Solano HCP Compliance Monitoring Table

Project Design, Review, and Approval Avoidance and Minimization Measure Requirements for Coastal Marsh Natural Community	Project Impact/ Applicable Condition	Applicant Proposed Mitigation	Proposal Complies
Coastai Wai sii Patui ai Community	Applicable Condition	Wilugation	With
			Measures
			or Not
COASTAL MARSH NATURAL COMMUI			
DESIGN AND REVIEW AVOIDANCE AND MINIMIZATION ME	CASURES IN SECTION	6.3.7.1	
General Note for CM Avoidance and Minimization Measures- The Coastal Marsh Natural Community			
avoidance and minimization measures apply to all marsh habitats in the historical influence of tidal action,			
including areas that are currently influenced by tidal action or are diked and no longer affected by tides. In			
the Plan Area, these marshes exhibit a broad range of characteristics and include the current and historical			
estuarine-influenced marshes of Suisun Marsh, the Napa marshes, White Slough, San Pablo Bay marshes,			
and lower Delta marshes (Figure 4-20).			
CM DES 1: Habitat Avoidance- Permanent fill of coastal marsh habitat shall be avoided to the			
maximum extent practicable. Where permanent fill is proposed, the Plan Participant (or third-party applicant) shall provide documentation explaining why avoidance is not practicable and/or would not			
contribute to the conservation goals and objectives of the HCP, in accordance with the procedures in			
Section 10.4.1. The determination of compliance with CM DES 1 of any proposed activity that would			
result in the filling of coastal marsh habitat will be made by SCWA in consultation with the HCP			
Technical Review Committee (see Section 10.2.6).			
CM DES 2: Buffers- Coastal marsh habitat shall be protected from direct and indirect impacts from			
Covered Development Activities through establishment of site-specific buffers that are designed to			
preclude changes to water and soil salinity and the flooding/inundation regime. Buffers shall be preserved			
in perpetuity and managed consistent with the reserve criteria described in Sections 7.3 and 10.5. Habitats			
within 500 feet of the boundary of existing (as of the effective date of the HCP) roads or development			
(includes vacant but graded and filled building pads) shall be considered to be indirectly impacted and			
subject to the mitigation requirements in Section 6.4.7.			
COASTAL MARSH NATURAL COMMU	NITY:		
IMPLEMENTATION AND CONSTRUCTION AVOIDANCE AND MINIMIZ	ATION MEASURES IN	SECTION 6.3.7.2	
CM CON 3: Best Management Practices to be Implemented During O&M and Construction			
Activities-			
1. Temporary fill/disturbance of coastal marsh habitats shall be avoided to the maximum extent			
practicable. Any projects resulting in the loss of marsh vegetation for more than one growing season			
shall be required to mitigate at the ratios specified in Section 6.4.7.			
2. Native vegetation trimmed or removed on the project site will be stockpiled during work. After			
construction activities, when removal of temporary mats and construction-related materials and			
application of native seed mix have been completed, stockpiled native vegetation will be reapplied			
over temporarily disturbed wetlands to provide temporary soil protection and as a seed source.			
3. Where wetland vegetation removal is required, work will be conducted using hand-held tools, unless			
other methods are approved by SCWA, USFWS, and CDFW, to enable wildlife to escape. Vegetation			

