# DRAFT
# ENVIRONMENTAL ASSESSMENT (EA #524)

## RESTORATION OF FOUR EXISTING ARTICULATED CONCRETE BLOCK VEHICLE CROSSOVERS AND ONE WOODEN PEDESTRIAN CROSSOVER FOR THE GRAND ISLE AND VICINITY, LOUISIANA BEACH EROSION AND HURRICANE PROTECTION PROJECT, JEFFERSON PARISH, LOUISIANA

**4/17/2015**

**U.S. Army Corps of Engineers**
**Mississippi Valley Division**
**New Orleans District**
**Regional Planning and Environment Division South**

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### 1.0 INTRODUCTION.

The U.S. Army Corps of Engineers ("USACE"), New Orleans District ("CEMVN"), has prepared this Draft Environmental Assessment #524 ("EA #524") to evaluate the potential impacts associated with the restoration of four (4) existing articulated concrete block ("ACB") vehicle crossovers at Cranberry Lane, Krantz Lane, Capital Lane, and Birch Lane, and one (1) wooden pedestrian dune crossover adjacent to an existing privately-owned parking area on Burnette Street as detailed herein. The proposed work is intended to restore some of the dune crossover features of the Grand Isle and Vicinity, Louisiana Beach Erosion and Hurricane Protection Project. The four (4) vehicular crossovers would provide access to the beach side of the sacrificial dune feature for emergency vehicles, vehicle access for inspection and maintenance of the dune and geotube, disaster response, and would also be used as drop-off areas for beach visitors with physical disabilities. The wooden timber crossover would provide pedestrian and wheel chair access to the beach side of the sacrificial dune feature for persons with physical disabilities and other visitors to the Gulf-side beaches of Grand Isle. Upon completion of the proposed action, there would be five (5) authorized crossovers restored as part of the Federal Grand Isle Project ("Project"). Under this EA, the proposed action does not include restoration of the remaining authorized pedestrian crossovers, and will recommend that these crossovers be eliminated as features of the Project. EA #524 has been prepared in accordance with the National Environmental Policy Act of 1969 ("NEPA") and the Council on Environmental Quality's Regulations (40 CFR 1500-1508), as reflected in the USACE Engineering Regulation, ER 200-2-2.

### 1.1 PROJECT NAME AND LOCATION.

Project Name: Grand Isle and Vicinity, Louisiana Beach Erosion and Hurricane Protection Project, Jefferson Parish, Louisiana.

Project Location: The Project is located on Grand Isle which is a low- lying inhabited barrier island located along the Gulf of Mexico in Jefferson Parish, Louisiana, approximately 50 miles south of New Orleans, LA. The individual restoration projects are located adjacent to Cranberry, Krantz, Capital, and Birch Lanes; and Burnette Street on the south shore (Gulf of Mexico) side of Grand Isle. See Figure 1 for a map of project locations.

## 1.2 PROJECT AUTHORITY.

Project Authority: The Federal Grand Isle Beach Erosion and Hurricane Protection Project was authorized by Section 201 of the Flood Control Act of 1965, dated 27 October 1965, Public Law (P. L.) 89-298 (79 STAT 1073), pursuant to resolutions of the House of Representatives and the Senate dated 23 September 1976 and 1 October 1976, respectively, substantially in accordance with the recommendations of the Secretary of the Army and the Chief of Engineers in House Document No. 94-639. The Energy and Water Development Appropriations Act of 1994 (P. L. 103-126) provided the authority to construct offshore breakwaters as an integral part of the repairs to the Project following Hurricane Andrew. The Grand Isle Project achieves reduction of the risk of damage from hurricane storm surge events via a combination of jetties, breakwaters, beach re-nourishment, together with a sacrificial sand berm and dune.

The authority for USACE to restore the Grand Isle Project to the authorized level of protection for which it was designed (as a result of damages to the Project resulting from Hurricanes Katrina and Rita in 2005 and from Hurricanes Gustav and Ike in 2008) is provided by Chapter 3, Flood Control and Coastal Emergencies, of the Department of Defense Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico and Pandemic Influenza Act of 2006 (P.L. 109-148 or 3rd Supplemental). Implementation Guidance and waivers from disaster assistance policy that are pertinent to the Grand Isle Project were provided by the following:

1. CECW-HS Memorandum dated 14 February 2006, SUBJECT: Post Hurricanes Katrina, Wilma, and Ophelia Expenditure of Flood Control and Coastal Emergency (FCCE) Funds for Restoration and Rehabilitation, and for Accelerated Work to Complete Authorized Projects, in accordance with the Department of Defense, Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico and Pandemic Influenza Act, 2006 (Public Law 109-148).

2. CECW-MVD Memorandum, Steven L. Stockton, Deputy Director of Civil Works, SUBJECT: Request for Waivers to Specific Corps Policies Affecting Prompt Completion of the Hurricane Protection System for 3rd Supplemental Work, dated 21 August 2006.

3. HQUSACE email dated 12 September 2008 regarding repair and restoration of Federal and non-Federal flood control works and Federal hurricane storm damage risk reduction works (HSDRRS) damaged in 2008 by Hurricanes Gustav and Ike. This guidance provides, with regard to damages to the Grand Isle Project that "…Ongoing repair and restoration work funded with 3rd Supplemental repair and restorations appropriations may be repaired and restored using available 3rd Supplemental repair and restoration appropriations. As used in this guidance" available" referred to funds that had not been previously committed, obligated, or identified as being necessary for repair and restoration of Hurricane Katrina damage. Funds required to effect repair and restoration of the Grand Isle project damages that exceeded

"available funds" must be requested from HQUSACE and would be funded from PL 84-99 FCCE appropriations.


**Figure 1. Locations for the restoration work on Grand Isle, LA.**

## 1.3 PURPOSE AND NEED FOR THE PROPOSED ACTION.

The purpose of the proposed action is to restore four (4) existing Grand Isle Project ACB emergency vehicle crossovers and one (1) elevated timber pedestrian crossover. The plan of restoration for each ACB vehicle crossover would include the extension of the crossover beyond its current end-point at the beach-side toe of the sacrificial dune/berm approximately eighty-feet onto the gulf-side beach area, to include the addition of a passenger drop-off area at the beach-side terminus of the extended crossover. The vehicular crossovers would be restored to provide increased stability of the dune and increase safety for vehicles crossing the dune, access for emergency vehicles, vehicle access for inspection and maintenance of the dune and geotube, disaster response, and to also include drop-off areas for visitors with physical disabilities so that they may more safely and easily cross over the dune to the Gulf-side beach area. Except for emergency vehicles and vehicles associated with Project-related actions by the USACE or by the non-Federal sponsors ("official vehicles"), the parking

of vehicles would not be allowed at the drop off sites, other than for the limited time necessary for the physically disabled person to exit or enter the vehicle. Other than emergency and official vehicles, the restored vehicular crossover would not serve as a point of access for vehicles to proceed beyond the drop-off site and onto the beach. The responsibility for ensuring compliance with the limited access that would be authorized at the restored vehicular crossovers would rest solely with the non-Federal sponsor (Coastal Protection and Restoration Authority Board) the Louisiana Department of Transportation and Development ("LaDOTD"), and the Town of Grand Isle. The vehicular access crossovers would not be available to members of the general public and would not be available to pedestrian traffic. Additionally, the pedestrian crossing at Burnette Street would be restored largely within its original footprint through the construction of an elevated timber pedestrian crossover.

In light of potential impacts to piping plover critical habitat and in an effort to prevent future scour and erosion related damages to the Project, consideration is being given to restoring fewer pedestrian dune crossovers than originally constructed under the Project. Restoration of four (4) vehicular crossovers would provide access by emergency and official vehicles and would serve as a drop-off point for physically handicapped persons. The vehicular dune crossovers would be restored with materials that are more resilient to future hurricane and tropical storm events and are more cost effective to maintain and repair. Restoration of one (1) elevated timber pedestrian crossover at Burnette Street would provide beach access to members of the general public. The remaining twenty (20) wooden pedestrian crossovers would not be restored under this authority as a part of the proposed action, and will be recommended to be eliminated as features of the Project.

## 1.4 PRIOR REPORTS.

This EA is prepared in conjunction with a Project Information Report ("PIR") that is one in a series of amendments to the 2006 PIR, "PL 109-148 Rehabilitation of Damaged Hurricane/Shore Protection Projects, Grand Isle and Vicinity, Louisiana, Jefferson Parish, Louisiana" dated June 2006 and approved by the Division Engineer, Mississippi Valley Division, on July 14, 2006. The 2006 PIR was first amended by "Project Information Report, PL 109-148 Rehabilitation of Hurricane and Shoreline Protection Project, Grand Isle and Vicinity, Louisiana Beach Erosion and Hurricane Protection Project, Jefferson Parish, LA" dated October 2008 and approved by the Division Engineer, Mississippi Valley Division in November 2008, and again in February 2013 and approved by the Division Engineer, Mississippi Valley Division on March 12, 2013.

## OTHER PERTINENT PROJECT REPORTS ON GRAND ISLE INCLUDE:

Environmental Statement (ES) – Grand Isle and Vicinity, Louisiana project final EIS September 1974 and revised final EIS June 1979 – the recommended plan consisted of a 2,600-foot stone jetty at Caminada Pass to stabilize the western end of Grand Isle; a sandfill dune and berm extending 7.5 miles along the island's gulf shore to provide protection from beach erosion and hurricane waves; periodic beach nourishment; and offshore borrow at the east and west ends of the island.

The General Design Memorandum, Phase II ("GDM II") (June 1980), recommended the construction of dune "walk-over" structures as an environmental quality enhancement measure to limit destruction of the dune and loss of plants as a result of foot traffic. Pedestrian walk-over structures across the dune were recommended at 1/2 mile intervals.

EA #50 – Grand Isle and Vicinity - Assessed construction of jetty extensions (east and west ends), construction of 700 linear feet of sand-filled breakwater, and dredging of sand spit for dune renovation. Finding of No Significant Impact (FONSI): July 19, 1985.

EA #97a – Supplemental EA, Grand Isle and Vicinity, Beach Erosion and Hurricane Protection - Assessed dune restoration and increased quantities of borrow. FONSI: September 21, 1989.

Grand Isle, Louisiana and Vicinity Beach Erosion and Hurricane Protection Project, Operation and Maintenance Manual dated December 1991 describes the dune cross-over structures that were originally constructed; the location of the structures; and construction details.

EA #230 – Grand Isle and Vicinity, Beach Erosion and Hurricane Protection - Assessed the addition of 27 segmented rock breakwaters along the Gulf side. FONSI: August 8, 1994.

EA #396 – Grand Isle Shoreline Protection Project, North Shore Breakwaters - Addressed the construction of 18 rock breakwaters on north side of Grand Isle. FONSI dated October 19, 2004

EA #397 – Grand Isle Advance Measures Dune Project - Assessed emergency measures taken in July 2003 along 2,275 feet of dune on the south shore of Grand Isle. FONSI: August 9, 2004

EA #400 – Grand Isle, Dune Rehabilitation Project, Jefferson Parish, Louisiana - Assessed prevention of further erosion to 6,533 linear feet of dune along the south shore of Grand Isle. FONSI: June 24, 2004

Biological Assessment of Threatened and Endangered Species, Grand Isle Dune Rehabilitation Project, Jefferson Parish, Grand Isle, Louisiana dated April 2004.

