MODIFICATIONS TO THE MITIGATION MONITORING AND REPORTING PROGRAM FOR THE SOIL INVESTIGATIONS FOR DATA COLLECTION IN THE DELTA PROJECT

This decision document was prepared in support of the adoption of the modifications to the Mitigation Monitoring and Reporting Program (MMRP) for the Soil Investigations for Data Collection in the Delta Project (SCH# 2019119073) (Project), as the implementing document for the approved IS/MND and associated addenda. The modifications to the MMRP consist of the following revisions to Mitigation Measure BIO-1b and BIO-1d[1]:

> Mitigation Measure BIO-1b. As stated in the project description, all on-land soil investigation Impact Areas will be located outside of wetlands as defined in the Corps of Engineers Wetlands Delineation Manual (USACE 1987). Evaluation of conditions at each site will be conducted by a qualified wetland delineator~~s~~. If after either review of applicable data sources (e.g. verified delineations and /or aerial imagery) or initial site reconnaissance, potential ~~nearby~~ aquatic resources including those that meet the Corps definition of wetlands or non-wetland waters are identified ~~for on-land soil investigation sites~~ within the Impact Area, ~~including those that meet the Corps definition of wetlands or non-wetland waters,~~ a wetland delineator~~s~~ will perform ~~participate in the~~ a site survey~~s~~ for ~~those~~ that site~~s~~ and relocate ~~them outside of~~ the Impact Area a minimum of 5 feet from the boundary~~ies~~ of observed aquatic resources. This distance exceeds the USACE Sacramento District's minimum standard for mapping accuracy (less than one meter) for delineation of aquatic resources and would ensure avoidance of impacts to the resource.
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> Mitigation Measure BIO-1d. A qualified team of biologists will conduct a habitat assessment and reconnaissance level surveys approximately two weeks prior to the onset of ground disturbing soil investigation activities for any special status plants and wildlife that have the potential to occur within the project area (see Appendix A-Wildlife and Plant Species List). If, based on the habitat assessment and reconnaissance level surveys, the biologists identify the potential for special status wildlife impacts ~~within the Impact Area and associated standard species buffers based on the site reconnaissance~~, the location will be shifted to a suitable location as identified by the qualified team of biologists, which is defined as a location that achieves the following four performance standards: (1) satisfies the requirements of Mitigation Measures BIO 2 through BIO 20, AES-1, AES-2, HYD-1, and HAZ-1 through HAZ-4 (2) is the minimum distance necessary (informed by the mitigation measures cited in (1)) to ensure that no special status plants and wildlife with the potential to occur is disturbed during the work activities, (3) ~~reduce the potential for biological impacts to a less than significant level without increasing~~ does not increase impacts to other resources to above a level of

[1] Underlined text indicates insertions and strikethrough text indicates deletions.

significance, and (4) the qualified biologist team must determine that commencing activities does not have the possibility to cause unpermitted take under federal or State law. If a suitable location, as defined above, cannot be determined within adjacent areas by the qualified team of biologists, then the soil investigation at that location will not be conducted.

Mitigation Measure BIO-1b requires that all on-land soil investigation Impacts Areas are located outside of wetlands. To ensure all on-land soil Impact Areas are located outside of wetlands, the measure has been clarified to provide that where potential aquatic resources are identified through data sources or initial reconnaissance level surveys, a wetland delineator must conduct a survey and confirm that the Impact Area is a minimum of 5 feet from the boundary of any observed aquatic resources. The USACE Sacramento District's minimum standard for mapping accuracy is one meter for delineation of aquatic resources. (USACE, Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (January 2016), https://www.spk.usace.army.mil/Portals/12/documents/regulatory/jd/minimum-standards/Minimum_Standards_for_Delineation_with_Template-final.pdf.) As one meter is approximately 3.25 feet, Mitigation Measure BIO-1b conservatively requires Impact Areas to be located a minimum of 5 feet from the boundary of the nearest observed aquatic resource to account for variations in mapping accuracy and to ensure all on-land soil investigation Impact Areas are located outside of wetlands as required by Mitigation Measure BIO-1b.

Mitigation Measure BIO-1d requires a qualified team of biologists to conduct a habitat assessment and reconnaissance level surveys in order to confirm whether any special status plant and wildlife species have potential to occur in the project area for each soil investigation and requires the location for an investigation to be shifted to a suitable location or abandoned (if necessary) to avoid potentially significant impacts to any special status plant and wildlife species. The measure has been clarified to list the four criteria used by DWR to identify suitable locations. Specifically, to be suitable, a location must (1) satisfy the requirements of Mitigation Measures BIO-2 through BIO-20, AES-1, AES-2, HYD-1, and HAZ-1 through 4, (2) be the minimum distance necessary to ensure that no special status plant and wildlife with the potential to occur is disturbed during the work activities, (3) not increase impacts to other resources to above a level of significance, and (4) the qualified biologist team must determine that commencing activities does not have the possibility to cause unpermitted take under federal or State law. If a suitable location, as defined above, cannot be determined within adjacent areas by the qualified team of biologists, then the soil investigation at that location will not be conducted. The first performance criterion in Mitigation Measure BIO-1d is relevant to most special status wildlife and plant species with the potential to occur

because, as demonstrated in the attached Appendix A,[2] most special status wildlife species and all special status plant species with the potential to occur are covered by Mitigation Measures BIO-1 as well as one or more of Mitigation Measures BIO-2 through BIO-20, AES-1, AES-2, HYD-1, or HAZ-1 through 4. For species covered by BIO-1 in addition to other measures as identified in the attached Appendix A, a soil investigation site must satisfy the requirements of each of the applicable mitigation measures before soil investigation activities may commence. The second and third criteria are relevant to all special status plant and wildlife species with the potential to occur and ensure no special status plant and wildlife with the potential to occur is disturbed while taking into consideration all other resources. Furthermore, for all special status wildlife species, criteria four would also ensure that the qualified team of biologists must confirm the location for the soil investigation will not disturb any special status plant and wildlife species or cause an unpermitted take. Finally, the qualified team of biologists must also confirm that any adjustment in the site location required to comply with Mitigation Measure BIO-1d does not increase impacts to any other resources above the level of significance.

This decision document was prepared in response to the Ruling on the Petition for Writ of Mandate in *Central Delta Water Agency et al v. California Department of Water Resources*, Sacramento Superior Court Case No. 34-2020-80003457 (Ruling). In the Ruling, the Court found that DWR must modify subdivisions (b) and (d) of Mitigation Measure BIO-1 to identify the performance standards applied by DWR in implementing these subdivisions of BIO-1. Otherwise, "[a]s detailed throughout th[e] ruling, the Court f[ound] substantial evidence support[ed] the agency's conclusion that there is *not* substantial evidence of a fair argument that the proposed plan might have a significant adverse environmental effect after mitigation." (Ruling, p. 10 (original emphasis).) In adopting the approved IS/MND and addenda, DWR adopted an MMRP, consistent with CEQA Guidelines section 15097, to implement, monitor and report compliance with the Project's mitigation requirements. Modification of the MMRP to include the performance standards set forth above for subdivisions (b) and (d) of Mitigation Measure BIO-1 will (1) ensure Mitigation Measure BIO-1 is implemented as intended in the IS/MND and addenda and (2) require that DWR report and monitor compliance.

As demonstrated below, the modified MMRP does not require recirculation of the previously adopted IS/MND pursuant to CEQA Guidelines section 15073.5 or subsequent review pursuant to CEQA Guidelines section 15162.

A lead agency is required to recirculate a negative declaration or mitigated negative declaration when the document must be substantially revised after public notice of its availability has previously been given pursuant to CEQA Guidelines section 15072, but

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[2] The attached Appendix A (Wildlife and Plant Species List) is identical to the IS/MND Appendix A except it includes a final column that identifies each of the mitigation measures that are applicable to ensuring that the project will result in a less-than-significant impact to all special status wildlife species with the potential to occur.

prior to its adoption. (CEQA Guidelines, § 15073.5(a).) Here, DWR adopted the IS/MND in July of 2020 and modification to Mitigation Measure BIO-1b and 1d only requires approval of a modified MMRP. Therefore, as this decision to adopt a modified MMRP is made after adoption of the IS/MND, this action is not subject to CEQA's recirculation test pursuant to CEQA Guidelines section 15073.5 and is instead subject to CEQA's subsequent review test pursuant to CEQA Guidelines section 15162. However, even if CEQA Guidelines section 15073.5 applied to approval of the modified MMRP, "[r]ecirculation is not required... [where] [n]ew information is added to the negative declaration which merely clarifies, amplifies, or makes insignificant modifications to the negative declaration." (CEQA Guidelines, § 15073.5(c)(4).) The modifications to Mitigation Measure BIO-1b and 1d merely clarify how the subdivisions of Mitigation Measure BIO-1, as included in the adopted IS/MND and addenda, will be implemented by DWR. Except for providing such clarifications, the "Court f[ound] substantial evidence support[ed] the agency's conclusion that there is *not* substantial evidence of a fair argument that the proposed plan might have a significant adverse environmental effect after mitigation." (Ruling, p. 10 (original emphasis).) Therefore, the modifications to Mitigation Measure BIO-1b and 1d do not constitute a "substantial revision" requiring recirculation as defined in CEQA Guidelines section 15073.5(b).

To evaluate the criteria for subsequent review set forth in Public Resources Code section 21166 and CEQA Guidelines sections 15162 and 15164, as interpreted in *Friends of Coll. of San Mateo Gardens v. San Mateo Cnty. Cmty. Coll. Dist.* (2016) 1 Cal.5th 937 (*Friends I*) and *Friends of Coll. of San Mateo Gardens v. San Mateo Cnty. Cmty. Coll. Dist.* (2017) 11 Cal.App.5th 596 (*Friends II*). The proposed modifications to the MMRP are necessary, but those changes do not create new potentially significant environmental impacts that warrant major revisions to the previous document (CEQA Guidelines §§ 15162(a)(1), 15164(a); *Friends II*, *supra*, 11 Cal.App.5th at pp. 607-608).

The proposed modifications to the MMRP, do not create any new potentially significant impacts or a substantial increase in the severity of previously identified potentially significant impact. DWR finds no substantial evidence to the contrary. Nor are there any new circumstances or new information that could create potentially significant impacts or require more robust analysis (CEQA Guidelines § 15162(a)(2)-(3); *Friends I*, *supra*, at p. 953). Thus, neither a subsequent MND nor an EIR is warranted (CEQA Guidelines, § 15164(e); *Friends II*, *supra*, 11 Cal.App.5th at pp. 607-608).

These criteria are individually examined below to demonstrate that no conditions triggering a subsequent MND or EIR are present.

1. **No substantial changes are proposed that will require major revisions to the MND because of new potentially significant environmental effects or a substantial increase in the severity of previously identified potentially significant impact (CEQA Guidelines §§ 15162(a)(1), 15164(b); *Friends II*).**

It has been determined that the previous analysis of effects remains valid and the proposed modifications to the MMRP would not result in any new potentially significant environmental impacts that were not previously examined in the 2020 Final IS/MND and 2021 or 2022 Addenda; would not impact the feasibility of other mitigation measures adopted in the 2020 MMRP or their ability to reduce the significance of effects; and would not result in the need to adopt additional mitigation measures. DWR has not identified any substantial evidence supporting a contrary conclusion with respect to the possibility of new potentially significant impacts or a substantial increase in the severity of previously identified potentially significant impact that was reduced to a less than significant level in the IS/MND due to the proposed modifications of the MMRP.

The approved Project is currently being implemented as described in the previously approved Project's 2020 Final IS/MND and 2021 and 2022 Addenda. Implementation of the approved Project components, in conjunction with the adopted mitigation measures, have been effective in reducing potential impacts to less than significant. DWR presumes that implementation of the mitigation measures as revised to clarify the performance criteria currently being used by DWR in its ongoing implementation of the measures would have the same effectiveness, with no known evidence to the contrary.

2. **No new substantial changes in circumstances under which the Project will be undertaken which will require major revisions of the MND due to involvement of new potentially significant environmental effects or a substantial increase in the severity of previously identified potentially significant impact (CEQA Guidelines §§ 15162(a)(2), 15164(b); *Friends II*).**

The approved Project has been consistently implemented since 2020 in accordance with the 2020 Final IS/MND, 2021 and 2022 Addenda. The circumstances under which the approved Project was approved and implemented have remained largely unchanged. There is no reason to believe that implementation of the proposed modifications to the MMRP will encounter or otherwise involve a substantial change in circumstances. As stated above, the approved Project has been implemented effectively, and DWR presumes that implementation of the MMRP as modified to clarify the performance criteria currently being used by DWR in its ongoing implementation of the measures would have the same effective results, with no known evidence to the contrary.

3. **No new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the MND was adopted, shows: (A) the Project may have one or more new potentially significant effects not discussed in the MND; (B) mitigation measures previously found not to be feasible would in fact be feasible and would substantially reduce one or more potentially significant effects of the Project; (C) mitigation measures which are considerably different from those analyzed in the MND would**

substantially reduce one or more potentially significant effects on the environment. (CEQA Guidelines §§ 15162(a)(3), 15164(b); *Friends II*).

DWR is not aware of any new information of substantial importance that would alter the above determination that the proposed modifications to the MMRP would not result in the need to adopt additional mitigation measures considerably different from those previously adopted, would not result in any new potentially significant environmental effects that were not previously examined in the 2020 Final IS/MND, 2021 or 2022 Addenda; and would not impact the feasibility of other mitigation measures adopted in the 2020 MMRP or their ability to reduce the significance of effects.

Mitigation measures that were previously adopted and made a part of the approved Project would continue to be implemented as modified, to avoid, minimize, and mitigate potential impacts to environmentally sensitive resources because of the approved Project. These Mitigation Measures are currently being implemented on previously approved activities and have been effective in avoiding, minimizing, and mitigating potential impacts to less than significant.

The analysis supports the determination that neither a subsequent MND nor an EIR is required because none of the conditions described in CEQA Guidelines sections 15162 would be triggered by the proposed modifications to the MMRP.

The proposed modifications to the MMRP (consisting of revisions to mitigation measure BIO-1b and 1d) for the 2021 and 2022 Addenda and 2020 Final IS/MND have been considered and based on this supporting information, DWR has adopted the modified MMRP which supersedes the 2020 MMRP.

January 9, 2023

Carolyn Buckman
California Department of Water Resources
Delta Conveyance, Environmental Program Manager

Date

Attachments:
Appendix A: Special Status Plant Species List (as revised December 2022)

Appendix A: Special Status Wildlife Species List (as revised December 2022)

Soil Investigations for Data Collection in the Delta, Mitigation and Monitoring Reporting Program (MMRP) Modified, December 2022

Appendix A: Special Status Plant Species List (as revised December 2022)

Appendix A (Wildlife and Plant Species List) is identical to the 2020 IS/MND Appendix A except it includes a final column that identifies each of the mitigation measures that are applicable to ensuring that the project will result in a less-than-significant impact to all special status wildlife species with the potential to occur.

