DRAFT
ENVIRONMENTAL ASSESSMENT
FOR

EMERGENCY REPAIRS
TO
FREEPORT AND VICINITY HURRICANE FLOOD PROTECTION PROJECT
BRAZORIA COUNTY, TEXAS

U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT
GALVESTON, TEXAS

FEBRUARY 2009

Draft

Environmental Assessment

Emergency repairs

to

Freeport and Vicinity Hurricane Flood Protection Project

Brazoria County, Texas

Table of Contents

LIST OF APPENDICES

1.0 PROPOSED ACTION

1.1 PROJECT DESCRIPTION

The Freeport and Vicinity Hurricane Flood Protection Project (HFPP or project) is located in southern Brazoria County, about 48 miles southwest of Galveston, Texas. The overall project consists of 53 miles of earthen levees varying from 15 to 21 feet above mean sea level (MSL) with concrete and steel pile floodwalls and removable splash panels at the Port of Freeport's Brazos Harbor, water intake structures, numerous gravity drainage structures, a flood gate, and two new pumping stations having a combined capacity of 650,000 gallons per minute.

The project was designed to provide approximately 42 square miles of protection for all or portions of the communities of Freeport, Velasco, Oyster Creek, Lake Barbara, Clute, and Lake Jackson, and the multibillion dollar industrial complex consisting of Port Freeport (Port), Dow Chemical, and related industries and facilities against Standard Project Hurricane tides of 13 to 15 feet above MSL and accompanying waves. The existing project was authorized by the Flood Control Act of 23 October 1962, PL 87-874, substantially in accordance with House Document No. 495, 87th Congress, 2nd Session.

1.2 PURPOSE AND NEED FOR PROJECT

The purpose of the project is to restore the HFPP to the same level of protection that existed prior to damages sustained from Hurricane Ike. The Local Sponsor, the Velasco Drainage District, requested Federal assistance from the U.S. Army Corps of Engineers and stated the urgency of the proposed project repairs in a letter dated October 29, 2008.

The existing project was subjected to Hurricane Ike, an extraordinary storm event that resulted in a significant amount of damage to removable splash panels incorporated into upland commercial buildings and warehouses at the Port, and damaged the Velasco Memorial Tide Gate (tide gate) emergency generator. The damaged splash panels no longer function as designed and the inoperable emergency generator compromises the integrity of the tide gate system. The next storm season begins in June 2009 and general long-range predictions are that hurricanes may be more numerous and may have greater intensity than storms of the recent past.

The tide gate is a critical closure structure in the HFPP. In the event of untimely loss of commercial power and failure of the emergency power system, the gate would remain open to an approaching storm, or, would remain closed after the event which may result in flooding the interior area which the tide gate protects. Both conditions would be catastrophic to the integrity of the entire hurricane flood protection system, and extensive flooding would occur in the protected areas of Freeport and the multibillion dollar petrochemical complex.

1.3 PROPOSED PROJECT

The proposed project would restore the HFPP to pre-storm conditions. This would be accomplished by either replacing damaged splash panels located along commercial buildings on docks at the Port's Brazos Harbor, or by constructing a permanent concrete floodwall along the edges of the docks which would supersede the need for splash panels along the buildings. The permanent floodwall would be fitted with removable panels to allow for greater flexibility during vessel loading and unloading operations. Both of these alternatives are presented below. The proposed project would also repair or replace the emergency tide gate generator, which is located in the generator powerhouse on the Stauffer Channel. A map of the project area and the locations of the proposed repair work are shown in Figures 1 and 2.

None of the proposed repairs would be performed in or have any impact on water body. As such, compliance with the Clean Water Act Sections 401 and 404(b)(1), the Magnuson-Stevens Fishery Conservation Management Act for Essential Fish Habitat, and the Texas Coastal Management Program is not required.

Damaged panel structures and generator machinery would be removed by a small crane and a forklift and trucked away. Materials for splash panel replacement or wall construction, and parts for generator repair or replacement would be trucked to project area repair sites. Typical construction machinery and repair crews would be employed to perform the proposed work. No specialized equipment or processes would be utilized.

All work undertaken for the project would be consistent with (PL 84-99, Flood Control and Coastal Emergencies (FCCE), (33 U.S.C. 701n) (69 Stat. 186) for emergency management activities, and with ER 500-1-1. Provisions of these statutes and regulations allow for rehabilitation of flood control works threatened or destroyed by flood and the protection or repair of federally authorized shore protective works threatened or damaged by coastal storm.

2.0 ALTERNATIVES

Three alternatives were considered for repairing damages sustained by the existing project:

Alternative 1 - No Action

Alternative 2 - Replace Splash Panels

Alternative 3 - Permanent Floodwall

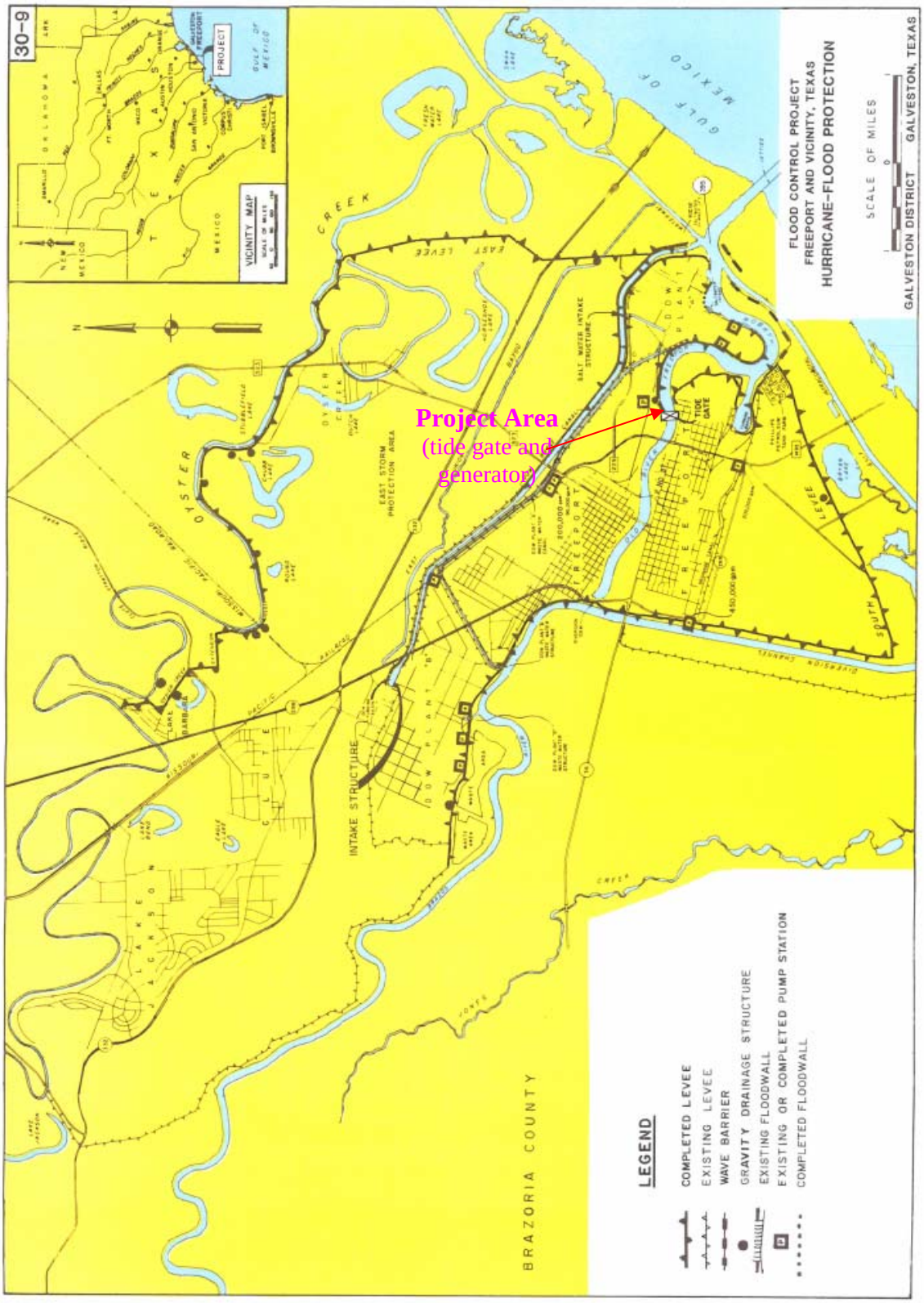

Figure 1. Freeport and Vicinity HFPP Project Area Overview and Tide Gate

Figure 2. Freeport and Vicinity HFPP Proposed Floodwall

2.1 ALTERNATIVE 1 – NO ACTION

Under the No Action alternative, the HFPP would not be repaired. The HFPP would be compromised and a significant amount of life and property would be at risk for impacts from future hurricanes. Given the damages sustained by the existing project, the No Action alternative is considered unacceptable.

2.2 ALTERNATIVE 2 – REPLACE SPLASH PANELS

This alternative would replace the damaged splash panels located along the buildings at Brazos Harbor docks at the Port (Figure 2), and would repair or replace the emergency generator system at the tide gate to include wiring, switches, disconnects, meters, engines, and power production machinery. The existing damaged splash panels are constructed of plywood, and would be replaced with new fiberglass splash panels. Damaged panels would be removed by a small crane and a forklift and trucked away.