Previous Repair and Rehabilitation assistance has been provided under the following documents:

1. "Project Information Report, PL 84-99 Rehabilitation of Hurricane and Shoreline Protection Project, Grand Isle and Vicinity, Louisiana Beach Erosion and Hurricane Protection Project, Jefferson Parish, LA" dated 1986 ($2,548,637);

2. “Project Information Report, PL 84-99 Rehabilitation of Hurricane or Shoreline Protection Project, Grand Isle and Vicinity, Louisiana Beach Erosion and Hurricane Protection Project, Jefferson Parish, LA” dated 1992; (100% Federal funding of $5.5M);

3. “Project Information Report, PL 84-99 Rehabilitation of Hurricane and Shoreline Protection Project, Grand Isle and Vicinity, Louisiana Beach Erosion and Hurricane Protection Project, Jefferson Parish, LA” dated 1998 (Denied);

4. “Project Information Report, PL 84-99 Rehabilitation of Hurricane and Shoreline Protection Project, Grand Isle and Vicinity, Louisiana Beach Erosion and Hurricane Protection Project, Jefferson Parish, LA” 2002 (Denied but resubmitted and approved in 2003 for $1,182,000 plus Advance Measures funds of$420k);

5. “Project Information Report, PL 84-99 Rehabilitation of Hurricane and Shoreline Protection Project, Grand Isle and Vicinity, Louisiana Beach Erosion and Hurricane Protection Project, Jefferson Parish, LA” dated 2005 (Emergency Protection Work/ Hurricane Katrina $140k);

6. “Project Information Report, PL 109-148 Rehabilitation of Hurricane and Shoreline Protection Project, Grand Isle and Vicinity, Louisiana Beach Erosion and Hurricane Protection Project, Jefferson Parish, LA” dated June 2006 and approved by the Division Engineer, Mississippi Valley Division on July 14, 2006; (Restore $18M);

7. “Project Information Report, PL 109-148 Rehabilitation of Hurricane and Shoreline Protection Project, Grand Isle and Vicinity, Louisiana Beach Erosion and Hurricane Protection Project, Jefferson Parish, LA” dated October 2008 and approved by the Division Engineer, Mississippi Valley Division; (Restore $26M);

8. “Project Information Report, PL 109-148 Rehabilitation of Hurricane and Shoreline Protection Project, Grand Isle and Vicinity, Louisiana Beach Erosion and Hurricane Protection Project, Jefferson Parish, LA” dated March 2013, and approved by the Division Engineer, Mississippi Valley Division on March 12, 2013. (Restore $2.5M).

## 2.0 ALTERNATIVES (INCLUDING THE PROPOSED ACTION)

**PROPOSED ACTION:**
The proposed action would restore four existing ACB vehicle dune crossovers located at Cranberry Lane, Krantz Lane, Capital Lane, and Birch Lane. Each ACB vehicle dune crossover would be extended approximately eighty-feet beyond the beach-side toe of the sacrificial dune/berm onto the gulf-side beach area that would end in a vehicular drop-off area. Use of the four existing vehicular crossovers would be expanded from access for emergency and other official vehicles to also allow for the drop off and pick up of persons with physical disabilities in order to provide those persons with a safer and easier mode of accessing the beach-side of the dune. No parking would be allowed on the crossover or within the drop off area. Non-emergency vehicles would be allowed to enter the drop off site to load and unload physically disabled passengers immediately upon arrival, thereafter leaving the drop-off area as soon as physically handicapped passengers are safely loaded or unloaded. With the exception of emergency and official vehicles, all vehicles would be prohibited from accessing the beach side of the sacrificial dune/berm beyond the location of the crossover and drop off area. Other than for emergency and official use, the proposed Birch Lane crossing and drop-off point would be seasonal and only available for use from March through October. Additionally, the proposed action involves the restoration of one (1) wooden pedestrian dune crossover largely within the same footprint and located adjacent to an existing privately owned parking area that is located on the land side of the dune at Burnette Street.

The proposed passenger drop-off areas would be constructed using ACB for pavement and would be constructed to provide a smooth surface. A separator geo-textile would be placed beneath the ACB to provide stability and reduce foundation material from pushing into the void space of the ACB. The right-of-way limits for each drop-off point are shown in the attached plans. All construction related activities would occur within the footprint of the proposed vehicle crossover and drop-off areas. The total footprint for all passenger drop-off areas combined is 0.5 acres. See Appendix A for configuration.

The final footprint of the elevated wooden pedestrian crossover is .07 acres, of which approximately 0.035 acres would be located in critical habitat for the piping plover. During construction, the work area for the elevated wooden pedestrian crossover would include an additional 0.58 acres to be used as a temporary staging and work area, all of which would be located in critical habitat for the piping plover. Table 1 provides a breakdown of total acreage for each of the proposed drop-off locations, and the elevated timber pedestrian crossing.

The elevated wooden pedestrian crossover would be restored in the same location as the original pedestrian crossover. The timber crossover would be constructed with pressure treated lumber and would be for pedestrian traffic only. The crossover would be constructed 4.5 feet above the current dune elevation of approximately +13.0 feet (NAVD88), and would consist of multiple ramps to achieve a desired walkway elevation

of +17.5 feet (NAVD88). Each ramp would be sloped with landings provided every 30 feet, with a walkway that is 6 foot wide.

| Table 1: Project Area Footprints (Acreage) | |
|---|---|
| Passenger Drop-Off Areas | |
| Cranberry Lane | 0.1 |
| Krantz Lane | 0.1 |
| Capital Lane | 0.1 |
| Birch Lane | 0.2 |
| Elevated Wooden Pedestrian Crossover at Burnette Street (replace existing) | 0.07 |
| ***Temporary work area* | *(.58)* |
| **Total Acreage** | **0.57** |

**ADJACENT TO PROPOSED CROSSOVER LOCATION ON THE GULF SIDE OF THE SAND DUNE/BERM. WOULD ONLY BE IN USE DURING THE RESTORATION OF THE WOODEN PEDESTRIAN CROSSOVER AND WOULD BE RESTORED TO OPEN BEACH FOLLOWING COMPLETION OF THE PROJECT.

The equipment necessary to perform the proposed work would include trucks for the delivery of materials, a bulldozer and backhoe to level the project area footprints and help place the ACB's, a small skidder (like a Bobcat), and a pile driver during construction of the timber pedestrian crossover. All work would be confined to the proposed project footprint and temporary staging and work area as described above. The movement of construction related equipment, vehicles, and materials across the beach from project area to project area would not be permitted. Future maintenance of the crossovers would involve small maintenance crews rearranging or replacing ACB's.

**NO ACTION ALTERNATIVE (FUTURE WITHOUT PROJECT):**
Under the No Action Alternative, there would be no restoration of the four existing ACB vehicle crossovers and the drop-off points and the elevated timber pedestrian crossover would not be restored. Conditions would remain the same with the existing dune crossovers on Grand Isle.

## 2.1 ALTERNATIVES CONSIDERED BUT ELIMINATED

During the planning process several screening criteria were used to evaluate the alternatives. The criteria included Project authority (both the original Project authorization and the limitations imposed by PL 109-148); costs associated with construction, operation, maintenance, repair, replacement and rehabilitation; accessibility by persons with physical disabilities; environmental concerns; constructability; safety; and aesthetics. Each of the alternatives were screened and eliminated based on inability to adequately meet the criteria. The following alternatives were considered but eliminated from further evaluation:

## 2.2 FIVE (5) ARTICULATED CONCRETE BLOCK VEHICLE DUNE CROSSOVERS AND VEHICLE DROP OFF AREAS ON THE BEACH SIDE OF THE DUNE – LOCATED AT CRANBERRY, KRANTZ, CAPITAL, LANDRY, AND BIRCH LANES:

Placement of ACB on the beach side of the dune. A total of 1.1 acres of piping plover critical habitat would be impacted by placement of ACB material on the beach. To have less impact to piping plover critical habitat, this alternative was redesigned to consist of only four (4) ACB drop-off areas and to include the elevated timber crossover.

## 2.3 FIVE (5) RIGID REINFORCED CONCRETE VEHICLE CROSSOVERS WITH DROP OFF POINTS ON THE GULF SIDE OF THE DUNE – LOCATED AT CRANBERRY, KRANTZ, CAPITAL, LANDRY, AND BIRCH LANES:

Reinforced concrete would be poured in place on the Gulf side of the dune on the beach. A total of 1.1 acres of piping plover critical habitat would be impacted by placement of the reinforced concrete pavement under this alternative. This alternative was not carried forward because the alternative exceeded the scope of the original authorized Project and because of the potential impacts to the piping plover and red knot from constructing a rigid concrete surface on 1.1 acres of critical habitat; as well as the level of maintenance anticipated to be required; concerns with constructing a rigid structure on an active beach and potential undercutting and erosion during storm events.

## 2.4 FIVE (5) ASPHALT PARKING AREAS ON THE PROTECTED SIDE OF DUNE WITH RIGID TIMBER PEDESTRIAN CROSSOVERS OVER THE DUNE – LOCATED AT CRANBERRY, KRANTZ, CAPITAL, LANDRY, AND BIRCH LANES:

This alternative consisted of the proposed construction of five asphalt paved parking areas on the protected side of the dune with rigid timber pedestrian crossovers. This alternative would result in minimal, if any, impacts to piping plover critical habitat. This alternative was not carried forward because the alternative exceeded the scope of the original authorized Project; and right-of-way limitations.

## 2.5 FIVE (5) ASPHALT PARKING AREAS ON THE PROTECTED SIDE OF DUNE WITH SOFT ROLL PEDESTRIAN CROSSOVERS – LOCATED AT CRANBERRY, KRANTZ, CAPITAL, LANDRY, AND BIRCH LANES:

This alternative consisted of the proposed construction of five asphalt paved parking areas on protected side of the dune with ground level pedestrian ramps over the dune. This alternative would result in minimal, if any, impacts to piping plover critical habitat. This alternative was not carried forward because the alternative exceeded the scope of the original authorized Project; and right-of-way limitations.

## 2.6 RESTORE TWENTY-ONE (21) EXISTING WOODEN PEDESTRIAN DUNE CROSSOVERS:

This alternative consisted of restoring the twenty-one (21) wooden pedestrian dune crossovers in the locations where they were originally constructed. The wooden pedestrian dune crossovers are susceptible to extensive damage and destruction during storm events; contribute to significant scouring and degradation of the dune and geo-tube system; and, as a direct result, negatively impact the hurricane protection and beach erosion purposes and intent of the sacrificial dune and geotube. For these reasons, this alternative was not carried forward for further consideration.

## 3.0 AFFECTED ENVIRONMENT

### 3.1 GENERAL.

Grand Isle lies along the southern edge of the Barataria Basin ("Basin") in Jefferson Parish, Louisiana. The Basin is an interdistributary estuarine system with a mixture of swamps, marshes, ponds, barrier islands, and bays created by sediment from the Mississippi River and complex coastal processes. The Mississippi River once flowed through the Bayou Lafourche region and formed a delta along the coast. Upon abandonment of this channel of the Mississippi River, the effects of subsidence and erosion became the dominant processes. Grand Isle is part of a chain of barrier islands along the coast of Louisiana. The barrier islands are an important functional part of the coastal estuary that provide a separation of the salinity gradient within the estuary from the high salinity of the Gulf of Mexico and protect the interior marshes from the high energy of Gulf of Mexico waves. The entire barrier island system is subject to high rates of erosion. The study area for the proposed action is located along the Gulf side of Grand Isle (see Figure 1).

### 3.2 CLIMATE.

The climate along the southern coast of Louisiana and on Grand Isle is semitropical, primarily influenced by the Gulf of Mexico, and largely determined by two pressure ridges. The National Data Buoy Center, part of the National Oceanic and Atmospheric Administration ("NOAA"), provides a climatic summary from December 1984 to November 2001 for the GDIL1 buoy located at Grand Isle, Louisiana (http://seaboard.ndbc.noaa.gov/data/climatic/GDIL1.pdf) and is incorporated by reference.