Project Design, Review, and Approval Avoidance and Minimization Measure Requirements for **Project Impact/ Applicant Proposed Proposal Coastal Marsh Natural Community Applicable Condition** Mitigation **Complies** With Measures or Not will be cut starting at the outside edge (nearest unvegetated or disturbed areas) working toward the project limits to allow wildlife the opportunity to escape toward appropriate cover. 4. Removal of vegetation in wetland habitat will be conducted with an Approved Biologist present. This monitor will watch for special-status wildlife species and temporarily stop work if special-status species are encountered. Wildlife will be allowed to escape before work is resumed. USFWS-approved biologists with appropriate qualifications to handle special-status species will be allowed to move special-status species to safe locations as permitted by the terms of their credentials. 5. Temporarily affected wetlands (restored within 1 year) will be restored by removing constructionrelated debris and trash. Affected areas will be seeded with a certified weed-free, site-appropriate native seed mix, as provided in the revegetation plan developed in cooperation with the Resource Agencies, Certified weed-free mulch will be used when mulching. Rice straw may be used to mulch upland areas. 6. Prior to removing upland habitat adjacent to pickleweed-dominated coastal marsh habitat, the upland habitat shall be moved during the dry season so that vegetative cover has a height of no greater than 2 inches for a period of at least 2 weeks prior to the habitat removal. CM CON 4: Use of Riprap- In order to avoid attracting predators of Covered and Special Management Species associated with salt marsh habitat, the use of rock riprap shall be avoided to the maximum extent practicable within 500 feet of coastal salt marsh habitat. Where such use is unavoidable, all exposed riprap shall be covered with soil and revegetated with native marsh plants. COASTAL MARSH NATURAL COMMUNITY: COVERED SPECIES-SPECIFIC AVOIDANCE AND MINIMIZATION MEASURES IN SECTION 6.3.7.2 CM CON 5 Soft Bird's-Beak and Suisun Thistle- In areas where soft bird's-beak or Suisun thistle are known to occur or suitable upper coastal marsh zone habitat exists, the following avoidance and minimization measures shall be implemented for all Covered Activities: 1. Prior to any ground-disturbing activities, a qualified botanist shall survey for the presence of these plants or suitable habitat for these species (see Appendix B Covered Species Accounts). 2. During Covered O&M Activities, buffers at least 100 feet wide shall be established around occupied habitat. Buffers may be reduced, if necessary, provided temporary construction fencing is installed and construction is monitored daily. Suitable habitat shall not be directly or indirectly affected through changes in hydrology, sedimentation, or contamination of the habitat or the surrounding area. Upon completion, surrounding areas shall be restored to their original condition. If seeding is necessary, local, native, noninvasive species that will not compete with the listed plants shall be used. CM CON 6 Salt Marsh Harvest Mouse-Covered Activities shall not cause mortality of salt marsh harvest mouse or loss of occupied habitat. Where the presence of salt marsh harvest mouse has been verified or where suitable core habitat (pickleweed-dominated saline emergent wetlands; see Appendix B) for the species occurs, an Approved Biologist shall assess the extent of uplands needed to provide both suitable buffer protection as well as

Project Design, Review, and Approval Avoidance and Minimization Measure Requirements for **Project Impact/ Applicant Proposed Proposal Coastal Marsh Natural Community Applicable Condition** Mitigation Complies With Measures or Not suitable upland refuge habitat for salt marsh harvest mouse. For development activities adjacent to suitable habitat, the requirements of CM CON 3 shall be met at a minimum; however, additional upland area may need to be protected. The final proposed upland protection zone shall be subject to the approval of SCWA in consultation with the HCP Technical Review Committee (see Section 10.2.6). CM CON 6 cont.- For temporary construction work in salt marsh harvest mouse habitat, the following measures shall be implemented: 1. An Approved Biologist, with previous salt marsh harvest mouse monitoring and surveying experience, will conduct preconstruction surveys for the mouse prior to project initiation and will remain on site during construction activities occurring in wetlands. The Approved Biologist will document compliance with the project permit conditions and avoidance and minimization measures. The Approved Biologist has the authority to stop project activities if any of the requirements associated with these measures is not being fulfilled. If the Approved Biologist has requested work stoppage because of take of any of the listed species, SCWA and Resource Agencies will be notified within 1 day by electronic mail or telephone. 2. If a salt marsh harvest mouse, or any mouse that construction personnel may believe is this species, is encountered during project construction, all work that could result in direct injury, disturbance, or harassment of the individual animal will immediately cease, and the site construction foreman and Approved Biologist will be immediately notified. The Approved Biologist will monitor it until he/she determines that the animal(s) is not imperiled by predators or other dangers. The Approved Biologist will notify the SCWA and Resource Agencies within 1 working day via electronic mail and telephone following any encounters and immediately after inadvertently killing or injuring a potential salt marsh harvest mouse during construction. 3. Disturbance to wetland vegetation will be avoided to the extent feasible in order to reduce potential impacts on salt marsh harvest mouse. If wetland plants cannot be avoided, they will be removed by hand (and/or by another SCWA, USFWS, and CDFW-approved method). The Approved Biologist will be on site to monitor all wetland vegetation removal activities. 4. The upper 6 inches of soil excavated within salt marsh harvest mouse habitat will be stockpiled separately and replaced on top of the backfilled material. 5. Vegetation must be cleared to bare ground. 6. Vegetation should be removed from all areas (driving roads, action area, or anywhere else that vegetation could be stepped on). 7. Work will be scheduled to avoid extreme high tides when there is potential for salt marsh harvest mouse to move to higher, drier grounds. All equipment will be staged on existing roadways away from the project site when not in use. 8. To prevent salt marsh harvest mouse from moving through the project site during construction, temporary exclusion fencing will be placed around a defined work area before construction activities start and immediately after vegetation removal. The fence should be made of a material that does not