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
Santa Clara thorn-mint	*Acanthomintha lanceolata*	-/-/4.2		Chaparral (often serpentinite), Cismontane woodland, Coastal scrub	rocky. 80-1200m.	none	No habitat present, out of range.	N/A
large-flowered fiddleneck	*Amsinckia grandiflora*	FE/SE/1B.1		Cismontane woodland, Valley and foothill grassland	270-550m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18 and MM BIO-19
bent-flowered fiddleneck	*Amsinckia lunaris*	-/-/1B.2		Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland	3-500m	low	Potentially suitable habitat present, however out of known range.	MM BIO-1, MM BIO-18 and MM BIO-19
California androsace	*Androsace elongata ssp. acuta*	-/-/4.2		Chaparral, Cismontane woodland, Coastal scrub, Meadows and seeps, Pinyon and juniper woodland, Valley and foothill grassland	150-1305m	moderate	Potentially suitable habitat.	MM BIO-1, MM BIO-18 and MM BIO-19
Mt. Diablo manzanita	*Arctostaphylos auriculata*	-/-/1B.3		Chaparral (sandstone), Cismontane woodland	135-650m	none	No habitat present.	N/A
Contra Costa manzanita	*Arctostaphylos manzanita ssp. laevigata*	-/-/1B.2		Chaparral (rocky)	430-1100m	none	No habitat present.	N/A

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
depauperate milk-vetch	*Astragalus pauperculus*	-/-/4.3		Chaparral, Cismontane woodland, Valley and foothill grassland	vernally mesic, volcanic. 60-1215m	low	Potentially suitable habitat present, Study Area is on edge of known range.	MM BIO-1, MM BIO-18 and MM BIO-19
Ferris' milk-vetch	*Astragalus tener var. ferrisiae*	-/-/1B.1		Meadows and seeps (vernally mesic), Valley and foothill grassland (subalkaline flats)	2-75m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18 and MM BIO-19
alkali milk-vetch	*Astragalus tener var. tener*	-/-/1B.2		Playas, Valley and foothill grassland (adobe clay), Vernal pools	alkaline. 1-60m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18 and MM BIO-19
heartscale	*Atriplex cordulata var. cordulata*	-/-/1B.2		Chenopod scrub, Meadows and seeps, Valley and foothill grassland (sandy)	saline or alkaline. 0-560m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18 and MM BIO-19
crownscale	*Atriplex coronata var. coronata*	-/-/4.2		Chenopod scrub, Valley and foothill grassland, Vernal pools	alkaline, often clay. 1-590m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18 and MM BIO-19
Lost Hills crownscale	*Atriplex coronata var. vallicola*	-/-/1B.2		Chenopod scrub, Valley and foothill grassland, Vernal pools	alkaline. 50-635m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18 and MM BIO-19
brittlescale	*Atriplex depressa*	-/-/1B.2		Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland, Vernal pools	alkaline, clay. 1-320m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
lesser saltscale	*Atriplex minuscula*	-/-/1B.1		Chenopod scrub, Playas, Valley and foothill grassland	alkaline, sandy. 15-200m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
vernal pool smallscale	*Atriplex persistens*	-/-/1B.2		Vernal pools (alkaline)	10-115m	low	Potentially suitable habitat present, however Study Area located on edge of range	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
big-scale balsamroot	*Balsamorhiza macrolepis*	-/-/1B.2		Chaparral, Cismontane woodland, Valley and foothill grassland	sometimes serpentinite. 45-1555m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18 and MM BIO-19
big tarplant	*Blepharizonia plumosa*	-/-/1B.1		Valley and foothill grassland	Usually clay. 30-505m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18 and MM BIO-19
watershield	*Brasenia schreberi*	-/-/2B.3		Marshes and swamps (freshwater)	30-2200m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
valley brodiaea	*Brodiaea rosea ssp. vallicola*	-/-/4.2		Valley and foothill grassland (swales), Vernal pools	Old alluvial terraces; silty, sandy, and gravelly loam. 10-335m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
Brewer's calandrinia	*Calandrinia breweri*	-/-/4.2		Chaparral, Coastal scrub	sandy or loamy, disturbed sites and burns. 10-1220m	none	No habitat	N/A

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
Mt. Diablo fairy-lantern	*Calochortus pulchellus*	-/-/1B.2		Chaparral, Cismontane woodland, Riparian woodland, Valley and foothill grassland	30-840m	low	Suitable habitat present, however Study Area located on edge of range.	MM BIO-1, MM BIO-18 and MM BIO-19
chaparral harebell	*Campanula exigua*	-/-/1B.2		Chaparral (rocky, usually serpentinite)	275 1250m	none	No habitat	N/A
bristly sedge	*Carex comosa*	-/-/2B.1		Coastal prairie, Marshes and swamps (lake margins), Valley and foothill grassland	0-625m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
Lemmon's jewelflower	*Caulanthus lemmonii*	-/-/1B.2		Pinyon and juniper woodland, Valley and foothill grassland	80-1580m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18 and MM BIO-19
Congdon's tarplant	*Centromadia parryi ssp. congdonii*	-/-/1B.1		Valley and foothill grassland (alkaline)	0-230m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18 and MM BIO-19
pappose tarplant	*Centromadia parryi ssp. parryi*	-/-/1B.2		Chaparral, Coastal prairie, Meadows and seeps, Marshes and swamps (coastal salt), Valley and foothill grassland (vernally mesic)	often alkaline. 0-420m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
Parry's rough tarplant	*Centromadia parryi ssp. rudis*	-/-/4.2		Valley and foothill grassland, Vernal pools	alkaline, vernally mesic, seeps, sometimes roadsides. 0-100m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
Hispid salty bird's-beak	*Chloropyron molle ssp. hispidum*	-/-/1B.1		Meadows and seeps, Playas, Valley and foothill grassland	alkaline. 1-155m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
Soft salty bird's-beak	*Chloropyron molle ssp. molle*	FE/CR/1B.2		Marshes and swamps (coastal salt)	0-3m	low	Limited salt-marsh habitat present and the Study Area is located on the edge of the known range.	MM BIO-1, MM BIO-18, and MM BIO-19
palmate-bracted salty bird's-beak	*Chloropyron palmatum*	FE/CE/1B.1		Chenopod scrub, Valley and foothill grassland	alkaline.05-155m	low	Potentially suitable habitat present, however the Study Area is located on the edge of the known range.	MM BIO-1, MM BIO-18, and MM BIO-19
Bolander's water-hemlock	*Cicuta maculata var. bolanderi*	-/-/2B.1		Marshes and swamps Coastal, fresh or brackish water	0-200m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
slough thistle	*Cirsium crassicaule*	-/-/1B.1		Chenopod scrub, Marshes and swamps (sloughs), Riparian scrub	3-100m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
small-flowered morning-glory	*Convolvulus simulans*	-/-/4.2		Chaparral (openings), Coastal scrub, Valley and foothill grassland	clay, serpentinite seeps.30-740m	low	Potentially suitable habitat present, however the Study Area is located on the edge of	MM BIO-1, MM BIO-18 and MM BIO-19

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
							the known range.	
Hoover's cryptantha	*Cryptantha hooveri*	-/-/1A		Inland dunes, Valley and foothill grassland (sandy)	9-150m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18 and MM BIO-19
Peruvian dodder	*Cuscuta obtusiflora var. glandulosa*	-/-/2B.2		Marshes and swamps (freshwater)	15-280m	low	Potentially suitable habitat, however the Study Area is outside of the known range.	MM BIO-1, MM BIO-18 and MM BIO-19
Livermore tarplant	*Deinandra bacigalupii*	-/CE/1B.1		Meadows and seeps (alkaline)	150-185m	moderate	Potentially suitable habitat present, within 100 m of Study Area.	MM BIO-1, MM BIO-18, and MM BIO-19
Hospital Canyon larkspur	*Delphinium californicum ssp. interius*	-/-/1B.2		Chaparral (openings), Cismontane woodland (mesic), Coastal scrub	195-1095m	none	No habitat	N/A
recurved larkspur	*Delphinium recurvatum*	-/-/1B.2		Chenopod scrub, Cismontane woodland, Valley and foothill grassland	alkaline. 3-790m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18 and MM BIO-19 w
dwarf downingia	*Downingia pusilla*	-/-/2B.2		Valley and foothill grassland (mesic), Vernal pools	1-445m	moderate	Potentially suitable habitat present, within 100 m of Study Area.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
Antioch Dunes buckwheat	*Eriogonum nudum var. psychicola*	-/-/1B.1		Inland dunes	0-20m	none	No habitat	N/A

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
Mt. Diablo buckwheat	*Eriogonum truncatum*	-/-/1B.1		Chaparral, Coastal scrub, Valley and foothill grassland	sandy. 3-350m	low	Potentially suitable habitat present, however the Study Area is located on the edge of the known range.	MM BIO-1, MM BIO-18 and MM BIO-19
Jepson's coyote thistle	*Eryngium jepsonii*	-/-/1B.2		Valley and foothill grassland, Vernal pools	clay. 3-300m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
Delta button-celery	*Eryngium racemosum*	-/CE/1B.1		Riparian scrub (vernally mesic clay depressions)	3-30m	moderate	Potentially suitable habitat present, within 100 m of Study Area.	MM BIO-1, MM BIO-18, and MM BIO-19
spiny-sepaled button-celery	*Eryngium spinosepalum*	-/-/1B.2		Valley and foothill grassland, Vernal pools	80-975m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
Contra Costa wallflower	*Erysimum capitatum var. angustatum*	FE/CE/1B.1		Inland dunes	3-20m	none	No habitat	N/A
diamond-petaled California poppy	*Eschscholzia rhombipetala*	-/-/1B.1		Valley and foothill grassland (alkaline, clay)	0-975m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18 and MM BIO-19

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
San Joaquin spearscale	*Extriplex joaquinana*	-/-/1B.2		Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland	alkaline. 1-835m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
stinkbells	*Fritillaria agrestis*	-/-/4.2		Chaparral, Cismontane woodland, Pinyon and juniper woodland, Valley and foothill grassland	Clay, sometimes serpentinite. 10-1555	low	Potentially suitable habitat present, however the Study Area is located on the edge of the known range.	MM BIO-1, MM BIO-18 and MM BIO-19
fragrant fritillary	*Fritillaria liliacea*	-/-/1B.2		Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland	Often serpentinite. 3-410m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18 and MM BIO-19
adobe-lily	*Fritillaria pluriflora*	-/-/1B.2		Chaparral, Cismontane woodland, Valley and foothill grassland	often adobe. 60-705m	none	No habitat	N/A
phlox-leaf serpentine bedstraw	*Galium andrewsii ssp. gatense*	-/-/4.2		Chaparral, Cismontane woodland, Lower montane coniferous forest	serpentinite, rocky. 150-1450m	none	No habitat	N/A
Boggs Lake hedge-hyssop	*Gratiola heterosepala*	-/CE/1B.2		Marshes and swamps (lake margins), Vernal pools	clay. 10-2375m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
Diablo helianthella	*Helianthella castanea*	-/-/1B.2		Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland	Usually rocky, axonal soils. Often in partial	low	Marginally suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
					shade. 60-1300m			
hogwallow starfish	*Hesperevax caulescens*	-/-/4.2		Valley and foothill grassland (mesic, clay), Vernal pools (shallow)	sometimes alkaline. 0-505m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
Brewer's western flax	*Hesperolinon breweri*	-/-/1B.2		Chaparral, Cismontane woodland, Valley and foothill grassland	usually serpentinite. 30-945m	low	Marginally suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
woolly rose-mallow	*Hibiscus lasiocarpos var. occidentalis*	-/-/1B.2		Marshes and swamps (freshwater)	Often in riprap on sides of levees. 0-120m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
Carquinez goldenbush	*Isocoma arguta*	-/-/1B.1		Valley and foothill grassland (alkaline)	1-20m	low	Potentially suitable habitat present, however the Study Area is located on the edge of the known range.	MM BIO-1, MM BIO-18, and MM BIO-19

