM BIO-1: Special-Status Plant Populations and MM BIO-22: Sensitive Natural Plant Communities. The plan shall be developed upon completion of final design and submitted to the CPUC for review and approval no less than 60 days before commencement of construction. All temporarily disturbed areas shall be restored to near pre-construction conditions to ensure permanent impacts do not occur in areas of temporary impacts as a result of the project. Pre-construction conditions, including vegetation cover estimates and percentage of Cal-IPC list invasive weeds (plants rated as "High" and "Moderate"), shall be documented for each project work area as described below in the Pre-Construction Report. The goal of the restoration shall be that habitat functions and values and species composition of the restored vegetation are comparable to those of nearby comparable vegetation within 3 years. The plan shall identify corrective actions to implement (e.g., removal of invasive weeds, supplemental planting, etc.) if the performance standards defined in this measure are not achieved. Work sites that have been proven to meet the performance standard defined in this measure shall not require further monitoring and reporting. **Monitoring procedures:** A qualified biologist or botanist shall monitor vegetation resources that are impacted annually until performance standards have been met. Monitoring shall be conducted once a year during the growing season to verify species composition and cover within all areas of temporary disturbance. **Pre-construction report(s):** Prior to construction, a qualified biologist or botanist shall survey all final work areas and overland access routes to identify the vegetation resources that may be impacted, including their location, composition, condition, and extent of planned project disturbance. Survey efforts may be conducted in conjunction with focused surveys required for special-status species, as described in applicable APMs and mitigation measures. Anticipated impacts on vegetation resources shall be quantified and documented in the report, such as special-status plant individuals or the characteristics of populations (i.e., estimated size and cover estimates), the types and numbers of shrub individuals, and restoration acreages for sensitive natural communities. The baseline conditions for adjacent and comparable vegetation resources shall also be documented in the report. Such areas may be used as a control for post-construction monitoring to determine relative restoration performance and account for seasonal fluctuations in invasive species composition, general growth rates, and overall coverage.	Proposed Project Alternative 1 Alternative 2 Alternative 3 Alternative 4 Alternative 6a/6b	LSPGC: work areas and overland access routes where temporary impacts occur. PG&E: work areas and overland access routes where temporary impacts occur.	Prepare and implement a Revegetation, Restoration, and Monitoring Plan, and ensure all temporarily disturbed areas are revegetated and restored. Prepare and submit pre-construction reports. Prepare and submit post-construction reports. Conduct restoration monitoring until performance criteria are achieved. Prepare and submit annual restoration monitoring reports.	Review and verify implementation of a Revegetation, Restoration, and Monitoring Plan. Review all required reporting (pre-construction reports, post-construction reports, and annual monitoring reports). Verify all temporarily disturbed areas are adequately restored after construction.	Before construction During construction After construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	The report shall include maps (1: 3,000 scale) that identify the types and locations of the vegetation resources that may be impacted, the limits of the planned work areas, and project access routes. An initial report shall be submitted to the CPUC no less than 30 days before construction. Separate reports may be submitted for each project segment, if necessary. If new impacts or restoration procedures are identified, the plan shall be updated and submitted in track changes to the CPUC. **Post-construction reports:** LSPGC/PG&E shall prepare and submit Post-Construction Reports to the CPUC on an annual basis until construction is complete. Post-Construction Reports shall include table summaries of actual project impacts, and maps of the areas that identify the limits of actual impacts. The summary table shall include the location name/ID for each impact area, anticipated impact acreage from the Pre-Construction Report, and actual impact acreage during construction. The report shall include a brief statement about revegetation, restoration, and monitoring procedures that would be implemented where impacts occurred, as defined in the approved plan. **Annual monitoring reports:** Once revegetation and restoration begins, LSPGC/PG&E shall conduct surveys during the growing season and submit Annual Monitoring Reports to the CPUC. The reports shall summarize revegetation and restoration efforts for each applicable impact area, provide data on how the restoration is performing relative to the performance standards, and detail any corrective actions necessary to meet performance standards. Once the performance standards have been achieved for each location, monitoring and reporting would no longer be required for the location. LSPGC/PG&E shall provide written updates to CPUC upon request regarding seasonally dependent restoration and corrective actions prior to submission of the annual monitoring reports. **Applicable locations**: Areas of temporary impact. **Performance standards:** Habitat restoration shall match the pre-impact vegetation community composition/cover of the affected sensitive vegetation communities with 10 percent variability. Non-native or other vegetation communities shall have at least 70 percent of the pre-impact total vegetative cover and shall be revegetated with vegetation community composition matching surrounding unaffected areas with an allowed variance of 10 percent. Invasive species cover shall not exceed pre-project coverage. **Timing:** Restoration of temporary impact areas shall be initiated within one year following completion of temporary disturbance. Monitoring to occur during blooming periods and reporting to occur annually and submitted to CPUC within 30 days of monitoring.					
Impact BIO-1A Impact BIO-1C Impact BIO-1D Impact BIO-1E Impact BIO-1F Impact BIO-2 Impact BIO-3 Impact BIO-5 Impact BIO-6	**MM BIO-3: Invasive Plant Management** Invasive plants include plants that (1) are invasive and rated high or moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006), or (2) aid and promote the spread of wildfires (such as *Bromus tectorum* [cheatgrass], *Brassica tournefortii* [Sahara mustard], and *Bromus madritensis* spp. *Rubens* [red brome]). Invasive plants shall be managed throughout project pre-construction, construction, and restoration phases. **Pre-construction invasive plant inventory**. LSPGC shall inventory invasive plants of concern in areas subject to project-related vegetation removal/disturbance, overland travel (drive and crush), and ground-disturbing activity. The invasive plants inventory area shall also include vehicle and equipment access routes and all project staging and storage yards. Invasive plants of concern shall be mapped by area of occurrence and percent cover. **Pre-construction invasive plants treatment.** Invasive plant infestations identified in the pre-construction invasive plants inventory shall be evaluated to identify potential for project-related spread and potential benefits (if any) of pre-construction treatment. Pre-construction treatment will consider the specific invasive plants, potential seed banks, or other issues. Pre-construction treatment shall be conducted under the direction of a licensed pest control advisor. **Prevention.** Vehicles and equipment shall be inspected at entry points to the project work area and before leaving work sites where invasive plants must be contained locally. Construction equipment shall be inspected to ensure it is free of any dirt or mud that could contain invasive plant seeds, roots, or rhizomes, and the tracks, outriggers, tires, and undercarriage will be carefully washed, with special attention being paid to axles, frame, cross members, motor mounts, underneath steps, running boards, and front bumper/brush guard assemblies. Other construction vehicles (e.g., pick-up trucks) that will be frequently entering and exiting the site will be inspected and washed on an as-needed basis. Tools such as chainsaws, hand clippers, pruners, etc., shall be cleaned of dirt and mud before entering project work areas.	Proposed Project Alternative 1 Alternative 2 Alternative 3 Alternative 4 Alternative 6a/6b	LSPGC: unpaved work areas and overland access roads. PG&E: unpaved work areas and overland access roads.	Prepare and conduct a pre-construction inventory of invasive plants in areas subject to disturbance, access, and staging. Evaluate and implement pre-construction treatment of invasive plant infestations where needed to reduce project-related spread. Implement invasive plant prevention measures for vehicles, equipment, tools, materials, and waste handling. Conduct invasive plant surveys and monitoring during construction and restoration.	Review and verify completion of the pre-construction invasive plant inventory and any necessary pre-construction treatment. Verify implementation of invasive plant prevention measures. Review and verify invasive plant monitoring during construction and restoration. Verify invasive plant control or eradication actions are implemented until performance standards are achieved.	Before construction During construction After construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	All vehicles shall be washed off-site when possible. If off-site washing is infeasible, on-site cleaning stations (including air washing) will be set up at specified locations to clean equipment before it enters the work area. Wash stations will be located away from native habitat or special-status species occurrences. Wastewater from cleaning stations will not be allowed to run off the cleaning station site. When vehicles and equipment are washed, a daily log must be kept stating the location, date and time, types of equipment, methods used, and personnel present. The log shall contain the signature of the responsible crewmember. Written or electronic logs shall be available to CPUC monitors on request. Erosion control materials (e.g., straw bales) must be certified free of invasive plant seed ("weed-free") before they are brought onto the site. The IPMP must prohibit on-site storage or disposal of mulch or green waste that may contain invasive plant material. Mulch or green waste will be removed from the site in a covered vehicle to prevent seed dispersal and transported to a licensed landfill or composting facility. **Monitoring.** Surveying and monitoring for invasive plant infestations shall occur at least two times per year, to coincide with the early detection period for early season and late season invasive plants. **Control.** New invasive plant infestations, or the spread of existing infestations beyond their original extent, must be controlled or eradicated as soon as possible upon discovery, and before they go to seed, or when appropriate with the goal to prevent further spread. All proposed invasive plant control methods must minimize disturbance to native vegetation, limit ingress and egress to defined routes, and avoid damage to any environmentally sensitive areas (ESAs) identified within or adjacent to the ROW. New infestations by invasive plants of concern will be treated at a minimum of once annually until eradication, suppression, or containment goals are met. Invasive plant occurrences can be considered eradicated when no new seedlings or resprouts are observed for three consecutive years, or a single season where new seedlings or resprouts are observed in reference populations but not at the control site. Invasive plant control efforts may cease when eradication is complete. Manual control methods shall include removal of invasive plants or their seed heads with hand tools during the appropriate season to prevent spread of the seed; seed heads and plants must be disposed of in accordance with guidelines from the relevant County Agricultural Commissioners, if such guidelines are available. The focus of weed abatement will be manual control where reasonable to contain weed populations. Chemical control methods shall avoid drift or residual toxicity to native vegetation or special-status plants, consistent with the National Invasive Species Management Plan (National Invasive Species Council 2008). All herbicide applications will follow U.S. Environmental Protection Agency label instructions and will be in accordance with federal, state, and local laws and regulations. Only state-approved herbicides may be used. Herbicide treatment will be implemented by a Licensed Qualified Applicator. Herbicides shall be applied in accordance with product labels and applicator licenses. Herbicides shall not be applied during or within 24 hours of high confidence predicted rain. Only water-safe herbicides shall be used where they could run off into downstream areas. Herbicides shall not be applied in high wind conditions. **Reporting schedule and contents**. An annual monitoring report documenting the invasive plant monitoring results shall be submitted to the CPUC annually for three years following construction. **Performance standards.** Invasive plant populations shall be controlled to pre-construction levels.			Control or eradicate new infestations and the spread of existing infestations until performance standards are achieved. Prepare and submit annual invasive plant monitoring reports.	Review annual invasive plant monitoring reports.	
Impact BIO-1B Impact BIO-1E	**MM BIO-4: Special-Status Amphibians and Vernal Pools** Within 7 days prior to ground disturbance in each work area, a qualified biologist shall investigate each work area for the presence of burrows suitable for California tiger salamander and California red-legged frog within suitable habitat (including the known dispersal range from suitable habitat) for these species If burrows suitable for California tiger salamander or California red-legged frog are present, the burrows shall be investigated by a biologist who holds a valid scientific collection permit for California tiger salamander and California red-legged frog. In the event that there is a burrow within the work area that is occupied by California tiger salamander or California red-legged frog, no activity shall be allowed to commence within 250 feet of the occupied burrow until an incidental take permit has been obtained in compliance with the California Endangered Species Act or federal Endangered Species Act, as applicable. Construction within 250 feet of Vernal Pools: Where construction activities are proposed within 250 feet of vernal pools or suitable breeding habitat for special-status amphibians (pools with sufficient hydroperiod), the project shall be designed to avoid the pool to the extent feasible. The limits of the pool shall be staked for avoidance where avoidance is feasible. All activities	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: unpaved work areas and overland access roads. PG&E: unpaved work areas and overland access roads.	Conduct pre-construction surveys for suitable burrows in work areas within suitable habitat. Investigate suitable burrows where present to determine occupancy. Obtain required incidental take authorization before work near occupied burrows	Review and verify completion of required pre-construction burrow and focused species surveys. Verify investigation of suitable burrows where present. Review and verify receipt of required incidental take	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	within 250 feet of a vernal pool shall be conducted outside of the rainy season (October 15 to April 15) and within 72 hours following any rain event. Construction within 0.25 mile of Special-Status Amphibian Habitat: If construction within 0.25 mile of suitable breeding habitat cannot be avoided, a survey for California tiger salamander in accordance with *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (October 2003), and a survey for California red-legged frog in accordance with *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (August 2005) shall be conducted within the season prior to construction. Focused surveys for western spadefoot shall be conducted in accordance with a USFWS approved method. If California tiger salamander, California red-legged frog or western spadefoot are determined to be present based on the results of focused surveys, PG&E shall obtain an incidental take permit from CDFW or USFWS as applicable for construction in proximity to occupied habitat. If the species is determined to be absent, construction may proceed with all other measures implemented including biological monitoring as specified in MM BIO-5.			or occupied habitat, where applicable. Design and carry out work to avoid vernal pools and suitable breeding habitat to the extent feasible. Stake and protect vernal pool limits where avoidance is feasible. Restrict work near vernal pools to the specified dry-season and post-rain timing windows. Conduct focused pre-construction surveys where work near suitable breeding habitat cannot be avoided.	authorization before applicable work begins. Verify efforts to avoid vernal pools and suitable breeding habitat to the extent feasible. Verify vernal pool boundaries are staked and protected where avoidance is feasible. Verify work near vernal pools occurs within the specified timing restrictions.	
Impact BIO-1B Impact BIO-1C Impact BIO-1E Impact BIO-1F Impact BIO 4	**MM BIO-5: Pre-Construction Surveys and Biological Monitoring** **Biologist approval and qualifications:** A qualified biologist(s) will be pre-approved by the CPUC prior to conducting biological surveys and monitoring for the project. Qualified biologists are defined as individuals with a bachelor's degree or above in a biological science field and demonstrated field experience. Approved and qualified biologists shall conduct required surveys and monitoring for special-status species and active nests. Qualified avian biologists are defined as individuals with demonstrated field expertise in ornithology, in particular, nesting behavior and nest detection. Monitoring biologists conducting avian nest checks shall have demonstrated experience surveying or monitoring nesting birds. Qualified botanists are defined as individuals with demonstrated field expertise in botany. Qualified herpetologists are defined as individuals with demonstrated experience with California reptile and amphibian species. Biologists qualified for construction monitoring shall hold at minimum 1 to 2 years of construction-related biological monitoring experience. Biologists qualified as a lead biological monitor shall have 5 or more years of related experience. **Pre-construction surveys:** A CPUC-approved qualified biologist (i.e., a biologist with the requisite education and experience to address special-status species and biological resources with potential to occur in the project area) shall conduct a pre-construction survey for special-status wildlife species known to occur or with the potential to occur in all work areas located within suitable habitat for special-status species. In those situations where the qualified biologist cannot make a definitive species identification, the qualified biologist shall make a determination based on the available evidence and professional expertise. The pre-construction survey shall be conducted no earlier than 14 days prior to surface disturbance in each work area. The results of the pre-construction survey will be documented by the qualified biologist in a pre-construction survey report(s). The pre-construction survey report(s) shall be submitted to the CPUC for review and approval and the results shall be submitted to CDFW and USFWS as required by any other regulatory permits or approvals. The pre-construction survey report(s) will include the following: • Special-status species encountered, including potential breeding sites such as dens, burrows, nests, or aquatic habitat • Type, location, and size of Project impact areas • Date, time, and weather conditions during survey, and surrounding land uses • Evaluation of type and quality of habitat • Map or GIS of *biological study area* and of work area	Proposed Project Alternative 1 Alternative 2 Alternative 3 Alternative 4 Alternative 6a/6b	LSPGC: within 200 feet of all work areas and overland access roads. PG&E: within 200 feet of all work areas and overland access roads.	Use qualified, pre-approved biologists to conduct required pre-construction surveys and construction monitoring. Prepare and submit pre-construction survey reports. Delineate and maintain avoidance areas and resource protection measures before and during construction. Monitor active work areas and halt or modify work, as needed, to avoid impacts to sensitive biological resources.	Review and verify biologist qualifications, required surveys, and pre-construction survey reporting. Verify implementation and maintenance of biological monitoring, avoidance areas, and resource protection measures during construction. Verify work is halted or adjusted, as needed, to avoid impacts to sensitive biological resources.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	Monitoring: Where pre-construction surveys indicate the presence of sensitive species within 200 feet of a work area or sensitive habitats within 50 feet of a work area, a CPUC approved biologist(s) shall conduct biological monitoring during construction activities in proximity to the sensitive species or habitats. Extended monitoring buffers for sensitive species may be applied per the conditions of other APMs or mitigation measures. Where special-status species (e.g., amphibians, reptiles, birds, mammals, reptiles), sensitive natural communities, riparian areas, or wetlands may occur, unless otherwise determined absent through pre-construction surveys, a qualified biological monitor shall monitor construction activities to ensure that any unplanned or unpermitted impacts to special-status species, sensitive natural communities, riparian habitat, and wetlands are avoided. **Resource delineation for avoidance:** Prior to construction or access in any work area containing or potentially containing special-status species habitats, sensitive natural communities, riparian areas, or wetlands, the biological monitor shall mark or otherwise delineate the limits of special-status species habitat, sensitive natural communities, riparian areas, and wetlands that are proposed for avoidance in the project design so that work crews are able to see and avoid these areas. Where necessary, the biological monitor shall post signs at access route entrances to inform workers of special access considerations (i.e., seasonal restrictions, biological monitor escort, etc.). Resource markings and signs shall be maintained and repaired as needed and as directed by the biological monitor. All stakes and flagging are removed no later than 30 days after construction is complete. The biological monitor shall have full authority to halt construction, once safe to do so, if a sensitive resource/species has or may be impacted. The biological monitor may relocate wildlife out of harm's way, if appropriate to protect the species (additional protections or permits would be required prior to relocation of any state or federally listed threatened or endangered species). The biological monitor shall revisit each active work site at least once a week to inspect the work area for the presence of biological resources and verify that all avoidance measures (e.g., flagging or fencing) are in place.					
