

APPENDIX A: IMPACT AVOIDANCE AND MINIMIZATION FEATURES FOR BIOLOGICAL RESOURCES AND WETLANDS

BIO-IAMF#4: Operation and Maintenance Period WEAP Training

Prior to initiating operation and maintenance activities, maintenance personnel who work onsite will attend a Worker Environmental Awareness Program (WEAP) training session provided by the Authority.

The environmental training will cover general and specific biological and legal information on federally and state listed species and their respective habitats. At a minimum, WEAP training materials will include the following information: discussion of the federal Endangered Species Act (federal ESA), the California Endangered Species Act (CESA), the Bald and Golden Eagle Protection Act (BGEPA), the Migratory Bird Treaty Act (MBTA), and the Clean Water Act (CWA); the consequences and penalties for violation or noncompliance with these laws and regulations and project permits; identification of special-status plants, special-status wildlife (species covered by regulatory agency permits), jurisdictional waters, and special-status plant communities and explanations about their value; hazardous substance spill prevention and containment measures; and the contact person in the event of the discovery of a dead or injured wildlife species. The training will include an overview of provisions of the biological resources management plan, annual vegetation, and management plan, weed control plan and security fencing and wildlife exclusion fencing maintenance plans pertinent to operation and maintenance activities. The training will be provided by the Authority staff responsible for environmental compliance. The training sessions will be given prior to initiation of maintenance activities for each employee and repeated for all maintenance employees, on an annual basis. Upon completion of the WEAP training, maintenance employees will sign a form stating that they attended the training and understand and will comply with the information presented. A fact sheet prepared by the Authority environmental compliance staff will be prepared for distribution to the maintenance employees. The Authority will conduct the WEAP training on an annual basis.

BIO-IAMF#6: Prepare and Implement a Biological Resources Management Plan

Prior to any ground disturbing activity, the Contractor's Mitigation Manager, or its designee (Project Biologist(s)) will prepare the Biological Resources Management Plan (BRMP) and assemble the biological resources mitigation measures. The BRMP will include terms and conditions from applicable permits and agreements and make provisions for monitoring assignments, scheduling, and responsibility. The BRMP will also include habitat replacement and revegetation, protection during ground-disturbing activities, performance (growth) standards, maintenance criteria, and monitoring requirements for temporary and permanent native plant community impacts. All project environmental plans (e.g., RRP) will be included as appendices to the BRMP. The parameters for the BRMP will be formed with the mitigation measures from this project-level EIR/EIS, including terms and conditions as applicable from the USFWS, USACE, SWRCB, and CDFW permits. The goal of the BRMP is to provide an organized reporting tool to verify that the mitigation measures and terms and conditions are implemented in a timely manner. These measures, terms, and conditions include all avoidance, minimization, repair, mitigation, and compensatory actions stated in the mitigation measures or terms and conditions from the permits referenced above. These measures, terms, and conditions are tracked through final design, implementation, and post-construction phases. The BRMP will be submitted to the Contractor and will contain, but not be limited to, the following information:

- a. A master schedule that shows construction of the project, pre-construction surveys, and establishment of buffers and exclusions zones to protect sensitive biological resources.
- b. Specific measures for the protection of special-status species.
- c. Identification (on construction plans) of the locations and quantity of habitats to be avoided or removed, along with the locations where habitats are to be restored.

- d. Identification of agency-approved Project Biologist(s) and Biological Monitor(s), including those responsible for notification and report of injury or death of federally- or state-listed species.
- e. Identification of specific parameters consistent with mitigation ratios and permit conditions for determining the amount of replacement habitat for temporary disturbance areas.
- f. Measures to preserve topsoil and control erosion.
- g. Design of protective fencing around environmentally sensitive areas, environmentally restricted areas (ERAs), and the construction staging areas.
- h. Specification of the locations and quantities of gallinaceous guzzlers (catch basin/artificial watering structures) and the monitoring of water levels in them.
- i. Locations of trees to be protected as wildlife habitat (roosting sites) and locations for planting replacement trees.
- j. Specification of the purpose, type, frequency, and extent of chemical use for insect and disease control operations as part of vegetative maintenance within sensitive habitat areas.
- k. Specific construction monitoring programs for habitats of concern and special-status species, as needed.
- l. Specific measures for the protection of vernal pool habitat and riparian areas. These measures may include erosion and siltation control measures, protective fencing guidelines, dust control measures, grading techniques, construction area limits, and biological monitoring requirements.
- m. Provisions for biological monitoring during ground-disturbing activities to confirm compliance and success of protective measures. The monitoring procedures will (1) identify specific locations of wildlife habitat and sensitive species to be monitored; (2) identify the frequency of monitoring and the monitoring methods (for each habitat and sensitive species to be monitored); (3) list required qualifications of biological monitor(s), and (4) identify the reporting requirements.

