US Army Corps
of Engineers ®
Galveston District

DRAFT
SUPPLEMENTAL
ENVIRONMENTAL ASSESSMENT
COASTAL ZONE MANAGEMENT ACT
APPENDIX D

Sabine Pass to Galveston Bay
Port Arthur and Vicinity
Segments 2, 3, 4, 5 and 5A

U.S. Army Corps of Engineers
Southwestern Division
Galveston District

NOVEMBER 2024

INTRODUCTION

To reduce the risk of coastal storm surge impacts, the U.S. Army Corps of Engineers (USACE) proposes to construct a new levee/floodwall system in Jefferson County, and to modify the existing Port Arthur Hurricane Flood Protection Project (HFPP).

The U.S. Army Corps of Engineers (USACE) prepared a Draft Supplemental Environmental Assessment (SEA) in accordance with 33 Code of Federal Regulations (CFR) Part 230 and the Council on Environmental Quality (CEQ) regulations 40 CFR § 1500-1508, as amended in 2022, and reflected in the USACE Engineering Regulation (ER) 200-2-2. The National Environmental Policy Act (NEPA) is the primary legislation that sets forth regulations for the consideration of environmental consequences in the decision-making process of proposed major Federal actions.

The purpose and need for this project were due to several major historical surge events along the Texas coast. In the Texas-Louisiana border, Hurricane Rita in 2005 resulted in storm surge of 9.24 feet in Port Arthur, Texas, and just over eight feet in Sabine Pass. Hurricane Ike in 2008 produced storm surges from 14 feet near Sabine Pass with 11 to 12 feet across Sabine Lake. Port Arthur was spared the storm surge thanks to its 14- to 17-foot seawall. However, the remaining southern half of Jefferson County was inundated, with estimated high-water marks reaching 18 to 19 feet to the south and east of High Island. Therefore, the USACE studied and produced a Final Environmental Impact Statement in 2017.

The 2017 EIS evaluated three distinct project areas: Orange-Jefferson Coastal Storm Risk Management (CSRM) Project Area, Port Arthur and Vicinity (PAV) CSRM, and Freeport and Vicinity CSRM. Originally, the Port Arthur and Vicinity CSRM Plan would raise three I-Walls and one railroad track closure structure by one foot. Areas to be modified are shown in green on Figure 1. Jefferson County Drainage District No. 7 is the non-Federal sponsor for the Port Arthur and Vicinity CSRM Plan.

Due to significant engineering and technical analysis needed for each CSRM system, the Orange-Jefferson, Port Arthur, and Freeport CSRM were separated prior to the pre-construction, engineering, and design phase (PED). As a result, this Draft SEA will only focus on the environmental impacts associated with changes to the Port Arthur and Vicinity CSRM – specifically PAV02, PAV03, PAV04 PAV05. All work in reference to these contracts will be called PAV CSRM.