Impact BIO-1C Impact BIO-4	**MM BIO-6: Alameda Whipsnake Avoidance** All work in Alameda whipsnake suitable habitat will be conducted under the direction of a qualified herpetologist. If an Alameda whipsnake is encountered in the work area, all activities that have the potential to result in the harassment, injury, or death of the individual shall be immediately halted. The CPUC-approved designated biologist will then assess the situation in order to select a course of action that will avoid adverse effects to the animal. Contact with the animal will be avoided. No activities may resume within 100 feet of the Alameda whipsnake until the individual has moved out of the construction area on its own volition.	Proposed Project	PG&E: work areas and access roads at transposition site D.	Conduct work in suitable habitat for Alameda whipsnake under the direction of a qualified herpetologist. Halt work if the species is encountered and avoid harming or contacting the individual. Do not resume work in the immediate area until the individual has left on its own.	Review and verify use of qualified biological oversight in suitable habitat. Verify work is halted and avoidance procedures are implemented if the species is encountered before work resumes.	During construction
Impact BIO-1D Impact BIO-4	**MM BIO-7: Nesting Bird Management** **Avoidance of work during nesting/breeding season**. Whenever possible, LSPGC/PG&E will avoid vegetation removal, vegetation maintenance (including trimming and mowing), and ground disturbing activities during the migratory bird nesting/breeding season, which is defined as February 1 through September 30 for this area. **Pre-activity nest surveys**. Pre-activity nest surveys will be conducted prior to any ground disturbance or vegetation removal activities within suitable habitat scheduled during the breeding period. For this project, the breeding period will be defined as February 1 through September 30. The avian biologists conducting the surveys shall be experienced bird surveyors and familiar with standard nest-locating techniques such as those described in (Martin and Geupel 1993). Nest surveys will focus on visual searches for nest locations and observations of bird activities and movement to detect nesting activity (e.g., carrying nest materials or food, territorial displays, courtship behavior). Surveys shall be conducted in accordance with the following guidelines:	Proposed Project Alternative 1 Alternative 2 Alternative 3 Alternative 4 Alternative 6a/6b	LSPGC: work areas and overland access roads within 300 to 1,000 feet of suitable bird nesting habitat, as specified. PG&E: work areas and overland access roads within 300	Avoid work during the nesting season where feasible. Conduct pre-activity nest surveys and daily sweeps where work occurs during the nesting season. Delineate, maintain, and implement nest buffers and related avoidance	Review and verify required nest surveys, monitoring, reporting, and communications. Verify nest buffers, avoidance measures, and work restrictions are properly implemented and maintained around active nests.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	Surveys shall cover all potential nesting habitat within the work areas and within 1,000 feet of these areas for California black rail, California Ridgway's rail, and tricolored blackbird, 500 feet of these areas for raptors, and 300 feet for non-raptors. Pre-activity surveys shall be conducted for each work area, no longer than 14 days prior to the start of the activity. On the first day of construction at any given site, a qualified Avian Biologist will perform a pre-activity "sweep" to identify any bird nests or other resources that may have appeared since the 14-day survey. LSPGC/PG&E shall provide the CPUC a report describing the findings of the pre-activity nest surveys, including the time, date, and duration of the survey; identity of the surveyor(s); a list of species observed; and electronic data identifying nest locations and the boundaries of buffer zones. The electronic data set will be updated following each pre-activity nest survey throughout the nesting season. **Nest Buffers and Acceptable Activities.** Nest buffers shall be delineated on the work site, to consist of clearly visible marking and signage. Buffer locations shall be communicated to the construction contractor and shall remain in effect until formally discontinued (when each nest is no longer active). Measures to ensure nesting buffers are observed shall include direct communication and decision protocol to stop work within buffer areas. In some cases, active nests may be found while work is underway. Therefore, a protocol shall be implemented for stopping ongoing work within the buffer area, securing the work site, and removing personnel and equipment from the buffer. Buffer distances from active nests shall be implemented to avoid take or adverse effects to nests. Buffers shall be based on the specific nature of the bird species and conservation status, and other pertinent factors. Buffer distances shall be defined specific to each species relative level of tolerance of human activity. If no information is available to specify a buffer distance for a species, then a 300-foot buffer shall apply as a standard buffer distance for migratory birds, and 500 feet of active nests of raptors and 1,000 feet of active nests of California black rail, California Ridgway's rail, and tricolored blackbirds. All applicable avoidance measures, including buffer distances, must be continued until nest monitoring (below) confirms that the nestlings have fledged and dispersed, or the nest is no longer active. The qualified biologist shall identify acceptable work activities within nest buffers (e.g., pedestrian access for inspection or BMP repair) including conditions and restrictions. Monitoring shall be conducted during any activities within the buffers. **Nest Buffer Modification or Reduction.** At times, LSPGC/PG&E or its contractor may propose buffer distances different from those included in this mitigation measure. Buffer adjustments shall be reviewed and recommended by a qualified avian biologist, who has been approved by CPUC in consultation with the CDFW and USFWS. CPUC shall be notified of any planned adjustments to nest buffers. Separate and distinct procedures will be provided for special-status birds as defined in MM BIO-10, MM BIO-11, and MM BIO-12. **Nest deterrents.** Any proposed measures or deterrents to prevent or reduce bird nesting activity on project equipment or facilities, such as buoys, visual or auditory hazing devices, bird repellents, securing of materials, vehicles, and equipment shall be submitted to the CPUC for review and approval at least 30 days prior to use. The proposed timing for installation of nest deterrents and field confirmation to prevent effects to any active nest; guidance for the contractor to install, maintain, and remove nest deterrents according to product specifications; and periodic monitoring of nest deterrents to ensure proper installation and functioning and prevent injury or entrapment of birds or other animals shall be part of the nest deterrent request. In the event that an active nest is located on project facilities, materials or equipment, LSPGC/PG&E will avoid disturbance or use of the facilities, materials, or equipment (e.g., by red-tag) until the nest is no longer active. **Communication.** Nest information and potential adverse impacts to nesting birds shall be promptly communicated from nest monitors to work activity monitors, so that any needed actions can be taken immediately. The CPUC and CDFW shall be notified in the event of accidental disturbance of nests. Approaches to address the accidental disturbance shall be recommended by a qualified avian biologist and proposed to the CPUC and CDFW. CPUC shall be notified regarding removal of inactive nests, including steps taken to verify that the nest is inactive. **Monitoring**. LSPGC/PG&E shall be responsible for monitoring the implementation, conformance, and efficacy of the avoidance measures (above). Monitoring shall include tracking any active bird nest within or adjacent to project work areas, bird nesting activity, project-related disturbance, and outcome of each nest. For nests with reduced buffers, LSPGC/PG&E shall monitor each nest until nestlings have fledged and dispersed or until the nest becomes inactive. Nests with default buffers do not require		to 1,000 feet of suitable bird nesting habitat, as specified.	measures around active nests. Monitor nesting activity and work within or near buffer areas, and adjust work as needed to avoid disturbance. Obtain review and approval for any proposed nest deterrents or buffer modifications before implementation. Communicate nest information, noncompliance, and any accidental disturbance, and prepare and maintain required nesting bird reporting.	Review and verify any proposed nest deterrents or buffer modifications before implementation. Verify appropriate response, notification, and corrective action in the event of nest disturbance or noncompliance.	

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	further monitoring once construction work is completed in the area. New nests discovered after work completion in an area will not require monitoring. In addition, monitoring shall include pre-activity surveys, daily sweeps of work areas and equipment, and any special monitoring requirements for particular activities (e.g., tree trimming, vegetation removal) or particular species (e.g., noise monitoring). Nest monitoring shall continue throughout the breeding season during each year of the project's construction activities; nests monitored during operation and maintenance activities do not require further monitoring once the activities are completed. **Reporting.** Throughout the construction phase of the project, nest locations, project activities in the vicinity of nests (including helicopter routes), and any adjustments to buffer areas shall be updated and available to CPUC monitors on a daily basis in the Field Reporting Environmental Database (FRED). All buffer reduction notifications and prompt notifications of nest-related non-compliance and corrective actions will be made via email to CPUC monitors. At the end of each year's nest season, LSPGC/PG&E will submit an annual nesting bird report to the CPUC, CDFW, and USFWS.					
Impact BIO-1D	**MM BIO-8: Burrowing Owl** **Burrowing Owl Habitat Assessment and Surveys:** A qualified biologist shall conduct a habitat assessment and surveys, if warranted based on the habitat assessment, following the Department of Fish and Game Staff Report on Burrowing Owl Mitigation (2012) methodology (https://wildlife.ca.gov/Conservation/Survey-Protocols#377281284-birds) and prepare a report documenting the survey results. The qualified biologist shall have a minimum of two years of experience implementing the above methodology resulting in burrowing owl detections. Based on the habitat assessment, if suitable burrows or burrow surrogates are present, surveys for nesting burrowing owl shall be conducted if project construction starts during the nesting season (February 1 to August 31), and surveys for wintering burrowing owl shall be conducted if the construction starts during the wintering season (September 1 to January 31). If construction begins prior to June 16 (the earliest date that breeding season surveys could be completed), complete breeding season surveys in accordance with the CDFW survey protocol may not be conducted as following the survey timing requirements in the protocol would not be possible during that time period. Instead, an abbreviated protocol may be followed (i.e., fewer survey visits) at the discretion and in the best judgement of the qualified biologist. If construction begins after June 16, the full breeding season survey will be conducted in accordance with the survey protocol. Similarly, if construction is to begin during the non-breeding season (between September 1 and January 31), an abbreviated protocol (i.e., fewer survey visits) may be followed at the discretion and in the best judgement of the qualified biologist. The habitat assessment and surveys shall encompass the project site and a sufficient buffer zone to detect owls nearby that may be impacted, which is up to 500 meters (1,640 feet) around the project site pursuant to the above methodology, unless otherwise approved in writing by CDFW. Habitat assessments and surveys shall occur each year of project construction, as conditions may change annually and suitable refugia for burrowing owl, such as small mammal burrows, can be created within a few hours or days. If the habitat assessment does not identify burrows and additional surveys are not conducted, an additional habitat assessment shall be conducted within 14 days prior to construction. If new burrows are present, surveys shall be conducted as described above. **Burrowing owl avoidance.** The buffer for active burrowing owl nesting sites shall be in accordance with CDFW guidelines (CDFG 2012) and shall be as follows: • From April 1-August 15, buffers shall be 200 meters (656 feet) for low levels of disturbance (i.e., vehicles, worker presence), and 500 meters (1,640 feet) for moderate to high levels of disturbance (i.e., demolition, grading, tree felling, helicopter use) • From August 16-October 15, buffers shall be 200 meters (656 feet) for low and moderate levels of disturbance (i.e., vehicles, worker presence, tree felling, grading), and 500 meters (1,640 feet) for high levels of disturbance (i.e., helicopter use) • From October 16-March 31, buffers shall be 50 meters (164 feet) for low levels of disturbance (i.e., vehicles, worker presence), 00 meters (328 feet) for moderate levels of disturbance (i.e., grading, tree felling), and 500 meters (1,640 feet) for high levels of disturbance (i.e., helicopter use)	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: work areas and overland access roads within 500 meters (1,640 feet) of potentially suitable habitat.	Conduct habitat assessments and seasonal surveys for burrowing owl, as needed, before construction and during each year of construction. Avoid active burrows through seasonal and activity-based buffers, monitoring, and other disturbance reduction measures. Cap or cover exposed pipes, hoses, culverts, and similar materials, and inspect them for wildlife before use or movement. If active burrows cannot be adequately avoided, obtain required authorization and implement passive relocation and replacement burrow measures in accordance with an approved exclusion plan. Monitor replacement burrows and relocation areas, and prepare required monitoring reports. Obtain required take authorization and any	Review and verify required habitat assessments, surveys, and survey reporting. Verify implementation of avoidance buffers, monitoring, and other burrowing owl protection measures during construction. Review and verify required authorization and approval of passive relocation and replacement burrow planning before implementation. Verify implementation of passive relocation, replacement burrows, wildlife exclusion measures for stored materials, and required monitoring and reporting. Review and verify required take authorization and any additional mitigation where avoidance is not feasible.	Before construction During construction After construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	If active burrowing owl burrows are located within project work areas, they shall be avoided to the greatest extent possible through work exclusion buffers as described above. Monitoring of active burrowing owl nests shall occur in all buffer areas as defined above throughout the period in which the buffer is needed to avoid impacts, and other methods to reduce disturbance (such as visual or sound barriers) shall be employed depending on the type and level of work being conducted to prevent the need for relocation. Other measures shall include eliminating actions that reduce burrowing surrogates (e.g., ground squirrels). In any cases where active burrows could not be adequately avoided through exclusion buffers, as determined by a qualified biologist, and project activities could result in substantial indirect disturbance, direct physical disturbance, or destruction of burrows that are located within certain project work areas (e.g., facility footprints, areas that require grading), LSPGC/PG&E would obtain an incidental take permit in order to passively relocate the owls, as described below and per the conditions of any required CESA incidental take permit. Passive relocation shall only be considered if work cannot take place due to an active nest, such as grading over burrows. No passive relocation of burrowing owls shall be permitted during breeding season unless a qualified biologist verifies through noninvasive methods that an occupied burrow is not occupied by a mated pair and/or a juvenile that is dependent on the parents, and only upon authorization by CDFW. Any passive burrowing owl relocation shall address: • **Replacement burrows:** For each burrowing owl that will be passively relocated, if fewer than two suitable unoccupied burrows are available within 600 feet of the affected project work site, then LSPGC/PG&E shall construct at least two replacement burrows within 600 feet of the affected project work site, or in suitable locations within 0.25 mile when suitable locations within 600 feet are not available. Burrow replacement sites shall be in areas of suitable habitat for burrowing owl nesting, and subject to minimal human disturbance and access. The Burrowing Owl Exclusion Plan shall be prepared that would describe measures to ensure that burrow installation or improvements will not affect sensitive species habitat or any burrowing owls already present in the relocation area. The Burrowing Owl Exclusion Plan shall provide guidelines for creation or enhancement of at least two natural or artificial burrows for each active burrow within the project disturbance area, including a discussion of timing of burrow improvements, specific location of burrow installation, and burrow design. Design of the artificial burrows shall be consistent with CDFW guidelines (CDFG, 2012; or more current guidance as it becomes available) and the Burrowing Owl Exclusion Plan shall be approved by the CPUC and CDFW. • **Methods:** An occupied burrow may not be disturbed during the nesting season (generally, but not limited to, February 1 to August 31), unless a qualified biologist determines, by non-invasive methods, that it is not occupied by a mated pair. Passive relocation will include installation of one-way doors on burrow entrances that will let owls out of the burrow but will not let them back in. Once owls have been passively relocated, burrows will be carefully excavated by hand and collapsed by, or under the direct supervision, of a qualified biologist. • **Monitoring and reporting:** LSPGC/PG&E shall monitor the replacement burrow site(s) and provide monitoring reports consistent with CDFW guidance (CDFG 2012). The objective shall be to manage the relocation area for the benefit of burrowing owls, with the specific goal of maintaining the functionality of the burrows for a minimum of two years. Monitoring will be conducted after the burrowing owl passive relocation process is complete, up until the onset of ground disturbance due to construction to ensure that owls do not re-establish themselves. The artificial burrows or enhanced replacement burrows will be monitored throughout construction Monitoring reports shall be available to the CPUC. **Cap Pipes and Hoses:** To prevent burrowing owl from sheltering or nesting in exposed material; all construction pipes, culverts, hoses or similar materials greater than two inches in diameter stored at the project site shall be capped or covered before the end of each work day and shall be inspected thoroughly for wildlife before the pipe or similar structure is buried, capped, used, or moved. **Obtain ITP if Take avoidance is Not Feasible:** If other methods of mitigation avoidance of burrowing owl take are not feasible or are not possible to offset take, then LSPGC shall obtain an ITP in compliance with CESA. The CDFW may also require compensatory mitigation through on-site habitat restoration or purchase of credits at an appropriate mitigation bank.			additional mitigation if take avoidance is not feasible.		

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
Impact BIO-1D	**MM BIO-9: Burrowing Owl Permit** PG&E shall obtain an incidental take permit for anticipated impacts to burrowing owl and/or its habitat prior to conducting any ground disturbing activities. PG&E will comply with all permit measures as directed by CDFW. Those measures will include provisions for habitat assessment and surveys, avoidance, passive relocation, monitoring, reporting, and compensatory mitigation as necessary and appropriate or otherwise as determined by CDFW.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: work areas and overland access routes within 500 meters (1,640 feet) of potentially suitable habitat (e.g., 500 kV interconnection lines, 12 kV distribution line, and 500 kV transposition sites).	Obtain required incidental take authorization before ground-disturbing activities begin. Implement all permit requirements, including any applicable survey, avoidance, relocation, monitoring, reporting, and compensatory mitigation measures.	Review and verify receipt of required incidental take authorization before ground-disturbing activities begin. Verify implementation of all applicable permit requirements.	Before construction During construction After construction
Impact BIO-1D	**MM BIO-10: Swainson's Hawk** Swainson's hawk nest surveys shall be performed by a CPUC-approved qualified biologist in areas of suitable habitat prior to construction activities scheduled to occur during the Swainson's hawk nesting season (from March 1 through July 31). Surveys shall be conducted within 0.5 miles of work areas in suitable nesting habitat for Swainson's hawk to determine if any Swainson's hawk nests are active within a 0.5-mile radius of the construction area. Suitable habitat for Swainson's hawk is defined as trees within mature riparian forest or corridors, lone oak trees and oak groves, and mature trees near fields. An active nest shall receive a 0.5-mile buffer between March 1 and July 31. Buffer zones may be adjusted in consultation with CDFW and approved by CPUC and must be protective of the species nesting behavior with continued monitoring of the nest by a qualified biologist per MM BIO-8. For hawks found injured during project-related activities on the project site, LSPGC/PG&E shall consult with CPUC and CDFW for immediate relocation to an agency-approved raptor recovery center.	Proposed Project Alternative 1 Alternative 2 Alternative 3 Alternative 4 Alternative 6a/6b	LSPGC: work areas and overland access routes within 0.5 mile of suitable nesting habitat. PG&E: work areas and overland access routes within 0.5 mile of suitable nesting habitat.	Conduct pre-construction nest surveys in suitable habitat during the nesting season. Establish and maintain nest buffers around active nests, and monitor nests if buffer adjustments are approved. Coordinate the response for any injured individuals found during project-related activities.	Review and verify required nest surveys and survey results. Verify nest buffers and any approved buffer adjustments are properly implemented and monitored. Verify appropriate coordination and response for any injured individuals found during project-related activities.	Before construction During construction
Impact BIO-1D	**MM BIO-11: Golden Eagle** Avoid and minimize impacts. All project activities north of the Delta shall implement the following avoidance and minimization measures. • Golden eagle nest surveys shall be performed when construction activities are scheduled to occur within 1 mile of golden eagle nesting habitat from January 1-August 31 to determine if any eagle nests are active within a 1-mile radius. Ground-based or helicopter-based survey methods will be developed in coordination with USFWS and will be consistent with current USFWS survey guidelines, or as recommended by USFWS. • For construction activity, should an active golden eagle nest be present, the nest shall receive a 1-mile buffer if in line of sight, 0.5-mile buffer if no line of sight—with USFWS concurrence. • Buffers and buffer modifications for golden eagles shall be consistent with the conditions in MM BIO-7.	Proposed Project Alternative 1 Alternative 2 Alternative 3 Alternative 4 Alternative 6a/6b	LSPGC: helicopter work areas and routes within 1 mile of suitable golden eagle nesting habitat. PG&E: helicopter work areas and routes within 1 mile of suitable golden eagle nesting habitat.	Conduct pre-construction nest surveys where work occurs near suitable nesting habitat during the nesting season. Establish and maintain nest buffers around active nests based on line of sight. Implement any approved buffer modifications and related monitoring requirements.	Review and verify required nest surveys and survey results. Verify nest buffers and any approved buffer modifications are properly implemented and monitored.	Before construction During construction
Impact BIO-1D Impact BIO-4	**MM BIO-12: Minimization of Avian Interactions with Transmission Lines** LSPGC/PG&E shall design, construct, and operate transmission lines and associated structures according to current Avian Power Line Interaction Committee (APLIC) guidelines. These guidelines include, but are not limited to, designing infrastructure to	Proposed Project Alternative 1 Alternative 2	LSPGC: above-ground transmission	Design, construct, and operate transmission facilities in accordance	Review and verify that transmission facilities are designed, constructed, and	Before construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	minimize perching and nesting opportunities, utilizing collision reduction devices such as flight diverters or line markers, obtaining a compliance review by an environmental inspector, and implementing monitoring and adaptive management to understand effects of the transmission infrastructure on birds and make adjustments as needed.	Alternative 3 Alternative 4	lines and structures. PG&E: above-ground transmission lines and structures.	with current avian protection guidelines. Incorporate measures to reduce nesting, perching, and collision risks for birds. Conduct compliance review, monitoring, and adaptive management to address avian interactions with transmission facilities.	operated in accordance with current avian protection guidelines. Verify implementation of required avian protection measures, compliance review, monitoring, and adaptive management.	
