APPENDIX E AVOIDANCE AND MINIMIZATION MEASURES FOR AQUATIC RESOURCES AND MEASURES TO ADDRESS IMPACTS TO OTHER ENVIRONMENTAL RESOURCES

Table 1 Avoidance and Minimization Measures for Aquatic Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
BIO-IAMF#3	**BIO-IAMF#3: Prepare WEAP Training Materials and Conduct Construction Period WEAP Training** Prior to any ground-disturbing activity, the Project Biologist would prepare a WEAP for the purpose of training construction crews to recognize and identify sensitive biological resources that may be encountered in the vicinity of the project footprint. The WEAP training materials would be submitted to the Authority for review and approval. A video of the WEAP training prepared and presented by the Project Biologist and approved by the Authority may be used if the Project Biologist is not available to present the training in person. At a minimum, WEAP training materials would include the following information: key provisions of FESA, CESA, BGEPA, MBTA, California Fish and Game Code Section 1600, Porter-Cologne Water Quality Control Act, and the CWA; the consequences and penalties for violation or noncompliance with these laws and regulations and project authorizations; identification and characteristics of special-status plants, special-status wildlife, jurisdictional waters, and special-status plant communities and explanations about their ecological value; hazardous substance spill prevention and containment measures; the contact person in the event of the discovery of a dead or injured wildlife species; and review of avoidance, minimization, and mitigation measures. The Project Biologist would present WEAP training to all construction personnel before they work in the project footprint. As part of the WEAP training, construction timing in relation to species' habitat and life-stage requirements would be detailed and discussed on project maps, which would show areas of planned minimization and avoidance measures. Crews would be informed during the WEAP training that, except when necessary as determined in consultation with the Project Biologist, travel within the project footprint is restricted to established roadbeds, which include all pre-existing and project-constructed unimproved and improved roads. A fact sheet conveying this information would be prepared by the Project Biologist for distribution to the construction crews and to others who enter the project footprint. Fact sheet information would be duplicated in a wallet-sized format and would be provided in other languages as necessary to accommodate non-English-speaking workers. All construction staff would attend the WEAP training prior to beginning work on-site, and would attend the WEAP training on an annual basis thereafter. Upon completion of the WEAP training, each member of the construction crew would sign a form stating that they attended the training, understood the information presented, and agreed to comply with the requirements set out in the WEAP training. The Project Biologist would submit the signed WEAP training forms to the Authority on a monthly basis. On an annual basis, the Authority would certify that WEAP training had been provided to all construction personnel. On a monthly basis, the Project Biologist	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2 Project-Level Avoidance and Minimization Impacts on Biological Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	would provide updates relevant to the training to construction personnel during the daily safety ("tailgate") meeting.		
BIO-IAMF#4	**BIO-IAMF#4: Conduct Operation and Maintenance Period WEAP Training** Prior to initiating O&M activities, O&M personnel would attend a WEAP training session arranged by the Authority. At a minimum, O&M WEAP training materials would include the following information: key provisions of FESA, CESA, the BGEPA, the MBTA, Porter-Cologne, and the CWA; the consequences and penalties for violation or noncompliance with these laws and regulations and project authorizations; identification and characteristics of special-status plants, special-status wildlife, jurisdictional waters, and special-status plant communities and explanations about their ecological 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 would include an overview of provisions of the BRMP, annual vegetation, and management plan, WCP and security fencing and wildlife exclusion fencing maintenance plans pertinent to O&M activities. A fact sheet prepared by the Authority environmental compliance staff would be prepared for distribution to the O&M employees. The training would be provided by the Authority environmental compliance staff. The training sessions would be provided to employees prior to their involvement in any O&M activity and would be repeated for all O&M employees on an annual basis. Upon completion of the WEAP training, O&M employees would, in writing, verify their attendance at the training sessions and confirm their willingness to comply with the requirements set out in those sessions.	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2 Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-IAMF#5	**BIO-IAMF#5: Prepare and Implement a Biological Resources Management Plan** Prior to any ground-disturbing activity, the Project Biologist would prepare the BRMP, which would include a compilation of the biological resources avoidance and minimization measures applicable to the HSR section. All project environmental plans, such as the RRP and WCP, would be included as appendices to the BRMP. The BRMP is intended to serve as a comprehensive document that sets out the range of avoidance and minimization measures to support the appropriate and timely implementation of those measures. The implementation of these measures would be tracked through final design, construction, and operation phases. The BRMP would contain, but not be limited to, the following information: ▪ A master schedule that shows construction of the project, pre-construction surveys, and establishment of buffers and exclusions zones to protect sensitive biological resources. ▪ Specific measures for the protection of special-status species. ▪ 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.	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2 Project-Level Avoidance and Minimization Impacts on Biological Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	▪ 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. ▪ Measures to preserve topsoil and control erosion. ▪ Design of protective fencing around ESAs and the construction staging areas. ▪ Locations of trees to be protected as wildlife habitat (roosting sites) and locations for planting replacement trees. ▪ 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. ▪ 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. ▪ Provisions for biological monitoring during ground-disturbing activities to confirm compliance and success of protective measures. The monitoring 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); (4) identify the reporting requirements; and (5) provide an accounting of impacts on special-status species habitat compared to pre-construction impact estimates. The BRMP would be submitted to the Authority for review and approval prior to any ground-disturbing activity.		
BIO-IAMF#8	**BIO-IAMF#8: Delineate Equipment Staging Areas and Traffic Routes** Prior to any ground-disturbing activity, the Authority would establish staging areas for construction equipment in areas that minimize effects on sensitive biological resources, including habitat for special-status species, seasonal wetlands, and wildlife movement corridors. Staging areas (including any temporary material storage areas) would be located in areas that would be occupied by permanent facilities, where practicable. Equipment staging areas would be identified on final project construction plans. The Authority would flag and mark access routes to restrict vehicle traffic within the project footprint to established roads, construction areas and other designated areas.	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-IAMF#9	**BIO-IAMF#9: Dispose of Construction Spoils and Waste** During ground-disturbing activities, the Authority may temporarily store excavated materials produced by construction activities in areas at or near construction sites within the project footprint. Where practicable, the Authority would return excavated soil to its original location to be used as backfill. Any excavated waste materials unsuitable for treatment and reuse would be disposed of	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level Avoidance and

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	at an off-site location, in conformance with applicable state and federal laws.		Minimization Impacts on Biological Resources
BIO-IAMF#10	**BIO-IAMF#10: Clean Construction Equipment** Prior to any ground-disturbing activity, the Authority would check that all equipment entering the work area is free of mud and plant materials. The Authority would establish vehicle cleaning locations designed to isolate and contain organic materials and minimize opportunities for weeds and invasive species to move in and out of the project footprint. Cleaning may be done by washing with water, blowing with compressed air, brushing, or other hand cleaning. The cleaning areas would be located so as to avoid impacts on surface waters and appropriate SWPPP BMPs would be implemented to further control any potential for the spread of weeds or other invasive species. Cleaning stations would be inspected regularly (at least monthly).	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#2	**BIO-MM#2: Prepare and Implement a Weed Control Plan** Prior to any ground-disturbing activity during the construction phase, the Project Biologist would develop a WCP, subject to review and approval by the Authority. The purpose of the WCP is to establish approaches to minimize and avoid the spread of invasive weeds during ground-disturbing activities during construction and O&M. The WCP would include, at a minimum, the following: ▪ A requirement to delineate ESAs in the field prior to weed control activities. ▪ A schedule for weed surveys to be conducted in coordination with the BRMP. ▪ Success criteria for invasive weed control. The success criteria would be linked to the BRMP standards for on-site work during ground-disturbing activities. In particular, the criteria would establish limits on the introduction and spread of invasive species, as defined by the California Invasive Plant Council, to less than or equal to the pre-disturbance conditions in the area temporarily affected by ground-disturbing activities. If invasive species cover is found to exceed pre-disturbance conditions by greater than 10 percent or is 10 percent greater than levels at a similar, nearby reference site, a control effort would 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 would continue the monitoring and control efforts, and remedial actions would be identified and implemented until the success criteria are met. ▪ Provisions for consistency between the WCP and the RRP, including verification that the RRP includes measures to minimize the risk of the spread and/or establishment of invasive species and reflects the same revegetation performance standards as the WCP.	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	▪ Identification of weed control treatments, including permitted herbicides and manual and mechanical removal methods. ▪ Timeframes for weed control treatment for each plant species. ▪ Identification of fire prevention measures.		
BIO-MM#3	**BIO-MM#3: Establish Environmentally Sensitive Areas and Nondisturbance Zones** Prior to any ground-disturbing activity in a work area, the Project Biologist would use flagging to mark ESAs that support special-status species or aquatic resources and are subject to seasonal restrictions or other avoidance and minimization measures. The Project Biologist would also direct the installation of WEF to prevent special-status wildlife species from entering work areas. The WEF would have exit doors to allow animals that may be inside an enclosed area to leave the area. The Project Biologist would also direct the installation of construction exclusionary fencing (exclusionary fencing) at the boundary of the work area, as appropriate, to avoid and minimize impacts on special-status species or aquatic resources outside of the work area during the construction period. The ESAs, WEF, and exclusionary fencing would be delineated by the Project Biologist based on the results of habitat mapping or modeling and any pre-construction surveys, and in coordination with the Authority. The ESA, WEF, and exclusionary fencing would be regularly inspected and maintained by the Project Biologist. The ESA, WEF, and exclusionary fencing locations would be identified and depicted on an exclusion fencing exhibit. The purpose of the ESAs and WEF would be explained at WEAP training and the locations of the ESA and WEF areas would be noted during worker tailgate sessions.	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#4	**BIO-MM#4: Conduct Monitoring of Construction Activities** During any initial ground-disturbing activity, the Project Biologist would be present in the work area to verify compliance with avoidance and minimization measures, to establish ESAs, and install WEF and construction exclusion fencing.	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#5	**BIO-MM#5: Establish and Implement a Compliance Reporting Program** The Project Biologist would prepare monthly and annual reports documenting compliance with all IAMFs, mitigation measures, and requirements set forth in regulatory agency authorizations. The Authority would review and approve all compliance reports prior to submittal to the regulatory agencies. Reports would be prepared in	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level Avoidance and