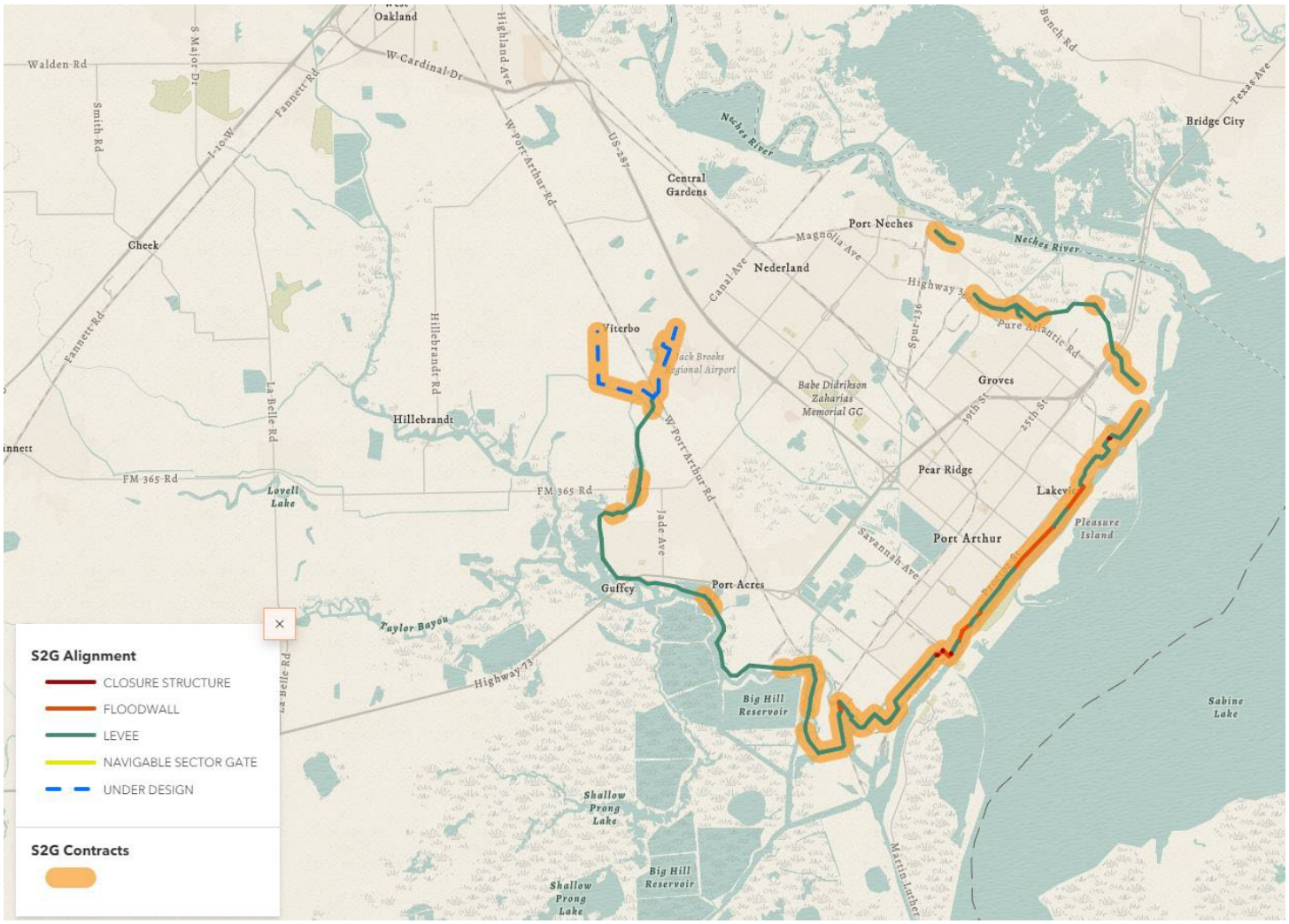

Figure 1: Port Arthur and Vicinity CSRM Plan

COMPLIANCE WITH GOALS AND POLICIES

Policy	Applicability
§ 501.15 Policy for Major Actions	N/A
§ 501.16 Policies for Construction of Electric Generating and Transmission Facilities	N/A
§ 501.17 Policies for Construction, Operation, and Maintenance of Oil and Gas Exploration and Production Facilities	N/A
§ 501.18 Policies for discharges of Wastewater and Disposal of Waste from Oil and Gas Exploration and Production Activities	N/A
§ 501.19 Policies for Construction and Operation of Solid Waste Treatment, Storage, and Disposal Facilities	N/A
§ 501.20 Policies for Prevention, Response and Remediation of Oil Spills	N/A
§ 501.21 Policies for Discharge of Municipal and Industrial Wastewater to Coastal Waters	N/A
§ 501.22 Policies for Nonpoint Source (NPS) Water Pollution	N/A
§ 501.23 Policies for Development in Critical Areas	**Yes**
§ 501.24 Policies for Construction of Waterfront Facilities and Other Structures on Submerged Lands	**Yes**
§ 501.25 Policies for Dredging and Dredged Material Disposal and Placement	N/A
§ 501.26 Policies for Construction in the Beach/Dune System	N/A
§ 501.27 Policies for Development in Coastal Hazard Areas	**Yes**
§ 501.28 Policies for Development Within Coastal Barrier Resource System Units and Otherwise Protected Areas on Coastal Barriers	N/A
§ 501.29 Policies for Development in State Parks, Wildlife Management Areas or Preserves	N/A
§ 501.30 Policies for Alteration of Coastal Historic Areas	N/A
§ 501.31 Policies for Transportation Projects	N/A
§ 501.32 Policies for Emission of Air Pollutants	N/A
§ 501.33 Policies for Appropriations of Water	N/A
§ 501.34 Policies for Levee and Flood Control Projects	**Yes**

The following goals and policies of the Texas Coastal Management Program (TCMP) were reviewed for compliance:

§501.15 **Policy for Major Actions**

1. For purposes of these policy categories, "major action" means an individual agency or subdivision action listed in §505.11 of this title (relating to Actions and Rules Subject to the Coastal Management Program), §506.12 of this title (relating to Federal Actions Subject to the Coastal Management Program), or §505.60 of this title (relating to Local Government Actions Subject to the Coastal Management Program), relating to an activity for which a federal environmental impact statement under the National Environmental Policy Act, 42 United States Code Annotated, §4321 et seq. is required.

