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## **4 OTHER REQUIRED ANALYSES**

### **4.1 Unavoidable Adverse Impacts**

Despite inclusion of mitigation measures, construction of the Proposed Project and the -33 Feet MLLW Alternative would result in unavoidable, potentially significant residual impacts to delta smelt critical habitat. The USACE and the Port are in early coordination with U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) regarding potential effects to delta smelt critical habitat. As part of this coordination and subsequent Section 7 consultation, mitigation and compensation measures will be developed and will be incorporated into the Proposed Project and the -33 Feet MLLW Alternative. Until such coordination and consultation is completed, no mitigation measures are proposed to mitigate for these impacts.

### **4.2 Relationship of Short-Term Uses and Long-Term Productivity**

Pursuant to NEPA regulations (40 CFR 1502.16), an EIS must consider the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity. Similarly, Section 15126(e) of the CEQA Guidelines instructs that an EIR should be prepared in a manner that addresses the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity, and that special attention should be given to impacts that narrow the range of beneficial uses of the environment or pose a long-term risk to human health or safety.

To construct the Proposed Project or -33 Feet MLLW Alternative, modifications to the ten proposed dredged material placement sites would be required to maximize their storage capacities. In general, USACE and the Port's use of these sites is for the maximization of short-term, project-specific uses of the environment, as compared to a more long-term, focused distribution of dredged material that would provide for increased beneficial reuse and avoid long-term environmental impacts. However, USACE and the Port undertook a detailed and objective analysis to determine appropriate dredged material placement sites for the Proposed Project and the -33 Feet MLLW Alternative, as outlined in Section 2.3. The selection process sought to balance environmental and logistical issues, and provide for the opportunity of future beneficial reuse of the material. The placement sites would need to be maintained in the future, thereby providing placement capacity benefiting future projects. In addition, recovering capacity from placement sites would provide opportunities for the beneficial reuse of dredged material, which would offset the need for other sources of fill material to accomplish these uses, representing a long-term productivity gain for the regional environment.

### **4.3 Irreversible and Irretrievable Commitment of Resources**

NEPA requires that environmental analysis include identification of “. . . any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.” Irreversible and irretrievable resource commitments are related to the use of non-renewable resources and the effects that the use of these resources have on future generations. Irreversible effects primarily result from use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable timeframe. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural site). The Proposed Project would result in few direct and indirect commitments of resources that would be mainly related to dredging operations during construction.

For the evaluated alternatives, most resource commitments are neither irreversible nor irretrievable; most impacts are short term and temporary. Other impacts that may have a longer term effect can be reduced through appropriate measures. Those resources that may have a possible irreversible or irretrievable commitment are discussed below.

As a result of the Proposed Project or the -33 Feet MLLW Alternative, use of the proposed dredged material placement sites would have a high probability of an irretrievable commitment of vegetation. Approximately 1.33 acres of wetlands would be impacted from use of the dredged material placement site S31 as part of the Proposed Project or -33 Feet MLLW Alternative. The Proposed Project’s ten dredged material placement sites would impact approximately 9.35 acres of riparian areas, and the -33 Feet MLLW Alternative’s seven dredged material placement sites would impact 8.94 acres. While mitigation for these impacts in the form of wetland preservation on Prospect Island is proposed, the impacts would nonetheless constitute an irretrievable commitment of a resource. In addition, approximately 0.07 acres of oak woodland habitat would be impacted from use of the S32 as part of the Proposed Project; this impact would also constitute an irretrievable commitment of a resource. Impacts to oak woodland would be mitigated in-kind in accordance with local and CDFG requirements.

Construction dredging and maintenance dredging would require the consumption of limited quantities of gasoline/diesel/petroleum, oil, and lubricants. The commitment of these resources would apply irrespective of the alternative selected, but would be greater than the environmental baseline as a result of the -33 Feet MLLW Alternative and even greater as a result of the Proposed Project.

#### **4.4 Growth-Inducing Impacts**

Analysis of growth inducing effects includes those characteristics of the Proposed Project that may encourage and facilitate activities that, either individually or cumulatively, would affect the environment. Population increases, for example, may impose new burdens on existing community service facilities. Growth may be considered beneficial, adverse, or of no significance environmentally, depending on its impacts to the environmental resources present.

