

	Mitigation Measure	Implementation Schedule	Responsible Party	Status / Date / Initials
1	<p>Native trees, such as Fremont cottonwood <i>Populus fremontii</i>, oak <i>Quercus</i> spp., and willow <i>Salix</i> spp. with a diameter-at-breast-height (DBH) of 6 in (15.2 cm) or greater will be protected with 30-ft (9.1-m), 10-ft (3-m), and 10-ft (3-m) buffers, respectively. Native trees will be marked with flagging and fenced if close to project work area to prevent disturbance. To compensate for the removal of riparian shrubs and trees during project implementation, the plans would identify tree and shrub species that would be planted, how, where, and when they would be planted, and measures to be taken to ensure a minimum performance criteria of 70% survival of planted trees for a period of three consecutive years. Irrigation will not be used, but the return of inundation to the floodplain is expected to promote growth of native riparian species. If the 70% survival criteria are not met, more native trees will be planted and irrigation will be evaluated. The tree plantings would be based on native tree species compensated for in the following manner:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Oaks having a DBH of 3 – 5 in (7.6 – 12.7 cm) would be replaced in-kind, at a ratio of 3:1, and planted during the winter dormancy period in the nearest suitable location to the area where they were removed. Oaks with a DBH of greater than five inches would be replaced in-kind at a ratio of 5:1. <input type="checkbox"/> Riparian trees (i.e., willow, cottonwood, poplar, alder, ash, etc.) and shrubs would be replaced in-kind and on site, at a ratio of 3:1, and planted in the nearest suitable location to the area where they were removed. 	Entire Project	Permittee	
2	<p>Following methods in the Stillwater Sciences (2004) Mercury Assessment, total mercury from sediments will be evaluated to insure samples are below or within the range of natural background levels (50–80 ng/g) for California's Central Valley (Bouse et al. 1996). All samples previously collected were below this level (Stillwater Sciences 2004). Aqueous raw total mercury was also found to be below the California Toxics Rule for a drinking water source of 50 ng/L. In-river channel aqueous raw total mercury was at or below levels measured at relative control sites for the Cache Creek watershed (Slotton et al. 2004), a highly mining-impacted watershed in Northern California which has been identified for regulatory and remedial action with regard to mercury (Stillwater Sciences 2004). It is unlikely that excavation and regrading activities may uncover mercury hot spots and or mobilize mercury in the aquatic food web; however, if samples are found with mercury levels above established standards, work will be halted to assess contamination potential. As a further precaution, mercury levels will be measured before, during, and after restoration activities in the MRR area.</p>	During Construction	Permittee	

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3	<p>To meet CDFG's recommendations for mitigation and protection of Swainson's hawks Buteo swainsoni, surveys will be conducted by a qualified biologist for a ½ mile radius around all project activities. Site surveys will be conducted to identify suitable foraging and roosting habitat and species presence, in accordance with CDFG survey guidelines. The no-disturbance buffer should be a minimum of 0.25 mi (0.40 km) around any identified nests. If State-listed species are found to be nesting in the project area, CDFG will be notified to discuss project implementation and avoidance of take. Note, this project also provides for Swainson's hawk conservation: by restoring the river landscape and ecosystem processes that support riparian forests. Swainson's hawks have strong association with riparian forests which suggests that protection and restoration of these habitats may provide nesting habitat superior to other sources of trees such as roadsides and field margins. Bird species that occupy the mature tree and gallery forest component of riparian systems will also benefit from conservation or restoration of nesting habitat for Swainson's Hawk (Woodbridge 1998).</p>	Entire Project	Permittee	
4	<p>The project will comply with Section 401 of the Clean Water Act and obtain certification for project-related activities to control sediment and maintain water quality downstream of the project site during the construction activities. To minimize risk from additional fine sediments, all trucks and equipment will be cleaned, gravels will be processed away from flowing water, and in-stream work will occur during the low flow season (e.g., < 300 cfs). Sediment fencing will be used along the river corridor to capture floating materials or sediments mobilized during construction activities, and prevent water quality impacts. Stream bank impacts will be isolated and minimized to reduce bank sloughing. The banks will be stabilized with revegetation following project activities.</p>	Entire Project	Permittee	
5	<p>Implement the following dust reduction measures during movement of materials from construction staging area to sites where gravel augmentation will occur to reduce construction-related emissions:</p> <ul style="list-style-type: none"> <input type="checkbox"/> wet materials to limit visible dust emissions using water; <input type="checkbox"/> provide at least 6 in (15.2 cm) of freeboard space from the top of the container; <p>or,</p> <ul style="list-style-type: none"> <input type="checkbox"/> cover the container. 	During Construction	Permittee/Subcontractors	
6	<p>Implement the following dust reduction measure during gravel placement to reduce construction-related emissions:</p> <ul style="list-style-type: none"> <input type="checkbox"/> limit or promptly remove any of mud or dirt on construction equipment and vehicles at the end of each workday, or once every 24 hours. 	During Construction	Permittee/Subcontractor	
7	<p>Each year, before beginning construction activities a pre-project survey will be conducted of the project site. Extensive surveys for elderberry shrubs have already been completed (URS 2006d), and areas to avoid identified. If elderberry shrubs (or other special status plants) are identified in subsequent surveys they will be avoided. Complete avoidance may be assumed when there is at least a 100-ft (30.5 m) buffer around the plant. These buffers will be established and maintained around all elderberry plants with stems measuring 1 in (2.5 cm) in diameter at the ground level (USFWS 1999). Project activities will be adjusted to ensure no activities occur in the buffer area, thereby avoiding any negative effects on valley elderberry longhorn beetle.</p>	Entire Project	Permittee	