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	compliance with the content requirements outlined in the regulatory agency authorizations. Pre-activity survey reports would be submitted within 15 days of completing the surveys and would include: ▪ Location(s) of where pre-activity surveys were completed, including latitude and longitude, and Assessor Parcel Number. ▪ Written description of the surveyed area. A figure of each surveyed location would be provided that depicts the surveyed area and survey buffers over an aerial image. ▪ Date, time, and weather conditions observed at each location. ▪ Personnel who conducted the pre-activity surveys. ▪ Verification of the accuracy of the Authority's habitat mapping at each location, provided in writing and on a figure. ▪ Observations made during the survey, including the type and locations (written and GIS) of any sensitive resources detected. ▪ Identification of relevant measures from the BRMP to be implemented as a result of the survey observations. Daily compliance reports would be submitted to the Authority via the EMMA system within 24 hours of each monitoring day. Non-compliance events would be reported to the Authority the day of the occurrence. Daily compliance reports would include: ▪ Date, time, and weather conditions observed at each location where monitoring occurred. ▪ Personnel who conducted compliance monitoring. ▪ Project activities monitored, including construction equipment in use. ▪ Compliance conditions implemented successfully. ▪ Noncompliance events observed. Daily compliance reports would also be included in the monthly compliance reports, which would be submitted to the Authority by the 10th of each month and would include: ▪ Summary of construction activities and locations during the reporting month, including any noncompliance events and their resolution, work stoppages, and take of threatened or endangered species. ▪ Summary of anticipated project activities and work areas for the upcoming month. ▪ Tracking of impacts on suitable habitats for each threatened and endangered species identified in USFWS and CDFW authorizations, including: – An accounting of the number of acres of habitats for which we provide compensatory mitigation that has been disturbed during the reporting month, and – An accounting of the cumulative total number of acres of threatened and endangered species habitat that has been disturbed during the project period. ▪ Up-to-date GIS layers, associated metadata, and photo documentation used to track acreages disturbed.		Minimization Impacts on Biological Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	▪ Copies of all pre-activity survey reports, daily compliance reports, and noncompliance/ work stoppage reports for the reporting month. Annual reports would be submitted to the Authority by the 20th of January and would include: ▪ Summary of all monthly compliance reports for the reporting year. ▪ A general description of the status of the project, including projected completion dates. ▪ All available information about project-related incidental take of threatened and endangered species. ▪ Information about other project impacts on the threatened and endangered species. ▪ A summary of findings from pre-construction surveys (e.g., number of times a threatened or endangered species or a den, burrow, or nest was encountered, location, if avoidance was achieved, if not, what other measures were implemented). ▪ Written description of disturbances to threatened and endangered species habitat within work areas, both for the preceding 12 months and in total since issuance of regulatory authorizations by USFWS and CDFW, and updated maps of all land disturbances and updated maps of identified habitat features suitable for threatened and endangered species within the project area. In addition to the compliance reporting requirements, the following items would be provided for compliance documentation purposes: ▪ If agency personnel visit the construction footprint in accordance with BIO-IAMF#2: Facilitate Agency Access, the Project Biologist would prepare a memorandum within 1 day of the visit that memorializes the issues raised during the field meeting. This memorandum would be submitted to the Authority via EMMA. Any issues regarding regulatory compliance raised by agency personnel will be reported to the Authority and the contractor. ▪ Compliance reporting would be submitted to the Authority via EMMA in accordance with the report schedule. The Project Biologist would prepare and submit compliance reports that document the following: – Implementation and performance of the RRP described in BIO-MM#1 – Summary of progress made regarding the implementation of the WCP described in BIO-MM#2 – Compliance with BIO-MM#3 – Compliance with BIO-IAMF#6: Establish Monofilament Restrictions – Compliance with BIO-IAMF#7: Prevent Entrapment in Construction Materials and Excavations – Compliance with BIO-IAMF#8: Delineate Equipment Staging Areas and Traffic Routes		

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	– Compliance with BIO-IAMF#9: Dispose of Construction Spoils and Waste – Compliance with BIO-IAMF#10: Clean Construction Equipment – Compliance with BIO-IAMF#11: Maintain Construction Sites – BMP field manual implementation and any recommended changes to construction site housekeeping practices outlined in BIO-IAMF#11 ▪ Work stoppages and measures taken under BIO-MM#12: Work Stoppage, would be documented in a memorandum prepared by the Project Biologist and submitted to the Authority within 2 business days of the work stoppage.		

AMM = Avoidance and Minimization Measure
Authority = California High-Speed Rail Authority
BGEPA = Bald and Golden Eagle Protection Act
BMP = best management practice
BRMP = biological resources management plan
CDFW = California Department of Fish and Wildlife
CESA = California Endangered Species Act
CWA = Clean Water Act
EIR = environmental impact report
EIS = environmental impact statement
EMMA = Environmental Mitigation Management and Assessment
ESA = environmentally sensitive area
FESA = federal Endangered Species Act
GIS = geographic information system
HSR = high-speed rail
IAMF = impact avoidance and minimization feature
MBTA = Migratory Bird Treaty Act
O&M = operations and maintenance
RRP = restoration and revegetation plan
SWPPP = stormwater pollution prevention plan
USFWS = U.S. Fish and Wildlife Service
WCP = weed control plan
WEAP = worker environmental awareness program
WEF = wildlife exclusion fencing