The USACE's *With-Project Economics Analysis* determined that neither the Proposed Project nor the -33 Feet MLLW Alternative would increase cargo throughput to the Port (USACE 2011). No new buildings or homes would be constructed as a result of any of the alternatives. Likewise, no new permanent employment opportunities would be generated from construction of the Proposed Project or the -33 Feet MLLW Alternative; however, the two alternatives would generate a need for some temporary workers during construction.

There is the potential that the Port could use its deeper channel to market and attract new clients; however, at this time, it is not possible to predict details related to this topic. Qualitatively, the possibility for new shippers to call on the Port or for current shippers to change their current practices at the Port exists under construction of the Proposed Project or the -33 Feet MLLW Alternative.

#### **4.5 Cumulative Impacts**

This section presents the requirements for cumulative impact analysis and then analyzes the potential for impacts of the Proposed Project and -33 Feet MLLW Alternative to combine with impacts of other past, present, and reasonably foreseeable future projects in each resource area's cumulative geographic scope, to result in significant cumulative effects. This potential is compared to the potential for such effects under environmental baseline conditions.

##### **4.5.1 Requirements for Cumulative Impact Analysis**

The Council on Environmental Quality (CEQ; 40 CFR § 1508.7 and 40 CFR § 1508.25[a][2]) and the state CEQA Guidelines (14 CCR 15130) require a reasonable analysis of the significant cumulative impacts of a proposed action. Cumulative impacts are defined by CEQA as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."

The CEQ regulations implementing NEPA define a "cumulative impact" as follows (40 CFR § 1508.7):

*Cumulative impact is the impact on the environment which results from the*

*incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.*

Cumulative impacts are defined similarly in the CEQA Guidelines (CCR Section 15355):

*“Cumulative impacts” refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.*

*(a) The individual effects may be changes resulting from a single project or a number of separate projects.*

*(b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.*

Furthermore, according to the CEQA Guidelines (Section 15130(a)(1)):

*As defined in Section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR.*

In addition, the CEQA Guidelines (Section 15064(i)(5)) state:

*The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed action’s incremental effects are cumulatively considerable.*

For the purposes of this Draft SEIS/SEIR, potentially significant cumulative impacts would occur if impacts related to the implementation of the Proposed Project or -33 Feet MLLW Alternative, when added to the environmental impacts of other past, present, and reasonably foreseeable future actions, would result in a potentially cumulatively significant effect as compared to environmental baseline conditions for the same effects. For an impact to be considered cumulative, these potential incremental impacts must be related to the types of impacts caused by the Proposed Project or -33 Feet MLLW Alternative (i.e., connected and similar). Therefore, the cumulative impacts discussion focuses on whether the impacts of the Proposed Project or -33 Feet MLLW Alternative would be cumulatively considerable (or

significant) within the context of impacts caused by other past, present, or reasonably foreseeable future projects, as compared to baseline conditions for the same effects. These cumulative impact scenarios consider other projects within the study area that have the potential to contribute to cumulatively considerable impacts.

## **4.5.2 Summary of Cumulative Effects Identified**

### **4.5.2.1 Future Maintenance Dredging and Bank Stabilization Activities**

To maintain either the -33 or -35 feet MLLW depth of the SRDWSC that would result after completing construction of the Proposed Project or -33 Feet MLLW Alternative, regular maintenance dredging of the channel would be required. Because it is reasonable to foresee that maintenance dredging and dredged material placement activities will occur on the SRDWSC in the future, and because they have occurred historically, the impacts of past, present, and future maintenance dredging are addressed as cumulative effects.

Construction of the Proposed Project would increase the side slope of the SRDWSC, as explained in Section 3.1.2 and Appendices E and F. This, combined with the potential for sea levels to rise up to 2 feet over the next 50 years as described in Section 3.1.2.4, would mean that more of the banks of the SRDWSC would be submerged underwater, effectively increasing the side slope area. A potential cumulative impact of this increase in side slope area due to sea level rise and deepening of the SRDWSC would be an approximately 10% increase in the sedimentation rate. Under the -33 Feet MLLW Alternative, increased sedimentation rates would also be expected, but to a lesser degree than that of the Proposed Project. As compared to the environmental baseline, the potential cumulative impacts of the Proposed Project or -33 Feet MLLW Alternative on downstream sediment transport would be considered less than significant, as the 10% increase in sedimentation would not significantly affect future maintenance dredging rates. The USACE and the Port are preparing a draft 20-year Plan for the ongoing navigational maintenance of the SRDWSC and long-term maintenance of the dredged material placement sites. The plan would take into consideration the remaining capacities of the placement sites after construction, and identify methods for recovering capacity at sites proposed for maintenance dredging use in the future. Therefore, with implementation of this 20-year Plan, the cumulative increase in sedimentation would be less than significant.