The BRMP shall be submitted to the Authority for review and approval prior to any ground disturbing activity.

BIO-IAMF#7 Prepare and Implement an Annual Vegetation Management Plan

Prior to operation and maintenance, the Authority will prepare an Annual Vegetation Control Plan. The Authority will generally follow the procedures established in Chapter C2 of the Caltrans Maintenance Manual to manage vegetation on Authority property (California Department of Transportation [Caltrans] 2010). Vegetation would be controlled by chemical, thermal, biological, cultural, mechanical, structural, and manual methods. The Annual Vegetation Control Plan will be updated each winter for implementation no later than April 1 of each year. The plan would consist of site-specific vegetation methods, as outlined below:

1. Chemical vegetation control noting planned usage
2. Mowing program consistent section 1415 of the FAST Act
3. Other non-chemical vegetation control plans (manual, biological, cultural, thermal (includes the use of propane heat or steam and is not specific to controlled burning) and structural)
4. List of sensitive areas
5. Other chemical pest control plans (e.g., insects, snail, rodent)

Only Caltrans-approved herbicides will be used in the vegetation control program. Pesticide application will be conducted in accordance with all requirements of the California Department of Pesticide Regulation and County Agricultural Commissioners by certified pesticide applicators. Noxious/invasive weeds will be treated where requested by County Agricultural Commissioners. The Authority will cooperate in area-wide control of noxious/invasive weeds if established by local agencies. Farmers/landowners who request weed control on state right-of-way that is not

identified in the annual vegetation control plan will be encouraged to submit a permit request application for weed control that identifies the target weeds and control method desired.

The Authority will require that HSR maintenance crews follow the guidelines in the Contractor Weed Control Plan and Annual Vegetation Control Plan during project operation and maintenance.

The Authority or its designee will appoint the responsible party during the operations and maintenance period to verify the Annual Vegetation Control Plan is being carried out appropriately and effectively. The annual Vegetation Control Plan update will include a section addressing issues encountered during the prior year and adaptive measures incorporated in the update as proactive measures.

BIO-IAMF#8: Prepare and Implement a Weed Control Plan

Prior to any ground-disturbing activity, the Contractors Project Biologist will develop and implement a construction-phase Weed Control Plan (WCP). The purpose of the Weed Control Plan is to minimize and avoid the spread of noxious and invasive weeds during ground-disturbing activities.

The Weed Control Plan will include the following at a minimum:

- Prior to implementation, delineate environmentally sensitive area and ERA (on plans and in field).
- Schedule for noxious weed surveys to be conducted in coordination with the BRMP. The success criteria for noxious and invasive weed control, as established by a qualified biologist. The success criteria will be linked to the BRMP standards for onsite work during ground-disturbing activities. In particular, the criteria will limit the introduction and spread of invasive species, as defined by the California Invasive Plant Council (Cal-IPC), to less than or equal to the pre-disturbance conditions in areas temporarily impacted by ground-disturbing activities. If invasive species cover is found to exceed pre-disturbance conditions by 10 percent or is 10 percent more compared with a similar, nearby reference site with similar vegetation composition, a control effort will be implemented. If the target, or other success criteria identified in the WCP, has not been met by the end of the WCP monitoring and implementation period, the Authority or its designee will continue the monitoring and control efforts, and remedial actions would be identified and implemented until the success criteria are met. Depending on monitoring results, additional or revised measures may be necessary to verify that the introduction and spread of noxious weeds are not promoted by the construction and operation of the project.
- Provisions to verify that developing the WCP will be coordinated with the RRP so the RRP incorporates measures minimizing the spreading and establishing of noxious weeds. This coordination also provides for the RRP to specify the percentage of noxious weeds coverage in the revegetation performance standards.
- Identification of weed control treatments, including the use of permitted herbicides, and manual and mechanical removal methods. Herbicide application will be restricted from use in Environmentally Sensitive Areas and on compensatory mitigation sites.
- Determination of timing of the weed control treatment for each plant species.
- Identification of fire prevention measures.