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
Northern California black walnut	*Juglans hindsii*	-/-/1B.1		Riparian forest, Riparian woodland	0-440m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
Contra Costa goldfields	*Lasthenia conjugens*	FE/-/1B.1		Cismontane woodland, Playas (alkaline), Valley and foothill grassland, Vernal pools	mesic. 0-470m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
Ferris' goldfields	*Lasthenia ferrisiae*	-/-/4.2		Vernal pools (alkaline, clay)	20-700m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
Coulter's goldfields	*Lasthenia glabrata ssp. coulteri*	-/-/1B.1		Marshes and swamps (coastal salt), Playas, Vernal pools	1-1220m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
Delta tule pea	*Lathyrus jepsonii var. jepsonii*	-/-/1B.2		Marshes and swamps (freshwater and brackish)	0-5m	high	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
legenere	*Legenere limosa*	-/-/1B.1		Vernal pools	1-880m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
Heckard's pepper-grass	*Lepidium latipes var. heckardii*	-/-/1B.2		Valley and foothill grassland (alkaline flats)	2-200m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
Mason's lilaeopsis	*Lilaeopsis masonii*	-/CR/1B.1		Marshes and swamps (brackish or freshwater), Riparian scrub	0-10m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, MM BIO-19 and MM BIO-20
Delta mudwort	*Limosella australis*	-/-/2B.1		Marshes and swamps (freshwater or brackish), Riparian scrub	Usually mud banks. 0-3m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, MM BIO-19 and MM BIO-20
showy golden madia	*Madia radiata*	-/-/1B.1		Cismontane woodland, Valley and foothill grassland	25-1215m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18 and MM BIO-19
Hall's bush-mallow	*Malacothamnus hallii*	-/-/1B.2		Chaparral, Coastal scrub	10-760m	none	No habitat	N/A
San Antonio Hills monardella	*Monardella antonina ssp. antonina*	-/-/3		Chaparral, Cismontane woodland	320-1000m	none	No habitat	N/A
little mousetail	*Myosurus minimus ssp. apus*	-/-/3.1		Valley and foothill grassland, Vernal pools (alkaline)	20-640m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
hoary navarretia	*Navarretia eriocephala*	-/-/4.3		Cismontane woodland, Valley and foothill grassland	vernally mesic. 105-400m	low	Potentially suitable habitat present, however the Study Area is located on the edge of the known range.	MM BIO-1, MM BIO-18 and MM BIO-19
Tehama navarretia	*Navarretia heterandra*	-/-/4.3		Valley and foothill grassland (mesic), Vernal pools	30-1010m	low	Potentially suitable habitat present, however the Study Area is located on the edge of the known range.	BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
Baker's navarretia	*Navarretia leucocephala ssp. bakeri*	-/-/1B.1		Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools	Mesic. 5-1740m	low	Potentially suitable habitat present, however the Study Area is located on the edge of the known range.	MM BIO-1, MM BIO-12, MM BIO-18 and MM BIO-19
adobe navarretia	*Navarretia nigelliformis ssp. nigelliformis*	-/-/4.2		Valley and foothill grassland vernally mesic, Vernal pools sometimes	clay, sometimes serpentinite. 100-1000m	low	Potentially suitable habitat present, however the Study Area is located on the edge of the known range.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
shining navarretia	*Navarretia nigelliformis ssp. radians*	-/-/1B.2		Cismontane woodland, Valley and foothill grassland, Vernal pools	Sometimes clay. 65-1000m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
prostrate vernal pool navarretia	*Navarretia prostrata*	-/-/1B.1		Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline), Vernal pools	Mesic. 3-1210m	low	Potentially suitable habitat present, however the Study Area is located on the edge of the known range.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
Colusa grass	*Neostapfia colusana*	FT/CE/1B.1		Vernal pools (adobe, large)	5-200m	low	Potentially suitable habitat present, however the Study Area is located on the edge of the known range.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
Antioch Dunes evening-primrose	*Oenothera deltoides ssp. howellii*	FE/CE/1B.1		Inland dunes	0-30m	none	No habitat	N/A
slender Orcutt grass	*Orcuttia tenuis*	FT/CE/1B.1		Vernal pools	Often gravelly. 35-1760m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
Sacramento Orcutt grass	*Orcuttia viscida*	FE/CE/1B.1		Vernal pools	30-100m	low	Potentially suitable habitat present, however the Study Area is located on the edge of the known range.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
bearded popcornflower	*Plagiobothrys hystriculus*	-/-/1B.1		Valley and foothill grassland (mesic), Vernal pools margins	often vernal swales. 0-274m	low	Potentially suitable habitat present, however the Study Area is located on the edge of the known range.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
eel-grass pondweed	*Potamogeton zosteriformis*	-/-/2B.2		Marshes and swamps (assorted freshwater)	0-1860m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
California alkali grass	*Puccinellia simplex*	-/-/1B.2		Chenopod scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools	Alkaline, vernally mesic; sinks, flats, and lake margins. 2-930m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
Sanford's arrowhead	*Sagittaria sanfordii*	-/-/1B.2		Marshes and swamps (assorted shallow freshwater)	0-650m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
marsh skullcap	*Scutellaria galericulata*	-/-/2B.2		Lower montane coniferous forest, Meadows and seeps (mesic), Marshes and swamps	0-2100m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
side-flowering skullcap	*Scutellaria lateriflora*	-/-/2B.2		Meadows and seeps (mesic), Marshes and swamps	0-500m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
chaparral ragwort	*Senecio aphanactis*	-/-/2B.2		Chaparral, Cismontane woodland, Coastal scrub	sometimes alkaline.15-800m	none	No habitat	N/A
sweet marsh ragwort	*Senecio hydrophiloides*	-/-/4.2		Lower montane coniferous forest, Meadows and seeps	Mesic. 0-2800m	none	No habitat	N/A
Keck's checkerbloom	*Sidalcea keckii*	FE/-/1B.1		Cismontane woodland, Valley and foothill grassland	serpentinite, clay. 75-650m	low	Limited potentially suitable habitat present, and the Study Area is located on the edge of the known range.	MM BIO-1, MM BIO-18, and MM BIO-19
long-styled sand-spurrey	*Spergularia macrotheca var. longistyla*	-/-/1B.2		Meadows and seeps, Marshes and swamps	Alkaline. 0-225	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19

Common Name	Scientific Name	Fed/ State/ CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
Suisun Marsh aster	*Symphyotrichum lentum*	-/-/1B.2		Marshes and swamps (brackish and freshwater)	0-3m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
Wright's trichocoronis	*Trichocoronis wrightii var. wrightii*	-/-/2B.1		Meadows and seeps, Marshes and swamps, Riparian forest, Vernal pools	alkaline. 5-435m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
saline clover	*Trifolium hydrophilum*	-/-/1B.2		Marshes and swamps, Valley and foothill grassland (mesic, alkaline), Vernal pools	0-300m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-12, MM BIO-18, and MM BIO-19
caper-fruited tropidocarpum	*Tropidocarpum capparideum*	-/-/1B.1		Valley and foothill grassland (alkaline hills)	1-455m	moderate	Potentially suitable habitat present.	MM BIO-1, MM BIO-18, and MM BIO-19
Crampton's tuctoria or Solano grass	*Tuctoria mucronata*	FE/CE/1B.1		Valley and foothill grassland (mesic), Vernal pools	5-10m	none	No habitat	N/A
oval-leaved viburnum	*Viburnum ellipticum*	-/-/2B.3		Chaparral, Cismontane woodland, Lower montane coniferous forest	215-1400m	none	No habitat	N/A

Appendix A: Special Status Wildlife Species List (as revised December 2022)

Appendix A (Wildlife and Plant Species List) is identical to the 2020 IS/MND Appendix A except it includes a final column that identifies each of the mitigation measures that are applicable to ensuring that the project will result in a less-than-significant impact to all special status wildlife species with the potential to occur.

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
Amphibians								
California tiger salamander	*Ambystoma californiense*	FT/ST	CDFW_WL-Watch List | IUCN_VU-Vulnerable	Cismontane woodland | Meadow & seep | Riparian woodland | Valley & foothill grassland | Vernal pool | Wetland	Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	High	Suitable upland and aquatic habitat may be present and several of the Impact Areas in Contra Costa and Alameda Counties are within 5 miles of recorded occurrences.	MM AES-1, MM AES-2, MM BIO-1, and MM BIO-2
foothill yellow-legged frog	*Rana boylii*	-/CT	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | USFS_S-Sensitive	Aquatic | Chaparral | Cismontane woodland | Coastal scrub | Klamath/North coast flowing waters | Lower montane coniferous forest | Meadow & seep | Riparian forest | Riparian woodland | Sacramento/San Joaquin flowing waters	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	None	No suitable habitat is present in the vicinity of the Study Area, and there are no reported occurrences within 5 miles.	N/A
California red-legged frog	*Rana draytonii*	FT/-	CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable	Aquatic | Artificial flowing waters | Artificial standing waters | Freshwater marsh | Marsh & swamp | Riparian forest | Riparian scrub | Riparian woodland | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowing	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	High	Suitable upland and aquatic habitat may be present, and several of the Impact Areas in Contra Costa and Alameda Counties are within 5 miles of recorded occurrences.	MM-AES-1, MM-AES-2, MM BIO-1, and MM BIO-2

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
				waters | South coast standing waters | Wetland				
western spadefoot	*Spea hammondii*	-/-	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	Cismontane woodland | Coastal scrub | Valley & foothill grassland | Vernal pool | Wetland	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Moderate	Suitable habitat may be present, the Study Area is within the range of the species, and multiple recent documents occurrences are near the Study Area.	MM AES-1, MM AES-2, MM BIO-1, and MM BIO-2
Reptiles								
California legless lizard	*Anniella pulchra*	-/-	CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Chaparral | Coastal dunes | Coastal scrub	Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. They prefer soils with a high moisture content.	Low	Marginally suitable habitat may be present, the southern portion of the Study Area is within the range, and several of the Impact Areas in Contra Costa County are within 5 miles of recorded occurrences.	MM AES-1, MM BIO-1, and MM BIO-2
California glossy snake	*Arizona elegans occidentalis*	-/-	CDFW_SSC-Species of Special Concern	Open desert | Grasslands | Shrublands | Chaparral | Woodlands	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, the Coast, Transverse and Peninsular ranges, south to Baja California. Uses a range of scrub and grassland habitats, often with loose or sandy soils.	Moderate	The Study Area is within the range of the species, there is suitable habitat within the Study Area, and several occurrences nearby West and South of the Study Area.	MM AES-2, MM BIO-1 and MM BIO-2
western pond turtle	*Emys marmorata*	-/-	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern |	Aquatic | Artificial flowing waters | Klamath/North coast flowing waters | Klamath/North coast standing waters | Marsh	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs	High	There are many known occurrences within the Study Area.	MM BIO-1, MM BIO-2, and MM BIO-3

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
			IUCN_VU-Vulnerable | USFS_S-Sensitive	& swamp | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | | Wetland	basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water.			
San Joaquin coachwhip	*Masticophis flagellum ruddocki*	-/-	CDFW_SSC-Species of Special Concern	Chenopod scrub | Valley & foothill grassland	Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub in the San Joaquin Valley. Needs mammal burrows for refuge and oviposition sites.	Moderate	The Study Area is within the range of the species and there is potentially suitable habitat present, however the nearest known occurrences are over 5 miles away.	MM BIO-1 and MM BIO-2
Alameda whipsnake	*Masticophis lateralis euryxanthus*	FT/ST		Chaparral | Cismontane woodland | Coastal scrub | Valley & foothill grassland	Typically found in chaparral and scrub habitats but will also use adjacent grassland, oak savanna and woodland habitats. Mostly south-facing slopes and ravines, with rock outcrops, deep crevices or abundant rodent burrows, where shrubs form a vegetative mosaic with oak trees and grasses.	None	There is no suitable habitat in the Study Area, and the nearest known occurrences are over 3 miles away.	N/A
coast horned lizard	*Phrynosoma blainvillii*	-/-	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Chaparral | Cismontane woodland | Coastal bluff scrub | Coastal scrub | Desert wash | Pinon & juniper woodlands | Riparian scrub | Riparian woodland | Valley & foothill grassland	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Low	The Study Area is within the range of the species, marginally suitable habitat may be present, and several of the Impact Areas in Contra Costa County are within 2.5 miles of recorded occurrences.	MM BIO-1 and MM BIO-2
giant garter snake	*Thamnophis gigas*	FT/ST	IUCN_VU-Vulnerable	Marsh & swamp | Riparian scrub | Wetland	Prefers freshwater marsh and low gradient streams. Has adapted to drainage	High	The project is within the range of the species, suitable	MM BIO-1, MM BIO-2, MM BIO-4, MM BIO-14

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Potential to Occur	Relevant Mitigation Measures
					canals and irrigation ditches. This is the most aquatic of the garter snakes in California.		habitat is present, and there are known occurrences within the footprint of the proposed activities.	

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
Birds								
Cooper's hawk	*Accipiter cooperii*	-/-	CDFW_WL-Watch List | IUCN_LC-Least Concern	Cismontane woodland | Riparian forest | Riparian woodland | Upper montane coniferous forest	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Moderate	Suitable habitat exists throughout much of the Study Area.	MM AES-1, MM BIO-1 and MM BIO-6
tricolored blackbird	*Agelaius tricolor*	-/ST	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Freshwater marsh | Marsh & swamp | Swamp | Wetland	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	Moderate	Suitable habitat exists within the Study Area, and several recorded occurrences are located near the Study Area. Wintering birds and a few individuals have been observed during breeding season, but no nesting colonies have been identified within 1/4 mile of the Study Area.	MM AES-1, MM BIO-1 and MM BIO-7
grasshopper sparrow	*Ammodramus savannarum*	-/-	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Valley & foothill grassland	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	Low	Minimal suitable nesting habitat is present within the Study Area. Species has been observed rarely in the winter, although the Study Area is not within 5 miles of the known occurrences.	MM AES1, MM BIO-1 and MM BIO-8
Lesser sandhill crane	*Antigone canadensis canadensis*	-/-	CDFW_SSC-Species of Special Concern	Wetlands	Forages in harvested corn fields, winter wheat, irrigated pastures, alfalfa fields, and fallow fields.	High	Suitable habitat present for foraging and roosting, and they have been observed	MM BIO-1 and MM BIO-9

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
					Roosts in open shallowly flooded fields and wetlands.		regularly in the winter within the Study Area.	
Greater sandhill crane	*Antigone canadensis tabida*	-/-	CDFW_FP-Fully Protected	Wetlands	Forages in harvested corn fields, winter wheat, irrigated pastures, alfalfa fields, and fallow fields. Roosts in open shallowly flooded fields and wetlands.	High	Suitable habitat present for foraging and roosting, and they have been observed regularly in the winter within the Study Area.	MM BIO-1 and MM BIO-9
golden eagle	*Aquila chrysaetos*	-/-	BLM_S-Sensitive | CDF_S-Sensitive | CDFW_FP-Fully Protected | CDFW_WL-Watch List | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest | Cismontane woodland | Coastal prairie | Great Basin grassland | Great Basin scrub | Lower montane coniferous forest | Pinon & juniper woodlands | Upper montane coniferous forest | Valley & foothill grassland	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Moderate	Suitable foraging habitat exists in the Study area and Golden Eagle are regularly observed foraging. Suitable nest trees are present, but no nesting has been recorded within 1 mile of the Study Area.	MM AES-1, MM BIO-1 and MM BIO-6
great egret	*Ardea alba*	-/-	CDF_S-Sensitive | IUCN_LC-Least Concern	Brackish marsh | Estuary | Freshwater marsh | Marsh & swamp | Riparian forest | Wetland	Colonial nester in large trees. Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	High	Suitable habitat exists within the Study Area, and several recorded occurrences are located nearby.	MM AES-1, MM BIO-1 and MM BIO-5
great blue heron	*Ardea herodias*	-/-	CDF_S-Sensitive | IUCN_LC-Least Concern	Brackish marsh | Estuary | Freshwater marsh | Marsh & swamp | Riparian forest | Wetland	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites close to foraging areas: marshes, lake margins, tide-flats, rivers, streams, wet meadows.	High	Suitable habitat exists within the Study Area, and several recorded occurrences are located nearby.	MM AES-1, MM BIO-1 and MM BIO-5