All materials for repairing the splash panels would be trucked in. The panels would be attached to the existing anchoring system comprising a series of ground/pavement attachments. The base of the panels would be affixed to the ground anchoring gear in the pavement bed and would be connected to wire cables and stanchions for increased vertical and horizontal stability. Light trucks, forklifts, cable laying equipment, and other general machinery and tools would be used to facilitate panel installation.

Repair or replacement of the existing emergency generator and related electrical components would be conducted within the confines of the powerhouse attached to the tide gate structure, located in the upper Stauffer Channel reach of Freeport Harbor (Figure 1). The powerhouse is accessible by roads connected to both sides of the tide gate, and materials and machinery parts would be hauled to the site by truck. Generator machinery would be hoisted into the powerhouse by a small, portable crane and installed.

2.3 ALTERNATIVE 3 – PERMANENT FLOODWALL

This alternative would construct a permanent concrete floodwall along the Brazos Harbor docks, and would repair or replace the emergency generator system at the tide gate to include wiring, switches, disconnects, meters, engines, and power production machinery. Under this alternative, existing bull rails would be removed from the docks and a 3-foot high, 1-foot thick concrete floodwall would be constructed near the edges of the docks, extending along a 3000-foot paved area (Figure 2). Removable fiberglass panel sections of various widths, but primarily ranging between 6 to 11 feet, would be installed and strategically spaced along the floodwall to facilitate vessel loading and unloading operations. All materials for constructing the floodwall would be trucked in. Typical wall construction equipment and materials would include forklifts, light trucks, cement trucks, concrete forms, steel

rods/bars, and shaping tools. Repair or replacement of the existing emergency generator and related components would be carried out in the same manner as for Alternative 2, above.

2.4 COMPARISON AND EVALUATION OF ALTERNATIVES CONSIDERED

Preliminary analysis determined that replacement of damaged splash panels or construction of a permanent floodwall, if coupled with generator repairs, would provide the same level of protection and would restore the HFPP to pre-storm project conditions. Both alternatives would essentially generate comparable impacts.

Both of the proposed alternatives would provide the same level of protection as the pre-storm condition, and the cost for either plan is approximately equivalent, with Alternative 2 costing approximately $68,000 less than Alternative 3. The total cost of the repairs is estimated to be $2,306,400. Using a discount rate of 4.625% for the appraised value of structures and contents, the annualized cost of repairs, including annual operation and maintenance costs, is $321,218.00. With annual project benefits of $3,006,466, a benefit to cost ratio of 9.4 to 1 is realized, providing justification for rehabilitating the project.

3.0 AFFECTED ENVIRONMENT

The project area is defined as the construction zone for splash panel repairs or floodwall construction, and repairs to the tide gate generator, including all access, staging areas, and right-of-ways. Because all proposed project repair work would be performed out of the water on paved docks or inside the generator powerhouse, compliance with the Clean Water Act Sections 401 and 404(b)(1), the Magnuson-Stevens Fishery Conservation Management Act for Essential Fish Habitat, and with the Texas Coastal Management Program is not required.

It should be noted that because of human disturbance over many decades, many habitat types in the Port area have been disturbed to the point where original species composition and diversity found prior to major development and industrialization no longer exist.

3.1 ENVIRONMENTAL SETTING

The HFPP project area is located on the central portion of the Texas coast at Port Freeport, in Brazoria County, Texas (Figure 1). Surrounding areas include the communities of Freeport, Oyster Creek, Velasco, Lake Barbara, Clute, and Lake Jackson.

Freeport is an important industrial center and deepwater port on the Texas coast. The community has a diversified source of income, but is predominantly dependent on the petrochemical industry. The principal sources of income are derived from

processing petroleum and petroleum by-products. Brazoria County claims to house the world's largest chemical complex with Dow Chemical being the principal employer. The population of Freeport and vicinity was 110,363 according to the 2000 Census Report. The aggregate value of the top five chemical industries in the county is approximately $3 billion.

The immediate project area where repair of the HFPP would be undertaken is adjacent to the Freeport Harbor Channel Navigation Project, which comprises a series of channels and turning basins, lined with various industrial and commercial industries, associated docks, warehouses, and vessel loading/unloading facilities. More specifically, repair work for splash panels would be located along commercial buildings at Brazos Harbor docks, and floodwall construction would occur along paved areas of the docks, which are situated west of Dow Chemical along the Freeport Harbor Channel. These docks support loading/unloading operations for bananas, rice, vegetables, and other commodities. Similarly, repairs to the tide gate generator would be conducted within an enclosed electrical powerhouse attached to the tide gate structure, which is directly connected to paved roads. Consequently, no natural or ecological resources are present in the upland areas where HFPP repairs would occur.

Physiology

The project area lies within in a low coastal plain dissected by streams, canals, and waterways. The land surface elevation varies from 3 to 4 feet (NAVD 88) along the coast to greater than 15 feet about 15 miles inland. Geologically, the study area region is characterized by Quarternary alluvium containing thick deposits of clay, silt, and sand, overlying several hundred feet thick deposits associated with numerous current and former river channels and bayous.

Climate

The climate of the project area is humid subtropical with warm to hot summers and mild winters. Periods of freezing temperatures are infrequent and rainfall averages about 50 inches annually. Severe weather occurs periodically in the form of thunderstorms, tornadoes, tropical storms and hurricanes.

3.2 WETLANDS, AQUATIC RESOURCES, AND UPLAND VEGETATION

Many aquatic communities are present along the central Texas coast in the general vicinity of the project area, which support ecological diversity and abundance. These include estuarine and palustrine wetlands. Aquatic resources in the general project vicinity include commercial and recreational fish species, and upland habitats that include scrub/shrub, pasture land, and riparian forest. However, none of these resources are located in the immediate project area where repairs would take place.

3.3 WILDLIFE

The general project area lies within the Texan Biotic Province ecological area of Texas and is nearly level, slowly draining, and is dissected by streams and rivers flowing into the Gulf of Mexico. The area contains an abundance of birds, mammals, and fish. The area is part of the central flyway migration route, and the marshes provide a major wintering ground for many species of ducks. The bald eagle, brown pelican, piping plover and sea turtles are species known to occur in southern Brazoria County and along the coast. Over 40 species of mammals occur in the county, with 12 considered of sport or recreational value. However, because of the lack of suitable habitat, none of these wildlife resources occur within the immediate project area where work on the HFPP would occur.

3.4 THREATENED AND ENDANGERED SPECIES

The U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS), list the following 14 species as threatened or endangered species of potential occurrence in Brazoria County:

TABLE 1
Federally Listed Threatened or Endangered Species of Potential Occurrence in Brazoria County, Texas[1]

		Status[2]	
Common Name	Scientific Name	FWS	NMFS
FISH			
Smalltooth sawfish	*Pristis pectinata*	E	E
REPTILES			
Green sea turtle	*Chelonia mydas*	T	T
Hawksbill sea turtle	*Eretmochelys imbricata*	E	E
Kemp's ridley sea turtle	*Lepidochelys kempii*	E	E
Leatherback sea turtle	*Dermochelys coriacea*	E	E
Loggerhead sea turtle	*Caretta caretta*	T	T
BIRDS			
Brown pelican	*Pelecanus occidentalis*	E	NA
Piping plover	*Charadrius melodus*	T w/CH	NA
Whooping crane	*Grus americana*	E, EXPN	NA
MAMMALS			
Blue whale	*Balaenoptera musculus*		E/D
Finback whale	*B. physalus*		E/D
Humpback whale	*Megaptera novaengliae*		E/D
Sei whale	*B. borealis*		E/D
Sperm whale	*Physeter macrocephalus*		E/D

[1] FWS – U.S. Fish and Wildlife Service; and, NMFS – National Marine Fisheries Service (2009).

[2] D – Depleted, as defined by the Marine Mammal Protection Act; E – Endangered; T – Threatened; w/CH – with designated Critical Habitat; NA – Status Not Applicable for that Agency; EXPN – Experimental Population.

A complete listing of other species not protected under federal law but of potential occurrence in Brazoria County, can be found in the Appendix B. The project area does not include designated critical habitat for any listed species. Proposed repair and construction activities would not affect the five listed turtle species, the five listed whale species, or the smalltooth sawfish as work activities would not impact bays, beaches or deep water (ocean) areas. Similarly, no impacts would occur to piping plover or the whooping crane as suitable habitat is not present in the project area. While the brown pelican may occur in the general project vicinity along undisturbed pilings, piers, wharves and similar roosting and loafing sites, it is unlikely to occur in the project area because of the amount of existing disturbance present. Should the brown pelican occur in the project area, the proposed project would have no impact on this species.

3.5 CULTURAL RESOURCES

The HFPP has been previously coordinated with the Texas State Historic Preservation Officer (SHPO). Damaged splash panel areas at the Port's Brazos Harbor and the tide gate have been found to be highly disturbed by previous construction and vessel traffic along Freeport Harbor. Further cultural resource surveys and coordination will not be required because the proposed work sites have no potential for historic properties.

3.6 AIR QUALITY AND NOISE

3.6.1 AIR QUALITY

The project area is located in the Houston-Galveston-Brazoria (HGB) Consolidated Metropolitan Statistical Area (CMSA), which is classified as "moderate" non-attainment with the 8-hour National Ambient Air Quality Standards (NAAQS) for ozone. General conformity under the Clean Air Act, Section 176 has been reviewed for this project. The requirements of this rule are not applicable to this project because it is exempt under 40 CFR 93.153(e)(1) and 30 TAC 101.30(c)(5)(A) since it is impractical to prepare the conformity analysis which might otherwise be required and this project cannot be delayed due to the overriding concerns for public health and welfare, especially in view of the upcoming hurricane season. A signed determination documenting this decision is included in Appendix C.