Compliance: This project has been determined to not be major action" requiring the preparation of an environmental impact statement (EIS).

2. Prior to taking a major action, the agencies and subdivisions having jurisdiction over the activity shall meet and coordinate their major actions relating to the activity. The agencies and subdivisions shall, to the greatest extent practicable, consider the cumulative and secondary adverse effects, as described in the federal environmental impact assessment process, of each major action relating to the activity.

Compliance: This is not a major action; however, extensive coordination has been conducted with the Environmental Protection Agency, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Natural Resource Conservation Service and Texas Parks and Wildlife to identify and quantify project impacts. Cumulative and secondary adverse impacts have been considered and are identified in the 2017 FEIS. This supplemental environmental assessment is not a major action, however, coordination with the resource agencies has been conducted to consider the cumulative and secondary adverse effects.

3. No agency or subdivision shall take a major action that is inconsistent with the goals and policies of this chapter. In addition, an agency or subdivision shall avoid and otherwise minimize the cumulative adverse effects to CNRAs of each of its major actions relating to the activity.

Compliance: These resource agencies listed above will also be involved in development of the mitigation plan. Areas targeted for evaluation exclude areas already identified for mitigation in conjunction with other projects.

§ 501.23 Policies for Development in Critical Areas

(a) Dredging and construction of structures in, or the discharge of dredged or fill material into, critical areas shall comply with the policies in this section. In implementing this section, cumulative and secondary adverse effects of these activities will be considered.

(1) The policies in this section shall be applied in a manner consistent with the goal of achieving no net loss of critical area functions and values.

Compliance: The mitigation plan will fully compensate for all wetland impacts such that the project will result in "no net loss" of wetlands.

(2) Persons proposing development in critical areas shall demonstrate that no practicable alternative with fewer adverse effects is available.

Compliance: Planning for the avoidance and minimization of impacts began with the initial selection of the additional levee alignments. All levees were attempted to be located within existing disturbed levee alignments as much as possible to minimize wetland impacts, while also minimizing social effects and maximizing economic impacts. The project will reduce the risk of storm surge in areas at risk to flooding, and thus must be situated in special hazard areas.

(3) In evaluating practicable alternatives, the following sequence shall be applied:

(A) Adverse effects on critical areas shall be avoided to the greatest extent practicable.

(B) Unavoidable adverse effects shall be minimized to the greatest extent practicable by limiting the degree or magnitude of the activity and its implementation.

(C) Appropriate and practicable compensatory mitigation shall be required to the greatest extent practicable for all adverse effects that cannot be avoided or minimized.

Compliance: Adverse effects on critical areas have been avoided to the greatest extent practicable. The project would primarily impact coastal wetlands and small areas of submerged lands are incorporated into the wetland impact analysis as waters within the wetland systems. Total direct construction impacts could affect upwards of 111 acres of coastal wetlands, depending on alignments, and would result in a loss of up to 79 AAHUs, if freshwater forested wetlands are not present.

(4) Compensatory mitigation includes restoring adversely affected critical areas or replacing adversely affected critical areas by creating new critical areas. Compensatory mitigation should be undertaken, when practicable, in areas adjacent or contiguous to the affected critical areas (on-site). If on-site compensatory mitigation is not practicable, compensatory mitigation should be undertaken in close physical proximity to the affected critical areas if practicable and in the same watershed if possible (off-site). Compensatory mitigation should also attempt to replace affected critical areas with critical areas with characteristics identical to or closely approximating those of the affected critical areas (in-kind). The preferred order of compensatory mitigation is:(A) on-site, in-kind;(B) off-site, in-kind;(C) on-site, out-of-kind; and(D) off-site, out-of-kind.

Compliance: In-kind mitigation areas proposed are described in the in the mitigation plan appendix A. Areas being evaluated for mitigation are off-site, but within the Neches and Sabine watersheds include mitigation banks and Texas Parks and Wildlife Management Areas.

(5) Mitigation banking is acceptable compensatory mitigation if use of the mitigation bank has been approved by the agency authorizing the development and mitigation credits are available for withdrawal. Preservation through acquisition for public ownership of unique critical areas or other ecologically important areas may be acceptable compensatory mitigation in exceptional circumstances. Examples of this include areas of high priority for preservation or restoration, areas whose functions and values are difficult to replicate, or areas not adequately protected by regulatory programs. Acquisition will normally be allowed only in conjunction with preferred forms of compensatory mitigation.