Table 2 Measures to Address Impacts to Other Environmental Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
BIO-IAMF#1	**BIO-IAMF#1: Designate Project Biologist, Designated Biologists, Species-Specific Biological Monitors and General Biological Monitors** At least 15 business days prior to commencement of any ground-disturbing activity, including but not limited to geotechnical investigations, utility realignments, creation of staging areas, or initial clearing and grubbing, the Authority would submit the name(s) and qualifications of Project Biologists, Designated Biologists, Species-Specific Biological Monitors, and General Biological Monitors retained to conduct biological resource monitoring activities and implement avoidance and minimization measures. No ground-disturbing activity would begin until the Authority has received written approval from the USFWS, NMFS, where applicable, and CDFW that the biologists and monitors have been approved to conduct the specified work. The Project Biologist is responsible for ensuring the timely implementation of the biological avoidance and minimization measures as outlined in the BRMP, and for guiding and directing the work of the Designated Biologists and Biological Monitors. Designated Biologists would be responsible for directly overseeing and reporting the implementation of general and species-specific conservation measures. In some instances, Designated Biologists would only be approved for specific species, in which case they would only be authorized to conduct surveys and implement measures for the species for which they have been approved. Species-Specific Biological Monitors would be responsible for implementation of species-specific measures for the species for which they have been approved, and would report directly to a Designated Biologist. General Biological Monitors would report directly to a Designated Biologist or to the Project Biologist. General Biological Monitors would be responsible for conducting WEAP training, implementing general conservation measures, conducting general compliance monitoring, and reporting on compliance monitoring activities. The term *Project Biologist* is used in these IAMFs to mean the Project Biologist, Designated Biologists, Species-Specific Biological Monitors, and General Biological Monitors, as appropriate. When the Authority is specified as implementing an IAMF, it is assumed that the Authority, or its contractor or agent, is implementing the IAMF under the supervision of biologists and biological monitors, as appropriate.	Section 3.7, Biological and Aquatic Resources	Section 2.5.2 Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-IAMF#3	**BIO-IAMF#3: Prepare WEAP Training Materials and Conduct Construction Period WEAP Training** Prior to any ground-disturbing activity, the Project Biologist would prepare a WEAP for the purpose of training construction crews to recognize and identify sensitive biological resources that may be encountered in the vicinity of the project footprint. The WEAP training materials would be submitted to the Authority for review and approval. A video of the WEAP training prepared and presented by the Project Biologist and approved by the Authority may be used if the Project Biologist is not available to present the training in person. At a minimum, WEAP training materials would include the following information: key provisions of FESA, CESA, BGEPA, MBTA,	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2 Project-Level Avoidance and Minimization Impacts on Biological Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	California Fish and Game Code Section 1600, Porter-Cologne Water Quality Control Act, and the CWA; the consequences and penalties for violation or noncompliance with these laws and regulations and project authorizations; identification and characteristics of special-status plants, special-status wildlife, jurisdictional waters, and special-status plant communities and explanations about their ecological value; hazardous substance spill prevention and containment measures; the contact person in the event of the discovery of a dead or injured wildlife species; and review of avoidance, minimization, and mitigation measures. The Project Biologist would present WEAP training to all construction personnel before they work in the project footprint. As part of the WEAP training, construction timing in relation to species' habitat and life-stage requirements would be detailed and discussed on project maps, which would show areas of planned minimization and avoidance measures. Crews would be informed during the WEAP training that, except when necessary as determined in consultation with the Project Biologist, travel within the project footprint is restricted to established roadbeds, which include all pre-existing and project-constructed unimproved and improved roads. A fact sheet conveying this information would be prepared by the Project Biologist for distribution to the construction crews and to others who enter the project footprint. Fact sheet information would be duplicated in a wallet-sized format and would be provided in other languages as necessary to accommodate non-English-speaking workers. All construction staff would attend the WEAP training prior to beginning work on-site, and would attend the WEAP training on an annual basis thereafter. Upon completion of the WEAP training, each member of the construction crew would sign a form stating that they attended the training, understood the information presented, and agreed to comply with the requirements set out in the WEAP training. The Project Biologist would submit the signed WEAP training forms to the Authority on a monthly basis. On an annual basis, the Authority would certify that WEAP training had been provided to all construction personnel. On a monthly basis, the Project Biologist would provide updates relevant to the training to construction personnel during the daily safety ("tailgate") meeting.		
BIO-IAMF#4	**BIO-IAMF#4: Conduct Operation and Maintenance Period WEAP Training** Prior to initiating O&M activities, O&M personnel would attend a WEAP training session arranged by the Authority. At a minimum, O&M WEAP training materials would include the following information: key provisions of FESA, CESA, the BGEPA, the MBTA, Porter-Cologne, and the CWA; the consequences and penalties for violation or noncompliance with these laws and regulations and project authorizations; identification and characteristics of special-status plants, special-status wildlife, jurisdictional waters, and special-status plant communities and explanations about their ecological value; hazardous substance spill prevention and containment measures; and the contact person in the	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2 Project-Level Avoidance and Minimization Impacts on Biological Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	event of the discovery of a dead or injured wildlife species. The training would include an overview of provisions of the BRMP, annual vegetation, and management plan, WCP and security fencing and wildlife exclusion fencing maintenance plans pertinent to O&M activities. A fact sheet prepared by the Authority environmental compliance staff would be prepared for distribution to the O&M employees. The training would be provided by the Authority environmental compliance staff. The training sessions would be provided to employees prior to their involvement in any O&M activity and would be repeated for all O&M employees on an annual basis. Upon completion of the WEAP training, O&M employees would, in writing, verify their attendance at the training sessions and confirm their willingness to comply with the requirements set out in those sessions.		
BIO-IAMF#5	**BIO-IAMF#5: Prepare and Implement a Biological Resources Management Plan** Prior to any ground-disturbing activity, the Project Biologist would prepare the BRMP, which would include a compilation of the biological resources avoidance and minimization measures applicable to the HSR section. All project environmental plans, such as the RRP and WCP, would be included as appendices to the BRMP. The BRMP is intended to serve as a comprehensive document that sets out the range of avoidance and minimization measures to support the appropriate and timely implementation of those measures. The implementation of these measures would be tracked through final design, construction, and operation phases. The BRMP would contain, but not be limited to, the following information: ▪ A master schedule that shows construction of the project, pre-construction surveys, and establishment of buffers and exclusions zones to protect sensitive biological resources. ▪ Specific measures for the protection of special-status species. ▪ 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. ▪ 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. ▪ Measures to preserve topsoil and control erosion. ▪ Design of protective fencing around ESAs and the construction staging areas. ▪ Locations of trees to be protected as wildlife habitat (roosting sites) and locations for planting replacement trees. ▪ 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. ▪ 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.	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2 Project-Level Avoidance and Minimization Impacts on Biological Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	▪ Provisions for biological monitoring during ground-disturbing activities to confirm compliance and success of protective measures. The monitoring 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); (4) identify the reporting requirements; and (5) provide an accounting of impacts on special-status species habitat compared to pre-construction impact estimates. The BRMP would be submitted to the Authority for review and approval prior to any ground-disturbing activity.		
BIO-IAMF#6	**BIO-IAMF#6: Establish Monofilament Restrictions** Prior to any ground-disturbing activity, the Project Biologist would verify that plastic monofilament netting (erosion control matting) or similar material is not being used as part of erosion control activities. The Project Biologist would identify acceptable material for such use, including: geomembranes, coconut coir matting, tackified hydroseeding compounds, and rice straw wattles (e.g., Earthsaver wattles: biodegradable, photodegradable, burlap). Within developed or urban areas, the Project Biologist may allow exceptions to the restrictions on the type of erosion control material if the Project Biologist determines that the construction area is of sufficient distance from natural areas to avoid potential impacts on wildlife.	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2 Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-IAMF#7	**BIO-IAMF#7: Prevent Entrapment in Construction Materials and Excavations** At the end of each work day during construction, the Authority would cover all excavated, steep-sided holes or trenches more than 8 inches deep and that have sidewalls steeper than 1:1 (45 degree) slope with plywood or similar materials, or provide a minimum of one escape ramp per 100 feet of trenching (with slopes no greater than 3:1) constructed of earth fill or wooden planks. The Project Biologist would thoroughly inspect holes and trenches for trapped animals at the start and end of each work day. The Authority would screen, cover, or elevate at least 1 foot above ground, all construction pipe, culverts, or similar structures with a diameter of 3 inches or greater that are stored overnight within the project footprint. These pipes, culverts, and similar structures would be inspected by the Project Biologist for wildlife before such material is moved, buried, or capped.	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-IAMF#8	**BIO-IAMF#8: Delineate Equipment Staging Areas and Traffic Routes** Prior to any ground-disturbing activity, the Authority would establish staging areas for construction equipment in areas that minimize effects on sensitive biological resources, including habitat for special-status species, seasonal wetlands, and wildlife movement corridors. Staging areas (including any temporary material storage areas) would be located in areas that would be occupied by permanent facilities, where practicable. Equipment staging areas would be identified on final project construction plans. The Authority would flag and mark	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level Avoidance and Minimization Impacts on

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	access routes to restrict vehicle traffic within the project footprint to established roads, construction areas and other designated areas.		Biological Resources
BIO-IAMF#9	**BIO-IAMF#9: Dispose of Construction Spoils and Waste** During ground-disturbing activities, the Authority may temporarily store excavated materials produced by construction activities in areas at or near construction sites within the project footprint. Where practicable, the Authority would return excavated soil to its original location to be used as backfill. Any excavated waste materials unsuitable for treatment and reuse would be disposed of at an off-site location, in conformance with applicable state and federal laws.	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-IAMF#10	**BIO-IAMF#10: Clean Construction Equipment** Prior to any ground-disturbing activity, the Authority would check that all equipment entering the work area is free of mud and plant materials. The Authority would establish vehicle cleaning locations designed to isolate and contain organic materials and minimize opportunities for weeds and invasive species to move in and out of the project footprint. Cleaning may be done by washing with water, blowing with compressed air, brushing, or other hand cleaning. The cleaning areas would be located so as to avoid impacts on surface waters and appropriate SWPPP BMPs would be implemented to further control any potential for the spread of weeds or other invasive species. Cleaning stations would be inspected regularly (at least monthly).	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-IAMF#11	**BIO-IAMF#11: Maintain Construction Sites** Prior to any ground-disturbing activity, the Authority would prepare a construction site BMP field manual. The manual would contain standard construction site housekeeping practices required to be implemented by construction personnel. The manual would identify BMPs for the following topics: temporary soil stabilization, temporary sediment control, wind erosion control, nonstormwater management, waste management and materials control, rodenticide use, and other general construction site cleanliness measures. All construction personnel would receive training on BMP field manual implementation prior to working within the project footprint. All personnel would acknowledge, in writing, their understanding of the BMP field manual implementation requirements. The BMP field manual would be updated by January 31st of each year. The Authority would provide, on an annual basis, training updates to all construction personnel.	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#1	**BIO-MM#1: Prepare and Implement a Restoration and Revegetation Plan** Prior to any ground-disturbing activity, the Project Biologist would prepare an RRP to address temporary impacts resulting from ground-disturbing activities within areas that potentially support special-status species, wetlands and/or other aquatic resources. Restoration activities may include, but not be limited to: grading landform contours	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2,