3.6.2 NOISE

Noise levels in the study area are elevated compared to undeveloped areas along the coast, as a result of petrochemical industry operations, vessel navigation, and vehicular traffic in the Freeport Harbor area. Sensitive receptors within the vicinity of proposed project activities include a residential area located approximately 1,000 feet away.

3.7 WATER QUALITY

The TCEQ has designated the old Brazos River Channel Tidal (Freeport Harbor) as Segment 1111. Designated uses for Segment 1111 are contact recreation (swimming) and high-quality aquatic habitat. The minimum salinity in the area is over 18 parts per thousand (ppt) and the average is over 26 ppt. Dissolved oxygen (DO) concentrations average 7.2 milligrams per liter (mg/L), and all are well above the criterion for high-quality aquatic life use of 4 mg/L.

3.8 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW)

A Hazardous, Toxic, and Radioactive Waste (HTRW) preliminary assessment was conducted for the proposed project. The assessment methodology is designed to identify known and potentially unknown HTRW sites that could cause a release to the environment, endanger human health, and impact project costs and schedules. Methodology included a database search, and a review of aerial photos and maps. Databases included in the research included the Superfund, National Pollutant Discharge Elimination System, Resource Conservation and Recovery Act report from the Hazardous Waste database, and the Toxic Release Inventory (http://134.67.99.122/enviro). Investigations indicate there are no known HTRW sites in the proposed project area or adjacent to the proposed project.

3.9 SOCIOECONOMICS

Freeport is an important industrial center and deepwater port on the Texas coast. The community has a diversified source of income, but is predominantly dependent on the petrochemical industry. The principal sources of income are derived from processing petroleum and petroleum by-products. Brazoria County claims to house the world's largest chemical complex with Dow Chemical being the principal employer. The aggregate value of the top five chemical industries in the county is approximately $3 billion. Freeport's remaining cargo primarily consists of banana imports, rice exports, and outbound coastwise chemical shipments.

According to the 2000 Census Report data**,** the population of Freeport and vicinity was 110,363. Brazoria County maintained steady growth, increasing by 13 percent between 1980 and 1990, by 26 percent between 1990 and 2000, and 21 percent between 2000 and 2007. The 2007 population was of 291,729 persons. Population projections provided by the TWDB 2006 Regional Water Plan indicate that growth in Brazoria County is expected to occur at a similar rate to the state through 2040. Brazoria County is projected to grow 48 percent from 2007 to 2040 while the State of Texas is projected to grow 50 percent during the same time. In addition, towns/cities within the study area are also expected to grow between 2007 and 2040. Multiple listing service data indicate that adequate available housing is available within the study area to meet the demands of a growing population.

The study area general population can be characterized as being comprised of family households with an average family size of 3.16 persons that own their home. The largest age cohort was persons between 35 and 49 years of age (25.6 percent), followed by persons 50 to 64 years of age (13.9 percent), and persons 5 to 14 years of age (16.0 percent). The study area median household income was $44,311, and the total percentage of persons living below the poverty level was 10.2 percent. The majority of the population attained a high school diploma and attended college. However, on average, only 7 percent received an Associates Degree, 9.5 percent received a Bachelors Degree, and 4.5 percent received a Graduate or Professional degree (Texas State Data Center, 2007).

3.10 ENVIRONMENTAL JUSTICE (EJ)

In compliance with Executive Order (EO) 12898, Federal Action to Address EJ in Minority Populations and Low-Income Populations, an analysis has been performed to determine whether the proposed action would have a disproportionate adverse impact on minority or low-income population groups within the study area. The EO requires that minority and low-income populations do not receive disproportionately high adverse human health and environmental impacts and requires that representatives of minority or low-income populations, who could be affected by the project, be involved in the public involvement process.

The data used in this analysis to determine potential disproportionate impacts to low-income and/or minority populations within the project study area, is based on 2000 U.S. Census Bureau state, county, and block group level data for ethnicity and income. In terms of ethnicity, the population living within the study area census tracts is less ethnically diverse than Brazoria County and the State of Texas. The percentage of white persons within the study area is 65.3 percent with the largest percentage of minority persons being Hispanic or Latino, with 22.8 percent of the total population. Within the study area, Freeport has the largest minority population (67.0 percent), which is predominantly composed of Hispanic (51.6 percent) and African American (13.2 percent) persons. The largest percentage of other minority persons (Black or African American, American Indian/Alaskan Native, Asian, and Native Hawaiian or other Pacific Islander) is found in Freeport (16.2 percent) and Quintana (13.5 percent)

The percentage of persons living below poverty within the study area is 10.2 percent. The poverty rates of the study area cities ranges from 3.0 percent (Bonney and Manvel) to 22.9 percent (Freeport). Within the project area vicinity, the percentage of persons living below poverty is generally higher than Brazoria County. A small percentage of persons in the study area do not speak English or have difficulty speaking English. Data for “Ability to Speak English” for the population 5 years old and over indicates that 3 percent of the population in the study area speaks English “Not Well,” while 1.2 percent of the population speaks English “Not at All.”

3.11 PRIME AND UNIQUE FARMLANDS

Prime farmland soils are defined by the Secretary of Agriculture in 7 CFR, Part 657 (*Federal Register*, Vol. 43, No. 21) as those soils that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. While prime farmland exists in the study area vicinity, prime or unique lands are not present in the project area and there are no designated "unique farmlands" in the State of Texas (Brown, 2002).

3.12 RECREATIONAL RESOURCES

Tourism is a major contributor to the study area economy. The natural resources of the Gulf provide extensive recreational opportunities. Outdoor recreation in the area includes fishing, bird watching, windsurfing, boating, jet skiing, swimming, shelling, and beach combing, among others. Several marinas are located within the Freeport area, that support recreational as well as commercial fishing, and numerous parks provide beach access and are used for swimming, picnicking, and fishing. No recreational areas would be affected by proposed project repairs.

3.13 ROADWAYS AND TRAFFIC

The major roadway within the project area is FM 1495, which provides access to the Port facilities. Vehicular traffic consists of a mixture of local area and urban residents, commercial and industrial vehicles associated with the Port and petrochemical industries, and tourism. Minor increases in traffic could occur within the project area vicinity, resulting from equipment and material movements in support of proposed repair or construction activities.

4.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

4.1 IMPACTS ON ENVIRONMENTAL SETTING

Repairs to the HFPP are not expected to have significant impacts on any physical or natural resources. Repair work for the splash panels or construction of the floodwall would be located on docks, and, repairs to the emergency generator would be conducted in the generator powerhouse. As such, no significant natural resource impacts are anticipated as a result of the proposed construction or repairs.

4.2 IMPACTS ON WETLANDS, AQUATIC RESOURCES AND UPLAND VEGETATION

No wetlands, aquatic resources or upland vegetation would be impacted by the proposed alternatives.

4.3 IMPACTS ON WILDLIFE

Project repairs or floodwall construction would be undertaken in highly disturbed industrial areas, which support high levels of waterborne shipping activities as well as land-based commercial and industrial activities. Any disturbance to any wildlife present is not likely to exceed current levels of disturbances associated with existing industrial and other human activities at these locations.

4.4 IMPACTS ON THREATENED AND ENDANGERED SPECIES

Proposed project repairs or construction to restore the HFPP would not impact water or beach areas. Additionally, the project area does not include designated critical habitat or otherwise suitable habitat for any listed species identified by FWS or NMFS. Therefore, the proposed work would not affect any listed species. A Biological Assessment has been prepared and is found in Appendix B.

4.5 IMPACTS ON CULTURAL RESOURCES

The proposed project was reviewed by a Staff Archeologist and it was determined that the project footprint has been so extensively modified that there is little potential for a historic property to be present and that the repairs are of such limited nature that little likelihood exists for the repairs or construction to impinge upon a historic property, even if present within the affected area.

4.6 IMPACTS ON AIR QUALITY AND NOISE

4.6.1 AIR QUALITY

General conformity under the Clean Air Act, Section 176 has been reviewed for this project. The requirements of this rule are not applicable to this project because it is exempt under 40 CFR 93.153(e)(1) and 30 TAC 101.30(c)(5)(A) since it is impractical to prepare the conformity analysis which might otherwise be required and this project cannot be delayed due to the overriding concerns for public health and welfare, especially in view of the upcoming hurricane season. A signed determination documenting this decision is included in Appendix C.

4.6.2 NOISE

Noise levels in the study area are elevated compared to undeveloped areas along the coast, and are affected by petrochemical industry operations, vessel navigation, and vehicular traffic in the Freeport Harbor area. Sensitive receptors within the vicinity of proposed action include a small residential area, located approximately 1,000 feet away from the proposed work at Brazos Harbor. Temporary increases in ambient noise levels are expected from the proposed action, which would utilize a variety of light to medium duty construction and repair equipment. The residential area would likely experience temporary, elevated noise levels, expected to be no

greater than peak noise levels produced during commercial and industrial loading/unloading operations at the Brazos Harbor docks. Generator repairs at the tide gate would not likely increase noise levels beyond those currently experienced at this area from vessel traffic.

4.7 IMPACTS ON WATER QUALITY

The proposed action would not affect water quality, as the project does not include any activities that would take place in the water or impact any waterbodies. Clean Water Act, Section 404(b)(1) and Section 401 Certification are not required.

4.8 IMPACTS ON HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW)

Based on the findings of the HTRW survey, the probability of increased project cost or lost time from discovery and remediation of any contaminated materials during activities to repair the hurricane flood protection system is considered low. Information compiled by this assessment indicates additional HTRW investigations are not warranted at this time.