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
short-eared owl	*Asio flammeus*	-/-	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Great Basin grassland | Marsh & swamp | Meadow & seep | Valley & foothill grassland | Wetland	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	Moderate	Species has been observed at several locations throughout the Delta. If borings are located away from wetlands, no suitable nesting habitat in the Impact Areas.	MM BIO-1 and MM BIO-6
burrowing owl	*Athene cunicularia*	-/-	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Coastal prairie | Coastal scrub | Great Basin grassland | Great Basin scrub | Mojave Desert scrub | Sonoran desert scrub | Valley & foothill grassland	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, such as California ground squirrel.	High	Several recorded occurrences are located nearby, and suitable habitat exists within the Study Area.	MM BIO-1 and MM BIO-10
ferruginous hawk	*Buteo regalis*	-/-	CDFW_WL-Watch List | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Great Basin grassland | Great Basin scrub | Pinon & juniper woodlands | Valley & foothill grassland	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	Moderate	Several documented occurrences of over-wintering birds occur within 0.5 to 3 miles of several of the Impact Areas, and they are observed regularly in the winter, but do not nest in CA	MM BIO-1 and MM BIO-6
Swainson's hawk	*Buteo swainsoni*	-/ST	BLM_S-Sensitive | IUCN_LC-Least Concern | USFWS_BCC-Birds of	Great Basin grassland | Riparian forest | Riparian woodland | Valley & foothill grassland	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging	High	Suitable nesting and foraging habitat found throughout the Study Area. There are known occurrences within the Study Area.	MM AES-1, MM BIO-1 and MM BIO-11

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
			Conservation Concern		areas with rodent populations.			
western snowy plover	*Charadrius alexandrinus nivosus*	FT/-	CDFW_SSC-Species of Special Concern | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Great Basin standing waters | Sand shore | Wetland	Sandy beaches, salt pond levees & shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	None	The Study Area is not within 5 miles of the known occurrences, and no suitable habitat is located within Study Area.	N/A
mountain plover	*Charadrius montanus*	-/-	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Chenopod scrub | Valley & foothill grassland	Short grasslands, freshly plowed fields, newly sprouting grain fields, & sometimes sod farms. Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	Low	Winter records are located within 4.6 miles of the Study Area and minimal suitable habitat is present in the footprint; Species does not breed in CA.	MM BIO-1
northern harrier	*Circus hudsonius*	-/-	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Coastal scrub | Great Basin grassland | Marsh & swamp | Riparian scrub | Valley & foothill grassland | Wetland	Coastal salt & freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest	High	There are known occurrences within the Study area. Suitable nesting and foraging habitat found throughout the Study Area.	MM BIO-1 and MM BIO-6

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
					built of a large mound of sticks in wet areas.			
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FT/SE	BLM_S-Sensitive | NABCI_RWL-Red Watch List | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Riparian forest	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Low	There are known occurrences within the Study Area, and there is minimal suitable migratory habitat is present and species has been observed during migration. Minimal habitat of suitable patch size for nesting, and species has not been recorded breeding in the vicinity in recent history.	MM BIO-1 and MM BIO-8
snowy egret	*Egretta thula*	-/-	IUCN_LC-Least Concern	Marsh & swamp | Meadow & seep | Riparian forest | Riparian woodland | Wetland	Colonial nester, with nest sites situated in protected beds of dense tules. Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	High	Several recorded occurrences are located near Impact Areas, and suitable habitat exists within the Study Area.	MM AES-1, MM BIO-1 and MM BIO-5
white-tailed kite	*Elanus leucurus*	-/-	BLM_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern	Cismontane woodland | Marsh & swamp | Riparian woodland | Valley & foothill grassland | Wetland	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Moderate	Several recorded occurrences are located near Impact Areas, and suitable habitat exists within the Study Area.	MM AES-1, MM BIO-1 and MM BIO-6

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
California horned lark	*Eremophila alpestris actia*	-/-	CDFW_WL-Watch List | IUCN_LC-Least Concern	Marine intertidal & splash zone communities | Meadow & seep	Coastal regions, chiefly from Sonoma County to San Diego County. Also, main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	Moderate	Several of the proposed on-land Impact Areas in Contra Costa County are within 1-2 miles of recorded occurrences, and potentially suitable habitat may be present.	MM BIO-1, MM BIO-7 and MM BIO-8
Yellow-Breasted Chat	*Icteria virens*	-/-	CDFW_SSC-Species of Special Concern| USFWS BCC-Bird of Conservation Concern	Riparian woodland	San Joaquin Delta in dense riparian understory with willow, blackberry and wild grape.	High	Suitable habitat is present and has been observed in riparian thickets and in-channel islands throughout the Sacramento-San Joaquin Delta.	MM AES-1, MM BIO-1 and MM BIO-8
merlin	*Falco columbarius*	-/-	CDFW_WL-Watch List | IUCN_LC-Least Concern	Estuary | Great Basin grassland | Valley & foothill grassland	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands & deserts, farms & ranches. Clumps of trees or windbreaks are required for roosting in open country.	Low	Suitable foraging habitat is present in the Study Area, but species has been observed foraging and several recorded occurrences are located near Impact Areas.	MM AES-1, MM BIO-1 and MM BIO-6
prairie falcon	*Falco mexicanus*	-/-	CDFW_WL-Watch List | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Great Basin grassland | Great Basin scrub | Mojave Desert scrub | Sonoran Desert scrub | Valley & foothill grassland	Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	Low	No suitable nesting habitat is located in the Study Area, but species has been observed foraging.	MM BIO-1 and MM BIO-6

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
American peregrine falcon	*Falco peregrinus anatum*	FD/SD	CDF_S-Sensitive | CDFW_FP-Fully Protected | USFWS_BCC-Birds of Conservation Concern		Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	Low	No suitable nesting habitat is located in the Study Area, but species has been observed foraging. One recorded occurrence is within 2.5 miles of Impact Areas, on the Rio Vista Bridge.	MM BIO-1 and MM BIO-6
saltmarsh common yellowthroat	*Geothlypis trichas sinuosa*	-/-	CDFW_SSC-Species of Special Concern | USFWS_BCC-Birds of Conservation Concern	Marsh & swamp	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	None	The Study Area is not within the range of the species.	N/A
loggerhead shrike	*Lanius ludovicianus*	-/-	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest | Desert wash | Joshua tree woodland | Mojave Desert scrub | Pinon & juniper woodlands | Riparian woodland | Sonoran Desert scrub	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub & washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	High	Several recorded occurrences are located near Impact Areas in Contra Costa and Alameda Counties, and suitable habitat exists within the Study Area.	MM AES-1, MM BIO-1 and MM BIO-8
California black rail	*Laterallus jamaicensis coturniculus*	-/ST	BLM_S-Sensitive | CDFW_FP-Fully Protected | IUCN_NT-Near Threatened	Brackish marsh | Freshwater marsh | Marsh & swamp | Salt marsh | Wetland	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year	Moderate	Several recorded occurrences are located near Impact Areas, and suitable habitat exists within the Study Area.	MM BIO-1 and MM BIO-8

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
			| NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern		and dense vegetation for nesting habitat.			
song sparrow ("Modesto" population)	*Melospiza melodia*	-/-	CDFW_SSC-Species of Special Concern	Open Woodlands | Tidal marshes | Grasslands | Chaparral | Agricultural fields	Inhabits a wide variety of habitats, nests from on the ground to 15 feet, often near water.	High	Several recorded occurrences are located near Impact Areas, and suitable habitat exists within the Study Area.	MM AES-1, MM BIO-1 and MM BIO-8
Suisun song sparrow	*Melospiza melodia maxillaris*	-/-	CDFW_SSC-Species of Special Concern | USFWS_BCC-Birds of Conservation Concern	Marsh & swamp | Wetland	Resident of brackish-water marshes surrounding Suisun Bay. Inhabits cattails, tules and other sedges, and Salicornia; also known to frequent tangles bordering sloughs.	None	The Study Area is not within the range of the species.	N/A
black-crowned night heron	*Nycticorax nycticorax*	-/-	IUCN_LC-Least Concern	Marsh & swamp | Riparian forest | Riparian woodland | Wetland	Colonial nester, usually in trees, occasionally in tule patches. Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.	High	Suitable habitat exists within the Study Area, and several recorded occurrences are located near Impact Areas.	MM AES-1, MM BIO-1 and MM BIO-5
Osprey	Pandion haliatus	-/-	CDFW_WL-Watch List	Riparian forest | Lakes	Nest in snags, man-made structures or trees in open areas near water.	High	Suitable habitat is present, and the species has been observed foraging in the Study Area.	MM AES-1, MM BIO-1 and MM BIO-6
double-crested cormorant	*Phalacrocorax auritus*	-/-	CDFW_WL-Watch List | IUCN_LC-	Riparian forest | Riparian scrub | Riparian woodland	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the	High	Suitable habitat exists within the Study Area, and several recorded occurrences are	MM AES-1, MM BIO-1 and MM BIO-5

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
			Least Concern		interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.		located near Impact Areas.	
white-faced ibis	*Plegadis chihi*	-/-	CDFW_WL-Watch List | IUCN_LC-Least Concern	Marsh & swamp | Wetland	Shallow freshwater marsh. Dense tule thickets for nesting, interspersed with areas of shallow water for foraging.	Moderate	The species is regularly observed in the Delta year-round. Limited nesting habitat present and borings will be located outside of wetlands where nesting might occur.	MM BIO-1 and MM BIO-8
purple martin	*Progne subis*	-/-	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Broadleaved upland forest | Lower montane coniferous forest	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, and Monterey pine. Nests in old woodpecker cavities mostly; also, in human-made structures. Nest often located in tall, isolated tree/snag.	Low	Species has been observed rarely in the area, and minimal suitable nesting habitat is present within the Study Area.	MM BIO-1 and MM BIO-8
California Ridgway's Rail	*Rallus obsoletus obsoletus*	FE/SE	CDFW_FP-Fully Protected	Brackish marsh | Marsh & swamp | Salt marsh | Wetland	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed but feeds away from cover on invertebrates from mud-bottomed sloughs.	None	The Study Area is not within the range of the species.	N/A
bank swallow	*Riparia riparia*	-/ST	BLM_S-Sensitive |	Riparian scrub | Riparian woodland	Colonial nester; primarily in riparian and other	Low	No suitable nesting habitat is present in	MM BIO-1

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
			IUCN_LC-Least Concern		lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.		the Study Area, but species has been observed foraging, especially during migration.	
Yellow Warbler	*Setophaga petechia*	-/-	CDFW_SSC-Species of Special Concern | USFWS_BCC-Birds of Conservation Concern	Riparian forest | Riparian scrub | Riparian woodland	Riparian obligate uses willow and shrub thickets, and other riparian plant species.	Moderate	Suitable habitat is present, and species has been observed during migration in the vicinity of the Study Area.	MM AES-1 and MM BIO-1 and MM BIO-8
California Least Tern	*Sternula antillarum browni*	FE/SE	CDFW_FP-Fully Protected	Alkali playa	Nests along the coast from San Francisco Bay south to northern Baja California.	Low	No suitable nesting habitat and no known colonies, foraging birds are rarely observed.	MM BIO-1
Least Bell's vireo	*Vireo bellii pusillus*	FE/SE	IUCN_NT-Near Threatened | NABCI_YWL-Yellow Watch List	Riparian forest | Riparian scrub | Riparian woodland	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	Moderate	Suitable habitat is present in the Study Area. Species formerly extirpated from the Central Valley, but recently species has been observed vocalizing during nesting season at Yolo Bypass WA, and Bradford Island . Breeding unconfirmed.	MM AES-1, MM BIO-1 and MM BIO-8
yellow-headed blackbird	*Xanthocephalus xanthocephalus*	-/-	CDFW_SSC-Species of Special Concern | IUCN_LC-	Marsh & swamp | Wetland	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds. Nests only where large insects	Moderate	Suitable foraging habitat exists in the Study Area and the species is regularly observed foraging in the winter. Minimal	MM BIO-1 and MM BIO-8

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
			Least Concern		such as Odonata are abundant, nesting timed with maximum emergence of aquatic insects.		suitable nesting habitat is present in the Study Area, and nesting records are over 5 miles away.	

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
Fish								
Green sturgeon (southern DPS)	*Acipenser medirostris*	FT/-		Aquatic | Sacramento/San Joaquin flowing waters |Estuary	Anadromous. Spawns in Sacramento River, moves to estuary as juvenile, and out to ocean as adult.	High	Found within the waterways of the Study Area.	MM BIO-1, MM BIO-14, MM HYD-1, MM HAZ-1 through 4
Sacramento perch	*Archoplites interruptus*	-/-	AFS_TH-Threatened | CDFW_SSC-Species of Special Concern	Aquatic | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley. Prefers warm water. Aquatic vegetation is essential for young. Tolerates wide range of physio-chemical water conditions.	Low	Potentially found within waterways of the Study Area.	MM BIO-1, MM BIO-14, MM HYD-1, MM HAZ-1 through 4
Delta smelt	*Hypomesus transpacificus*	FT/SE	AFS_TH-Threatened | IUCN_EN-Endangered	Aquatic | Estuary	Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait & San Pablo Bay. Seldom found at salinities > 10 ppt. Most often at salinities < 2ppt.	High	Found within the waterways of the Study Area.	MM BIO-1, MM BIO-14, MM HYD-1, MM HAZ-1 through 4
steelhead - Central Valley DPS	*Oncorhynchus mykiss irideus pop. 11*	FT/-	AFS_TH-Threatened	Aquatic | Sacramento/San Joaquin flowing waters		High	Found within the waterways of the Study Area.	MM BIO-1, MM BIO-14, MM HYD-1, MM HAZ-1 through 4
chinook salmon - Central Valley spring-run ESU	*Oncorhynchus tshawytscha pop. 6*	FT/ST	AFS_TH-Threatened	Aquatic | Sacramento/San Joaquin flowing waters	Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27 C are lethal to adults. Federal listing refers to populations spawning in Sacramento River and tributaries.	High	Found within the waterways of the Study Area.	MM BIO-1, MM BIO-14, MM HYD-1, MM HAZ-1 through 4
chinook salmon - Sacramento River winter-run ESU	*Oncorhynchus tshawytscha pop. 7*	FE/SE	AFS_EN-Endangered	Aquatic | Sacramento/San Joaquin flowing waters	Sacramento River below Keswick Dam. Spawns in the Sacramento River, but not in tributary streams. Requires clean, cold water,	High	Found within the waterways of the Study Area.	MM BIO-1, MM BIO-14, MM HYD-1, MM HAZ-1 through 4

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
					between 6 and 14 C, over gravel beds for spawning.			
Sacramento splittail	*Pogonichthys macrolepidotus*	-/-	AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered	Aquatic | Estuary | Freshwater marsh | Sacramento/San Joaquin flowing waters	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay and associated marshes. Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.	High	Found within the waterways of the Study Area.	MM BIO-1, MM BIO-14, MM HYD-1, MM HAZ-1 through 4
longfin smelt	*Spirinchus thaleichthys*	FC/ST		Aquatic | Estuary	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt but can be found in completely freshwater to almost pure seawater.	High	Found within the waterways of the Study Area.	MM BIO-1, MM BIO-14, MM HYD-1, MM HAZ-1 through 4
eulachon	*Thaleichthys pacificus*	FT/-		Aquatic | Klamath/North coast flowing waters	Found in Klamath and Mad Rivers, Redwood Creek, and Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.	Low	Potentially could migrate through waterways of the Study Area.	MM BIO-1, MM BIO-14, MM HYD-1, MM HAZ-1 through 4