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	to approximate pre-disturbance conditions, re-vegetating disturbed areas with native plant species, and using certified weed-free straw and mulch. The Authority would implement the RRP in all temporarily disturbed areas outside of the permanent right-of-way that potentially support special-status species, wetlands and/or other aquatic resources. Consistent with Section 1415 of the Fixing America's Surface Transportation Act restoration activities would provide habitat for native pollinators through plantings of native forbs and grasses. The Project Biologist would obtain a locally sourced native seed mix. The restoration success criteria will include limits on invasive species, as defined by the California Invasive Plant Council, to an increase no greater than 10 percent compared to the pre-disturbance condition, or to a level determined through a comparison with an appropriate reference site consisting of similar natural communities and management regimes. The RRP would outline at a minimum: ▪ Procedures for documenting pre-construction conditions for restoration purposes. ▪ Sources of plant materials and methods of propagation. ▪ Specification of parameters for maintenance and monitoring of re-established habitats, including weed control measures, frequency of field checks, and monitoring reports for temporary disturbance areas. ▪ Specification of success criteria for re-established plant communities. ▪ Specification of the remedial measures to be taken if success criteria are not met. ▪ Methods and requirements for monitoring restoration/replacement efforts, which may involve a combination of qualitative and/or quantitative data gathering. ▪ Maintenance, monitoring, and reporting schedules, including an annual report due to the Authority by January 31st of the following year. The RRP would be submitted to the Authority and regulatory agencies, as defined in the conditions of regulatory authorizations, for review and approval.		Project-Level Avoidance and Minimization Impacts on Biological Resources; Section 2.7, Summary of the Alternatives Analysis
BIO-MM#2	**BIO-MM#2: Prepare and Implement a Weed Control Plan** Prior to any ground-disturbing activity during the construction phase, the Project Biologist would develop a WCP, subject to review and approval by the Authority. The purpose of the WCP is to establish approaches to minimize and avoid the spread of invasive weeds during ground-disturbing activities during construction and O&M. The WCP would include, at a minimum, the following: ▪ A requirement to delineate ESAs in the field prior to weed control activities. ▪ A schedule for weed surveys to be conducted in coordination with the BRMP.	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources

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	▪ Success criteria for invasive weed control. The success criteria would be linked to the BRMP standards for on-site work during ground-disturbing activities. In particular, the criteria would establish limits on the introduction and spread of invasive species, as defined by the California Invasive Plant Council, to less than or equal to the pre-disturbance conditions in the area temporarily affected by ground-disturbing activities. If invasive species cover is found to exceed pre-disturbance conditions by greater than 10 percent or is 10 percent greater than levels at a similar, nearby reference site, a control effort would 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 would continue the monitoring and control efforts, and remedial actions would be identified and implemented until the success criteria are met. ▪ Provisions for consistency between the WCP and the RRP, including verification that the RRP includes measures to minimize the risk of the spread and/or establishment of invasive species and reflects the same revegetation performance standards as the WCP. ▪ Identification of weed control treatments, including permitted herbicides and manual and mechanical removal methods. ▪ Timeframes for weed control treatment for each plant species. ▪ Identification of fire prevention measures.		
BIO-MM#3	**BIO-MM#3: Establish Environmentally Sensitive Areas and Nondisturbance Zones** Prior to any ground-disturbing activity in a work area, the Project Biologist would use flagging to mark ESAs that support special-status species or aquatic resources and are subject to seasonal restrictions or other avoidance and minimization measures. The Project Biologist would also direct the installation of WEF to prevent special-status wildlife species from entering work areas. The WEF would have exit doors to allow animals that may be inside an enclosed area to leave the area. The Project Biologist would also direct the installation of construction exclusionary fencing (exclusionary fencing) at the boundary of the work area, as appropriate, to avoid and minimize impacts on special-status species or aquatic resources outside of the work area during the construction period. The ESAs, WEF, and exclusionary fencing would be delineated by the Project Biologist based on the results of habitat mapping or modeling and any pre-construction surveys, and in coordination with the Authority. The ESA, WEF, and exclusionary fencing would be regularly inspected and maintained by the Project Biologist. The ESA, WEF, and exclusionary fencing locations would be identified and depicted on an exclusion fencing exhibit. The purpose of the ESAs and WEF would be explained at WEAP training and the locations of the ESA and WEF areas would be noted during worker tailgate sessions.	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#4	**BIO-MM#4: Conduct Monitoring of Construction Activities**	Section 3.7, Biological and	Section 2.5.1, Project-Level Avoidance and

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	During any initial ground-disturbing activity, the Project Biologist would be present in the work area to verify compliance with avoidance and minimization measures, to establish ESAs, and install WEF and construction exclusion fencing.	Aquatic Resources	Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#5	**BIO-MM#5: Establish and Implement a Compliance Reporting Program** The Project Biologist would prepare monthly and annual reports documenting compliance with all IAMFs, mitigation measures, and requirements set forth in regulatory agency authorizations. The Authority would review and approve all compliance reports prior to submittal to the regulatory agencies. Reports would be prepared in compliance with the content requirements outlined in the regulatory agency authorizations. Pre-activity survey reports would be submitted within 15 days of completing the surveys and would include: ▪ Location(s) of where pre-activity surveys were completed, including latitude and longitude, and Assessor Parcel Number. ▪ Written description of the surveyed area. A figure of each surveyed location would be provided that depicts the surveyed area and survey buffers over an aerial image. ▪ Date, time, and weather conditions observed at each location. ▪ Personnel who conducted the pre-activity surveys. ▪ Verification of the accuracy of the Authority's habitat mapping at each location, provided in writing and on a figure. ▪ Observations made during the survey, including the type and locations (written and GIS) of any sensitive resources detected. ▪ Identification of relevant measures from the BRMP to be implemented as a result of the survey observations. Daily compliance reports would be submitted to the Authority via the EMMA system within 24 hours of each monitoring day. Non-compliance events would be reported to the Authority the day of the occurrence. Daily compliance reports would include: ▪ Date, time, and weather conditions observed at each location where monitoring occurred. ▪ Personnel who conducted compliance monitoring. ▪ Project activities monitored, including construction equipment in use. ▪ Compliance conditions implemented successfully. ▪ Noncompliance events observed. Daily compliance reports would also be included in the monthly compliance reports, which would be submitted to the Authority by the 10th of each month and would include:	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources

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	▪ Summary of construction activities and locations during the reporting month, including any noncompliance events and their resolution, work stoppages, and take of threatened or endangered species. ▪ Summary of anticipated project activities and work areas for the upcoming month. ▪ Tracking of impacts on suitable habitats for each threatened and endangered species identified in USFWS and CDFW authorizations, including: – An accounting of the number of acres of habitats for which we provide compensatory mitigation that has been disturbed during the reporting month, and – An accounting of the cumulative total number of acres of threatened and endangered species habitat that has been disturbed during the project period. ▪ Up-to-date GIS layers, associated metadata, and photo documentation used to track acreages disturbed. ▪ Copies of all pre-activity survey reports, daily compliance reports, and noncompliance/ work stoppage reports for the reporting month. Annual reports would be submitted to the Authority by the 20th of January and would include: ▪ Summary of all monthly compliance reports for the reporting year. ▪ A general description of the status of the project, including projected completion dates. ▪ All available information about project-related incidental take of threatened and endangered species. ▪ Information about other project impacts on the threatened and endangered species. ▪ A summary of findings from pre-construction surveys (e.g., number of times a threatened or endangered species or a den, burrow, or nest was encountered, location, if avoidance was achieved, if not, what other measures were implemented). ▪ Written description of disturbances to threatened and endangered species habitat within work areas, both for the preceding 12 months and in total since issuance of regulatory authorizations by USFWS and CDFW, and updated maps of all land disturbances and updated maps of identified habitat features suitable for threatened and endangered species within the project area. In addition to the compliance reporting requirements, the following items would be provided for compliance documentation purposes: ▪ If agency personnel visit the construction footprint in accordance with BIO-IAMF#2: Facilitate Agency Access, the Project Biologist would prepare a memorandum within 1 day of the visit that memorializes the issues raised during the field meeting. This memorandum would be submitted to the Authority via EMMA. Any issues regarding regulatory compliance raised by agency personnel will be reported to the Authority and the contractor.		