Impact BIO-1E	**MM BIO-13: Crotch's Bumble Bee Avoidance and Minimization** **Crotch's Bumble Bee Habitat Assessment:** • Initial ground-disturbing work (e.g., grading, vegetation removal, staging) in grassland habitat or agricultural areas that contain grasses or forbs shall take place between August 15 and March 15, if feasible to avoid impacts on nesting Crotch's bumble bees. • If the above limited operating period is not feasible (i.e., if limiting ground disturbance to the period between August 15 and March 15 would preclude achieving most of all of the project objectives) as determined by LSPGC with concurrence from the CPUC, a qualified biologist approved by the CPUC, familiar with bumble bees of California and experienced using survey methods for bumble bees, shall conduct a habitat assessment and focused survey for Crotch's bumble bee before the start of any ground disturbing activities in grassland habitat or edges of agricultural areas that contain grasses or forbs. Surveys shall be performed when Crotch's bumble bee is most likely to be identified, typically from April through August (i.e., the colony active period) when floral resources and ideal weather conditions are present, and shall follow the methods in Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species and any relevant updates to these considerations (CDFW 2023). Surveys shall be conducted during the colony active period the same year as the start of planned construction activities. • LSPGC shall submit a survey report to the CDFW and the CPUC within 1 month of survey completion and shall notify the CDFW and the CPUC within 24 hours if Crotch's bumble bees are detected. • If Crotch's bumble bees are detected during the focused survey, appropriate avoidance measures shall be implemented. Avoidance measures shall include, but not be limited to, the following: - Protective buffers shall be implemented around active nesting colonies until these sites are no longer active. A qualified biologist, in coordination with the CDFW, shall determine the appropriate buffer size to protect nesting colonies. - If nesting colonies are detected, avoidance areas shall be implemented in areas near the colony location that contain significant floral resources for the colony, if present. A qualified biologist shall determine the appropriate avoidance area size to protect foraging resources. - If project activities involving temporary disturbance (e.g., staging) would occur where a nesting colony was detected after the nesting colony is no longer active, the area shall be restored to original conditions after the temporary disturbance is complete such that habitat for Crotch's bumble bee would be available. • If take of Crotch's bumble bee cannot be avoided, LSPGC shall obtain an Incidental Take Permit (ITP) from the CDFW and shall implement all avoidance measures included in the ITP. The CDFW may also require compensatory mitigation through on-site habitat restoration or purchase of credits at an appropriate mitigation bank. Avoidance measures included in the ITP would reduce the likelihood of take of Crotch's bumble bees such that impacts on the species would be fully mitigated. These measures would include but not be limited to:	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: work areas within grassland or agricultural areas that contain grasses or forbs.	Conduct initial ground-disturbing work during the specified seasonal work window where feasible. If the seasonal work window is not feasible, conduct habitat assessments and focused surveys before ground disturbance. Submit required survey results and detection notifications. Implement avoidance buffers, avoidance areas, and habitat restoration where the species or nesting colonies are detected. Obtain required take authorization and implement all permit requirements if take cannot be avoided. Provide documentation of compliance and required agency coordination before construction begins.	Review and verify the basis for seasonal work timing or, where needed, completion of required habitat assessments and focused surveys. Review and verify required survey reporting, detection notifications, and pre-construction compliance documentation. Verify implementation of required avoidance measures, restoration, and any applicable construction restrictions. Review and verify receipt of required take authorization before construction, where avoidance is not feasible, and verify implementation of permit requirements.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	- Specifications for construction timing and sequencing requirements to avoid impacts on nesting Crotch's bumble bees; - Pre-construction surveys conducted within 30 days prior to the start of ground-disturbing activities; - Establishment of seasonal no-disturbance buffers around nest sites; - Construction monitoring; - Restrictions associated with construction practices, equipment, or materials that may harm bumble bees (e.g., BMPs to minimize the spread of invasive plant species); and - Provisions to avoid Crotch's bumble bees or potential Crotch's bumble bees if observed away from a nest during project activity (e.g., ceasing of project activities until the animal has left the work area). Documentation of compliance with this mitigation measure and any required coordination with the CDFW or acquisition of an ITP shall be provided to the CPUC before commencement of any project construction activities.					
Impact BIO-1E Impact BIO-4	**MM BIO-14: Crotch's Bumble Bee Permit** PG&E shall obtain an incidental take permit for anticipated impacts to Crotch's bumble bee and/or its habitat prior to conducting any ground disturbing activities. PG&E will comply with all permit measures as directed by CDFW. Those measures will include provisions for habitat assessment, surveys, avoidance, relocation, and monitoring as necessary and appropriate or otherwise as determined by CDFW.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: work areas within grassland or agricultural areas that contain grasses or forbs.	Obtain required incidental take authorization before ground-disturbing activities begin. Implement all permit requirements, including any applicable habitat assessment, surveys, avoidance, relocation, and monitoring measures.	Review and verify receipt of required incidental take authorization before ground-disturbing activities begin. Verify implementation of all applicable permit requirements.	Before construction During construction
Impact BIO-1E	**MM BIO-15: Monarch Butterfly** Prior to construction, a CPUC-approved qualified biologist would survey for monarch butterfly larval host plants within suitable habitat. If host plants are found, the project biologist would conduct surveys for adult monarch butterflies during the peak of the flight period to determine presence/absence, or presence may be assumed. Where adult monarch butterflies are present, or assumed to be present, host plants shall be flagged for avoidance and shall not be removed during the flight season.	Proposed Project Alternative 1 Alternative 2 Alternative 3 Alternative 4 Alternative 6a/6b	LSPGC: work areas and overland access roads associated with the Collinsville Substation and 230 kV overhead segment. PG&E: work areas and overland access roads associated with the 500 kV interconnection and 12 kV lines.	Obtain CPUC-approval of biologist to survey for monarch butterfly. Conduct pre-construction surveys for monarch butterfly host plants in suitable habitat. Conduct adult monarch butterfly surveys, or assume presence, where host plants are found. Flag host plants for avoidance and do not remove them during the flight season.	Verify completion of required host plant and adult butterfly surveys by a CPUC-approved biologist. Verify host plants are flagged for avoidance and not removed during the flight season where required.	Before construction During construction
Impact BIO-1F	**MM BIO-16: San Joaquin Kit Fox Avoidance and Minimization** **Preconstruction survey:** A focused, non-protocol level preconstruction survey for San Joaquin kit fox shall be conducted by a qualified biologist within 30-days of beginning construction of the project. The areas to be surveyed will include project areas that contain suitable habitat for San Joaquin kit fox, plus a 500-foot survey buffer around those areas, where access is feasible and legal.	Proposed Project	PG&E: suitable habitat within 500 feet of work areas and access roads associated with the 500 kV	Conduct pre-construction surveys and den monitoring in suitable habitat before construction begins.	Review and verify completion of required pre-construction surveys, den monitoring, and den status determinations.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	Any potentially occupied San Joaquin kit fox dens will be monitored for four consecutive nights with motion-sensing cameras and tracking media. **Unoccupied dens:** If, after the fourth night of monitoring, a den is determined to be non-natal and has no sign of San Joaquin kit fox activity, then the burrow shall be scoped using a fiber optic-type inspection camera. If the burrow is determined to be empty (and the burrow is not flagged as a potential blunt-nosed leopard lizard burrow), then the entrance shall be closed-off immediately. **Occupied dens:** Prior to sealing an active San Joaquin kit fox den, artificial subterranean dens shall be constructed and installed by a qualified biologist at a ratio of 2:1 within the closest suitable habitat in areas adjacent to the Project disturbance area. Artificial den location and design will follow the guidance in *Supplemental Recommendations for Protection of San Joaquin Kit Fox during Road Projects in Urban Environments* (California Department of Transportation [CDOT] 2005). The artificial den shall include two entrance tunnels leading down at no more than a 30-degree angle to the subterranean chamber; entrance tunnels oriented such that water will not flood the chamber; shaping the chamber as a box or dome, and installing a dirt floor that allows it to be enlarged by kit fox over time. Once artificial dens have been installed, then the known/occupied dens can be closed-off or sealed and San Joaquin kit fox can be relocated outside of the fenced disturbance area. Relocation of San Joaquin kit fox shall only occur outside of the breeding season (approximately October to May). **Avoidance buffers:** The avoidance buffers defined below shall be implemented to the extent feasible. If an established road crosses through an avoidance buffer, and the qualified biologist determines that use of the road would not disturb San Joaquin kit fox, then vehicle and pedestrian traffic will be allowed on the road after placement of signs in both directions of travel that call attention to the presence of sensitive San Joaquin kit fox habitat and the need to use caution and maintain speeds of less than 5 miles per hour. • Natal/Pupping Dens: 500 feet • Active/Known Dens: 100 feet • Potential Dens: 50 feet If a potential den that was determined to be inactive prior to construction becomes active during construction, and that den is located within 100 feet of construction activities, then construction activities may be allowed to continue of the same type, intensity and duration as were occurring when the den became re-occupied. However, a biological monitor will monitor the den closely during construction activities. If the biological monitor observes that construction activities are causing adverse impacts to San Joaquin kit fox, then construction activities within the disturbance buffer shall stop and the disturbance buffers specified above will be implemented. **Occupied dens:** Prior to sealing an active San Joaquin kit fox den, an incidental take permit for San Joaquin kit fox must first be obtained from USFWS and CDFW. In addition, artificial subterranean dens shall be constructed and installed by a qualified biologist at a ratio of 2:1 within the closest suitable habitat in areas adjacent to the Project disturbance area. Artificial den location and design will follow the guidance in *Supplemental Recommendations for Protection of San Joaquin Kit Fox during Road Projects in Urban Environments* (CDOT 2005). The artificial den shall include two entrance tunnels leading down at no more than a 30-degree angle to the subterranean chamber; entrance tunnels oriented such that water will not flood the chamber; shaping the chamber as a box or dome and installing a dirt floor that allows it to be enlarged by kit fox over time. Once artificial dens have been installed and in compliance with any conditions in the USFWS and CDFW incidental take permit, then the known/occupied dens can be closed-off or sealed and San Joaquin kit fox can be relocated outside of the fenced disturbance area. Relocation of San Joaquin kit fox shall only occur outside of the breeding season (approximately October to May).		transposition sites.	Determine den status and close inactive dens where appropriate. Establish and implement avoidance buffers around dens to the extent feasible. Monitor reoccupied dens near active work areas and halt or adjust work if adverse effects are observed. Obtain required take authorization before sealing occupied dens. Install replacement dens and relocate individuals in accordance with permit conditions and seasonal restrictions where occupied dens cannot be avoided.	Verify implementation of den closures, avoidance buffers, and construction monitoring where applicable. Verify work is halted or adjusted if monitoring identifies adverse effects. Review and verify receipt of required take authorization before occupied dens are sealed, and verify implementation of replacement dens and relocation requirements.	
Impact BIO-1F	**MM BIO-17: Salt Marsh Harvest Mouse Avoidance** A CPUC-approved biologist, with knowledge and experience with salt marsh harvest mouse habitat requirements, shall conduct pre-activity surveys for salt marsh harvest mouse and identify and mark suitable salt marsh harvest mouse marsh habitat prior to project initiation. The biologist will search suitable habitat for signs of harvest mice, such as nests.	Proposed Project Alternative 4 Alternative 6a/6b	LSPGC: work areas and access roads within 500 feet of suitable salt marsh	Conduct pre-activity surveys and identify and mark suitable habitat before project work begins.	Review and verify completion of required pre-activity surveys and habitat identification.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	Ground disturbance in occupied salt marsh harvest mouse habitat (including, but not limited to pickleweed, and emergent salt marsh vegetation) shall be avoided to the extent feasible. Where salt marsh harvest mouse habitat cannot be avoided, if no salt marsh harvest mice are found, vegetation will be removed from the ground disturbance work area plus a 10-foot buffer around the area, as well as any access routes within salt marsh harvest mouse habitat, utilizing mechanized hand tools or by another method approved by the USFWS and CDFW. Vegetation height shall be maintained at or below 2 inches above ground. Vegetation removal in salt marsh harvest mouse habitat will be conducted under the supervision of the CPUC-approved biologist. Salt marsh harvest mouse marsh habitat that must be accessed to complete project construction will be protected through use of low ground pressure (LGP) equipment, wooden or PVC marsh mats, or other method approved by USFWS and CDFW following vegetation removal (as described above). All construction equipment and materials shall be staged away from salt marsh harvest mouse habitats when not in use. A CPUC-approved biologist with previous salt marsh harvest mouse monitoring and/or surveying experience for salt marsh harvest mouse will be on site during construction activities occurring in or within 500 feet of suitable salt marsh harvest mouse habitat. The approved biologist has the authority to stop project activities if any of the requirements associated with the measure are not being fulfilled. If a mouse of any species is observed within the project area, work within the vicinity shall be halted immediately by the Qualified Biologist and the mouse should be allowed to leave the work area before work resumes. If salt marsh harvest mouse is observed in the work area, construction activities will cease within 200 feet of the salt marsh harvest mouse. The individual shall be allowed to leave the area before work is resumed. If the individual does not move on its own volition, the approved biologist shall contact USFWS (and CDFW if appropriate) for further guidance on how to proceed. Salt marsh harvest mouse may not be handled or captured. If an injured or dead salt marsh harvest mouse is discovered onsite, CDFW will be notified immediately.		harvest mouse habitat.	Avoid ground disturbance in occupied habitat to the extent feasible. Where habitat cannot be avoided, remove vegetation under biological supervision and use protective access methods in habitat areas requiring construction access. Stage equipment and materials away from suitable habitat when not in use. Conduct biological monitoring during construction in or near suitable habitat, and halt work if individuals are observed until avoidance requirements are met. Notify the appropriate agency if an injured or dead individual is found.	Verify implementation of habitat avoidance, vegetation removal, protective access measures, and staging restrictions where applicable. Verify biological monitoring and required work stoppage and response procedures are implemented during construction in or near suitable habitat. Review and verify required notification in the event of injury or mortality.	
Impact BIO-1F	**MM BIO-18: American Badger** A qualified biologist shall conduct a pre-construction survey for active American badger dens within 7 days prior to grading or vegetation clearing in work areas, or use of overland access routes. The pre-construction survey shall be required for potentially suitable habitat for American badger (e.g., grasslands and woodlands) located within 250 feet of work areas where grading or land vegetation clearing may occur and within or immediately adjacent to overland access routes. PG&E shall submit the survey results to CPUC prior to construction. PG&E may use cameras to determine if dens are active. If active dens are identified at any time during construction, the dens shall be flagged and avoided to the greatest extent possible through work exclusion buffers. A 250-foot work restriction buffer shall be established around active maternal dens. For non-maternal dens, a 50-foot work restriction buffer shall be established around active dens. Smaller buffers may be established through consultation with CDFW. If any cases where an active den cannot be adequately avoided (i.e., the den is located within the facility footprints or active work area), PG&E will implement passive exclusion techniques by sealing the den after animals have vacated (e.g., one-way doors). PG&E shall obtain any required permits prior to implementing any den exclusions. A CPUC-approved qualified biologist shall inspect construction activities near active American badger dens on a weekly basis to ensure the work restriction buffers are implemented appropriately and active dens are avoided.	Proposed Project	PG&E: work areas and overland access roads within 250 feet of suitable badger habitat at the 500 kV transposition sites.	Conduct pre-construction surveys for active dens in suitable habitat before work begins, and submit survey results. Identify, flag, and avoid active dens through work exclusion buffers where feasible. If active dens cannot be avoided, obtain required permits and implement passive exclusion after animals have vacated. Conduct biological inspections during construction near active dens to ensure buffers are maintained and dens are avoided.	Review and verify completion of required pre-construction surveys and survey reporting. Verify implementation of active den identification, exclusion buffers, and avoidance measures during construction. Review and verify receipt of any required permits before passive exclusion is implemented, and verify passive exclusion is carried out appropriately.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
					Verify biological inspections are conducted near active dens and that buffers and avoidance measures remain in place.	