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
Invertebrates								
Blennosperma vernal pool andrenid bee	*Andrena blennospermatis*	-/-		Vernal pool	This bee is oligolectic on vernal pool blennosperma. Bees nest in the uplands around vernal pools.	Low	Suitable habitat may be present, and the Study Area is within the range of the species, however the Study Area is not within 5 miles of recent known occurrences.	MM BIO-1 and MM BIO-12
Antioch Dunes anthicid beetle	*Anthicus antiochensis*	-/-		Interior dunes	Usually found in bare unvegetated sand. Extirpated from Antioch Dunes, but found along the Sacramento River in Glenn, Tehema, Shasta, and Solono Counties and along the Feather River in Sutter County.	Low	Suitable habitat may be present within the Study Area, the project area is within the range and one reported occurrence is within 2 miles and a second is within 5 miles of the Study Area.	MM BIO-1
Sacramento anthicid beetle	*Anthicus sacramento*	-/-	IUCN_EN-Endangered	Interior dunes	Restricted to sand dune areas. Inhabit sand slipfaces among bamboo and willow but may not depend on presence of these plant species.	Low	Suitable habitat may be present within the Study Area, the project area is within the range and two reported occurrences are within 2 miles of Study Area.	MM BIO-1
Lange's metalmark butterfly	*Apodemia mormo langei*	FE/-	XERCES_CI-Critically Imperiled	Interior dunes	Inhabits stabilized dunes along the San Joaquin River. Endemic to Antioch Dunes, Contra Costa County. Primary host plant is *Eriogonum nudum var auriculatum*; feeds on nectar of other wildflowers, as well as host plant.	None	There is potential for some suitable habitat to be within the Study Area, however the Study Area is outside of the current known range, which is limited to the Antioch Dunes.	N/A
Crotch bumble bee	*Bombus crotchii*	-/-	IUCN_EN-Endangered		Coastal California east to the Sierra-Cascade crest and south into Mexico.	Moderate	Suitable habitat may be present within the project area, and the	MM BIO-1

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
					Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia*, and *Eriogonum.*		Study Area is within the range, although the nearest known occurrence s are over 5 miles away.	
western bumble bee	*Bombus occidentalis*	-/-	USFS_S-Sensitive | XERCES_IM-Imperiled		Found from Pacific Coast to the Colorado Rockies. Select food plant genera: *Melilotus, Cirsium, Trifolium, Centaurea, Chrysothamnus, Eriogonum*	High	Potentially suitable habitat may be present, and the Study Area is within the species range, and two reported occurrences are within 2 miles and a third is within 5 miles of Impact Areas.	MM BIO-1
Conservancy fairy shrimp	*Branchinecta conservatio*	FE/-	IUCN_EN-Endangered	Valley & foothill grassland | Vernal pool | Wetland	Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.	Moderate	Some suitable habitat could be present within the Study Area, and one reported occurrence is within 5 miles of the Study Area.	MM BIO-1 and MM BIO-12
longhorn fairy shrimp	*Branchinecta longiantenna*	FE/-	IUCN_EN-Endangered	Valley & foothill grassland | Vernal pool | Wetland	Endemic to the eastern margin of the Central Coast mountains in seasonally astatic grassland vernal pools. Inhabit small, clear-water depressions in sandstone and clear-to-turbid clay/grass-bottomed pools in shallow swales.	Moderate	Some suitable habitat could be present within the Study Area, and two reported occurrences are within 5 miles of the Study Area.	MM BIO-1 and MM BIO-12

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
vernal pool fairy shrimp	*Branchinecta lynchi*	FT/-	IUCN_VU-Vulnerable	Valley & foothill grassland | Vernal pool | Wetland	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	Moderate	Some suitable habitat could be present within the Study Area, and multiple occurrences have been reported within 0.5 miles of several of the Impact Areas.	MM BIO-1 and MM BIO-12
midvalley fairy shrimp	*Branchinecta mesovallensis*	-/-		Vernal pool | Wetland	Found in vernal pools in Southeastern Sacramento, the southern Sierra foothills, San Joaquin Vernal pool region, and San Joaquin, Madera, Merced and Fresno Counties.	Moderate	Some suitable habitat could be present within the Study Area, and one reported occurrence is within 0.5 miles of Impact Areas.	MM BIO-1 and MM BIO-12
Sacramento Valley tiger beetle	*Cicindela hirticollis abrupta*	-/-		Sand shore	Sandy floodplain habitat in the Sacramento Valley. No beetles located during intensive 2001-2004 surveys. Requires fine to medium sand, terraced floodplains or low sandy water edge flats.	None	Thought to be extirpated. No suitable habitat could be present within the Study Area, and nearest occurrence is within 5 miles of the northern edge of the Study Area.	N/A
San Joaquin dune beetle	*Coelus gracilis*	-/-	BLM_S-Sensitive | IUCN_VU-Vulnerable	Interior dunes	Inhabits fossil dunes along the western edge of San Joaquin Valley; extirpated from Antioch Dunes (type locality) and is limited in current distribution of the western edge of the San Joaquin Valley. Inhabits sites containing sandy substrates.	None	The Study Area is outside to the known range of the species and there is no suitable habitat on site.	N/A

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT/-		Riparian scrub	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus mexicana*). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.	High	Suitable elderberry bushes may be present within the Study Area, and several reported occurrences are within 2 miles of the Study Area.	MM BIO-1, and MM BIO-13
Antioch efferian robberfly	*Efferia antiochi*	-/-		Interior dunes	Known only from Antioch, Fresno and Scout Island in the San Joaquin River.	None	The Study Area is outside of the known range of this species.	N/A
Delta green ground beetle	*Elaphrus viridis*	FT/-	IUCN_CR-Critically Endangered	Vernal pool | Wetland	Restricted to the margins of vernal pools in the grassland area between Jepson Prairie and Travis AFB. Prefers the sandy mud substrate where it slopes gently into the water, with low-growing vegetation, 25-100% cover.	None	The Study Area is outside of the known range of this species.	N/A
redheaded sphecid wasp	*Eucerceris ruficeps*	-/-		Interior dunes	Central California interior dunes. Nest in hard-packed sand utilizing abandoned halictine bee burrows.	None	While there are two reported occurrences from the 1950's, presumed extirpated, in the vicinity of the Study Area.	N/A
Bridges' coast range shoulderband	*Helminthoglypta nickliniana bridgesi*	-/-	IUCN_DD-Data Deficient	Valley & foothill grassland	Inhabits open hillsides of Alameda and Contra Costa counties. Tends to colonize under tall grasses and weeds.	None	Outside of known range.	N/A
Ricksecker's water scavenger beetle	*Hydrochara rickseckeri*	-/-		Aquatic | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters		Moderate	Suitable habitat is present in the Sacramento River, and there is a reported occurrence within 2 miles of the Study Area.	MM BIO-1 and MM BIO-12

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
curved-foot hygrotus diving beetle	*Hygrotus curvipes*	-/-		Aquatic		Moderate	Suitable habitat may be present within the Study Area, and multiple reported occurrences are present within 2 miles of the Study Area.	MM BIO-1 and MM BIO-12
Middlekauff's shieldback katydid	*Idiostatus middlekauffi*	-/-	IUCN_CR-Critically Endangered	Interior dunes	Only known from Contra Costa County and may be extirpated.	None	The Study Area is outside of the known range, and no suitable habitat is present.	N/A
vernal pool tadpole shrimp	*Lepidurus packardi*	FE/-	IUCN_EN-Endangered	Valley & foothill grassland | Vernal pool | Wetland	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass-bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	Moderate	Suitable habitat may be present within the Study Area, and multiple reported occurrences are present within 2 miles of the Study Area.	MM BIO-1 and MM BIO-12
California linderiella	*Linderiella occidentalis*	-/-	IUCN_NT-Near Threatened	Vernal pool	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity, and total dissolved solids.	Moderate	Suitable habitat may be present within the Study Area, and multiple reported occurrences are present within 2 miles of the Study Area.	MM BIO-1 and MM BIO-12
molestan blister beetle	*Lytta molesta*	-/-		Vernal pool | Wetland		Low	Suitable habitat may be present within the Study Area, and one reported occurrence is 5 miles from the Study Area.	MM BIO-1 and MM BIO-12
Hurd's metapogon robberfly	*Metapogon hurdi*	-/-		Interior dunes		None	The Study Area is outside of the known	N/A

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	Relevant Mitigation Measures
							range, and no suitable habitat is present.	
Antioch multilid wasp	*Myrmosula pacifica*	-/-		Interior dunes		None	The Study Area is outside of the known range, and no suitable habitat is present.	N/A
Antioch andrenid bee	*Perdita scitula antiochensis*	-/-		Interior dunes	Known only from Antioch Dunes and Oakley. Visits flowers of *Eriogonum, Gutierrezia californica, Heterotheca grandiflora, Lessingia glandulifera*.	None	The Study Area is outside of the known range, and no suitable habitat is present.	N/A
Antioch specid wasp	*Philanthus nasalis*	-/-		Interior dunes		None	The Study Area is outside of the known range, and no suitable habitat is present.	N/A
Antioch Dunes halcitid bee	*Sphecodogastra antiochensis*	-/-	XERCES_CI-Critically Imperiled	Interior dunes	Restricted to Antioch Dunes. Host plant is *Oenothera deltoides howellii*. This bee nests in the ground in stabilized sand dunes in open, xeric areas.	None	The Study Area is outside of the known range, and no suitable habitat is present.	N/A

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	
Mammals								
pallid bat	*Antrozous pallidus*	-/-	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive | WBWG_H-High Priority	Chaparral | Coastal scrub | Desert wash | Great Basin grassland | Great Basin scrub | Mojave Desert scrub | Riparian woodland | Sonoran Desert scrub | Upper montane coniferous forest | Valley & foothill grassland	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	None	No suitable roosting and foraging habitat present within the Study Area, and nearest occurrences over 8 miles from Study Area.	N/A
Townsend's big-eared bat	*Corynorhinus townsendii*	-/-	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive | WBWG_H-High Priority	Broadleaved upland forest | Chaparral | Chenopod scrub | Great Basin grassland | Great Basin scrub | Joshua tree woodland | Lower montane coniferous forest | Meadow & seep | Mojave Desert scrub | Riparian forest | Riparian woodland | Sonoran desert scrub | Sonoran thorn woodland | Upper montane coniferous forest | Valley & foothill grassland	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	None	No suitable habitat, nearest occurrences over 10 miles from Study Area.	N/A
western mastiff bat	*Eumops perotis californicus*	-/-	BLM_S-Sensitive | CDFW_SS	Chaparral | Cismontane woodland | Coastal scrub | Valley & foothill grassland	Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub,	None	No suitable habitat, nearest occurrences over 25 miles from Study Area.	N/A

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	
			C-Species of Special Concern | WBWG_H -High Priority		grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.			
silver-haired bat	*Lasionycteris noctivagans*	-/-	IUCN_LC-Least Concern | WBWG_ M-Medium Priority	Lower montane coniferous forest | Old growth | Riparian forest	Primarily a coastal and montane forest dweller, feeding over streams, ponds & open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks.	None	No suitable habitat, nearest occurrences over 10 miles from Study Area.	N/A
western red bat	*Lasiurus blossevillii*	-/-	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | WBWG_H -High Priority	Cismontane woodland | Lower montane coniferous forest | Riparian forest | Riparian woodland	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Moderate	Suitable habitat present, and several occurrences within 2 miles of the Study Area.	MM AES-1, MM AES-2, MM BIO-1 and MM BIO-15
hoary bat	*Lasiurus cinereus*	-/-	IUCN_LC-Least Concern | WBWG_ M-Medium Priority	Broadleaved upland forest | Cismontane woodland | Lower montane coniferous forest | North coast coniferous forest	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths.	Moderate	Suitable habitat present and reported occurrences within 2 and 5 miles of the Study Area.	MM AES-1, MM AES-2, MM BIO-1 and MM BIO-15
San Francisco dusky-footed woodrat	*Neotoma fuscipes annectens*	-/-	CDFW_SSC-Species of Special Concern	Chaparral | Redwood	Forest habitats of moderate canopy & moderate to dense understory. May prefer chaparral & redwood habitats. Constructs nests	None	No suitable habitat is present for this species and the Study Area is outside of the known range of this subspecies.	N/A

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	
					of shredded grass, leaves & other material. May be limited by availability of nest-building materials.			
Riparian (=San Joaquin Valley) woodrat	*Neotoma fuscipes riparia*	FE/-	CDFW_SSC-Species of Special Concern	Chaparral | Redwood	Forest habitats of moderate canopy & moderate to dense understory. May prefer chaparral & redwood habitats. Constructs nests of shredded grass, leaves & other material. May be limited by availability of nest-building materials.	None	No suitable habitat is present for this species and the Study Area is outside of the known range of this subspecies.	N/A
San Joaquin Pocket Mouse	*Perognathus inornatus*	-/-	BLM_S-Sensitive | IUCN_LC-Least Concern	Cismontane woodland | Mojave Desert scrub | Valley & foothill grassland	Grassland, oak savanna and arid scrubland in the southern Sacramento Valley, Salinas Valley, San Joaquin Valley and adjacent foothills, south to the Mojave Desert. Associated with fine-textured, sandy, friable soils.	Moderate	Suitable habitat present and reported occurrences within 2 and 5 miles of the Study Area.	MM BIO-1
salt-marsh harvest mouse	*Reithrodontomys raviventris*	FE/SE	CDFW_FP-Fully Protected | IUCN_EN-Endangered	Marsh & swamp | Wetland	Only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat but may occur in other marsh vegetation types and in adjacent upland areas. Does not burrow; builds loosely organized nests.	None	Study Area is outside of the range for this species.	N/A

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	
					Requires higher areas for flood escape.			
riparian brush rabbit	*Sylvilagus bachmani riparius*	FE/SE		Riparian forest	Riparian areas on the San Joaquin River in northern Stanislaus County. Dense thickets of wild rose, willows, and blackberries.	None	Study Area is outside of the range for this species.	N/A
American badger	*Taxidea taxus*	-/-	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Alkali marsh | Alkali playa | Alpine | Alpine dwarf scrub | Bog & fen | Brackish marsh | Broadleaved upland forest | Chaparral | Chenopod scrub | Cismontane woodland | Closed-cone coniferous forest | Coastal bluff scrub | Coastal dunes | Coastal prairie | Coastal scrub | Desert dunes | Desert wash | Freshwater marsh | Great Basin grassland | Great Basin scrub | Interior dunes | Ione formation | Lower montane coniferous forest | Marsh & swamp | Meadow & seep | Mojave desert scrub | Montane dwarf scrub | North coast coniferous forest Redwood | Riparian forest | Riparian scrub | Riparian woodland | Salt marsh | Sonoran desert scrub | Sonoran thorn woodland | Ultramafic | Upper montane coniferous forest | Upper Sonoran scrub | Valley & foothill grassland	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Moderate	Suitable habitat present and reported occurrences within 2 and 5 miles of the Study Area.	MM BIO-1 and MM BIO-16

Common Name	Scientific Name	Fed/ State / CNPS	Other Status	Habitat	Micro Habitat	Potential to Occur	Justification for Determination	
San Joaquin kit fox	*Vulpes macrotis mutica*	FE/ST		Chenopod scrub | Valley & foothill grassland	Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	Moderate	Suitable habitat present and reported occurrences within 2 and 5 miles of the Study Area.	MM AES-2, MM BIO-1 and MM BIO-17

Soil Investigations for Data Collection in the Delta Mitigation and Monitoring Reporting Program (MMRP) Modified, December 2022

California Department of Water Resources

1416 Ninth Street

Sacramento, CA 95814

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PURPOSE OF THE MMRP

The California Environmental Quality Act (CEQA) requires that agencies approving projects after adopting Mitigated Negative Declarations (MNDs) must take affirmative steps to determine that all approved mitigation measures are implemented subsequent to project approval.

