

Appendix I  
**Mulqueeney Ranch Repowering Project  
Mitigation Monitoring and Reporting Program**

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Appendix I

# Mulqueeney Ranch Repowering Project Mitigation Monitoring and Reporting Program

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## Purpose of and Need for Monitoring

In compliance with CEQA, a Subsequent EIR (SEIR) has been prepared for the Mulqueeney Ranch Wind Repowering Project (project or proposed project). The SEIR identified potentially significant impacts in the resource areas listed below, as well as mitigation measures to reduce these impacts to a less-than-significant level where possible.

CEQA requires that a lead agency adopt a Mitigation Monitoring and Reporting Program (MMRP) for the measures the agency has proposed to avoid or mitigate significant environmental effects (CEQA Guidelines Section 15097). The purpose of the MMRP is to ensure that the mitigation measures identified in the SEIR are implemented. Table MMRP-1, which follows this introductory section, identifies the mitigation measures for the proposed project, the parties responsible for implementing and monitoring the measures, the timing of each measure, and a summary of the actions necessary to implement and monitor each measure.

## Mitigation Monitoring and Reporting Program

The MMRP has been prepared for the proposed project in accordance with Public Resources Code 21081.6, which specifies that when a public agency makes findings required by paragraph (1) of subdivision (a) of Section 21081, it “shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment.” Public Resources Code 21081.6 further specifies that the MMRP will “ensure compliance during project implementation.”

This MMRP is intended to ensure the effective implementation of mitigation measures that are within the County’s authority to implement, including monitoring where identified, throughout all phases of development and operation of the proposed project.

**Table MMRP-1. Mitigation Monitoring and Reporting Plan**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<b>Aesthetics</b>				
<p><b>PEIR Mitigation Measure AES-1: Limit construction to daylight hours</b></p> <p>Major construction activities will not be undertaken between sunset and sunrise or on weekends. Construction activity is specifically prohibited from using high-wattage lighting sources to illuminate work sites after sunset and before sunrise, with the exception of nighttime deliveries under the approved transportation control plan or other construction activities that require nighttime work for safety considerations.</p>	During construction	County—adopt a Condition of Approval; Operator—ensure construction hours are maintained	County	Monitor compliance with Conditions of Approval
<p><b>PEIR Mitigation Measure AES-2b: Maintain site free of debris and restore abandoned roadways</b></p> <p>Project sites will be cleaned of all derelict equipment, wind turbine components not required for the project, and litter and debris from old turbines and past turbine operations. Such litter and debris may include derelict turbines, obsolete anemometers, unused electrical poles, and broken turbine blades. In addition, abandoned roads that are no longer in use on such parcels will be restored and hydroseeded to reclaim the sites and remove their visual traces from the viewscape, except in cases where the resource agencies (U.S. Fish and Wildlife Service and California Department of Fish and Wildlife) recommend that the features be left in place for resource protection. All parcels with new turbines will be maintained in such a manner through the life of project operations and until the parcels are reclaimed in accordance with the approved reclamation plan.</p>	During construction and operation	County—adopt a Condition of Approval; Operator—ensure that site conditions are maintained as required	County	Monitor compliance with Conditions of Approval
<p><b>PEIR Mitigation Measure AES-2c: Screen surplus parts and materials</b></p> <p>Surplus parts and materials that are kept onsite will be maintained in a neat and orderly fashion and screened from view. This can be accomplished by using a weatherproof camouflage material that can be draped over surplus parts and materials stockpiles. Draping materials will be changed out to accommodate for seasonal variations so that surplus materials are camouflaged in an effective manner when grasses are both green and brown.</p>	During construction and operation	County—adopt a Condition of Approval; Operator—ensure that site conditions are maintained as required	County	Monitor compliance with Conditions of Approval
<b>Air Quality</b>				
<p><b>PEIR Mitigation Measure AQ-2a: Reduce construction-related air pollutant emissions by implementing applicable BAAQMD Basic Construction Mitigation Measures</b></p> <p>The project proponents will require all contractors to comply with the following</p>	During construction	County—adopt a Condition of Approval; Operator—	County	Monitor compliance with Conditions of Approval

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>requirements for all areas with active construction activities.</p> <ul style="list-style-type: none"> <li>All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered as needed to maintain dust control onsite-approximately two times per day.</li> <li>All haul trucks transporting soil, sand, or other loose material offsite will be covered.</li> <li>All visible mud or dirt track-out onto adjacent public roads will be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.</li> <li>All vehicle speeds on unpaved roads will be limited to 15 mph.</li> <li>All roadways, driveways, and sidewalks to be paved will be completed as soon as possible. Building pads will be laid as soon as possible after grading unless seeding or soil binders are used.</li> <li>Idling times will be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage will be provided for construction workers at all access points.</li> <li>All construction equipment will be maintained and properly tuned in accordance with manufacturer's specifications. All equipment will be checked by a certified visible emissions evaluator.</li> <li>Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person will respond and take corrective action within 48 hours. The air district's phone number will also be visible to ensure compliance with applicable regulations.</li> </ul>				ensure compliance
<p><b>PEIR Mitigation Measure AQ-2b: Reduce construction-related air pollutant emissions by implementing measures based on BAAQMD's Additional Construction Mitigation Measures</b></p> <p>The project proponents will require all contractors to comply with the following requirements for all areas with active construction activities.</p> <ul style="list-style-type: none"> <li>During construction activities, all exposed surfaces will be watered at a frequency adequate to meet and maintain fugitive dust control requirements of all relevant air quality management entities.</li> </ul>	During construction	County—adopt a Condition of Approval; Operator—ensure compliance	County	Monitor compliance with Conditions of Approval

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<ul style="list-style-type: none"> <li>• All excavation, grading, and/or demolition activities will be suspended when average wind speeds exceed 20 mph, as measured at the Livermore Municipal Airport.</li> <li>• Wind breaks (e.g., trees, fences) will be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50% air porosity.</li> <li>• Vegetative ground cover (e.g., fast-germinating native grass seed) will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.</li> <li>• If feasible and practicable, the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time will be limited.</li> <li>• Construction vehicles and machinery, including their tires, will be cleaned prior to leaving the construction area to remove vegetation and soil. Cleaning stations will be established at the perimeter of the construction area.</li> <li>• Site accesses to a distance of 100 feet from the paved road will be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.</li> <li>• Sandbags or other erosion control measures will be installed to prevent silt runoff to public roadways from sites with a slope greater than 1%.</li> <li>• The idling time of diesel powered construction equipment will be minimized to 2 minutes.</li> <li>• The project will develop a plan demonstrating that the offroad equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20% NOX reduction and 45% PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.</li> <li>• Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).</li> <li>• All construction equipment, diesel trucks, and generators will be equipped</li> </ul>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>with BACT for emission reductions of NOX and PM.</p> <ul style="list-style-type: none"> <li>All contractors will use equipment that meets ARB's most recent certification standard for offroad heavy duty diesel engines.</li> </ul>				
<p><b>2020 NEW Mitigation Measure AQ-2c: Reduce construction-related air pollutant emissions to below BAAQMD NOx thresholds</b></p> <p>The project proponents will ensure construction-related emissions do not exceed BAAQMD's construction NOX threshold of 54 pounds per day. In addition to implementing PEIR Mitigation Measures AQ-2a and AQ-2b, the project proponents will coordinate with BAAQMD (or the Clean Air Foundation) to purchase NOX credits to offset remaining NOX construction and operations emissions exceeding BAAQMD thresholds.</p> <p>The project proponents will track construction activity, estimate emissions, and enter into a construction mitigation contract with BAAQMD to offset NOX emissions that exceed BAAQMD NOX maximum daily threshold of 54 pounds per day.</p> <p>The maximum daily emissions will be calculated on a daily basis by determining total construction-related NOX emissions for each calendar day. BAAQMD will use the mitigation fees provided by the project proponents to implement emissions reduction efforts that offset project NOX emissions that exceed the BAAQMD threshold.</p> <p>This mitigation includes the following specific requirements:</p> <ul style="list-style-type: none"> <li>The project proponents will require construction contractors to provide daily construction activity monitoring data for all construction activities associated with the project to estimate actual construction emissions, including the effect of equipment emissions reduction measures. The project proponents will submit the daily construction activity monitoring data and an estimate of actual daily construction emissions to the lead agency and BAAQMD for review by the 15th day of each month for the prior construction month. The lead agency will examine the construction and operational activity monitoring to ensure it is representative, and BAAQMD will examine the emissions estimate to ensure it is calculated properly.</li> <li>After acceptance of the emissions estimates by BAAQMD for the prior month, the project proponents will submit mitigation fees to BAAQMD to fund offsets for the portion of daily emissions that exceed the maximum</li> </ul>	<p>During construction and until final mitigation fees are paid</p>	<p>County—track construction activity; BAAQMD/other governmental entity—ensure compliance with construction mitigation contract</p>	<p>County and BAAQMD/ other government agency</p>	<p>Monitor compliance with Construction Mitigation Contract</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>daily NOX threshold. The mitigation fees will be based on the mitigation contract with BAAQMD (see discussion below) but will not exceed the emissions-reduction project cost-effectiveness limit set for the Carl Moyer Program for the year in which mitigation fees are paid. The current Carl Moyer Program cost-effectiveness limit is \$30,000 per weighted ton of criteria pollutants (NOX + ROG + [20*PM]). An administrative fee of 5% will be paid by the project proponents to BAAQMD to implement the program.</p> <ul style="list-style-type: none"> <li>• The mitigation fees will be used by BAAQMD to fund projects that are eligible for funding under the Carl Moyer Program guidelines or other BAAQMD emissions-reduction incentive programs that meet the Carl Moyer Program cost-effectiveness threshold and are real, surplus, quantifiable, and enforceable.</li> <li>• The project proponents will enter into a mitigation contract with BAAQMD for the emissions-reduction incentive program. The mitigation contract will include the following:               <ul style="list-style-type: none"> <li>○ Identification of appropriate offsite mitigation fees required for the project.</li> <li>○ Timing for submission of mitigation fees.</li> <li>○ Processing of mitigation fees paid by the project proponents.</li> <li>○ Verification of emissions estimates submitted by the project proponents.</li> <li>○ Verification that offsite fees are applied to appropriate mitigation programs within the SFBAAB.</li> </ul> </li> <li>• The mitigation fees will be submitted within 4 weeks of BAAQMD acceptance of an emissions estimate provided by the project proponents showing that the maximum daily NOX threshold was exceeded (when measured on a daily basis).</li> </ul>				
<b>Biological Resources</b>				
<p><b>2020 Updated PEIR Mitigation Measure BIO-1a: Conduct surveys to determine the presence or absence of special-status plant species</b></p> <p>The project proponent will conduct surveys for the special-status plant species within and adjacent to all project sites. All surveys will be conducted by qualified biologists in accordance with the appropriate protocols.</p>	<p>Within 3 years prior to site disturbance</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>Special-status plant surveys will be conducted in accordance with <i>Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities</i> (California Department of Fish and Wildlife 2018) during the season that special-status plant species would be evident and identifiable—i.e., during their blooming season. No more than 3 years prior to ground-disturbing repowering activities and during the appropriate identification periods for special-status plants (Table 3.4-2), a qualified biologist (as determined by Alameda County) will conduct field surveys within proposed construction areas, and the immediately adjacent areas to determine the presence of habitat for special-status plant species. The project proponent will submit a report documenting the survey results to Alameda County for review and approval prior to conducting any repowering activities. The report will include the location and description of all proposed work areas, the location and description of all suitable habitat for special-status plant species, and the location and description of other sensitive habitats (e.g., vernal pools, wetlands, riparian areas). Additionally, the report will outline where additional species and/or habitat-specific mitigation measures are required. This report will provide the basis for any applicable permit applications where incidental take of listed species may occur.</p>				
<p><b>2020 Updated PEIR Mitigation Measure BIO-1b: Implement best management practices to avoid and minimize impacts on special-status species</b></p> <p>The project proponent will ensure that the following BMPs, in accordance with practices established in the EACCS, will be incorporated into the final project design and construction documents.</p> <ul style="list-style-type: none"> <li>• Employees and contractors performing ground-disturbing activities, including construction and maintenance activities will receive environmental sensitivity training. Training will include review of environmental laws, mitigation measures, permit conditions, and other requirements that must be followed by all personnel to reduce or avoid effects on special-status species and sensitive habitats during construction activities.</li> <li>• Environmental tailboard trainings will take place on an as-needed basis in the field. These trainings will include a brief review of the biology of the covered species and guidelines that must be followed by all personnel to reduce or avoid negative effects on these species during construction and maintenance activities. Directors, managers, superintendents, and the crew leaders will be responsible for ensuring that crewmembers comply</li> </ul>	<p>Prior to and during all construction activities</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>