4.9 IMPACTS ON SOCIOECONOMICS

Activities associated with proposed project repairs could create temporary construction jobs and employment in related industries. This action could also contribute to stabilizing or preserving maintenance related jobs required for the project.

4.10 IMPACTS ON ENVIRONMENTAL JUSTICE (EJ)

The minority and low-income populations living within the project area would experience no adverse changes to the demographic, economic, or community cohesion characteristics within their neighborhoods as a result of the proposed project. Generally speaking, the population living within these census tracts could benefit from the proposed project. These benefits could be manifested mainly in a slight increase in economic output, jobs, and tax base within these communities. Additionally, the project could protect the property of EJ populations along with other resident's property. Therefore, the proposed project would not result in disproportionately high and adverse impacts on minority and low-income persons living within the project area.

4.11 IMPACTS ON PRIME AND UNIQUE FARMLANDS

Prime or unique lands are not present in the project area; therefore, no impacts would occur.

4.12 IMPACTS ON RECREATIONAL RESOURCES

Tourism and recreation, both large contributors to the economy, would be not be impacted by the proposed project repairs.

4.13 IMPACTS ON ROADWAYS AND TRAFFIC

Temporary increases in vehicular traffic resulting from commuting construction workers and transport of repair materials and construction equipment could occur. These effects would be minor in nature.

5.0 MITIGATION

Because no impacts are expected to occur to any natural or cultural resources, no mitigation is proposed for the proposed project activities.

6.0 CUMULATIVE IMPACTS

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Impacts include both direct effects (caused by the action and occurring at the same time and place as the action), and indirect effects (caused by the action but removed in distance and later in time, and reasonably foreseeable). Reasonably foreseeable projects in the project area vicinity include improvements to the Freeport Harbor Navigation Channel as well as expansion of commercial and industrial facilities along the ship channel.

Cumulative impacts due to past, existing, and reasonably foreseeable future projects, along with the proposed HFPP, are not expected to have significant adverse effects in the project area. Many of the projects occurring in the vicinity of the Freeport, including the HFPP, are part of the continuing urbanization and industrialization of the predominantly agricultural Brazoria County.

7.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

This assessment has been prepared to satisfy the requirements of all applicable environmental laws and regulations, and has been prepared in accordance with the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act (NEPA), 40 CFR Parts 1500 – 1508, and USACE Regulation ER 200-2-2, *Environmental Quality: Procedures for Implementing NEPA.* The following is a list of applicable environmental laws and regulations that were considered in the planning of this project and the status of compliance with each.

7.1 NATIONAL ENVIRONMENTAL POLICY ACT

This environmental assessment has been prepared in accordance with Council on Environmental Quality regulations for implementing NEPA. The environmental and social consequences of the recommended plan have been analyzed in accordance with the Act and disclosed in this document.

7.2 FISH AND WILDLIFE COORDINATION ACT OF 1958, AS AMENDED

Because no expansion or significant modification of the existing project is proposed, FWS Coordination Act coordination is not required. The FWS and NMFS will have an opportunity to comment on the proposed work discussed in this Environmental Assessment, during the public review and comment period.

7.3 NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED

Compliance with the National Historic Preservation Act of 1966, as amended, requires identification of all NRHP-listed or NRHP-eligible properties/resources in the project area and development of mitigation measures for those adversely affected in coordination with the SHPO and the Advisory Council on Historic Preservation. This project was determined to be of such limited nature that it does not have the potential to cause effect on historic properties. This project is in compliance with the National Historic Preservation Act pursuant to 36 CFR 800.3(a).

7.4 ENDANGERED SPECIES ACT OF 1973, AS AMENDED

The proposed project would not result in impacts to any Federally-listed threatened or endangered species and no critical habitat is present in the project area. A draft BA was prepared describing listed species (Appendix B).

7.5 CLEAN AIR ACT OF 1972, AS AMENDED

General conformity under the Clean Air Act, Section 176 has been reviewed for this project. The requirements of this rule are not applicable to this project because it is exempt under 40 CFR 93.153(e)(1) and 30 TAC 101.30(c)(5)(A) since it is impractical to prepare the conformity analysis which might otherwise be required and this project cannot be delayed due to the overriding concerns for public health and welfare, especially in view of the upcoming hurricane season. A signed determination documenting this decision is included in Appendix C.

7.6 EXECUTIVE ORDER 12898 – ENVIRONMENTAL JUSTICE

This Order directs Federal agencies to achieve environmental justice to the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review. Agencies are required to identify and address, as appropriate, disproportionately high and adverse human

health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The proposed project would not have a disproportionate adverse impact on minority or low-income population groups within the project area.

7.7 EXECUTIVE ORDER 11988 FLOODPLAIN MANAGEMENT

This EO directs Federal agencies to evaluate the potential effects of proposed actions on floodplains. Such actions should not be undertaken that directly or indirectly induce growth in the floodplain unless there is no practical alternative. The proposed action is not expected to negatively affect floodplains but is expected to provide positive benefits in terms of flood protection.

8.0 CONCLUSIONS

Hurricane Ike caused infrastructure damage to the HFPP at the Velasco Memorial Tide Gate and the Port of Freeport. Engineer Regulation (ER) 500-1-1 eligibility requirements are met under the criteria for extraordinary storm and significant amount of damage. The HFPP would be repaired to provide the same level of flood protection as the pre-storm condition. The damaged emergency generator and associated system located at the Velasco Memorial Tide Gate would be repaired or replaced to restore the pre-storm level of protection. In addition, the damaged removable splash panels would be replaced or a permanent concrete floodwall would be constructed.

Rehabilitation of the HFPP is not expected to have impacts on any threatened or endangered species, fish and wildlife resources, water quality, floodplains or other natural or cultural resources. The proposed project would not result in significant impacts to the human environment. Therefore, preparation of an Environmental Impact Statement is not required. In summary, the proposed project is environmentally sound, is in compliance with applicable environmental laws and regulations, and is economically feasible.

9.0 LITERATURE CITED

Brown, S. 2002. Soil scientist, soil survey program, Natural Resources Conservation Service (NRCS).

———. 2009. Enviromapper for Envirofacts, s.v. “Freeport area.” http://134.67.99.122/enviro/emef.asp (accessed February 5, 2009).

Texas State Data Center. 2007. Estimates of the total population of counties and places in Texas for July 1, 2006 and January 1, 2007. University of Texas at San Antonio. September 2007.

Appendix A - Project Coordination

February 25, 2009

NOTICE OF AVAILABILITY

U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT
ENVIRONMENTAL ASSESSMENTS
FOR EMERGENCY REPAIRS TO

THE GALVESTON SEAWALL AND GROINS,
AND THE FREEPORT AND TEXAS CITY AND VICINITY
HURRICANE AND FLOOD PROTECTION PROJECTS

PURPOSE

This notice is being distributed to interested State, Federal, and local agencies, private organizations, news media, and individuals in order to assist in collecting facts and recommendations concerning proposed rehabilitation and repair work that will restore the Galveston Seawall and Groins, and the Freeport and Texas City and Vicinity Hurricane Flood Protection Projects (HFPPs) to pre-storm conditions following damages sustained from Hurricane Ike, which made landfall in northern Galveston County on September 13, 2008. The proposed rehabilitation and repair work is necessary to restore the projects to their pre-storm levels of protection and safety. The proposed work will not result in improvements or expansion of existing projects.

NEED FOR WORK

Hurricane Ike made landfall in northern Galveston County on September 13, 2008. Before making landfall the hurricane was a Category 4 storm, as measured on the Saffir-Simpson Scale. Wind speeds decreased as it approached land, and the storm was classified as a Category 2 storm when it reached land. The magnitude of the storm surge was more characteristic of a Category 3 or 4 storm than a Category 2 storm. According to the National Hurricane Center, Ike was a very large hurricane with hurricane force winds extending 120 miles from the center and tropical storm force winds extending 275 miles. Hurricane Ike's unprecedented size, which at one point was the largest Atlantic hurricane ever recorded, caused extensive damage. Ike ranks as the third costliest storm in U.S. history, causing approximately $27 billion in property damage. The proposed work would be conducted under authority of Public Law 84-99 for Flood Control and Coastal Emergencies. Engineer Regulation (ER) 500-1-1 eligibility requirements for the work are met under the criteria for extraordinary storm and significant amount of damage.

The combined storm surge and wave action from Hurricane Ike caused extensive damage to the Galveston Seawall and Groins, and the Freeport and Texas City and Vicinity HFPPs. The proposed rehabilitation work will include repairs that will restore these projects to pre-storm conditions. If these projects are left in their current conditions, the risk of structural failure and potential damages the projects may sustain during future significant storm events could threaten the communities and properties they protect.

PROJECT LOCATIONS

The locations of the Galveston Seawall and Groins, and the Freeport and Texas City and Vicinity HFPPs are shown in Figure 1.