Storm surges, usually related to tropical storm systems originating in the Gulf of Mexico, are a continuing threat to the project area. Hurricanes and tropical storms typically occur over the project area between June and November. In the past 130 years, over 50 major tropical storms have impacted Grand Isle, and since 2005, Hurricanes Katrina, Rita, Gustav, and Isaac have impacted the island. These storms typically cause alterations to the hydrologic regimes within the Barataria Basin, damage and loss of property, as well as contribute to coastal land loss.

## 3.3 GEOLOGY/SOILS.

Grand Isle is part of the Bayou Lafourche barrier shoreline system (Ritchie et al. 1995). This barrier system includes the retreating headland of the Bayou Lafourche distributary of the Mississippi River (presently referred to as the Caminada-Moreau Headland) and the flanking barrier islands to the west, Timbalier Island and East Timbalier Island, and to the east, Grand Isle. The Bayou Lafourche distributary was active until 300 years ago (Frazier 1967; Nakashima 1988; Ritchie et al., 1995). The Bayou Lafourche barrier system is one of the most rapidly eroding shorelines in the United States (McBride et al., 1992; Ritchie et al., 1995; USACE 2004). Within Louisiana, the Bayou Lafourche barrier system has a greater proportion of engineering structures such as jetties, sea walls, and beach nourishment projects (Mossa and Nakashima 1989; Ritchie et al., 1995). Rapid coastline retreat due to subsidence, shoreface erosion, sediment deficiency, and overwash processes has characterized the history of the entire Bayou Lafourche barrier shoreline.

Soils in the study area are of the Scatlake and Felicity series (Natural Resource Conservation Service Web Soil Survey). Scatlake soils are formed in saline marshes and consist of level, very poorly drained to very slowly permeable, moderately alkaline, peat, clay, fine sandy loam, and fine sand. These soils are saline, semifluid, and ponded or flooded. Scatlake soils have a dark gray to mottled gray and brown clay and muck overlying dark gray, green gray, to black clay and muck. Elevation of Scatlake soils is from 0 to +1 foot mean sea level (“MSL”), with a slope of less than 0.5 percent. Felicity soils, often located near Scatlake soils, form sandy ridges on coastal barrier islands such as Grand Isle and are the dominant soils in the project study area. These soils consist of gently undulating, occasionally flooded, loamy fine sand with occasional shell fragments, and are commonly associated with beach ridges. The elevation of the Felicity soils is typically from +2 to +5 feet MSL with a slope of 0 to 3 percent.

| Table 2: Relevant Resources | | | |
|---|---|---|---|
| **Resource** | **Institutionally Important** | **Technically Important** | **Publicly Important** |
| **Wildlife** | Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918. | They are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources. | The high priority that the public places on their esthetic, recreational, and commercial value. |
| **Threatened and Endangered Species** | The Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940. | USACE, USFWS, NMFS, NRCS, USEPA, LDWF, and LADNR cooperate to protect these species. The status of such species provides an indication of the overall health of an ecosystem. | The public supports the preservation of rare or declining species and their habitats. |
| **Beaches** | Coastal Zone Mgmt Act of 1972, Coastal Barrier Resources Act of 1982, and Coastal Barrier Improvement Act of 1990 | State and Federal agencies recognize the value of beaches and shore dunes. | Environmental organizations and the public support the preservation of vital habitat such as nesting sites for migratory birds (ex. piping plover). |
| **Cultural Resources** | National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979; as well as federal implementing regulations; additional statutory and regulatory requirements; other applicable cultural resource-related laws; and USACE policies and procedures. | Cultural resources are finite and non-renewable resources that include, but are not limited to both prehistoric and historic archaeological sites, historic standing structures, landscapes, and other culturally valued aspects of the environment, as well as sociocultural attributes, such as social cohesion, social institutions, lifeways, religious practices, and other cultural institutions. Historic properties include districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places, and federal agencies are required to consider the effects of their actions on such properties. | Humans relate to their environment through their culture, and historic and cultural resources provide insights into ways of life, both past and present. The protection and enhancement of historic and cultural resources is in the best interest of the public, and federal agencies also have trust and treaty responsibilities to Tribes, which are partially fulfilled through the preservation and protection of trust resources and the consideration of potential effects on natural and cultural resources. |
| **Recreation Resources** | Federal Water Project Recreation Act of 1965 as amended and Land and Water Conservation Fund Act of 1965 as amended. | Provide high economic value of to local, state, and national economies. | Public makes high demands on recreational areas. There is a high value that the public places on fishing, hunting, and boating, as measured by the large number of fishing and hunting licenses sold in Louisiana; and the large per-capita number of recreational boat registrations in Louisiana. |

| Table 2: Relevant Resources | | | |
|---|---|---|---|
| **Resource** | **Institutionally Important** | **Technically Important** | **Publicly Important** |
| **Aesthetics** | USACE ER 1105-2-100, and National Environmental Policy Act of 1969, the Coastal Barrier Resources Act of 1990, Louisiana Scenic Rivers Act of 1988, and the National and Local Scenic Byway Program. | Visual accessibility to unique combinations of geological, botanical, and cultural features that may be an asset to an area. State and Federal agencies recognize the value of beaches and shore dunes. | Environmental organizations and the public support the preservation of natural pleasing vistas. |
| **Socio-Economic Resources** | River and Harbor Flood Control Act of 1970 (PL 91-611). | N/A | Social concerns and items affecting area economy are of significant interest to community. |
| **Air Quality** | Clean Air Act of 1963, Louisiana Environmental Quality Act of 1983. | State and Federal agencies recognize the status of ambient air quality in relation to the NAAQS. | Virtually all citizens express a desire for clean air. |

## 4.0 RELEVANT RESOURCES

This section contains a description of the relevant resources that could be impacted by the proposed restoration work. The important resources discussed are those recognized by laws, executive orders, regulations, and other standards of National, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public. Table 2 provides summary information of the institutional, technical, and public importance of these resources. The relevant resources discussed include: wildlife, threatened and endangered species, beaches, cultural resources, recreation resources, aesthetics, social and economic resources, noise, and air.

Resources considered but that do not exist in the project area or will not be affected by the proposed action include: wetlands, aquatic resources/fisheries, essential fish habitat, terrestrial resources, bottomland hardwood forests, estuarine water bodies, gulf water bodies, environmental justice, and hydrology and water quality. These resources will not be carried forward for further discussion.

## 4.1 WILDLIFE

Existing Conditions

The area is known to support various species of shore birds, wading birds and songbirds. In a recent survey conducted by MVN biologists, the following species were identified as utilizing the beach, shrubs and/or waters adjacent to the proposed project sites: Sanderlings, kill deer, ruddy turnstones, sandpipers, snowy egrets, summer tanagers, herring gulls, laughing gulls, common terns, foresters terns, Caspian terns, royal terns, brown and white pelicans, magnificent frigate birds, barn swallows, cuckoos, bank swallows, eastern kings, painted bunting and red winged black birds. Foraging and roosting were the only activities exhibited during the duration of the surveys. Although none of these birds were observed nesting, the potential for nesting and suitable habitat exist within the project area. The waters adjacent to the project area are known to support Bottlenose dolphins. They are commonly seen on a daily basis from the shores of the island. Terrestrial and mammals in the project area include swamp rabbit, and raccoon.

## 4.2 THREATENED AND ENDANGERED SPECIES

Existing Conditions

Within the State of Louisiana, there are 31 animal and three plant species (some with critical habitat) under the jurisdiction of the U.S. Fish and Wildlife Service (“USFWS”) and/or the National Marine Fisheries Service (“NMFS”), presently classified as endangered or threatened. Of those 31 species, 10 occur in Jefferson Parish (and 2 occur within the project area (See Table 3). The USFWS and the NMFS share jurisdictional responsibility for sea turtles and the Gulf sturgeon. Other species that were listed on the Endangered Species List but which have since been de-listed because population levels have improved, are the bald eagle and the brown pelican. Currently, American alligators and shovelnose sturgeon are listed as

threatened under the Similarity of Appearance clause in the Endangered Species Act ("ESA") of 1973, as amended, but are not subject to ESA Section 7 consultation.

| Table 3: T&E species within Jefferson Parish | | | | |
|---|---|---|---|---|
| | Critical | | Jurisdiction | |
| Species | Habitat | Status | USFWS | NFMS |
| *West Indian Manatee (*Trichechus manatus*) | | E | X | |
| Gulf sturgeon (*Acipenser oxyrinchus desotoi*) | | T | X | X |
| Pallid sturgeon (*Scaphirhynchus albus*) | | E | X | |
| **Piping plover (*Charadrius melodus)* | X | T | X | |
| **Red knot *(Calidris canutus)* | | T | X | |
| *Green Sea Turtle (*Chelonia mydas*) | | T | X | X |
| *Hawksbill Sea Turtle (*Eretomchelys imbricata*) | | E | X | X |
| *Kemp's Ridley Sea Turtle (*Lepidochelys kempii*) | | E | X | X |
| *Leatherback Sea Turtle (*Dermochelys coriacea*) | | E | X | X |
| *Loggerhead Sea Turtle (*Caretta caretta*) | | T | X | X |

*species known to or believed to occur near Project area
**species known to occur within Project area

West Indian manatees inhabit coastal areas from Florida to the Greater Antilles and suitable habitats in Central and South America. On occasion, they have been observed in eastern Louisiana waters. Manatees can travel long distances, and migrate along the coast according to seasonal changes, but are never found far from shore. They can feed in brackish or salt water, but require a fresh water source, such as estuaries or natural springs, for drinking. Manatees have occasionally been seen in Louisiana, but it is unlikely that they would be found near the beach of Grand Isle as it is not very close to a fresh water source.

Piping plovers winter in Louisiana but do not nest on Louisiana's coast. Critical wintering habitat in Louisiana encompasses 24,950 acres along 342.5 miles of shoreline, which is most of the coast of Louisiana. Grand Isle falls within Louisiana Critical Habitat Unit #5 (LA-5), as depicted in Figure 2, which stretches from Timbalier Island to East Grand Terre Island. In LA-5, the area on Grand Isle that is designated critical habitat is described as "the Gulf shoreline of Grand Isle from the Gulf side of the hurricane protection levee to [mean lower low water] MLLW" (Federal Register / Vol. 66, No. 132, 10 July 2001, p.36127).

The International Piping Plover Coordination Group facilitates the International Piping Plover Census ("IPPC") of breeding and wintering piping plovers throughout their range. (Elliott-Smith

et al 2006). The IPPC has taken place in 1991, 1996, 2001, 2006, and 2011. (Results from 2011 have not yet been published); (B. Firmin 2014 personal communication). In Louisiana, the 2006 IPPC recorded only 226 piping plovers, the lowest numbers in the State in IPPC history. The substantial decline in numbers of wintering piping plover along the Louisiana coast could be attributed to habitat loss as a result of Hurricanes Katrina and Rita; however, lack of personnel and poor weather conditions also affected survey intensity in the State that year. (B. Firmin, USFWS, personal communication 2014). Only two piping plovers were recorded on Grand Isle during the 2006 census. However, this is not unexpected given the amount of human activity that occurs on the island's beaches. Although the presence of only two wintering piping plovers was documented on Grand Isle during the 2006 census (Elliott-Smith et al 2006), other surveys have documented piping plovers on the island. Additional wintering shorebird surveys conducted from 2007 to 2011 by the Louisiana Department of Wildlife and Fisheries ("LDWF") have documented up to 6 piping plovers wintering on the eastern end of Grand Isle. Data from eBird.org (accessed in April 2014) indicate that as many as 39 piping plovers have been observed on Grand Isle. Thus, numbers of birds utilizing available habitats on Grand Isle may vary between wintering and migration seasons, and much of the preferred habitat is located on the far eastern end of the island within the Grand Isle State Park. (**See Figure 2**).