Based on historic maintenance dredging volumes averaging 190,000 cy annually and the predicted minor increases in sedimentation, an average of 209,000 cy of material would need to be dredged from the SRDWSC for maintenance purposes annually under the Proposed Project. Under the -33 Feet MLLW Alternative, the average volume is expected to be less than that of the Proposed Project but more than under Future without Project Conditions. Upland placement of maintenance dredging material would occur at any of the ten dredged

material placement sites proposed as part of the Proposed Project or the seven dredged material placement sites proposed as part of the -33 Feet MLLW Alternative. While the Proposed Project and -33 Feet MLLW Alternative would result in short-term, intensive dredging and use of the dredged material placement sites, the impacts of past and future maintenance dredging activities on localized and downstream water quality would be consistent with those of the environmental baseline, with the exception that dredging could take slightly longer and involve slightly larger volumes. Therefore, both the Proposed Project and the -33 Feet MLLW Alternative would have cumulatively less than significant impacts related to use of the dredged material placement sites.

Impacts due to bank stabilization activities (e.g., maintenance of armor and placement of fill) would be consistent with those of the environmental baseline, which occur an average of once every 5 years. In addition, regardless of whether the Proposed Project or -33 Feet MLLW Alternative are constructed, bank stabilization activities would continue to occur on the SRDWSC under Future without Project Conditions at current frequencies and durations. As such, any potential impacts due to bank stabilization activities are considered cumulatively less than significant.

#### 4.5.2.2 Ongoing Commercial Shipping Practices

Potentially significant cumulative effects related to future commercial shipping operations under both the -33 Feet MLLW Alternative and the Proposed Project would occur. As is discussed in Section 2, fewer but larger and more fully loaded ships are estimated to traverse the SRDWSC en route to the Port under both deepening alternatives. Table 81 shows the change in vessel numbers by type estimated to call on the Port over the next 50 years under Future without Project Conditions, the -33 Feet MLLW Alternative, and the Proposed Project. Table 81 assumes that construction of the -33 Feet MLLW Alternative would be complete in 2013 and that construction of the Proposed Project would be complete in 2015. While all alternatives show an increase in vessel numbers traversing the SRDWSC, the Proposed Project would add the fewest vessels.

**Table 81**  
**Forecasted Vessel Numbers Calling on the Port**

Alternative	2011	2012	2013	2015	2018	2023	2028	2033	2053	2062
<b>Bulk Carriers</b>										
Future without Project Conditions	45	50	56	59	64	70	78	87	93	93
Channel Deepening to -33 Feet MLLW and Selective Widening Alternative	45	50	44	47	50	55	62	69	73	73
Proposed Project	45	50	56	40	43	48	53	59	63	63

Alternative	2011	2012	2013	2015	2018	2023	2028	2033	2053	2062
<b>General Carriers</b>										
Future without Project Conditions	9	9	9	9	9	9	9	9	9	9
Channel Deepening to -33 Feet MLLW and Selective Widening Alternative	9	9	9	9	9	9	9	9	9	9
Proposed Project	9	9	9	9	9	9	9	9	9	9
<b>Tankers</b>										
Future without Project Conditions	4	23	25	29	35	41	41	41	41	41
Channel Deepening to -33 Feet MLLW and Selective Widening Alternative	4	23	20	23	28	32	32	32	32	32
Proposed Project	4	23	25	20	24	28	28	28	28	28

An increase in commodity throughput is expected at the Port under Future without Project Conditions; however, neither the Proposed Project nor the -33 Feet MLLW Alternative would result in increases to throughput above baseline levels. As such, all growth-related cumulative effects would reflect Future without Project Conditions, not conditions resulting from the Proposed Project or -33 Feet MLLW Alternative. Thus, as a result of developments currently occurring or soon to occur at the Port, the SRDWSC would experience an increase in vessel traffic. Under the Proposed Project and -33 Feet MLLW Alternative, this increase would be approximately 43 and 29 vessels fewer, respectively, than under Future without Project Conditions.