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	▪ Compliance reporting would be submitted to the Authority via EMMA in accordance with the report schedule. The Project Biologist would prepare and submit compliance reports that document the following: – Implementation and performance of the RRP described in BIO-MM#1 – Summary of progress made regarding the implementation of the WCP described in BIO-MM#2 – Compliance with BIO-MM#3 – Compliance with BIO-IAMF#6: Establish Monofilament Restrictions – Compliance with BIO-IAMF#7: Prevent Entrapment in Construction Materials and Excavations – Compliance with BIO-IAMF#8: Delineate Equipment Staging Areas and Traffic Routes – Compliance with BIO-IAMF#9: Dispose of Construction Spoils and Waste – Compliance with BIO-IAMF#10: Clean Construction Equipment – Compliance with BIO-IAMF#11: Maintain Construction Sites – BMP field manual implementation and any recommended changes to construction site housekeeping practices outlined in BIO-IAMF#11 ▪ Work stoppages and measures taken under BIO-MM#12: Work Stoppage, would be documented in a memorandum prepared by the Project Biologist and submitted to the Authority within 2 business days of the work stoppage.		
BIO-MM#6	**BIO-MM#6: Conduct Presence/Absence Pre-Construction Surveys for Special-Status Plant Species and Special-Status Plant Communities** Prior to any ground-disturbing activity, the Project Biologist would conduct presence/absence botanical surveys for special-status plant species and special-status plant communities in all potentially suitable habitats within a work area. The Project Biologist would flag and record in GIS the locations of any observed special-status plant species and special-status plant communities.	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#7	**BIO-MM#7: Prepare and Implement Plan for Salvage, Relocation, or Propagation of Special-Status Plant Species** Prior to any ground-disturbing activity, the Project Biologist would collect seeds and plant materials and stockpile and segregate the top four inches of topsoil from locations within the work area where species listed as threatened or endangered under the FESA, threatened, endangered, or candidate for listing under CESA, state-designated "Rare" species, and CRPR 1B and 2 species were observed during surveys for use on off-site locations. Suitable sites to receive salvaged material include Authority mitigation sites, refuges, reserves, federal or state lands, and public/private mitigation banks. If relocation or propagation is required by authorizations issued under the FESA and/or CESA, the Project Biologist would prepare a plant	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	species salvage plan to address monitoring, salvage, relocation and/or seed banking of federal or state-listed plant species The plan would include provisions that address the techniques, locations, and procedures required for the collection, storage, and relocation of seed or plant material; collection, stockpiling, and redistribution of topsoil and associated seed. The plan would also include requirements related to outcomes such as percent absolute cover of highly invasive species, as defined by the California Invasive Plant Council (less than documented baseline conditions), maintenance, monitoring, implementation, and the annual reporting. The plan would reflect conditions required under regulatory authorizations issued for federal or state-listed species. The Project Biologist would submit the plan to the Authority for review and approval.		
BIO-MM#8	**BIO-MM#8: Prepare a Compensatory Mitigation Plan for Species and Species Habitat** The Authority would prepare a compensatory mitigation plan that sets out the compensatory mitigation that would be provided to offset permanent and temporary impacts on federal and state-listed species and their habitat, fish and wildlife resources regulated under Section 1600 et seq. of the Fish and Game Code, and certain other special-status species. The compensatory mitigation plan would include the following: ▪ A description of the species and habitat types for which compensatory mitigation is being provided. ▪ A description of the methods used to identify and evaluate mitigation options. Mitigation options would include one or more of the following: – Purchase of mitigation credits from an agency-approved mitigation bank. – Protection of habitat through acquisition of fee-title or conservation easement and funding for long-term management of the habitat. Title to lands acquired in fee would be transferred to CDFW and conservation easements would be held by an entity approved in writing by the applicable regulatory agency. In circumstances where the Authority protects habitat through a conservation easement, the terms of the conservation easement would be subject to approval of the applicable regulatory agencies, and the conservation easement would identify applicable regulatory agencies as third party beneficiaries with a right of access to the easement areas. – Payment to an existing in-lieu fee program. ▪ A summary of the estimated direct permanent and temporary impacts on species and species habitat. ▪ A description of the process that would be used to confirm impacts. Actual impacts on species and habitat could differ from estimates. Should this occur, adjustments would be made to the compensatory mitigation that would be provided. Adjustments to	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	impact estimates and compensatory mitigation would occur in the following circumstances: – Impacts on species (typically measured as habitat loss) are reduced or increased as a result of changes in project design, – Pre-construction site assessments indicate that habitat features are absent (e.g., because of errors in land cover mapping or land cover conversion), – The habitat is determined to be unoccupied based on negative species surveys, or – Impacts initially categorized as permanent qualify as temporary impacts. ▪ An overview of the strategy for mitigating impacts on species. The overview would include the ratios to be applied to determine mitigation levels and the resulting mitigation totals. ▪ A description of habitat restoration or enhancement projects, if any, that would contribute to compensatory mitigation commitments. ▪ A description of the success criteria that would be used to evaluate the performance of habitat restoration or enhancement projects, and a description of the types of monitoring that would be used to verify that such criteria have been met. ▪ A description of the management actions that would be used to maintain the habitat on the mitigation sites, and the funding mechanisms for long-term management. ▪ A description of adaptive management approaches, if applicable, that would be used in the management of species habitat. ▪ A description of financial assurances that would be provided to demonstrate that the funding to implement mitigation is assured.		
BIO-MM#9	**BIO-MM#9: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration or Enhancement, or Creation on Mitigation Sites** Prior to ground-disturbing activities associated with habitat restoration, enhancement, and/or creation actions at a mitigation site, the Authority would conduct a site assessment of the work area to identify biological and aquatic resources, including plant communities, land cover types, and the distribution of special-status plants and wildlife. Based on the results of the site assessment, the Authority would obtain any necessary regulatory authorizations prior to conducting habitat restoration, enhancement and/or creation activities, including authorization under the FESA or CESA, Fish and Game Code Section 1600 et seq., CWA, and the Porter-Cologne Act. Restoration, enhancement, and/or creation of aquatic resources may result in the permanent conversion of grassland to wetland or riparian habitat. While such activities would be beneficial for vernal pool, riparian, and aquatic-breeding species, they would result in a small but measurable loss of upland habitat for other species (e.g., foraging habitat for tricolored blackbird, non-breeding habitat for California tiger salamander and California red-legged frog). Permanent impacts on grassland habitat from aquatic resource restoration, enhancement,	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources

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	and creation would be mitigated at a minimum ratio of 1:1 (acres preserved, enhanced, or restored: acres affected).		
BIO-MM#10	**BIO-MM#10: Compensate for Impacts on Listed Plant Species** The Authority would provide compensatory mitigation for direct impacts on federal and state-listed plant species based on the number of acres of plant habitat directly affected. Such mitigation will include the following measures: ▪ Compensatory mitigation would be provided at a 1:1 ratio to offset direct impacts on federally listed plant species habitat, unless a higher ratio is required pursuant to regulatory authorizations issued under the FESA. ▪ Compensatory mitigation would be provided at a 1:1 ratio to offset direct impacts on state-listed plant species habitat, unless a higher ratio is required pursuant to regulatory authorizations issued under CESA. ▪ Compensatory mitigation would be provided using one or more of the methods described in BIO-MM#8	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#11	**BIO-MM#11: Compensate for Impacts on Listed Butterfly Habitat** The Authority would provide compensatory mitigation at a 5:1 ratio, unless a higher ratio is required pursuant to regulatory authorizations issued under the FESA, to offset direct impacts on habitat for Bay checkerspot butterfly, callippe silverspot butterfly, and Mission blue butterfly. Compensatory mitigation could include one or more of the following: ▪ Purchase of mitigation credits from an agency-approved mitigation bank ▪ Protection of habitat through acquisition of fee-title or conservation easement and funding for long-term management of the habitat. Conservation easements would be held by an entity approved in writing by the applicable regulatory agency. In circumstances where the Authority protects habitat through a conservation easement, the terms of the conservation easement would be subject to approval of the applicable regulatory agencies, and the conservation easement would identify applicable regulatory agencies as third party beneficiaries with a right of access to the easement areas. ▪ Payment to an existing in-lieu fee program ▪ Restoration or enhancement of preserved habitat Mitigation for listed butterflies would prioritize acquisition of suitable habitat near San Bruno Mountain that is currently under private ownership in coordination with local conservation efforts. Compensatory mitigation areas and methods selected would include appropriate measures to guide habitat management (e.g., grazing, weed control), monitor population size, and identify methods to establish or reestablish populations, if necessary. Appropriate grazing management would verify that habitats are neither overgrazed nor overgrown. Weeding, biological control, mowing, herbicides, and fire would also be considered as possible tools to control nonnative plant species.	Section 3.7 Biological and Aquatic Resources	Section 2.5.2 Project-Level Avoidance and Minimization Impacts on Biological Resources