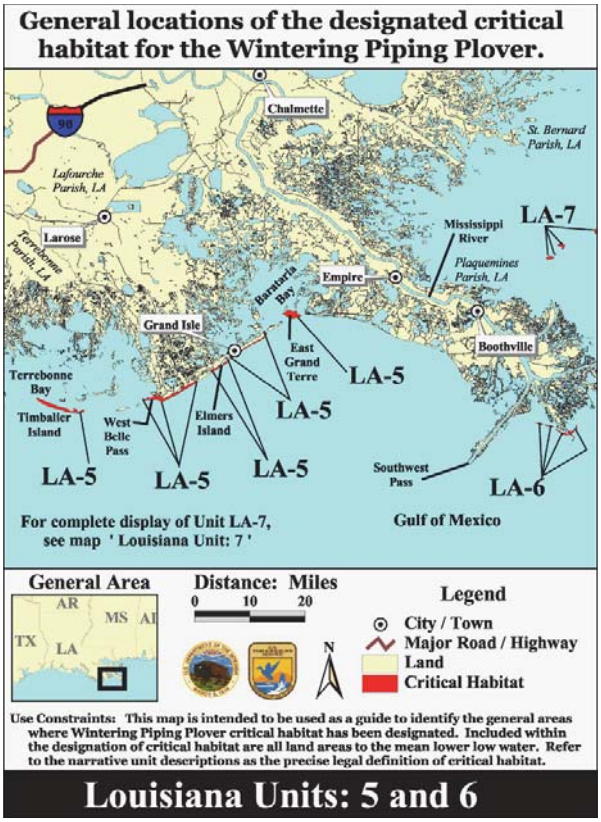


**Figure 2: Piping plover critical habitat**
**(Source http://www.fws.gov/plover/finalchmaps/Plover_LA_5_to_6.jpg accessed January 7, 2014)**

Louisiana is a migration stopover for red knots in both spring and fall, and some birds may overwinter in small numbers. In the southeastern United States, red knots forage along sandy beaches, tidal mudflats, salt marshes, and peat banks. Observations along the Texas coast

indicate that red knots forage on beaches, oyster reefs, and exposed bay bottoms and roost on high sand flats, reefs, and other sites protected from high tides (USFWS 2014b). Red knots are known to occur within the project area. Data from eBird.org (accessed in April 2014), indicate that anywhere from 1 to 256 red knots have been observed on Grand Isle in various locations across the island. Thus, the number of birds utilizing available habitats on Grand Isle may vary between wintering and migration seasons.

The Green, Kemp's Ridley, Leatherback, Hawksbill and Loggerhead sea turtles are known to utilize the offshore and inshore areas of the Gulf of Mexico near Grand Isle. Nesting of any of these species has not been documented in Louisiana. However, sea turtles have been known to get stranded on Grand Isle and other beaches of Louisiana.

## 4.3 BEACHES

Existing Conditions

Beaches provide habitat for migratory birds and other wildlife, and are resources of extraordinary scenic, scientific, recreational, natural, historic, archeological, cultural, and economic importance. The beaches of Grand Isle serve as natural storm protective barriers and are generally unsuitable for development because they are vulnerable to hurricane and other storm damage, and because natural shoreline recession and the movement of unstable sediments undermine manmade structures. Several species of shore birds, wading birds, and song birds can be found foraging and roosting on the beaches and adjacent dunes. Tourism and recreation are a major part of the economy of Grand Isle, and the beaches provide much of the activities that support those endeavors. The proposed restoration action is located on the Gulf of Mexico side of Grand Isle at five separate locations along a 7.5 mile stretch of beach that provides numerous recreational opportunities for locals and tourists.

## 4.4 CULTURAL RESOURCES

Existing Conditions

A literature review supplemented by a reconnaissance survey within the Project's Area of Potential Effect ("APE") was completed by CEMVN archaeologists on January 16, 2014. The Grand Isle area has been inhabited since prehistoric times. Historically, the area was home to hunters, trappers, fishermen, and farmers as well as a stronghold for privateers and pirates who raided merchant ships in the Gulf of Mexico. The earliest land grants on the barrier islands were granted in the Spanish colonial period. By the early 1800's, Grand Isle supported a number of sugar and cotton plantations and, in the late 1880's, the region became a resort destination. Today, Grand Isle hosts a number of individual summer camps, as well as plant facilities and helicopter pads related to the oil industry.

Several cultural resources surveys have been conducted on Grand Isle. These investigations have resulted in the identification of 78 archaeological sites and 221 magnetic and acoustic anomalies in the surrounding waters. The most pertinent of these investigations is the 1978 Phase I cultural resources survey conducted by Coastal Environments, Inc. on behalf of

USACE. This survey included the entire Barataria, Segnette, and Rigaud Waterways, and identified 77 sites, all of which are outside the current APE.

The 2014 reconnaissance survey identified no significant cultural resources within the APE. The APE has been extensively disturbed by the effects of hurricanes on the Grand Isle beach and dune. Additionally, there are no historic properties listed in or determined eligible for inclusion in the National Register of Historic Places ("NRHP") in the Project's APE.

CEMVN coordinated a "no historic properties affected" finding with the Louisiana State Historic Preservation Office ("SHPO") on October 17, 2014, and with federally-recognized Indian Tribes on October 23, 2014. The Louisiana SHPO concurred with the CEMVN finding of "no historic properties affected" on October 23, 2014. The Caddo Nation of Oklahoma and the Choctaw Nation of Oklahoma concurred with the effect determination on November 4, 2014, and December 1, 2014, respectively. The APE is located in an area of historic interest to the Choctaw Nation of Oklahoma, and although the "Choctaw Nation is unaware of any cultural or sacred sites located in the immediate project area," the Tribe requests "that work be stopped and our office contacted immediately in the event that Native American cultural objects or human remains are encountered." No objections to the effect determination were received. No additional cultural resources investigations are recommended prior to the commencement of the restoration work.

## 4.5 RECREATION RESOURCES

Existing Conditions

There are four marinas/boat launches on the island which provides access to Barataria Bay and the Gulf of Mexico. The boat launches are located on the north side of the island. The south side is primarily beach. On the eastern end of the island is Grand Isle State Park managed by Louisiana State Parks. Facilities include tent and recreational vehicle campground, picnic areas, water playground, hiking trails, beach and fishing pier. The Tarpon Fishing Rodeo attracts more than 12,000 visitors each year. The Grand Isle Migratory Bird Celebration (Grand Isle Bird Festival) is an annual three-day event that promotes bird watching and the awareness of the island's ecologically valuable bird habitat. The project area is located on the beach side of the island. Recreation includes swimming, sun bathing, walking/jogging on the beach, bird watching, photography, and saltwater fishing.

The following information (Table 4) is provided by the Louisiana Department of Wildlife and Fisheries (www.wlf.louisiana.gov) for the number of fishing and hunting licenses sold in Jefferson Parish in 2012, and the number of boating licenses sold in 2011 by the Parish.

| Table 4. Fishing License Sold in Jefferson Parish in 2012. | | | | | |
|---|---|---|---|---|---|
| Parish | Resident Saltwater Fishing | Non-Resident Saltwater Fishing | Resident Fresh water Fishing | Non-Resident Freshwater Fishing | Boat Licenses |
| Jefferson | 30,860 | 171 | 31,707 | 184 | 18,627 |

## 4.6 AESTHETIC (VISUAL) RESOURCES

Existing Conditions

Grand Isle is located at the southern end of the Lafourche/Terrebonne Scenic Byway (Louisiana Highway 1). The islands visual significance is based on its natural barrier island characteristics and how developmental actions have evolved into visual-cultural features. Each of the proposed work areas is similar in landscape features such as vegetation and topography. The terrain is very flat with a gentle slope leading up to the Grand Isle Project's sacrificial sand dune/berm. Trees are sparse and the view shed is open from Highway 1 to structures and internal views of the island. The island's frontal sand dunes are elevated to 13 and 1/2 feet and are vegetated with bitter panicum and sea oats on the Gulf side, and remnants of black mangrove/salt marsh on the bay side. Views of the Gulf of Mexico from Highway 1 are severely disrupted or nonexistent due to the island's dunes. However; views to the bay peak out amongst the trees while driving down the same road. Land use along the dune levee is almost exclusively single-family residential. Structures are elevated and offer views over the dune out to the Gulf of Mexico. There are a number of public access points to the beach that offer public view sheds located right off of Highway 1. Other features lie on the island's central oak ridge where traffic circulates through narrow lanes lined with 100-year old buildings surrounded by live oaks, palmettos, and hibiscus.

Institutional and publically significant features include The Grand Isle Cemetery and Grand Isle State Park. The Grand Isle Cemetery is a local visual/cultural value, with its whitewashed tombs, wrought iron crosses, and surrounding live oaks. Grand Isle State Park features a three-tiered lookout that affords panoramic views of the island, the ever-present offshore oilrigs, and the ruins of historic Fort Livingston (located northeast across Barataria Pass on Grand Terre Island). There are no known state recognized scenic streams or bayous.

## 4.7 SOCIO-ECONOMIC RESOURCES

Existing Conditions

**Population and Housing**. The resident population of Grand Isle is 1,302 according to the 2010 census. This is down from the 2000 census estimate of 1,544, and 1990 census estimate of 1,455. The racial makeup of the town is approximately 91% White, 4% Hispanic, 2% native American, 2% two or more races, 1% African-American, and less than 1% other races. The median resident age is approximately 46.8 years which compares to Louisiana's median age of 39.5 years. However, during the summer, the population including tourists and seasonal residents sometimes increases to over 20,000. The estimated median household

income of the area's resident population in 2012 was approximately $37,329 in 2012 which compares to $33,548 in 2000. Per capita income for the town of Grand Isle is $18,330. About 9% of the families and 13% of the population were below the poverty line.

**Employment and Business Activity.** Tourism and fishing are important parts of Grand Isle's economy. The island is a premier destination for anglers seeking the more than 280 species of fish in the surrounding waters. In 1928, the annual Grand Isle Tarpon Rodeo fishing tournament was established and is not one of the premier salt water fishing rodeos in the US. The rodeo draws over 15,000 people annually. The island also has well maintained beaches. The Grand Isle State Park on the east end of the island is the only state owned and operated beach on the Louisiana Gulf Coast and is a popular destination for people living in South Louisiana. Grand Isle is also host to the Grand Isle Migratory Bird Festival which was established in 1997. This bird watching event was originally held on one day but due to increased popularity the festival has grown into a three day event. The most common industries are retail trade (19%); transportation and warehousing (13%); agriculture, forestry, fishing and hunting (9%); construction (9%); information (9%); public administration (9%); and educational services (8%). Unemployment in July 2013 is approximately 6.6% which compares to 7.1% for Louisiana. Unemployment was 6.9% in 2010 and 4.3% in 2000.

**Public Facilities and Services**. Public facilities within Grand Isle include the Grand Isle State Park, Grand Isle Police Department, Grand Isle Fire Company and Grand Isle High School. Grand Isle is also home to tourist attractions, hotels/motels, churches and cemeteries and a library. While Grand Isle does have a medical clinic the closest hospital is Lady of the Sea General Hospital located in Cut Off Louisiana. Grand Isle also contains a commercial fishing dock and a cargo facility supporting the oil and gas industry.

**Transportation**. Grand Isle's main street is Louisiana Highway 1, which stretches 436.2 miles to the north-west corner of the state, ending near Shreveport, Louisiana. Highway 1 is the only land access to or from Grand Isle. Direct access to Grand Isle's seat of parish government is 95 miles away in Jefferson Parish, which leaves the town somewhat politically isolated.