Impact BIO-1G Impact BIO-1H Impact BIO-4 Impact BIO-5	**MM BIO-19: Invasive Marine Species Control Plan** To reduce the risks of introducing or spreading invasive species during in-water work, LSPGC shall develop and implement an Invasive Marine Species Control Plan prior to initiating any in-water work for any vessels or equipment that are being imported from out of the San Francisco Bay. The Invasive Species Control Plan shall include measures designed to effectively limit the introduction and spread of invasive marine species and implement newly developed guidelines from the Marine Invasive Species Program to comply with current regulations to prevent the spread of golden mussel and any other target invasive species. Prevention measure shall include at a minimum removal of hull fouling through regular vessel maintenance, use of antifouling paints, frequent hull inspections, and overall general vessel maintenance. The Invasive Marine Species Control Plan shall include the following: • Environmental training for all crew members working in marine areas • Addressing invasive marine species and actions to be taken to prevent release and spread of invasive marine species • Training procedures for safe removal and disposal of any invasive species found on project equipment LSPGC shall submit this plan to CPUC for review and approval at least 60 days before the start of marine activities and shall submit the plan to USACE, NMFS, and CDFW for review if required by applicable regulations and/or permits. Vessels originating outside San Francisco Bay shall follow existing compliance measures established by the CSLC as part of the Marine Invasive Species Program, relating to hull fouling and ballast water control.	Proposed Project Alternative 5	LSPGC: 230 kV submarine segment.	Prepare and implement an Invasive Marine Species Control Plan before in-water work begins. Include prevention, inspection, maintenance, training, and disposal procedures to reduce the introduction and spread of invasive marine species. Submit the plan for review and approval before marine activities begin, and provide it to other agencies where required. Ensure vessels originating outside San Francisco Bay comply with applicable marine invasive species requirements.	Review and verify preparation, submittal, and approval of the Invasive Marine Species Control Plan before in-water work begins. Verify implementation of the plan's invasive species prevention, training, inspection, maintenance, and disposal measures. Verify compliance with applicable marine invasive species requirements for vessels originating outside San Francisco Bay.	Before construction During construction
Impact BIO-1H Impact BIO-4 Impact BIO-5	**MM BIO-20: Compensatory Mitigation for Permanent Impacts to Benthic Habitat** If the project requires the use of concrete mattresses or builders for submarine cable protection (i.e., permanent fill), LSPGC shall implement compensatory mitigation for permanent impacts on benthic habitat at a ratio of 1:1 or greater, subject to approval by the appropriate resource agencies (e.g., U.S. Army Corps of Engineers, CDFW, and SWRCB). Acceptable mitigation options include: • Habitat Restoration or Enhancement: Restore degraded benthic habitat within the same watershed through actions such as sediment removal, substrate stabilization, invasive species control, or re-establishment of native benthic communities. • Habitat Creation: Construct or enhance off-site aquatic habitat features designed to support benthic communities, ensuring comparable ecological function and long-term viability. • In-Lieu Fee or Mitigation Bank Credits: If on-site or off-site restoration is not feasible, the applicant shall purchase credits at a Corps-approved mitigation bank or pay an in-lieu fee to an approved conservation program with a demonstrated record of restoring aquatic habitat.	Proposed Project Alternative 5	LSPGC: 230 kV submarine segment.	Provide compensatory mitigation for permanent impacts to benthic habitat at the required ratio or greater. Select and implement an approved mitigation approach that replaces or restores benthic habitat functions. Prepare and submit a Benthic Habitat Mitigation and Monitoring Plan before	Review and verify the proposed mitigation approach, mitigation ratio, and Benthic Habitat Mitigation and Monitoring Plan before permanent impacts occur. Verify implementation of the approved compensatory mitigation, monitoring, and adaptive management measures.	Before construction After construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	Prior to installing any structures or conducting activities that would result in permanent impacts on benthic habitat, the applicant shall prepare and submit a Benthic Habitat Mitigation and Monitoring Plan for review and approval by the lead agency and responsible resource agencies. The plan shall identify: • The selected mitigation approach and location(s); • Ecological function of the proposed mitigation method (i.e., must demonstrate equivalent or improved ecological functions to the impacted habitat); • Implementation schedule; • Long-term management and monitoring commitments (minimum of five years or until success criteria are met); and • Adaptive management measures to address any deficiencies in achieving performance standards. • The plan shall demonstrate compensation for permanent impacts on benthic habitat. **Performance standards** • The proposed compensatory mitigation provides restoration or replacement of impacted benthic habitat that has equivalent or improved ecological functions to the impacted habitat. • Benthic habitat replacement shall support the species impacted by the project permanent impacts (e.g., Delta smelt, longfin smelt).			permanent impacts occur.	Review and verify that performance standards and habitat replacement objectives are achieved.	
Impact BIO-2 Impact BIO-5	**MM BIO-21: Sensitive Natural Plant Communities** Prior to construction, a qualified biologist shall survey all final work areas and identify the extent of sensitive natural plant communities, as described in MM BIO-2 in the Pre-Construction Report. If sensitive natural plant communities are found in work areas and overland access routes, work areas and overland access routes shall be repositioned where possible to avoid adverse impacts to the sensitive natural plant communities. If sensitive natural plant communities cannot be avoided within permanent impact areas, LSPGC/PG&E shall provide compensation lands containing the sensitive natural community at a 1:1 ratio (acres of restoration per acres of disturbance) for the amount of land containing the sensitive natural community affected by the project. Occupied habitat will be calculated on the project site and on the compensation lands as including each sensitive natural community. If compensation is required as a means of mitigating sensitive natural community impacts, it may be accomplished by purchasing credit in an established mitigation bank, acquiring conservation easements, or direct purchase and preservation of compensation lands.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: work areas and overland access routes where sensitive natural plant communities may be present. PG&E: work areas and overland access routes where sensitive natural plant communities may be present.	Conduct pre-construction surveys to identify the extent of sensitive natural plant communities in work areas and access routes. Reposition work areas and access routes where feasible to avoid impacts to sensitive natural plant communities. Provide compensatory mitigation for permanent impacts to sensitive natural plant communities where avoidance is not feasible.	Review and verify completion of required pre-construction surveys and identification of sensitive natural plant communities. Verify avoidance through work area and access route adjustments where feasible. Review and verify implementation of required compensatory mitigation for permanent impacts where avoidance is not feasible.	Before construction After construction
Impact BIO-3 Impact BIO-4	**MM BIO-22: Wetland Delineation, Avoidance, Minimization, and Mitigation** Prior to construction, LSPGC and PG&E shall submit to the CPUC an Aquatic Resources Delineation Report that documents the limits of wetlands subject to State or federal jurisdiction within the project work areas. Wetlands shall be delineated in accordance with the U.S. Army Corps of Engineers Wetland Delineation Manual (1987) and Arid West Regional Supplement to the Corps of Engineers Wetland Delineation Manual (Version 2.0) (2008). Where jurisdictional wetlands are located within the project work areas, an Aquatic Resource Avoidance and Minimization Plan shall be prepared. The Aquatic Resource Avoidance and Minimization Plan shall document strategies for avoidance and minimization of impacts on wetlands wherever feasible. Avoidance strategies would include relocating poles and associated work areas where feasible to provide a minimum buffer of 10 feet from the outer limits of the wetland and installing fencing to avoid project activities from encroaching on the wetland. Where avoidance isn't feasible, minimization strategies could include	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: work areas where aquatic resources may be present. PG&E: work areas where aquatic resources may be present.	Prepare and submit an Aquatic Resources Delineation Report identifying jurisdictional wetlands in project work areas. Prepare and implement an Aquatic Resource Avoidance and Minimization Plan where	Review and verify the wetland delineation report and required avoidance, minimization, and mitigation planning. Verify implementation of wetland avoidance and minimization measures where feasible.	Before construction During construction After construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	using matting or alternative construction techniques to minimize damage to the resource and avoiding grading within the resource limits. Where avoidance of the resource is not feasible, the responsible party (LSPGC or PG&E) shall obtain any permits required under State (Porter Cologne Water Quality Control Act and Fish and Game Code) and federal law (Clean Water Act) from the State Water Resources Control Board, California Department of Fish and Wildlife, and U.S. Army Corps of Engineers for discharge of dredged or fill materials within wetlands. In addition, the responsible party shall provide compensatory mitigation for impacts on the wetland through preservation, enhancement, or creation of wetlands. The mitigation ratio shall be at a minimum ratio of 1:1 and may be greater depending on the type of mitigation proposed (creation, enhancement/restoration, or preservation), value of the impacted resource, and value of the mitigation resource. For any unavoidable impacts on wetlands, the responsible party shall submit an aquatic resource mitigation plan to the CPUC for review and approval no less than 30 days prior to construction within the wetland. The aquatic resource mitigation plan shall meet the standards for compensatory mitigation as defined in the State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (2021). The responsible party shall submit evidence of successful mitigation to the CPUC through either record of purchase of mitigation lands at a mitigation bank or through an in-lieu fee program, or monitoring documenting that the compensatory mitigation has successfully compensated for the functions and values of the impacted resource per the approved mitigation plan.			jurisdictional wetlands are present. Avoid and minimize wetland impacts where feasible through buffers, fencing, and construction methods. Obtain required permits and provide compensatory mitigation for unavoidable wetland impacts. Prepare and submit an aquatic resource mitigation plan before construction in wetlands where impacts are unavoidable.	Review and verify receipt of required permits and implementation of compensatory mitigation for unavoidable impacts. Review and verify evidence that mitigation has successfully compensated for impacted wetland functions and values.	
Cultural Resources						
Impact CUL-1 Impact CUL-2	**APM CUL-1: Worker's Environmental Awareness Program.** In accordance with this measure, the WEAP would include, at minimum: • Training on how to identify potential cultural resources and human remains during the construction process; • A review of applicable local, state, and federal ordinances, laws, and regulations pertaining to historic preservation; • A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the project; • A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and policies; and • A statement by the construction company or applicable employer agreeing to abide by the WEAP, and other applicable laws and regulations. The WEAP would be provided to all project personnel who may encounter and/or alter historical resources or unique archaeological properties, including construction supervisors and field personnel. No construction worker would be involved in ground-disturbing activities without having participated in the WEAP.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: all work areas and access roads.	Develop WEAP training materials. Provide WEAP training to all on-site workers before they begin work.	Verify WEAP training materials meet requirements. Verify that all on-site workers receive WEAP training.	Before construction During construction
Impact CUL- Impact CUL-2	**APM CUL-2: Avoid Environmentally Sensitive Areas**. Cultural resource surveys would be performed for any portion of the project area not yet surveyed (e.g., new or modified staging areas, pull sites, or other work areas). Consulting Tribe(s) will be invited to participate in cultural resource surveys so that tribal cultural resources are also identified. Cultural resources and tribal cultural resources discovered during surveys would be subject to a 100-foot buffer around the boundary of each respective resource and designated as environmentally sensitive areas. Methods of environmentally sensitive area delineation may include, as applicable, flagging, rope, tape, or fencing. The environmentally sensitive areas should be clearly marked on all pertinent construction plans. Where operationally feasible, all NRHP- and CRHR-eligible resources, as well as all tribal cultural resources considered significant for the purposes of CEQA, would be protected from direct project impacts by project redesign (i.e., relocation of the line, ancillary facilities, or temporary facilities or work areas). In addition, all historic properties/historical resources would be avoided by all project construction and restoration activities, where feasible. If work within the 100-foot buffer cannot be avoided, then monitoring would be required.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: all work areas and access roads.	Conduct cultural resource surveys for unsurveyed or newly added work areas, with tribal participation opportunities during surveys. Identify, delineate, and show environmentally sensitive areas for cultural and tribal cultural resources on construction plans.	Review and verify completion of required surveys, resource identification, and environmentally sensitive area delineation. Verify identified resources are incorporated into construction planning and avoided where feasible through	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
				Avoid direct impacts to identified resources through project redesign and avoidance during construction and restoration where feasible. Conduct monitoring where work within established avoidance buffers cannot be avoided.	redesign and work restrictions. Verify monitoring is implemented where work within avoidance buffers cannot be avoided.	
Impact CUL-1 Impact CUL-2	**APM CUL-3: Inadvertent Discoveries**. In the event that previously unidentified cultural resources are uncovered during implementation of the project, all work within 100 feet of the discovery would be halted and redirected to another location. A qualified archaeologist(s) would inspect the discovery and determine whether further investigation is required. The qualifications of the archaeologist(s) would be approved by the CPUC and U.S. Army Corps of Engineers (USACE). If the resource is potentially Native American, the consulting Tribe(s) would also be given the opportunity to inspect the discovery and determine whether further investigation is required. If the discovery can be avoided and no further impacts would occur, the resource would be documented on California Department of Parks and Recreation cultural resource records, and no further effort would be required. If the resource cannot be avoided and may be subject to further impact, the significance and NRHP and CRHR eligibility of the resource would be evaluated and, in consultation with the CPUC and USACE, appropriate treatment measures would be determined. If the resource is potentially Native American, the significance of the resource as a tribal cultural resource pursuant to CEQA would be determined by the CPUC, with input requested from the consulting Tribe(s), and appropriate treatment measures would be determined. All work would remain halted until a Secretary of the Interior-qualified archaeologist approves the treatment measures. Preservation in place would be the preferred means to avoid impacts to significant historical resources. Consistent with CEQA Guidelines Section 15126.4(b)(3), if it is demonstrated that resources cannot feasibly be avoided, and if the unearthed resource is prehistoric or Native American in nature, a Native American representative, in consultation with the CPUC and USACE, would develop additional treatment measures, such as data recovery consistent with CEQA Guidelines 15126.4(b)(3)(C-D). Archaeological materials recovered during any investigation that are tribal cultural resources shall be reburied outside areas impacted by the project and stored temporarily during construction until reburial is feasible or transferred to the appropriate tribal organization. Archaeological materials that are not tribal cultural resources will be curated at an accredited curation facility.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: all work areas and access roads.	Halt and redirect work if previously unidentified cultural resources are discovered. Have a qualified archaeologist inspect the discovery, with tribal participation opportunities where the resource may be Native American. Document and avoid the discovery where feasible. Evaluate significance and implement appropriate treatment if the resource cannot be avoided. Keep work halted until treatment is approved, and properly rebury, transfer, or curate recovered materials as applicable.	Verify implementation of stop-work, discovery evaluation, and consultation procedures for inadvertent discoveries. Review and verify documentation, significance evaluation, and treatment of discovered resources where needed. Verify work does not resume until required approvals are in place and recovered materials are properly handled.	Before construction During construction After construction
Impact CUL-1 Impact CUL-2	**APM CUL-4: Paleo landform Testing.** Prior to construction, the paleo landform would be evaluated through coring and soil analysis. If this analysis indicates the potential for cultural resources, a Paleo landform Monitoring Plan would be developed, approved by the CPUC, and implemented during submarine cable installation within 500 feet of the potential cultural resources.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: 230 kV submarine segment.	Evaluate the paleo landform prior to construction through coring and soil analysis. Prepare and implement a Paleo landform Monitoring Plan if the analysis indicates potential for cultural resources.	Review and verify completion of the pre-construction paleo landform evaluation. Review and verify approval of the Paleo landform Monitoring Plan, where required. Verify monitoring is implemented during submarine cable	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
				Conduct monitoring during submarine cable installation within 500 feet of the identified potential cultural resources.	installation in the applicable area.	
Impact CUL-1 Impact CUL-2	**CM CUL-1: Worker Awareness Training**. PG&E would provide environmental awareness training on archeological and tribal cultural resources protection and identification. This training may be administered by the PG&E cultural resources specialist (CRS) or a designee as a stand-alone training or included as part of the overall environmental awareness training as required by the project and would at minimum include: types of cultural resources, tribal cultural resources, or fossils that could occur at the project site; types of soils or lithologies in which the cultural resources or fossils could be preserved; procedures that should be followed in the event of a cultural resource or human remain discovery; and penalties for disturbing cultural resources and human remains. A tribal representative will also be invited to provide tribal cultural resources training at construction inception.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all work areas and access roads.	Provide worker awareness training on archaeological, tribal cultural, and fossil resources before relevant construction activities begin. Include training on resource identification, discovery response procedures, and legal consequences for disturbance. Invite a tribal representative to participate in tribal cultural resources training at construction start.	Review and verify required worker awareness training is provided before relevant construction activities begin. Verify the training includes required resource identification, discovery response, and compliance topics. Verify a tribal representative is invited to participate in tribal cultural resources training.	Before construction During construction
Impact CUL-1 Impact CUL-2	**CM CUL-2: Flag and Avoid Known Resources**. Sites would be marked with flagging tape, safety fencing, and/or sign designating it as an "environmentally sensitive area" to ensure that PG&E construction crews and heavy equipment would not intrude on these sites during construction. At the discretion of the PG&E CRS, monitoring may be done in lieu of or in addition to flagging. If it is determined that the project cannot avoid impacts on one or more of the sites, then, for those sites that have not been previously evaluated, evaluation for inclusion in the National Register of Historic Places (NRHP)/California Register of Historic Resources (CRHR) would be conducted. If the resource appears to be Native American, the significance of the resource as a tribal cultural resource pursuant to CEQA would be determined by the CPUC with input by the consulting Tribe(s). Should the site be found eligible or determined to be a tribal cultural resource, appropriate measures to reduce the impact to a less-than-significant level would be implemented, including but not limited to data recovery, photographic and archival documentation, or other measures as deemed appropriate. If it is determined that sites that have been previously determined to be eligible for inclusion in either the NRHP or CRHR cannot be avoided, measures would be implemented to reduce the impact to a less-than-significant level, including but not limited to data recovery, photographic and archival documentation, or other measures as deemed appropriate. Archaeological materials recovered during any investigation that are tribal cultural resources shall be stored temporarily during construction until reburial is feasible or transferred to the appropriate tribal organization with landowner approval. Any final disposition, including reburial outside of areas impacted by the project, is subject to landowner and tribal agreement. Archaeological materials that are not tribal cultural resources may be curated at an accredited facility or reburied onsite with landowner approvals.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all work areas and access routes.	Identify and avoid known resources in the field through marking, fencing, signage, and monitoring where appropriate. Evaluate unevaluated resources if impacts cannot be avoided, including determination of tribal cultural resource significance where applicable. Implement appropriate treatment or impact reduction measures for significant resources that cannot be avoided. Provide for appropriate temporary storage, reburial, transfer, or	Review and verify field protection and avoidance measures for known resources are implemented. Review and verify required evaluation and significance determinations where impacts cannot be avoided. Verify appropriate treatment, handling, and final disposition measures are implemented for affected materials and resources.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
				curation of recovered materials, as applicable.		