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	Monitoring of population size would be conducted in accordance with existing methods on San Bruno Mountain and would identify whether habitat management activities are working as intended (i.e., maintain or increase the number of butterflies) Several factors are important in deciding which areas to protect: (1) habitat size and quality, including habitat diversity; (2) location in relation to other habitat patches and to core populations; (3) presence, current or historic, of Bay checkerspots, callippe silverspots, and Mission blues; and (4) ease and cost of protection. Habitat protection should include buffer zones as necessary. Listed butterfly habitat areas considered for mitigation can be ranked in approximate order as follows: ▪ Areas identified by San Bruno Mountain Watch (2019): – Upper Brisbane Acres—110 acres of undeveloped land above Brisbane with native grassland and wildflowers – Brisbane Quarry—140 acres of aggregate quarry with high-quality callippe silverspot habitat around its periphery – Callippe Hill and surrounding lands—75 acres of undeveloped land east of San Bruno Mountain with habitat for callippe silverspot and other listed butterflies – Sign Hill Park—44.7 acres of undeveloped land on Sign Hill north of South San Francisco that provides habitat for callippe silverspot and Mission blue butterfly ▪ Other current or historic localities or suitable habitat areas, generally larger than 2.5 acres, within the historic range of the butterfly, identified for their habitat value, function as dispersal corridors, proximity to other habitat, or other biological value		
BIO-MM#12	**BIO-MM#12: Work Stoppage** In the event that any special-status wildlife species is found in a work area, the Project Biologist would have the authority to halt work to prevent the death or injury to the species. Any such work stoppage would be limited to the area necessary to protect the species and work may be resumed once the Project Biologist determines that the individuals of the species have moved out of harm's way or the Project Biologist has relocated them out of the work area. Relocation areas for listed reptiles or amphibians would be a minimum of 500 feet from the work area boundary and would not include staging areas or roads. Any such work stoppages and the measures taken to facilitate the removal of the species, if any, would be documented in a memorandum prepared by the Project Biologist and submitted to the Authority within two business days of the work stoppage.	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#13	**BIO-MM#13: Restore Temporary Riparian Habitat Impacts** Within 90 days of completing construction in a work area, the Project Biologist would direct the revegetation of any riparian areas temporarily disturbed as a result of the construction activities, using appropriate native plants and seed mixes. Native plants and seed mixes would be obtained from stock originating from areas within the local watershed, to the extent feasible. The Project Biologist would	Section 3.7, Biological and Aquatic Resources	Section 2.5.1, Project-Level Avoidance and Minimization of Impacts on Aquatic Resources; Section 2.5.2, Project-Level

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	monitor restoration activities consistent with provisions in the RRP (BIO-MM#1).		Avoidance and Minimization Impacts on Biological Resources
BIO-MM#14	**BIO-MM#14: Prepare Plan for Dewatering and Water Diversions** Prior to initiating any construction activity that occurs within open or flowing water, or streamside activities, the Authority would prepare a dewatering plan, which would be subject to review and approval by the applicable regulatory agencies. The plan would incorporate measures to minimize turbidity and siltation. The project biologist would monitor the dewatering or water diversion sites, including collection of water quality data, as applicable. Prior to the dewatering or diverting of water from a site, the project biologist would conduct pre-activity surveys to determine the presence or absence of special-status species within the affected waterbody. In the event that special-status species are detected during pre-activity surveys, the project biologist would relocate the species (unless the species is fully protected under state law), consistent with any regulatory authorizations applicable to the species.	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#15	**BIO-MM#15: Prepare and Implement a Cofferdam Fish Rescue Plan** If cofferdam construction or stream dewatering is required, the Authority would develop a fish rescue plan. The fish rescue plan would outline the methods for removing and relocating fish to adjacent waterways and would be implemented by a qualified fisheries biologist. The plan would also include methods for minimizing the risk of stress and mortality from capture and handling and adverse impacts on listed fish species (if present) associated with fish stranding. NMFS and CDFW would be notified at least 48 hours prior to the start of fish rescue efforts, and a report of the species, number, and size of fish collected would be submitted to CDFW and NMFS within 30 days of the fish rescue. The area to be dewatered would first be seined and then electrofished to remove remaining fish. The agency-approved biologist must have appropriate training and experience in electrofishing techniques and all electrofishing must be conducted according to the NMFS *Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act* (NMFS 2000). A fisheries biologist would be on-site during initial dewatering to confirm compliance with the fish rescue plan. In streams bearing anadromous fish, in-water construction would avoid migration periods, and dewatering (installation of cofferdams) would begin no earlier than June 1 and would be completed (i.e., cofferdams removed) by October 15. If a cofferdam is required, the Authority would implement the following measures, unless other methods are approved by NMFS: ▪ Build cofferdams 30 to 50 feet upstream and downstream of the construction location ▪ Minimize the cofferdam footprint to the minimum extent possible	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources

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	▪ Pump water from the upstream location to the downstream location through a flexible corrugated pipe ▪ Match pumping volumes and velocities to upstream flows and maintain pumping volumes and velocities to match changes in upstream flows ▪ Install a T-pipe and riprap apron at the discharge location to disperse outflow and minimize erosion ▪ Build cofferdams and riprap aprons over visqueen or similar material to facilitate cleanup and removal of materials ▪ Remove all construction materials, including sandbags and rock, and restore the area to pre-construction contours The agency-approved biologist would continuously monitor the placement of cofferdams and dewatering of isolated areas for the purpose of removing and relocating any listed species that were not detected or could not be removed and relocated prior to construction. The agency-approved biologist would be present at the work site until all listed species have been removed and relocated.		
BIO-MM#17	**BIO-MM#17: Provide Compensatory Mitigation for Permanent Impacts on Steelhead, Green Sturgeon Habitat, and Essential Fish Habitat** The Authority would provide compensatory mitigation for permanent impacts on habitat for CCC steelhead, green sturgeon and EFH that is commensurate with the type (rearing, migratory, or critical habitat) and amount of habitat lost as follows: ▪ All rearing and migratory aquatic and riparian habitat within critical habitat would be protected and restored or protected and enhanced at a minimum of 2:1 (protected:affected) or as specified in authorizations issued under the FESA ▪ All other rearing and migratory aquatic and riparian habitat would be protected and restored or protected and enhanced at a minimum of 1:1 (protected:affected) or as specified in authorizations issued under the FESA The Authority would purchase riparian and aquatic habitat credits at an NMFS-approved anadromous fish conservation bank, or another NMFS-approved conservation option, for the areal extent of riparian and suitable aquatic habitat affected by the project. In the event the Authority chooses not to utilize existing mitigation banks, it would propose other approaches to the applicable regulatory agencies for consideration. Any such approaches would take into account the following: ▪ Riparian habitat conditions that are consistent with the existing flow regime and maintain and improve habitat characteristics (e.g., shade, formation and maintenance of refugia) ▪ Local and regional conservation goals ▪ Long-term access for monitoring and maintenance ▪ Upstream and downstream conditions Conservation options developed to offset impacts to steelhead and green sturgeon habitat and EFH would be considered in the	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	development of the compensatory mitigation plan (BIO-MM#8), RRP (BIO-MM#1) and flood protection plan (HYD-IAMF#2).		
BIO-MM#18	**BIO-MM#18: Conduct Pre-Construction Surveys for Special-Status Reptile and Amphibian Species** Prior to any ground-disturbing activities in suitable habitat for special-status reptile and amphibian species, the Project Biologist would conduct a pre-construction survey of the work area no more than 30 days before the start of ground-disturbing activities in the work area. The results of the pre-construction survey would be used to guide the placement of ESAs or conduct species relocation. The following species are subject to this measure: ▪ California red-legged frog ▪ San Francisco garter snake ▪ Western pond turtle	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#19	**BIO-MM#19: Implement Avoidance and Minimization Measures for Special-Status Reptile and Amphibian Species** The Project Biologist would monitor all initial ground-disturbing activities that occur within suitable habitat for special-status reptiles and amphibians, and would conduct clearance surveys of suitable habitat in the work area on a daily basis. If a special-status reptile or amphibian is observed, the Project Biologist would identify actions, to the extent feasible, sufficient to avoid impacts on the species and to allow it to leave the area on its own volition. Such actions may include establishing a temporary ESA in the area where a special-status reptile or amphibian has been observed and delineating a 50-foot no-work buffer around the ESA. In circumstances where a no-work buffer is not feasible the Project Biologist would relocate any of the species observed from the work area. For federal or state-listed species, relocations would be undertaken in accordance with regulatory authorizations issued under the FESA and/or CESA.	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#20	**BIO-MM#20: Install San Francisco Garter Snake and California Red-Legged Frog Exclusion Fencing at SFO West-of-Bayshore Property** Prior to any ground-disturbing activity adjacent to or within San Francisco garter snake and California red-legged frog habitat at the SFO West-of-Bayshore property (between MP 11.4 and 13.4), the contractor, under the direction of the project biologist, would install temporary WEF along the boundary of the work area or would implement similar measures as otherwise required pursuant to regulatory authorizations issued under the FESA. WEF must be installed for a 2-week period prior to the initiation of ground-disturbing activity and trenched into the soil at least 6 inches deep, with the soil compacted against both sides of the fence for its entire length to prevent San Francisco garter snakes and California red-legged frogs from passing under the fence. The WEF must have intermittent exit points. The project biologist would monitor construction activities inside the WEF on a full-time basis during the peak activity period for San Francisco garter snakes and California red-legged frogs (March to July [SFO 2014]) and would conduct daily inspections of the WEF prior to and during any construction activities inside the WEF from	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	August to February. Vehicle speeds inside WEF work areas would be limited to 5 mph. Any needed repairs to the WEF will be made within 24 hours. During monitoring and daily inspections, the project biologist would check for San Francisco garter snakes and California red-legged frogs under vehicles and equipment that have been inactive for periods of eight hours or more. Temporary WEF would be removed after all ground disturbance and equipment use (including vehicles) for the activity is completed.		
BIO-MM#21	**BIO-MM#21: Compensate for Impacts on San Francisco Garter Snake and California Red-Legged Frog Habitat** The Authority would provide compensatory mitigation to offset the loss of modeled San Francisco garter snake and California red-legged frog habitat. Compensatory mitigation would be provided in the following ratios, unless higher ratios are required through regulatory authorizations issued under the FESA: ▪ 2:1 for permanent impacts on aquatic habitat ▪ 1:1 for permanent impacts on refugia habitat Compensatory mitigation would be provided using one or more of the methods described in BIO-MM#8.	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#25	**BIO-MM#25: Conduct Pre-Construction Surveys and Delineate Active Nest Buffers Exclusion Areas for Breeding Birds** Prior to any ground-disturbing activity, including vegetation removal, scheduled to occur during the bird breeding season (February 1 to September 1), the Project Biologist would conduct visual pre-construction surveys within the work area for nesting birds and active nests (nests with eggs or young) of native bird species listed under the MBTA and/or the Fish and Game Code. In the event that active bird nests are observed during the pre-construction survey, the Project Biologist would delineate no-work buffers. No-work buffers would be set at a distance of 75 feet, unless a larger buffer is required pursuant to regulatory authorizations issued under the Fish and Game Code. No-work buffers would be maintained until nestlings have fledged and are no longer reliant on the nest or parental care for survival or the Project Biologist determines that the nest has been abandoned. In circumstances where it is not feasible to maintain the standard no-work buffer, the no-work buffer may be reduced, provided that the Project Biologist monitors the active nest during the construction activity so that the nesting birds do not become agitated.	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#30	**BIO-MM#30: Conduct Pre-Construction Surveys for Special-Status Bat Species** Prior to replacement or modification of any bridges modeled as bat habitat, the Project Biologist would conduct pre-construction bridge surveys as follows: ▪ The Project Biologist would conduct a survey of the bridge looking for evidence of roosting bats no less than 2 months prior to construction. If bat sign is detected, biologists would conduct an evening visual emergence survey of the bridge, from a half hour	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	before sunset to 1–2 hours after sunset for a minimum of 2 nights within the season that construction would be taking place. Night-vision goggles and/or full-spectrum acoustic detectors would be used during emergence surveys to assist in species identification. All emergence surveys would be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no precipitation predicted). ▪ If a potentially active bat roost is in the bridge, passive monitoring with full-spectrum bat detectors would be used to assist in determining species present. A minimum of 4 nights of acoustic monitoring surveys would be conducted within the season that construction would be taking place. If site security allows, detectors would be set to record bat calls for the duration of each night. To the extent possible, all monitoring would be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no precipitation predicted). The biologists would analyze the bat call data using appropriate software and would prepare a report that would be submitted to the Authority. Prior to the removal of large (greater than 24 inches diameter-at-breast-height) trees, the Project Biologist would conduct pre-construction tree removal surveys as follows: ▪ Within 2 weeks prior to tree removal, the Project Biologist would examine trees to be removed for suitable bat roosting habitat. High-quality habitat features (e.g., large tree cavities, basal hollows, loose or peeling bark, larger snags) would be identified, and the area around these features searched for bats and bat sign (e.g., guano, culled insect parts, staining). ▪ If bat sign is detected, biologists would conduct an evening visual emergence survey of the source habitat feature, from a half hour before sunset to 1–2 hours after sunset for a minimum of 2 nights within the season that construction would be taking place. Night-vision goggles and/or full-spectrum acoustic detectors would be used during emergence surveys to assist in species identification. All emergence surveys would be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no precipitation predicted). ▪ If a potentially active bat roost is identified within a tree proposed for removal, passive monitoring with full-spectrum bat detectors would be used to assist in determining species present. A minimum of 4 nights of acoustic monitoring surveys would be conducted within the season that construction would be taking place. If site security allows, detectors should be set to record bat calls for the duration of each night. To the extent possible, all monitoring would be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no precipitation predicted). The biologists would analyze the bat call data using appropriate software and prepare a report that will be submitted to the Authority.		
BIO-MM#31	**BIO-MM#31: Implement Bat Avoidance and Relocation Measures**	Section 3.7, Biological and	Section 2.5.2, Project-Level Avoidance and