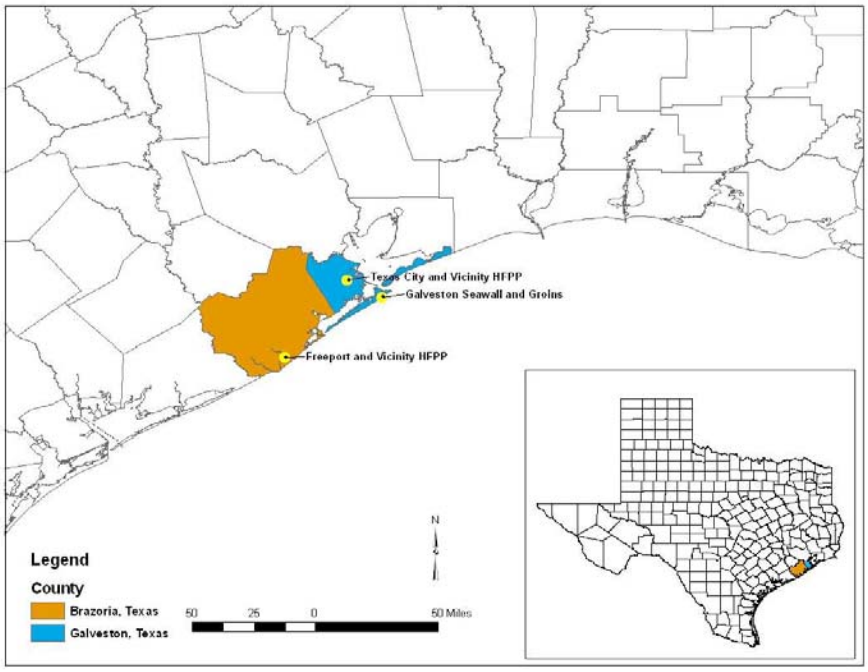

Figure 1. Locations of the Galveston Seawall and Groins, and the Freeport and Texas City and Vicinity HFPPs.

Galveston Seawall and Groins, Galveston County, Texas

The Galveston Seawall and Groins Project is located on Galveston Island, Galveston County, Texas. The Galveston Seawall and Groins Project protects portions of the City of Galveston beginning at the south jetty located at the entrance to the Houston Ship Channel and extending approximately 9.7 miles along Galveston Island's beach front on the Gulf of Mexico.

The Texas City and Vicinity, Hurricane Flood Protection Project, Galveston County, Texas

The Texas City and Vicinity HFPP is located in Galveston County, Texas on the southwest shore of Galveston Bay, about 9 miles northwest of Galveston, Texas and encompasses the cities of Texas City, La Marque, and the surrounding vicinity. The Texas City HFPP consists of 17 miles of protective works, including earthen levees and concrete floodwalls. The system has numerous appurtenant structures, including a tide control and navigation structure for Moses Lake, vehicular and railroad closure gates, highway ramps, gated gravity drainage structures, and two pumping plants.

Freeport and Vicinity, Hurricane Flood Protection Project, Brazoria County, Texas

The Freeport and Vicinity HFPP is located in southern Brazoria County, about 48 miles southwest of Galveston, Texas. The project consists of 53 miles of earthen levees varying from 15 to 21 feet above MSL with concrete and steel pile floodwalls and removable panels, a flood control tide gate structure providing a horizontal navigation clearance of 75 feet and a vertical clearance of 70 feet above MSL, water intake structures, numerous gravity drainage structures and two new pumping stations having a combined capacity of 650,000 gallons per minute.

DESCRIPTION OF REHABILITATION AND REPAIR WORK

Galveston Seawall and Groins

Although the seawall appears to remain structurally intact, the damage to toe scour protection and exposure of the sheet pile cutoff could have significant consequences for future wall stability. In addition, loss of integrity of the groins appears to have reduced their trapping efficiency which will result in increased erosion of the scour protection and exposure of the timber sheet pile cutoffs. Flanking of the seawall at the west end has exposed areas landward of the seawall to erosion, and continued erosion is possible from future wave impacts.

Elements of the Galveston Seawall proposed for repair include: 1) the Seawall West End Ramp; 2) the maintenance access ramp at 57th Street; 3) the maintenance access ramp at 35th Street; 4) the loss of subgrade and sidewalk between 25th and 22nd Street; 5) grade settling/toe protection in various locations; 6) void repair under sidewalk in various locations; 7) sheet pile repair at the seawall toe, 8) crack repair in various locations; and, 9) groin repair at 10th, 29th, 37th and 61st Streets. The locations of the repair work are shown in Figure 2.

Figure 2. Galveston Island Seawall and Groins.

The Texas City and Vicinity Hurricane Flood Protection Project

Storm surge and wave action from Hurricane Ike caused severe damage to portions of the levee system of the Texas City and Vicinity HFPP, including riprap displacement and severe erosion of the levee slope and toe. Rehabilitation and repairs to the Texas City and Vicinity HFPP will include the use of geotextile, blanket stone and riprap to restore the pre-storm cross-sections and/or conditions to the following areas that were damaged by erosion (Figure 3):

- Interior Levee Repairs - Station 150+00 to 152+50 where 250 linear feet of interior levee slope located northwest of Moses Lake was eroded

- Moses Lake Floodgate Protection - Stations 192+00 to 197+00 and 200+00 to 205+00 where the riprap and armoring system was eroded or displaced
- Levee Erosion Section One - Stations 205+00 to 278+00, 303+00 to 311+00, and 313+00 to 320+00, where levee erosion ranged from 5 to 15 feet
- Levee Erosion Section Two - Station 356+00 to 370+00, where levee erosion ranged from 40 to 50 feet
- Riprap Displacement - Stations 370+00 to 448+00 and 457+00 to 464+00 where the levee toe protection was damaged and riprap was displaced along the length of the levee

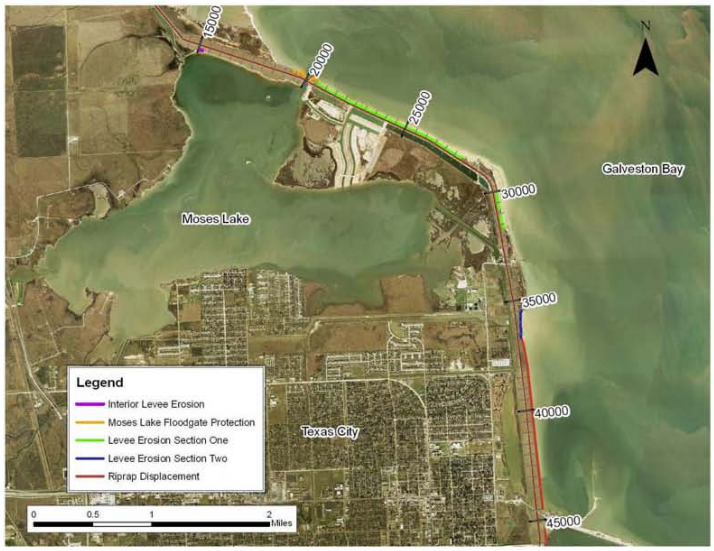

Figure 3: Texas City Levee Stationing and Proposed Repair Work

Freeport and Vicinity Hurricane Flood Protection Project

The Freeport and Vicinity HFPP will be restored to pre-storm conditions by making repairs to the following areas that sustained damage:

- -Velasco Memorial Tide Gate and the Port of Freeport
- -Sections of the removable panel wall from Station 197+00 to 224+24 at the Port of Freeport.

The Project will be repaired to provide the same level of flood protection as the pre-storm condition. The damaged emergency generator and associated system located within the Velasco Memorial Tide Gate house will be repaired or replaced to restore the pre-storm level of protection. In addition, the removable flood panel wall from Station 197+00 to 224+24 at the Port of Freeport which was damaged during Hurricane Ike will be replaced. Because the wall is within the Port of Freeport operating facilities, it must consider the operational constraints of the loading/unloading of ships. Two structural alternatives are under consideration (Figure 4):

- Option 1 - a removable flood panel wall
- Option 2 - permanent flood panel wall with removable gates that can be opened for Port of Freeport operations

Figure 4. Freeport and Vicinity HFPP flood panel wall repair work.

COMPLIANCE WITH LAWS AND REGULATIONS

Draft Environmental Assessments (EAs) are being coordinated with the US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and other Federal, state, and local agencies. Consultation has been initiated with the USFWS and NMFS in compliance with the Endangered Species Act to address potential impacts to piping plovers and sea turtles for the Galveston Seawall and Groins Project, and Attwaters prairie chicken for the Texas City and Vicinity Hurricane and Shore Protection Project. The Biological Assessments (Appendix B of

the Draft EAs) conclude that the projects may affect, but are not likely to adversely affect threatened or endangered species in the project areas.

The EAs also initiate Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The initial determination is that the proposed actions are minor and temporary in nature and will not have adverse impacts on EFH or federally-managed fisheries in the Gulf of Mexico. The final determinations relative to project impacts and the need for mitigation measures is subject to consultation with the NMFS.

The proposed rehabilitation and repair work will also be evaluated, as appropriate, with regard to the requirements of Section 404(b)(1) of the Clean Water Act (CWA). The Texas Council on Environmental Quality (TCEQ) has waived Clean Water Act Section 401 certification for these projects in recognition that impacts from the proposed work are minor and temporary in nature, and to expedite Hurricane Ike recovery efforts. It should be noted that all projects would qualify under Corps of Engineers Nation Wide Permit 3, and as such, would require no further CWA coordination.

It is also our preliminary determination that the proposed actions are consistent with the Texas Coastal Management Program (TCMP) to the maximum extent practicable.

A record of non-applicability has been issued for general conformity under the Clean Air Act (CAA), Section 176 according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to these projects because the projects are exempt actions under 40 CFR 93.153(e)(1) and 30 TAC 101.30(c)(5)(A).

The proposed activities will be coordinated with the State Historic Preservation Officer (SHPO). Our initial determination is that the proposed actions will not have any adverse impacts on historic or cultural resources. SHPO coordination of potential impacts to the Galveston Seawall, a National Register property has been initiated.