**Community and Regional Growth**. Desirable community and regional growth is considered growth that responds to the needs of the local community and is consistent with regional goals. Grand Isle's growth is primarily tied to the health of the area's tourism and recreation economy since tourism is the driving force behind Grand Isle's employment and economic activity. This is highlighted by the population increase in the summer as tourists descend on the area to take advantage of the area's recreational opportunities. Currently Grand Isle's economy is relatively stable as indicated by its relatively unchanged population from 1990 to today. Actual population has declined slightly since 1990 while 2000's population was higher than 1990. This reflects the cyclical nature of tourism and recreation which is tied to the overall strength of the economy and the availability of the general population's discretionary spending.

**Tax Revenues and Property Values.** There are approximately 1,875 housing units at an average density of 305.6 per square mile. The median house or condo value in 2012 is $159,260 which compares to $62,500 in 2000. Median gross rent in 2012 is $1,029 per

month. Median real estate property taxes paid for housing units was approximately $199 in 2012.

**Community Cohesion**. Community cohesion is the unifying force of a group due to one or more characteristics that provide commonality. These characteristics may include such commonality as race, education, income, ethnicity, religion, language, and mutual economic and social benefits. Community cohesion is the force that keeps group members together long enough to establish meaningful interactions, common institutions, and agreed upon ways of behavior. It is a dynamic process, changing as the physical and human environment changes.

The major constant seeming to affect community cohesion in Grand Isle is its frequent history of tropical storms and/or hurricanes. It has been affected by tropical storms or hurricanes on an average of once every 2.68 years since 1877, with hurricane direct hits on average every 7.88 years. In 1860, a 6 foot storm surge and great wind resulted in total devastation of the island. In 1893 and 1909 Grand Isle was devastated by 16 foot storm surges. A Category 4 hurricane devastated Grand Isle in 1915. In 1956 Hurricane Flossy damaged the island. Grand Isle was hit by Hurricane Betsy in 1965. The island was hit by Hurricane Andrew in 1992 which damaged a significant portion of the Project that had been completed the year before in 1991. In 1996 Grand Isle suffered the effects of Tropical Storm Josephine and in 1997 was hit by Hurricane Danny. A year later in 1998, Tropical Storm Frances put the entire island under water; and was further impacted in the same year (1998) by Tropical Storm Hermine and Hurricanes Earl and Georges. In 2002, Grand Isle was hit by Hurricanes Isidore and Bertha, and in 2003 was hit by Tropical Storm Bill and Hurricanes Isidore and Lili. Hurricanes Katrina and Rita hit Grand Isle in 2005 destroying or damaging homes and camps along the entire island. Katrina's surge reached 5 feet and large waves severely damaged the only bridge linking Grand Isle to the mainland. The island was also been struck by Hurricanes Gustav and Ike in 2008 which destroyed a substantial amount of the repair and rehabilitation work that was underway following the damage caused to the Project by Hurricanes Katrina and Rita. Even in the face of these numerous disastrous storms, and expectation of future such storms, community cohesion is especially strong in Grand Isle. If any conclusion can be drawn, it is that these events have actually caused the community to work together and become stronger in spite of the past hardships.

## 4.8 AIR QUALITY

Existing Conditions

Jefferson Parish is currently in attainment of all National Ambient Air Quality Standards, and operating under attainment status, therefore, a general conformity determination is not necessary. This classification is the result of area-wide air quality modeling studies.

## 4.9 NOISE

Existing Conditions

Noise currently within the Project area includes impacts typically caused by residential and commercial activities, such as noises generated by automobile and truck traffic, the construction of residential and commercial development, and the maintenance of public facilities and services. The effects of noise can be measured by sound amplitude and pressure in decibels ("dBs"). The U.S. Code of Federal Regulations states that levels not exceeding 65 dB are acceptable for most people under normal conditions; that levels greater than 65 dB, but less than 75 dB, are normally unacceptable, and recommends attenuation measures; and that levels greater than 75 dB are unacceptable.

# 5.0 ENVIRONMENTAL CONSEQUENCES
**(For Cumulative Impacts See Section 7.0)**

## 5.1 WILDLIFE

Future Conditions with No Action

There would be no direct or indirect impacts anticipated in the future without project condition. Public access to the beach would continue unchanged, and any impacts to wildlife resulting from public access would continue in its current state.

Future Conditions with the Proposed Action

CEMVN has assessed the environmental impacts of the proposed action on species found in the project area that are protected under the Marine Mammal Protection Act of 1972, the Migratory Bird Treaty Act of 1918 and Migratory Bird Conservation Act of 1929. CEMVN has determined that with use of guidelines from USFWS, and a nesting bird abatement plan (Appendix B), the proposed action would have no adverse impacts on protected birds. The proposed action would temporarily disturb roosting and foraging birds and other wildlife in the vicinity of the project area during construction due to equipment noise and human activity. As all work would take place on land, there would be no impacts to Bottlenose dolphins. In those areas where pedestrian crossovers are not restored beach access would continue unchanged, as would related impacts to wildlife.

## 5.2 THREATENED AND ENDANGERED SPECIES

Future Conditions with No Action

There would be no direct or indirect impacts anticipated in the future without project condition to T&E species or critical habitat in the area. Public access to the beach would continue unchanged, and any impacts to threatened and endangered species and/or critical habitat resulting from such public access would continue at similar rates.

Future Conditions with the Proposed Action

This proposed action is likely to cause temporary adverse affects to approximately 0.6-acre of designated critical habitat for roosting piping plover by placing material on the sandy area adjacent to the dune (above the annual high tide mark). The work would temporarily disturb roosting and foraging piping plover and red knots in the vicinity of the work area during construction and any future maintenance due to equipment noise and human activity. Limited and controlled access to the beach at these five locations would minimize the impacts of human disturbance to migrating and wintering birds. Prior to and during construction a qualified biologist would monitor the area for piping plover and red knot activity. A Biological Assessment was submitted to USFWS on 04 Nov, 2014 requesting initiation of consultation and coordination with USFWS is ongoing (Appendix B).

It is the opinion of CEMVN that the proposed action may affect, and is likely to adversely affect, the red knot and piping plover; and is likely to adversely affect piping plover critical habitat. The proposed action would have no effect on the West Indian manatee or any of the listed sea turtles as construction would be land based. Any sightings of stranded sea turtles should be immediately reported to the Louisiana Department of Wildlife and Fisheries ("LDWF") at (337) 962-7092. In those areas where pedestrian crossovers are not restored beach access would continue unchanged, as would related impacts to T&E species and critical habitat.

## 5.3 BEACHES

Future Conditions with No Action

Under this alternative, the proposed action would not be constructed by CEMVN. There would be no direct or indirect impacts to beaches on Grand Isle. Public access to the beach would continue unchanged, and any impacts to the beach resulting from public access would continue in its current state.

Future Conditions with the Proposed Action

Implementation of the proposed action would convert 0.57 acres of existing beach from its current natural condition. Direct impacts include the removal of the 0.57 acres from recreational use and as habitat for the various species of birds that utilize the beach for foraging, roosting, and nesting. A beneficial impact resulting from the proposed action is that it

will provide better access to the beach for emergency vehicles; and will provide safer and easier access for persons with physical disabilities. In those areas where pedestrian crossovers are not restored beach access would continue unchanged and use of the Grand Isle beach would continue by the general public. Impacts to the beach resulting from public access and use would continue in its current state.

## 5.4 CULTURAL RESOURCES

Future Conditions with No Action

Under this alternative, the proposed action would not be constructed by CEMVN. There would be no direct, indirect, or cumulative impacts to cultural resources.

Future Conditions with the Proposed Action

Implementation of the proposed action would not result in any direct, indirect, or cumulative impacts to cultural resources.

## 5.5 RECREATION RESOURCES

Future Conditions with No Action

Without implementation of the proposed action, the conditions within the recreational environment would continue as they have in the past and would be dictated by the natural land use patterns and processes that have dominated the area in the past. There would be no direct or indirect impacts to recreational resources.

Future Conditions with the Proposed Action

Recreation users within the project area would be temporarily inconvenienced during construction activities. Upon completion of the restoration work, .057 acre of available beach for recreational use would be eliminated. During construction activities, recreationists adjacent to the Project in the area of the work sites may be temporarily impacted by noise, dust, and a less attractive view. In those areas where pedestrian crossovers are not restored beach access would continue unchanged and recreational use of those areas by the general public would continue unimpacted. Recreational resources would continue to evolve along with the development of Grand Isle.

## 5.6 AESTHETIC (VISUAL) RESOURCES

Future Conditions with No Action

Under the no action alternative, there would be no direct or indirect impacts to visual resources. Public access to the beach would continue unchanged. Visual resources would most likely evolve from existing conditions in a natural process, or change as dictated by future land use maintenance practices and policies.

Future Conditions with the Proposed Action

There would be direct impacts to visual resources with the proposed action. The introduction of some articulated block onto the beach is somewhat intrusive and would detract from the scenic views along the beach. The proposed elevated timber pedestrian crossover at Burnette Street would not only provide public beach access but would also serve as an observation point by providing an unobstructed view of a large portion of both the island and the Gulf of Mexico. The ramp and walkway would be less intrusive to views from the beach as well.

Indirect impacts may include a maintenance issue that will most likely come up due to the structure of the articulated block laid on sand. In terms of indirect impacts, these facilities will have to be maintained in order to preserve the natural and scenic qualities of the beach.

Temporary impacts could potentially occur as a result of the construction due to the presence of construction equipment and staging of materials at the project locations. However, these impacts would only be of a short duration and would not exist beyond completion of the Project. Any future maintenance activities could result in temporary impacts from the presence of construction related equipment and the staging of materials. Increased traffic due to construction vehicles, dust, debris and increased noise volumes could affect the residential areas located around the work areas. These temporary impacts should return to normal upon completion of the work. Other indirect impacts are negligible. In those areas where pedestrian crossovers are not restored beach access would continue unchanged and the aesthetic quality of those areas would be maintained in their natural condition. Visual resources would continue to evolve from existing conditions in a natural process, or change as dictated by future land use maintenance practices and policies.

## 5.7 SOCIO-ECONOMIC RESOURCES

### Population and Housing

Future Conditions with No Action

Future population and housing estimates would likely remain unchanged in the absence of the restoration work since beach access and parking would remain unchanged. There would be no direct or indirect impacts anticipated in the future without Project condition.

Future Conditions with the Proposed Action

Summer populations may increase slightly, but any increase in summer population is not viewed as significant enough to necessitate any increases in housing. During construction population and housing is expected to remain unchanged.

## Employment and Business Activity

### Future Conditions with No Action

No change is anticipated in the absence of the proposed action. There would be no direct or indirect impacts anticipated in the future without project condition.

### Future Conditions with the Proposed Action

During construction, activity with local businesses could increase slightly, but any increase associated with the Project would be temporary.

## Public Facilities and Services

### Future Conditions with No Action

No change is anticipated in the absence of the proposed action. There would be no direct or indirect impacts anticipated in the future without project condition.

### Future Conditions with the Proposed Action

It is expected that the use of public facilities and services would continue on Grand Isle consistent with the current rate of growth and development. Grand Isle largely depends on seasonal tourism which causes an increase in the use of public facilities and services. There could be a slight increase in the demand for public services due to activities associated with the Project, but any increase would be temporary, only lasting for the duration of the Project.

## Transportation

### Future Conditions with No Action

No change is anticipated in the absence of the proposed action. There would be no direct or indirect impacts anticipated in the future without project condition.

### Future Conditions with the Proposed Action

Use of the area's roads could increase during Project construction due to the presence of construction related vehicles and activities. Any increase should be small and temporary. After construction is complete, transportation would return to near pre-construction levels.

## Community and Regional Growth

### Future Conditions with No Action

Community and regional growth should remain the same as existing conditions. There would be no direct or indirect impacts anticipated in the future without project condition.

### Future Conditions with the Proposed Action

The proposed action could cause temporary increases in economic activity during construction and may cause a smaller increase after completion.