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	If active hibernacula or maternity roosts are found in the work area during pre-construction surveys, avoidance would be the preferred approach to minimize impacts. If avoidance of the roost is not feasible, the Project Biologist would prepare a relocation plan and provide for an alternative bat roost outside the project footprint. The Project Biologist would implement the relocation plan before the commencement of any ground-disturbing activities in the work area and within 75 feet of the roost. Removal of roosts would only occur between August 1 and October 31 and would be guided by accepted exclusion and deterrent techniques. If delay of construction activities until the period between August 1 and October 31 for removal of a roost is not feasible, then construction may proceed.	Aquatic Resources	Minimization Impacts on Biological Resources
BIO-MM#32	**BIO-MM#32: Implement Bat Exclusion and Deterrence Measures** If non-breeding or non-hibernating individuals or groups of bats are found roosting within the work area, the Project Biologist would facilitate the eviction of the bats by either opening the roosting area to change the lighting and airflow conditions, or installing one-way doors or other appropriate methods. To the extent feasible, the Authority would leave the roost undisturbed by project activities for a minimum of 1 week after implementing exclusion and/or eviction activities. Steps would not be taken to evict bats from active maternity or hibernacula; instead such features may be relocated pursuant to a relocation plan.	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
BIO-MM#33	**BIO-MM#33: Install Aprons or Barriers within Security Fencing** Prior to final construction design the Project Biologist would review the fencing plans along any portion of the permanent right-of-way that is adjacent to natural habitats and confirm that the permanent security fencing would be enhanced with a barrier (e.g., fine mesh fencing) that extends at least 12 inches below ground and 12 inches above ground to prevent special-status reptiles, amphibians and mammals from moving through or underneath the fencing and gaining access to areas within the right-of-way. At the 12-inch depth of the below-grade portion of the apron, it will extend or be bent at an approximately 90-degree angle and oriented outward from the right-of-way a minimum of 12 inches, to prevent fossorial mammals, reptiles, and amphibians from digging or tunneling below the security fence and gaining access to the right-of-way. A climber barrier (e.g., rigid curved or bent overhang) will be installed at the top of the apron to prevent reptiles, amphibians and mammals from climbing over the apron. The Project Biologist would make sure that the selected apron material and climber barrier does not cause harm, injury, entanglement, or entrapment to wildlife species. The Authority would provide for quarterly inspection and repair of the fencing. The specific design and method for installation of an apron or barrier may vary as required by regulatory authorizations issued under the FESA and/or CESA. Prior to operation the Project Biologist would field inspect the fencing along any portion of the permanent right-of-way that is adjacent to natural habitats and confirm that the fencing has been appropriately installed. Fencing plan review and field inspection	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	would be documented in a memorandum from the Project Biologist and provided to the Authority.		
BIO-MM#35	**BIO-MM#35: Provide Compensatory Mitigation for Permanent Impacts on Riparian Habitat** The Authority would compensate for permanent impacts on riparian habitats at a ratio of 2:1, unless a higher ratio is required by agencies with regulatory jurisdiction over the resource. Compensatory mitigation may occur through habitat restoration, the acquisition of credits from an approved mitigation bank, or participation in an in lieu fee program.	Section 3.7, Biological and Aquatic Resources	Section 2.5.2, Project-Level Avoidance and Minimization Impacts on Biological Resources
CUL-MM#1	**CUL-MM#1: Mitigate Adverse Effects on Archaeological and Built Resources Identified during Phased Identification and Comply with the Stipulations Regarding the Treatment of Archaeological and Historic Built Resources in the PA and MOA** No properties in the APE have been identified as containing buildings built in or prior to 1966, that could not be adequately recorded from public right-of-way. Therefore no known properties in the current APE would be surveyed and formally evaluated under NRHP and CRHR criteria during the post-ROD design phase and prior to construction. However, while the degree of design development completed as of ROD does not require additional survey and evaluation, additional design development could precipitate changes to the APE, and may result in the need to survey and evaluate additional properties. Once parcels are accessible and surveys have been completed, including consultation as stipulated in the MOA, additional archaeological and built resources may be identified. For newly identified eligible properties that would be adversely affected, the following process would be followed, which would be presented in detail in the BETP and ATP: ▪ The Authority would consult with the MOA signatories and concurring parties to determine the preferred treatment of the properties/resources and appropriate mitigation measures. ▪ For CRHR-eligible archaeological resources, the Authority would determine if these resources could feasibly be preserved in place, or if data recovery is necessary. The methods of preservation in place would be considered in the order of priority provided in CEQA Guidelines Section 15126.4(b)(3). If data recovery is the only feasible treatment the Authority would adopt a data recovery plan as required under CEQA Guidelines Section 15126.4(b)(3)(C). ▪ Should data recovery be necessary, the PI, in consultation with the MOA signatories and consulting parties, would prepare a data recovery plan for approval from the Authority/FRA and in consultation with the MOA signatories. Upon approval, the PI would implement the plan. ▪ For archaeological resources, the Authority would also determine if the resource is a unique archaeological resource under CEQA. If the resource is not a historical resource but is an archaeological resource, the resource would be treated as required in Cal. Public Res. Code Section 21083.2 by following protection, data recovery,	Section 3.16, Cultural Resources	Section 2.5.3, Project-Level Avoidance and Minimization Impacts on Cultural Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	and other appropriate steps outlined in the ATP. The ATP outlines the review and approval requirements for these documents. ▪ For historic built resources, the PI would amend the BETP to include the treatment and mitigation measures identified by the Authority and FRA in consultation with the MOA signatories and concurring parties. The PI would implement the treatment and mitigation measures accordingly.		
CUL-MM#2	**CUL-MM#2: Halt Work in the Event of an Archaeological Discovery, and Comply with the PA, MOA, ATP, and all State and Federal Laws, as Applicable** During construction (any ground-disturbing activities, including cleaning and grubbing) should there be an unanticipated discovery, the contractor would follow the procedures for unanticipated discoveries as stipulated in the PA, MOA, and associated ATP. The procedures must also be consistent with the following: the SOI's Standards and Guidelines for Archaeology and Historic Preservation (48 *Federal Register* 44716–42), as amended; and Guidelines for the Implementation of CEQA, as amended (14 Cal. Code Regs. Chapter 3, Article 9, §§ 15120–15132). Should the discovery include human remains, the contractor, the Authority, and the FRA would comply with federal and state regulations and guidelines regarding the treatment of human remains, including relevant sections of NAGPRA (§ 3(c)(d)); California Health and Safety Code, Section 8010 et seq.; and Cal. Public Res. Code Section 5097.98; and consult with the NAHC, tribal groups, and the SHPO. In the event of an unanticipated archaeological discovery, the contractor would cease work in the immediate vicinity of the find, based on the direction of the archaeological monitor or the apparent location of cultural resources if no monitor is present. If no qualified archaeologist is present, no work can commence until it is approved by the qualified archaeologist in accordance with the MOA, ATP, and monitoring plan. The contractor's qualified archaeologist would assess the potential significance of the find and make recommendations for further evaluation and treatment as necessary. These steps may include evaluation for the CRHR and NRHP, and necessary treatment to resolve significant impacts if the resource is a historical resource or historic property. If, after documentation is reviewed by the Authority and FRA, and they determine it is a historic property and the SHPO concurs that the resource is eligible for the NRHP, or the Authority determines it is eligible for the CRHR, the Authority would consider preservation in place in the order of priority provided in CEQA Guidelines Section 15126.4(b)(3) and in consultation with the signatories and consulting parties to the MOA. If data recovery is the only feasible mitigation, then the PI would prepare a data recovery plan as required under CEQA Guidelines Section 15126.4(b)(3)(C), the MOA, and ATP, for the Authority's approval. If human remains are discovered on state-owned or private lands, the contractor would contact the relevant County Coroner to allow the Coroner to determine if an investigation regarding the cause of death is required. If no investigation is required and the remains are of Native American origin the Authority would contact the NAHC to	Section 3.16, Cultural Resources	Section 2.5.3, Project-Level Avoidance and Minimization Impacts on Cultural Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	identify the MLD. The MLD would be empowered to reinter the remains with appropriate dignity. If the MLD fails to make a recommendation the remains would be reinterred in a location not subject to further disturbance and the location would be recorded with the NAHC and relevant Information Center of the California Historic Resources Information System. If human remains are part of an archaeological resource, the Authority and contractor would, in consultation with the MLD and other consulting parties, consider preservation in place as the first option, in the order of priority called for in CEQA Guidelines Section 15126.4(b)(3). In consultation with the relevant Native American tribes, the Authority may conduct scientific analysis on the human remains if called for under a data recovery plan and amenable to all consulting parties. The Authority would work with the MLD to satisfy the requirements of Cal. Public Res. Code Section 5097.98. Performance tracking of this mitigation measure would be based on successful implementation and acceptance of the documentation by the SHPO and appropriate consulting parties. The mitigation measures described in this section and provided in the ATP are consistent with best practices within the professional archaeological community and are commensurate with mitigation measures for other large-scale transportation projects.		
CUL-MM#3	**CUL-MM#3: Other Mitigation for Effects on NRHP-Eligible Pre-Contact Archaeological Resources** As a result of limited access to private properties during the environmental review phase of this project, the FRA's and Authority's ability to fully identify and evaluate archaeological resources in the APE has also been limited. Thus, the majority of the project APE has not been subject to archaeological field inventories. Because pedestrian field surveys are a necessary component of the archaeological resource identification and evaluation effort, the commitment to complete the field surveys prior to ground-disturbing activities associated with the project, is codified in the MOA that has been executed as a condition of the Final EIR/EIS. Access to previously inaccessible properties to complete the archaeological resource identification effort is expected to be available after the ROD, during the design-build phase of the project. However, because of the design constraints associated with constructing an HSR system, the ability to shift the alignment to avoid any newly identified archaeological resources at this late phase of the project delivery process is substantially limited or unlikely, because the alignment is already established. As a result, impacts on as-yet-unidentified significant archaeological resources from the project are anticipated; however, the nature and quantity of such impacts remains unknown until completion of the archaeological field identification and evaluation effort. The MOA and ATP include protocols for the identification, evaluation, treatment, and data-recovery mitigation of as-yet-unidentified archaeological resources. Efforts to develop meaningful mitigation measures for impacts on as-yet-unidentified Native American archaeological resources that cannot be avoided would be negotiated with the tribal consulting parties. Measures negotiated among the	Section 3.16, Cultural Resources	Section 2.5.3, Project-Level Avoidance and Minimization Impacts on Cultural Resources

AMM	Description	Location in EIR/EIS	Location in Checkpoint C
	MOA signatories and tribal consulting parties would be the Authority's responsibility to implement. The mitigation measure described in this section is consistent with best practices within the professional archaeological community and is commensurate with mitigation measures for other large-scale transportation projects.		

AMM = Avoidance and Minimization Measure
APE = area of potential effect
ATP = archaeological treatment plan
Authority = California High-Speed Rail Authority
BETP = built environment treatment plan
BGEPA = Bald and Golden Eagle Protection Act
BMP = best management practice
BRMP = biological resources management plan
CCC = central California coast
CDFW = California Department of Fish and Wildlife
CEQA = California Environmental Quality Act
CESA = California Endangered Species Act
CRHR = California Register of Historical Resources
CRPR = California Rare Plant Rank
CWA = Clean Water Act
DPR = California Department of Parks and Recreation
EFH = essential fish habitat
EIR = environmental impact report
EIS = environmental impact statement
EMMA = Environmental Mitigation Management and Assessment
ESA = environmentally sensitive area
FESA = federal Endangered Species Act
FRA = Federal Railroad Administration
GIS = geographic information system
HABS = Historic American Buildings Survey
HAER = Historic American Engineering Record
HALS = Historic American Landscape Survey
HSR = high-speed rail
IAMF = impact avoidance and minimization feature
MBTA = Migratory Bird Treaty Act
MLD = most likely descendant
MOA = Memorandum of Agreement
MP = milepost
mph = miles per hour
NAGPRA = Native American Grave Protection and Repatriation Act
NAHC = Native American Heritage Commission
NMFS = National Marine Fisheries Service
NPS = National Park Service
NRHP = National Register of Historic Places
O&M = operations and maintenance
PA = Programmatic Agreement
PI = principal investigator
ROD = Record of Decision
RRP = restoration and revegetation plan
RWQCB = Regional Water Quality Control Board
SFO = San Francisco International Airport
SHPO = State Historic Preservation Officer
SOI = Secretary of the Interior
SWPPP = stormwater pollution prevention plan
SWRCB = State Water Resources Control Board
USFWS = U.S. Fish and Wildlife Service
WCP = weed control plan
WEAP = worker environmental awareness program
WEF = wildlife exclusion fencing

References

San Francisco International Airport (SFO). 2014. San Francisco Garter Snake Monitoring Report, West-of-Bayshore Property, San Francisco International Airport: 2013 Mark-Recapture Survey Results. Prepared by Swaim Biological, Inc. September 2014. San Francisco, CA.