Compliance: Mitigation banks will be investigated to determine if sufficient and appropriate mitigation is available; Sea Breeze Bank is within the watershed, however, costs and availability may be the limiting factor. If mitigation banks are not available to compensate for all or a portion of project impacts, potential areas in the watershed will be reviewed to identify potential in-kind mitigation sites. It was identified early in consultation with Port Arthur, that Texas Parks and Wildlife Management Areas might be a reasonable solution for mitigation. Cost and feasibility analysis shall be run with the USACE and TPWD.

(6) In determining compensatory mitigation requirements, the impaired functions and values of the affected critical area shall be replaced on a one-to-one ratio. Replacement of functions and values on a one-to-one ratio may require restoration or replacement of the physical area affected on a ratio higher than one-to-one. While no net loss of critical area functions and values is the goal, it is not required in individual cases where mitigation is not practicable or would result in only inconsequential environmental benefits. It is also important to recognize that there are circumstances where the adverse effects of the activity are so significant that, even if alternatives are not available, the activity may not be permitted regardless of the compensatory mitigation proposed.

Compliance: Compensatory mitigation requirements will be determined using the Wetlands Value Assessment Model, Riverine Herbaceous/Shrub iHGM model, and USFWS's Meadowlark HEP Model. These models were used to capture wetlands described in the National Wetland Inventory (NWI) and historically coastal prairie identified in Texas Parks and Wildlife Eco-mapper. Habitats to be impacted by either alignment of the western levee.

(7) Development in critical areas shall not be authorized if significant degradation of critical areas will occur. Significant degradation occurs if:

(A) the activity will jeopardize the continued existence of species listed as endangered or threatened, or will result in likelihood of the destruction or adverse modification of a habitat determined to be a critical habitat under the Endangered Species Act, 16 United States Code Annotated, §§1531 - 1544;

Compliance: The project will impact the Louisiana population of whooping crane (*Grus americana*) and recently listed eastern black rail (*Laterallus jamaicensis jamaicensis*). However, the impacts are not likely to adversely affect the species; a biological assessment to update the compliance on impacted species and describe compliance for recently listed, proposed, or candidate species, will be coordinated with the managing agencies. This biological assessment will be a supplemental document to the 2015 biological assessment coordinated under the 2017 FEIS and 2024 Supplemental Biological Assessment.

(B) the activity will cause or contribute, after consideration of dilution and dispersion, to violation of any applicable surface water quality standards established under §501.21 of this title;

Compliance: The project would not violate applicable water quality standards.

(C) the activity violates any applicable toxic effluent standard or prohibition established under §501.21 of this title;

Compliance: Material used to construct the new or modify the existing levee systems would be tested to determine if it is suitable for use. Disturbed material near the superfund site will be contained and coordinated with TCEQ and EPA prior to any earth disturbance activities. Best management practices from TCEA and EPA will be utilized to prevent material from entering nearby bodies of water.

(D) the activity violates any requirement imposed to protect a marine sanctuary designated under the Marine Protection, Research, and Sanctuaries Act of 1972, 33 United States Code Annotated, Chapter 27; or

Compliance: The project would not affect any marine sanctuaries.

(E) taking into account the nature and degree of all identifiable adverse effects, including their persistence, permanence, areal extent, and the degree to which these effects will have been mitigated pursuant to subsections (c) and (d) of this section, the activity will, individually or collectively, cause or contribute to significant adverse effects on:

(i) human health and welfare, including effects on water supplies, plankton, benthos, fish, shellfish, wildlife, and consumption of fish and wildlife;

(ii) the life stages of aquatic life and other wildlife dependent on aquatic ecosystems, including the transfer, concentration, or spread of pollutants or their byproducts beyond the site, or their introduction into an ecosystem, through biological, physical, or chemical processes;

(iii) ecosystem diversity, productivity, and stability, including loss of fish and wildlife habitat or loss of the capacity of a coastal wetland to assimilate nutrients, purify water, or reduce wave energy; or

(iv) generally accepted recreational, aesthetic or economic values of the critical area which are of exceptional character and importance.

Compliance: The project would not cause significant adverse effects on human health and welfare or any of the natural resources or systems listed above. It would not reduce ecosystem diversity, productivity, or the capacity of the wetland systems to assimilate nutrients, purify water, or reduce wave energy since these wetlands will be mitigated within the same watershed.