The Project Biologist will prepare a monthly memorandum to document the progress of the plan and its implementation. The Contractor will implement the Weed Control Plan during the construction period. The Authority will appoint the responsible party during the operations period.

The Weed Control Plan shall be submitted to the Authority prior to any ground disturbance activity.

BIO-IAMF#10: Construction Work Windows

Prior to any ground disturbing activity, the Contractors Project Biologist, in coordination with the Authority, will consult with USFWS and CDFW regarding implementing construction work windows when working in sensitive species habitat or other protected communities. These measures may include non-disturbance zones, additional site- or species-specific biological monitoring, or approved passive or active relocation of species (when allowable).

Construction activities in wetlands and other waters of the U.S. (e.g., vernal pools, seasonal wetlands, seasonal riverine areas, and riparian areas) will be restricted during the rainy season (October 15 to April 15) and will be conducted when the resource is dry and/or lacks flowing or standing water. In the event that construction work window restrictions cannot be adhered to, dewatering, water diversions, and additional BMPs necessary to avoid, minimize and reduce impacts to wetland resources will be employed as determined through consultation between the Authority and the USACE, USFWS, CDFW, National Marine Fisheries Service (NMFS), and the SWRCBs. Additional avoidance and minimization measures may be necessary to avoid or minimize effects to listed species when construction work window restrictions are not feasible.

Construction work windows for specific species will be adhered to as specified in the EIR/EIS mitigation measures and permit conditions and as appropriate relative to the species' ecology.

The Project Biologist will prepare a monthly memorandum regarding compliance with work window restrictions. The memorandum will be provided to the Authority for compliance monitoring documentation purposes.

BIO-IAMF#11: Conduct Biological Monitoring during Construction Activities

During any ground-disturbing activity, the Contractor's Project Biologist will oversee and direct the work of the Contractor's Biological Monitors, who will be present on site to verify permit compliance during construction activities and when establishing environmentally sensitive areas, wildlife exclusion fence zones (WEF), or non-disturbance zones. The Contractor's Biological Monitor(s) will advise the contractor on methods that may minimize or avoid impacts on state and federally-listed species in consultation with the Project Biologist. Daily compliance reports will be submitted to the Authority via EMMA within 24 hours of each monitoring day. Non-compliances will be submitted to the Authority the same day as they are observed on-site.

BIO-IAMF#13: Environmentally Sensitive Areas, Wildlife Exclusion Fencing and Non-Disturbance Zones

Prior to any ground disturbing activity, the Contractor, under the supervision of the Project Biologist or approved Biological Monitors, will install wildlife-specific exclusion barriers at the edge of the construction footprint as appropriate to minimize and avoid impacts to wildlife during the construction period. The fencing will be used to establish non-disturbance exclusion zones to restrict construction equipment and personnel from entering Environmentally Sensitive Areas or restrict federally listed wildlife species from entering the construction areas. The non-disturbance/exclusion zones will be determined by the Contractor's Project Biologist based on results of pre-construction surveys and in conjunction with Authority and resource agency consultation.

Both high-visibility ESA fencing and WEF fencing will be used to delineate sensitive resources. environmentally sensitive area and WEF fencing will be identified and depicted on an exclusion-fencing exhibit. WEF barriers will be made of durable material and will be regularly inspected and maintained. WEF's will be installed along the outer perimeter of ESAs and below-grade (e.g., 6 to 10 inches below-grade). The exact design specifications of the exclusion fencing will be determined through consultation with USFWS and/or CDFW. The effectiveness and serviceability of ESA and WEF will be monitored at regular intervals by the Project Biologist and Biological Monitors throughout project construction, and will be removed after the completion of major construction activities (as deemed appropriate by the Project Biologist). The Project Biologist will submit a memorandum to the Mitigation Manager and Authority (via EMMA) to document compliance with this measure documenting the field delineation and installation of all ESAs/WEFs

to the Mitigation Manager and the Authority prior to construction. The memorandum will identify any adaptive management measures identified by the Project Biologist based on effectiveness and serviceability monitoring. The Contractor will verify that all environmentally sensitive areas are off-limits to construction personnel and equipment. The purpose of the exclusion area fencing shall be explained at the WEAP training and displayed during worker tailgate sessions. The fencing exhibit will be posted at the construction site field office in a highly visible location.