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8	<p>Table 5 lists the critical periods when disturbance could result in significant impacts to individuals or populations of special status species. To avoid these impacts, all project ground disturbing activities will be conducted during the period August through September, which is outside the listed critical periods (Table 5 – see EAFIS). If work must be conducted before this time, appropriate surveys would be performed to avoid impacts to special status and sensitive species. Nesting birds and raptors are protected under the MBTA and California Fish and Game Code. Trees and shrubs within the project area likely provide nesting habitat for songbirds and raptors. If tree removal is unavoidable, it will occur during the non-breeding season (mid-September). If other construction activities must occur during the potential breeding season (February through mid-September) surveys for active nests and/or roosts will be conducted by a qualified biologist no more than 30 days prior to the start of construction. A minimum no disturbance buffer will be delineated around active nests (note, size of buffer depends on species encountered) until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.</p>	Entire Project	Permittee	
9	<p>For bat species, before any ground disturbing activities, a qualified biologist will survey for the presence of associated habitat types for the bat species of concern. If bats are present, suitable avoidance and conservation measures will be implemented; project will avoid work in May, June, and July and will apply a minimum 300 ft (91.4 m) buffer of roosting bats, maternity roosts or winter hibernacula until all young bats have fledged.</p>	Entire Project	Permittee	
10	<p>Pre-construction surveys will be conducted by qualified wildlife biologists, who will determine the use of the project site by American badgers; surveys will focus on identification of potential badger dens within the construction footprint and a minimum 250 ft (76.2 m) buffer around the construction footprint. If badger dens are located within the construction or buffer area, prior to initiation of construction CDFG will be consulted for further instructions on methods to avoid direct impacts to this species. Pre-construction surveys will also be conducted by qualified wildlife biologists to determine the use of the project site and a minimum 500 ft (152.4 m) buffer around the construction footprint by San Joaquin kit fox; surveys will focus on identification of potential, atypical, active, and natal (USFWS 1999b) kit fox dens. If potential kit fox dens are located within the construction or buffer area, a minimum of five consecutive nights of camera/scout stations and track stations will be placed by the den entrances in order to determine if the den is in use by kit fox. If active or natal dens are confirmed, CDFG and USFWS will be consulted for further instructions on methods to avoid direct impacts to this species as well as the need for incidental take permits.</p>	Entire Project	Permittee	
11	<p>Special transportation routes and work areas will be designated to avoid damaging trees and shrubs in riparian habitats, especially those sensitive species described above. Potential impacts to the riparian vegetation could occur during the transport of gravel from construction staging area to the river. These impacts will be minimized to the greatest extent practicable by selecting routes that avoid or minimize damage. There will be no impacts on heritage size trees (i.e., greater than 16 in [40.6 cm] in diameter). Trees will be flagged and fenced (when near work area) to prevent unintended damage</p>	During Construction	Permittee/Subcontractor	

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12	<p>To mitigate noise related impacts, the project will require all contractors to comply with the following conditions:</p> <ul style="list-style-type: none"> <input type="checkbox"/> restrict construction activities to time periods when there is the least potential for disturbance; <input type="checkbox"/> install and maintain sound-reducing equipment and muffled exhaust on all construction equipment; and, <input type="checkbox"/> optimize the location of processing equipment to be the least disturbance in terms of noise for the local residents. 	During Construction	Permittee/Subcontractor	
13	<p>If any objects of cultural significance are unearthed during the construction process, work will be halted until a qualified archeologist can assess the significance of the new find. If human remains are unearthed during the construction process, the project team will comply with the California Health and Safety Code Section 7050.5, which states that no further disturbance shall occur until the County Coroner has investigated the situation following the Public Resource Code Section 5097.98.</p>	During Construction	Permittee	
14	<p>The Designated Biologist shall be on-site daily while construction and/or surface-disturbing activities are taking place to minimize take of the Covered Species, to check for compliance with all mitigation and avoidance measures, to check all exclusion zones to ensure that signs, stakes, and fencing are intact, and that human activities are restricted to outside of these protective zones.</p>	Entire Project	Permittee	