#### 4.5.2.3 Other Potential Cumulative Effects

As is noted in Section 4.1, USACE and the Port are in early coordination with USFWS and CDFG regarding potential effects to delta smelt critical habitat and to develop mitigation and compensation measures for incorporation into the Proposed Project and the -33 Feet MLLW Alternative to reduce residual impacts to below significance. An unmitigated significant impact to delta smelt critical habitat would also be considered a cumulatively significant impact to the species.

## 4.6 Indirect Impacts

Indirect effects are generally defined as effects that are upstream or downstream from the direct effects of a project, in space or in time. Indirect impacts of deepening and widening the SRDWSC include potential sea level rise and salinity impacts, increased bank erosion/sedimentation rates, and impacts on downstream water quality during construction. These impacts are related to construction activities, but would occur downstream in space and over time. Indirect effects are compared to similar effects under baseline scenarios to determine their significance.

Sea level rise and subsequent impacts on saltwater intrusion would occur in the SRDWSC regardless of the construction of the Proposed Project or -33 Feet MLLW Alternative. Under Future without Project Conditions, it is estimated sea levels may rise by as much as 2 feet over the next 50 years. At Year 0 under the Proposed Project, the X2 change would be larger than 1 km for approximately 50 days as compared to Future without Project Conditions. Similarly, at Year 50, the X2 change would be larger than 1 km for approximately 23 days as compared to Future without Project Conditions. Due to the minor shift in the X2 as compared to the environmental baseline (where sea level rise and thus shifts in the X2 would occur regardless of deepening or widening the SRDWSC), the indirect impacts of the Proposed Project or -33 Feet MLLW Alternative on saltwater intrusion would be less than significant.

Under Future without Project Conditions, annual maintenance dredging activities would occur for approximately 1.5 months. Construction would take 4.5 months longer per year over a period of 4 years for the Proposed Project and over 2 to 3 years for the -33 Feet MLLW Alternative. During these periods, dredging activities could potentially indirectly impact downstream water quality. While water quality impacts would be longer during the construction years as compared to the environmental baseline, they would be mitigated as outlined in WQ-MM-1. Due to the temporary nature of the impacts and after inclusion of mitigation, the potential indirect impacts of the Proposed Project or -33 Feet MLLW Alternative on downstream water quality would be less than significant.

#### **4.7 Mitigation Monitoring and Reporting Program**

The Mitigation Monitoring and Reporting Program in Table 82 details the method of verification, timing, and responsible party for each mitigation measure described in this Draft SEIS/SEIR.



**Table 82**  
**Mitigation Monitoring and Reporting Program**

<b>Mitigation Measure #</b>	<b>Mitigation Measure</b>	<b>Method of Verification</b>	<b>Timing of Implementation</b>	<b>Responsibility</b>
<b>Water Quality</b>				
WQ-MM-1	Implement standard construction BMPs and requirements of the WDR including: <ul style="list-style-type: none"> <li>– Do not allow concentrations of DO to fall below 5.0 mg/L</li> <li>– Do not allow the release of oils, grease, waxes, or other materials that could form a visible film or coating on the water surface or on the stream bottom, or create a nuisance or adversely affect beneficial uses</li> <li>– Do not allow fungi, slime, or other objectionable growths, or aesthetically undesirable discoloration</li> <li>– Do not allow turbidity to exceed the following limitations:               <ul style="list-style-type: none"> <li>• Where undisturbed turbidity is greater than 100 NTU, increases shall not exceed 10%</li> <li>• Where undisturbed turbidity is between 0 and 50 NTU, increases shall not exceed 20%</li> <li>• Where undisturbed turbidity is between 50 and 100 NTU, increases shall not exceed 10 NTU</li> </ul> </li> <li>– Specify a rapid turnaround time for the TSS laboratory analysis</li> <li>– Implement a solid debris management plan</li> </ul>	Plans and Specifications Check, Equipment Check, Monitoring	Plans and Specifications Check Prior to Construction, Implementation Prior to and During Dredging and Construction	Construction Contractor, USACE, and Port
<b>Aquatic Species and Habitat</b>				
ASH-MM-1	Submerge the cutterhead within the substrate to the maximum extent practicable when the dredge pumps are engaged, and utilize a slow rotational speed, where feasible. When cleaning the pipeline, the cutterhead will be no greater than 3 feet from the floor of the SRDWSC. Pipeline clearing will be kept to the minimum amount necessary.	Plans and Specifications Check, Equipment Check, Monitoring	Plans and Specifications Check Prior to Construction, During Dredging	Construction Contractor, USACE, and Port
ASH-MM-2	Conduct entrainment monitoring on a certain percentage of sediment dredged from the SRDWSC. Adaptively manage	Plans and Specifications	Plans and Specifications Check Prior to	Construction Contractor,