(b) The TCEQ and the RRC shall comply with the policies in this section when issuing certifications and adopting rules under Texas Water Code, Chapter 26, and the Texas Natural Resources Code, Chapter 91, governing certification of compliance with surface water quality standards for federal actions and permits authorizing development affecting critical areas; provided that activities exempted from the requirement for a permit for the discharge of dredged or fill material, described in Code of Federal Regulations, Title 33, §323.4 and/or Code of Federal Regulations, Title 40, §232.3, including but not limited to normal farming, silviculture, and ranching activities, such as plowing, seeding, cultivating, minor drainage, and harvesting for the production of food, fiber, and forest products, or upland soil and water conservation practices, shall not be considered activities for which a certification is required. The GLO and the SLB shall comply with the policies in this section when approving oil, gas, or other mineral lease plans of operation or granting surface leases, easements, and permits and adopting rules under the Texas Natural Resources Code, Chapters 32, 33 and 51 - 53, and Texas Water Code, Chapter 61, governing development affecting critical areas on state submerged lands and private submerged lands, and when issuing approvals and adopting rules under Texas Natural Resources Code, Chapter 221, for mitigation banks operated by subdivisions of the state.

Compliance: A 404(b)(1) analysis has been prepared and will be submitted to TCEQ for approval.

(c) Agencies required to comply with this section will coordinate with one another and with federal agencies when evaluating alternatives, determining appropriate and practicable mitigation, and assessing significant degradation. Those agencies' rules governing authorizations for development in critical areas shall require a demonstration that the requirements of subsection (a)(1) - (7) of this section have been satisfied.

Compliance: Coordination has been conducted with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and Texas Parks and Wildlife to identify and quantify project impacts. These agencies will also be involved in development of the mitigation plan.

(d) For any dredging or construction of structures in, or discharge of dredged or fill material into, critical areas that is subject to the requirements of §501.15 of this title (relating to Policy for Major Actions), data and information on the cumulative and secondary adverse affects of the project need not be produced or evaluated to comply with this section if such data and information is produced and evaluated in compliance with §501.15(b) - (c) of this title.

Compliance: The project complies with §501.15(b) - (c).

§501.24 Policies for Construction of Waterfront Facilities and Other Structures on Submerged Lands

(a) Development on submerged lands shall comply with the policies in this section.

(1) Marinas shall be designed and, to the greatest extent practicable, sited so that tides and currents will aid in flushing of the site or renew its water regularly.

(2) Marinas designed for anchorage of private vessels shall provide facilities for the collection of waste, refuse, trash, and debris.

(3) Marinas with the capacity for long-term anchorage of more than ten vessels shall provide pump-out facilities for marine toilets, or other such measures or facilities that provide an equal or better level of water quality protection.

Compliance: The project does not involve construction of a marina.

(4) Marinas, docks, piers, wharves and other structures shall be designed and, to the greatest extent practicable, sited to avoid and otherwise minimize adverse effects on critical areas from boat traffic to and from those structures.

Compliance: The floodwall structures will not be placed in any critical areas and would not modify the current navigational routes; therefore, the project will not have any direct or indirect effect on critical areas.

(5) Construction of docks, piers, wharves, and other structures shall be preferred instead of authorizing dredging of channels or basins or filling of submerged lands to provide access to coastal waters if such construction is practicable, environmentally preferable, and will not interfere with commercial navigation.

Compliance: The floodwall structure is not intended to provide access to coastal waters and would protect the existing shoreline from storm generated waves, wind, and surge along the Sabine Neches Water Way (SNWW).

(6) Piers, docks, wharves, bulkheads, jetties, groins, fishing cabins, and artificial reefs (Including artificial reefs for compensatory mitigation) shall be limited to the minimum necessary to serve the project purpose and shall be constructed in a manner that:
(A) does not significantly interfere with public navigation.

Compliance: The alignment of the floodwalls would be sufficiently offset from the Sabine Neches Waterway Channel to not interfere with public navigation or create hazardous navigational conditions.

(B) does not significantly interfere with the natural coastal processes which supply sediments to shore areas or otherwise exacerbate erosion of shore areas; and

Compliance: The floodwalls would attenuate hurricane wave and tidal energies along the shoreline and minimize damage from storm surge of the area. However, this modification is considered beneficial since this process will protect existing shoreline resources and armoring of the floodwall will reduce erosion of the shoreline.

(C) avoids and otherwise minimizes shading of critical areas and other adverse effects

Compliance: The alignment of the floodwall avoids all critical areas and would not induce adverse effects.

7) Facilities shall be located at sites or designed and constructed to the greatest extent practicable to avoid and otherwise minimize the potential for adverse effects from:

(A) construction and maintenance of other development associated with the facility;
(B) direct release to coastal waters and critical areas of pollutants from oil or hazardous substance spills or stormwater runoff; and
(C) deposition of airborne pollutants in coastal waters and critical areas.

Compliance: The project itself does not involve construction of any facilities that would induce development or modify existing development operations, nor would the structure produce or emit hazardous substances or emissions. However, an indirect effect of protection of existing vulnerable residential, urban, and industrial is increased development due to the lower risk of storm damage.