## Tax Revenues and Property Values

### Future Conditions with No Action

Property values are likely to remain unchanged within the foreseeable future. Further property tax revenues should also remain unchanged since they are largely based on the value of the property being taxed. There would be no direct or indirect impacts anticipated in the future without Project condition.

### Future Conditions with the Proposed Action

Tax revenues could increase slightly during construction due to increased sales in Grand Isle and surrounding areas of Jefferson Parish for materials and supplies needed for construction, as well as dining, lodging, and other purchases by workers associated with the Project. Any increase in tax revenues resulting from the Project would be temporary.

## Community Cohesion

### Future Conditions with No Action

Under the No Action Alternative, the current patterns of behavior and social identity that characterize existing communities on Grand Isle would continue changing as the dynamics of the physical and human environment changed.

### Future Conditions with the Proposed Action.

Construction of the proposed action may temporarily disrupt the daily lives of Grand Isle's residents and the area's tourists. The implementation of the proposed action would have no effect on community cohesion on Grand Isle.

## 5.8 AIR QUALITY

Future Conditions with No Action

Under the No Action alternative, there would be no potential for direct or indirect, effects to air quality because construction of the proposed action would not occur, and the status of attainment of air quality for Jefferson Parish is not anticipated to change from current conditions.

Future Conditions with the Proposed Action

Probable direct impacts to air quality would include temporary diesel and gasoline emissions from the operation of construction equipment and temporary creation of fugitive dust during Project construction. The indirect effects to air quality of implementing the proposed action would be related to the emissions from transportation of personnel and equipment to and from the job site on a daily basis until the completion of construction.

## 5.9 NOISE

Future Conditions with No Action

Noise impacts would probably be similar to those under existing conditions. There would be no direct or indirect impacts as a result of implementing the proposed action. Future noise levels would continue to be dictated by normal daily activities and development on Grand Isle.

Future Conditions with the Proposed Action

Noise would increase due to the temporary operation of equipment and vehicles used in the construction of the improvements. While noise impacts may cause a temporary inconvenience to residents and facilities in the immediate area, noise levels associated with construction activities would be temporary and monitored to ensure acceptable standards are maintained. Noise levels associated with construction activities have the potential to temporarily impact wildlife that may be present in the area, but would not be significantly different from noise associated with other human activities that occur on a daily basis. After completion of the proposed action, noise levels would be expected to return to pre-action levels. Future maintenance activities could result in a slight increase in noise levels from equipment and activities associated, but any increase in noise levels associated with maintenance activities are anticipated to be lower and of shorter duration.

## 6.0 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE (HTRW)

The USACE is obligated under Engineer Regulation (ER) 1165-2-132 to assume responsibility for the reasonable identification and evaluation of all hazardous, toxic, and radioactive waste ("HTRW") contamination within the vicinity of proposed actions. ER 1165-2-132 identifies that HTRW policy is to avoid the use of project funds for HTRW removal and remediation activities. An ASTM E 1527-05 Phase 1 Environmental Site Assessment (ESA), HTRW 14-01 dated 31

January 2014 has been completed for the work areas. A copy of the Phase 1 ESA will be maintained on file at CEMVN. The probability of encountering HTRW for the proposed action is low based on the Initial Site Assessment.

## 7.0 CUMULATIVE IMPACTS

The Council on Environmental Quality's ("CEQ") regulations (40 CFR 1500-1508) implementing the procedural provisions of the National Environmental Policy Act ("NEPA") of 1969, as amended (42 U.S.C. 4321 et seq.), define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. (40 CFR 1508.7) Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time."

Without the implementation of the Project and the restoration of the dune crossovers, land loss and other natural events, development, and recreational use would continue to impact critical habitat for the piping plover, as well as suitable habitats for other wildlife on Grand Isle. Implementation of the proposed action would contribute cumulatively to the effects on wildlife, but would be comparatively small with regards to other activities and uses of the beaches on Grand Isle. Implementing the proposed action would result in a small reduction of critical habitat for the piping plover, but would contribute cumulatively to the long term and continued impacts to piping plover critical habitat in the United States when taken into consideration with other development and activities that would continue to occur on Grand Isle, regionally, and nationally.

There are no foreseen cumulative impacts to visual resources in the work area. The cumulative effects to air quality would be the combined emissions from the direct and indirect sources from constructing the proposed action when added to other emissions sources within the region. Because of the relatively short duration of construction, the cumulative impacts of the proposed action on air quality would be minimal and temporary, and Jefferson Parish would remain in attainment of all National Ambient Air Quality Standards.

The Town of Grand Isle has been developing at a steady rate for many years and it is possible that the Town of Grand Isle would continue to develop as long as the beaches and other recreational activities continue to exist and increase. Cumulative impacts to recreation, beaches, other environmental resources, and socio-economic values would continue to accumulate incrementally over time consistent with development, recreational use, and natural events that occur on Grand Isle. It is also foreseeable that the dune system and associated features, to include crossovers, would continue to erode as a result of extreme storm events, and would require periodic maintenance, and /or major rehabilitations.

## 8.0 COORDINATION AND PUBLIC INVOLVEMENT

Preparation of this EA and draft Finding of No Significant Impact ("FONSI") is being coordinated with appropriate Congressional, Federal, state, and local interests, federally-

recognized Indian Tribes, environmental groups, and other interested parties for a 30-day public review and comment, which include but are not limited to:

U.S. Department of Interior, Fish and Wildlife Service
Louisiana Department of Environmental Quality
Louisiana State Historic Preservation Officer
Louisiana Department of Natural Resources

## 9.0 MITIGATION

No activities have been identified during the preparation of this EA that would require mitigation.

## 10.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

There are many Federal and state laws pertaining to the enhancement, management and protection of the environment. Federal projects must comply with environmental laws, regulations, policies, rules and guidance. Compliance with laws will be accomplished upon 30-day public and agency review of this draft EA #524 and associated draft Finding of No Significant Impact.

### CLEAN AIR ACT OF 1972

The Clean Air Act (“CAA”) sets goals and standards for the quality and purity of air. It requires the Environmental Protection Agency to set National Ambient Air Quality Standards (“NAAQS”) for pollutants considered harmful to public health and the environment. The Project area is in Jefferson Parish, which is currently in attainment of NAAQS. The Louisiana Department of Environmental Quality is not required by the CAA and Louisiana Administrative Code, Title 33 to grant a general conformity determination.

### CLEAN WATER ACT OF 1972 – SECTION 401

The Clean Water Act (“CWA”) sets and maintains goals and standards for water quality and purity. Section 401 requires a Water Quality Certification from the Louisiana Department of Environmental Quality (LDEQ) that a proposed project does not violate established effluent limitations and water quality standards. State Water Quality Certification (MB040419-02/AI 121543) was issued on May 27, 2004 to make repairs and upgrades on Grand Isle, and correspondence (email) with LDEQ on January 7, 2014 stated that the existing certification is valid for purposes of this action. The proposed action would not affect water quality.

### COASTAL ZONE MANAGEMENT ACT OF 1972

The Coastal Zone Management Act (“CZMA”) requires that "each federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with approved state management programs." In accordance with Section 307, a Consistency Determination was prepared for the proposed Project and is being coordinated with the Louisiana Department of Natural Resources (LA DNR) in a letter dated April 17, 2015.

**COLONIAL NESTING WATER BIRDS**

The Project area is known to support colonial nesting water birds (e.g., herons, egrets, ibis, night-herons and roseate spoonbills). Based on review of existing data, preliminary field surveys, and with the use of USFWS guidelines and a nesting bird abatement plan, the CEMVN finds that implementation of the proposed restoration work would have no effect on colonial nesting water birds.

**NATIONAL HISTORIC PRESERVATION ACT OF 1966**

Section 106 of the National Historic Preservation Act of 1966, as amended, requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The procedures in 36 CFR Part 800 define how Federal agencies meet these statutory responsibilities. The Section 106 process seeks to accommodate historic preservation concerns with the needs of Federal undertakings through consultation among the agency official and other parties with an interest in the effects of the undertaking on historic properties, including the State Historic Preservation Officer ("SHPO") or Tribal Historic Preservation Officer ("THPO") and any Tribe that attaches religious or cultural significance to historic properties that may be affected by an undertaking. The goal of consultation is to identify historic properties potentially affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties. Consultation pursuant to Section 106 is on-going with the SHPO and will be completed prior to the final EA and signing of the Finding of No Significant Impact.

**TRIBAL CONSULTATION**

NEPA, Section 106 of the National Historic Preservation Act, EO 13175 ("Consultation and Coordination with Indian Tribal Governments"), the American Indian Religious Freedom Act, and related statutes and policies have a consultation component. In accordance with CEMVN's responsibilities under NEPA, Section 106, and EO 13175, the CEMVN offered the following federally-recognized Indian Tribes the opportunity to review and comment on the potential of the proposed action to significantly affect protected tribal resources, tribal rights, or Indian lands: Alabama-Coushatta Tribe of Texas, Caddo Nation of Oklahoma, Chitimacha Tribe of Louisiana, Choctaw Nation of Oklahoma, Coushatta Tribe of Louisiana, Jena Band of Choctaw Indians, Mississippi Band of Choctaw Indians, Seminole Nation of Oklahoma, Seminole Tribe of Florida, and Tunica-Biloxi Tribe of Louisiana.

**ENDANGERED SPECIES ACT OF 1973**

The Endangered Species Act ("ESA") is designed to protect and recover threatened and endangered ("T&E") species of fish, wildlife and plants. The USFWS identified in their coordination letter, ten T&E species, the Gulf sturgeon, Pallid sturgeon, Green Sea Turtle, Hawksbill Sea Turtle, Leatherback Sea Turtle, Loggerhead Sea Turtle, Kemp's Ridley Sea Turtle, West Indian manatee, piping plover, and red knot that are known to occur or believed to occur in the Project area. No plants were identified as being threatened or endangered in the Project area. CEMVN submitted a Biological Assessment ("BA") to USFWS on 4 November 2014, requesting formal consultation on the piping plover and its critical habitat. In their letter dated December 11, 2014, the USFWS confirmed that all information required to initiate formal consultation was included in the BA, and that log number 04EL1000-2015-F-0038 had been assigned. During consultation revisions were made to the BA. The revised BA is included in

Appendix B. It is the opinion of CEMVN that the completion of this proposed action may affect, and is likely to adversely affect the red knot and piping plover, and is likely to adversely affect piping plover critical habitat. The proposed action would have no effect on the West Indian manatee or any of the listed sea turtles as construction would be land based. The findings of the formal consultation and USFWS biological opinion will be included in the final EA.

**FISH AND WILDLIFE COORDINATION ACT OF 1934**

The Fish and Wildlife Coordination Act ("FWCA") provides authority for the USFWS involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. It requires that fish and wildlife resources receive equal consideration to other project features. It requires Federal agencies that construct, license or permit water resource development projects to first consult with the USFWS, NMFS and state resource agencies regarding the impacts on fish and wildlife resources and measures to mitigate these impacts. Section 2(b) requires the USFWS to produce a Coordination Act Report ("FWCAR") that details existing fish and wildlife resources in a project area, potential impacts due to a proposed project and recommendations for a project. The final FWCAR will include the USFWS positions and recommendations. The final FWCAR and CEMVN's responses will be included with the final EA.

The USFWS, as part of their coordination efforts, assisted in a survey to develop a list of colonial nesting waterbirds and shorebirds (e.g., egrets, terns, pelicans, and killdeer) found within the Project area. No active rookeries or nests exist within the Project area. However, several species of waterbirds/shorebirds utilize the area for foraging and roosting. Although no birds were observed nesting, the potential for nesting and suitable habitat exist within the Project area. USFWS and USACE biologists will survey the work areas before construction to confirm no nesting activity. If active nesting exists within 1,000 feet of a work area, this could be a Project constraint. USACE, in coordination with USFWS, developed a nesting prevention plan which would be implemented in order to deter birds from nesting within 1,000 feet of the Project footprint in order to avoid adverse impacts to these species.