Mitigation Measure #	Mitigation Measure	Method of Verification	Timing of Implementation	Responsibility
	construction such that dredging ceases should entrainment of listed species reach the number of individuals set for in any incidental take statement/permit. The percentage of dredged material that must be monitored and the number of take allowed will be determined during the formal state and federal ESA consultation processes.	Check, Equipment Check, Monitoring	Construction, During Dredging	USACE, and Port
ASH-MM-3	Constrain all dredging operations and placement of dredged material to applicable environmental work windows or other windows designated through agency consultation.	Plans and Specifications Check	Plans and Specifications Check Prior to Construction and Dredging	Construction Contractor, USACE, and Port
ASH-MM-4	Limit speeds for construction vessels (i.e., dredges, tugs, and scow/tug combinations) to 2 knots or less when approaching or operating in the dredging locations. Smaller support vessels carrying personnel and/or supplies to the dredging location would be limited to 5 knots or less. Limiting vessel speeds in the dredging location would minimize the likelihood of propeller strikes and other vessel collisions, as well as propwash entrainment of fish that may be in the study area.	Plans and Specifications Check, Equipment Check, Monitoring	Plans and Specifications Check Prior to Construction, During Dredging	Construction Contractor, USACE, and Port
<b>Terrestrial Species and Habitat</b>				
TSH-MM-1	Special status species surveys shall be completed by a qualified, USFWS-approved biologist within 14 days prior to both dredged material placement and placement site preparation. The survey areas will include all portions of the placement sites within 500 feet of the usable portion of placement sites. This will include a survey for nests and other breeding habitats (i.e., rodent burrows, etc.) as well as unique habitat features required by special status species potentially occurring within the placement site (i.e., elderberry plants, vernal pools, etc.). If special status species, nests, or unique habitat features are encountered, avoidance and/or relocation parameters shall be established and implemented, to be determined through consultation with USFWS. This may include establishing exclusionary and buffer zones within the placement site, trapping and relocating individuals, or temporal restrictions (i.e., avoiding	Plans and Specifications Check, Completion of Biological Pre-construction Survey, Monitoring	Plans and Specifications Check Prior to Construction, Prior to and During Construction	Construction Contractor, USACE, and Port

Mitigation Measure #	Mitigation Measure	Method of Verification	Timing of Implementation	Responsibility
	construction during the breeding season). In addition, a qualified biologist (monitor) would be onsite prior to dredged material placement to determine appropriate dredge pipeline placement, and to conduct pre-placement surveys for any potential sightings of protected species within 500 feet of the identified placement area. In general, preferred locations would be areas away from riparian and wetland vegetation in locations that have angular revetment slopes of 3:1 or greater.			
TSH-MM-2	Develop the construction schedule and sequencing so that both dredged material placement and placement site preparation occurs outside the breeding season for bird species protected by the ESA or MBTA that are identified as potentially occurring within the placement sites, to the extent possible. If construction activities are scheduled to occur during the breeding season, within 14 days prior to construction, a qualified, USFWS-approved biologist shall complete a survey of all potential nesting habitat within 500 feet of: 1) the usable portion of placement sites; and 2) the proposed dredge pipeline placement area. If active nests are found during pre-construction surveys, consultation with USFWS shall occur to determine potential project impacts (including noise impacts) and the appropriate course of action. This could potentially include establishing buffer zones, relocating individuals and nests, temporal restrictions (i.e., rescheduling construction activities), and/or restrictions on placement of the dredge pipeline.	Plans and Specifications Check, Completion of Biological Pre-construction Survey	Plans and Specifications Check Prior to Construction, Prior to and During Dredging and Construction	Construction Contractor, USACE, and Port
TSH-MM-3	A pre-construction special status plant species survey shall be completed by a qualified, USFWS-approved biologist. The survey area will include all portions of the placement sites within 500 feet of the designated usable area. The survey will focus on identifying individuals or populations of CNPS listed plant species identified within this document as potentially occurring within each placement site. The survey shall be conducted during the flowering period for each species potentially occurring within each placement site. If	Plans and Specifications Check, Completion of Biological Pre-construction Survey	Plans and Specifications Check Prior to Construction, Prior to and During Construction	Construction Contractor, USACE, and Port