The following is a partial list of Federal, State, and local agencies with which these activities are being coordinated:

U.S. Environmental Protection Agency, Region 6
U.S. Department of Commerce
U.S. Department of the Interior
Texas Historical Commission
Texas Parks and Wildlife Department
Texas Commission on Environmental Quality
Texas General Land Office

Coastal Coordination Council
Texas Department of Transportation
Texas Water Development Board

EVALUATION FACTORS

The decision whether to proceed with these repair projects will be based on an evaluation of the probable impact of the proposed activities on the public interest. That decision will reflect the national concern for both protection and utilization of important resources as well as public and environmental safety and economic concerns. The benefit, which reasonably may be expected to accrue from the proposals, must be balanced against its reasonably foreseeable detriments. All factors, which may be relevant to the proposal, will be considered. The proposed repair projects will proceed unless found contrary to the overall public interest.

ENVIRONMENTAL DOCUMENTATION

It is anticipated that Environmental Assessments and Findings of No Significant Impact will fulfill the requirements of the National Environmental Policy Act. Single copies of these documents will be available by request to the address below. The draft EAs are also available online for review in the "Hot Topics" section at: http://www.swg.usace.army.mil/.

PUBLIC COMMENT

Persons desiring to express their views or provide information to be considered in evaluating the impacts of these proposed repair projects are requested to submit their comments within 10 days of the date of this notice, March 6, 2009 to:

District Engineer
U.S. Army Engineer District, Galveston
ATTN: CESWG-PE-PR, Ms. Carolyn Murphy
P.O. Box 1229
Galveston, Texas 77553-1229

or email at: carolyn.e.murphy@usace.army.mil; or phone 409-766-3044.

Comments should make specific reference to the individual project to which they pertain. Any person who has an interest which may be affected by this action may request a public hearing. The request must be submitted in writing within 10 days of the date of this notice and must clearly set forth the interest which may be affected and the manner in which the interest may be

affected by the proposed work. Any questions concerning the proposed action may be directed to Ms. Carolyn Murphy at (409) 766-3044, or the email address above.

for David C. Weston
Colonel, Corps of Engineers
District Engineer

Appendix B - Biological Assessment and Endangered Species Coordination

DRAFT
BIOLOGICAL ASSESSMENT

FOR

EMERGENCY REPAIRS
TO
FREEPORT AND VICINITY HURRICANE FLOOD PROTECTION PROJECT
BRAZORIA COUNTY, TEXAS

U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT
GALVESTON, TEXAS

February 2009

1.0 INTRODUCTION

1.1 PURPOSE OF THE BIOLOGICAL ASSESSMENT

This Biological Assessment (BA) has been prepared to fulfill the Galveston District U.S. Army Corps of Engineer's (USACE) requirements as outlined under Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended, and ER1105-2-100, April 22, 2000, Planning Guidance Notebook. The proposed Federal action requiring the assessment is the Freeport and Vicinity Hurricane Flood Protection Project (HFPP or project), which is located in southern Brazoria County, about 48 miles southwest of Galveston, Texas. This project sustained damages from Hurricane Ike and will undergo rehabilitation to restore damaged components back to pre-storm conditions. This will afford the necessary protection to areas protected by the project.

For purposes of this BA, the project area and zone of impact is defined as the footprint of the construction area for splash panel repairs or floodwall construction, and repairs to the tide gate generator, including all access, staging areas, and right-of-ways. This BA evaluates the potential impacts proposed rehabilitation of the HFPP may have on federally listed threatened and endangered species identified by the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (FWS).

1.2 DESCRIPTION OF THE PROPOSED PROJECT

The project area is located on the central portion of the Texas coast, within in a low coastal plain dissected by streams, canals, and waterways. The existing project sustained damage from Hurricane Ike, an extraordinary storm event that resulted in a significant amount of damage to splash panels located along buildings at Brazos Harbor, and damages to the emergency generator housed within the Velasco Memorial Tide Gate located in the upper Stauffer Channel reach of Freeport Harbor. The generator's

electrical control components and associated wiring system were also damaged. All proposed rehabilitation work would occur upland, along paved areas or within contained areas (i.e., within the generator powerhouse), and would not impact any water body.

Two structural alternatives are under consideration for repairing damages sustained by the existing project: Alternative 2 - Replace removable splash panels and repair/replace the tide gate emergency generator; and Alternative 3 - Construct a permanent concrete floodwall with removable fiberglass panels that can be opened for port operations, and repair/replace the tide gate emergency generator. Either of these alternatives would restore the HFPP to the same level of protection as the pre-storm condition. Impacts from either alternative would be comparable.

2.0 IMPACT ASSESSMENT FOR FEDERALLY LISTED SPECIES

This assessment provides an inventory of federally listed threatened or endangered species, state-listed rare species, and federally-listed species of concern of potential occurrence in Brazoria County, Texas in Table 1 below. However, the ESA does not protect state-listed rare species and federally-listed species of concern. Only those species that the FWS or NMFS list as threatened or endangered have complete federal protection under the ESA. Therefore, only those species are addressed in this BA, and state-listed species and federally-listed species of concern will receive no further consideration.

The NMFS identified 11 marine species, and the FWS identified several of the same marine species plus three additional species as possibly occurring within Brazoria County, Texas or within the project area. Recently removed from the Federal list of threatened and endangered species, the American peregrine falcon, Arctic peregrine falcon, peregrine falcon, and bald eagle are protected under the Migratory Bird Treaty Act, and the bald eagle continues to receive additional protection under the Bald and Golden Eagle Protection Act (64 FR 164: 46542 – 46558; 72 FR 130:37346 – 37372); however, these bird species are not included in this BA as they are no longer protected under the ESA. Table 2 presents the 14 federally listed threatened and endangered species that are addressed in this BA.

Table 1
Threatened, Endangered, and Rare Species, and Species of Concern of Possible Occurrence
in Brazoria County, Texas[1]

Common Name	Scientific Name	Status[2]		
		USFWS	NMFS	TPWD
PLANTS				
Coastal gay-feather	*Liatris bracteata*			R
Giant sharpstem umbrella-sedge	*Cyperus cephalanthus*			R
Texas meadow-rue	*Thalictrum texanum*			R
Texas windmill grass	*Chloris texensis*			R
Threeflower broomweed	*Thurovia triflora*			R
INVERTEBRATES				
False spike mussel	*Quincuncina mitchelli*			R
Ivory bush coral	*Oculina varicosa*		SOC	
Pistolgrip	*Tritogonia verrucosa*			R
Rock pocketbook	*Arcidens confragosus*			R
Smooth pimpleback	*Quadrula houstonensis*			R
Texas fawnsfoot	*Truncilla macrodon*			R
FISHES				
American eel	*Anguilla rostrata*			R
Dusky shark	*Carcharhinus obscurus*		SOC	
Largetooth sawfish	*Pristis pristis*		SOC	
Night shark	*Carcharhinus signatus*		SOC	
Saltmarsh topminnow	*Fundulus jenkinsi*		SOC	
Sand tiger shark	*Carcharias taurus*		SOC	
Sharpnose shiner	*Notropis oxyrhynchus*	*		R
Smalltooth sawfish	*Pristis pectinata*		E	
Speckled hind	*Epinephelus drummondhayi*		SOC	
Warsaw grouper	*Epinephelus nigritus*		SOC	
White marlin	*Tetrapturus albidus*		SOC	
TERRESTRIAL REPTILES				
Texas horned lizard	*Phrynosoma cornutum*			T
Timber rattlesnake	*Crotalus horridus*			T

Table 1 (Cont'd)

Common Name	Scientific Name	Status[2]		
		USFWS	NMFS	TPWD
AQUATIC REPTILES				
Alligator snapping turtle	*Macrochelys temminckii*			T
Green sea turtle	*Chelonia mydas*	T	T	T
Gulf saltmarsh snake	*Nerodia clarki*			R
Hawksbill sea turtle	*Eretmochelys imbricata*	E	E	E
Kemp's ridley sea turtle	*Lepidochelys kempii*	E	E	E
Leatherback sea turtle	*Dermochelys coriacea*	E	E	E
Loggerhead sea turtle	*Caretta caretta*	T	T	T
Texas diamondback terrapin	*Malaclemys terrapin littoralis*			R
BIRDS				
Bald eagle	*Haliaeetus leucocephalus*	DL[3]		T
Black rail	*Laterallus jamaicensis*			R
Brown pelican	*Pelecanus occidentalis*	E/PDL		E
Eskimo curlew	*Numenius borealis*	E		E
Henslow's sparrow	*Ammodramus henslowii*			R
Piping plover	*Charadrius melodus*	T w/CH		T
Peregrine falcon	*Falco peregrinus*			E/T
Peregrine falcon (American subspecies)	*Falco peregrinus anatum*	*		E
Peregrine falcon (Arctic subspecies)	*Falco peregrinus tundrius*	*		T
Reddish egret	*Egretta rufescens*			T
Snowy Plover	*Charadrius alexandrinus*			R
Snowy plover (southeastern subspecies)	*Charadrius alexandrinus tenuirostris*			R

Table 1 (Cont'd)