## 11.0 CONCLUSION

The proposed action consists of the restoration of four (4) existing articulated concrete block vehicle crossovers and the expansion of the authorized use of the vehicular crossovers to include both emergency and official vehicles and vehicles transporting physically disabled persons across the Project dune to the beach. The restoration of the four ACB vehicular crossovers will include the extension of each vehicular crossover beyond the existing Gulf-side limits which presently end at the existing toe of the Project dune. Additionally, each of the extended vehicular crossovers will terminate in a drop off area for the temporary loading and unloading of physically disabled passengers. No other member of the public would be authorized to utilize the vehicular crossovers. Vehicular crossovers would not be authorized for use by pedestrians. Use of the drop off areas will be limited to the period of time necessary for a physically disabled person to exit and enter the vehicle and, with the exception of emergency and official vehicles would not be used for parking of any kind. The vehicular crossing at Birch Lane would be closed from October to March each year, except for emergency and official vehicles. Additionally, the proposed action includes the restoration of one (1) elevated timber

pedestrian crossover in the location of the original pedestrian dune crossover at Burnette Street on the south shore of Grand Isle. Upon completion of the proposed action, there will be five (5) authorized crossovers restored as part of the Project. The remaining twenty (20) wooden pedestrian crossovers will not be restored, and will be recommended to be eliminated as features of the Project. CEMVN has assessed the environmental impacts of the proposed action, and has determined that the proposed action would have no significant adverse impact upon the previously discussed relevant resources. There are *minimal* cumulative impacts, adverse or beneficial, associated with the proposed action.

## 12.0 PREPARED BY

This Draft EA # 524 and the associated draft FONSI were prepared by Eric Williams with relevant sections prepared by the following USACE personnel: Tammy Gilmore, Wildlife and Threatened and Endangered Species; Rebecca Hill, Tribal Liaison; Trent Stockton, Cultural Resources; Debbie Wright, Recreational Resources; Kelly McCaffrey, Aesthetic Resources; Robert Learned, Socioeconomics; and Joe Musso, Air Quality and Hazardous, Toxic, and Radioactive Waste.

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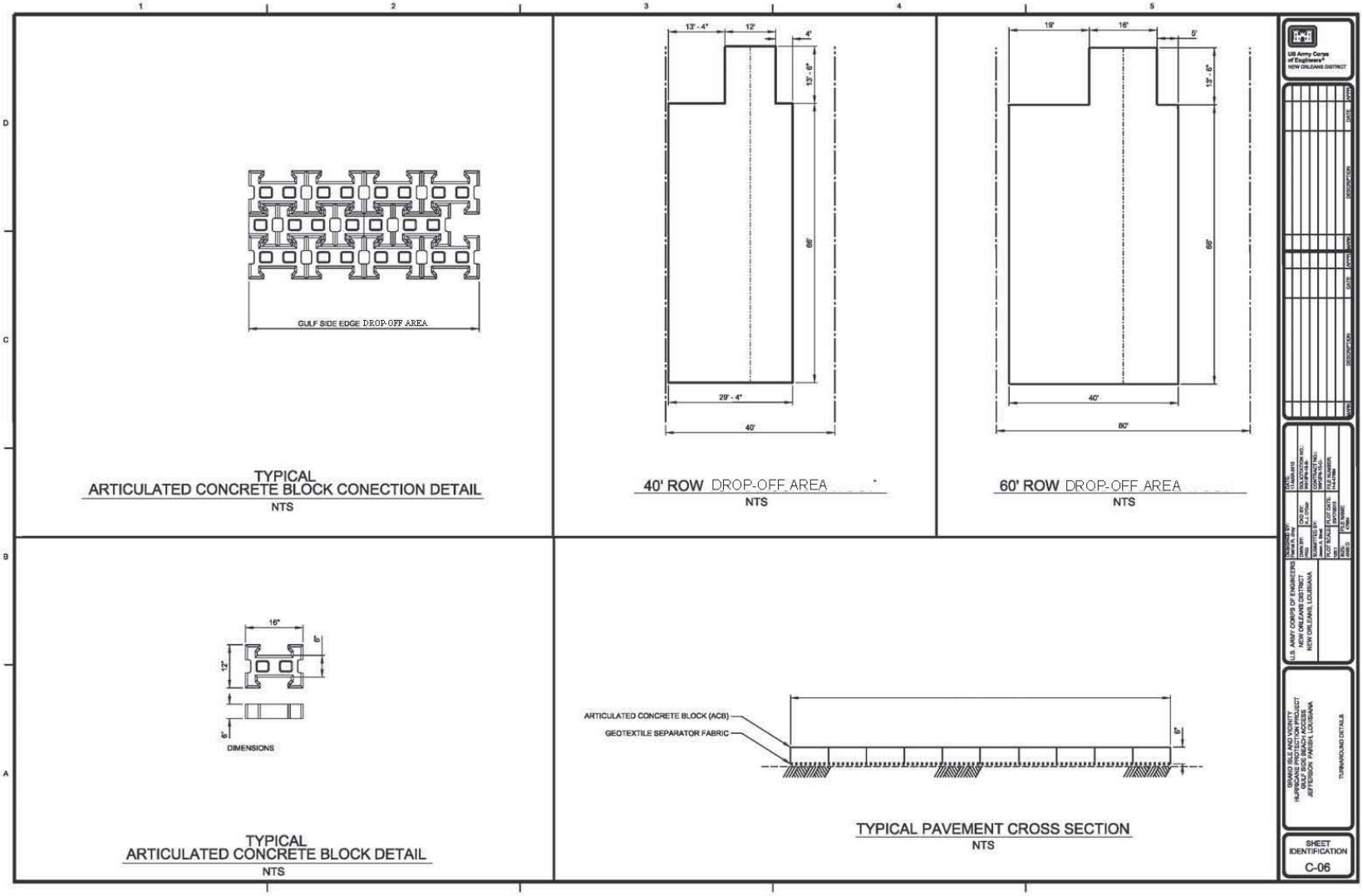
APPENDIX A
Project Plans




TYPICAL
ARTICULATED CONCRETE BLOCK CONECTION DETAIL
NTS

40' ROW DROP-OFF AREA
NTS

60' ROW DROP-OFF AREA
NTS

TYPICAL
ARTICULATED CONCRETE BLOCK DETAIL
NTS

TYPICAL PAVEMENT CROSS SECTION
NTS

PROTECTED SIDE
GULF SIDE
TIMBER WALKWAY
EXISTING PARKING AREA
BEACH
SCALE 1"=20'
TIMBER WALKWAY CROSS SECTION
N.T.S.
PROTECTED SIDE
GULF SIDE
C-01

APPENDIX B
Biological Assessment and
Nesting Bird Abatement Plan

**BIOLOGICAL ASSESSMENT**
**of**
**THREATENED AND ENDANGERED SPECIES**

**RESTORATION OF FOUR EXISTING ARTICULATED CONCRETE BLOCK VEHICLE CROSSOVERS AND ONE WOODEN PEDESTRIAN CROSSOVER FOR THE GRAND ISLE AND VICINITY, LOUISIANA BEACH EROSION AND HURRICANE PROTECTION PROJECT, JEFFERSON PARISH, LOUISIANA**

**November 2014**
**(Revised April 2015)**

**U.S. Army Corps of Engineers, Regional Division South, New Orleans District,**
**Environmental Planning Branch.**

**Introduction**

The U.S. Army Corps of Engineers (USACE), New Orleans District (MVN), has prepared this Biological Assessment (BA) to evaluate the potential impacts associated with the proposed restoration of four (4) existing articulated concrete block ("ACB") vehicle crossovers at Cranberry Lane, Krantz Lane, Capital Lane, and Birch Lane, and one (1) wooden pedestrian dune crossover adjacent to an existing privately-owned parking area on Burnette Street on Grand Isle, Louisiana. This proposed action would provide access to the beach side of the sacrificial dune feature for emergency vehicles, vehicle access for inspection and maintenance of the dune and geotube, disaster response, and will also be used as drop-off areas for beach visitors with physical disabilities. The wooden timber crossover will provide pedestrian and wheel chair access to the beach side of the sacrificial dune feature for persons with physical disabilities and other visitors to the Gulf-side beaches of Grand Isle. The proposed action is located in Grand Isle, in Jefferson Parish, Louisiana (See Figure 1). In the BA filed in November 2014, Appendix A provided detailed descriptions of alternatives that included parking areas. Since that time the proposed project has been modified by limiting use of the areas to proposed pedestrian drop-off areas for people with physical disabilities as well as access for emergency and official vehicles.

Public Law 109-148 authorized the restoration of Federal shore protection projects damaged during 2005 hurricanes using Flood Control and Coastal Emergencies (FCCE) funding. The Grand Isle and Vicinity , Louisiana Project was authorized by resolutions of the House of Representatives and the Senate dated 23 September 1976 and 1 October 1976, respectively, under Section 201 of the Flood Control Act of 1965 (Public Law 89-298, dated 27 October 1965).

**Action Area**

The proposed action (the project) is located on Grand Isle, in Jefferson Parish, Louisiana. Grand Isle is a 7.5-mile long, natural barrier island which is located between the Barataria Bay Waterway and Caminada Pass in Jefferson Parish Louisiana. The action area would consist of the rights-of-way, work areas, access areas, storage areas, and footprint of the project features as described below.

**Project Description**

The intent of the FCCE project is to repair storm damage to the Federal project which includes restoration of 5 existing dune crossovers. The project would also provide greater accessibility to the public beach for visitors and locals with disabilities by constructing 4 passenger drop-off areas adjacent to the crossovers. In addition, one (1) Americans with Disabilities Act (ADA) compliant elevated timber crossing for pedestrians would also be constructed. The dune crossings would be repaired and passenger drop-off areas built using materials that are more resilient to future storm events.

Previously there were 20+ pedestrian crossings over the dune, and several of the crossings were considered handicapped accessible. Over recent years the Federal project has been damaged by multiple storms that have occurred along the Gulf Coast of Louisiana causing severe damage to

the dune system and existing boardwalk crossovers. In discussions with Grand Isle city officials it was determined that as many as seven (7) crossovers and passenger drop-off areas located throughout the span of the dune would be sufficient to replace those that have been damaged or destroyed.

However, Endangered Species Act (ESA) consultation with USFWS resulted in a reduction of passenger drop-off areas as a way of minimizing impacts to federally listed threatened and endangered (T&E) species and their critical habitat, which are protected under the ESA, as well as nesting shorebirds, which are protected under the Migratory Bird Treaty Act (MBTA).

This BA presents the most reasonable and practicable plan for accomplishing the restoration of 5 dune crossovers and the construction of 4 associated beachside passenger drop-off areas, while simultaneously minimizing impacts to the threatened piping plover and its critical habitat, and the proposed red knot.

Alternatives Considered

Alternatives were developed in consultation with the USFWS in an attempt to first avoid and then minimize impacts to the piping plover and its designated critical habitat and the proposed red knot and its habitat. The following alternatives were considered but eliminated.

*No Action*

Under the No Action Alternative, there would be no restoration of the four existing ACB vehicle crossovers and the drop-off points and the elevated timber pedestrian crossover would not be restored. Conditions would remain the same with the existing dune crossovers on Grand Isle.

*Five (5) Articulated Concrete Block Vehicle Dune Crossovers and vehicle Drop off areas on the beach side of the dune – located at cranberry, krantz, capital, landry, and birch lanes*

Placement of ACB on the beach side of the dune. A total of 1.1 acres of piping plover critical habitat would be impacted by placement of ACB material on the beach. To have less impact to piping plover critical habitat, this alternative was redesigned to consist of only four (4) ACB drop-off areas and to include the elevated timber crossover.