Mitigation Measure #	Mitigation Measure	Method of Verification	Timing of Implementation	Responsibility
	encountered, individuals or populations shall be avoided to the maximum degree possible. In the event that avoidance is not possible, consultation with USFWS shall occur to determine the appropriate course of action. This could potentially include removing and transplanting individuals, contributing to mitigation banks, or other actions deemed appropriate by USFWS.			
TSH-MM-4	Implement the wetland preservation project on Prospect Island as described in Section 2.2.2.3.	Plans and Specifications Check, Proof of Conservation Easement	Plans and Specifications Check Prior to Construction, Prior to Dredging and Construction	USACE and Port
TSH-MM-5	Within 14 days prior to placement site preparation, a pre-construction tree survey shall be completed by a qualified biologist. The survey area will include the usable portion of dredged material placement sites. The survey will identify any trees protected from removal or disturbance by local ordinances applicable within the geographical area of the placement site. If encountered, protected trees shall be avoided, and a 100-foot buffer shall be established around the dripline of the tree for the duration of construction. If disturbance to protected trees is unavoidable, consultation with the city or county agency responsible for administering the tree ordinance, as well as with CDFG, if applicable, shall occur to develop appropriate mitigation measures. These measures may include in-kind planting of additional trees or preserving existing trees, or other avoidance methods if buffers would be ineffective (i.e., if dredge slurry could not be prevented from entering these areas) or infeasible. This could potentially include the construction of berms around trees.	Plans and Specifications Check, Completion of Biological Pre-construction Survey	Plans and Specifications Check Prior to Construction, Prior to and During Construction	Construction Contractor, USACE, and Port
<b>Land Use</b>				
LU-MM-1	Avoid and minimize irretrievable conversions of unique farmland, farmland of statewide importance, grazing land, farmland of local importance, and Williamson Act contracted land.	Plans and Specifications	Plans and Specifications Check Prior to	Construction Contractor,

<b>Mitigation Measure #</b>	<b>Mitigation Measure</b>	<b>Method of Verification</b>	<b>Timing of Implementation</b>	<b>Responsibility</b>
		Check, Monitoring	Construction, Prior to and During Construction	USACE, and Port
LU-MM-2	Payment of in-lieu fees for mitigation of converted unique farmland, farmland of statewide importance, grazing land, and farmland of local importance.	Plans and Specifications Check, Proof of Payment	Plans and Specifications Check Prior to Construction, Prior to Dredging and Construction	USACE and Port
LU-MM-3	Provide buffers between incompatible land uses.	Plans and Specifications Check, Equipment Check, Monitoring	Plans and Specifications Check Prior to Construction, Prior to and During Construction	Construction Contractor, USACE, and Port
LU-MM-4	Develop and implement a 20-year Plan for the ongoing maintenance of the SRDWSC and long-term management of the dredged material placement sites reflective of conditions after deepening the SRDWSC; this plan will address the nature of planned future dredged material reuse, consequential conversions of placement site land to non-agricultural uses, and steps for compliance with applicable zoning requirements.	Submittal	Prior to Dredging and Construction	USACE and Port
LU-MM-5	For any identified impact to property under Williamson Act contract, USACE and the Port would work with the landowner to exercise the cancellation or a non-renewal option.	Plans and Specifications Check, Proof of Cancellation or Non-Renewal	Plans and Specifications Check Prior to Construction, Prior to Dredging and Construction	USACE and Port
<b>Air Quality</b>				
AQ-MM-1	Apply soil stabilizers to inactive areas.	Plans and Specifications Check, Monitoring	Plans and Specifications Check Prior to Construction, Prior to and During Construction	Construction Contractor, USACE, and Port
AQ-MM-2	Replace ground cover in disturbed areas.	Plans and Specifications	Plans and Specifications Check Prior to	Construction Contractor,