**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>with the guidelines.</p> <ul style="list-style-type: none"> <li>• Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.</li> <li>• Off-road vehicle travel outside the project footprint will be avoided and minimized to the extent possible within the project footprint.</li> <li>• Material will be stockpiled only in areas that do not support special-status species or sensitive habitats.</li> <li>• Grading will be restricted to the minimum area necessary.</li> <li>• Prior to ground-disturbing activities in sensitive habitats, project construction boundaries and access areas will be flagged and temporarily fenced during construction to reduce the potential for vehicles and equipment to stray into adjacent habitats.</li> <li>• Vehicles or equipment will not be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area (i.e., a created berm made of sandbags or other removable material) is constructed.</li> <li>• Erosion control measures will be implemented to reduce sedimentation in nearby aquatic habitat when activities are the source of potential erosion. Plastic monofilament netting (erosion control matting) or similar material containing netting will not be used at the project. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.</li> <li>• Significant earth moving-activities will not be conducted in riparian areas within 24 hours of predicted storms or after major storms (defined as 1-inch of rain or more).</li> <li>• The following will not be allowed at or near work sites for project activities: trash dumping, firearms, open fires (such as barbecues) not required by the activity, hunting, and pets (except for safety in remote locations).</li> </ul>				
<p><b>PEIR Mitigation Measure BIO-1c: Avoid and minimize impacts on special-status plant species by establishing activity exclusion zones</b></p> <p>Where surveys determine that a special-status plant species is present in or adjacent to a project site, direct and indirect impacts of the project on the species will be avoided through the establishment of activity exclusion zones, within which no ground-disturbing activities will take place, including construction of new</p>	<p>Prior to and during all site disturbance</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>facilities, construction staging, or other temporary work areas. Activity exclusion zones for special-status plant species will be established around each occupied habitat site, the boundaries of which will be clearly marked with standard orange plastic construction exclusion fencing or its equivalent. The establishment of activity exclusion zones will not be required if no construction-related disturbances will occur within 250 feet of the occupied habitat. The size of activity exclusion zones may be reduced through consultation with a qualified biologist and with concurrence from CDFW based on site-specific conditions.</p>				
<p><b>2020 Updated PEIR Mitigation Measure BIO-1d: Compensate for impacts on special-status plant species</b></p> <p>The project proponent will avoid or minimize temporary and permanent impacts on special-status plants that occur on the project site and will compensate for impacts on special-status plant species. Although all impacts on large-flowered fiddleneck, diamond-petaled California poppy, and caper-fruited tropidocarpum will be avoided, impacts on other special-status plant species will be avoided to the extent feasible, and any unavoidable impacts will be addressed through compensatory mitigation.</p> <p>Where avoidance of impacts on a special-status plant species is infeasible, loss of individuals or occupied habitat of a special-status plant species occurrence will be compensated for through the acquisition, protection, and subsequent management in perpetuity of other existing occurrences at a minimum 2:1 ratio (occurrences preserved:occurrences impacted). For focal species identified in the EACCS (San Joaquin spearscale, big tarplant, Congdon’s tarplant, palmate-bracted bird’s-beak, Livermore Valley tarplant, and recurved larkspur), loss of individuals and occupied habitat will be compensated at 5:1, consistent with the EACCS. The project proponent will provide detailed information to the County and CDFW on the location of the preserved occurrences, quality of the preserved habitat, feasibility of protecting and managing the areas in-perpetuity, responsibility parties, and other pertinent information. The preserved habitat will be confirmed to support populations of the impacted species and will be preserved in perpetuity via deed restriction, establishment of a conservation easement, or similar preservation mechanism. A qualified botanist or plant ecologist will prepare a preservation plan or long-term management plan for the site containing at a minimum: a monitoring plan and performance criteria for the preserved plant population; a description of remedial measures to be performed in the event that performance criteria are not met; a description of maintenance activities to be conducted on the site, including</p>	<p>Prior to and during all site disturbance; provide compensation as required by permit term</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
weed control, trash removal, irrigation, and control of herbivory by livestock and wildlife; and an adequate funding mechanism to ensure long-term management of the preserved habitat. If suitable occurrences of a special-status plant species are not available for preservation, then the project will be redesigned to remove features that would result in impacts on that species.				
<p><b>PEIR Mitigation Measure BIO-1e: Retain a biological monitor during ground-disturbing activities in environmentally sensitive areas</b></p> <p>The project proponents will retain a qualified biologist (as determined by Alameda County) to conduct periodic monitoring of decommissioning, repowering, and reclamation activities that occur adjacent to sensitive biological resources (e.g., special-status species, sensitive vegetation communities, wetlands). Monitoring will occur during initial ground disturbance where sensitive biological resources are present and weekly thereafter or as determined by the County in coordination with a qualified biologist. The biologist will assist the crew, as needed, to comply with all project implementation restrictions and guidelines. In addition, the biologist will be responsible for ensuring that the project proponent or its contractors maintain exclusion areas adjacent to sensitive biological resources, and for documenting compliance with all biological resource-related mitigation measures.</p>	During all site disturbance	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<p><b>PEIR Mitigation Measure BIO-2: Prevent introduction, spread, and establishment of invasive plant species</b></p> <p>To avoid and minimize the introduction and spread of invasive nonnative plant species, the project proponent will implement the following BMPs.</p> <ul style="list-style-type: none"> <li>• Construction vehicles and machinery will be cleaned prior to entering the construction area. Cleaning stations will be established at the perimeter of the construction area along all construction routes or immediately offsite.</li> <li>• Vehicles will be washed only at approved areas. No washing of vehicles will occur at job sites.</li> <li>• To discourage the introduction and establishment of invasive plant species, seed mixtures and straw used within natural vegetation will be either rice straw or weed-free straw, as allowed by state and federal regulation of stormwater runoff.</li> </ul> <p>In addition, the project proponent will prepare and implement erosion and sediment control plans to control short-term and long-term erosion and sedimentation effects and to restore soils and vegetation in areas affected by</p>	During all site disturbance	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>construction activities (2020 Updated PEIR Mitigation Measure BIO-1b). Prior to initiating any construction activities that will result in temporary impacts on natural communities, a restoration and monitoring plan will be developed for temporarily affected habitats in each project area (PEIR Mitigation Measure BIO-5c). Restoration and monitoring plans will be submitted to the County and CDFW for approval. These plans will include methods for restoring soil conditions and revegetating disturbed areas, seed mixes, monitoring and maintenance schedules, adaptive management strategies, reporting requirements, and success criteria. Following completion of project construction, the project proponents will implement the revegetation plans to restore areas disturbed by project activities to a condition of equal or greater habitat function than occurred prior to the disturbance.</p>				
<p><b>PEIR Mitigation Measure BIO-3a: Conduct preconstruction surveys for habitat for special-status wildlife species</b></p> <p>No more than 3 years prior to ground-disturbing repowering activities, a qualified biologist (as determined by Alameda County) will conduct field surveys within decommissioning, repowering, and restoration work areas and their immediate surroundings to determine the presence of habitat for special-status wildlife species. The project proponent will submit a report documenting the survey results to Alameda County for review prior to conducting any repowering activities. The report will include the location and description of all proposed work areas, the location and description of all suitable habitat for special-status wildlife species, and the location and description of other sensitive habitats (e.g., vernal pools, wetlands, riparian areas). Additionally, the report will outline where additional species- and/or habitat-specific mitigation measures are required. This report may provide the basis for any applicable permit applications where incidental take may occur.</p>	<p>Prior to and during all site disturbance</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>
<p><b>PEIR Mitigation Measure BIO-3b: Implement measures to avoid, minimize, and mitigate impacts on vernal pool branchiopods and curved-foot hygrotus diving beetle</b></p> <p>Where suitable habitat for listed vernal pool branchiopods and curved-foot hygrotus diving beetle are identified within 250 feet (or another distance as determined by a qualified biologist based on topography and other site conditions) of proposed work areas, the following measures will be implemented to ensure that the repowering projects do not have adverse impacts on listed vernal pool branchiopods or curved-foot hygrotus diving beetle. Additional conservation</p>	<p>During construction and operation</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>measures or conditions of approval may be required in applicable project permits (e.g., ESA incidental take permit).</p> <ul style="list-style-type: none"> <li>• Avoid all direct impacts on sandstone rock outcrop vernal pools.</li> <li>• Ground disturbance will be avoided from the first day of the first significant rain (1 inch or more) until June 1, or until pools remain dry for 72 hours and no significant rain is forecast on the day of such ground disturbance.</li> <li>• If vernal pools, clay flats, alkaline pools, ephemeral stock tanks (or ponds), sandstone pools, or roadside ditches are present within 250 feet of the work area (or another appropriate distance as determined by a qualified biologist on the basis of topography and other site conditions), the biologist will stake and flag an exclusion zone prior to construction activities. The width of the exclusion zone will be based on site conditions and will be the maximum practicable distance that ensures protection of the feature from direct and indirect effects of the project. Exclusion zones will be established around features whether they are wet or dry at the time. The exclusion zone will be fenced with orange construction zone and erosion control fencing (to be installed by construction crew).</li> <li>• No herbicide will be applied within 100 feet of exclusion zones, except when applied to cut stumps or frilled stems or injected into stems. No broadcast applications will be allowed.</li> <li>• Avoid modifying or changing the hydrology of aquatic habitats.</li> <li>• Minimize the work area for stream crossings and conduct work during the dry season (June 1 through the first significant rain of the fall/winter).</li> <li>• Install utility collection lines across perennial creeks by boring under the creek.</li> </ul>				
<p>Where impacts cannot be avoided or minimized, compensatory mitigation will be undertaken in accordance with mitigation ratios and requirements developed under the EACCS. In the event that an incidental take permit is required, compensatory mitigation will be undertaken in accordance with the terms of the permit in consultation with USFWS.</p>				
<p><b>PEIR Mitigation Measure BIO-4a: Implement measures to avoid or protect habitat for valley elderberry longhorn beetle</b>                      If it is determined through preconstruction surveys conducted pursuant to</p>	<p>During all site disturbance</p>	<p>County—adopt a condition of Approval; Operator—</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>Mitigation Measure BIO-3a that elderberry shrubs are present within proposed work areas or within 100 feet of these areas, the following measures will be implemented to ensure that the proposed project does not have a significant impact on valley elderberry longhorn beetle.</p> <ul style="list-style-type: none"> <li>• Avoid removal of elderberry shrubs.</li> <li>• Elderberry shrubs/clusters within 100 feet of the construction area that will not be removed will be protected during construction. A qualified biologist (i.e., with elderberry/species experience) will mark the elderberry shrubs and clusters that will be protected during construction. Orange construction barrier fencing will be placed at the edge of the buffer areas. The buffer area distances will be proposed by the biologist and approved by USFWS (if required by project permits). No construction activities will be permitted within the buffer zone other than those activities necessary to erect the fencing. Signs will be posted every 50 feet along the perimeter of the buffer area fencing. The signs will contain the following information: This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment.</li> <li>• Buffer area fences around elderberry shrubs will be inspected weekly by a qualified biological monitor during ground-disturbing activities and monthly after ground-disturbing activities until project construction is complete or until the fences are removed, as approved by the biological monitor and the resident engineer. The biological monitor will be responsible for ensuring that the contractor maintains the buffer area fences around elderberry shrubs throughout construction. Biological inspection reports will be provided to the project proponent and USFWS (if required by project permits).</li> </ul>		implement		
<p><b>2020 Updated PEIR Mitigation Measure BIO-4b: Compensate for direct and indirect effects on valley elderberry longhorn beetle</b></p> <p>If elderberry shrubs cannot be avoided and protected as outlined in PEIR Mitigation Measure BIO-4a, the project proponent will obtain an incidental take permit from USFWS and compensate for direct impacts on any elderberry shrubs (i.e., removed or trimmed). Surveys of elderberry shrubs to be transplanted will be conducted by a qualified biologist prior to transplantation or trimming. Surveys will be conducted in accordance with the <i>Framework for Assessing Impacts to the</i></p>	According to terms through consultation with USFWS	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p><i>Valley Elderberry Longhorn Beetle</i> (U.S. Fish and Wildlife Service 2017) and will document the following: (1) presence/absence of exit holes; (2) evaluation of riparian/ non-riparian habitat; and (3) suitability of shrubs to support valley elderberry longhorn beetle. Survey results and an analysis of the number of mitigation units that would be required based on the survey results will be submitted to USFWS in a biological assessment or an HCP. After receipt of an incidental take permit and before construction begins, the project proponent will compensate for direct effects on elderberry shrubs by transplanting shrubs that cannot be avoided to a USFWS-approved conservation area and planting additional elderberry shrubs and associated riparian habitat at a USFWS-approved conservation area. Any elderberry shrub containing stem(s) measuring 1 inch or more in diameter at ground level that is deemed suitable habitat and is adversely affected (i.e., trimmed, transplanted, or destroyed) will be mitigated by planting replacement habitat (i.e., elderberry shrub seedlings and associate plant species), in the conservation area, at a ratio ranging from 1:1 to 3:1 (mitigation unit to affected habitat). The number of mitigation units (1 unit = 0.041 acre) to be planted as replacement habitat are determined by either the acreage of habitat (elderberry shrub and associated riparian) removed or number of shrubs trimmed, as well as the presence or absence of exit holes and whether the shrub lies in a riparian or non-riparian habitat. Stock of either seedlings or cuttings would be obtained from local sources.</p> <p>At the discretion of USFWS, shrubs that are unlikely to survive transplantation because of poor condition or location, or a plant that would be extremely difficult to move because of access problems, may be exempted from transplantation. In cases where transplantation is not possible, mitigation ratios could be increased to offset the additional habitat loss.</p> <p>The relocation of the elderberry shrubs will be conducted according to USFWS-approved procedures outlined in the <i>Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle</i> (U.S. Fish and Wildlife Service 2017), or the most current USFWS guidance. If possible, elderberry shrubs within the project construction area that cannot be avoided will be trans-planted during the plant’s dormant phase (November through the first 2 weeks of February). A qualified biological monitor will remain onsite while the shrubs are being transplanted.</p> <p>Evidence of valley elderberry longhorn beetle occurrence in the conservation area, the condition of the elderberry shrubs in the conservation area, and the general condition of the conservation area itself will be monitored. Monitoring protocols</p>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>and reporting timelines will be determined as part of the endangered species coordination/consultation with USFWS for the project. The project proponent will be responsible for funding and providing monitoring reports to USFWS in each of the years in which a monitoring report is required. As specified in the <i>Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle</i> (U.S. Fish and Wildlife Service 2017), the report will include information on presence of exit holes, evaluation of success criteria, summary of weed control and site protection, assessment of threats to valley elderberry longhorn beetle on the site, and photo documentation of current habitat condition. Mitigation credits may be purchased at a USFWS-approved mitigation bank in lieu of the above monitoring requirements, as determined during coordination/consultation with USFWS for the project.</p>				
<p><b>2020 Updated PEIR Mitigation Measure BIO-5a: Implement best management practices to avoid and minimize effects on special-status amphibians</b></p> <p>The project proponent will ensure that BMPs and other appropriate measures, in accordance with measures developed for the EACCS, be incorporated into the appropriate design and construction documents. <i>Implementation of some of these measures will require that the project proponent obtain incidental take permits from USFWS (California red-legged frog and California tiger salamander) and from CDFW (California tiger salamander only) before construction begins.</i> Additional conservation measures or conditions of approval may be required in applicable project permits (e.g., ESA or CESA incidental take authorization). The applicant will comply with the State Water Board NPDES construction general requirements for stormwater.</p> <ul style="list-style-type: none"> <li>• Ground-disturbing activities will be limited to dry weather between April 15 and October 31. No ground-disturbing work will occur during wet weather. Wet weather is defined as when there has been 0.25 inch of rain in a 24-hour period. Ground disturbing activities halted due to wet weather may resume when precipitation ceases and the National Weather Service 72-hour weather forecast indicates a 30% or less chance of precipitation. No ground-disturbing work will occur during a dry-out period of 48 hours after the above-referenced wet weather.</li> <li>• Where applicable, barrier fencing will be installed around the worksite to prevent amphibians from entering the work area. Barrier fencing will be removed within 72 hours of completion of work. The need and location of barrier fencing will be identified by a qualified biologist in cooperation with the County and/or any applicable resource agencies with the purpose</li> </ul>	<p>Prior to and during construction and operation</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>