Common Name	Scientific Name	Status[2]		
		USFWS	NMFS	TPWD
Snowy plover (western subspecies)	*Charadrius alexandrinus nivosus*			R
Sooty tern	*Onychoprion fuscatus* (formerly *Sterna fuscata*)			T
White-faced ibis	*Plegadis chihi*			T
White-tailed hawk	*Buteo albicaudatus*			T
Whooping crane	*Grus americana*	E, EXPN		E
Wood stork	*Mycteria americana*			T
MAMMALS				
Jaguarundi	*Herpailurus yaguarondi*	*		E
Louisiana black bear	*Ursus americanus luteolus*	*		T
Ocelot	*Leopardus pardalis*	*		E
Plains spotted skunk	*Spilogale putorius interrupta*			R
Red wolf	*Canis rufus*	*		E
MARINE MAMMALS				
Blue whale	*Balaenoptera musculus*		E/D	
Fin (finback) whale	*Balaenoptera physalus*		E/D	
Humpback whale	*Megaptera novaeangliae*		E/D	
Sei whale	*Balaenoptera borealis*		E/D	
Sperm whale	*Physeter macrocephalus*		E/D	
West Indian manatee	*Trichechus manatus*	*		E

[1]According to USFWS (2009), NMFS (2009), and TPWD (2009).
[2]E – Endangered; T – Threatened; T w/CH – Threatened with Federal designated Critical Habitat; DL – Federally delisted;
C – Candidate for Federal listing; EXPN – Experimental Population; D- Depleted as defined by the Marine Mammal Protection Act; SOC – Species of Concern (NMFS only); R- Rare, but with no regulatory listing status (TPWD only); PDL – proposed for delisting,
*- USFWS may have designated regulatory status for the species; however, it does not list the species as having potential for occurrence in Brazoria County; "Blank"- No regulatory listing status by agency, and/or status is not applicable for that Agency.
[3]On July 9, 2007, USFWS published the final rule to remove the species from the list of Federal endangered and threatened species (72 FR 37345–37372); the rule became official on August 8, 2007.

TABLE 2
Federally Listed Threatened or Endangered Species of Potential Occurrence in Brazoria County, Texas[1]

Common Name	Scientific Name	Status[2] FWS	Status[2] NMFS
FISH			
Smalltooth sawfish	*Pristis pectinata*	E	E
REPTILES			
Green sea turtle	*Chelonia mydas*	T	T
Hawksbill sea turtle	*Eretmochelys imbricata*	E	E
Kemp's ridley sea turtle	*Lepidochelys kempii*	E	E
Leatherback sea turtle	*Dermochelys coriacea*	E	E
Loggerhead sea turtle	*Caretta caretta*	T	T
BIRDS			
Brown pelican	*Pelecanus occidentalis*	E	NA
Piping plover	*Charadrius melodus*	T w/CH	NA
Whooping crane	*Grus americana*	E, EXPN	NA
MAMMALS			
Blue whale	*Balaenoptera musculus*		E/D
Finback whale	*B. physalus*		E/D
Humpback whale	*Megaptera novaengliae*		E/D
Sei whale	*B. borealis*		E/D
Sperm whale	*Physeter macrocephalus*		E/D

[1] FWS – U.S. Fish and Wildlife Service; and, NMFS – National Marine Fisheries Service (2009).

[2] D – Depleted, as defined by the Marine Mammal Protection Act; E – Endangered; T – Threatened; w/CH – with designated Critical Habitat; NA – Status Not Applicable for that Agency; EXPN – Experimental Population.

2.1 SEA TURTLES

Although the Green sea turtle, Hawksbill sea turtle, Kemp's ridley sea turtle, Leatherback sea turtle, and the Loggerhead sea turtle may occur in the general project area, proposed repair and construction activities will not impact bays or beaches and hence, will not affect these species and they will not be further addressed.

2.2 BROWN PELICAN

The FWS listed the brown pelican (*Pelecanus occidentalis*) as endangered throughout its range outside the U.S. on 2 June 1970 (35 FR 8495) and throughout its U.S. range on 13 October 1970 (35 FR 16047). Population declines were largely the result of organochlorine pesticides, particularly endrin and DDT, entering the marine food web. A ban on the use of DDT in the U.S. in 1972, together with efforts to conserve and improve remaining populations, has led to increased numbers of brown pelicans. In May 1998, FWS has delisted the brown pelican along the U.S. Atlantic Coast and the Gulf coasts of Florida and Alabama. It remains endangered throughout the remainder of its range, which includes Mississippi, Louisiana, Texas, California, Mexico, Central and South America, and the West Indies.

Brown pelicans inhabit shallow coastal waters with water depths up to 80 feet (Palmer, 1962; NFWL, 1980; Fritts et al., 1983). Brown pelicans, which are colonial nesters, usually nest on undisturbed offshore islands in small bushes and trees, including mangroves, and in humid forests (NFWL, 1980; Guzman and Schreiber, 1987). Occasionally they nest on the ground. Preferred sites are those free from human disturbance, flooding and terrestrial predators such as raccoons. Brown pelicans utilize beaches, sandbars, sandspits, mud flats and even manmade structures such as piers, wharves, pilings, oil/gas platforms and docks for loafing (NFWL, 1980). Population declines have been largely attributed to chlorinated hydrocarbon residues from the use of pesticides and PCBs. Other factors included human disturbance and loss of habitat due to commercial and residential development (NatureServe, 2003).

Historically, the brown pelican was a common bird of the Texas Gulf coast, occurring from Chambers County to Cameron County (Campbell, 1995), primarily along the lower and middle coasts. Most of the breeding birds are found on Pelican Island in Corpus Christi Bay, Nueces County, and Sundown Island near Port O'Connor in Matagorda County. Smaller groups or colonies occasionally nest on Bird Island in Matagorda Bay, a series of older dredged material islands in West Matagorda Bay, on Dressing Point Island in East Matagorda Bay and on islands in Aransas Bay (Campbell, 1995). The species is an uncommon resident in the general project area (FWS, n.d.), but likely occurs in the open-water and barrier island habitats in the area. Brown pelicans are unlikely to nest in the study area, but are likely to be present throughout most of the year. Because of the upland nature of the project work in a highly disturbed area, it is concluded that the proposed project will have no effect on this species.

2.3 PIPING PLOVER

Because the proposed work will be conducted in upland paved areas, suitable habitat does not exist in the project area for piping plovers. Therefore, the proposed action will not affect this species.

2.4 WHOOPING CRANE

Because the proposed work will be conducted in upland paved areas, suitable habitat does not exist in the project area for whooping cranes. Therefore, the proposed action will not affect this species.

2.5 SMALLTOOTH SAWFISH

Because the proposed work would be conducted in upland areas and would not impact any water body, the action will not affect be conducted in upland paved areas and out of the water, suitable habitat does not exist in the project area for piping plovers. Therefore, the proposed action will not affect this species.

2.6 WHALES

While the NMFS identified five whale species of potential occurrence in the Brazoria County, Texas, area, these species are generally restricted to offshore waters. Proposed project activities will not impact these species and they will not be further addressed.

3.0 CONCLUSIONS

This BA examines project effects upon a range of threatened or endangered species potentially occurring in Brazoria County, and possibly within the project area. Considering the historical range, distribution and lack of preferred habitats within the project area for these species, the overall finding is that proposed improvements to the HFPP will have no effect on any federally-listed threatened or endangered species, potentially occurring in the project area; moreover, proposed activities will not modify any critical habitat in the project vicinity. Should any of these species wander into the project vicinity, their size and mobility would allow them to avoid the immediate project site. Table 3 presents a summary of effect determinations for the federally-listed threatened and endangered species covered in this BA.

Table 3
Effect Determinations Summary for the Proposed HFPP Rehabilitation Project

Common Name	Scientific Name	Rehabilitation of the HFPP
FISHES		
Smalltooth sawfish	*Pristis pectinata*	No effect
REPTILES		
Green sea turtle	*Chelonia mydas*	No effect
Hawksbill sea turtle	*Eretmochelys imbricata*	No effect
Kemp's ridley sea turtle	*Lepidochelys kempii*	No effect
Leatherback sea turtle	*Dermochelys coriacea*	No effect
Loggerhead sea turtle	*Caretta caretta*	No effect
BIRDS		
Brown pelican	*Pelecanus occidentalis*	No effect
Piping plover	*Charadrius melodus*	No effect
Whooping crane	*Grus americana*	No effect
MAMMALS		
Blue whale	*Balaenoptera musculus*	No effect
Finback whale	*B. physalus*	No effect
Humpback whale	*Megaptera novaengliae*	No effect
Sei whale	*B. borealis*	No effect
Sperm whale	*Physeter macrocephalus*	No effect

4.0 LITERATURE CITED

Campbell, L. 1995. Endangered and threatened animals of Texas, their life history and management. Texas Parks and Wildlife Department, Resource Protection Division, Endangered Resources Branch. Austin, Texas. 130 pp.

Fritts, T.H., A.B. Irvine, RD. Jennings, L.A. Collum, W. Hoffman and M.A. McGehee. 1983. Turtles, Birds, and Mammals in the Northern Gulf of Mexico and nearby Atlantic waters. U.S. Fish and Wildlife Service, Division of Biological Services, Washington, D.C. USFWS/OBS-82/65. 455 pp.

Guzman, H.M. and R.W. Schreiber. 1987. Distribution and status of brown pelicans in Venezuela in 1983. Wilson Bull. 99(2): 275—279.

National Fish and Wildlife Laboratory (NFWL). 1980. Selected vertebrate endangered species of the seacoast of the United States. U.S. Fish and Wildlife Service, Biological Services Program,
Washington, D.C. USFWS/OBS-80/01.

National Marine Fisheries Service. 2009. Endangered and Threatened Species and Critical Habitats under the Jurisdiction of the NOAA Fisheries Service – Texas. http://sero.nmfs.noaa.gov/pr/pdf/Texas.pdf. Accessed on February 20, 2009.

NatureServe 2003: An online encyclopedia of life [web application]. Version 1.8. NatureServe, Arlington, Virginia. http://www.natureserve.org/explorer. Accessed on March 31, 2006.