Impact CUL-1 Impact CUL-2 Impact CUL-3	**MM CUL-1: Subsurface Resource Testing, Worker Training, Monitoring, and Reporting** **Pre-Construction Testing**: Prior to initiating construction, LSPGC shall conduct coring within the location of the northern onshore portion of submarine segment, the riser structures, and the TSP structure north of the riser structures to investigate whether remains of a Native American village or habitation occur within the subsurface work areas. The coring shall include at least 10 cores to the depth of the proposed excavation at each core location. The exact locations of the cores shall be defined by a qualified geoarchaeologist with previous experience using this method in the San Francisco Bay Area to provide a representative sample of the subsurface area of potential impact (API) in consultation with the consulting Tribes(s). The coring shall be monitored by a qualified geoarchaeologist, and a tribal monitor shall be invited to participate in the monitoring. The results of the coring shall be reviewed by a qualified geoarchaeologist with previous experience using this method in the San Francisco Bay Area and the tribal monitor (Yocha Dehe, Wintun Nation, Confederated Villages of Lisjan Nation, or Amah Mutsun Tribal Band of Mission San Juan Bautista [Tribes]) to determine whether there are subsurface tribal cultural resources (e.g., village or other evidence of past human habitation) within the location of the overhead segment and onshore submarine segment. If any significant cultural or tribal cultural resources, as determined by a qualified archaeologist and/or a tribal monitor, are documented within the location of the overhead segment and onshore submarine segment API, the overhead and submarine segment cable alignment or riser and tubular steel pole structure locations shall be adjusted to avoid the buried resource through vertical or horizontal relocation to the extent feasible. **Worker Training:** All consulting Tribes shall be invited to assist in developing the cultural sensitivity and archeological awareness training provided to all project workers involved in ground disturbing activities. The training shall inform workers to be on the alert for evidence of potential archaeological and tribal cultural resources, how to identify the evidence of such resources, and of stop work, resource protection, and notification requirements in the event of suspected discovery of resources. **Preservation in Place and Treatment:** The preferred treatment strategy for any cultural or tribal cultural resource shall be avoidance. If historic resources that are not tribal cultural resources cannot be avoided, additional treatment measures, such as curation at an accredited curation facility, will be employed to treat the resource. If tribal cultural resources cannot be avoided, treatment may include reburial in the project vicinity at a location agreed upon between the Tribe and the proponent/land owner, where the reburial would be accessible to Tribal members and would not be subject to further disturbance or transfer to the appropriate tribal organization. Treatment of tribal cultural resources will be conducted in consultation with the consulting tribes. Treatment of all tribal cultural resources, including ceremonial items and archeological items will reflect the religious beliefs, customs, and practices of the Tribe(s). LSPGC shall waive any and all claims to ownership of Tribal ceremonial and cultural items, including archeological items, which may be found on the project site in favor of the Tribe(s). If any intermediary is necessary (e.g., an archaeologist retained by LSPGC), the intermediary shall not possess Tribal ceremonial and cultural items for longer than is reasonably necessary. **Cultural Resource Archaeological and Tribal Monitoring:** Monitoring shall be conducted by a qualified archaeologist and a tribal monitor during disturbance of native sediments (e.g., overland travel, grading, and excavation) in areas that have moderate and high sensitivity for buried archaeological and tribal cultural resources. If a tribal monitor is unavailable to support the monitoring effort, LSPGC shall provide documentation to the CPUC on outreach efforts to the Tribes (Yocha Dehe Wintun Nation, Confederated Villages of Lisjan Nation, and Amah Mutsun) regarding cultural resource tribal monitoring. Outreach shall include at least three attempts/requests for monitoring. **Reporting:** After completion of the coring field work, LSPGC shall prepare and submit a confidential report documenting the results of the field work to the CPUC for review and approval. The report shall include maps, field notes, recordings, drawings or sketches, and analysis of any resources encountered, as appropriate. LSPGC shall submit a confidential monthly report with the monitoring results to the CPUC. The report shall include maps, field notes, recordings, photographs, and analysis of any resources encountered during construction. The documentation of any inadvertent discoveries per APM CUL-3 shall also be included in the reports.	Proposed Project	LSPGC: coring locations and structures near the northern shore of the Delta, and native sediments in areas with moderate or high sensitivity for buried archaeological and tribal cultural resources.	Conduct pre-construction subsurface testing, with tribal participation opportunities, to identify potential buried cultural and tribal cultural resources. Adjust project components where feasible to avoid significant buried resources identified through testing. Provide worker training on identification, protection, stop-work, and notification procedures for cultural and tribal cultural resources. Conduct archaeological and tribal monitoring during initial disturbance in sensitive areas, or document outreach efforts if tribal monitoring is unavailable. Implement avoidance as the preferred treatment, and carry out appropriate treatment measures for resources that cannot be avoided. Prepare and submit confidential testing and monitoring reports. Maintain confidentiality of reburial locations and related sensitive information.	Review and verify completion of required subsurface testing, tribal participation opportunities, and testing reports. Verify project adjustments are made where feasible to avoid significant buried resources. Review and verify required worker training and monitoring are implemented in applicable areas, including documentation of outreach for tribal monitoring where needed. Verify appropriate treatment, reporting, confidentiality, and dispute resolution procedures are implemented for cultural and tribal cultural resources.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	Confidentiality: Unless otherwise required by law, the site of any reburial of tribal cultural resources or Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act, Cal. Govt. Code § 6250 et seq. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r). The Tribes will require that the location for reburial is recorded with the California Historic Resources Inventory System ("CHRIS") on a form that is acceptable to the CHRIS center. **Dispute Resolution:** In the case of disagreement between Tribes including, but not limited to, treatment of resources, monitoring, or recording of resources, the CPUC will make a determination and document the rationale for the determination.					
Impact CUL-1 Impact CUL-2	**MM CUL-2: Inadvertent Discoveries** In the event that previously unidentified cultural resources are uncovered during implementation of the project, all work within 100 feet of the discovery would be halted and redirected to another location. A PG&E-appointed qualified archaeologist(s) would inspect the discovery and determine whether further investigation is required. The qualifications of the archaeologist(s) would be approved by the CPUC and the U.S. Army Corps of Engineers (USACE). If the resource is potentially Native American, the consulting Tribe(s) would also be consulted regarding the discovery and to determine whether further investigation is required. If the discovery can be avoided and no further impacts would occur, the resource would be documented on California Department of Parks and Recreation cultural resource records, and no further effort would be required outside of providing documentation to CPUC, USACE, and PG&E. If the resource cannot be avoided and may be subject to further impact, the significance and NRHP and CRHR eligibility of the resource would be evaluated and, in consultation with the CPUC, USACE, and PG&E, appropriate treatment measures would be determined. If the resource is potentially Native American in origin, the significance of the resource as a tribal cultural resource pursuant to CEQA would be evaluated by consulting Tribe(s) and, in consultation with the CPUC and USACE. All work would remain halted until a Secretary of the Interior-qualified archaeologist approves the treatment measures and, if the resource is Native American, the treatment measures are determined in consultation with the consulting Tribe(s). Preservation in place would be the preferred means to avoid impacts to significant historical resources. Consistent with CEQA Guidelines Section 15126.4(b)(3), if it is demonstrated that resources cannot feasibly be avoided, and if the unearthed resource is prehistoric or Native American in nature, a Native American representative, in consultation with the CPUC, would develop additional treatment measures, such as data recovery consistent with CEQA Guidelines 15126.4(b)(3)(C-D). Archaeological materials recovered during any investigation that are tribal cultural resources shall be stored temporarily during construction until reburial is feasible or transferred to the appropriate tribal organization with landowner approval. Archaeological materials that are not tribal cultural resources will be curated at an accredited curation facility or reburied on site with landowner approval.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all work areas and access roads.	Halt and redirect work within the discovery area if previously unidentified cultural resources are encountered. Keep work halted until treatment measures are approved and implemented as required. Have a qualified archaeologist inspect the discovery and determine whether further investigation is needed, with tribal consultation where the resource may be Native American in origin. Document the discovery and provide required documentation if the resource can be avoided and no further impacts would occur. Evaluate significance and develop appropriate treatment measures, with consultation as required, if the resource cannot be avoided. Rebury, transfer, curate, or otherwise properly handle recovered materials, as applicable.	Review and verify implementation of stop-work, discovery evaluation, and required consultation procedures for inadvertent discoveries. Review and verify required documentation, significance evaluation, and treatment measures where impacts cannot be avoided. Verify work does not resume until required approvals are obtained and appropriate treatment or handling measures are in place.	Before construction During construction After construction
Impact CUL-3	**MM CUL-3: Halt Work/Coroner's Evaluation/Impact to Previously Undiscovered Human Remains** If human remains are encountered during construction and/or other ground disturbing activities, all work within 100 feet of the remains should be redirected and the County Coroner notified immediately. At the same time, an archeologist shall be contacted to assess the situation. If the human remains are of Native American origin, the Coroner must notify the Native American	Proposed Project Alternative 1 Alternative 2 Alternative 4	LSPGC: all work areas and access roads.	Halt and redirect work within the discovery area and immediately notify the County Coroner if	Review and verify implementation of stop-work, notification, area protection, and	During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	Heritage Commission (NAHC) within 24 hours of this identification. The preferred protocol upon the discovery of Native American human remains is to (1) secure the area, (2) cover any exposed human remains or other cultural items, and (3) avoid further disturbances in the area. The NAHC will identify a Native American Most Likely Descendent (MLD). The Tribe shall be allowed, pursuant to California Public Resources Code Section 5097.98(a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods should be treated and disposed of with appropriate dignity. The Tribe shall complete its inspection and make its MLD recommendation within forty-eight (48) hours of getting access to the site. **Associated Material:** The term "human remains" encompasses more than human bones because the Tribe's traditions call for the burial of associated cultural items with the deceased (funerary objects), and/or the ceremonial burning of Native American human remains, funerary objects, grave goods and animals. Ashes, soils and other remnants of these burning ceremonies, as well as associated funerary objects and unassociated funerary objects buried with or found near the Native American remains are to be treated in the same manner as bones or bone fragments that remain intact. Association between the remains and other cultural materials should be determined in the field in consultation with an authorized Tribal representative. Records of provenience and sample labels should be adequate to determine association or degree of likelihood of association of human remains and other cultural materials. No laboratory studies are permitted on human remains without consultation with the tribe. Lab methods are only permitted in consultation with the Tribal representative. **Blessings:** Prior to any physical action related to human remains, a designated tribal representative will conduct prayers and blessings over the remains. The archaeological consultant will be responsible for ensuring that individuals and tools involved in the action are available for traditional blessings and prayers, as necessary. **Reporting:** There shall be no pictures taken or testing done on the Native American human remains. All bone, if not identifiable as human or animal, shall be treated as human remains and the appropriate protocols followed. The archeologist shall record information, as appropriate and in accordance with the recommendations of the MLD and/or Tribal representative. Upon completion of the Tribal representative and archeologist's assessment, a report should be prepared documenting methods and results, as well as recommendations regarding the treatment of the human remains and any associated archeological materials. The report should be submitted to the CPUC, the project proponent, the NWIC and the consulting Tribe. **Re-internment without Further Disturbance:** The preferred treatment method for exhumed Native American human remains is reburial in an area not subject to further disturbance. Tribal representatives will rebury the Native American human remains and associated funerary objects with the appropriate dignity, either; in accordance with the recommendations of the MLD if available or in the project vicinity at a location agreed upon between the Tribe, where the reburial would be accessible to Tribal members in perpetuity and would not be subject to further disturbance. The discovery and reburial are to be kept confidential and secure to prevent any further disturbance. **Dispute Resolution:** In the case of disagreement between Tribes about treatment of human remains, the CPUC will make a determination and document the rationale for the determination.	Alternative 6a/6b		human remains are encountered. Secure and protect the discovery area, and involve qualified archaeological and tribal representatives in evaluation and treatment of the remains. Coordinate required notifications, consultation, and Most Likely Descendent involvement where Native American remains are identified. Conduct any necessary field investigation, handling, and documentation of remains and associated materials in accordance with required tribal protocols and restrictions. Rebury Native American human remains and associated materials in a protected location not subject to further disturbance, and maintain confidentiality of the discovery and reburial location.	consultation procedures for previously undiscovered human remains. Verify required archaeological, tribal, and Most Likely Descendent involvement in evaluation, treatment, documentation, and handling of remains and associated materials. Review and verify preparation of required reporting and implementation of reburial, confidentiality, and dispute resolution procedures.	
Impact CUL-1 Impact CUL-2	**MM CUL-4: Hastings Adobe Site and Associated Tribal Cultural Resource Avoidance (Alternatives 1 and 2)** LSPGC shall modify the Alternative 1/Alternative 2 pulling site to avoid the geographic limits of the Hastings Adobe site (P-48-000041) as well as the adjacent tribal cultural resource area comprised of the P-48-000041 and P-48-000139 sites and the space between them, to the extent feasible. If it is infeasible to avoid the defined boundaries of these features, activities within the define boundaries shall be limited to vehicle travel and equipment access with the implementation of measures to protect any archeological and tribal cultural resources within the pull site (e.g. matting or other surface protection measures), and no subsurface disturbance (e.g., anchoring) shall be allowed within the defined boundaries. All activities within the defined boundaries shall be monitored by a qualified archaeologist and a tribal monitor. Avoidance measures for these resources shall be noted on the final plans and specifications. LSPGC shall submit the final design for the Alternative 1/Alternative 2 pulling site that overlaps with the defined boundaries and any recommended avoidance measures to the CPUC for review and approval at least 30 days prior to use of the pulling site.	Alternative 1 Alternative 2	LSPGC: 230 kV overhead segment (pull site adjacent to Hastings Adobe and tribal cultural resource).	Modify the pulling site design to avoid the defined resource boundaries to the extent feasible. Where avoidance is infeasible, limit activities within the defined boundaries to surface access only and prohibit subsurface disturbance. Implement protective surface measures within	Review and verify the final pulling site design and proposed avoidance measures before site use. Verify avoidance of the defined resource boundaries to the extent feasible. Verify activity restrictions, protective measures, and required archaeological and	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
				the defined boundaries where use cannot be avoided. Conduct archaeological and tribal monitoring for all activities within the defined boundaries. Show avoidance measures on final plans and submit the final site design and avoidance measures for review and approval before site use.	tribal monitoring are implemented within the defined boundaries.	
Impact CUL-1 Impact CUL-2	**MM CUL-5: Hastings Adobe Site and Associated Tribal Cultural Resource Avoidance (Alternative 4)** LSPGC shall modify the Alternative 4 new access road to avoid the geographic limits of the Hastings Adobe site (P-48-000041) as well as the adjacent tribal cultural resource area comprised of the P-48-000041 and P-48-000139 sites and the space between them, to the extent feasible. If it is infeasible to avoid defined boundaries of these features, LSPGC shall implement measures to protect any archaeological and tribal cultural resources within the access road limits (e.g., matting or other surface protection measures) within the defined boundaries. All activities within the defined boundaries shall be monitored by a qualified archaeologist and a tribal monitor. Avoidance measures for the defined boundaries shall be noted on the final plans and specifications. LSPGC shall submit the final design for the Alternative 4 access road within the defined boundaries and any recommended avoidance measures to the CPUC for review and approval at least 30 days prior to use of the pulling site.	Alternative 4	LSPGC: 230 kV overhead segment (access road south of Stratton Lane).	Modify the access road design to avoid the defined resource boundaries to the extent feasible. Where avoidance is infeasible, implement protective measures within the defined boundaries. Conduct archaeological and tribal monitoring for all activities within the defined boundaries. Show avoidance measures on final plans and submit the final access road design and avoidance measures for review and approval before use.	Review and verify the final access road design and proposed avoidance measures before use. Verify avoidance of the defined resource boundaries to the extent feasible. Verify protective measures and required archaeological and tribal monitoring are implemented within the defined boundaries.	Before construction During construction
Impact CUL-1 Impact CUL-2	**MM CUL-6: RP-03 and RP-04 Avoidance (Alternatives 4 and 6a/6b)** LSPGC shall not conduct any ground disturbing construction activities (e.g., grading or excavation) within the limits of RP-03 and RP-04. LSPGC shall not travel on the unpaved access road within RP-03 and RP-04 when soil conditions are wet (e.g., after rain events) without the use of additional protection measures to avoid rutting. Additional measures shall be applied as needed to protect avoid disturbance of buried sediments such as use of matting or plating.	Alternative 4 Alternative 6a/6b	LSPGC: existing access roads on PG&E property.	Prohibit ground disturbing construction activities within the limits of RP-03 and RP-04. Restrict travel on the unpaved access road during wet soil conditions unless protective measures are in place. Implement protective measures as needed to prevent rutting and	Verify ground-disturbing construction activities do not occur within RP-03 and RP-04. Verify travel restrictions and protective measures are implemented on the unpaved access road during wet conditions.	Before construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
				disturbance of buried sediments.		
Impact CUL-1 Impact CUL-2	**MM CUL-7: Subsurface Resource Testing, Worker Training, Monitoring, and Reporting (Alternatives 6a/6b)** **Pre-Construction Testing:** Prior to initiating construction, LSPGC shall conduct coring within the location of the Alternative 6a/Alternative 6b underground duct bank to investigate whether remains of a Native American village or habitation occur within the subsurface work areas. The coring shall include at least 20 cores to the depth of the proposed excavation at each core location. The exact locations of the cores shall be defined by a qualified geoarchaeologist with previous experience using this method in the San Francisco Bay Area to provide a representative sample of the subsurface area of potential impact (API). The coring shall be monitored by a qualified geoarchaeologist, and a tribal monitor shall be invited to participate in the monitoring. The results of the coring shall be reviewed by a qualified geoarchaeologist with previous experience using this method in the San Francisco Bay Area and the tribal monitor (Yocha Dehe, Wintun Nation, Confederated Villages of Lisjan Nation, or Amah Mutsun Tribal Band of Mission San Juan Bautista [Tribes]) to determine whether there are subsurface tribal cultural resources (e.g., village or other evidence of past human habitation) within the location of the overhead segment and onshore submarine segment. If any significant cultural or tribal cultural resources, as determined by a qualified archaeologist and/or a tribal monitor, are documented within the location of the Alternative 6a/6b underground duct bank, the duct bank location shall be adjusted horizontally (realigned) to avoid the buried resource to the extent feasible. **Worker Training:** A Native American representative from one of the Tribes shall assist in developing the cultural sensitivity and archeological awareness training provided to all project workers involved in ground disturbing activities. The training shall inform workers to be on the alert for evidence of potential archaeological and tribal cultural resources, how to identify the evidence of such resources, and of stop work, resource protection, and notification requirements in the event of suspected discovery of resources. **Preservation in Place and Treatment:** The preferred treatment strategy for any cultural or tribal cultural resource shall be avoidance. If a historic resource that is not a tribal cultural resource cannot be avoided, additional treatment measures such as curation at an accredited curation facility, will be employed to treat the resource. If a tribal cultural resource cannot be avoided, treatment may include transfer to the appropriate tribal organization, an interpretive program, or reburial of the resource outside of the API. Treatment of tribal cultural resources will be conducted in consultation with the consulting tribes. Treatment of all tribal cultural resources, including ceremonial items and archeological items will reflect the religious beliefs, customs, and practices of the Tribe(s). LSPGC shall waive any and all claims to ownership of Tribal ceremonial and cultural items, including archeological items, which may be found on the project site in favor of the Tribe(s). If any intermediary is necessary (e.g., an archaeologist retained by LSPGC), the intermediary shall not possess Tribal ceremonial and cultural items for longer than is reasonably necessary. **Archaeological and Tribal Monitoring:** Monitoring shall be conducted by a qualified archaeologist and a tribal monitor during disturbance of native sediments (e.g., overland travel, grading, and excavation) in areas that have moderate and high sensitivity for buried archaeological and tribal cultural resources. If a tribal monitor is unavailable to support the monitoring effort, LSPGC shall provide documentation to the CPUC on outreach efforts to the Tribes regarding tribal monitoring. Outreach shall include at least three attempts/requests for monitoring. **Reporting:** After completion of the coring field work, LSPGC shall prepare and submit a confidential report documenting the results of the field work to the CPUC for review and approval. The report shall include maps, field notes, recordings, drawings or sketches, and analysis of any resources encountered, as appropriate. LSPGC shall submit a confidential annual report with the monitoring results to the CPUC. The report shall include maps, field notes, recordings, photographs, and analysis of any resources encountered during construction. The documentation of any inadvertent discoveries per APM CUL-3 shall also be included in the annual report. **Confidentiality:** Unless otherwise required by law, the site of any reburial of tribal cultural resources or Native American human remains shall not be disclosed. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r). The Tribes mayrequire that the	Alternative 6a/6b	LSPGC: underground duct bank and transition vaults associated with Alternative 6a/6b.	Conduct pre-construction subsurface testing, with tribal participation opportunities, to identify potential buried cultural and tribal cultural resources. Adjust the duct bank alignment where feasible to avoid significant buried resources identified through testing. Provide worker training on identification, protection, stop-work, and notification procedures for cultural and tribal cultural resources. Conduct archaeological and tribal monitoring during disturbance in sensitive areas, or document outreach efforts if tribal monitoring is unavailable. Implement avoidance as the preferred treatment, and carry out appropriate treatment measures for resources that cannot be avoided. Prepare and submit confidential testing and monitoring reports. Maintain confidentiality of reburial locations and related sensitive information.	Review and verify completion of required subsurface testing, tribal participation opportunities, and testing reports. Verify alignment adjustments are made where feasible to avoid significant buried resources. Review and verify required worker training and monitoring are implemented in applicable areas, including documentation of outreach for tribal monitoring where needed. Verify appropriate treatment, reporting, and confidentiality measures are implemented for cultural and tribal cultural resources.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	location for reburial is recorded with the California Historic Resources Inventory System ("CHRIS") on a form that is acceptable to the CHRIS center.					