**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>of protecting dispersing special-status amphibians.</p> <ul style="list-style-type: none"> <li>• Before construction begins, a qualified biologist will locate appropriate relocation areas and prepare a relocation plan for special-status amphibians that may need to be moved during construction. The proponent will submit this plan to USFWS and CDFW for review a minimum of 2 weeks prior to the start of construction.</li> <li>• A qualified biologist will conduct preconstruction surveys (i.e., visual surveys of the ground surface and areas within burrows visible from the surface) immediately prior to ground-disturbing activities (including equipment staging, vegetation removal, grading). The biologist will survey the work area and all suitable habitats within 300 feet of the work area. If individuals (including adults, juveniles, larvae, or eggs) are found, work will not begin until USFWS and/or CDFW is contacted to determine if moving these life-stages is appropriate. If relocation is deemed necessary, it will be conducted in accordance with the relocation plan. Incidental take permits are required for relocation of California tiger salamander (USFWS and CDFW) and California red-legged frog (USFWS). Relocation of western spadefoot toad requires a letter of permission or permit from CDFW authorizing this activity.</li> <li>• No monofilament plastic will be used for erosion control.</li> <li>• All project activity will terminate 30 minutes before sunset and will not resume until 30 minutes after sunrise during the migration/active season from November 1 to June 15. Sunrise and sunset times are established by the U.S. Naval Observatory Astronomical Applications Department for the geographic area where the project is located.</li> <li>• Vehicles will not exceed a speed limit of 15 mph on unpaved roads within natural land cover types, or during offroad travel.</li> <li>• Trenches or holes more than 6 inches deep will be provided with one or more escape ramps constructed of earth fill or wooden planks and will be inspected by a qualified biologist prior to being filled. Any such features that are left open overnight will be searched each day prior to construction activities to ensure no covered species are trapped. Work will not continue until trapped animals have moved out of open trenches.</li> <li>• Work crews or the onsite biological monitor will inspect open trenches, pits, and under construction equipment and material left onsite in the</li> </ul>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>morning and evening to look for amphibians that may have become trapped or are seeking refuge.</p> <ul style="list-style-type: none"> <li>If special-status amphibians are found in the work area during construction and cannot or do not move offsite on their own, a qualified biologist who is USFWS and/or CDFW-approved under a biological opinion and/or incidental take permit for the specific project, will trap and move special-status amphibians in accordance with the relocation plan. Relocation of western spadefoot toad requires a separate letter of permission or permit from CDFW authorizing this activity.</li> </ul>				
<p><b>PEIR Mitigation Measure BIO-5b: Compensate for loss of habitat for special-status amphibians</b></p> <p>Where impacts on aquatic and upland habitat for special-status amphibians cannot be avoided or minimized, compensatory mitigation will be undertaken in accordance with mitigation ratios and requirements developed under the EACCS. In the event that take authorization is required, compensatory mitigation will be undertaken in accordance with the terms of the authorization in consultation with USFWS and/or CDFW.</p>	<p>Prior to all construction activities; compensation paid according to terms of permit</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>
<p><b>PEIR Mitigation Measure BIO-5c: Restore disturbed annual grasslands</b></p> <p>Within 30 days prior to any ground disturbance, a qualified biologist will prepare a Grassland Restoration Plan in coordination with CDFW and subject to CDFW approval, to ensure that temporarily disturbed annual grasslands and areas planned for the removal of permanent roads and turbine pad areas are restored to preproject conditions. The Grassland Restoration Plan will include but not be limited to the following measures.</p> <ul style="list-style-type: none"> <li>Gravel will be removed from areas proposed for grassland restoration.</li> <li>To the maximum extent feasible, topsoil will be salvaged from within onsite work areas prior to construction. Imported fill soils will be limited to weed-free topsoil similar in texture, chemical composition, and pH to soils found at the restoration site.</li> <li>Where appropriate, restoration areas will be seeded (hydroseeding is acceptable) to ensure erosion control. Seed mixes will be tailored to closely match that of reference site(s) within the program area and should include native or naturalized, noninvasive species sourced within the project area or from the nearest available location.</li> <li>Reclaimed roads will be restored in such a way as to permanently prevent</li> </ul>	<p>Prior to all site disturbance and up to 3 years after construction</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>vehicular travel.</p> <p>The plan will include a requirement to monitor restoration areas annually (between March and October) for up to 3 years following the year of restoration. The restoration will be considered successful when the percent cover for restored areas is 70% absolute cover of the planted/seeded species compared to the percent absolute cover of nearby reference sites. No more than 5% relative cover of the vegetation in the restoration areas will consist of invasive plant species rated as “high” in California Invasive Plant Council’s California Invasive Plant Inventory Database (<a href="http://www.cal-ipc.org">http://www.cal-ipc.org</a>). Remedial measures prescribed in the plan will include supplemental seeding, weed control, and other actions as determined necessary to achieve the long-term success criteria. Monitoring may be extended, if necessary, to achieve the success criteria or if drought conditions preclude restoration success. Other performance standards may also be required as they relate to special-status species habitat; these will be identified in coordination with CDFW and included in the plan. The project proponent will provide evidence that CDFW has reviewed and approved the Grassland Restoration Plan. Additionally, the project proponent will provide annual monitoring reports to the County by January 31 of each year, summarizing the monitoring results and any remedial measures implemented (if any are necessary) during the previous year.</p>				
<p><b>PEIR Mitigation Measure BIO-6: Conduct preconstruction surveys for western pond turtle and monitor construction activities if turtles are observed</b></p> <p>If it is determined through preconstruction surveys conducted pursuant to PEIR Mitigation Measure BIO-3a that suitable aquatic or upland habitat for western pond turtle is present within proposed work areas, the following measures, consistent with measures developed for the EACCS, will be implemented to ensure that the proposed project does not have a significant impact on western pond turtle.</p> <ul style="list-style-type: none"> <li>One week before and within 24 hours of beginning work in suitable aquatic habitat, a qualified biologist (one who is familiar with different species of turtles) will conduct surveys for western pond turtle. The surveys should be timed to coincide with the time of day and year when turtles are most likely to be active (during the cooler part of the day between 8 a.m. and 12 p.m. during spring and summer). Prior to conducting the surveys, the biologist should locate the microhabitats for turtle basking (logs, rocks, brush thickets) and determine a location to quietly observe turtles. Each survey should include a 30-minute wait time after arriving onsite to allow startled turtles to return to open basking</li> </ul>	<p>Prior to and during all site disturbance</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>areas. The survey should consist of a minimum 15-minute observation period for each area where turtles could be observed.</p> <ul style="list-style-type: none"> <li>If western pond turtles are observed during either survey, a biological monitor will be present during construction activities in the aquatic habitat where the turtle was observed. The biological monitor also will be mindful of suitable nesting and overwintering areas in proximity to suitable aquatic habitat and will periodically inspect these areas for nests and turtles.</li> <li>If one or more western pond turtles are found in the work area during construction and cannot or do not move offsite on their own, a qualified biologist will remove and relocate the turtle to appropriate aquatic habitat outside and away from the construction area. Relocation of western pond turtle requires a letter from CDFW authorizing this activity.</li> </ul>				
<p><b>2020 Updated PEIR Mitigation Measure BIO-7a: Implement best management practices to avoid and minimize effects on special-status reptiles</b></p> <p>Where suitable habitat for Blainville’s horned lizard, California glossy snake, Alameda whip-snake, or San Joaquin coachwhip is identified in proposed work areas, all project proponents will ensure that BMPs and other appropriate measures, in accordance with measures developed for the EACCS, be incorporated into the appropriate design and construction documents. Implementation of some of these measures may require that the project proponent obtain incidental take permits from USFWS and CDFW (Alameda whipsnake) before construction begins. Additional conservation measures or conditions of approval may be required in applicable project permits (i.e., ESA incidental take permit).</p> <ul style="list-style-type: none"> <li>A qualified biologist will conduct preconstruction surveys immediately prior to ground-disturbing activities (e.g., equipment staging, vegetation removal, grading) associated with the program. If any Blainville’s horned lizards, California glossy snake, Alameda whipsnakes, or San Joaquin coachwhips are found, work will not begin until they are moved out of the work area to a USFWS- and/ or CDFW-approved relocation site. Incidental take permits from USFWS and CDFW are required for relocation of Alameda whipsnake. Relocation of Blainville’s horned lizard, California glossy snake, and San Joaquin coachwhip requires a letter from CDFW authorizing this activity.</li> <li>No monofilament plastic will be used for erosion control.</li> </ul>	<p>During project design, construction and operation</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<ul style="list-style-type: none"> <li>Where applicable, barrier fencing will be used to exclude Blainville’s horned lizard, California glossy snake, Alameda whipsnake, and San Joaquin coachwhip. Barrier fencing will be removed within 72 hours of completion of work.</li> <li>Work crews or an onsite biological monitor will inspect open trenches and pits and under construction equipment and materials left onsite for special-status reptiles each morning and evening during construction.</li> <li>Ground disturbance in suitable habitat will be minimized.</li> <li>Vegetation within the proposed work area will be removed prior to grading. Prior to clearing and grubbing operations, a qualified biologist will clearly mark vegetation within the work area that will be avoided. Vegetation outside the work area will not be removed. Where possible hand tools (e.g., trimmer, chain saw) will be used to trim or remove vegetation. All vegetation removal will be monitored by the qualified biologist to minimize impacts on special-status reptiles.</li> <li>If special-status reptiles are found in the work area during construction and cannot or do not move offsite on their own, a qualified biologist who is USFWS- and/or CDFW-approved under an incidental take permit for the specific project will trap and move the animal(s) to a USFWS and/or CDFW approved relocation area. Incidental take permits from USFWS and CDFW are required for relocation of Alameda whipsnake. Relocation of Blainville’s horned lizard, California glossy snake, and San Joaquin coachwhip requires a letter or permit from CDFW authorizing this activity.</li> </ul>				
<p><b>PEIR Mitigation Measure BIO-7b: Compensate for loss of habitat for special-status reptiles</b></p> <p>Where impacts on habitat for special-status reptiles cannot be avoided or minimized, compensatory mitigation will be undertaken in accordance with mitigation ratios and requirements developed under the EACCS. In the event that incidental take permits are required for Alameda whipsnake, compensatory mitigation will be undertaken in accordance with the terms of permits in consultation with USFWS and CDFW.</p>	According to terms through consultation with CDFW and USFWS	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<p><b>2020 Updated PEIR Mitigation Measure BIO-8a: Implement measures to avoid and minimize potential construction-related impacts on special-status and non-special-status nesting birds and raptors</b></p> <p>Where suitable habitat is present for raptors within 1 mile (within 2 miles for</p>	During construction and operation	County—adopt a Condition of Approval; Operator—	County	Monitor compliance with Conditions of Approval

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>golden eagles) and for tree/shrub- and ground-nesting migratory birds (non-raptors) within 50 feet (1,300 feet for tricolored blackbird) of proposed work areas, the following measures will be implemented to ensure that the proposed project does not have a significant impact on nesting special-status and non-special-status birds.</p> <ul style="list-style-type: none"> <li>• Remove suitable nesting habitat (shrubs and trees) during the non-breeding season (September 1–January 31) for nesting birds.</li> <li>• To the extent feasible, avoid construction activities in or near suitable or occupied nesting habitat during the breeding season of birds (generally February 1–August 31).</li> <li>• If construction activities (including vegetation removal, clearing, and grading) will occur during the nesting season for migratory birds, a qualified biologist will conduct a total of three preconstruction nesting bird and raptor surveys. The construction area and a 1-mile buffer will be surveyed for tree-nesting raptors (except for golden eagles as addressed below), a 500-foot buffer will be surveyed for northern harrier, and a 1,300-foot buffer will be surveyed for tricolored blackbird if potential tricolored blackbird nesting substrates are present (i.e., flooded, thorny, or spiny vegetation such as cattails, tules, willows, blackberries, thistles, or nettles), and a 50-foot buffer will be surveyed for all other bird species. The first survey will be conducted within the areas described above between 30-60 days prior to the start of construction to identify potential nesting habitat that could be used by special-status and non-special-status birds and raptors within the survey area and to document any nesting behavior or activity. A second survey will be conducted no less than 14 days prior to starting construction to verify current occupancy status of nesting birds and raptors. A final survey will be conducted immediately prior to initiating ground-disturbing activities within disturbance areas and appropriate species buffers. The final surveys may be phased on the project site depending on which areas/components of the project would begin ground-disturbing activities, so that they are conducted immediately prior to ground disturbing activities within a specific area.</li> <li>• Surveys to locate eagle nests within 2 miles of construction will be conducted during the breeding season prior to construction. A 1-mile no-disturbance buffer will be implemented for construction activities to protect nesting eagles from disturbance. Through coordination with</li> </ul>		implement		

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>USFWS, the no-disturbance buffer may be reduced to 0.5 mile if construction activities are not within line-of-sight of the nest.</p> <ul style="list-style-type: none"> <li>If an active nest (other than golden eagle) is identified near a proposed work area and work cannot be conducted outside the nesting season (February 1–August 31), a no-activity zone will be established around the nest by a qualified biologist in coordination with USFWS and/or CDFW. Fencing and/or flagging will be used to delineate the no-activity zone. To minimize the potential to affect the reproductive success of the nesting pair, the extent of the no-activity zone will be based on the distance of the activity to the nest, the type and extent of the proposed activity, the duration and timing of the activity, the sensitivity and habituation of the species, and the dissimilarity of the proposed activity to background activities. The no-activity zone will be large enough to avoid nest abandonment and will be between 50 feet and 1 mile from the nest, or as otherwise required by USFWS and/or CDFW.</li> </ul>				
<p><b>2020 Updated PEIR Mitigation Measure BIO-8b: Implement measures to avoid and minimize potential impacts on western burrowing owl</b></p> <p>Where suitable habitat for western burrowing owl is in or within 500 feet of proposed work areas, the following measures will be implemented to avoid or minimize potential adverse impacts on burrowing owls.</p> <ul style="list-style-type: none"> <li>To the maximum extent feasible (e.g., where the construction footprint can be modified), construction activities within 500 feet of active burrowing owl burrows will be avoided during the nesting season (February 1–August 31).</li> <li>A qualified biologist will conduct a total of three preconstruction take avoidance surveys for burrowing owl. The first pre-construction survey will be conducted between 30-60 days prior to the start of construction to identify potential nest sites and to determine current occupancy status. A second survey will be conducted no less than 14 days prior to starting construction to verify current occupancy status. A final survey will be conducted within 24 hours of initiating ground-disturbing activities, or phased as discussed above (2020 Updated PEIR Mitigation Measure BIO-8a). The survey area will encompass the work area and a 500-foot buffer around this area.</li> <li>If an active burrow is identified near a proposed work area and work</li> </ul>	<p>During construction and operation</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>cannot be conducted outside the nesting season (February 1–August 31), a no-activity zone will be established by a qualified biologist in coordination with CDFW. The no-activity zone will be large enough to avoid nest abandonment and will extend a minimum of 250 feet around the burrow.</p> <ul style="list-style-type: none"> <li>• If burrowing owls are present at the site during the non-breeding season (September 1–January 31), a qualified biologist will establish a no-activity zone that extends a minimum of 150 feet around the burrow.</li> <li>• If the designated no-activity zone for either breeding or non-breeding burrowing owls cannot be established, a wildlife biologist experienced in burrowing owl behavior will evaluate site-specific conditions and, in coordination with CDFW, recommend a smaller buffer (if possible) and/or other measure that still minimizes disturbance of the owls (while allowing reproductive success during the breeding season). The site-specific buffer (and/or other measure) will consider the type and extent of the proposed activity occurring near the occupied burrow, the duration and timing of the activity, the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity to background activities.</li> <li>• If burrowing owls are present in the direct disturbance area and cannot be avoided during the non-breeding season (generally September 1 through January 31), burrowing owls may be excluded from burrows through the installation of one-way doors at burrow entrances. A burrowing owl exclusion plan, prepared by the project proponent, must be approved by CDFW prior to exclusion of owls. One-way doors (e.g., modified dryer vents or other CDFW approved method), which will be left in place for a minimum of 1 week and monitored daily to ensure that the owl(s) have left the burrow(s). Excavation of the burrow will be conducted using hand tools. During excavation of the burrow, a section of flexible plastic pipe (at least 3 inches in diameter) will be inserted into the burrow tunnel to maintain an escape route for any animals that may be inside the burrow. Owls will be excluded from their burrows as a last resort and only if other avoidance and minimization measures cannot be implemented.</li> <li>• Avoid destruction of unoccupied burrows outside the work area and place visible markers near burrows to ensure that they are not collapsed.</li> <li>• Conduct ongoing surveillance of the project site for burrowing owls during project activities. If additional owls are observed using burrows within 500 feet of construction, the onsite biological monitor will determine, in</li> </ul>				