(8) Where practicable, pipelines, transmission lines, cables, roads, causeways, and bridges shall be located in existing rights-of-way or previously disturbed areas if necessary to avoid or minimize adverse effects and if it does not result in unreasonable risks to human health, safety, and welfare.

Compliance: The project does not involve construction or long-term operation of pipelines, transmission lines, cables, roads, causeways, or bridges.

(9) To the greatest extent practicable, construction of facilities shall occur at sites and times selected to have the least adverse effects on recreational uses of CNRAs and on spawning or nesting seasons or seasonal migrations of terrestrial and aquatic wildlife.

Compliance: Construction of the floodwalls would span approximately two-three years which would overlap with spawning and nesting seasons of terrestrial and aquatic wildlife. However, the disturbance area would be limited to the immediate construction site in open water areas and should not affect aquatic migration or spawning outside of the active construction site. Similarly, terrestrial disturbance would be limited to the immediate construction site and would have no or minimal effect on nesting or migration patterns of terrestrial species. The alignment of the floodwalls would be near the shorelines and are not expected to affect recreation in or near CNRAs outside of the alignment.

(10) Facilities shall be located at sites which avoid the impoundment and draining of coastal wetlands. If impoundment or draining cannot be avoided, adverse effects to the impounded or drained wetlands shall be mitigated in accordance with the sequencing requirements of §501.23 of this title. To the greatest extent practicable, facilities shall be located at sites at which expansion will not result in development in critical areas.

Compliance: Coastal wetlands, as defined in §501.3, are found in or near the project area. However, minimal Coastal wetlands would be directly affected by construction which will be mitigated for. There is no long-term operation of the floodwall that should impact coastal wetlands; however, over the long-term, the floodwalls would protect and stabilize the shoreline thereby also protecting vulnerable habitats from storm surge and sea level rise.

(11) Where practicable, piers, docks, wharves, bulkheads, jetties, groins, fishing cabins, and artificial reefs shall be constructed with materials that will not cause any adverse effects on coastal waters or critical areas.

Compliance: The floodwalls would be constructed of material free of any chemicals or sealants that could cause adverse effects on coastal waters or critical areas.

(12) Developed sites shall be returned as closely as practicable to pre-project conditions upon completion or cessation of operations by the removal of facilities and restoration of any significantly degraded areas, unless:
(A) the facilities can be used for public purposes or contribute to the maintenance or enhancement of coastal water quality, critical areas, beaches, submerged lands, or shore areas; or
(B) restoration activities would further degrade CNRAs.

Compliance: The floodwall structures would not be removed, and the area would not be returned to pre-project conditions at the end of the project life (estimated 50 years). The floodwalls are expected to have long-term beneficial impacts that if the floodwalls were removed would contribute to degradation of the shoreline and coastal area.

(13) Water-dependent uses and facilities shall receive preference over those uses and facilities that are not water dependent.

Compliance: The floodwalls would promote the protect and stabilization of the shoreline and coastal habitats which contributes to recreational opportunities in the project area.

(14) Nonstructural erosion response methods such as beach nourishment, sediment bypassing, nearshore sediment berms, and planting of vegetation shall be preferred instead of structural erosion response methods.

Compliance: Construction of a nonstructural measures would not be sufficient to reduce the increased hurricane storm surge contributing to current shoreline erosion; therefore, over the long-term construction of a structural erosion response feature – a floodwall – is warranted and in the best interest of the coastal resources in the action area.

(15) Major residential and recreational waterfront facilities shall to the greatest extent practicable accommodate public access to coastal waters and preserve the public's ability to enjoy the natural aesthetic values of coastal submerged lands.

Compliance: The project will not impact public access to coastal waters or permanently disrupt the public's ability to enjoy the natural aesthetic values of coastal submerged lands. Temporarily construction may impact the aesthetic values, however, this impact will be temporary.

(16) Activities on submerged land shall avoid and otherwise minimize any significant interference with the public's use of and access to such lands.

Compliance: Construction of the breakwaters would not interfere with public access to or use of coastal waters and preserves.

(17) Erosion of Gulf beaches and coastal shore areas caused by construction or modification of jetties, breakwaters, groins, or shore stabilization projects shall be mitigated to the extent the costs of mitigation are reasonably proportionate to the benefits of mitigation. Factors that shall be considered in determining whether the costs of mitigation are reasonably proportionate to the cost of the construction or modification and benefits include, but are not limited to, environmental benefits, recreational benefits, flood or storm protection benefits, erosion prevention benefits, and economic development benefits.