This Mitigation Monitoring and Reporting Program (MMRP) has been prepared by the California Department of Water Resources (DWR) pursuant to CEQA for Soil Investigations for Data Collection in the Delta (Investigations), which has been analyzed in the Initial Study – Mitigated Negative Declaration (IS/MND) for Soil Investigations for Data Collection in the Delta. DWR will adopt this MMRP at the time it adopts "CEQA Findings" pursuant to CEQA Guidelines section 15074[d].

Implementation of the mitigation measures would reduce impacts to below a level of significance for biological resources, cultural resources, greenhouse gas emissions, hazards and hazardous materials, tribal cultural resources, and wildfire.

Mitigation measures must be implemented within the time periods indicated in the table that appears below. Permittee has the primary responsibility for monitoring compliance of all mitigation measures and for reporting to the applicable regulatory agencies on the progress in implementing those measures. These monitoring and reporting requirements are set forth in the IS/MND and are summarized at the front of the attached table.

The remainder of this MMRP consists of the checklist that identifies the mitigation measures by resource for each project component. The following items are identified for each mitigation measure: Mitigation Measure, Implementation Schedule, Responsible Party, and Status/Date/Initials. The "Mitigation Measure Number" and "Mitigation Measure" columns identify and detail the specific mitigation measure found in the IS/MND. The "Implementation Timing" column shows the date or phase when each mitigation measure will be implemented. The "Implementation Responsibility" column identifies the person or agency that is primarily responsible for implementing the mitigation measure. The "Completion Date" and "Verified By" shall be completed by the Permittee during preparation of each Status Report and the Final Mitigation Report and must identify the date that the mitigation measure implementation was completed and will include initials of the person determining the completion. If the mitigation measure was not completed or other issues have arisen preventing the completion, this should be documented in the "Comments" column.

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM AES-1a	Each Impact Area will be returned to as close to pre-activity conditions as possible. This will be documented by still photos taken pre- and post-activity.	At the conclusion of impact area disturbance	Construction Contractor			
MM AES-1b	No building structures will be removed or disturbed. Soil investigation activities will occur at a distance greater than 100 feet (30.5 meters) from residences and small business operations. If fencing needs to be removed for access, it would be replaced after the work is completed.	During construction	Construction Contractor			
MM AES-1c	No trees or vines will be removed during exploration activities; and only minor disturbances to vegetation would occur during mobilization of equipment. This minor disturbance may consist of mowing, removal of a few tree limbs, or trimming of bushes for site access. However, if access requires removal of any vegetation, the landowner would be consulted first to minimize the impact to both vegetation and the landowner.	During construction	Construction Contractor, Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM AES-2a	Navigational lighting will be used as needed for overwater work, but will meet the standards required for waterway safety, and are will not increase the existing ambient lighting of the area in a substantial way. Any lighting used on barges or drill ships will not exceed the standards of brightness for standard navigational safety requirements.	Before and during construction	Construction Contractor			
MM AES-2b	All work will occur between sunrise and sunset.	During construction	Construction Contractor, Biologist			
MM AGR-1	Any proposed soil investigation activities that occur on agricultural lands will be grouted in accordance with materials that conform to ANSI and ASTM standards from the full depth to five feet (1.5 meters) below the surface. The final five feet (1.5 m) of topsoil will be replaced to return the Impact Area to as close to pre-activity conditions as possible. The backfill procedure will be in accordance with State of California Bulletin 74-81/74-90 and local county standards.	At the conclusion of impact area disturbance	Construction Contractor			
MM AIR-1a	Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.	During construction	Construction Contractor			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM AIR-1b	Cover or maintain at least six feet (1.8 meters) of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways will be covered.	During construction	Construction Contractor			
MM AIR-1c	All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. Use wet power vacuum street sweepers to remove any visible track out mud or dirt onto adjacent public roads as needed. Use of dry power sweeping and blower devices is prohibited.	During construction	Construction Contractor, Engineer			
MM AIR-1d	Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).	During construction	Construction Contractor, Engineer			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-1a (General Biological Measures)	All litter, debris, unused materials, rubbish, supplies, or other material will be appropriately stored in closed containers until it can be removed from project sites and deposited at an appropriate disposal or storage site. All trash that is brought to a project site during soil investigation activities (e.g., plastic water bottles, plastic lunch bags, cigarettes) shall be removed from the site daily.	During construction	Construction Contractor, Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-1b (General Biological Measures)	As stated in the project description, all on-land soil investigation Impact Areas will be located outside of wetlands as defined in the Corps of Engineers Wetlands Delineation Manual (USACE 1987). Evaluation of conditions at each site will be conducted by a qualified wetland delineator. If after either review of applicable data sources (e.g., verified delineations and /or aerial imagery) or initial site reconnaissance, potential aquatic resources including those that meet the Corps definition of wetlands or non-wetland waters are identified within the Impact Area, a wetland delineator will perform a site survey for that site and relocate the Impact Area a minimum of 5 feet from the boundary of observed aquatic resources. This distance exceeds the USACE Sacramento District's minimum standard for mapping accuracy (less than one meter) for delineation of aquatic resources and would ensure avoidance of impacts to the resource.	Before construction	Construction Contractor, Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-1c (General Biological Measures)	Over-water sites will be located within portions of navigable channels or sloughs that generally do not provide appropriate habitat for terrestrial plant or wildlife species, and will be authorized under the Clean Water Act sections 401 and 404, and Fish and Game Code section 1602 et seq.	Before construction	Construction Contractor, Biologist			

MM BIO-1d (General Biological Measures)	A qualified team of biologists will conduct a habitat assessment and reconnaissance level surveys approximately two weeks prior to the onset of ground disturbing soil investigation activities for any special status plants and wildlife that have the potential to occur within the project area (see Appendix A-Wildlife and Plant Species List). If, based on the habitat assessment and reconnaissance level surveys, the biologists identify the potential for special status wildlife impacts, the location will be shifted to a suitable location as identified by the qualified team of biologists, which is defined as a location that achieves the following four performance standards: (1) satisfies the requirements of Mitigation Measures BIO-2 through BIO-20, AES-1, AES-2, HYD-1, and HAZ-1 through HAZ-4 (2) is the minimum distance necessary (informed by the mitigation measures cited in (1)) to ensure that no special status plants and wildlife with the potential to occur is disturbed during the work activities, (3) does not increase impacts to other resources to above a level of significance, and (4) the qualified biologist team must determine that commencing activities does not have the possibility to cause unpermitted	Before construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
	take under federal or State law. If a suitable location, as defined above, cannot be determined within adjacent areas by the qualified team of biologists, then the soil investigation at that location will not be conducted.					
MM BIO-1e (General Biological Measures)	The qualified biologist(s) must, at a minimum, have experience conducting surveys to identify the specific species and associated habitat that could occur on site.	Before and during construction	Biologist			