BIO-IAMF#14: Monofilament Restrictions

A minimum of 30 days prior to any ground disturbing activities, the Contractor's Project Biologist will verify that the Contractor will not use plastic mono-filament netting (erosion-control matting) or similar material in erosion control materials. A number of acceptable substitutes exists including: geomembranes, coconut coir matting, tackified hydroseeding compounds, rice straw wattles (e.g., Earthsaver wattles: biodegradable, photodegradable, burlap), and other reusable erosion, sediment, and wildlife control systems that can be approved by the regulatory agencies. The Project Biologist will submit memoranda to the Mitigation Manager and Authority to document compliance with this measure; the Project Biologist will submit an update to the memoranda monthly throughout project construction. Within developed or urban areas, the Project Biologist may allow exceptions to the type of erosion control material used if it can be reasonably determined that the construction area is sufficiently distant from natural areas and potential impacts to wildlife.

BIO-IAMF#15: Avoidance of Entrapment

During Construction, at the end of each work day, the Contractor, under the guidance of the Contractor's Project Biologist, will cover all excavated, steep-sided holes or trenches more than 8 inches deep with plywood or similar materials or provide a minimum of one escape ramp per 100 feet of trenching (with slopes no greater than a 3:1) constructed of earth fill or wooden planks. The Project Biologist or Biological Monitors will thoroughly inspect holes and trenches for trapped animals at the start of each work day and at the end of each work day. The Contractor will screen, cover, or store more than 1 foot off the ground, all construction pipe, culverts, or similar structures with a diameter of 3 inches or greater that are stored at the construction site for one or more overnight periods. These pipes, culverts, and similar structures will be inspected by the Project Biologist or approved Biological Monitor(s) for wildlife before the material is moved, buried, or capped. The Project Biologist will submit memoranda to the Mitigation Manager and the Authority to document compliance with this measure; updated memoranda will be submitted on a monthly basis throughout project construction.

BIO-IAMF#16: Artificial Dens Associated with Wildlife Exclusion Fencing and Non-Disturbance Zones

Prior to any ground-disturbing activities as determined by Contractors Project Biologist, the Contractor's Project Biologist and/or Biological Monitor will oversee implementation of artificial den installation by the Contractor's field crew. The number and location of the artificial dens will be identified in the BRMP prepared by the Contractor's Project Biologist. These artificial dens will be located on parcels owned by the Authority or where access has been granted by a willing landowner. To mitigate the temporary impacts of environmentally sensitive area and WEF fencing on state and federal special status species and their movement/migration corridors during construction, artificial dens will be installed along the outer perimeter of the environmentally sensitive area and WEF fencing. Fencing will be set back from the edge of the Project Footprint (limits of construction for the preferred alternative analyzed in environmental documents) to provide space for the artificial dens to be constructed. Artificial dens, or other similar concealment or escape structures will also be installed at dedicated wildlife crossing structures to provide escape cover for wildlife and prevent predation by larger predators.

BIO-IAMF#18: Construction Utility Requirements and Waste Disposal

During any ground disturbing activities, the Contractor(s) may temporarily store excavated materials produced by construction activities in areas at or near the construction site within the

Environmental Footprint. Wherever possible, they will return excavated soil to its original location to be used as backfill. Any excavated waste materials unsuitable for treatment and reuse will be disposed of by hauling it off site to a permitted location in conformance with applicable state and federal laws. The Contractor will provide the Authority with documentation that waste has been properly disposed.

BIO-IAMF#19: Cleaning of Construction Equipment

Prior to any ground disturbing activities within or adjacent to sensitive habitat areas as defined by the Project Biologist, all equipment will be free of mud and plant materials to avoid introduction of invasive species. The Contractor will establish vehicle cleaning locations designed to contain potential organic materials and avoid the transportation of weeds and invasive species both on and off the construction work area. The cleaning areas will be located to avoid impacts to surface waters and incorporate appropriate Stormwater Pollution Prevention Plan (SWPPP) best management practices (BMPs). Cleaning stations will be inspected regularly (at least monthly) and the Mitigation Manager will document compliance with this measure through the preparation of memoranda which will be submitted to the Authority on a monthly basis.

BIO-IAMF#20: Dewatering and Water Diversion

Prior to any construction activities within open or flowing water, the Contractor will prepare a dewatering plan which will be submitted by the Contractor for review and approval by the resource agencies (USACE, SWRCB, NMFS, and CDFW) prior to any work in that area. The plan will incorporate appropriate construction measures that minimize turbidity and siltation as determined through review and approval by the designated resource agencies. The Project Biologist and/or Biological Monitor will provide regular monitoring of dewatering and diversion sites are conducted and water quality data will be collected (if applicable). Prior to dewatering or water diversion, pre-activity surveys would establish the presence or absence of special status wildlife species within the affected waterbody. In the event that special-status species are detected during pre-activity surveys, an agency approved Project Biologist would relocate the species (if allowable) to an approved location off-site.