Compliance: The project would modify the existing Port Arthur Hurricane Flood Protection Project and construction of these features would reduce flooding, storm surge, and erosion along the Port Arthur coastal shore area; therefore, no mitigation is needed. It is anticipated that long-term operation of the floodwall would result increased shoreline stabilization, protection from storm surge, economic development, reduction in hurricane rain inundation, and shielding of existing coastal habitats.

(b) To the extent applicable to the public beach, the policies in this section are supplemental to any further restrictions or requirements relating to the beach access and use rights of the public.

Compliance: No beaches are present or would be affected by the construction of the floodwall.

(c) The GLO and the SLB, in governing development on state submerged lands, shall comply with the policies in this section when approving oil, gas, and other mineral lease plans of operation and granting surface leases, easements, and permits and adopting rules under the Texas Natural Resources Code, Chapters 32, 33 and 51 - 53, and Texas Water Code, Chapter 61.

Compliance: The project does not involve development of oil, gas, or other mineral lease plans of operation or granting of surface leases, easements, or permits or adopting rules.

§ 501.27 Policies for Development in Coastal Hazard Areas

(a) Subdivisions participating in the National Flood Insurance Program shall adopt ordinances or orders governing development in special hazard areas under Texas Water Code, Chapter 16, Subchapter I, and Texas Local Government Code, Chapter 240, Subchapter Z, that comply with construction standards in regulations at Code of Federal Regulations, Title 44, Parts 59 - 60, adopted pursuant to the National Flood Insurance Act, 42 United States Code Annotated, §§4001 et seq.

Compliance: There would be no change for policies in coastal hazard areas, the PAV CSRMS will minimize the impacts of flooding, erosion, and storm surge. It is not the intent of the project to increase residential or industrial development, PAV CSRMS features, and lands will become part of the federal project. Private development on lands acquired for the project will not be converted into private development.

§501.34 – Levee Improvement or Flood Control Projects

1. a) Drainage, reclamation, channelization, levee construction or modification, or flood- or floodwater-control infrastructure projects shall be designed, constructed, and maintained to avoid the impoundment and draining of coastal wetlands to the greatest extent practicable. If impoundment or draining of coastal wetlands cannot be avoided, adverse effects to the wetlands shall be mitigated in accordance with the sequencing requirements found in the critical areas policy (§ 501.23).

Compliance: All environmental impacts identified within the Supplemental Environmental Assessment are associated with the Port Arthur and Vicinity CSRM Plan, and these are limited to wetland impacts. Avoidance and minimization of impacts began within the finalized Sabine Pass to Galveston Bay, Texas Coastal Storm Risk Management and Ecosystem Restoration EIS. However, updated hydrological modeling during the pre-construction, engineering, and design phase (PED) caused a deviation from the impacts described in the EIS. The alignments were located within the existing Port Arthur Hurricane Flood Protection Project as much as possible to minimize environmental impacts while also minimizing social effects and maximizing economic impacts.

In total, mitigation would be needed to compensate for a loss of approximately 111 acres of wetlands and up to 66 acres of coastal prairie. All impacts would be fully compensated with a mitigation plan to be developed during final environmental assessment. Habitat modeling will be conducted to quantify benefits (AAHUs) of mitigation measures. Selection of potential mitigation sites and modeling of benefits will be conducted in coordination with resource agencies. A detailed analysis of selected mitigation measures will be developed, and the costs and benefits will be used to identify a best mitigation plan using Cost Effectiveness-Incremental Cost Analysis that will fully compensate for all impacts.

1. b) TCEQ rules and approvals for the levee construction, modification, drainage, reclamation, channelization, or flood- or floodwater-control projects, pursuant to the Texas Water Code, §16.236, shall comply with the policies in this section.

Compliance: Extensive hydrology and hydraulics evaluations conducted in development of the Orange-Jefferson, Port Arthur and Vicinity, and Freeport and Vicinity CSMR Plans are presented in the Engineering Appendix (Appendix D) of the Sabine Pass to Galveston Bay EIS. These studies evaluated the effects of the levees on storm surge coincident with heavy inland rainfall events and determined that the design would not adversely impact the flood carrying capacity of adjacent rivers, will not increase flooding or divert waters such that lives, and property would be endangered or subject to significantly increased flooding. Jefferson County Drainage District No 7 would continue as the sponsor of the Port Arthur and Vicinity CSRM project. Landowners that would be affected by construction of the modification of the existing Port Arthur Vicinities CSRM project are identified in the DIFR-EIS Distribution List (Section 9.2). During PED, updated hydraulic and hydrological modeling was performed using newer models for validation. During PED, coastal storm water level (SWL), wave loading, and overtopping were quantified using high-fidelity hydrodynamic modeling and stochastic simulations. While updating Hydraulic analysis during PED, it was discovered that the existing system could be subject to flanking. A flanking analysis was performed to confirm if the existing Port Arthur system needed new levees to achieve the same level of risk reduction to federally authorized levels as described in the EIS. Four alternative courses of action were evaluated for four different levee alignments. Based on the flanking analysis, three of the four alternative courses of action were needed. One alternative course of action included extending the existing western alignment to best minimize impacts to environmental resources. However, the extended western levee alignment (alignment 2 or COA 2) did not reduce inundation on a major hurricane evacuation route and included a 44-foot-wide highway raise, impacts to adjacent railroad, and constructing a levee through an airport right-of-way. Therefore, it was determined it was not the most beneficial to construct the western levee within the existing alignment nor extend. Two courses of actions for the western levee, alignment 1-A and 3 (also referred to as COA 1-A and COA 3) were developed. These alignments are being pursued in further design, either alignment will impact wetlands and coastal prairie but are needed for the federal level of protection of PAV CSRMS. All environmental impacts will be mitigated