Palmer, R.S. (editor). 1962. Handbook of North American birds. Vol. 1: Loons through Flamingos. Yale University Press, Newhaven, Connecticut, 567 pp.

U.S. Fish and Wildlife Service. 2009. U.S. Fish and Wildlife Service Endangered Species List – Galveston County, Texas.
www.fws.gov/southwest/es/EndangeredSpecies/lists/ListSpecies.cfm. Accessed on February 20, 2009.

U.S. Fish & Wildlife Service

Endangered Species List

Back to Start

List of species by county for Texas:

Counties Selected: Brazoria

Select one or more counties from the following list to view a county list:

Anderson
Andrews
Angelina
Aransas
Archer

View County List

Brazoria County

Common Name	Scientific Name	Species Group	Listing Status	Species Image	Species Distribution Map	Critical Habitat	More Info
bald eagle	*Haliaeetus leucocephalus*	Birds	DM				E
brown pelican	*Pelecanus occidentalis*	Birds	DM, E				E
green sea turtle	*Chelonia mydas*	Reptiles	E, T				E
hawksbill sea turtle	*Eretmochelys imbricata*	Reptiles	E				E
Kemp's ridley sea turtle	*Lepidochelys kempii*	Reptiles	E				E
leatherback sea turtle	*Dermochelys coriacea*	Reptiles	E				E
loggerhead sea turtle	*Caretta caretta*	Reptiles	T				E
piping Plover	*Charadrius melodus*	Birds	E, T			Final	E
whooping crane	*Grus americana*	Birds	E, EXPN				E

Endangered and Threatened Species and Critical Habitats
under the Jurisdiction of the NOAA Fisheries Service

Texas

Listed Species	Scientific Name	Status	Date Listed
Marine Mammals			
blue whale	*Balaenoptera musculus*	Endangered	12/02/70
finback whale	*Balaenoptera physalus*	Endangered	12/02/70
humpback whale	*Megaptera novaengliae*	Endangered	12/02/70
sei whale	*Balaenoptera borealis*	Endangered	12/02/70
sperm whale	*Physeter macrocephalus*	Endangered	12/02/70
Turtles			
green sea turtle	*Chelonia mydas*	Threatened[1]	07/28/78
hawksbill sea turtle	*Eretmochelys imbricata*	Endangered	06/02/70
Kemp's ridley sea turtle	*Lepidochelys kempii*	Endangered	12/02/70
leatherback sea turtle	*Dermochelys coriacea*	Endangered	06/02/70
loggerhead sea turtle	*Caretta caretta*	Threatened	07/28/78
Fish			
smalltooth sawfish	*Pristis pectinata*	Endangered	04/01/03

Designated Critical Habitat
None

Species Proposed for Listing
None

Proposed Critical Habitat
None

[1] Green turtles are listed as threatened, except for breeding populations of green turtles in Florida and on the Pacific Coast of Mexico, which are listed as endangered

Texas

Candidate Species[2]	Scientific Name
none	

Species of Concern[3]	Scientific Name
Fish	
dusky shark	*Carcharhinus obscurus*
largetooth sawfish	*Pristis pristis*
night shark	*Carcharhinus signatus*
saltmarsh topminnow	*Fundulus jenkinsi*
sand tiger shark	*Carcharias taurus*
speckled hind	*Epinephelus drummondhayi*
Warsaw grouper	*Epinephelus nigritus*
white marlin	*Tetrapturus albidus*
Invertebrates	
ivory bush coral	*Oculina varicosa*

[2] The Candidate Species List has been renamed the Species of Concern List. The term "candidate species" is limited to species that are the subject of a petition to list and for which NOAA Fisheries Service has determined that listing may be warranted (69 FR 19975).
[3] Species of Concern are not protected under the Endangered Species Act, but concerns about their status indicate that they may warrant listing in the future. Federal agencies and the public are encouraged to consider these species during project planning so that future listings may be avoided.

Appendix C – Air Conformity Determination

GENERAL CONFORMITY – RECORD OF NON-APPLICABILITY

Project/Action Name: Emergency Repairs under PL 84-99 (Flood Control and Coastal Emergency Act) to Galveston Seawall and Groins, and the Port Arthur, Freeport, and Texas City and Vicinity Hurricane and Flood Protection Projects, Texas.

Project/Action Point of Contact: Carolyn Murphy
Chief, Environmental Section
U.S. Army Corps of Engineers
Galveston District
P.O. Box 1229, Galveston, TX 77553

General Conformity under the Clean Air Act, Section 176 has been evaluated for the projects described above according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to these projects because the projects are exempt actions under 40 CFR 93.153(e)(1) and 30 TAC 101.30(c)(5)(A) since it is impractical to prepare the conformity analyses which might otherwise be required and the actions cannot be delayed due to overriding concerns for public health and welfare, especially in view of the upcoming hurricane season.

The projects are not considered regionally significant under 40 CFR 93.153(i).

Supporting documentation appears in the Project Information Reports and National Environmental Policy Act documentation for these actions.

for Edward P. Fleming 24 FEB 09

David C. Weston Date
Colonel, Corps of Engineers
District Commander

DRAFT
STATEMENT OF FINDINGS
AND
DRAFT FINDING OF NO SIGNIFICANT IMPACT
FOR

EMERGENCY REPAIRS
TO

FREEPORT AND VICINITYHURRICANE FLOOD PROTECTION PROJECT
BRAZORIA COUNTY, TEXAS

U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT
GALVESTON, TEXAS

1. Purpose. This document addresses the proposed rehabilitation of the Freeport and Vicinity Hurricane Flood Protection Project (HFPP or project), which is located in southern Brazoria County, about 48 miles southwest of Galveston, Texas. The project was designed to provide approximately 42 square miles of protection for all or portions of the communities of Freeport, Velasco, Oyster Creek, Lake Barbara, Clute, and Lake Jackson, and the multibillion dollar industrial complex consisting of Port Freeport (Port), Dow Chemical, and related industries and facilities.

The existing project was subjected to Hurricane Ike, which resulted in a significant amount of damage to removable splash panels along commercial buildings and warehouses at the Port's Brazos Harbor docks, and damaged the emergency generator system housed within Velasco Memorial Tide Gate (tide gate) located in the Freeport Harbor Channel. The damaged splash panels no longer function as designed and the inoperable emergency generator compromises the integrity of the tide gate system. In the event of an untimely loss of commercial power and failure of the emergency power system, the tide gate would remain open to an approaching storm, or, would remain closed after the event which may result in flooding the interior area which the tide gate protects. Both conditions would be catastrophic to the integrity of the entire hurricane flood protection system, and extensive flooding would occur in the protected areas of Freeport and the multibillion dollar petrochemical complex. The proposed action would restore damaged components of the HFPP to pre-storm conditions.

This Environmental Assessment (EA) was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and Council on Environmental Quality (CEQ) regulations to document findings concerning the environmental impacts of the proposed action.

2. Proposed Action. Three alternatives were considered for repairing damages sustained by the existing project: Alternative 1 - No Action, Alternative 2 - Replace Splash Panels and repair/replace the tide gate emergency generator, and, Alternative 3 - construct a permanent concrete floodwall with removable panels that can be opened for port operations, and repair/replace the tide gate emergency generator. The proposed Federal

action would replace damaged splash panels located along commercial buildings at Port Freeport's Brazos Harbor, with fiberglass panels, or would construct a permanent 3-foot high, 1-foot thick, 3000-foot long concrete floodwall near the edges of the docks. The permanent floodwall would be fitted with removable fiberglass panels to allow for greater flexibility during vessel load/unload operations. The proposed project would also repair or replace the emergency generator and associated power control components in the tide gate, which is located in the upper reach of the Freeport Harbor Stauffer Channel. Work would take place within the confines of the tide gate generator powerhouse. All proposed work would be performed on the docks or within the generator powerhouse, so no water resources would be impacted. Either construction alternative would result in comparable environmental impacts.

3. Coordination. A Notice of Availability was issued to interested parties including Federal and state agencies on February 25, 2009 which described the proposed action and announced the availability of the Draft EA. Comments on the Draft EA and the District's responses are included in Appendix A of the Final EA.

4. Environmental Effects. Rehabilitation of the HFPP is not expected to have any impacts on any threatened or endangered species, fish and wildlife resources, water quality, floodplains or other natural or cultural resources. It is the District's conclusion that the proposed project would not result in significant impacts to the human environment. Therefore, preparation of an Environmental Impact Statement is not required.

5. Determinations. The analysis of the environmental impacts of the proposed action is based on the accompanying Final EA. Factors considered in the review were impacts to vegetation, wildlife, aquatic resources, threatened and endangered species, cultural resources, socioeconomic resources, Environmental Justice, Prime and Unique Farmlands, Hazardous, Toxic, and Radioactive Wastes, air quality and noise, water quality, and alternative courses of action and cumulative impacts. The proposed action was found to be compliant with all applicable laws and executive orders. A determination waiving compliance with the Clean Air Act is documented in the EA.

6. Findings. Based on my analysis of the Final EA and other information pertaining to the proposed project, I find that the proposed repair of the HFPP will not have a significant effect on the quality of the human environment. After consideration of the information presented in the Final EA, I have determined that an Environmental Impact Statement is not required under the provisions of NEPA, Section 102, and other applicable regulations of the U.S. Army Corps of Engineers, and that the proposed project may be undertaken.

_____ _____

Date

David C. Weston
Colonel, U.S. Army Corps of Engineers
District Engineer