Energy						
Impact EN-1	**APM AIR-1** (See Air Quality)					
Impact EN-1	**CM AIR-1** (See Air Quality)					
Impact EN-1	**CM NOI-1** (See Noise)					
Impact EN-2	**MM UT-1** (See Utilities)					
Geology, Soils, and Paleontological Resources						
Impact GEO-2	**APM GEO-1: Geological Hazards and Disturbance to Soils.** The following measures would be implemented during construction to minimize impacts from geological hazards and disturbance to soils: • Keep vehicles and construction equipment within the limits of the project and in approved construction work areas to reduce disturbance to topsoil. • Salvage any disturbed topsoil during temporary grading activities to a maximum depth of 6 inches or to the actual depth if shallower (as identified in a site-specific geotechnical engineering report) to avoid the mixing of soil horizons. • Avoid construction in areas with saturated soils where topsoil salvage has not occurred whenever practical to reduce impacts to soil structure and allow safe access. Similarly, avoid topsoil salvage in saturated soils to maintain soil structure. • Keep topsoil material on site in the immediate vicinity of the temporary disturbance or at a nearby approved work area to be used in the restoration of temporarily disturbed areas. Recontour temporarily disturbed areas following construction to match preconstruction grades. Site and manage on-site material storage in accordance with all required permits and approvals. • Keep vegetation removal and soil disturbance to a minimum and limited to only the areas needed for construction and to provide adequate vegetation removal to meet initial electrical clearance and wildfire prevention requirements. Dispose of removed vegetation off site at an appropriate licensed facility, or it can be chipped on site to be used as mulch during restoration.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: all work areas and access roads.	Keep vehicles, equipment, vegetation removal, and soil disturbance within approved work areas and limited to what is needed for construction, electrical clearance, and wildfire prevention. Salvage and manage topsoil and avoid work saturated soils where practical. Recontour temporarily disturbed areas following construction.	Verify work activities remain within approved areas and vegetation removal and soil disturbance are minimized. Verify topsoil salvage, saturated-soil avoidance, topsoil management, and restoration measures are properly implemented. Verify temporarily disturbed areas are recontoured properly.	During construction After construction
Impact GEO-6	**APM PALEO-1: WEAP Training.** Prior to the start of the construction activities, all field personnel would receive a WEAP training on paleontological resources. The training would provide a description of the laws and ordinances protecting fossil resources, the types of fossil resources that may be encountered in the project area, the role of the paleontological monitor, steps to follow if a fossil discovery is made, and contact information for the paleontologist. The training would be developed by the paleontologist and would be delivered concurrently with other training, including cultural, biological, and safety.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: all unpaved work areas and access roads.	Develop paleontological WEAP training materials. Provide WEAP training to all on-site workers before they begin work.	Verify WEAP training materials meet paleontological requirements. Verify that all on-site workers receive WEAP training.	Before construction During construction
Impact GEO-6	**APM PALEO-2: Paleontological Monitoring.** A professional paleontologist would be retained to monitor initial ground-disturbing activities in areas mapped as Pleistocene alluvial fan deposits (Qpf) and Montezuma Formation (Qmz). Monitoring would entail the visual inspection of excavated or graded areas and trench sidewalls. If a paleontological resource is discovered, the paleontological monitor would have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and, if appropriate, collected. If the resource is determined to be of scientific significance, the paleontological monitor would complete the following steps: • If fossils are discovered, all work in the immediate vicinity would be halted to allow the paleontological monitor to evaluate the discovery and determine if the fossil may be considered significant. If the fossils are determined to be potentially significant, the paleontological monitor would recover them by following standard field procedures for	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: ground disturbance in areas mapped as Pleistocene alluvial fan deposits (Qpf) and Montezuma Formation (Qmz).	Conduct paleontological monitoring during initial ground disturbance in sensitive geologic units. Halt or redirect work in the immediate area if fossils are discovered. Recover, prepare, identify, and curate	Review and verify paleontological monitoring is conducted in the required areas. Verify work is halted or redirected, as needed, for fossil evaluation and recovery.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	collecting paleontological resources. Typically, fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases, larger fossils (e.g., skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case, the paleontological monitor would have the authority to temporarily direct, divert, or halt construction activity to ensure that the fossils can be removed in a safe and timely manner. • An accredited repository, which has agreed to accept fossils that may be discovered during project-related excavations, would be identified prior to construction activities. Upon completion of fieldwork, all significant fossils collected would be prepared in a properly equipped laboratory to a point ready for curation. Preparation may include the removal of excess matrix from fossil materials and stabilizing or repairing specimens. During preparation and inventory, the fossil specimens would be identified to the lowest taxonomic level practical prior to curation at an accredited repository (usually a museum). The fossil specimens would be delivered to the accredited museum or repository no later than 30 days after all laboratory work is completed. The cost of curation would be assessed by the repository and would be the responsibility of the client.			significant fossils at an approved repository.	Review and verify significant fossils are properly recovered, prepared, and curated.	
Impact GEO-2	**CM GEO-1: Minimize Construction in Soft or Loose Soils.** Where soft or loose soils are encountered during project construction, several actions are available, feasible and can be implemented to avoid, accommodate, replace, or improve such soils. Depending on site-specific conditions and permit requirements, one or more of these actions may be implemented to eliminate impacts from soft or loose soils: • Locating construction facilities and operations away from areas of soft and loose soil. • Over-excavating soft or loose soils and replacing them with engineered backfill materials. • Increasing the density and strength of soft or loose soils through mechanical vibration and/or compaction. • Installing material, such as aggregate rock, steel plates, or timber mats, over access roads. • Treating soft or loose soils in place with binding or cementing.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all unpaved work areas and access roads.	Use appropriate construction methods to avoid, improve, stabilize, or replace soft or loose soils where encountered during construction. Relocate construction facilities or operations away from soft or loose soils where feasible.	Verify appropriate measures are selected and implemented where soft or loose soils are encountered.	During construction
Impact GEO-6	**CM PALEO-1: Worker Awareness Training.** PG&E would provide environmental awareness training on paleontological resources protection. This training may be administered by the PG&E cultural resources specialist (CRS) or a designee as a stand-alone training or included as part of the overall environmental awareness training as required by the project and would at minimum include: types of cultural resources or fossils that could occur at the project site; types of soils or lithologies in which the cultural resources or fossils could be preserved; procedures that should be followed in the event of a cultural resource or human remain discovery; and penalties for disturbing paleontological resources.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all unpaved work areas and access roads.	Develop paleontological WEAP training materials. Provide WEAP training to all on-site workers before they begin work.	Verify WEAP training materials meet paleontological requirements. Verify that all on-site workers receive WEAP training.	Before construction During construction
Impact GEO-6	**CM PALEO-2: Paleontological Monitoring.** A professional paleontologist would be retained to monitor initial ground-disturbing activities in previously undisturbed areas mapped as Montezuma Formation (Qmz). Monitoring would entail the visual inspection of excavated or graded areas and trench sidewalls. If a paleontological resource is discovered, the paleontological monitor would have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and, if appropriate, collected. If the resource is determined to be of scientific significance, the paleontological monitor would complete the following steps: • If fossils are discovered, all work in the immediate vicinity would be halted to allow the paleontological monitor to evaluate the discovery and determine if the fossil may be considered significant. If the fossils are determined to be potentially significant, the paleontological monitor would recover them by following standard field procedures for collecting paleontological resources. Typically, fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases, larger fossils (e.g., skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case, the paleontological monitor would have the authority to temporarily direct, divert, or halt construction activity to ensure that the fossils can be removed in a safe and timely manner. • An accredited repository, which has agreed to accept fossils that may be discovered during project-related excavations, would be identified prior to construction activities. Upon completion of fieldwork, all significant fossils	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: ground disturbance in areas mapped as Montezuma Formation (Qmz).	Conduct paleontological monitoring during initial ground disturbance in previously undisturbed Montezuma Formation areas. Halt or redirect work in the immediate area if fossils are discovered so they can be evaluated and, if needed, recovered. Recover, prepare, identify, and curate significant fossils at an approved repository.	Review and verify paleontological monitoring is conducted in the required areas. Verify work is halted or redirected, as needed, for fossil evaluation and recovery. Review and verify significant fossils are properly recovered, prepared, and curated.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	collected would be prepared in a properly equipped laboratory to a point ready for curation. Preparation may include the removal of excess matrix from fossil materials and stabilizing or repairing specimens. During preparation and inventory, the fossil specimens would be identified to the lowest taxonomic level practical prior to curation at an accredited repository (usually a museum). The fossil specimens would be delivered to the accredited museum or repository no later than 30 days after all laboratory work is completed. The cost of curation would be assessed by the repository and would be the responsibility of the client.					
Impact GEO-6	**MM GEO-1: Paleontological Resources Mitigation and Monitoring Program** Prior to the initiation of ground-disturbing activities within geologic units of high paleontological sensitivity (Montezuma Formation [Qmz] and Pleistocene alluvial fan deposits [Qpf]), a site-specific Paleontological Resources Mitigation Program (PRMP) shall be prepared and implemented under the direction of a qualified professional paleontologist, consistent with Society of Vertebrate Paleontology (2010) guidelines. The PRMP shall include the following elements: • **Worker Environmental Awareness Program (WEAP) Training**. All construction personnel shall receive training on paleontological resources prior to the start of construction. Training shall describe the laws and ordinances protecting fossil resources, the types of fossil resources that may be encountered in the project site, the role and authority of the paleontological monitor, procedures to follow in the event of a fossil discovery, and contact information for the project paleontologist. The training shall be prepared by the project paleontologist and may be conducted in conjunction with other environmental trainings required for the project. • **Paleontological Monitoring**. A qualified paleontological monitor shall be retained to monitor initial ground-disturbing activities in areas mapped as Qmz and Qpf. Monitoring shall consist of visual inspection of excavated or graded areas and trench sidewalls. The project paleontologist may reduce or discontinue monitoring if field observations indicate that geologic conditions no longer warrant full-time monitoring. • **Fossil Discovery Procedures**. If fossils are discovered during construction, the paleontological monitor shall have the authority to halt or divert construction equipment in the immediate vicinity of the find until it can be evaluated. If fossils are determined to be scientifically significant, the project paleontologist shall recover them using standard professional methods. Smaller discoveries may be salvaged quickly with minimal construction delay; however, larger discoveries (e.g., complete skeletons or large mammal fossils) may require extended excavation and salvage. Construction shall not resume in the affected area until the paleontological monitor confirms that fossil recovery is complete. • **Fossil Preparation and Curation**. Prior to construction, an accredited repository willing to accept fossil specimens shall be identified. Significant fossils collected during project construction shall be prepared in a properly equipped laboratory, stabilized or repaired as needed, identified to the lowest taxonomic level practical, and curated at the accredited repository. All fossil specimens shall be delivered to the repository no later than 30 days after completion of laboratory work. The applicant shall be responsible for all costs associated with preparation and curation. • **Final Paleontological Mitigation Report**. Upon completion of ground-disturbing activities and curation of fossils (if applicable), the project paleontologist shall prepare a final report documenting the results of the mitigation and monitoring program. The report shall include a description of monitoring methods, locations, and duration; stratigraphic sections observed; a summary of recovered fossils and their scientific significance; and confirmation of fossil curation at the designated repository. The report shall be submitted to the CPUC and the identified repository no later than 60 days following completion of construction.	Proposed Project Alternative 1 Alternative 2 Alternative 3 Alternative 4 Alternative 6a/6b	LSPGC: unpaved work areas and excavation sites within geologic units of high paleontological sensitivity (mapped geologic units including Qmz and Qpf). PG&E: unpaved work areas and excavation sites within geologic units of high paleontological sensitivity (mapped geologic units including Qmz and Qpf).	Develop and implement a PRMP in accordance with specified requirements. Develop and provide WEAP training to all on-site workers before they begin work. Ensure a qualified paleontological monitor is present during ground-disturbing activities in areas of high paleontological sensitivity. Implement discover procedures if fossils are found. Complete required paleontological mitigation reporting as specified.	Verify development and implementation of PRMP. Verify WEAP training materials meet requirements, and all on-site workers receive WEAP training. Verify paleontological monitoring occurs as required. Verify implementation of discover procedures if fossils are found. Verify paleontological mitigation reporting is completed as specified.	Before construction During construction After construction
Greenhouse Gases						
Impact GHG-1	**APM GHG -1: Greenhouse Gas Emissions Reduction During Construction.** The following measures would be implemented during construction to minimize GHG emissions: • If suitable park-and-ride facilities are available in the project vicinity, construction workers would be encouraged to carpool to the job site. • On-road and off-road vehicle tire pressures would be inflated to manufacturer specifications; tires would be checked and reinflated at regular intervals.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 5	LSPGC: all work areas and access roads.	Encourage worker carpooling. Maintain construction equipment and vehicle tire pressures properly.	Verify implementation of greenhouse gas reduction measures during construction.	During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	• Demolition debris would be recycled for reuse to the extent feasible. • Line power, instead of diesel generators, would be used at construction sites where feasible. • Construction equipment would be maintained per the manufacturer's specifications.	Alternative 6a/6b		Recycle construction waste to the extent feasible. Use electric line power instead of diesel generators where feasible.		
Impact GHG-1	**CM GHG-1: Greenhouse Gas Emissions Reduction During Construction.** The following actions would be taken, as feasible, to minimize greenhouse gas emissions. • Encourage construction workers to carpool to the job site to the extent feasible. The ability to develop an effective carpool program for the project would depend upon the proximity of carpool facilities to the area, the geographical commute departure points of construction workers, and the extent to which carpooling would not adversely affect worker arrival time and the project's construction schedule. • Minimize unnecessary construction vehicle idling time for on-road and off-road vehicles. The ability to limit construction vehicle idling time would depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project would apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine would be shut off. Construction foremen would include briefings to crews on vehicle use as part of preconstruction conferences. Those briefings would include discussion of a "common sense" approach to vehicle use. • Maintain construction equipment in proper working conditions in accordance with PG&E standards. • Minimize construction equipment exhaust by using low-emission or electric construction equipment, where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later would be registered under the CARB Statewide Portable Equipment Registration Program. • Minimize welding and cutting by using compression of mechanical applications where practical and within standards. • Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available. • Encourage recycling construction waste where feasible.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all work areas and access roads.	Encourage worker carpooling, use of natural gas-powered vehicles, and construction waste recycling, where feasible. Minimize construction vehicle idling to the extent possible and maintain construction equipment properly. Use low-emission, electric, or natural gas-powered equipment and vehicles, where feasible.	Verify implementation of greenhouse gas reduction measures during construction.	During construction
Hazards, Hazardous Materials, and Public Safety						
Impact HAZ-3 Impact HAZ-8	**APM HAZ-1: Air Transit Coordination.** LSPGC would implement the following protocols related to helicopter use during construction and air traffic: • LSPGC would comply with all applicable FAA regulations regarding air traffic within 2 miles of the project alignment. • LSPGC's helicopter operator would coordinate all project helicopter operations with local airports before and during project construction. • Helicopter use and landing zones would be managed to minimize impacts on local residents.	Proposed Project Alternative 1 Alternative 2 Alternative 4	LSPGC: helicopters work areas and travel routes (230 kV overhead segment).	Implement helicopter use protocols, including compliance with applicable air traffic regulations, coordinatization with local airports, and proper management of designated landing zones.	Verify compliance with helicopter use protocols.	Before construction During construction
Impact HAZ-1	**APM BIO-3 (See Biological Resources)**					
Impact HAZ-2	**APM BIO-21** (See Biological Resources)					

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
Impact HAZ-1	**APM BIO-22** (See Biological Resources)					
Impact HAZ-7	**APM FIRE-1** (See Wildfire)					
Impact HAZ-3	**APM PUB-1** (See Public Resources)					
Impact HAZ-6	**APM TRA-2** (See Transportation)					
Impact HAZ-1	**CM HAZ-1: Hazardous-Substance Control and Emergency Response.** PG&E would implement its hazardous substance control and emergency response procedures to ensure the safety of the public and site workers during construction. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of project construction through operation. They address worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on-site. If it is necessary to store chemicals on-site, they would be managed in accordance with all applicable regulations. Material safety data sheets would be maintained and kept available on-site, as applicable. In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are removed during site grading activities or excavation activities, the excavated soil would be tested, and if contaminated above hazardous waste levels, would be contained and disposed of at a licensed waste facility. The presence of known or suspected contaminated soil would require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations. All hazardous materials and hazardous wastes would be handled, stored, and disposed of in accordance with all applicable regulations, by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following: • Proper disposal of potentially contaminated soils. • Establishing site-specific buffers for construction vehicles and equipment located near sensitive resources. • Emergency response and reporting procedures to address hazardous material spills. • Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected. Work would be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all work areas and access roads.	Implement hazardous substance control and emergency response procedures. Train workers and use appropriate hazardous material handling, storage, containment, and spill-control practices. Test, manage, and properly dispose of suspected contaminated soils and other hazardous materials or wastes in accordance with applicable regulations. Stop work and follow required emergency response, notification, and approval procedures if contamination or hazardous conditions are encountered.	Verify implementation of hazardous substance control and emergency response procedures. Verify hazardous materials, hazardous wastes, and suspected contaminated soils are properly handled, tested, managed, and disposed of in accordance with applicable requirements. Verify required stop-work, notification, and response procedures are followed when contamination or hazardous conditions are encountered.	During construction
Impact HAZ-1	**CM HAZ-2: Worker Environmental Awareness.** The training would include the following components related to hazards and hazardous materials: • PG&E Health, Safety, and Environmental expectations and management structure. • Applicable regulations. • Summary of the hazardous substances and materials that may be handled and/or to which workers may be exposed. • Summary of the primary workplace hazards to which workers may be exposed. • Overview of the controls identified in the Storm Water Pollution Prevention Plan.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all work areas and access roads.	Develop and implement worker environmental awareness training on hazards and hazardous materials.	Verify worker environmental awareness training on hazards and hazardous materials is provided.	Before construction During construction
Impact HAZ-8	**CM HAZ-3: Air Transit Coordination.** PG&E would implement the following protocols related to helicopter use during construction and air traffic: • PG&E would comply with all applicable Federal Aviation Administration (FAA) regulations regarding air traffic within 2 miles of the project alignment. • PG&E's helicopter operator would coordinate all project helicopter operations with local airports before and during project construction. • Helicopter use and landing zones would be managed to minimize impacts on local residents.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: helicopters work areas and travel routes (500 kV interconnection lines and transposition sites C and D).	Implement helicopter use protocols, including compliance with applicable air traffic regulations, coordinatization with local airports, and proper management of	Verify compliance with helicopter use protocols.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
				designated landing zones.		