Project Design, Review, and Approval Avoidance and Minimization Measure Requirements for Coastal Marsh Natural Community	Project Impact/ Applicable Condition	Applicant Proposed Mitigation	Proposal Complies With Measures or Not
allow salt marsh harvest mouse to pass through or over, and the bottom should be buried to a depth of 2 inches so that mice cannot crawl under the fence except in situations where burial of the fence would significantly affect other species. Any supports for the salt marsh harvest mouse exclusion fencing must be placed on the inside of the project area.			
9. Prior to the start of daily construction activities during initial ground disturbance, the Approved Biologist will inspect the salt marsh harvest mouse-proof boundary fence to ensure that it has no holes or rips and the base is still buried. The fenced area also will be inspected to ensure that no mice are trapped in it. Any mice found along and outside the fence will be closely monitored until they move away from the construction area.			
10. No materials or supplies that could potentially entrap salt marsh harvest mice will be stored in potential salt marsh harvest mouse habitat. All equipment will be stored away from salt marsh harvest mouse habitat when not in use.			
11. All disturbed areas shall be restored to the pre-project topographic and hydrologic conditions. A reclamation plan to restore vegetation to predisturbance or better conditions for the salt marsh harvest mouse shall be developed, reviewed, and approved by SCWA and the Resource Agencies and implemented and monitored for performance			
CM CON 7 Delta Smelt, Longfin Smelt, North American Green Sturgeon Southern Distinct Population Segment (DPS), and Sacramento Splittail- For Covered Activities that may result in temporary impacts to delta smelt, longfin smelt, green sturgeon, and Sacramento splittail habitat, the following avoidance and minimization measures shall be implemented:			
1. In-water work shall be restricted to the period between August 1 and November 30 for the longfin smelt, green sturgeon, and Sacramento splittail, and between August 1 and October 15 for the delta smelt. Work outside these designated windows will require approval from SCWA in consultation with the HCP Technical Review Committee (see Section 10.2.6), and compliance with requirements for mitigation (see Section 6.4.7).			
2. Water drafting, pumping, or other water diversion shall be done in a manner that is not harmful to fish or other aquatic or semi-aquatic life. Pump inflow tubes or hoses shall be screened within a 0.5 mm mesh-screened cage to exclude aquatic wildlife that may otherwise be harmed in the process.			
3. The following actions are required for any dewatering in Coastal Marsh Conservation areas: a. An Approved Biologist shall capture and relocate any native fish or other native vertebrate species found at the project site. Captured animals shall be relocated to another suitable water body preapproved by SCWA in consultation with the Resource Agencies; the water body shall be unaffected by the work or downstream of the work area. All nonnative invasive species shall be captured, removed from the project site, and humanely euthanized.			
b. Discharge water in construction sites exceeding the following background standards of the receiving waters, as measured in Nephelometric Turbidity Unit (NTU), shall not be directly discharged according to the following (CRWQCB 2009):			