**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
coordination with CDFW, if the owl(s) are or would be affected by construction activities and if additional exclusion zones are required.				
<p><b>PEIR Mitigation Measure BIO-9: Compensate for the permanent loss of occupied habitat for western burrowing owl</b></p> <p>If construction activities would result in the removal of occupied burrowing owl habitat (determined during preconstruction surveys described in 2020 Updated PEIR Mitigation Measure BIO-8b), this habitat loss will be mitigated by permanently protecting mitigation land through a conservation easement or by implementing alternative mitigation determined through consultation with CDFW as described in its Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012:11–13). The project proponent will work with the CDFW to develop the compensation plan, which will be subject to County review and approval.</p>	According to terms through consultation with CDFW	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<p><b>2020 Updated PEIR Mitigation Measure BIO-10a: Implement measures to avoid and minimize potential impacts on San Joaquin kit fox and American badger</b></p> <p>Where suitable habitat is present for San Joaquin kit fox and American badger in and adjacent to proposed work areas, the following measures, consistent with measures developed in the EACCS, will be implemented to ensure that proposed project does not have a significant impact on San Joaquin kit fox or American badger. Implementation of some of these measures will require that the Project proponent obtain incidental take permits from USFWS and CDFW (San Joaquin kit fox) before construction begins. Implementation of state and federal requirements contained in such authorization may constitute compliance with corresponding measures in the PEIR.</p> <ul style="list-style-type: none"> <li>• To the maximum extent feasible, suitable dens for San Joaquin kit fox and American badger will be avoided.</li> <li>• All project proponents will retain qualified approved biologists (as determined by USFWS) to conduct a preconstruction survey for potential San Joaquin kit fox dens. Resumes of biologists will be submitted to USFWS for review and approval prior to the start of the survey.</li> <li>• Preconstruction surveys for American badgers will be conducted in conjunction with San Joaquin kit fox preconstruction surveys.</li> <li>• The preconstruction survey will be conducted no less than 14 days and no more than 30 days before the beginning of ground disturbance, or any</li> </ul>	Prior to and during construction and operation	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>activity likely to affect San Joaquin kit fox. The biologists will conduct den searches by systematically walking transects through the project area and a buffer area to be determined in coordination with USFWS and CDFW. Transect distance should be based on the height of vegetation such that 100% visual coverage of the project area is achieved. If a potential or known den is found during the survey, the biologist will measure the size of the den, evaluate the shape of the den entrances, and note tracks, scat, prey remains, and recent excavations at the den site. The biologists will also determine the status of the dens and map the features. Dens will be classified in one of the following four den status categories defined by USFWS.</p> <ul style="list-style-type: none"> <li>○ Potential den: Any subterranean hole within the species' range that has entrances of appropriate dimensions and for which available evidence is sufficient to conclude that it is being used or has been used by a kit fox. Potential dens include (1) any suitable subterranean hole; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, ground squirrel) that otherwise has appropriate characteristics for kit fox use; or an artificial structure that otherwise has appropriate characteristics for kit fox use.</li> <li>○ Known den: Any existing natural den or artificial structure that is used or has been used at any time in the past by a San Joaquin kit fox. Evidence of use may include historical records; past or current radiotelemetry or spotlighting data; kit fox sign such as tracks, scat, and/or prey remains; or other reasonable proof that a given den is being or has been used by a kit fox (USFWS discourages use of the terms active and inactive when referring to any kit fox den because a great percentage of occupied dens show no evidence of use, and because kit foxes change dens often, with the result that the status of a given den may change frequently and abruptly).</li> <li>○ Known natal or pupping den: Any den that is used, or has been used at any time in the past, by kit foxes to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt or vegetation at one or more entrances. A natal den, defined as a den in which kit fox pups are</li> </ul>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two; therefore, for purposes of this definition either term applies.</p> <ul style="list-style-type: none"> <li>○ Known atypical den: Any artificial structure that has been or is being occupied by a San Joaquin kit fox. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.</li> </ul>				
<p>Written results of the survey including the locations of any potential or known San Joaquin kit fox dens will be submitted to USFWS within 5 days following completion of the survey and prior to the start of ground disturbance or construction activities.</p>				
<ul style="list-style-type: none"> <li>● After preconstruction den searches and before the commencement of repowering activities, exclusion zones will be established as measured in a radius outward from the entrance or cluster of entrances of each den. Repowering activities will be prohibited or greatly restricted within these exclusion zones. Only essential vehicular operation on existing roads and foot traffic will be permitted. All other repowering activities, vehicle operation, material and equipment storage, and other surface-disturbing activities will be prohibited in the exclusion zones. Barrier fencing will be removed within 72 hours of completion of work. Exclusion zones will be established using the following parameters.             <ul style="list-style-type: none"> <li>○ Potential and atypical dens: A total of four or five flagged stakes will be placed 50 feet from the den entrance to identify the den location.</li> <li>○ Known den: Orange construction barrier fencing will be installed between the work area and the known den site at a minimum distance of 100 feet from the den. The fencing will be maintained until construction-related disturbances have ceased. At that time, all fencing will be removed to avoid attracting subsequent attention to the den.</li> <li>○ Natal/pupping den: USFWS will be contacted immediately if a natal or pupping den is discovered in or within 200 feet of the work area.</li> </ul> </li> <li>● Any occupied or potentially occupied badger den will be avoided by establishing an exclusion zone consistent with a San Joaquin kit fox potential burrow (i.e., four or five flagged stakes will be placed 50 feet from the den entrance).</li> <li>● In cases where avoidance is not a reasonable alternative, limited</li> </ul>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>destruction of potential San Joaquin kit fox dens may be allowed as follows.</p> <ul style="list-style-type: none"> <li>○ Natal/pupping dens: Natal or pupping dens that are occupied will not be destroyed until the adults and pups have vacated the dens and then only after consultation with USFWS. Removal of natal/pupping dens requires incidental take authorization from USFWS and CDFW.</li> <li>○ Known dens: Known dens within the footprint of the activity must be monitored for 3 days with tracking medium or an infrared camera to determine current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use. If kit fox activity is observed during this period, the den will be monitored for at least 5 consecutive days from the time of observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged by partially plugging its entrance(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied will the den be excavated under the direction of a biologist. If the fox is still present after 5 or more consecutive days of monitoring, the den may be excavated when, in the judgment of the biologist, it is temporarily vacant, such as during the fox's normal foraging activities. Removal of known dens requires incidental take authorization from USFWS and CDFW.</li> <li>○ Potential dens: If incidental take permits have been received (from USFWS and CDFW), potential dens can be removed (preferably by hand excavation) by biologist or under the supervision of a biologist without monitoring, unless other restrictions were issued with the incidental take permits. If no take authorizations have been issued, the potential dens will be monitored as if they are known dens. If any den was considered a potential den but was later determined during monitoring or destruction to be currently or previously used by kit foxes (e.g., kit fox sign is found inside), then all construction activities will cease and USFWS and CDFW will be notified immediately.</li> <li>● Nighttime work will be minimized to the extent possible. The vehicular speed limit will be reduced to 10 miles per hour during nighttime work.</li> <li>● Pipes, culverts, and similar materials greater than 4 inches in diameter will be stored so as to prevent wildlife species from using these as temporary refuges, and these materials will be inspected each morning for the</li> </ul>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>presence of animals prior to being moved.</p> <ul style="list-style-type: none"> <li>• A representative appointed by the project proponent will be the contact for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured, or entrapped kit fox. The representative will be identified during environmental sensitivity training (2020 Updated PEIR Mitigation Measure BIO-1b) and his/her name and phone number will be provided to USFWS and CDFW. Upon such incident or finding, the representative will immediately contact USFWS and CDFW.</li> <li>• The Sacramento USFWS office and CDFW will be notified in writing within 3 working days of the accidental death or injury of a San Joaquin kit fox during project-related activities. Notification must include the date, time, and location of the incident, and any other pertinent information.</li> </ul>				
<p><b>PEIR Mitigation Measure BIO-10b: Compensate for loss of suitable habitat for San Joaquin kit fox and American badger</b></p> <p>Where permanent impacts on habitat for San Joaquin kit fox and American badger cannot be avoided or minimized, compensatory mitigation will be undertaken in accordance with mitigation ratios and requirements developed under the EACCS. In the event that incidental take permits are required for San Joaquin kit fox, compensatory mitigation will be undertaken in accordance with the terms of permits in consultation with USFWS and CDFW.</p>	According to terms of permits	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<p><b>PEIR Mitigation Measure BIO-11a: Prepare a project-specific avian protection plan</b></p> <p>All project proponents will prepare a project-specific avian protection plan (APP) to specify measures and protocols consistent with the program-level mitigation measures that address avian mortality. The project-specific APPs will include, at a minimum, the following components.</p> <ul style="list-style-type: none"> <li>• Information and methods used to site turbines to minimize risk.</li> <li>• Documentation that appropriate turbine designs are being used.</li> <li>• Documentation that avian-safe practices are being implemented on project infrastructure.</li> <li>• Methods used to discourage prey for raptors.</li> <li>• A detailed description of the postconstruction avian fatality monitoring methods to be used (consistent with the minimum requirements outlined in Mitigation Measure BIO-11g).</li> </ul>	During project design and prior to construction	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<ul style="list-style-type: none"> <li>Methods used to compensate for the loss of raptors (consistent with the requirements of 2020 Updated PEIR Mitigation Measure BIO-11h).</li> </ul>				
<p>Each project applicant will prepare and submit a draft project-specific APP to the County. The draft APP will be reviewed by the technical advisory committee (TAC) for consistency and the inclusion of appropriate mitigation measures that are consistent with the PEIR and recommended for approval by the County. Each project applicant must have an approved Final APP prior to commercial operation.</p>				
<p><b>2020 Updated PEIR Mitigation Measure BIO-11b: Site turbines to minimize potential mortality of birds</b></p>	<p>During project design and construction</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>
<p>Consistent with PEIR Mitigation Measure BIO-11b, and in recognition that focused siting of turbines using analyses of landscape features and location-specific bird use and behavior data to identify locations with reduced collision risk may result in reduced fatalities (Smallwood et al. 2009), project proponents will conduct a siting process and prepare a micro-siting analysis to select turbine locations to minimize potential impacts on bird and bat species. The proponent has utilized existing data and collected new site-specific data as part of the siting analysis.</p>				
<p>The project proponent will utilize currently available guidelines published by the Alameda County Scientific Review Committee (SRC) for siting wind turbines (Alameda County SRC 2010) and/or other currently available research or guidelines to conduct siting analysis. Additionally, project proponents will use the results of previous siting efforts to inform the analysis and siting methods as appropriate such that the science of siting continues to be advanced. All project proponents will collect field data that identify or confirm the behavior, utilization, and distribution patterns of affected avian and bat species prior to the installation of turbines. Project proponents will collect and utilize available existing information, including but not necessarily limited to: siting reports and monitoring data from previously installed projects; published use and abundance studies and reports; topographic features known to increase collision risk (trees, riparian areas, water bodies, and wetlands); and changes to the landscape caused by grading for the placement of turbine foundations.</p>				
<p>Project proponents will also collect and utilize additional field data as necessary to inform the siting analysis for golden eagle. As required in 2020 Updated Mitigation Measure BIO-8a, surveys will be conducted to locate golden eagle nests within 2 miles of proposed project areas. Siting of turbines within 2 miles of an active or alternative golden eagle nest or active golden eagle territory will be based on a site-specific analysis of risk based on the estimated eagle territories, conducted in</p>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>consultation with USFWS.</p> <p>Project proponents will utilize methods (i.e., computer models) to identify dangerous locations for birds and bats based on site-specific risk factors informed by the information discussed above. The project proponents will compile the results of the siting analyses for each turbine and document these in the project-level APP, along with the specific location of each turbine. Consistent with past practice for previously approved repowering projects, the proponent shall submit the siting analysis for review and recommendations to the Alameda County Wind Repowering/Avian Protection Technical Advisory Committee, which includes representatives of the CDFW and the USFWS, prior to applying for any building or grading permit. The County planning director shall have the authority to approve or deny such permits on the basis of the siting analysis and the recommendations of the Technical Advisory Committee.</p>				
<p><b>PEIR Mitigation Measure BIO-11c: Use turbine designs that reduce avian impacts</b></p> <p>Use of turbines with certain characteristics is believed to reduce the collision risk for avian species. Project proponents will implement the design-related measures listed below.</p> <ul style="list-style-type: none"> <li>• Turbine designs will be selected that have been shown or that are suspected to reduce avian fatalities, based on the height, color, configuration, or other features of the turbines.</li> <li>• Turbine design will limit or eliminate perching opportunities. Designs will include a tubular tower with internal ladders; external catwalks, railings, or ladders will be prohibited.</li> <li>• Turbine design will limit or eliminate nesting or roosting opportunities. Openings on turbines will be covered to prevent cavity-nesting species from nesting in the turbines.</li> <li>• Lighting will be installed on the fewest number of turbines allowed by Federal Aviation Administration (FAA) regulations, and all pilot warning lights will fire synchronously. Turbine lighting will employ only red or dual red-and-white strobe, strobe-like, or flashing lights (U.S. Fish and Wildlife Service 2012a). All lighting on turbines will be operated at the minimum allowable intensity, flashing frequency, and quantity allowed by FAA (Gehring et al. 2009; U.S. Fish and Wildlife Service 2012a). Duration between flashes will be the longest allowable by the FAA.</li> </ul>	<p>During project design, construction, and operation</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p><b>PEIR Mitigation Measure BIO-11d: Incorporate avian-safe practices into design of turbine-related infrastructure</b></p> <p>The project proponent will apply the following measures when designing and siting turbine-related infrastructure. These measures will reduce the risk of bird electrocution and collision.</p> <ul style="list-style-type: none"> <li>• Permanent meteorological stations will avoid use of guy wires. If it is not possible to avoid using guy wires, the wires will be at least 4/0 gauge to ensure visibility and will be fitted with bird deterrent devices.</li> <li>• All permanent meteorological towers will be unlit unless lighting is required by FAA. If lighting is required, it will be operated at the minimum allowable intensity, flashing frequency, and quantity allowed by FAA.</li> <li>• To the extent possible, all power lines will be placed underground. However, lines may be placed aboveground immediately prior to entering the substation. All aboveground lines will be fitted with bird flight diverters or visibility enhancement devices (e.g., spiral damping devices). When lines cannot be placed underground, appropriate avian protection designs must be employed. As a minimum requirement, the collection system will conform with the most current edition of the Avian Power Line Interaction Committee guidelines to prevent electrocutions.</li> <li>• Lighting will be focused downward and minimized to limit skyward illumination. Sodium vapor lamps and spotlights will not be used at any facility (e.g., laydown areas, substations) except when emergency maintenance is needed. Lighting at collection facilities, including substations, will be minimized using downcast lighting and motion-detection devices. The use of high-intensity lighting; steady-burning or bright lights such as sodium vapor, quartz, or halogen; or other bright spotlights will be minimized. Where lighting is required it will be designed for the minimum intensity required for safe operation of the facility. Green or blue lighting will be used in place of red or white lighting.</li> </ul>	During project design, construction, and operation	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<p><b>PEIR Mitigation Measure BIO-11e: Retrofit existing infrastructure to minimize risk to raptors</b></p> <p>Any existing power lines in a specific project area that are owned by the wind project operator and that are associated with electrocution of an eagle or other raptor will be retrofitted within 30 days to make them raptor-safe according to Avian Power Line Interaction Committee guidelines. All other existing structures to</p>	During operation	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval



**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
remain in a project area during repowering will be retrofitted, as feasible, according to specifications of PEIR Mitigation Measure BIO-11c prior to repowered turbine operation.				
<p><b>PEIR Mitigation Measure BIO-11f: Discourage prey for raptors</b></p> <p>The project proponent will apply the following measures when designing and siting turbine-related infrastructure. These measures are intended to minimize opportunities for fossorial mammals to become established and thereby create a prey base that could become an attractant for raptors.</p> <ul style="list-style-type: none"> <li>• Rodenticide will not be utilized on the project site to avoid the risk of raptors scavenging the remains of poisoned animals.</li> <li>• Boulders (rocks more than 12 inches in diameter) excavated during project construction may be placed in aboveground piles in the project area so long as they are more than 500 meters (1,640 feet) from any turbine. Existing rock piles created during construction of first- and second-generation turbines will also be moved at least 500 meters (1,640 feet) from turbines.</li> <li>• Gravel will be placed around each tower foundation to discourage small mammals from burrowing near turbines.</li> </ul>	During construction and operation	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<p><b>2020 Updated PEIR Mitigation Measure BIO-11g: Implement postconstruction avian fatality monitoring for all repowering projects</b></p> <p>A postconstruction monitoring program will be conducted at each repowering project for a minimum of 3 years beginning on the commercial operation date (COD) of the project. Monitoring may continue beyond 3 years if construction is completed in phases. Moreover, if the results of the first 3 years indicate that baseline fatality rates (i.e., non-repowered fatality rates) are exceeded, monitoring will be extended until the average annual fatality rate has dropped below baseline fatality rates for 2 years, and to assess the effectiveness of adaptive management measures specified in Mitigation Measure BIO-11i. An additional 2 years of monitoring will be implemented at year 10 (i.e., the tenth anniversary of the COD). Project proponents will provide access to qualified third parties authorized by the County to conduct any additional monitoring after the initial 3-year monitoring period has expired and before and after the additional 2-year monitoring period, provided that such additional monitoring utilizes scientifically valid monitoring protocols.</p> <p>A TAC will be formed to oversee the monitoring program and to advise the County</p>	During operation	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>on adaptive management measures that may be necessary if fatality rates substantially exceed those predicted for the project (as described below in Mitigation Measure BIO-11i). The TAC will have a standing meeting, which will be open to the public, every 6 months to review monitoring reports produced by operators in the program area. In these meetings, the TAC will discuss any issues raised by the monitoring reports and recommend to the County next steps to address issues, including scheduling additional meetings, if necessary.</p> <p>The TAC will comprise representatives from the County (including one or more technical consultants, such as a biostatistician, an avian biologist, and a bat biologist), and wildlife agencies (CDFW, USFWS). Additional TAC members may also be considered (e.g., a representative from Audubon, a landowner in the program area, a representative of the operators) at the discretion of the County. The TAC will be a voluntary and advisory group that will provide guidance to the County Planning Department. To maintain transparency with the public, all TAC meetings will be open to the public, and notice of meetings will be given to interested parties.</p> <p>The TAC will have three primary advisory roles: (1) to review and advise on project planning documents (i.e., project-specific APPs) to ensure that project-specific mitigation measures and compensatory mitigation measures described in this PEIR are appropriately and consistently applied, (2) to review and advise on monitoring documents (protocols and reporting) for consistency with the mitigation measures, and (3) to review and advise on implementation of the adaptive management plans.</p> <p>Should fatality monitoring reveal that impacts exceed the baseline thresholds established in the PEIR, the TAC will advise the County on requiring implementation of adaptive management measures as described in Mitigation Measure BIO-11i. The County will have the decision-making authority, as it is the organization issuing the CUPs. However, the TAC will collaboratively inform the decisions of the County.</p> <p>Operators are required to provide for avian use surveys to be conducted within the project area boundaries for a minimum of 30 minutes duration. Surveyors will be qualified and trained and subject to approval by the County.</p> <p>Carcass surveys will be conducted at every turbine for projects with 20 or fewer turbines. For projects with more than 20 turbines, such surveys will be required at a minimum of 20 turbines, and a sample of the remaining turbines may be selected for carcass searches. The operator will be required to demonstrate that the</p>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>sampling scheme and sample size are statistically rigorous and defensible. Where substantial variation in terrain, land cover type, management, or other factors may contribute to significant variation in fatality rates, the sampling scheme will be stratified to account for such variation. The survey protocol for sets and subsets of turbines, as well as proposed sampling schemes that do not entail a search of all turbines, must be approved by the County in consultation with the TAC prior to the start of surveys.</p> <p>The search interval will not exceed 7 days for the minimum of 20 turbines to be surveyed; however, the search interval for the additional turbines (i.e., those exceeding the 20-turbine minimum) that are to be included in the sampling scheme may be extended up to 28 days or longer if recommended by the TAC.</p> <p>The estimation of detection probability is a rapidly advancing field. Carcass placement trials, broadly defined, will be conducted to estimate detection probability during each year of monitoring. Sample sizes will be large enough to potentially detect significant variation by season, carcass size, and habitat type.</p> <p>Operators will be required to submit copies of all raw data forms to the County annually, will supply raw data in a readily accessible digital format to be specified by the County, and will prepare raw data for inclusion as appendices in the annual reports. The intent is to allow the County to conduct independent analyses and meta-analyses of data across the APWRA, and to supply these data to the regulatory agencies if requested.</p> <p>Annual reports submitted to the County will provide a synthesis of all information collected to date. Each report will provide an introduction; descriptions of the study area, methods, and results; a discussion of the results; and any suitable recommendations. Reports will provide raw counts of fatalities, adjusted fatality rates, and estimates of project-wide fatalities on both a per MW and per turbine basis.</p>				
<p><b>2020 Updated PEIR Mitigation Measure BIO-11h: Compensate for the loss of avian species, including golden eagles, by contributing to conservation efforts</b></p> <p><i>Discussion</i></p> <p>Several options to compensate for impacts on avian species, including raptors as well as smaller birds, are currently available. Some are targeted to benefit certain species, but they may also have benefits for other species. For example, USFWS’s Eagle Conservation Plan (ECP) Guidelines currently outline a compensatory mitigation strategy for golden eagles using the retrofit of high-risk power poles</p>	<p>Prior to start of operation and during operation</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>(poles known or suspected to electrocute and kill eagles). The goal of this strategy is to eliminate hazards for golden eagles. However, because the poles are also dangerous for other large raptors (e.g., red-tailed hawk, Swainson’s hawk), retrofitting them can benefit such species as well as golden eagles.</p> <p>Conversely, although the retrofitting of electrical poles may have benefits for large raptors, such an approach may provide minimal benefits for smaller birds such as American kestrel or tricolored blackbird. Consequently, additional measures would be required in an overall mitigation package to compensate for impacts on avian species in general.</p> <p>The Secretary of the Interior issued Order 3330 in October 2013, outlining a “landscape-scale” approach to mitigation policies and practices of the U.S. Department of the Interior to provide for mutual benefit to multiple species when adopting strategies aimed at individual species, thereby benefitting the ecological landscape as a whole. The Order was intended for use by federal agencies, and thus the County was not required to take any particular action; however, the PEIR indicated confidence that such an approach would likely have the greatest mitigation benefits, especially when considering ongoing and long-term impacts from wind energy projects. In 2017, then Secretary of the Interior Ryan Zinke, acting on a presidential executive order, revoked Order 3330 and several other related environmental directives, primarily to ensure that federal policy did not burden the development or use of domestic oil, natural gas, coal, or nuclear energy resources. However, while the current federal administration (under Secretary of the Interior Deb Haaland) is not known to have formally reversed the 2017 revocation of Order 3330, it is expected to have effectively restored it with a shift of priorities towards protection of ecological values while also accelerating the development of renewable energy production such as from wind, solar and geothermal projects. For this reason, the County considers it to be in its interest to promote policies that benefit one species that also have high potential for benefit to additional species, or to a whole ecological system or habitat.</p> <p>With Order 3330 in mind, the PEIR outlined several options that are deemed available to compensate for impacts on avian species. The options discussed below are currently considered acceptable approaches to compensation for such impacts. Although not every option is appropriate for all species, it is hoped that as time proceeds, a more comprehensive approach to mitigation will be adopted to benefit a broader suite of species than might benefit from more species-specific measures. The County recognizes that the science of wind energy impacts on avifauna is</p>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>continuing to evolve and that the suite of available compensation options may consequently change during implementation of approved projects.</p> <p><b>Conservation Measures</b></p> <p>To promote the conservation of avian species, project proponents will compensate for avian fatalities estimated within their project areas. Mitigation will be provided in 10-year increments, with the first increment based on the estimates (fatalities/MW/year and fatalities/ha RSA/year) provided in this analysis for existing repowered projects (Table 3.4-8). Each project proponent will conduct postconstruction fatality monitoring for at least 3 years beginning at project startup (date of commercial operation) and again for 2 years at year 10, as required under Mitigation Measure BIO-11g, to estimate the average number of birds taken each year by each individual project. The project proponent will compensate for this number of birds in subsequent 10-year increments for the life of the project (i.e., three 10-year increments) as outlined below. Mitigation Measure BIO-11g also requires additional fatality monitoring at year 10 of the project. The results of the first 3 years of monitoring and/or the monitoring at year 10 may lead to revisions of the estimated average number of birds taken, and mitigation provided may be adjusted accordingly on a one-time basis within each of the first two 10-year increments, based on the results of the monitoring required by Mitigation Measure BIO-11g, in consultation with the TAC.</p> <p>Prior to the start of operations, project proponents will submit for County approval an avian conservation strategy, as part of the project-specific APP outlined in PEIR Mitigation Measure BIO 11a, outlining the estimated number of avian fatalities based on the number and type of turbines being constructed, and the type or types of compensation options to be implemented. Project proponents will use the avian conservation strategy to craft an appropriate strategy using a balanced mix of the options presented below, as well as considering new options suggested by the growing body of knowledge during the course of the project lifespan, as supported by a Resource Equivalency Analysis (REA) (see example in Appendix C4) or similar type of compensation assessment acceptable to the County that demonstrates the efficacy of proposed mitigation for impacts on avian species.</p> <p>The County Planning Director, in consultation with the TAC, will consider, based on the REA, whether the proposed avian conservation strategy is adequate, including consideration of whether each avian mitigation plan incorporates a landscape-scale approach such that the conservation efforts achieve the greatest possible benefits. Compensation measures as detailed in an approved avian conservation strategy</p>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>must be implemented within 1 year of the date of commercial operations. Avian conservation strategies will be reviewed and may be revised by the County every 10 years, and on a one-time basis in each of the two 10-year increments based on the monitoring required by 2020 Updated PEIR Mitigation Measure BIO-11g.</p>				
<ul style="list-style-type: none"> <li data-bbox="237 399 1129 1295"> <p>• <b>Retrofitting high-risk electrical infrastructure.</b> USFWS’s ECP Guidelines outline a compensatory mitigation strategy using the retrofit of high-risk power poles (poles known or suspected to electrocute and kill eagles). USFWS has developed an REA (U.S. Fish and Wildlife Service 2013) as a tool to estimate the compensatory mitigation (number of retrofits) required for the take of eagles. The REA takes into account the current understanding of eagle life history factors, the effectiveness of retrofitting poles, the expected annual take, and the timing of implementation of the pole retrofits. The project proponents may need to contract with a utility or a third-party mitigation account (such as the National Fish and Wildlife Foundation) to retrofit the number of poles needed as demonstrated by a project-specific REA. If contracting directly, the project proponent will consult with utility companies to ensure that high-risk poles have been identified for retrofitting. Proponents will agree in writing to pay the utility owner/operator to retrofit the required number of power poles and maintain the retrofits for 10 years and will provide the County with documentation of the retrofit agreement. The first retrofits will be based on the estimated number of eagle fatalities as described above in this measure or as developed in the project-specific EIR for future projects. Subsequent numbers of retrofits required for additional 10-year durations will be based on the results of project-specific fatality monitoring as outlined in PEIR Mitigation Measure BIO-11g. If fewer eagle fatalities are identified through the monitoring, the number of future required retrofits may be reduced through a project-specific REA. Although retrofitting poles has not been identified as appropriate mitigation for other large raptors, they would likely benefit from such efforts, as they (particularly red-tailed and Swainson’s hawks) constitute the largest non-eagle group to suffer electrocution on power lines (Avian Power Line Interaction Committee 2006).</p> </li> <li data-bbox="237 1308 1129 1429"> <p>• <b>Measures outlined in an approved Eagle Conservation Plan and Bird and Bat Conservation Strategy.</b> Project proponents may elect to apply for eagle incidental take permits from USFWS. The eagle incidental take permit process currently involves preparation of an ECP and a Bird and</p> </li> </ul>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>Bat Conservation Strategy (BBCS). The ECP specifies avoidance and minimization measures, advanced conservation practices, and compensatory mitigation for eagles—conditions that meet USFWS’s criteria for issuance of a permit. The BBCS outlines measures being implemented by the applicant to avoid and minimize impacts on migratory birds, including raptors. If eagle incidental take permits are obtained by project proponents, those permit terms, including the measures outlined in the approved ECP and BBCS, may constitute an appropriate conservation measure for estimated take of golden eagles and other avian species, provided such terms are deemed by the County to be comparable to or more protective of birds than the other options listed herein.</p> <ul style="list-style-type: none"> <li> <p><b>Contribute to avian conservation efforts.</b> Project proponents will contribute funds, in an amount equal to the average cost to rehabilitate one raptor at the California Raptor Center, affiliated with the UC Davis School of Veterinary Medicine—which receives more than 200 injured or ill raptors annually (Stedman pers. comm.). The funds would be paid prior to commercial operation based on the projected/anticipated, worst-case raptor fatalities indicated in Table 3.4-8a, and for this purpose defined as 95 raptors per year, in 10-year increments to local and/or regional conservation efforts designed to protect, recover, and manage lands for raptors, or to conduct research involving methods to reduce raptor fatalities or increase raptor productivity. Ten-year installments are more advantageous than more frequent installments for planning and budgeting purposes.</p> <p>The funds will be contributed to an entity or entities engaged in these activities, such as the East Bay Regional Park District and the Livermore Area Regional Park District. Conservation efforts may include constructing and installing nest boxes and perches, conducting an awareness campaign to reduce the use of rodenticide, and conducting research to benefit raptors and other birds. The specific conservation effort to be pursued will be submitted to the County for approval as part of the avian conservation strategy review process. The donation receipt will be provided to the County as evidence of payment.</p> <p>The first contributions for any given project will be based on the estimated number of avian fatalities as estimated in this EIR. Funds for subsequent 10-year installments will be provided on the basis of the average annual</p> </li> </ul>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>avian fatality rates determined through postconstruction monitoring efforts, allowing for a one-time adjustment within each 10-year increment after the results of the monitoring efforts are available. If fewer avian fatalities are detected through the monitoring effort, the second installment amount may be reduced to account for the difference between the first estimated numbers and the monitoring results. In the event of such an adjustment, and on each 10-year anniversary, projected costs shall be adjusted for inflation (from the base amount described above) according to the consumer price index (CPI) through the remainder of the 10-year term or the subsequent 10-year term. Review shall occur at the time that monitoring reports are accepted by the Planning Director showing a change in total avian fatalities for the project. All avian species listed in Table 3.4-4 shall be accounted for in estimating the payment.</p> <ul style="list-style-type: none"> <li> <b>Contribute to regional conservation of avian habitat.</b> Project proponents may address regional conservation of habitat for raptors and other birds by funding the acquisition of conservation easements within the APWRA or on lands in the same eco-region outside the APWRA, subject to County approval, for the purpose of long-term regional conservation of raptor habitat. Lands proposed for conservation must provide habitat similar to and in area proportional to habitats on lands within the project site. Project proponents will fund the regional conservation and improvement of lands (through habitat enhancement, lead abatement activities, elimination of rodenticides, and/or other measures) using a number of acres equivalent to the conservation benefit of the avian recovery and conservation efforts described above, or as determined through a project-specific REA (see example REA in PEIR Appendix C4). The conservation lands must be provided for compensation of a minimum of 10 years of avian fatalities, as 10-year increments will minimize the transaction costs associated with the identification and conservation of lands, thereby increasing overall cost effectiveness. The conservation easements will be held by an organization whose mission is to purchase and/or otherwise conserve lands, such as The Trust for Public Lands, The Nature Conservancy, California Rangeland Trust, or the East Bay Regional Parks District. The project proponents will obtain approval from the County regarding the amount of conserved lands, any enhancements proposed to increase raptor and other avian habitat value, and the entity holding the lands and/or conservation easement.                 </li> </ul>				