MM BIO-1f (General Biological Measures)	A qualified biologist will be on-site for all project activities and will conduct an environmental awareness training session for all new field personnel prior to the start of work each day. Throughout the project, any new staff will be provided training before they begin working on the project. A running list of trained personnel will be kept on site in the project permit binder and includes name, date of training, work site and their signature. At a minimum, the training shall: i. include a description of each species with the potential to occur, including physical description, habitat needs, and life history as well as a discussion of the importance of avoiding impacts to special status wildlife. ii. explain the general measures that are being implemented to conserve these species as they relate to the project and project area, and procedures to follow should they encounter wildlife during work. iii. explain the stop work authority of biologists	Before and during construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
	and/or cultural resource specialists.					
MM BIO-1g (General Biological Measures)	Any observations of federally or state-listed species or California Species of Special Concern will be reported to CDFW within three (3) working days of the observation, and the observation(s) will be submitted to the California Natural Diversity Database (CNDDB). Any observations of federally listed species will also be reported to the U.S. Fish and Wildlife Service.	Before and during construction	Biologist			
MM BIO-1h (General Biological Measures)	All federally or state-listed species observed will be allowed to leave the Impact Area on their own. If the biologist determines that continuing activities could potentially cause unpermitted take under federal or State law to a federally or state-listed species, activities must cease. Work may not resume until the on-site biologist has determined there is no longer the possibility of causing unpermitted take under federal and State law.	Before and during construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-1i (General Biological Measures)	The area below any vehicle or piece of equipment that has been stationary for 24 hours or greater will be examined prior to operation to ensure that no wildlife species is present.	Before and during construction	Construction Contractor, Biologist			
MM BIO-1j (General Biological Measures)	No pets or firearms will be permitted on site.	Before and during construction	Construction Contractor, Biologist			
MM BIO-1k (General Biological Measures)	Any open holes or trenches that will be left exposed overnight will either be securely covered or have an escape ramp installed to prevent entrapment of any wildlife.	During construction	Construction Contractor, Biologist			
MM BIO-1l (General Biological Measures)	Any piping or casing left exposed overnight will be capped to prevent wildlife from entering.	During construction	Construction Contractor, Biologist			
MM BIO-2a (Special Status Amphibians)	No project activities will be conducted during or within 24 hours following a rain event in locations that have a potential for special status amphibians to occur or are near wetlands or other water features.	During construction	Construction Contractor, Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-2b (Special Status Amphibians)	In areas with the potential for special-status reptiles and amphibians to occur, prior to the onset of project activities at any Impact Area, a qualified biologist will conduct pre-construction surveys to determine whether any such species are present. A qualified biologist must, at a minimum, have experience conducting surveys to identify the California tiger salamander, California red-legged frog, western spadefoot, western pond turtle, and/or giant garter snake and their associated habitat.	Before and during construction	Biologist			
MM BIO-2c (Special Status Amphibians)	Any active rodent burrows or suitable cracks identified by a qualified biologist during the pre-construction survey will be flagged so that they can be avoided.	Before construction	Biologist			
MM BIO-2d (Special Status Amphibians)	Any burrows, cracks or fissures suitable for rodents that cannot be avoided and will be temporarily impacted by the movement and placement of equipment or other project activities will be covered with plywood to avoid burrow collapse.	Before and during construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-2e (Special Status Amphibians)	Leaf litter will be surveyed by the biologist for presence of wildlife prior to the onset of work, and if any special-status species are identified as using the leaf litter for refuge it will be avoided and a buffer will be established by a qualified biologist and flagged.	Before construction	Biologist			
MM BIO-2f (Special Status Amphibians)	If any special-status reptiles or amphibians are observed within the Impact Area, the on-site biologist will determine if the work can continue without harm to the individual(s). If the biologist determines that it is not safe to continue work, all work will cease until the animal has left the Impact Area. Once the individual(s) is determined by the on-site biologist to have left the Impact Area and is out of harm's way, work may resume.	Before and during construction	Biologist			
MM BIO-2g (Special Status Amphibians)	Piles of rock, rip-rap, or other materials that could provide refuge to reptiles or amphibians will be avoided. If movement of such materials cannot be avoided, a qualified biologist will survey the area prior to disturbance and monitor the material movement and restoration of the area following completion of Proposed Project activities.	Before and during construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-3a (Western Pond Turtle)	In areas with the potential for western pond turtle to occur, pre-activity presence/absence surveys for western pond turtle shall occur within 48 hours prior to the onset of project activities at any Impact Area.	Before construction	Biologist			
MM BIO-3b (Western Pond Turtle)	If Western pond turtles are observed on land during the pre-activity surveys, the area within 328 feet (100 meters) of the boundary of the aquatic habitat will be flagged and avoided if feasible.	Before construction	Biologist			
MM BIO-3c (Western Pond Turtle)	If western pond turtles are observed within the Impact Area during a pre-activity survey or during project activities, they will be relocated outside of the Impact Area to appropriate aquatic habitat by a qualified biologist.	Before and during construction	Biologist			
MM BIO-4a (Giant Garter Snake)	Upland habitat within 200 feet (61 meters) of suitable aquatic habitat, that is suitable for giant garter snake (containing cracks or rodent burrows) will be flagged and avoided.	Before and during construction	Biologist			
MM BIO-4b (Giant Garter Snake)	On-land soil investigations within suitable upland habitat for giant garter snake will be conducted during the snake's active season of May 1 through October 1.	During construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-5a (Rookery Birds)	A pre-activity survey for active rookeries will be conducted (during nesting season between February 1 – August 31) a maximum of 72 hours prior to the onset of soil investigation field activities. The qualified biologist(s) must, at a minimum, have experience conducting surveys to identify the specific rookery bird species and associated habitat that could occur on site.	Before construction	Biologist			
MM BIO-5b (Rookery Birds)	If any active rookeries are identified within or adjacent to an Impact Area, a buffer will be put in place to ensure that the birds are not disturbed during work activities. This buffer will be up to 50 feet (15 meters), but can be smaller, dependent on-site conditions and at the discretion of the qualified biologist.	Before construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-6a (Raptors; excluding Swainson's Hawk and Burrowing Owl)	For soil investigation field activities that will occur between February 1 – August 31, a pre-activity survey for actively nesting raptors will be conducted by a qualified biologist a maximum of 72 hours prior to the onset of project activities. The qualified biologist(s) must, at a minimum, have experience conducting surveys to identify the specific species and associated habitat that could occur on site.	Before construction	Biologist			
MM BIO-6b (Raptors; excluding Swainson's Hawk and Burrowing Owl)	If any active raptor nests are identified within or adjacent to an Impact Area by the pre-action survey, a buffer will be put in place to avoid disturbance to birds during and as a result of work activities. This buffer will be up to 250 feet (76 meters), but can be smaller, dependent on-site conditions and at the discretion of the qualified biologist.	Before construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-6c (Raptors; excluding Swainson's Hawk and Burrowing Owl)	Any identified actively nesting raptors will be monitored by a qualified biologist during activity activities for signs of distress or disturbance as a result of field activities. Should the birds show signs of distress, work will cease at that location until the birds have resumed normal behavior and it is determined by the on-site biologist that work can be resumed.	During construction	Biologist			
MM BIO-7a (Tricolored Blackbird)	For soil investigation field activities that will occur March 15-July 31 in areas with potential breeding habitat for Tricolored Blackbird, a pre-activity survey for breeding colonies will be conducted by a qualified biologist within 1,300 feet (396 meters) of Impact Areas a maximum of 72 hours prior to the onset of soil investigation activities. The qualified biologist(s) must, at a minimum, have experience conducting surveys to identify Tricolored Blackbird and associated habitat that could occur on site.	Before construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-7b (Tricolored Blackbird)	For soil investigation field activities that will occur August 1 – March 14 in areas with potential roosting habitat for Tricolored Blackbird, a pre-activity survey for roosting Tricolored Blackbirds will be conducted during the nonbreeding season within 300 feet (91 meters) of Impact Areas a maximum of 72 hours prior to the onset of soil investigation activities by a qualified biologist.	Before construction	Biologist			
MM BIO-7c (Tricolored Blackbird)	If active Tricolored Blackbird breeding colonies or roost sites are identified within or adjacent to an Impact Area, a buffer will be put in place to ensure that the birds are not disturbed during work activities. This buffer will be up to 1,300 feet (396 meters) but may be reduced to a minimum of 300 feet (91 meters), dependent on-site conditions and at the discretion of the qualified biologist.	Before construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-8a (Nesting Birds)	For soil investigation field activities that will occur February 1 – August 31, a pre-activity survey for actively nesting birds will be conducted a maximum of 72 hours prior to the onset of soil investigation activities by a qualified biologist. The qualified biologist(s) must, at a minimum, have experience conducting surveys to identify the specific species and associated habitat that could occur on site.	Before construction	Biologist			
MM BIO-8b (Nesting Birds)	If any active nests are identified within or adjacent to an Impact Area, a buffer will be put in place to ensure that no take (as defined by MBTA), and no take, possession, or needless destruction (as prohibited under the Fish and Game Code) occurs. This buffer will be up to 50 feet (15 meters), but can be smaller, dependent on-site conditions and at the discretion of the qualified biologist.	Before construction	Biologist			
MM BIO-9a (Sandhill Crane)	For soil investigation field activities that will occur September 15 through March 15, during roosting season, pre-activity surveys and an assessment of known roost sites will be conducted within 0.75 mile (1,207 meters) of Impact Areas by a qualified biologist.	Before construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-9b (Sandhill Crane)	If roost sites are identified within 0.25 mile (402 meters) of Impact Areas by the qualified biologist, start of large equipment use for soil investigation activities will be delayed to an hour after sunrise and stop an hour before sunset to minimize potential for noise disturbance at the roost site.	During construction	Biologist			
MM BIO-10a (Burrowing Owl)	In areas with the potential for Burrowing Owl to occur, prior to soil investigation field activities, a qualified biologist will conduct a pre-activity survey. The surveys will establish the presence or absence of Burrowing Owl and/or suitable habitat features and evaluate use by owls in accordance with CDFW survey guidelines (CDFW 1993). For each Impact Area, the biologist will survey the proposed disturbance footprint and a 500-foot (152 meter) radius from the perimeter of the proposed footprint to identify any suitable burrows and owls. Adjacent parcels under different land ownership will not be surveyed. Surveys should take place near sunrise or sunset in accordance with CDFW guidelines. Suitable burrows or Burrowing Owls will be identified and mapped.	Before construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-10a (Burrowing Owl) continued	Surveys will take place no more than 30 days prior to soil investigation field activities. During the breeding season (February 1– August 31), surveys will document whether Burrowing Owls are nesting in or directly adjacent to any Impact Area. During the nonbreeding season (September 1–January 31), surveys will document whether Burrowing Owls are using habitat in or directly adjacent to any disturbance area. Survey results will be valid only for the season (breeding or nonbreeding) during which the survey is conducted.	Before construction	Biologist			
MM BIO-10b (Burrowing Owl)	If Burrowing Owls are found during the breeding season (February 1 – August 31), all nest sites that could be disturbed by project activities will be avoided during the remainder of the breeding season or while the nest is occupied by adults or young. Avoidance will include establishment of a non-disturbance buffer zone (described below in parts c and d).	During construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-10c (Burrowing Owl)	Soil investigation activities may occur during the breeding season only if a qualified biologist monitors the nest and determines that the birds have not begun egg-laying and incubation or that the juveniles from the occupied burrows have fledged. During the nonbreeding season (September 1 – January 31) the owls and the burrows they are using will be avoided. Avoidance will include the establishment of a buffer zone (described below).	During construction	Biologist			
MM BIO-10d (Burrowing Owl)	During the breeding season, buffer zones of at least 250 feet (76 meters) in which no soil investigation activities can occur will be established around each occupied burrow (nest site). Buffer zones of 160 feet (49 meters) will be established around each burrow being used during the nonbreeding season. The buffers will be delineated by highly visible, temporary fencing or flagging.	During construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-11a (Swainson's Hawk)	If soil investigations field activities will occur during the nesting season (March 15–September 15), a pre-activity survey will be conducted by a qualified biologist within 0.25 mile (402 meters) of Impact Areas following the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (SWHA Technical Advisory Committee 2000) between 5 days and 72 hours prior to the start of soil investigation activities to identify Swainson's Hawk nests.	Before construction	Biologist			
MM BIO-11b (Swainson's Hawk)	If active nests are observed within 0.25 mile (402 meter) of an Impact Area, project activities will be limited to outside of the breeding season (March 15 – September 15) or until the nest is determined to be inactive or fledged by a qualified biologist.	During construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-11c (Swainson's Hawk)	When soil investigation activities must occur within 0.25 mile (402 meters) of a known or potential nest during nesting season (March 15 – September 15), soil investigation field activities will be initiated prior to egg-laying, if possible. If soil investigation activities must begin after egg-laying, a 650-foot (198 meter) no-activity buffer will be established between an active nest and any soil investigation activities until eggs have hatched. If site-specific conditions or the nature of the project activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, the qualified biologist will determine the appropriate buffer size.	During construction	Biologist			
MM BIO-11d (Swainson's Hawk)	If young fledge prior to September 15, soil investigation activities can proceed normally, subject to confirmation by a qualified biologist that the young have fledged from active nest sites. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the qualified biologist may determine that project activities can proceed.	During construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-11e (Swainson's Hawk)	A qualified biologist with stop-work authority will be present during soil investigation field activities and may halt project activities if the biologist determines that Swainson's Hawks in the vicinity of soil investigation activities are disturbed to the point where nest abandonment is likely. Additional protective measures, as determined by the qualified biologist, will be implemented prior to resuming soil investigation activities.	During construction	Biologist			
MM BIO-12a (Vernal Pool Species)	All ground disturbing activities (boring, CPT, or vegetation removal) shall be located at least 100 feet (30 meter) from a vernal pool to avoid impacts to sensitive vernal pool invertebrates.	Before and during construction	Biologist			
MM BIO-12b (Vernal Pool Species)	No project activities shall take place within an area identified as vernal pool complex, as determined by a qualified biologist, when wet soil conditions would increase the likelihood of vehicle traffic or other activities altering the site topography.	Before and during construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-13a (Valley Elderberry Longhorn Beetle)	When feasible, project activities shall be sited at least 164 feet (50 meters) from elderberry shrubs with stem diameter greater than 1-inch (2.5 centimeter).	Before and during construction	Biologist			
MM BIO-13b (Valley Elderberry Longhorn Beetle)	If activities must be conducted within 164 feet (50 meters) of an elderberry shrub, the following measures will apply: i. activities will be conducted outside of VELB flight season (March 1-July 31); ii. a biological monitor will be present to monitor all project activities at the site; iii. all ground disturbing activities (boring, CPT, or vegetation removal) will be located at least 20 feet (6 meters) from the dripline of the elderberry shrub; and high visibility fencing, or flagging will be installed to delineate the 6-meter avoidance buffer.	During construction	Biologist			
MM BIO-14 (General Fish)	Over-water activities will be limited to only being conducted during the fish work window (August 1 – October 31) to avoid impacts to sensitive fish species that have the potential to occur in the Study Area.	During construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-15a (Special-Status Bats)	Pre-activity roosting special-status bat surveys and an evaluation of roosting habitat suitability for bats will be conducted by a qualified biologist familiar with the species that could potentially occur within the Impact Area. The qualified biologist should, at a minimum have experience conducting roosting bat surveys and be able to identify the presence of guano and urine stains.	Before construction	Biologist			
MM BIO-15b (Special-Status Bats)	Any identified roosts of special-status bats will be avoided, and a buffer of up to 100 feet (30 meters) will be established based on-site conditions and at the discretion of the biologist, to ensure that the roosting bats are not disturbed. If a nursery colony is identified, additional measures may be required including a larger buffer, to ensure no disturbance. Such additional measures will be determined and monitored by a qualified biologist.	During construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-16a (American Badger)	A qualified biologist shall conduct pre-activity surveys for American badger and dens in suitable habitat within 48 hours prior to the start of soil investigation activities. If there is a lapse in soil investigation activities of two weeks or greater the area shall be resurveyed within 24 hours prior to recommencement of work. Potential American badger dens identified in the project area shall be monitored by the qualified biologist to determine current use.	Before and during construction	Biologist			
MM BIO-16b (American Badger)	American badger dens determined by the qualified biologist to be occupied during the breeding season (February 15 through June 30) shall be flagged, and ground disturbing activities avoided, within 100 feet (30 meters) of the den to protect adults and nursing young. Buffers may be modified by the qualified biologist, depending on the applicable site conditions and characteristics of the den, and shall not be removed until the qualified biologist has determined that the den is no longer in use.	Before and during construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-17a (San Joaquin Kit Fox)	Prior to any ground disturbance within an Impact Area, a qualified biologist will conduct a pre-activity survey in areas identified in the pre-activity surveys as supporting suitable breeding or denning habitat for San Joaquin kit fox. The surveys will establish the presence or absence of San Joaquin kit foxes and/or suitable dens and evaluate use by kit foxes in accordance with USFWS survey guidelines (U.S. Fish and Wildlife Service 1999).	Before construction	Biologist			
MM BIO-17b (San Joaquin Kit Fox)	Pre-activity surveys will be conducted within 30 days prior to ground disturbance. The biologist will survey the proposed Impact Area and a 250-foot (76 meter) buffer from the perimeter of the proposed Impact Area to identify San Joaquin kit foxes and/or suitable dens. Adjacent parcels under different land ownership, for which DWR not have access, will not be surveyed. The status of all dens will be determined and mapped. Written results of pre-activity surveys will be submitted to USFWS within 5 working days after survey completion and before the start of ground disturbance.	Before construction	Biologist			

MM BIO-17c (San Joaquin Kit Fox)	If San Joaquin kit foxes and/or suitable dens are identified within those areas included in the pre-activity survey area, the measures described below will be implemented. i. If a San Joaquin kit fox den is discovered in the Impact Area, the Impact Area will be moved at a minimum to meet the appropriate buffer distances as described below in subsection (c)(ii). ii. If dens are identified in the survey area but outside the Impact Area, exclusion zones around each den entrance or cluster of entrances will be demarcated. The configuration of exclusion zones should be circular, with a radius measured outward from the den entrance(s). No covered activities will occur within the exclusion zones. Exclusion zone radii for potential or atypical dens will be at least 50 feet (15 meters) and will be demarcated with four to five flagged stakes. Exclusion zone radii for known dens will be at least 100 feet (30 meters) and will be demarcated with	During construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
	staking and flagging that encircles					
MM BIO-17c (San Joaquin Kit Fox) continued	each den or cluster of dens but does not prevent access to the den by kit fox. iii. If a natal or pupping den is found within the Impact Area or within 200-feet (61 meters) of the Impact Area boundary, USFWS and CDFW will be notified immediately. The den will not be disturbed or destroyed, depending on the applicable site conditions and characteristics of the den, the soil investigation site may be moved.	During construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-18a (Botanical Resources)	All botanical evaluations will be conducted by a qualified botanist, who at a minimum shall have experience conducting floristic field surveys; knowledge of plant taxonomy and plant community ecology and classification; familiarity with the plants of the area, including special-status and locally significant plants; familiarity with the appropriate state and federal statutes related to plants and plant collecting; and experience with analyzing impacts of a project on native plants and communities.	Before and during construction	Biologist			