Project Design, Review, and Approval Avoidance and Minimization Measure Requirements for Coastal Marsh Natural Community	Project Impact/ Applicable Condition	Applicant Proposed Mitigation	Proposal Complies With Measures or Not
Turbidity of 50 NTU post-BMPs or limit increase in turbidity above background level: Receiving Water Background Dry Creek 50 NTU 50-100 NTU 50-100 NTU 10 NTU 5100 NTU 10% of background All discharge water exceeding these background levels shall be pumped into a temporary siltation pond/desilting basin, Baker tank, or similar detention device in order to allow adequate time for			
c. Following adequate settling time, water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate. d. If cofferdams are used, turbid water pumped out of the dam shall not reenter the channel until the			
sediment has settled out to prevent any increase in turbidity in downstream waters. 4. Dredged material shall not be placed on aquatic vegetation. 5. Dredging or excavation shall be conducted only during low-flow periods. 6. Silt-trapping devices shall be used to minimize downstream sedimentation.			
7. The use of rock riprap in low-flow channels shall only be used where riprap is determined to be the only feasible stabilization approach. Individual bank stabilization activities using rock riprap shall not exceed 500 feet in length along the bank and the amount of riprap used shall not exceed 1 cubic yard per running foot placed along the bank below the ordinary high water mark without specific authorization from the Resource Agencies (see Section 10.4.2).			
8. A hydroacoustic impact analysis and monitoring plan shall be submitted to the SCWA and the Resource Agencies for all pile driving in aquatic habitats supporting steelhead or salmon for review and written approval. This plan will contain details regarding any limitations on which type of driver should be used (e.g., vibratory or impact driver), which size pile(s) to use, what level of hydroacoustic monitoring is required, whether a noise attenuation method such as a bubble curtain should be utilized to reduce underwater sound levels, as well as any seasonal restrictions on pile driving that may negatively affect specific fish species. The following general measures (based on 2015 interim guidelines by the Fisheries Hydroacoustic Working Group (FHWG) Caltrans 2015) that shall be implemented, as applicable include:			
 Both the vibratory hammer driver and impact hammer pile driver are subject to the performance standards as specified by the FHWG, the specifics in the hydroacoustic monitoring plan, and what is stated below. 			

Project Design, Review, and Approval Avoidance and Minimization Measure Requirements for Project Impact/ **Applicant Proposed Proposal Coastal Marsh Natural Community Applicable Condition** Mitigation Complies With Measures or Not b. A vibratory driver shall be used to the greatest extent possible before the impact driver is utilized to reduce the impact to fish species in the area. Where practicable, at the beginning of each construction day pile driving shall be started at a lower decibel level to stimulate avoidance behavior in fish and allow the fish time to vacate the area (known as a soft start). Then the pile driving shall be ramped up (limiting the maximum noise level to Measure 8.e below) to complete the pile driving faster. The details of the soft start will be included in the hydroacoustic monitoring plan. Pile driving with an impact driver shall only occur during the seasonal in-water work window specified by NOAA NMFS for this region, which is from August 1 through November 30. This limitation is for general avoidance of potential impacts to fish species in this region. The proposed work window may be adjusted based on the USFWS programmatic consultation on delta smelt. Conducting work within the work window will minimize the possibility that work activities may impact fish species as listed fish species are less likely to utilize the Plan Area as a migratory corridor during this period. The following sound requirements apply to pile driving with an impact hammer: accumulated sound exposure levels (SELs) shall not exceed 187 decibels (dB) measured at 33 feet (equivalent to 10 meters) for all listed fish, except those that are 0.07 ounce (equivalent to 2 grams) or less (Caltrans 2015). Accumulated SELs for fish weighing 0.07 ounce or less shall not exceed 183 dB measured at 33 feet. In addition, the peak sound pressure level for any single strike is 206 dB re: 1 micro-Pascal (µPa) for all listed fish, except those that are 0.07 ounce or less. As a conservative measure, NOAA NMFS has also identified a behavioral disturbance threshold of 150 dB re: 1µPa Root-Mean-Square (RMS) pressure for salmonids and green sturgeon as appropriate, until new information and research indicates otherwise. According to the FHWG, there are no established injury criteria for vibratory hammer pile driving (Caltrans 2015). CM CON 8 California Clapper Rail, California Black Rail, and Suisun Song Sparrow- In areas with suitable habitat for these California clapper rail, California black rail, and Suisun song sparrow, work for Covered Activities shall be conducted between September 1 and January 31 to the maximum extent practicable. Covered Activities conducted outside of this time period shall implement the following additional avoidance and minimization measures: 1. An Approved Biologist shall conduct preconstruction protocol surveys to identify and subsequently avoid nesting areas for California clapper rail, California black rail, and Suisun song sparrow. Surveys for these species shall be conducted using standard protocols established by SCWA and the Resource Agencies. Surveys shall be designed and of sufficient intensity to document rail nesting within 500 feet of planned work activities and within 100 feet for Suisun song sparrow nesting activity.