**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<ul style="list-style-type: none"> <li> <b>Contribute to efforts benefitting eagles and other raptors.</b> In addition to the conservation of avian habitat, the project proponent will also contribute to additional efforts for the benefit of eagles and other raptors in an amount equal to \$12,500/MW of installed capacity. The mitigation contribution is based on the per MW amount (\$10,500/MW) established under the 2010 Settlement Agreement between NextEra Energy Resources and the California Attorney General, adjusted for inflation and rounded up to the nearest \$100 increment. The funds will be used to support efforts that USFWS accepts as mitigation for an eagle take permit for the project. Such efforts may include, but are not limited to: retrofit of high-risk power poles; efforts that contribute to the regional management of eagle and raptor habitat; efforts that support the additional conservation of lands for the benefit of eagles and other raptors; and efforts that support the reduction of rodenticide use in wildlands, which can have negative effects on raptor populations.                 </li> <li> <b>Other Conservation Measures Identified in the Future.</b> As noted above, additional conservation measures for raptors and other birds may become available in the future. Conservation measures for avian species are currently being developed by USFWS and nongovernmental organizations (e.g., American Wind Wildlife Institute). Additional options for conservation could include purchasing credits at an approved mitigation bank, credits for the retirement of windfarms that are particularly dangerous to birds, the curtailment of prey elimination programs (e.g., ceasing the use of rodenticide use), and hunter-education programs that remove sources of lead from the environment. Under this option, the project proponent may make alternative proposals to the County for conservation measures—based on an REA or similar compensation assessment—that the County may accept as mitigation if they are deemed by the County to be comparable to or more protective of raptor species than the other options described herein.                 </li> </ul>				
<p><b>2020 Updated PEIR Mitigation Measure BIO-11i: Implement an avian adaptive management program</b></p> <p>If fatality monitoring described in Mitigation Measure BIO-11g results in an estimate that exceeds the preconstruction baseline fatality estimates (i.e., estimates at the non-repowered turbines as described in this PEIR) for any focal species or species group (i.e., individual focal species, all focal species, all raptors, all</p>	<p>Within 2 months following the availability of fatality monitoring</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>non-raptors, all birds combined), project proponents will prepare a project-specific adaptive management plan within 2 months following the availability of the fatality monitoring results. These plans will be used to adjust operation and mitigation to the results of monitoring, new technology, and new research to ensure that the best available science is used to minimize impacts to below baseline. Project-specific adaptive management plans will be reviewed by the TAC, revised by project proponents as necessary, and approved by the County. The TAC will take current research and the most effective impact reduction strategies into account when reviewing adaptive management plans and suggesting measures to reduce impacts. The project-specific adaptive management plans will be implemented within 2 months of approval by the County. The plans will include a stepped approach whereby an adaptive measure or measures are implemented, the results are monitored for success or failure for a year, and additional adaptive measures are added as necessary, followed by another year of monitoring, until the success criteria are achieved (i.e., estimated fatalities are below the baseline). Project proponents should use the best measures available when the plan is prepared in consideration of the specific adaptive management needs. For example, if only one threshold is exceeded, such as golden eagle fatalities, the plan and measures used will target that species. As set forth in other agreements in the APWRA, project proponents may also focus adaptive management measures on individual or multiple turbines if those turbines are shown to cause a significantly disproportionate number of fatalities.</p>	<p>results and during operation</p>			
<p>In general, the following types of measures will be considered by the TAC, in the order they are presented below; however, the TAC may recommend any of these or other measures that are shown to be successful in reducing the impact.</p>				
<p><b>ADMM-1: Visual Modifications.</b> The project proponent will paint a pattern on a proportion of the turbine blades. The proportion and the pattern of the blades to be painted will be determined by the County in consultation with the TAC. Previous laboratory work has shown that painting a turbine blade may reduce motion smear—the blurring of turbine blades due to rapid rotation that renders them less visible and hence more perilous to birds in flight (Hodos 2003). A test of blade painting, performed in Norway, suggests that the technique can reduce avian fatalities by 70% (May et al. 2020). Suggested techniques include painting blades with staggered stripes or painting one blade black. The project proponent will conduct fatality studies on a controlled number of painted and unpainted turbines. The project proponent will coordinate with the TAC to determine the location of the painted turbines, but the intent is to implement this measure in areas that</p>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>appear to be contributing most to the high number of fatalities detected.</p> <p><b>ADMM-2: Anti-Perching Measures.</b> The County will consult with the TAC regarding the use of anti-perching measures to discourage bird use of the area. The TAC will use the most recent research and information available to determine, on a case-by-case basis, if anti-perching measures will be an effective strategy to reduce impacts. If determined to be feasible, antiperching devices will be installed on artificial structures, excluding utility poles, within 1 mile of project facilities (with landowner permission) to discourage bird use of the area.</p> <p><b>ADMM-3: Prey Reduction.</b> The project proponent will implement a prey reduction program around the most hazardous turbines. Examples of prey reduction measures may include changes in grazing practices to make the area less desirable for prey species, active reduction through direct removal of prey species, or other measures provided they are consistent with management goals for threatened and endangered species.</p> <p><b>ADMM-4: Implementation of Experimental Technologies.</b> Project proponents can deploy experimental technologies at their facilities to test their efficacy in reducing turbine-related fatalities. Examples may include, but are not limited to, visual deterrents, noise deterrents, and active radar systems.</p> <p><b>ADMM-5: Turbine Curtailment.</b> If postconstruction monitoring indicates patterns of turbine-caused fatalities—such as seasonal spikes in fatalities, topographic or other environmental features associated with high numbers of fatalities, fatalities related to proximity to raptor nesting sites (nest trees, lattice towers or burrowing owl colonies), or other factors that can potentially be manipulated and that suggest that curtailment of a specific turbine’s operation would result in reducing future avian fatalities—the project operator will curtail operations of the offending turbine or turbines. Curtailment restrictions would be developed in coordination with the TAC and based on currently available fatality data, use data, and research.</p> <p><b>ADMM-6: Cut-in Speed Study.</b> Changes in cut-in speed could be conducted to see if changing cut-in speeds from 3 meters per second to 5 meters per second (for example) would significantly reduce avian fatalities. The proponent will coordinate with the TAC in determining the feasibility of the measure for the particular species affected as well as the amount of the change in the cut-in speed.</p> <p><b>ADMM-7: Real-Time Turbine Curtailment.</b> The project proponent can employ a real-time turbine curtailment program designed in consultation with the TAC. The intent would be to deploy a biologist to monitor onsite conditions and issue a curtailment order when raptors are near operating turbines. Alternatively, radar,</p>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>video, or other monitoring measures could be deployed in place of a biological monitor if there is evidence to indicate that such a system would be as effective and more efficient than use of a human monitor.</p> <p><b>ADMM-8: Condor Evaluation and Curtailment.</b> On an annual basis, the project proponent will review the known distribution of the California condor, relative to the project area, by coordinating with USFWS, CDFW, and U.S. Geological Survey regarding data tracking condor movements, and will use this data to identify all condor overflights in the project area, as well as evaluating trends in condor use of neighboring areas. The project proponent will report their findings to the County. If those data show California condors flying over the project area, the project proponent will coordinate with USFWS and CDFW regarding the risk assessment, and if necessary, measures to minimize the risk of fatalities. These measures could include the use of regional electronic monitoring to inform project operators of condors flying into the area, with responses including curtailment or implementing a visual detection system to reduce risks to condors; other effective measures may also be proposed. Measures implemented would depend on the extent of condor use in the project area and the evaluation of the risk of a condor mortality. The project proponent will inform the County of discussions with USFWS and CDFW and efforts it will undertake to reduce the risk of condor mortality, if necessary.</p>				
<p><b>PEIR Mitigation Measure BIO-12a: Conduct bat roost surveys</b></p> <p>Prior to development of any repowering project, a qualified bat biologist will conduct a roost habitat assessment to identify potential colonial roost sites of special-status and common bat species within 750 feet of the construction area. If suitable roost sites are to be removed or otherwise affected by the proposed project, the bat biologist will conduct targeted roost surveys of all identified sites that would be affected. Because bat activity is highly variable (both spatially and temporally) across the landscape and may move unpredictably among several roosts, several separate survey visits may be required. Surveys will be repeated at different times of year if deemed necessary by the bat biologist to determine the presence of seasonally active roosts (hibernacula, migratory stopovers, maternity roosts). Appropriate field methods will be employed to determine the species, type, and vulnerability of the roost to construction disturbance. Methods will follow best practices for roost surveys such that species are not disturbed, and adequate temporal and spatial coverage is provided to increase likelihood of detection.</p> <p>Roost surveys may consist of both daylight surveys for signs of bat use and evening/night visit(s) to conduct emergence surveys or evaluate the status of night</p>	<p>Prior to and during construction activities</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>roosts. Survey timing should be adequate to account for individual bats or species that might not emerge until well after dark.</p> <p>Methods and approaches for determining roost occupancy status should include a combination of the following components as the biologist deems necessary for the particular roost site.</p> <ul style="list-style-type: none"> <li>• Passive and/or active acoustic monitoring to assist with species identification.</li> <li>• Guano traps to determine activity status.</li> <li>• Night-vision equipment.</li> <li>• Passive infrared camera traps.</li> </ul> <p>At the completion of the roost surveys, a report will be prepared documenting areas surveyed, methods, results, and mapping of high-quality habitat or confirmed roost locations.</p>				
<p><b>PEIR Mitigation Measure BIO-12b: Avoid removing or disturbing bat roosts</b></p> <ul style="list-style-type: none"> <li>• Active bat roosts will not be disturbed and will be provided a minimum buffer of 500 feet where preexisting disturbance is moderate or 750 feet where preexisting disturbance is minimal. Confirmation of buffer distances and determination of the need for a biological monitor for active maternity roosts or hibernacula will be obtained in consultation with CDFW. At a minimum, when an active maternity roost or hibernaculum is present within 750 feet of a construction site, a qualified biologist will conduct an initial assessment of the roost response to construction activities and will recommend buffer expansion if there are signs of disturbance from the roost.</li> <li>• Structures (natural or artificial) showing evidence of significant bat use within the past year will be left in place as habitat wherever feasible. Should such a structure need to be removed or disturbed, CDFW will be consulted to determine appropriate buffers, timing and methods, and compensatory mitigation for the loss of the roost.</li> <li>• All project proponents will provide environmental awareness training to construction personnel, establish buffers, and initiate consultation with CDFW if needed.</li> <li>• Artificial night lighting within 500 feet of any roost will be shielded and angled such that bats may enter and exit the roost without artificial</li> </ul>	<p>During construction and operation</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>illumination and the roost does not receive artificial exposure to visual predators.</p> <ul style="list-style-type: none"> <li>• Tree and vegetation removal will be conducted outside the maternity season (April 1–September 15) to avoid disturbance of maternity groups of foliage-roosting bats.</li> <li>• If a maternity roost or hibernaculum is present within 500 feet of the construction site where preexisting disturbance is moderate or within 750 feet where preexisting disturbance is minimal, a qualified biological monitor will be onsite during groundbreaking activities.</li> </ul>				
<p><b>2020 Updated PEIR Mitigation Measure BIO-14a: Site and select turbines to minimize potential mortality of bats</b></p> <p>The project proponent will use the best information available to site turbines and to select from turbine models in such a manner as to reduce bat collision risk. The siting and selection process will take into account bat use of the area (e.g., proximity to maternity colony sites, hibernacula, and cover types that provide foraging habitat for bats). Procedures followed should be consistent with guidance provided by the California guidelines for reducing impacts on birds and bats from wind energy development (California Energy Commission and California Department of Fish and Game 2007).</p> <p>To generate site-specific “best information” to inform turbine siting and operation decisions, a bat habitat assessment and roost survey will be conducted in the project area to identify and map habitat of potential significance to bats, such as potential roost sites (trees and shrubs, significant rock formations, artificial structures) and water sources. Turbine siting decisions will incorporate relevant bat use survey data and bat fatality records published by other projects in the APWRA. Roost surveys will be carried out according to the methods described in PEIR Mitigation Measure BIO-12a.</p> <p>Consistent with past practice for previously approved repowering projects, the proponent shall submit the siting analysis for review and recommendations to the Alameda County Wind Repowering/Avian Protection Technical Advisory Committee, which includes representatives of the CDFW and the USFWS, prior to applying for any building or grading permit. The County planning director shall have the authority to approve or deny such permits on the basis of the siting analysis and the recommendations of the Technical Advisory Committee.</p>	<p>During project design and prior to construction</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p><b>2020 Updated PEIR Mitigation Measure BIO-14b: Implement postconstruction bat fatality monitoring program for all repowering projects</b></p>	<p>During operation and 3 years post-construction</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>
<p>A scientifically defensible, postconstruction bat fatality monitoring program will be implemented to estimate actual bat fatalities and determine if additional mitigation is required. Bat-specific modifications to the 3-year postconstruction monitoring program described in PEIR Mitigation Measure BIO-11g, developed in accordance with California Energy Commission and California Department of Fish and Game (2007) will be implemented.</p>				
<p>In addition to the requirements outlined in 2020 Updated PEIR Mitigation Measure BIO-11g, the following three bat-specific requirements will be added.</p>				
<ul style="list-style-type: none"> <li>• Include on the TAC at least one biologist with significant expertise in bat research and wind energy impacts on bats.</li> <li>• Perform postconstruction bat fatality monitoring using trained dogs with handlers. In order to optimize monitoring success, these efforts should also include searching to a maximum radius around wind turbines that includes all deposited carcasses, searching along transects spaced closely together, and searching frequently. Recognizing that most bat fatalities in the APWRA are recorded from September through November, it is appropriate to concentrate search efforts during that period, while still maintaining some level of search effort throughout the year.</li> <li>• Conduct bat acoustic surveys concurrently with fatality monitoring at the project site to estimate nightly, seasonal, or annual variations in relative activity and species use patterns, and to contribute to the body of knowledge on seasonal bat movements and relationships between acoustic bat activity and turbine fatality. Should emerging research support the approach, these data may be used to generate site-specific predictive models to increase the precision and effectiveness of mitigation measures (e.g., the season specific, multivariate models described by Weller and Baldwin 2011:11). Acoustic bat surveys will be designed, and data analysis conducted by qualified biologists with significant experience in acoustic bat survey techniques. Methods will be informed by the latest available guidelines (California Energy Commission and California Department of Fish and Game 2007), except where best available science supports technological or methodological updates. High-quality, sensitive acoustic equipment will be used to produce data of sufficient quality to generate species identifications. Survey design and methods will be scientifically</li> </ul>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>defensible and will include, at a minimum, the following elements:</p> <ul style="list-style-type: none"> <li>○ Acoustic detectors will be installed at multiple stations to adequately sample range of habitats at the project site for both resident and migratory bats. The number of detector arrays installed per project site will incorporate emerging research on the density of detectors required to adequately meet sampling goals and inform mitigation approaches (Weller and Baldwin 2011:10).</li> <li>○ Acoustic detector arrays will sample multiple airspace heights including as close to the repowered rotor swept area as possible. Vertical structures used for mounting may be preexisting or may be installed for the project (e.g., temporary or permanent meteorological towers).</li> <li>○ Surveys will be conducted such that data are collected continuously from early July to early November to cover the activity transition from maternity to migration season and determine if there is elevated activity during migration. Survey season may be adjusted to more accurately reflect the full extent of the local migration season and/or season(s) of greatest local bat fatality risk, if scientifically sound data support doing so.</li> <li>○ Anticipated adaptive management goals, such as determining justifiable timeframes to reduce required periods of cut-in speed adjustments, will be reviewed with the TAC and incorporated in designing the acoustic monitoring and data analysis program.</li> </ul>				
<p>Modifications to the fatality search protocol will be implemented to obtain better information on the number and timing of bat fatalities (e.g., Johnston et al. 2013:85). Modifications will include decreases in the transect width and search interval for a period of time coinciding with high levels of bat mortality, i.e., the fall migration season (roughly August to early November, or as appropriate in the view of the TAC). The nature of bat-specific transect distance and search intervals will be determined in consultation with the TAC and will be guided by scientifically sound and pertinent data on rates of bat carcass detection at wind energy facilities (e.g., Johnston et al. 2013:54–55) and site-specific data from APWRA repowering project fatality monitoring programs as these data become available.</p>				
<p>Other methods to achieve the goals of the bat fatality monitoring program while avoiding prohibitive costs may be considered subject to approval by the TAC, if these methods have been peer reviewed and evidence indicates the methods are</p>				