Mitigation Measure #	Mitigation Measure	Method of Verification	Timing of Implementation	Responsibility
		Check, Monitoring	Construction, Prior to and During Construction	USACE, and Port
AQ-MM-3	Water exposed surfaces three times daily.	Plans and Specifications Check, Monitoring	Plans and Specifications Check Prior to Construction, Prior to and During Construction	Construction Contractor, USACE, and Port
AQ-MM-4	Reduce speed on unpaved roads to less than 15 miles per hour (mph).	Plans and Specifications Check, Equipment Check, Monitoring	Plans and Specifications Check Prior to Construction, Prior to and During Construction	Construction Contractor, USACE, and Port
AQ-MM-5	Utilize diesel particulate filter (DPF) on land-side off-road construction equipment.	Plans and Specifications Check, Equipment Check, Monitoring	Plans and Specifications Check Prior to Construction, Prior to and During Construction	Construction Contractor, USACE, and Port
AQ-MM-6	Utilize selective catalytic reduction (SCR) on dredging equipment.	Plans and Specifications Check, Equipment Check, Monitoring	Plans and Specifications Check Prior to Construction, Prior to and During Dredging	Construction Contractor, USACE, and Port
<b>Noise</b>				
N-MM-1	Equip construction engines with sound reducing mufflers, install supplemental noise shielding around engines and pumps, or install intake silencers that would potentially reduce noise emissions by 5 to 10 dBA (USEPA 1971).	Plans and Specifications Check, Equipment Check, Monitoring	Plans and Specifications Check Prior to Construction, Prior to and During Dredging and Construction	Construction Contractor, USACE, and Port
N-MM-2	Turn off construction equipment when not in use for long periods.	Plans and Specifications Check, Equipment Check, Monitoring	Plans and Specifications Check Prior to Construction, Prior to and During Dredging and Construction	Construction Contractor, USACE, and Port

<b>Mitigation Measure #</b>	<b>Mitigation Measure</b>	<b>Method of Verification</b>	<b>Timing of Implementation</b>	<b>Responsibility</b>
N-MM-3	Require Construction Contractor to maintain all equipment and train their equipment operators to reduce noise levels.	Plans and Specifications Check, Equipment Check, Monitoring	Plans and Specifications Check Prior to Construction, Prior to and During Dredging and Construction	Construction Contractor, USACE, and Port
N-MM-4	Locate stationary equipment away from receiving properties to decrease noise, as much as feasible.	Plans and Specifications Check, Equipment Check, Monitoring	Plans and Specifications Check Prior to Construction, Prior to and During Dredging and Construction	Construction Contractor, USACE, and Port
N-MM-5	Obtain a noise permit from the City of Rio Vista for dredging operations to occur between 5 p.m. and 7 a.m. and on Sundays within the city limits.	Issuance of Permit	Plans and Specifications Check Prior to Construction, Prior to Dredging and Construction	Construction Contractor, USACE, and Port
<b>Cultural Resources</b>				
CHR-MM-1	Develop a plan with protocols for onsite archaeological monitoring and for response actions in the event that cultural or historic resources are encountered during construction.	Submittal	Plans and Specifications Check Prior to Construction, Prior to Dredging and Construction	USACE and Port
<b>Recreation</b>				
R-MM-1	Observe all standard U.S. Coast Guard (USCG) practices for navigation safety and communications, including publications of Notices to All Mariners (NOTAMs).	Plans and Specifications Check, Monitoring	Plans and Specifications Check Prior to Construction, Prior to and During Dredging	Construction Contractor, USACE, and Port
R-MM-2	Establish a construction exclusion zone around dredging operations to be maintained at all times by the Construction Contractor and light dredging equipment at night to prevent collisions.	Plans and Specifications Check, Equipment Check, Monitoring	Plans and Specifications Check Prior to Construction, Prior to and During Dredging	Construction Contractor, USACE, and Port