Project Design, Review, and Approval Avoidance and Minimization Measure Requirements for Coastal Marsh Natural Community	Project Impact/ Applicable Condition	Applicant Proposed Mitigation	Proposal Complies With Measures or Not
2. If Suisun song sparrow is found to be nesting in the planned work area, a minimum 100 feet wide buffer shall be maintained between construction activities and the nest location. Buffer zones may be reduced if it can be demonstrated to the satisfaction of SCWA and the Resource Agencies that the birds would be unaffected by project-related activities. Buffers shall be maintained until the young have fledged and are capable of flight or until September 15.			
3. If California clapper rail or California black rail are present in the immediate construction area, the following measures will apply during construction activities:a. To minimize or avoid the loss of individual rails, activities within or adjacent to suitable rail			
habitat will not occur within 2 hours before or after extreme high tides (6.5 feet or above, as measured at the Golden Gate Bridge), when the marsh plain is inundated.			
b. To minimize or avoid the loss of individual California clapper rails and black rails, activities within or adjacent to tidal marsh areas will be avoided during the breeding season from February 1 through August 31 each year unless surveys are conducted to determine rail locations and rail territories can be avoided.			
c. If breeding California clapper rails or black rails are determined to be present, activities will not occur within 700 feet of an identified calling center. If the intervening distance across a major slough channel or across a substantial barrier between the California clapper rail or black rail calling center and any activity area is greater than 200 feet, activities may proceed at that location within the breeding season.			
d. Exception: Only inspection, maintenance, research, or monitoring activities may be performed during the California clapper rail breeding season in areas within or adjacent to California clapper rail breeding habitat with approval of the USFWS and CDFW under the supervision of a qualified biologist.			
4. An Approved Biologist familiar with the habitat and ecology of California clapper rail shall be present on site during all construction activities to ensure that avoidance and minimization measures and construction limits are enforced. The Approved Biologist shall have the authority to stop any construction activity that is not consistent with approved plans and amendments.			
COASTAL MARSH NATURAL COMMU MITIGATION MEASURES IN SECTION			
General Note for CM mitigation requirements- The following mitigation measures are designed to mitigate future direct impacts as well as indirect and temporary impacts associated with urban development and other Covered Activities in the Coastal Marsh Natural Community (Figure 4-20).			
CM MIT 1: Mitigation for Direct Impacts to Marsh Habitat- Mitigation for unavoidable direct impacts to coastal marsh habitats shall be provided through the creation and/or restoration of tidally influenced coastal marsh at a 3:1 ratio of acres restored to acres impacted. Required ratios shall be applied and implemented to establish marsh communities (e.g., deep water, shallow water/mudflat, low marsh, mid marsh, high marsh, and upland) commensurate with impacted habitat.			