to a net result of zero.

IMPACTS ON COASTAL NATURAL RESOURCE AREAS

Potential impacts to Coastal Natural Resource Areas (CNRAs) listed in 31 Texas Administrative Code (TAC) §501.3, and of methods to minimize or avoid potential impacts, are discussed below.

Waters of the Open Gulf of Mexico

Compliance: Waters of the open Gulf of Mexico (Gulf) are not located in the project area.

Waters Under Tidal Influence

Compliance: The project area includes streams and bayous that experience tidal influence. construction activities would result in a negligible impact because the potential release of suspended solids is minimized by using appropriate best management practices (BMPs) such as silt curtains, and compliance with the required State §401 Certification.

Submerged Lands

Small areas of submerged lands within the Port Arthur CSRM Plan floodwall construction right-of- way would be impacted by construction of the new floodwall system. Impacts on submerged lands have been minimized to the greatest extent possible. Total acres of marsh and wetland impacts were evaluated within the Wetlands Value Assessment model, Eastern Meadowlark HEP model, and Riverine Herbaceous/Shrub HGM Interim model, and thus impacts will be fully compensated by the mitigation plan. No impacts on submerged lands are expected with construction of the Port Arthur and Vicinity CSRM Plan. Impacts to EFH include increased noise, turbidity, and avoidance of the area during construction. However, no long-term impacts are expected to endangered species, recreational, or federal species. A portion of the submerged bottom will be converted into hard floodwall substrate; however, these impacts are near a busy navigation waterway; ship and barge generated velocities and wakes prevent the establishment of sensitive coastal resources such as oysters or subaquatic vegetation. Therefore, the habitat impacted currently functions as low-quality habitat for coastal species. No long-term impacts or changes on the habitat quality are expected by the construction of floodwalls for the PAV CSRMS.

Coastal Wetlands

Direct and indirect impacts associated with construction of the Port Arthur CSRM Plan would result in the loss of about 42 acres of wetlands over the period of analysis. Impacts were minimized to the greatest extent practicable. These acres would be replaced by in-kind mitigation in the amount determined using the WVA model, Eastern Meadowlark, and the Riverine Herbaceous/Shrub HGM Interim model.

Submerged Aquatic Vegetation

No known submerged aquatic vegetation is present at the site.

Tidal Sand and Mud Flats

No tidal sands and mud flats occur in the project areas.

Oyster Reefs

No oyster reefs occur in the project areas.

Hard Substrate Reefs

No hard substrate reefs occur in the project areas.

Coastal Barriers

No coastal barriers occur in the project areas.

Coastal Shore Areas

No coastal shore areas occur in the project areas.

Gulf Beaches
No Gulf beaches occur in the project areas.

Critical Dune Areas
No critical dune areas occur in the project areas.

Special Hazard Areas
Special hazard areas are areas designated by the Administrator of the Federal Insurance Administration under the National Flood Insurance Act as having special flood, mudslide, and/or flood-related erosion hazards. The new Port Arthur and Vicinity Plan alignments are predominantly located in or adjacent to the 100-year floodplain in special hazard zones A8 and AE. Project objectives would decrease the hazard of the flood-prone areas, and a beneficial effect to the hazard area is expected. The Port Arthur and Freeport and Vicinities CSRM Plans are modifications of existing projects which have decreased flood hazards in those areas; no special hazard areas would be affected by modifications of these systems.

Critical Erosion Areas
No critical erosion areas occur in the project areas.

Coastal Historic Areas
No known coastal historic areas (sites in the National Register of Historic Places on public land or State Archeological Landmarks that are identified by the Texas Historical Commission as being coastal in character) would be impacted by the project.

Coastal Preserves
The project would have no impacts to coastal preserves.