Impact HAZ-7	**CM FIRE-1** (See Wildfire)					
Impact HAZ-6	**CM TRA-2** (See Transportation)					
Impact HAZ-7	**MM FIRE-1** (See Wildfire)					
Hydrology and Water Quality						
Impact HYD-1	**APM HYD-1: Utilize In-Water Sediment Containment during Open Trenching in Marine Environments.** In-water sediment control BMPs (e.g. sediment curtains, silt barriers, turbidity curtains, or similar technologies) would be utilized when open trenching would occur in marine environments to reduce the amount of disturbed sediment discharged to the surrounding area and to reduce potential short-term impacts from mobilized sediment on surrounding benthic environments.	Proposed Project	LSPGC: 230 kV submarine segment.	Implement in-water sediment control BMPs when open trenching occurs.	Verify implementation of in-water sediment control BMPs when open trenching occurs.	During construction
Impact HYD-1 Impact HYD-3	**APM BIO-3** (See Biological Resources)					
Impact HYD-1	**APM BIO-10** (See Biological Resources)					
Impact HYD-1	**APM BIO-21** (See Biological Resources)					
Impact HYD-1 Impact HYD-3	**APM BIO-22** (See Biological Resources)					
Impact HYD-1	**APM GEO-1** (See Geology, Soils, and Paleontology)					
Impact HYD-1	**CM HYD-1: Micro-Site Distribution Poles.** The distribution poles associated with the proposed PG&E 12 kV Distribution Line would be micro-sited in a manner that minimizes permanent impacts to sensitive wetland resources located along the alignment as a result of pole siting to the extent feasible. In the event that it is not possible to site poles in a manner that avoids impacts to wetlands, all appropriate permits would be obtained and any associated permit conditions would be implemented.	Proposed Project Alternative 1 Alternative 2	PG&E: 12 kV distribution line.	Evaluate final distribution pole locations in proximity to wetlands. Micro-site distribution poles to minimize permanent impacts to wetlands to the extent feasible. Obtain required permits and implement permit conditions where wetland impacts cannot be avoided.	Verify pole locations are selected to minimize permanent wetland impacts to the extent feasible. Review and verify required permits and permit conditions are in place and implemented where wetland impacts cannot be avoided.	Before construction During construction
Impact HYD-3	**CM HYD-2: Prepare and Implement a Storm Water Pollution Prevention Plan.** PG&E would prepare and implement a SWPPP to prevent construction-related erosion and sediments from entering nearby waterways. The SWPPP would include a list of BMPs to be implemented in areas with potential to drain to any water body. BMPs to be part of the project-specific SWPPP may include, but are not limited to, the following control measures. • Implementing temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, grass buffer strips, high infiltration substrates, grassy swales, and temporary revegetation or other ground cover) to control erosion from disturbed areas. • Protecting drainage facilities in downstream off-site areas from sediment using appropriate BMPs. • Protecting the quality of surface water from non-stormwater discharges such as equipment leaks, hazardous materials spills, and discharge of groundwater from dewatering operations.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all unpaved work areas and access roads, and where project-related erosion and sediment discharge could occur.	Prepare and implement a SWPPP. Implement erosion, sediment, and water quality BMPs. Restore disturbed areas after construction, unless otherwise requested in applicable agricultural areas.	Verify preparation and implementation of PG&E's SWPPP. Verify required erosion, sediment, water quality, and restoration measures are implemented during and after construction.	Before construction During construction After construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	• Restoring disturbed areas, after project construction is completed, unless otherwise requested by the landowner in agricultural land use areas.					
Impact HYD-1 Impact HYD-3	**CM BIO-3** (See Biological Resources)					
Impact HYD-1	**CM BIO-4** (See Biological Resources)					
Impact HYD-1	**CM BIO-17** (See Biological Resources)					
Impact HYD-1	**CM BIO-18** (See Biological Resources)					
Impact HYD-1	**CM GEO-1** (See Geology, Soils, and Paleontological Resources)					
Impact HYD-1 Impact HYD-3	**MM HYD-1: Aquatic Resource Delineation, Avoidance, Minimization, and Mitigation.** Prior to construction, LSPGC and PG&E shall submit to the CPUC an Aquatic Resources Delineation Report that documents the limits of waters of the State and waters of the U.S. within the limits of the alternative work areas. Drainages shall be delineated in accordance with A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (2008) and wetlands shall be delineated in accordance with the U.S. Army Corps of Engineers Wetland Delineation Manual (1987) and Arid West Regional Supplement to the Corps of Engineers Wetland Delineation Manual (Version 2.0) (2008). Where waters of the State or waters of the U.S. are located within the alternative work areas, an Aquatic Resource Avoidance and Minimization Plan shall be prepared. The Aquatic Resource Avoidance and Minimization Plan shall document strategies for avoidance and minimization of impacts on waters of the State and waters of the U.S. wherever feasible. Avoidance strategies would include relocating poles and associated work areas where feasible to provide a minimum buffer of 10 feet from the outer limits of the aquatic resource and installing fencing to avoid project activities from encroaching on the aquatic resource. Where avoidance isn't feasible, minimization strategies could include using matting or alternative construction techniques to minimize damage to the resource and avoiding grading within the resource limits. Where avoidance of the resource is not feasible, the responsible party (LSPGC or PG&E) shall obtain any permits required under State (Porter Cologne Water Quality Control Act and Fish and Game Code) and federal law (Clean Water Act) from the State Water Resources Control Board, California Department of Fish and Wildlife, and U.S. Army Corps of Engineers for discharge of dredged or fill materials within the waters of the State or U.S. In addition, the responsible party shall provide compensatory mitigation for impacts on the aquatic resource through preservation, enhancement, or creation of aquatic resources in kind (same type of aquatic resource). The mitigation ratio shall be at a minimum ratio of 1:1 and may be greater depending on the type of mitigation proposed (creation, enhancement/restoration, or preservation), value of the impacted resource, and value of the mitigation resource. For any unavoidable impacts on aquatic resources, the responsible party shall submit an aquatic resource mitigation plan to the CPUC for review and approval no less than 30 days prior to construction within the aquatic resource. The aquatic resource mitigation plan shall meet the standards for compensatory mitigation as defined in the State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (2021). The responsible party shall submit evidence of successful mitigation to the CPUC through either record of purchase of mitigation lands at a mitigation bank or through an in-lieu fee program, or monitoring documenting that the compensatory mitigation has successfully compensated for the functions and values of the impacted resource per the approved mitigation plan.	Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: alternative work areas and overland access roads. PG&E: alternative work areas and overland access roads.	Prepare and submit an Aquatic Resources Delineation Report identifying waters of the State and waters of the U.S. Prepare and implement an Aquatic Resource Avoidance and Minimization Plan where aquatic resources are present. Avoid and minimize impacts to aquatic resources where feasible. Obtain required permits and provide compensatory mitigation for unavoidable impacts, including preparation of a mitigation plan and evidence of successful mitigation.	Review and verify the aquatic resource delineation report and required avoidance, minimization, and mitigation plans. Review and verify required permits, compensatory mitigation, and evidence of successful mitigation for unavoidable impacts.	Before construction During construction After construction
Land Use and Planning						
Impact LU-2	**APM BIO-1** (See Biological Resources)					
Impact LU-2	**APM BIO-4** (See Biological Resources)					
Impact LU-2	**APM BIO-18** (See Biological Resources)					
Impact LU-2	**APM BIO-19** (See Biological Resources)					
Impact LU-2	**APM BIO-20** (See Biological Resources)					

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
Impact LU-2	**APM BIO-21** (See Biological Resources)					
Impact LU-2	**APM BIO-22** (See Biological Resources)					
Impact LU-2	**APM HYD-1** (See Hydrology and Water Quality)					
Impact LU-2	**CM AG-1** (See Agriculture and Forestry Resources)					
Impact LU-2	**MM AG-1** (See Agriculture and Forestry Resources)					
Impact LU-2	**MM BIO-2** (See Biological Resources)					
Mineral Resources						
Impact MIN-1 Impact MIN-2	**MM MIN-1: Coordinate with Mineral Lease Holders** LSPGC shall obtain CSLC authorization for installation of the LSPGC 230 kV submarine cables within CSLC jurisdiction. At least 60 days prior to the installation of the submarine cables, LSPGC shall coordinate with the Suisun Associates, and any other applicable mineral rights holders to identify and map active or leased mineral extraction areas for sand dredging within or adjacent to the submarine cables. The project shall be designed and implemented to avoid interference with existing mineral resource leases to the maximum extent feasible. Where avoidance is not feasible, LSPGC shall implement the following: • Notify active lease holders in proximity to the submarine cables about the proposed in-water construction dates. • Provide the submarine cable locations and depth to active lease holders to avoid dredging in the area.	Proposed Project Alternative 5	LSPGC: 230 kV submarine segment.	Obtain required authorization from CSLC for submarine cable installation. Coordinate with CSLC and Suisun Associates to identify and map mineral lease areas near the submarine cables. Avoid interference with existing mineral resource leases where feasible. Notify lease holders about construction and provide cable locations and depths.	Review and verify required authorization is obtained from CSLC. Review and verify coordination with CSLC and Suisun Associates, mapping, avoidance of mineral lease areas, and required notifications.	Before construction
Noise						
Impact NOI-1	**APM PUB-1** (See Public Services)					
Impact NOI-1	**CM NOI-1: Employ Noise-Reducing Construction Practices during Temporary Construction Activities.** PG&E would employ standard noise-reducing construction practices such as the following: • Ensure that all equipment is equipped with mufflers that meet or exceed factory new-equipment standards. • Locate stationary equipment as far as practical from noise-sensitive receptors. • Limit unnecessary engine idling. • Limit all construction activity near sensitive receptors to daytime hours unless required for safety or to comply with line clearance requirements. • Minimize noise-related disruption by notifying residents. Should nighttime project construction be necessary because of planned clearance restrictions, affected residents would be notified at least 7 days in advance by mail, personal visit, or door hanger, and informed of the expected work schedule.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: all work areas and access roads.	Implement noise-reducing construction practices, and limit construction noise near sensitive receptors. Notify affected residents in advance, and at least 7 days prior to any nighttime construction.	Verify noise-reducing construction practices are implemented. Verify affected resident notifications are provided.	Before construction During construction
Impact NOI-1	**MM NOI-1: Construction Acoustic Barrier Installation at Collinsville Substation Site** The applicant shall install an acoustic barrier (e.g., sound blanket or similar) at the Collinsville Substation site between the substation work area and sensitive receptors. The acoustic barrier shall be engineered to achieve a noise reduction of approximately 10 dBA at the source. The barrier shall be designed by a qualified acoustical engineer. LSPGC shall submit a Barrier Design Memorandum demonstrating the predicted reduction based on accepted analytical methods to the CPUC within	Proposed Project	LSPGC: Collinsville Substation.	Design an acoustic barrier to achieve the required noise reduction and submit a Barrier Design Memorandum to	Review and verify the barrier design and required pre-construction submittal. Verify the acoustic barrier is installed in the	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	30 days prior to substation construction. The acoustic barrier shall be maintained in good repair for the duration of substation construction.			CPUC at least 30 days before construction. Install and maintain the CPUC-approved acoustic barrier between the substation work area and sensitive receptors.	required location and maintained during substation construction.	
Impact NOI-1	**MM NOI-2: Construction Hour Limitations for the Telecommunication Interconnection Lines** To minimize noise impacts on existing residential development within the City of Pittsburg, construction activities for installation of the telecommunication interconnection lines shall be limited to the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, consistent with local noise control standards. No construction activities for installation of the telecommunication lines interconnection shall occur outside of this window unless otherwise authorized by the City of Pittsburg or required for safety, emergency response, or agency-approved deviations.	Proposed Project	LSPGC: telecom. interconnection lines.	Limit construction work hours to 8:00 a.m. to 5:00 p.m., Monday through Friday, unless authorized by the City of Pittsburg.	Verify adherence to specified or authorized construction work hours.	During construction
Impact NOI-1	**MM NOI-3: Construction Hour Restriction at Transposition Site D** All construction activities at Transposition Site D shall be limited to the hours of 7:30 a.m. to 5:00 p.m., Monday through Friday, excluding federal holidays as approved by the Conta Costa County General Plan. This restriction shall apply to all equipment operation and material handling activities conducted at Transposition Site D.	Proposed Project	PG&E: 500 kV transposition site D.	Limit construction work hours to 7:30 a.m. to 5:00 p.m., Monday through Friday, excluding federal holidays, unless authorized by Conta Costa County.	Verify adherence to specified or authorized construction work hours.	During construction
Public Services						
Impact PUB-1	**APM PUB-1: School Access**. Construction of the proposed LSPGC Telecommunication Line within 320 feet of Saint Peter Martyr School would be coordinated with the school's administration and conducted during the summer months, at a time when school is out of session, in order to minimize disruptions to school access.	Proposed Project	LSPGC: telecom. interconnection lines.	Coordinate with Saint Peter Martyr School administration prior to construction. Conduct nearby construction during the summer.	Verify coordination with the Saint Peter Martyr School occurs and nearby construction is scheduled during the summer.	Before construction During construction
Impact PUB-1	**APM TRA-2** (See Transportation)					
Impact PUB-1	**APM FIRE-1** (See Wildfire)					
Impact PUB-1	**CM TRA-1** (See Transportation)					
Impact PUB-1	**CM TRA-2** (See Transportation)					
Impact PUB-1	**CM FIRE-1** (See Wildfire)					
Recreation						
Impact REC-3 Impact REC-4 Impact REC-5	**APM REC-1: Access Restrictions in the Delta.** Construction crews would coordinate with the USCG's San Francisco Waterways Branch, the San Francisco VTC, and the City of Pittsburg's harbor master prior to any temporary in-water access restrictions to ensure that Delta users are aware of upcoming restrictions. In addition, a Local Notice to Mariners would be submitted to the USCG's District 11 at least 15 days prior to the start of each phase of in-water construction. Public access would be restricted surrounding in-water construction when required to ensure public and worker safety, as necessary. The distance and methods for restricting public access would be determined based on the specific work activity requirements, and determined in coordination with USCG, Vessel Traffic Service, the Harbor Master, and other applicable agencies, as required.	Proposed Project Alternative 5	LSPGC: 230 kV submarine segment.	Coordinate with the applicable navigation and harbor authorities before implementing temporary in-water access restrictions. Provide advance notice of each phase of in-water	Verify required coordination and advance notice occur before temporary in-water access restrictions are implemented.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
				construction through a Local Notice to Mariners. Restrict public access around in-water construction as needed for safety, based on activity-specific requirements and agency coordination.	Verify public access restrictions are implemented as needed for safety and consistent with agency coordination.	
Impact REC-3	**APM TRA-2** (See Transportation)					
Transportation						
Impact TRA-1 Impact TRA-3 Impact TRA-4	**APM TRA-2: Road and Lane Closure Plan.** LSPGC shall develop a Traffic Control Plan for the project which includes a Road and Lane Closure plan that outlines how LSPGC will handle road and lane closures to allow for safe vehicle, bicyclist, and pedestrian passage when road and lane closures occur. The plan shall be prepared in coordination with local jurisdictions where road and lane closures would occur. Upon determination of the final construction schedule and precise locations and durations of road and lane closures, the plan shall describe locations and durations of: • Lane closures • Bicycle lane closures • Sidewalk or pedestrian path closures Measures to be included in the plan that would allow for safe vehicle, bicyclist, and pedestrian passage shall adhere to the California Manual on Uniform Traffic Control Devices. Potential measures include: • Signage directing motorists, pedestrians, and bicyclists to an efficient, safe detour around the closure • Flaggers and/or signage to halt traffic at road closures or direct traffic at lane closures and to allow traffic to pass when construction is halted • Requirements for notifications and a process for communication with affected residents and landowners prior to the start of construction. • Emergency service providers would be notified of the timing, location, and duration of construction activities. • Requirement that emergency vehicle access is maintained at all times.	Proposed Project Alternative 1 Alternative 2 Alternative 6a/6b	LSPGC: public roadways affected by construction activities.	Prepare a Traffic Control Plan that includes a Road and Lane Closure Plan for project-related closures. Coordinate the plan with local jurisdictions and define the locations and durations of closures once construction details are finalized. Implement traffic control, detours, notifications, and access measures.	Review and verify preparation of the Traffic Control Plan and coordination with local jurisdictions. Verify closure details, traffic control measures, notifications, and emergency access provisions are implemented during project-related closures.	Before construction During construction
Impact TRA-1 Impact TRA-3	**APM HAZ-1** (See Hazards and Hazardous Materials)					
Impact TRA-1 Impact TRA-3	**APM PUB-1** (See Public Services)					
Impact TRA-1 Impact TRA-3	**APM REC-1** (See Recreation)					
Impact TRA-1 Impact TRA-3 Impact TRA-4	**CM TRA-1: Temporary Traffic Controls.** PG&E would obtain any necessary transportation and encroachment permits from the California Department of Transportation and the local jurisdictions, as required, including those related to state route crossings and the transport of oversized loads and certain materials, and would comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E would develop road and lane closure or width reduction or traffic diversion plans as required by the encroachment permits. Construction activities that are in or along or that cross local roadways would follow best management practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation in the project area.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: public roadways affected by construction activities.	Obtain necessary encroachment permits for construction activities affecting roadways and transportation facilities. Prepare required road and lane closure, width	Review and verify required encroachment permits and traffic control plans are in place. Verify traffic control measures and permit	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
				reduction, or traffic diversion plans. Implement traffic control measures and permit requirements.	requirements are implemented.	