Project Design, Review, and Approval Avoidance and Minimization Measure Requirements for **Project Impact/ Applicant Proposed Proposal Coastal Marsh Natural Community Applicable Condition** Mitigation Complies With Measures or Not CM MIT 2: Mitigation for Indirect Impacts to Marsh Habitat- Mitigation for indirect impacts to avoided marsh habitat within 500 feet of proposed development shall be provided through the restoration of tidally influenced coastal marsh at a 3:1 ratio of acres restored to acres impacted. Required ratios shall be applied and implemented to establish marsh communities (e.g., deep water, shallow water/mudflat, low marsh, mid marsh, high marsh, and upland) commensurate with impacted habitat. CM MIT 3: Mitigation for Direct Impacts to Shallow Water Habitat- Mitigation for the fill or shading of shallow water habitat shall be provided through the restoration of shallow water habitat at a 3:1 ratio or enhancement of existing shallow water habitat at a 4:1 ratio (impacts and mitigation are acreage based). Shallow water habitat is defined as waters between Mean High Water and 10 feet below the Mean Lower Low Water mark. The footprint of the structure shall be used to calculate the shadow zone and to offset all adverse effects resulting from the project. For example, a boat dock with a surface area of 400 square feet (sf) (40 feet by 10 feet) will need to preserve, create, or restore 1,200 sf (a 3:1 ratio) of shallow water habitat. CM MIT 4: Mitigation for Temporary Impacts to Marsh Habitat- Mitigation for unavoidable temporary impacts (requires no more than one growing season to reestablish native coastal marsh vegetation or benthic communities in shallow water habitat) to coastal marsh habitats shall be provided through the restoration or enhancement of tidally influenced coastal marsh at a 1.5:1 ratio of acres restored to acres impacted. Required ratios shall be applied and implemented to establish marsh communities (e.g., deep water, shallow water/mudflat, low marsh, mid marsh, high marsh, and upland) commensurate with impacted habitat. Restoration efforts shall be required to develop a Restoration and Enhancement Plan consistent with the criteria in Section 7.3.2.1. CM MIT 5: Dry Season Nuisance Flows- All new and redevelopment projects in watercourses that drain to Suisun Marsh, Southampton Marsh, Napa River, and San Pablo Bay shall incorporate source control and treatment measures to evaporate or infiltrate all dry season runoff. CM MIT 6: Invasive Species, Water Quality Control, Species Introduction, and Barrier Removal Enhancement Program- All development projects that create new or increase impervious surfaces shall provide funding to contribute toward a grant funding program (see Chapter 5.0 Objectives RSM 2.1, GGS 1.1, and CM 1.1) to implement cost-share programs to control invasive species, implement additional water quality control measures, establish new populations/occurrences of Covered Species, and remove instream barriers. Costs shall be based on a per-acre basis of new or increased impervious surface. Note: CM MIT 6 is intended to contribute to mitigation for unavoidable, cumulative adverse effects of increased urban development runoff on downstream receiving waters and associated Covered Species. **COASTAL MARSH NATURAL COMMUNITY:** COVERED SPECIES-SPECIFIC MITIGATION MEASURES IN SECTION 6.4.7.2 CM MIT 7: Covered Plant Species Salvage and Recovery-Covered Activities that will impact populations of soft bird's-beak, Suisun thistle, and Mason's lilaeopsis shall be required to implement salvage and recovery programs. Salvage and recovery plans shall include measures to transplant plants or collect seed from impacted populations for at least one season prior to

Project Design, Review, and Approval Avoidance and Minimization Measure Requirements for Coastal Marsh Natural Community	Project Impact/ Applicable Condition	Applicant Proposed Mitigation	Proposal Complies With Measures or Not
loss. Salvaged plants and collected seeds shall be used to establish new populations of similar size and number of plants impacted. Salvage and restoration plans shall be subject to review and approval by SCWA and the Resource Agencies.			
CM MIT 8: Mitigation for Delta Smelt and Sacramento Splittail Habitat- SCWA, RD 2068, MPWD, and Dixon RCD shall acquire, enhance/restore, and manage 85 acres of shallow water aquatic habitat suitable for delta smelt and Sacramento splittail as mitigation for ongoing O&M activities for their facilities in the Giant Garter Snake Conservation Area (Figure 4-18). This mitigation measure shall be implemented in conjunction with GGS MIT 1.			

BA = Biological Assessment

BMP = Best Management Practices

CDFW = California Department of Fish and Wildlife

Dixon RCD = Dixon Resource Conservation District

DPS = Distinct Population Segment

ESU = Evolutionarily Significant Unit

HCP = Habitat Conservation Plan

MMP = Mitigation and Monitoring Plan

MPWD = Maine Prairie Water District

NOAA NMFS = National Oceanic Atmospheric Association National Marine Fisheries Service

NPDES = National Pollutant Discharge Elimination System

O&M = Operation and Maintenance

RD 2068 = Reclamation District 2068

RSM = Riparian, Stream, and Freshwater Marsh

RWQCB = Regional Water Quality Control Board

SCWA = Solano County Water Agency

SID = Solano Irrigation District

SWPPP = Storm Water Pollution Prevention Plan

USFWS = United States Fish and Wildlife Service