BIO-IAMF#21: Vehicle Traffic and Construction Site Speed Limits

Prior to any ground-disturbing activities, the Contractor will obtain confirmation from the Project Biologist that appropriate best management practices are in place to restrict project vehicle traffic within the construction area to established roads, construction areas, and other designated areas. The Contractor will establish vehicle traffic in locations disturbed by previous activities to prevent further adverse ground disturbing effects, require observance of a 15 mph speed limit for construction areas with potential special-status species habitat, clearly flag and mark access routes, and prohibit off-road traffic. The Project Biologist will submit a memorandum to the Mitigation Manager and Authority to document compliance with this measure on a monthly basis.

BIO-IAMF#24: Construction Site Housekeeping

Prior to any ground disturbing activities, the Contractor will prepare a construction site BMP field manual. The manual will contain standard construction site housekeeping practices required to be implemented by the Contractor. The manual will identify BMPs for the following topics; temporary soil stabilization, temporary sediment control, wind erosion control, tracking control, non-storm water management, waste management and materials control, proper use of any rodenticides and other general construction site cleanliness measures. All construction site personnel will be provided training on BMP field manual implementation prior to working on the construction site. All personnel will sign a form documenting that they have received training and understand BMP field manual implementation requirements. The BMP field manual will be updated on by January 31st of each year. Annual training updates shall be provided by the Contractor to all construction personnel. The Authority will review and approve the initial BMP field manual prior to any ground-disturbing activities and all annual updates. The Contractor will provide the Authority with a monthly memorandum documenting BMP field manual implementation and identify any recommended changes to construction site housekeeping practices.

BIO-IAMF#25 Wildlife Crossings

To evaluate wildlife movement and habitat connectivity within the greater project area, the Authority will coordinate with recognized wildlife corridor specialists, the Regional Consultants and the engineering team to prepare a wildlife corridor assessment. The wildlife corridor assessment will analyze and identify applicable landscape and habitat variables to both accommodate animal movement and to create linkages to core habitat areas. Information developed in the wildlife corridor assessment will inform an effects analysis that will develop and propose measures to facilitate safe animal passage through the alignment and minimize habitat fragmentation by providing for landscape-level habitat connectivity. The configuration of wildlife crossing infrastructure will be determined through consideration of known corridors, habitat quality, species requirements, movement patterns, existing barriers to movement, topography and drainage patterns, as well habitat enhancement opportunities. Additionally, wildlife movement corridors will make use of the project's viaducts, tunnels and undercrossings and dual-purpose road and drainage culvert crossings to facilitate wildlife movement.

Local stakeholders and regulatory agencies will be consulted on the wildlife corridor assessment and an adaptive management strategy will be employed by the Contractor before, during and after construction to minimize construction effects to animal movement and to refine the location of dedicated crossings prior to final wildlife crossing design.

BIO-IAMF#26 General Nesting Season Restrictions

If ground disturbing activities are scheduled to occur during the nesting bird season (generally defined as occurring between February 1 and September 1, as early as January 1 for some raptors), prior to commencing work (ground disturbing activities), the Contractor's Project Biologist and/or Biological Monitor will conduct visual pre-construction surveys for nesting birds protected by the MBTA and California Fish and Game Code. In the event active bird nests are encountered during the pre-activity survey, the Project Biologist and/or Biological Monitors, in consultation with the Authority and appropriate resource agency, will establish a 500-foot nest avoidance buffer zone around raptor nests, and other sized nest avoidance buffer zones for non-raptor species as appropriate. The size of the buffer area can be reduced on a case-by-case with concurrence from the USFWS and CDFW. The Project Biologist or Biological Monitor will periodically monitor active bird nests. The Project Biologist will maintain the nest avoidance buffer zone until nestlings have fledged and are no longer reliant on the next or parental care for survival or the nest is abandoned (as determined by the Project Biologist). The Project Biologist will submit a memorandum, on a monthly basis during the bird-breeding season to the Mitigation Manager and Authority to document compliance with this measure.

References

California Department of Transportation (Caltrans). 2010. Maintenance Manual. Available: <http://www.dot.ca.gov/hq/maint/manual/maintman.htm>.