Impact TRA-1 Impact TRA-3 Impact TRA-4	**CM TRA-2: Coordinate Road Closures with Emergency Service Providers.** At least 24 hours prior to implementing any road or lane closure, PG&E would coordinate with applicable emergency service providers in the project vicinity. PG&E would provide emergency service providers with information regarding the road or lanes to be closed; the anticipated date, time, and duration of closures; and a contact telephone number.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: public roadways affected by construction activities.	Coordinate road and lane closures with applicable emergency service providers before closures are implemented.	Verify required coordination with emergency service providers occurs before road or lane closures are implemented.	Before construction During construction
Impact TRA-1 Impact TRA-3	**CM HAZ-3** (See Hazards and Hazardous Materials)					
Impact TRA-1 Impact TRA-3	**MM TRA-1: Transit Notification** Prior to the construction in the City of Pittsburg, LSPGC shall notify Tri Delta Transit no less than 60 days prior to construction within 20 feet of any bus stop or detours of any bus route. The notification shall include the following: 1. The location and timing of construction activities within proximity to the bus stop 2. The location and timing of road closures along the bus route(s) and proposed detours 3. The affected bus route(s) and bus stop(s) 4. Name and contact information for a responsible individual who can address any questions and meet with the transit agency to resolve any conflicts with bus operations 5. Signs are posted at affected bus stops no less than 7 days before closures If damage to transit facilities (e.g., shelters, benches, signs) occurs because of project construction or construction vehicle traffic, LSPGC shall restore transit facilities within 60 days after the completion of construction at their own expense under the direction of and to the construction standard of the affected jurisdiction to ensure that impacted transit infrastructure is adequately repaired.	Proposed Project	LSPGC: transit routes affected by construction activities and traffic within the City of Pittsburg. PG&E: transit routes affected by construction traffic within the City of Pittsburg.	Notify Tri Delta Transit in advance of construction near bus routes, and provide required construction, closure, route, and contact information. Post advance notice signs at affected bus stops before closures. Restore any transit facilities damaged to applicable standards.	Verify required advance coordination and notification to Tri Delta Transit occur before applicable construction activities. Verify required bus stop notices are posted before closures. Verify any damaged transit facilities are restored after construction.	Before construction During construction After construction
Impact TRA-1 Impact TRA-3	**MM TRA-2: Helicopter Safety** Prior to construction, helicopter contractors shall coordinate helicopter activities for the project with the regional FAA office as required and obtain any required approvals to operate helicopters. FAA coordination shall include submittal of a Helicopter Lift Plan prepared by the helicopter operator to obtain approval for the helicopter operations for all routes within 1,500 feet of residences or that would cross over "congested areas" as described in 14 CFR 133.33. The Helicopter Lift Plan will identify the location of the lift, anticipated work dates, a detailed description of the work to be performed, any required notifications or coordination to local agencies or adjacent property owners to restrict work area access, any safety hazard control measures that are required, and appropriate emergency procedures. Helicopter contractors shall provide the CPUC with all required approvals, documents, and conditions of work prior to conducting helicopter activities for the Project.	Proposed Project Alternative 1 Alternative 2 Alternative 3	LSPGC: helicopters work areas and travel routes (230 kV overhead segment). PG&E: helicopters work areas and travel routes (500 kV interconnection lines and transposition sites C and D).	Coordinate project helicopter activities with the FAA and obtain required approvals before helicopter operations. Prepare a Helicopter Lift Plan for applicable helicopter activities. Provide required approvals, plans, and work conditions to CPUC before helicopter activities begin.	Review and verify required FAA coordination, approvals, and helicopter planning are completed before helicopter operations. Review and verify required helicopter operation documents and conditions are provided before helicopter activities begin.	Before construction During construction
Impact TRA-3	**MM TRA-3: Post-Construction Road Repair** Prior to construction, LSPGC/PG&E shall conduct a pre-construction road condition assessment along, but not limited to, Collinsville Road, Birds Landing Road, Montezuma Hill Road, Stratton Lane, Talbert Lane, Halsey Court, Halsey Lane, Herb White	Proposed Project Alternative 1	LSPGC: existing access roads.	Conduct and submit a pre-construction road condition assessment	Review and verify completion and submittal of the pre-	Before construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	Way, Solano Wind Project Access Roads, and Marina Boulevard, and entrances and exits to all work areas/staging areas. LSPGC/PG&E shall submit the pre-construction road condition assessment to the CPUC and the local jurisdiction (e.g., City of Pittsburg, Solano County) prior to construction. If damage to roads occurs because of project construction or construction vehicle traffic, LSPGC/PG&E shall restore damaged roadways to match pre-construction conditions within 10 days of the reported damage to ensure continued safety for roadway users during the construction period and within 60 days after the completion of construction at their own expense under the direction of and to the construction standard of the affected local jurisdiction to ensure that impacted roads are adequately repaired.	Alternative 2 Alternative 6a/6b	PG&E: existing access roads.	before construction begins. Repair road damage caused by construction or construction traffic during and after construction to restore pre-construction conditions.	construction road condition assessment. Verify road damage caused by construction is repaired during and after construction in accordance with applicable requirements.	During construction After construction
Tribal Cultural Resources						
Impact TCR-1	**APM CUL-1** (See Cultural Resources)					
Impact TCR-1	**APM CUL-2** (See Cultural Resources)					
Impact TCR-1	**APM CUL-3** (See Cultural Resources)					
Impact TCR-1	**APM CUL-4** (See Cultural Resources)					
Impact TCR-1	**CM CUL-1** (See Cultural Resources)					
Impact TCR-1	**CM CUL-2** (See Cultural Resources)					
Impact TCR-1	**MM CUL-1** (See Cultural Resources)					
Impact TCR-1	**MM CUL-2** (See Cultural Resources)					
Impact TCR-1	**MM CUL-3** (See Cultural Resources)					
Utilities and Service Systems						
Impact UT-5	**APM GHG-1** (See Greenhouse Gases)					
Impact UT-5	**CM GHG-1** (See Greenhouse Gases)					
Impact UT-1	**CM HYD-2** (See Hydrology and Water Quality)					
Impact UT-1	**MM UT-1: Protect SMUD Buried Infrastructure from Construction Loads** Prior to completing final design of the PG&E 500 kV interconnection lines, PG&E shall coordinate with SMUD to ensure SMUD buried utilities in SMUD access roads are protected from construction loads, including evaluating weight limitations and structural tolerances. Documentation of coordination shall be submitted to the CPUC for verification prior to construction in areas subject to this measure.	Proposed Project Alternative 3	PG&E: 500 kV Interconnection.	Coordinate with SMUD regarding buried utilities.	Verify coordination with SMUD regarding buried utilities.	Before construction
Impact UT-1	**MM UT-2: Protect SMUD Buried Infrastructure from Construction Loads (Alternatives 1 and 2)** Prior to completing final design of the alternative LSPGC 230 kV overhead segment, LSPGC shall coordinate with SMUD to evaluate weight limitations and structural tolerances associated with SMUD buried utilities associated with SMUD access roads that would be used for construction. If needed, LSPGC shall incorporate any design measures such as steel plating, load distribution, or alternative access routes to avoid damage to subsurface infrastructure. PG&E shall submit anticipated construction vehicle loads and proposed methods for protection of SMUD buried utilities to SMUD for review prior to construction. Final design shall reflect all requirements for utility protection agreed upon during this coordination. Documentation of SMUD's approval of the protection plan and incorporation of required measures shall be submitted to the CPUC for verification prior to construction in areas subject to this measure. Should SMUD fail to approve the plan, the CPUC will approve the plan if it meets engineering standards and outreach to SMUD has been documented.	Alternative 1 Alternative 2	LSPGC: 230 kV overhead segment and access roads.	Coordinate with SMUD regarding buried utilities.	Verify coordination with SMUD regarding buried utilities.	Before construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
Impact UT-1	**MM UT-3: ADLS and Microwave Tower Impacts (Alternative 2)** LSPGC shall hire a contractor specializing in microwave and radar systems to evaluate the impact of the Alternative 2 substation on the SMUD ADLS and microwave tower. LSPGC shall implement the specialists' recommendations to avoid or minimize impacts on the ADLS or microwave tower operations in the Alternative 2 Final Design, to the extent feasible. If the specialist determines that substation impact on the ADLS and/or microwave tower functions cannot be avoided, LSPGC shall compensate SMUD for relocation of the affected infrastructure. The affected utility shall be relocated to an area that does not contain sensitive biological or cultural resources and would not be affected by operation of the Alternative 2 substation. The proposed location for the relocated infrastructure and biological and cultural resource studies of the site, shall be submitted to the CPUC for review and approval 2 weeks prior to relocation of the infrastructure.	Alternative 2	LSPGC: Collinsville Substation and 230 kV overhead segment components near SMUD's ADLS and microwave tower.	Retain a qualified specialist to evaluate potential substation effects on the ADLS and microwave tower. Incorporate feasible measures in the final design to avoid or minimize impacts on ADLS and microwave tower operations. If impacts cannot be avoided, relocate the affected infrastructure and submit the proposed relocation site and supporting biological and cultural resource studies for review and approval before relocation.	Review and verify completion of the utility impact evaluation and incorporation of feasible avoidance and minimization measures into the final design. Review and verify that any required infrastructure relocation and supporting site studies are submitted and approved before relocation.	Before construction During construction
Impact UT-6	**MM UT-4: Pipeline AC Interference Control** Before construction, the PG&E shall coordinate with CPN Pipeline to collect baseline AC/DC pipe-to-soil measurements and coating condition surveys along the segment where the pipeline runs parallel to the PG&E 500 kV alignment then calibrate the AC-interference model to those conditions and re-evaluate steady-state and fault cases. If the tuned model indicates the AC current density exceed the threshold of 30 A/m², PG&E shall install appropriate mitigation such as buried zinc-ribbon grounding parallel to the pipeline with bonds at regular intervals and place high-resistivity crushed rock at any above-grade appurtenances (e.g., the insulating flange) where touch potential could occur. The design shall achieve steady-state and fault touch/step potentials within applicable IEEE limits and AC current density at coating holidays ≤ 30 A/m². After energization, PG&E shall verify performance and adjust mitigation as needed; provide test stations and monitoring access to the operator.	Proposed Project Alternative 1 Alternative 2 Alternative 3	PG&E: where the existing pipeline runs parallel to the 500 kV Interconnection lines.	Coordinate with the pipeline operator to collect baseline data and re-evaluate AC interference conditions before construction. Install AC interference mitigation measures where needed to meet applicable design thresholds. Verify post-energization performance and adjust mitigation as needed, including providing monitoring access.	Review and verify pre-construction coordination, baseline data collection, and AC interference evaluation. Verify required mitigation measures are installed where needed to meet applicable performance thresholds. Review and verify post-energization testing, any needed mitigation adjustments, and provision of monitoring access.	Before construction During construction After construction
Wildfire						
Impact WF-2 Impact WF-3 Impact WF-4	**APM FIRE-1: Construction Fire Prevention Plan.** A project-specific CFPP would be prepared and submitted to the CPUC for review prior to initiation of construction. The CFPP would be fully implemented throughout the construction period and would include, at a minimum, the following: • The purpose and applicability of the CFPP. • Responsibilities and duties. • Preparedness training and drills. • Procedures for fire reporting, response, and prevention that include the following:	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: all work areas and access roads.	Prepare and submit a project-specific Construction Fire Prevention Plan before construction begins. Implement the Construction Fire	Review and verify preparation and submittal of the Construction Fire Prevention Plan before construction.	Before construction During construction

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	- Identification of daily site-specific risk conditions, - The tools and equipment needed on vehicles and to be on hand at sites, - Reiteration of fire prevention and safety considerations during tailboard meetings, and - Daily monitoring of the red flag warning system with appropriate restrictions on types and levels of permissible activity. • Coordination procedures with federal and local fire officials. • Crew training, including fire safety practices and restrictions. • Method(s) for verifying that all CFPP protocols and requirements are being followed. A project Fire Marshal or similar qualified position would be established to enforce all provisions of the CFPP, as well as perform other duties related to fire detection, prevention, and suppression for the project. Construction activities would be monitored to ensure implementation and effectiveness of the CFPP.			Prevention Plan throughout construction, including fire prevention, reporting, response, training, coordination, and compliance procedures. Establish a qualified fire prevention lead to monitoring and enforce the plan.	Verify the plan is implemented throughout construction, including required training, coordination, fire prevention procedures, and compliance measures. Verify a qualified fire prevention lead is established and construction activities are monitored for plan implementation.	
Impact WF-1	**APM TRA-2** (See Transportation)					
Impact WF-2 Impact WF-3 Impact WF-4	**CM FIRE-1: Fire Risk Management.** PG&E would follow relevant California Public Resource Code provisions and the then-current company-specific standard for preventing and mitigating fires while performing PG&E work. PG&E would utilize a project-specific safety plan to outline and ensure compliance with safe work practices, training, and fire response. Examples of the measures in the wildfire prevention and mitigation standard include, but are not limited to, the following practices: • When working on unpaved roads where the ignitions may be probable due to dry vegetation, park vehicles in an area cleared of vegetation (e.g., paved, gravel or cleared to bare mineral soil) or otherwise where suitable to avoid fire ignitions. • During dry months, all motorized equipment driving on unpaved or gravel/dirt right-of-way or roads must have installed State-approved spark arrestor. • When traveling to the jobsite, or when operating on unimproved roadways, passenger vehicles are to carry one dry chemical fire extinguisher (rated ABC) and one round point shovel. • Trucks (1/2 ton or larger) and all-terrain vehicles (ATVs) are to carry one dry chemical fire extinguisher (rated ABC), one round point shovel and one, 5-gallon backpack pump-type fire extinguisher. • Heavy machinery or equipment (e.g., tractors, tub grinders, whole tree chippers, excavators, bulldozers) must have one dry chemical fire extinguisher (rated ABC), one round point shovel and one 5-gallon backpack pump-type fire extinguisher in the operating area but these are not required to be affixed to heavy machinery or equipment. • In addition, during "red flag warning" advisory conditions (as determined by the National Weather Service) or other very high fire risk conditions, certain work activities will be curtailed or temporarily stopped unless work is deemed an emergency. • All flammable chemicals must be clearly labeled and stored in approved containers away from ignition sources.	Proposed Project Alternative 3	PG&E: 500 kV interconnection lines and 12 kV distribution line.	Implement project fire risk management procedures and safe work practices during construction. Equip vehicles and equipment with required fire prevention and suppression tools, and manage parking, equipment use, and flammable material storage to reduce fire risk. Curtail or stop certain work activities during red flag or other very high fire risk conditions, unless emergency work is required.	Verify implementation of project fire risk management procedures and safe work practices during construction. Verify required fire prevention equipment, fire risk reduction practices, and flammable material controls are in place. Verify applicable work restrictions are implemented during red flag or other very high fire risk conditions.	Before construction During construction
Impact WF-2 Impact WF-3 Impact WF-4	**CM BIO-15** (See Biological Resources)					
Impact WF-1	**CM TRA-2** (See Transportation)					
Impact WF-2 Impact WF-3	**MM FIRE-1: Wildfire Management Plan** LSPGC and PG&E shall each prepare and implement a binding, project-specific Wildfire Management Plan that addresses electrical equipment and operation and maintenance activities in very high fire hazard severity zones (FHSZ) as well as areas within 1 mile of very high FHSZs. The Wildfire Management Plan shall be submitted to the CPUC 90 days prior to project operation for review and approval. At a minimum, the plan shall include the following components:	Proposed Project Alternative 1 Alternative 2 Alternative 3	LSPGC: electrical equipment within 1 mile of very high FHSZs (Collinsville	Prepare and implement a project-specific Wildfire Management Plan, or incorporate equivalent project-specific wildfire	Review and verify preparation, submittal, approval, and implementation of the Wildfire Management	Operation and maintenance

Impact ID	Measures	Applicable Scenarios	Applicable Components	Implementing Actions	Monitoring/Verification Actions	Timing
	• Infrastructure Hardening and System Protection: - Electrical equipment shall be constructed with non-combustible, fire-resistant materials (e.g., steel or composite poles, covered conductors, non-wood crossarms). - Protection systems (e.g., sensors, reclosers, fuses, relays) shall be programmed to isolate faults rapidly and de-energize affected lines to reduce the likelihood of electrical arcing and fire ignition. • Vegetation and Fuel Management: - Enhanced vegetation clearance shall be maintained around all infrastructure. • Inspection, Monitoring, and Maintenance: - Electrical equipment shall be inspected at least annually for signs of mechanical stress and vegetation encroachment. - Additional inspections shall occur after high wind events, seismic activity, or other conditions that could compromise structural integrity of electrical equipment. - Inspection records shall be maintained and submitted annually to the CPUC. • Emergency Response Coordination: - Coordinate with local fire protection agencies (e.g., CAL FIRE, local fire departments) to provide maps of access roads, equipment locations, water supplies, and communication protocols. - Field crews performing operation and maintenance work during wildfire season shall receive annual fire prevention and emergency response training, and be equipped with fire suppression tools, including backpack pumps and fire extinguishers. In lieu of implementing project-specific Wildfire Management Plans, equivalent project-specific wildfire mitigation strategies may be incorporated into LSPGC's and PG&E's WMPs. A replacement of the project-specific Wildfire Management Plans would be subject to CPUC review and approval.	Alternative 4	Substation and 230 kV overhead segment). PG&E: electrical equipment within 1 mile of very high FHSZs (500 kV interconnection and 12 kV distribution line).	mitigation strategies into an approved wildfire management program. Implement wildfire prevention and protection measures for infrastructure, vegetation management, inspections, maintenance, and emergency response coordination. Conduct required inspections, maintain inspection records, and provide annual training and fire suppression equipment for field crews performing operation and maintenance work during wildfire season.	Plan or approved equivalent wildfire mitigation strategy.	
Other						
NA	**APM DECOM-1: Decommissioning Plan.** If decommissioning is necessary, LSPGC would create a Removal and Restoration Plan to address the removal of the proposed LSPGC Collinsville Substation and 230kV Transmission line. This plan will be created prior to the start of decommissioning and would be approved by the CPUC.	Proposed Project Alternative 1 Alternative 2 Alternative 4 Alternative 6a/6b	LSPGC: all project components.	If decommissioning is necessary, prepare and implement a Removal and Restoration Plan.	If decommissioning is necessary, verify preparation and implementation of Removal and Restoration Plan.	Decommissioning

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