**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>effective. For example, if project proponents wish to have the option of altering search methodology to a newly developed method, such as searching only roads and pads, a statistically robust field study to index the results of the methodology against standard search methods will be conducted concurrently to ensure site-specific, long-term validity of the new methods.</p> <p>Finally, detection probability trials will utilize bat carcasses to develop bat-specific detection probabilities. Care should be taken to avoid introducing novel disease reservoirs; such avoidance will entail using onsite fatalities or using carcasses obtained from within a reasonably anticipated flight distance for that species.</p>				
<p><b>PEIR Mitigation Measure BIO-14c: Prepare and publish annual monitoring reports on the findings of bat use of the project area and fatality monitoring results</b></p> <p>Annual reports of bat use results and fatality monitoring will be produced within 3 months of the end of the last day of fatality monitoring. Special-status bat species records will be reported to CNDDB.</p>	<p>Within 3 months of the end of the last day of fatality monitoring</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>
<p><b>2020 Updated PEIR Mitigation Measure BIO-14d: Develop and implement a bat adaptive management plan</b></p> <p>In concert with 2020 Updated PEIR Mitigation Measure BIO-14b, the project proponent will develop adaptive management plans to ensure appropriate, feasible, and current incorporation of emerging information. The goals of the adaptive management plans are to ensure that the best available science and emerging technologies are used to assess impacts on bats, and that impacts are minimized to the greatest extent possible while maximizing energy production.</p> <p>The project-specific adaptive management plans will be used to adjust operation and mitigation to incorporate the results of project area monitoring and new technology and research results when sufficient evidence exists to support these new approaches. These plans will be reviewed by the TAC and approved by the County. All adaptive management measures (ADMMs) will be implemented within a reasonable timeframe. Based on fatality rates recorded at Golden Hills and Golden Hills North, it is reasonably certain that the threshold fatality rate identified in the PEIR of 3.207 bats/MW/year will be exceeded at the proposed project<sup>1</sup>. For this reason, ADMM-7 will be implemented at the commencement of project operations. If ADMM-7 is not successful in reducing bat fatalities to below threshold levels, ADMM-8 or ADMM-9 will be implemented within a timeframe sufficient to allow the measures to take effect in the first fall migration season following the year of</p>	<p>Prior to and during construction</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>monitoring in which the adaptive management threshold was crossed. The ADMMs may be modified by the County in consultation with the TAC to take into account current research, site-specific data, and the most effective impact reduction strategies. ADMMs will include a scientifically defensible, controlled research component and minimum post-implementation monitoring time to evaluate the effectiveness and validity of the measures.</p> <p>The TAC may also direct implementation of adaptive management measures for other appropriate reasons, such as an unexpectedly and markedly high fatality rate observed for any bat species, or special-status species being killed in unexpectedly high numbers.</p> <p>ADMMs for bats may be implemented using a stepped approach until necessary fatality reductions are reached, and monitoring methods must be revised as needed to ensure accurate measurement of the effectiveness of the ADMMs. Additional ADMMs for bats should be developed as new technologies or science supports doing so.</p> <p><b>ADMM-7: Seasonal Turbine Cut-in Speed Increase.</b> Cut-in speed increases offer the most promising and immediately available approach to reducing bat fatalities at fourth-generation wind turbines. Reductions in fatalities of as much as 93% have been observed when increasing modern turbine cut-in speeds (Good et al. 2012:iii). A recent study in the APWRA documented significant reductions in fatalities using curtailment during the peak migration period (Smallwood and Bell 2019). Work at a site in Wisconsin has shown that a site-specific, real-time curtailment algorithm using wind speed and bat activity information (referred to as “smart-curtailment”) can yield 74-92% fatality reductions at a 3.2% cost in revenue from the turbines (Hayes et al. 2019). Other curtailment studies, also performed in sites outside the APWRA, have shown comparable effectiveness (e.g. Hein et al. 2014). The optimal cut-in speed increase is not yet well developed, and may vary between sites or regions, however most current research points to significant benefits using a cut in speed change of at least 5.0 m/s, with greater cut-in speed increases yielding improved benefit (Hayes et al. 2019).</p> <p>Cut-in speed increases will be implemented as outlined below, with effectiveness assessed annually.</p> <ul style="list-style-type: none"> <li>Beginning with initial project operations, the project proponent will observe a cut-in speed of 5.0 m/s from sunset to sunrise from August 1</li> </ul>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>through October 31, which corresponds to the peak bat migration season in the APWRA. This measure shall apply for the first three full years of project operations.</p> <ul style="list-style-type: none"> <li>• If, after the first three full years of project operations, fatalities are still exceeding established thresholds, the project proponent will:               <ul style="list-style-type: none"> <li>○ increase the cut in speed in 0.5 m/s increments (up to a maximum of a 6.0 m/s cut in speed change), or</li> <li>○ implement an additional 1-month spring cut in speed change to 5.0 m/s (with the timing to be determined based on the results of the initial 3 years of fatality monitoring), or</li> <li>○ a combination of cut in speed increases and the spring cut in speed change.</li> </ul> </li> <li>• At any time following the end of the first three full years of project operations, the project proponent may request modifications to the initial operational requirements, including a changed cut-in speed or a change in the dates of curtailment, or to implement a smart-curtailment operations regime. The project proponent must present evidence in support of such changes, including evidence from fatality monitoring during the first three years of project monitoring, acoustic survey or other evidence documenting bat activity during the migration season, and such other evidence as the project proponent deems relevant. Should resource agencies and the TAC find there is sufficient evidence to authorize the proposed changes, the supporting evidence will be documented for the public record and the revised operational requirements may be implemented.</li> <li>• When the project proponent requests a modification of operational requirements, the TAC shall also consider whether evidence from the APWRA or other sites supports the institution of additional requirements to further minimize bat fatalities. Such requirements may include further cut-in speed increases or changes to the timing or duration of curtailment.</li> <li>• The project proponent may request exceptions to cut-in speed increases for particular weather events or wind patterns if substantial evidence is available from onsite acoustic or other monitoring to support such exceptions (i.e., all available literature and onsite surveys indicate that bat activity ceases during specific weather events or other predictable</li> </ul>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
conditions).				
<p><b>ADMM-8: Acoustic Deterrents.</b> The project proponent shall present to the TAC a proposal for the evaluation of acoustic deterrents to reduce bat fatalities. Any such proposal shall incorporate a paired study in which at least 12 operational turbines are subject to monitoring under 2020 Updated PEIR Mitigation Measure BIO-14b, with half of the turbines carrying acoustic deterrents and half reserved as a control group. The study shall at a minimum include one spring and one fall migration season. The acoustic deterrents shall be of a design similar to those described by Weaver et al. (2020), who demonstrated bat fatality rate reductions of up to 78% for hoary bat, which is the second-most-commonly killed bat documented in surveys at the APWRA. Based on the results of this study the TAC may call for permanent implementation of acoustic deterrents on all project turbines.</p>				
<p><b>ADMM-9: Emerging Technology as Mitigation.</b> The project proponent may request, with consultation and approval from agencies, replacement or augmentation of cut-in speed increases with developing technology or another mitigation approach that has been proven to achieve similar bat fatality reductions. The project proponent may also request the second tier of adaptive management to be the adoption of a promising but not fully proven technology or mitigation method. These requests are subject to review and approval by the TAC and must include a controlled research component designed by a qualified principal investigator so that the effectiveness of the method may be accurately assessed.</p>				
<p>Some examples of such emerging technologies and research areas that could be incorporated in adaptive management plans are listed below.</p>				
<ul style="list-style-type: none"> <li>• The use of altitude-specific radar, night vision and/or other technology allowing bat use monitoring and assessment of at-risk bat behavior (Johnston et al. 2013: 90-91) if research in these areas advances sufficiently to allow effective application of these technologies.</li> </ul>				
<p>Application of emerging peer-reviewed studies on bat biology (such as studies documenting migratory corridors or bat behavior in relation to turbines) that support specific mitigation methods.</p>				
<p><sup>1</sup> The PEIR identified predicted total fatality rates of 1.679 fatalities/MW/year from the Vasco Winds repowering project. That fatality rate has been revised upwards to 3.207 fatalities/MW/year, taking into account the correction noted on</p>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
page 3.4-69 of this Final SEIR.				
<p><b>PEIR Mitigation Measure BIO-14e: Compensate for expenses incurred by rehabilitating injured bats</b></p> <p>The cost of reasonable, licensed rehabilitation efforts for any injured bats taken to wildlife care facilities from the program area will be assumed in full by project proponents.</p>	During operation	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<p><b>PEIR Mitigation Measure BIO-16: Compensate for the loss of riparian habitat</b></p> <p>If riparian habitat is filled or removed as part of a project, the project proponent will compensate for the loss of riparian habitat to ensure no net loss of habitat functions and values. Compensation ratios will be based on site-specific information and determined through coordination with state and federal agencies (CDFW, USFWS, USACE). The compensation will be at a minimum 1:1 ratio (1 acre restored or created for every 1 acre filled) and may be a combination of onsite restoration/creation, offsite restoration, and mitigation credits. A restoration and monitoring plan will be developed and implemented. The plan will describe how riparian habitat will be created and monitored.</p>	Prior to disturbance; compensation paid according to permit terms	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<p><b>2020 Updated PEIR Mitigation Measure BIO-18: Compensate for the loss of wetlands and streams</b></p> <p>If wetlands or streams are filled or disturbed as part of a project, the project proponent will compensate for the loss to ensure no net loss of habitat functions and values. Compensation ratios will be based on site-specific information and determined through coordination with state and federal agencies (CDFW, USFWS, USACE, Regional Water Board). The compensation will be at a minimum 1:1 ratio (1 acre restored or created for every 1 acre filled) and may be a combination of onsite restoration/creation, offsite restoration, and mitigation credits. A restoration and monitoring plan will be developed and implemented. The plan will describe how wetlands and streams will be created and monitored.</p>	Prior to disturbance; compensation paid according to permit terms	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<p><b>2020 New Mitigation Measure BIO-22a: Conduct a preconstruction habitat assessment and focused surveys for western bumble bee</b></p> <p>Prior to the start of construction, qualified biologist(s) will conduct botanical surveys in late spring/early summer to identify and map concentrations of flowering plants that provide food resources for western bumble bee. The areas containing higher densities and varieties of flowering plants will be evaluated by a qualified invertebrate biologist to determine if these areas provide suitable foraging habitat for western bumble bee. The habitat evaluation surveys would</p>	Prior to and during construction activities	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>follow recommendations in the Rusty Patched Bumble Bee Habitat Assessment Form and Guide (Xerces Society for Invertebrate Conservation 2017).</p> <p>If moderate to high quality foraging habitat for western bumble bee is identified in the project area based on the habitat assessment, these areas will be surveyed by qualified invertebrate biologist(s) (with experience conducting bumble bee surveys) within 1 year prior to the start of construction. Surveys would be conducted according to the methods in Thorp et al. (1983) or according to any future survey methodology specifically for western bumble bee proposed or approved by CDFW. The methods in Thorp et al. (1983) recommend surveys be conducted during four evenly spaced sampling periods during the flight season (March through September) (Thorp et al. 1983). For each sampling event, the biologist(s) would survey suitable habitat using nonlethal netting methods for 1 person-hour per 3 acres of the highest quality habitat or until 150 bumble bees are sighted, whichever comes first. If initial sampling of a given habitat area indicates that the habitat is of low quality or nonexistent, no further sampling of that area would be required. General guidelines and best practices for bumble bee surveys would follow USFWS’ Survey Protocols for the Rusty Patched Bumble Bee (<i>Bombus affinis</i>) (U.S. Fish and Wildlife Service 2019b), which are consistent with other bumble bee survey protocols used by The Xerces Society (Hatfield et al. 2017; Washington Department of Fish and Wildlife et al. 2019).</p> <p>If western bumble bee is determined not to be present at the project site or a qualified invertebrate biologist (experienced with bumble bees) concludes that there is a very low likelihood that the species is present, then no additional mitigation is required. If western bumble bees are determined to be present at the project site, then the project proponent will implement 2020 New Mitigation Measure BIO-22b.</p>				
<p><b>2020 New Mitigation Measure BIO-22b: Implement protection measures to avoid and minimize effects on western bumble bee</b></p> <p>If it is determined through preconstruction surveys conducted pursuant to 2020 New Mitigation Measure BIO-22a that western bumble bees are present at the project site, the following measures will be implemented to ensure that the proposed project does not have a significant impact on western bumble bee. Implementation of some of these measures may require that the project proponent obtain incidental take permit from CDFW if western bumble bee remains a candidate or is formally listed under CESA before construction begins. Additional conservation measures or conditions of approval may be required in applicable</p>	<p>Prior to and during construction and operation</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>project permits (e.g., CESA incidental take permit).</p> <ul style="list-style-type: none"> <li>• If bumble bee surveys identify occupied western bumble bee habitat within the project area, the project biologist would then conduct additional preconstruction surveys within the project disturbance footprint for active bee nest colonies and associated floral resources (i.e., flowering vegetation on which bees from the colony are observed foraging) no more than 30 days prior to any ground disturbance between March and September. The purpose of this preconstruction survey would be to identify active nest colonies and associated floral resources outside of permanent impact areas that could be avoided by construction personnel. The project biologist would establish, monitor, and maintain no-work buffers around nest colonies and floral resources identified during surveys. The size and configuration of the no-work buffer would be based on best professional judgment of the project biologist in coordination with the County. At a minimum, the buffer would provide at least 20 feet of clearance around nest entrances. Construction activities would not occur within the no-work buffers until the colony is no longer active (i.e., no bees are seen flying in or out of the nest for three consecutive days indicating the colony has completed its nesting season and the next season’s queens have dispersed from the colony). Monitoring of an active nest could be conducted using a motion-detecting wildlife trail camera.</li> <li>• To minimize temporary disturbance of suitable foraging and nesting habitat for western bumble bee, ground disturbance within suitable annual grassland habitat will be restricted to the minimum area necessary to perform construction activities.</li> <li>• To encourage growth of additional nectar and pollen producing plants at the project site, disturbed grasslands that are revegetated in accordance with PEIR Mitigation Measure BIO-5c will use a seed mix combination that includes nectar and pollen producing plants commonly used as a food source by western bumble bee. Plants of the following genus are appropriate: <i>Cirsium</i> sp., <i>Erigeron</i> sp., <i>Solidago</i> sp., <i>Aster</i> sp., <i>Centaurea</i> sp., and <i>Penstemon</i> sp. These annual plants would be incorporated into the seed mix, as applicable for the existing habitat conditions.</li> <li>• To minimize impacts on bees from herbicide drift, herbicide application around tower foundations will be performed using handheld equipment and will be restricted to a 20-foot radius buffer area around the tower</li> </ul>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
foundations. The contractor will use an herbicide that has been shown to be less toxic to amphibians and invertebrates, such as 2, 4 D. Herbicides containing the surfactant POEA (polyoxyethylene tallow amine) will not be used at the project site. The most current information on herbicide toxicity on wildlife will be used to inform future decisions about herbicide use during operations.				
<b>Cultural Resources</b>				
<p><b>PEIR Mitigation Measure CUL-2c: Conduct worker awareness training for archaeological resources prior to construction</b></p> <p>Prior to the initiation of any site preparation and/or the start of construction, the project applicant will ensure that all construction workers receive training overseen by a qualified professional archaeologist who is experienced in teaching nonspecialists, to ensure that forepersons and field supervisors can recognize archaeological resources (e.g., areas of shellfish remains, chipped stone or groundstone, historic debris, building foundations, human bone) in the event that any are discovered during construction.</p>	Prior to construction	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<p><b>PEIR Mitigation Measure CUL-2d: Stop work if cultural resources are encountered during ground-disturbing activities</b></p> <p>The project applicant will ensure that construction specifications include a stop-work order if prehistoric or historic-era cultural resources are unearthed during ground-disturbing activities. If such resources are encountered, the project applicant will immediately halt all activity within 100 feet of the find until a qualified archaeologist can assess the significance of the find. Prehistoric materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or tool-making debris; culturally darkened soil (“midden”) containing heat-affected rocks and artifacts; stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered-stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. If the find is determined to be potentially significant, the archaeologist, in consultation with the Native American representative (if appropriate), will develop a treatment plan that could include site avoidance, capping, or data recovery.</p>	During construction ground-disturbing activities	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval



**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p><b>PEIR Mitigation Measure CUL-3: Stop work if human remains are encountered during ground-disturbing activities</b></p> <p>The project applicant will ensure the construction specifications include a stop-work order if human remains are discovered during construction or demolition. There will be no further excavation or disturbance of the site within a 100-foot radius of the location of such discovery, or any nearby area reasonably suspected to overlie adjacent remains. The Alameda County Coroner will be notified and will make a determination as to whether the remains are Native American. If the Coroner determines that the remains are not subject to the coroner’s authority, the coroner will notify the Native American Heritage Commission, who will attempt to identify descendants of the deceased Native American. If no satisfactory agreement can be reached as to the disposition of the remains pursuant to this state law, then the landowner will re-inter the human remains and items associated with Native American burials on the property in a location not subject to further subsurface disturbance. A final report will be submitted to Alameda County. This report will contain a description of the mitigation program and its results, including a description of the monitoring and testing resources analysis methodology and conclusions and a description of the disposition/curation of the resources.</p>	During construction ground-disturbing activities	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<b>Geology, Soils, Mineral Resources, and Paleontological Resources</b>				
<p><b>PEIR Mitigation Measure GEO-1: Conduct site-specific geotechnical investigation and implement design recommendations in subsequent geotechnical report</b></p> <p>Prior to construction activities at any site, the project proponent will retain a geotechnical firm with local expertise in geotechnical investigation to prepare a site-specific geotechnical report. This report will be prepared by a licensed geotechnical engineer or engineering geologist and will be submitted to the County building department as part of the approval process. This report will be based on data collected from subsurface exploration, laboratory testing of samples, and surface mapping and will address the following issues.</p> <ul style="list-style-type: none"> <li>• Potential for surface fault rupture and turbine site location: The geotechnical report will investigate the Greenville, Corral Hollow-Carnegie, and the Midway faults (as appropriate to the location) and determine whether they pose a risk of surface rupture. Turbine foundations and power collection systems will be sited according to recommendations in this report.</li> </ul>	Prior to construction	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<ul style="list-style-type: none"> <li>Strong ground shaking: The geotechnical report will analyze the potential for strong ground shaking at the project site and provide turbine foundation design recommendations, as well as recommendations for power collection systems.</li> <li>Slope failure: The geotechnical report will investigate the potential for slope failure (both seismically and nonseismically induced) and develop site-specific turbine foundation and power collection system plans engineered for the terrain, rock and soil types, and other conditions present at the project site in order to provide long-term stability.</li> <li>Expansive soils: The geotechnical report will assess the soil types at the project site and determine the best engineering designs to accommodate the soil conditions.</li> <li>Unstable cut or fill slopes: The geotechnical report will address geologic hazards related to the potential for grading to create unstable cut or fill slopes and make site-specific recommendations related to design and engineering.</li> </ul>				
<p><b>PEIR Mitigation Measure GEO-7a: Retain a qualified professional paleontologist to monitor significant ground-disturbing activities</b></p> <p>The applicant will retain a qualified professional paleontologist as defined by the SVP's <i>Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources</i> (2010) to monitor activities with the potential to disturb sensitive paleontological resources. Data gathered during detailed Project design will be used to determine the activities that will require the presence of a monitor. In general, these activities include any ground-disturbing activities involving excavation deeper than 3 feet in areas with high potential to contain sensitive paleontological resources. Recovered fossils will be prepared so that they can be properly documented. Recovered fossils will then be curated at a facility that will properly house and label them, maintain the association between the fossils and field data about the fossils' provenance, and make the information available to the scientific community.</p>	<p>During project design and construction</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p><b>PEIR Mitigation Measure GEO-7b: Educate construction personnel in recognizing fossil material</b></p> <p>The applicant will ensure that all construction personnel receive training provided by a qualified professional paleontologist experienced in teaching non-specialists to ensure that they can recognize fossil materials in the event any are discovered during construction.</p>	Prior to construction activities	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<p><b>PEIR Mitigation Measure GEO-7c: Stop work if substantial fossil remains are encountered during construction</b></p> <p>If substantial fossil remains (particularly vertebrate remains) are discovered during earth disturbing activities, activities within 100 feet of the find will stop immediately until a state-registered professional geologist or qualified professional paleontologist can assess the nature and importance of the find and a qualified professional paleontologist can recommend appropriate treatment. Treatment may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection and may also include preparation of a report for publication describing the finds. The applicant will be responsible for ensuring that recommendations regarding treatment and reporting are implemented.</p>	During construction activities	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<b>Greenhouse Gas Emissions</b>				
<p><b>PEIR Mitigation Measure GHG-2a: Implement best available control technology for heavy-duty vehicles</b></p> <p>The applicant will require existing trucks/trailers to be retrofitted with the best available technology and/or CARB-approved technology consistent with the CARB Truck and Bus Regulation (California Air Resources Board 2019). The CARB Truck and Bus Regulation applies to all diesel-fueled trucks and buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds.</p> <p>Starting January 1, 2015, the applicant must replace lighter trucks (GVWR of 14,001 to 26,000 pounds) with engines that are 20 years or older with newer trucks. The Applicant has the option to install a PM filter retrofit on a lighter truck by 2014 to make the truck exempt from replacement until January 1, 2020, and any lighter truck equipped with a PM filter retrofit prior to July 2011 would receive credit toward the compliance requirements for a heavier truck or bus in the same fleet.</p> <p>Starting January 1, 2012, the applicant is required to meet the engine model year schedule shown below for heavier trucks (GVWR greater than 26,000 pounds). To</p>	During construction and during operation if applicable	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>comply with the schedule, the applicant will install the best available PM filter on 1996 model year and newer engines and would replace the vehicle 8 years later. The Applicant will replace trucks with 1995 model year and older engines starting in 2015. Replacements with 2010 model year or newer engines meets the final requirements, but the applicant could also replace trucks with used trucks that would have a future compliance date on the schedule. For example, a replacement with a 2007 model year engine complies until 2023. By 2023 all trucks and buses must have 2010 model year engines with few exceptions.</p>				

<b>Engine Model Year Schedule for Heavier Trucks</b>	
<b>Engine Year</b>	<b>Requirement from January 1</b>
Pre-1994	No requirements until 2015, then 2010 engine
1994-1995	No requirements until 2016, then 2010 engine
1996-1999	PM filter from 2012 to 2020, then 2010 engine
2000-2004	PM filter from 2013 to 2021, then 2010 engine
2005-2006	PM filter from 2014 to 2022, then 2010 engine
2007-2009	No requirements until 2023, then 2010 engine
2010	Meets final requirements

In addition, the applicant could comply with a phase-in option that would allow the applicant to decide which vehicles to retrofit or replace, regardless of engine model year. The applicant must report information about all heavier trucks starting January 31, 2012, to use this option.

The Applicant could comply by demonstrating that trucks have met the percentage requirement each year as shown in the table below. For example, by 2012 the applicant’s fleet would need to have PM filters on 30% of the heavier trucks in the fleet. This option counts 2007 model year and newer engines originally equipped with PM filters toward compliance and would reduce the overall number of retrofit PM filters needed. Any engine with a PM filter regardless of model year would be compliant until at least 2020. Beginning January 1, 2020, all heavier trucks would need to meet the requirements specified in the Compliance Schedule for Heavier Trucks.

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<b>Phase-In Option for Heavier Trucks</b>				
Compliance Date	Vehicles with PM Filters			
1-Jan-12	30%			
1-Jan-13	60%			
1-Jan-14	90%			
1-Jan-15	90%			
1-Jan-16	100%			
<p><b>PEIR Mitigation Measure GHG-2b: Install low SF<sub>6</sub> leak rate circuit breakers and monitoring</b></p> <p>The applicant will ensure that any new circuit breaker installed at a substation has a guaranteed SF<sub>6</sub> leak rate of 0.5% by volume or less. The applicant will provide Alameda County with documentation of compliance, such as specification sheets, prior to installation of the circuit breaker. In addition, the applicant will monitor the SF<sub>6</sub>-containing circuit breakers at the substation consistent with Scoping Plan Measure H-6 for the detection and repair of leaks.</p>	During construction and operation	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<p><b>PEIR Mitigation Measure GHG-2c: Require new construction to use building materials containing recycled content</b></p> <p>The applicant will require the construction of all new substation and other permanent buildings to incorporate materials for which the sum of post-consumer recycled content plus one-half of the post-industrial content constitutes at least 10% of the total value of the materials in the Project.</p>	During construction and operation	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<p><b>PEIR Mitigation Measure GHG-2d: Comply with construction and demolition debris management ordinance</b></p> <p>The applicant will comply with the County’s revised Green Building Ordinance regarding construction and demolition debris as follows: (1) 100% of inert waste and 50% wood/vegetative/scrap metal not including Alternative Daily Cover (ADC) and unsalvageable material will be put to other beneficial uses at landfills, and (2) 100% of inert materials (concrete and asphalt) will be recycled or put to beneficial reuse.</p>	During construction and demolition	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<b>Hazards and Hazardous Materials</b>				
<p><b>PEIR Mitigation Measure HAZ-4: Perform a Phase I Environmental Site Assessment prior to construction activities and remediate if necessary (only including the portion of the mitigation measure relevant to the proposed project)</b></p> <p>If contamination is uncovered as part of Phase I or II environmental site assessments, remediation will be required. If materials such as asbestos-containing materials, lead-based paint, or PCB-containing equipment are identified, these materials will be properly managed and disposed of prior to or during the demolition process.</p> <p>Any contaminated soil identified on a project site must be properly disposed of in accordance with DTSC regulations in effect at the time. Hazardous wastes generated by the proposed project will be managed in accordance with the California Hazardous Waste Control Law (HSC, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulation (Title 22, CCR, Division 4.5).</p> <p>If, during construction/demolition of structures, soil or groundwater contamination is suspected, the construction/demolition activities will cease and appropriate health and safety procedures will be implemented, including the use of appropriate personal protective equipment (e.g., respiratory protection, protective clothing, helmets, goggles).</p>	Prior to and during construction	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval
<b>Hydrology and Water Quality</b>				
<p><b>PEIR Mitigation Measure WQ-1: Comply with NPDES requirements</b></p> <p>Project contractors will obtain coverage under the Construction General Permit before the onset of any construction activities, because the Project would disturb 1 acre or more. A SWPPP will be developed by a qualified engineer or erosion control specialist in accordance with the appropriate Water Board's requirements for NPDES compliance and implemented prior to the issuance of any grading permit. The SWPPP will be kept onsite during construction activities and will be made available upon request to representatives of the Regional Water Boards.</p> <p>Compliance and coverage with the local stormwater management programs and Construction General Permit will require controls of pollutant discharges that utilize BMPs and technology to reduce erosion and sediments to meet water quality</p>	Prior to and during all construction activities	County—adopt a Condition of Approval; Operator—implement	County	Monitor compliance with Conditions of Approval

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>standards. BMPs may consist of a wide variety of measures taken to reduce pollutants in stormwater and other nonpoint-source runoff. Measures range from source control, such as reduced surface disturbance, to the treatment of polluted runoff, such as detention basins.</p> <p>BMPs to be implemented as part of the Storm Water Management Program and Construction General Permit (and SWPPP) may include the following practices.</p> <ul style="list-style-type: none"> <li>• Temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed to control erosion from disturbed areas.</li> <li>• Use a dry detention basin (which is typically dry except after a major rainstorm, when it will temporarily fill with stormwater), designed to decrease runoff during storm events, prevent flooding, and allow for off-peak discharge. Basin features will include maintenance schedules for the periodic removal of sediments, excessive vegetation, and debris that may clog basin inlets and outlets.</li> <li>• Cover or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more) that could contribute sediment to waterways.</li> <li>• Enclose and cover exposed stockpiles of dirt or other loose, granular construction materials that could contribute sediment to waterways.</li> <li>• Ensure that no earth or organic material will be deposited or placed where it may be directly carried into a stream, marsh, slough, lagoon, or body of standing water.</li> <li>• Prohibit the following types of materials from being rinsed or washed into the streets, shoulder areas, or gutters: concrete, solvents and adhesives, thinners, paints, fuels, sawdust, dirt, gasoline, asphalt and concrete saw slurry, and heavily chlorinated water.</li> <li>• Ensure that grass or other vegetative cover will be established on the construction site as soon as possible after disturbance.</li> </ul> <p>The contractor will select a combination of BMPs (consistent with the Construction General Permit) that is expected to minimize runoff and remove contaminants from stormwater discharges. The final selection of BMPs will be subject to approval by the San Francisco Bay Regional Water Board and the Central Valley Water Board.</p>				

**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<p>The contractor will verify that a notice of intent has been filed with the State Water Board and that a SWPPP has been developed before allowing construction to begin. The contractor will perform inspections of the construction area, to verify that the BMPs specified in the SWPPP are properly implemented and maintained. The contractor will notify the appropriate Regional Water Board immediately if there is a noncompliance issue and will require compliance. If necessary, the contractor or their agent will require that additional BMPs be designed and implemented if those originally constructed do not achieve the identified performance standard.</p>				
<b>Transportation/Traffic</b>				
<p><b>PEIR Mitigation Measure TRA-1: Develop and implement a construction traffic control plan</b></p> <p>Prior to starting construction-related activities, the Applicant shall prepare and implement a Traffic Control Plan (TCP) that will reduce or eliminate impacts associated with the proposed project. The TCP shall adhere to Alameda County, San Joaquin County, and Caltrans requirements, and must be submitted for review and approval of the County Public Works Department prior to implementation. The TCP shall include the following elements. The County and Caltrans may require additional elements to be identified during their review and approval of the TCP.</p> <ul style="list-style-type: none"> <li>• Schedule construction hours to minimize concentrations of construction workers commuting to/from the project site during typical peak commute hours (7 a.m. to 9 a.m. and 4 p.m. to 6 p.m.).</li> <li>• Limit truck access to the project site during typical peak commute hours (7 a.m. to 9 a.m. and 4 p.m. to 6 p.m.).</li> <li>• Require that written notification be provided to contractors regarding appropriate haul routes to and from the project site, as well as the weight and speed limits on local county roads used to access the project site.</li> <li>• Provide access for emergency vehicles to and through the project site at all times.</li> <li>• When lane/road closures occur during delivery of oversized loads, provide advance notice to local fire, police, and emergency service providers to ensure that alternative evacuation and emergency routes are designated to maintain service response times.</li> <li>• Provide adequate onsite parking for construction trucks and worker vehicles.</li> </ul>	<p>Prior to and during all construction activities</p>	<p>County—adopt a Condition of Approval; Operator—implement</p>	<p>County</p>	<p>Monitor compliance with Conditions of Approval</p>



**Table MMRP-1. Continued**

Mitigation Measure	Timing	Implementing Party	Monitoring Party	Monitoring Actions
<ul style="list-style-type: none"> <li>• Require suitable public safety measures in the project site and at the entrance roads, including fences, barriers, lights, flagging, guards, and signs, to give adequate warning to the public of the construction and of any dangerous conditions that could be encountered as a result thereof.</li> <li>• Complete road repairs on local public roads as needed during construction to prevent excessive deterioration. This work may include construction of temporary roadway shoulders to support any necessary detour lanes.</li> <li>• Repair or restore the road right-of-way to its original condition or better upon completion of the work.</li> <li>• Coordinate project-related construction activities, including schedule, truck traffic, haul routes, and the delivery of oversized or overweight materials, with Alameda County, Caltrans, and affected cities and counties to identify and minimize overlap with other area construction projects.</li> </ul>				