MM BIO-18b (Botanical Resources)	A qualified botanist will conduct a habitat assessment to determine whether the habitat is appropriate for special-status plants. If suitable habitat is present, the qualified botanist will conduct a habitat quality assessment to determine the potential for presence of sensitive plant species. The habitat quality assessment will consider factors such as soil type, degree and frequency of previous soil disturbance, abundance of invasive species, and distance from known sensitive plant occurrences. If a qualified botanist determines that special-status plants are likely to occur at a proposed Impact Area, a botanical survey will be conducted within the Impact Area at each soil investigation site. When feasible based on scheduling and property access, the surveys will be conducted at proper times of year when special-status and locally significant plants are both evident and identifiable; will be floristic in nature, ensuring that all plants observed are identified to a level sufficient for determining rarity, and will be conducted using systematic field techniques in all habitats of the site to ensure thorough coverage of potential Impact Areas.	Before and during construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-18c (Botanical Resources)	Any special-status plant species present within 33 feet (10 meters) of an Impact Area will be flagged, or mapped using a GPS, for avoidance. A qualified botanist will establish an appropriate buffer. During field activities avoidance of the buffered area will be enforced by an environmental monitor to ensure that special-status plants are avoided to the maximum extent practicable.	Before and during construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-18d (Botanical Resources)	If special-status plant species (excluding listed species) are present within the Impact Area and impacts cannot practicably be avoided, a qualified botanist will evaluate the following criteria to ensure these impacts are less than significant: i. the total range and distribution of the species, ii. local population abundance iii. approximate number of individuals potentially impacted, iv. area of habitat potentially impacted, v. life history of the species (annual versus perennial and seedbank dynamics), vi. species sensitivity and response to disturbance, vii. species fecundity, and viii. the probability of population recovery from impacts	Before construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM BIO-18d (Botanical Resources) continued	If loss of individuals due to project activities would exceed 2% of the local population or if the particular life history of the plant species indicates that a loss of that scale would threaten the persistence of the local population, or if there are fewer than 10 statewide extant occurrences, the soil investigation will not be allowed to proceed at that location.	Before construction	Biologist			
MM BIO-19 (Botanical Considerations for Vegetation Removal)	If access requires minor disturbances to or removal of vegetation, a qualified botanist will be consulted to ensure that no special-status vegetation is significantly impacted.	During construction	Biologist			
MM BIO-20 (Botanical Avoidance Zones)	Soil investigation activities will not be conducted within the intertidal zone of rivers or sloughs, including in-channel islands, or shoals to the extent feasible. If work in these areas is necessary, the Impact Area will be surveyed by a qualified botanist during tidal conditions that expose the intertidal area where Delta mudwort or Mason's lilaeopsis would occur. If Delta mudwort or Mason's lilaeopsis are identified, they will be flagged or mapped with a GPS for avoidance.	Before and during construction	Biologist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM CUL-1a	All Impact Area would be reviewed by a qualified archaeologist to evaluate the potential for impacts, if any, to cultural resources.	Before construction	Cultural Resource Specialist			
MM CUL-1b	Locations that have no previous survey coverage must be surveyed by, or under the direct supervision of a qualified archaeologist prior to the start of any ground disturbing activities.	Before construction	Cultural Resource Specialist			
MM CUL-1c	If the archaeologist observes cultural or potential tribal cultural resources within the Impact Area or associated resource buffer as identified by a qualified archaeologist, the location will be shifted the minimum distance necessary to reduce the potential for significant cultural resource impacts without significantly increasing potential impacts to other resources.	Before and during construction	Cultural Resource Specialist			
MM CUL-1d	A tribal representative from the consulting tribes will be invited to participate in the pre-activity field visits and archaeological surveys in Impact Areas specified as an area of interest/concern during consultation by that consulting tribe/tribes.	Before and during construction	DCA, Cultural Resource Specialist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM CUL-1e	Consulting tribes will be informed of any potential tribal cultural resources located within the study area specified as an area of interest/concern by a consulting tribe/tribes.	Before construction	Cultural Resource Specialist			
MM CUL-1f	If a suitable location cannot be determined within adjacent areas, then the soil investigation at that location would not be conducted.	Before construction	Cultural Resource Specialist			
MM CUL-2a	Should any unexpected cultural resources be exposed during project activities, all work would immediately stop in the immediate vicinity (e.g. 100 feet [30 meters]) of the find until it can be evaluated by a qualified archaeologist and an appropriate plan of action can be determined in consultation with the State Office of Historic Preservation, as necessary.	During construction	Cultural Resource Specialist			
MM CUL-2b	If the resource is associated with Native American contexts or is a potential Tribal Cultural Resource and is within a region specified as an area of interest/concern by a consulting tribe/tribes, the appropriate consulting tribal entity/entities will be contacted and consulted with to produce an appropriate plan of action.	During construction	Cultural Resource Specialist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM CUL-3	Should human remains be discovered during the course of project activities, all work would stop immediately in the vicinity (e.g. 100 feet [30 meters]) of the finds until they can be verified. The coroner would be contacted in accordance with Health and Safety Code section 7050.5(b). Protocol and requirements outlined in Health and Safety Code sections 7050.5(b) and 7050.5(c) as well as Public Resources Code section 5097.98 would be followed.	During construction	Cultural Resource Specialist			
MM CUL-4	Cultural sensitivity training will be provided for the environmental monitors and individuals conducting the field activities and geological analysis to ensure awareness about cultural resources, including identification of and proper protocol for handling any unexpected finds.	Before and during construction	Cultural Resource Specialist			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM GHG-1a	Evaluate project characteristics, including location, project work flow, site conditions, and equipment performance requirements, to determine whether specifications of the use of equipment with repowered engines, electric drive trains, or other high efficiency technologies are appropriate and feasible for the project or specific elements of the project.	Before construction	Construction Contractor, Engineer			
MM GHG-1b	Minimize idling time by requiring that equipment be shut down after five minutes when not in use (as required by the State airborne toxics control measure [Title 13, section 2485 of the California Code of Regulations]). This requirement will be enforced by the environmental monitor.	During construction	Biologist, Construction Contractor, Engineer			
MM GHG-1c	Maintain all soil investigation equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer’s recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition.	During construction	Construction Contractor, Engineer			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM GHG-1d	Implement tire inflation program on jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives on-site and every two weeks for equipment that remains on-site. Check vehicles used for hauling materials off-site weekly for correct tire inflation.	During construction	Construction Contractor			
MM GHG-1e	Encourage carpools or shuttle vans for worker commutes as feasible.	During construction	Construction Contractor, Engineer			
MM HAZ-1a	A Plan(s) (often a contractor's safety plan) with a section on Hazardous Materials shall be written and kept on site that describes the hazardous materials used during project activities, and how the materials will be properly stored, used, transported, and disposed of. The Plan will be shared with local fire and emergency personnel and their mutual aid districts. All hazardous materials shall be properly labeled and be recycled properly or disposed of at a properly licensed disposal facility.	Before and during construction	Construction Contractor			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM HAZ-1b	The contractor shall contact the local fire agency and the local CUPA for any site-specific requirements regarding hazardous materials or hazardous waste containment or handling.	Before and during construction	Construction Contractor			
MM HAZ-1c	If hazardous materials, such as oil, batteries or paint cans, are encountered in the Impact Area, the contractor(s) shall carefully remove and dispose of them according to the Safety Plan and Spill Prevention and Response Plan. All hazardous materials will be disposed of at a properly licensed disposal facility.	Before and during construction	Construction Contractor			
MM HAZ-1d	Contact of chemicals with precipitation shall be minimized by storing chemicals in watertight containers or in a storage shed (completely enclosed), with appropriate secondary containment to prevent any spillage or leakage.	During construction	Construction Contractor			
MM HAZ-1e	Quantities of toxic materials, such as equipment fuels and lubricants, shall be stored with secondary containment that is capable of containing 110% of the primary container(s).	During construction	Construction Contractor			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM HAZ-1f	Petroleum products, chemicals, fuels, lubricants, and non-storm drainage water or water contaminated with the aforementioned materials shall not contact soil and not be allowed to enter surface waters or the storm drainage system. All lubricants used downhole shall be non-petroleum based pursuant to common industry practice.	During construction	Construction Contractor			
MM HAZ-1g	All toxic materials, including waste disposal containers, shall be covered when they are not in use, and located as far away as possible from a direct connection to the storm drainage system or surface water.	During construction	Construction Contractor			
MM HAZ-1h	Sanitation facilities (e.g., portable toilets) shall be sited in a manner that avoids any direct connection to the storm drainage system or receiving water.	During construction	Construction Contractor			
MM HAZ-1i	Sanitation facilities shall be regularly cleaned and/or replaced and inspected daily for leaks and spills.	During construction	Construction Contractor			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM HAZ-2	A Plan(s) (often a contractor's safety plan) with a section on Spill Prevention and Response Plan shall be developed by the Contractor and submitted to DWR before any ground-disturbing activities in order to prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water (including untreated wastewater) into channels the. The Plan will be shared with local fire and emergency personnel and their mutual aid districts. The following measures shall be included in the Plan: a. All field personnel shall be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills.	Before construction	Construction Contractor			

MM HAZ-2 continued	b. Equipment and materials for cleanup of spills will be available on site and spills and leaks shall be cleaned up immediately and disposed of according to guidelines stated in the Spill Prevention and Response Plan. c. Field personnel shall ensure that hazardous materials are properly handled, and natural resources are protected by all reasonable means, including compliance with Code of Federal Regulations (CFR) containment measures for tanks containing hazardous materials (see 40 CFR Section 264.175). d. Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations). All field personnel shall be advised of these locations. e. Field personnel shall routinely inspect the work site to verify that spill prevention and response measures are properly implemented and maintained.	Before construction	Construction Contractor			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM HAZ-2 continued	f. Field personnel will routinely inspect the work site to verify that the Spill Prevention and Response Plan is properly implemented and maintained. Staff will notify contractors immediately if there is a noncompliance issue and will require immediate correction of any noncompliant behavior. g. Absorbent materials will be used on small spills located on impervious surface rather than hosing down the spill; wash waters shall not discharge to the storm drainage system or surface waters. For small spills on pervious surfaces such as soils, wet materials will be excavated and properly disposed rather than burying it. The absorbent materials will be collected and disposed of properly and promptly.	Before construction	Construction Contractor			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM HAZ-2 continued	As defined in 40 CFR 110, a federal reportable spill of petroleum products is the spilled quantity that: a. Violates applicable water quality standards; b. Causes a film or sheen on, or discoloration of, the water surface or adjoining shoreline; or c. Causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines. h. If a spill is reportable, the contractor will notify the DWR staff, and the DWR staff will take action to contact the appropriate safety and cleanup crews to ensure that the Spill Prevention and Response Plan is followed. A written description of reportable releases must be submitted to the Regional Board and the California Department of Toxic Substances Control (DTSC).	Before construction	Construction Contractor			

MM HAZ-2 continued	This submittal must contain a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The releases will be documented on a spill report form. i. If a significant spill has occurred, and results determine that project activities have adversely affected surface water or groundwater quality, a detailed analysis will be performed to the specifications of DTSC to identify the likely cause of contamination. This analysis will include recommendations for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, the DWR or contractors will select and implement measures to control contamination, with a performance standard that surface, and groundwater quality must be returned to baseline conditions.	Before construction	Construction Contractor			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM HAZ-2 continued	These measures will be subject to approval by the DWR, DTSC, and the Regional Board.	Before construction	Construction Contractor			
MM HAZ-3a	Stockpiling materials, portable equipment, vehicles, and supplies, including chemicals, will be restricted to areas adjacent to the drill or CPT rig, and not adjacent or within riparian and wetlands areas or other sensitive habitats	During construction	Construction Contractor			
MM HAZ-3b	Stockpiling materials, portable equipment, vehicles, and supplies, including chemicals, will be restricted to docks or within the drill barge or ship.	During construction	Construction Contractor			
MM HAZ-4a	The contractor would develop a fire protection and prevention plan which incorporates fire safety measures on all equipment with the potential to create a fire hazard.	Before construction	Construction Contractor			
MM HAZ-4b	The plan would ensure that fire suppression equipment is onsite and that all employees have received appropriate fire safety training.	Before construction	Construction Contractor			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM HAZ-4c	The Plan will be shared with local fire and emergency personnel and their mutual aid districts.	Before construction	Construction Contractor			
MM HYD-1a	All fueling and maintenance of vehicles or other equipment for on-land soil investigation activities shall occur on established private access roads, or in designated staging areas at least 50 feet (15 meters) away from any on-site water feature. Fueling and maintenance activities will be conducted sufficiently away from public roadways to ensure safety of workers and the public. Secondary containment for fuel and gas tanks will be used to prevent spills from entering any water features.	During construction	Construction Contractor			
MM HYD-1b	Absorbent materials will be available on-site. Any accidental leaks or spills will be immediately cleaned up per the procedures identified in the contractors Spill Prevention and Response Plan, and the equipment will not be able to return to the project area until it has been repaired sufficiently to prevent further leaks or spills.	During construction	Construction Contractor			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM HYD-1c	For overwater soil investigations positive barriers consisting of hay waddles and/or other suitable type of spill-stoppage materials will be placed around the work area on the barge and ship decks.	During construction	Construction Contractor			
MM HYD-1d	Discarded soil samples, cuttings, and excess drilling fluids will be kept in a closed system, to prevent spillage of the drilling fluid and will be disposed of off-site at an appropriate landfill.	During construction	Construction Contractor			
MM HYD-1e	All over-water work will include the use of conductor casings to confine the drill fluid and cuttings to the drill hole and the operating deck of the barge or drill ship and prevent any inadvertent spillage into the water. Soil samples will be collected from within the conductor casing. The casing will remain in place until the bore hole is complete and has been filled in, to minimize sediment disturbance of the slough or river bottom	During construction	Construction Contractor			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM HYD-1f	During overwater soil investigations a qualified environmental monitor will watch for colored plumes (an indication that drilling fluid or other material is entering the water and may affect water quality). If found, activities will cease until appropriate corrective measures have been completed or it has been determined that the environment will not be harmed.	During construction	Construction Contractor			
MM NOI-1	All equipment will be properly tuned and shall utilize appropriate mufflers.	Before and during construction	Construction Contractor			
MM PUB-1a	A Plan(s) (often Contractor's safety plan) with a section on Fire Protection and Prevention will be submitted to DWR for review and approval which incorporates fire safety measures on all equipment with the potential to create a fire hazard.	Before construction	Construction Contractor			
MM PUB-1b	The contractor will prepare a Safety Plan in accordance with the DWR protocols.	Before construction	Construction Contractor			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM TRANS-1a	Appropriate traffic controls will be implemented, based on the conditions at each soil investigation site, according to standards set by Caltrans and counties. Flaggers may be used during ingress and egress of boring equipment and work crews to allow flow of traffic while maintaining safety measures for the crew, especially if these activities occur in areas of heavy traffic or reduced visibility. Lane closures will be implemented when soil investigation sites are within or immediately adjacent to public roadways and will employ safety measures such as advance warning areas and flaggers, as prescribed by Caltrans and county regulations. Public notifications will be made in coordination with Caltrans, counties, CHP, and other entities. Traffic controls and lane closures will consider access for emergency services and be coordinated through the encroachment permit processes implemented by Caltrans and counties, with CHP coordination as required.	During construction	Construction Contractor			

Mitigation Measure Number	Mitigation Measure	Implementation Timing	Implementation Responsibility	Completion Date	Verified by	Comments
MM TRANS-1b	Parking on public roads and thoroughfares by crew vehicles will be avoided to the maximum extent practicable to allow for the flow of traffic to continue.	During construction	Construction Contractor			
MM TRANS-1c	No public roads, waterways or land access will be closed.	During construction	Construction Contractor			
MM TRANS-1d	For overwater sites, the project area shall be a no-wake zone, with boats not exceeding 5 mph within 500 feet (152 meters) of the work area.	During construction	Construction Contractor			
MM UTI-1	A field reconnaissance, marking or staking the exploration site, and calling Underground Service Alert (USA) for utility clearance will be conducted by qualified personnel for each planned soil exploration location. Based upon the information gathered, sites will be adjusted to ensure no utilities are impacted.	Before construction	Construction Contractor			