*Five (5) Rigid reinforce concrete vehicle crossovers and drop off points on the Gulf Side of the dune – located at cranberry, krantz, capital, landry, and birch lanes*

Reinforced concrete would be poured in place on the Gulf side of the dune on the beach. A total of 1.1 acres of piping plover critical habitat would be impacted by placement of the reinforced concrete pavement under this alternative. This alternative was not carried forward because the alternative exceeded the scope of the original authorized Project and because of the potential impacts to the piping plover and red knot from constructing a rigid concrete surface on 1.1 acres of critical habitat; as well as the level of maintenance anticipated to be required; concerns with constructing a rigid structure on an active beach and potential undercutting and erosion during storm events.

*Five (5) asphalt Parking Areas on the Protected Side of dune with rigid Timber pedestrian crossovers over the dune – located at cranberry, krantz, capital, landry, and birch lanes*
This alternative consisted of the proposed construction of five asphalt paved parking areas on the protected side of the dune with rigid timber pedestrian crossovers. This alternative would result in minimal, if any, impacts to piping plover critical habitat. This alternative was not carried forward because the alternative exceeded the scope of the original authorized Project; and right-of-way limitations.

*Five (5) asphalt Parking Areas on the Protected Side of dune with soft roll pedestrian crossovers– located at cranberry, krantz, capital, landry, and birch lanes*
This alternative consisted of the proposed construction of five asphalt paved parking areas on protected side of the dune with ground level pedestrian ramps over the dune. This alternative would result in minimal, if any, impacts to piping plover critical habitat. This alternative was not carried forward because the alternative exceeded the scope of the original authorized Project; and right-of-way limitations.

*Restore Twenty-one (21) Existing Wooden pedestrian Dune Crossovers*
This alternative consisted of restoring the twenty-one (21) wooden pedestrian dune crossovers in the locations where they were originally constructed. The wooden pedestrian dune crossovers are susceptible to extensive damage and destruction during storm events; contribute to significant scouring and degradation of the dune and geo-tube system; and, as a direct result, negatively impact the hurricane protection and beach erosion purposes and intent of the sacrificial dune and geotube. For these reasons, this alternative was not carried forward for further consideration.

Proposed Action
The proposed action would restore four existing ACB vehicle dune crossovers located at Cranberry Lane, Krantz Lane, Capital Lane, and Birch Lane. Each ACB vehicle dune crossover would be extended approximately eighty-feet beyond the beach-side toe of the sacrificial dune/berm onto the gulf-side beach area that would end in a vehicular drop-off area. Use of the four existing vehicular crossovers would be expanded from access for emergency and other official vehicles to also allow for the drop off and pick up of persons with physical disabilities in order to provide those persons with a safer and easier mode of accessing the beach-side of the dune. No parking would be allowed on the crossover or within the drop off area. Non-emergency vehicles would be allowed to enter the drop off site to load and unload physically disabled passengers immediately upon arrival, thereafter leaving the drop-off area as soon as physically handicapped passengers are safely loaded or unloaded. With the exception of emergency and official vehicles, all vehicles would be prohibited from accessing the beach side of the sacrificial dune/berm beyond the location of the crossover and drop off area. Other than for emergency and official use, the proposed Birch Lane crossing and drop-off point would be seasonal and only available for use from March through October. Additionally, the proposed action involves the restoration of one (1) wooden pedestrian dune crossover largely within the same footprint and located adjacent to an existing privately owned parking area that is located on the land side of the dune at Burnette Street.

The proposed passenger drop-off areas would be constructed using ACB for pavement and would be constructed to provide a smooth surface. A separator geo-textile would be placed beneath the ACB to provide stability and reduce foundation material from pushing into the void space of the ACB. The right-of-way limits for each drop-off point are shown in the attached plans. All construction related activities would occur within the footprint of the proposed vehicle crossover and drop-off areas. The total footprint for all passenger drop-off areas combined is 0.5 acres.

The final footprint of the elevated wooden pedestrian crossover is .07 acres, of which approximately 0.035 acres would be located in critical habitat for the piping plover. During construction, the work area for the elevated wooden pedestrian crossover would include an additional 0.58 acres to be used as a temporary staging and work area, all of which would be located in critical habitat for the piping plover.

The elevated wooden pedestrian crossover would be restored in the same location as the original pedestrian crossover. The timber crossover would be constructed with pressure treated lumber and would be for pedestrian traffic only. The crossover would be constructed 4.5 feet above the current dune elevation of approximately +13.0 feet (NAVD88), and would consist of multiple ramps to achieve a desired walkway elevation of +17.5 feet (NAVD88). Each ramp would be sloped with landings provided every 30 feet, with a walkway that is 6 foot wide.

The equipment necessary to perform the proposed work would include trucks for the delivery of materials, a bulldozer and backhoe to level the project area footprints and help place the ACB's, a small skidder (like a Bobcat), and a pile driver during construction of the timber pedestrian crossover. All work would be confined to the proposed project footprint and temporary staging and work area as described above. The movement of construction related equipment, vehicles, and materials across the beach from project area to project area would not be permitted. Future maintenance of the crossovers would involve small maintenance crews rearranging or replacing ACB's.

All construction activity would occur within the footprint of each passenger drop-off area. The footprint for each passenger drop-off area is as follows:

Cranberry - 0.1 acres
Krantz – 0.1 acres
Capital – 0.1 acres
Birch – 0.2 acres

The total footprint for all passenger drop-off areas is 0.5 acre. Due to the extreme environment of the Gulf side of the dune and the possibility of frequent severe storm events, an additional five feet of ACB would be placed on the western, southern, and eastern perimeters of the proposed passenger drop-off areas. The ACB passenger drop-off areas are not designed to resist the wave action of large storm events that occur on Grand Isle. In the event that the ACB passenger drop-off areas are damaged in a storm event, the ACB passenger drop-off areas could be repaired quickly and cost effectively. Any future maintenance of the crossovers and passenger drop-off

areas would be the responsibility of the local sponsor and could occur in a timely manner regardless of the time of year. It is anticipated that such maintenance would result in minimal temporary disturbance to wintering shorebirds, such as piping plovers and red knots, as well as nesting shorebirds.

The ACBs would be interlocking concrete blocks which would provide some flexibility to allow movement should site specific erosion or differential settlement of the foundation take place. They also allow for windblown sand to accrue in the cracks and blend in with the surface and for natural sand movement across the upper beach. Unlike a solid blacktop surface, this material would blend in with the natural habitat. Although this is a permanent feature of the project, it is not a permanent surface, as the individual blocks are portable and can be readily moved. Therefore, if need be, it could be easily removed for maintenance, repair or ecological reasons.

The timber crossing would be located at an existing parking area on the island identified as Burnette Lane and would be for pedestrian traffic only. The crossing would be constructed with pressure treated lumber. The timber crossing would be constructed approximately 4.5 feet above the current dune elevation of approximately +13.0 feet (NAVD88) and would consist of multiple ramps to achieve a desired walkway elevation of +17.5 feet (NAVD88). Each ramp is sloped to be ADA compliant with landings provided every 30 feet with a walkway that is 6 feet wide. The area of the work limits for the timber crossing would be 0.65 acres and the final footprint would be 0.07 acres, half of which would be within critical habitat.

The total acres of permanent impact due to the proposed project would be approximately .6 acre which includes .5 acre due to passenger drop-off areas and .07 acre due to the timber crossing.


**Figure 1. Project Location Map, Grand Isle Louisiana Beach Access Areas**

**Species Considered**

MVN has assessed the environmental impacts of the proposed action on T&E species in the project vicinity. The piping plover, red knot, West Indian manatee and Green, Kemp's Ridley, Leatherback, Hawksbill and Loggerhead sea turtles are known to or believed to occur in the project area. Piping plover critical habitat is also present along the beaches where the proposed action would take place.

Piping Plover (*Charadrius melodus)*

In the winter, piping plovers inhabit beaches, mudflats, and sandflats along the Gulf of Mexico and Atlantic coasts. They also use barrier island beaches and spoil islands on the Gulf Intercoastal Waterway. Piping plovers forage along the wrack line where invertebrates are most readily available (USFWS 2014a).

In July of 2001, the USFWS designated specific areas in the United States as critical habitat for wintering piping plovers (Federal Register / Vol. 66, No. 132, 10 July 2001). Critical habitat in Louisiana encompasses 24,950 acres along 342.5 miles of shoreline, which is comprised of seven critical habitat units. Grand Isle is located in Unit LA-5, and critical habitat is specifically

defined as "… the Gulf shoreline of Grand Isle from the Gulf side of the hurricane protection levee to MLLW [mean low low water]…" (Federal Register / Vol. 66, No. 132, 10 July 2001).

The International Piping Plover Coordination Group facilitates the International Piping Plover Census (IPPC) of breeding and wintering piping plovers throughout their range (Elliott-Smith et al 2006). The IPPC has taken place in 1991, 1996, 2001, 2006, and 2011. (Results from 2011 have not yet been published.) (B. Firmin 2014 personal communication) Survey results for Louisiana have varied in intensity and number of sites visited over the years due to poor weather conditions, lack of personnel, and logistical constraints for site access (USFWS 2011). Results of those IPPC surveys for Louisiana range from a high of 750 birds in 1991 to a low of 226 birds in 2006; those numbers, however, do not reflect the variations in survey intensity or the number of sites visited (USFWS 2011).

In Louisiana, the 2006 IPPC recorded only 226 piping plovers, the lowest numbers in the State in IPPC history. The substantial decline in numbers of wintering piping plover along the Louisiana coast could be attributed to habitat loss as a result of Hurricanes Katrina and Rita; however, lack of personnel and poor weather conditions also affected survey intensity in the State that year (B. Firmin, USFWS, personal communication 2014). Only two piping plovers were recorded on Grand Isle during the 2006 census. However, this is not unexpected given the amount of human activity that occurs on the island's beaches. Although the presence of only two wintering piping plovers was documented on Grand Isle during the 2006 census (Elliott-Smith et al 2006), other surveys have documented piping plovers on the island. Additional wintering shorebird surveys conducted from 2007 to 2011 by the Louisiana Department of Wildlife and Fisheries (LDWF) have documented up to 6 piping plovers wintering on the eastern end of Grand Isle. Data from eBird.org (accessed in April 2014) indicate that as many as 39 piping plovers have been observed on Grand Isle. Thus, numbers of birds utilizing available habitats on Grand Isle may vary between wintering and migration seasons, and much of the preferred habitat is located on the far eastern end of the island within the Grand Isle State Park (see Figure 1).

Rufa Red Knot (*Calidris canutus rufa*)

Louisiana is a migration stopover for red knots in both spring and fall, and some birds may overwinter in small numbers. In the southeastern United States, red knots forage along sandy beaches, tidal mudflats, salt marshes, and peat banks. Observations along the Texas coast indicate that red knots forage on beaches, oyster reefs, and exposed bay bottoms and roost on high sand flats, reefs, and other sites protected from high tides (USFWS 2014b). Red knots are known to occur within the proposed project area. Data from eBird.org (accessed in April 2014) indicate that anywhere from 1 to 256 red knots have been observed on Grand Isle in various locations across the island. Thus, the number of birds utilizing available habitats on Grand Isle may vary between wintering and migration seasons.

Marine Turtles

The Green *(Chelonia mydas)*, Kemp's Ridley (*Lepidochelys kempii*), Leatherback (*Dermochelys coriacea*), Hawksbill (*Eretmochelys imbricate*) and Loggerhead (*Caretta caretta*) sea turtles are known to utilize the offshore and inshore areas of the Gulf of Mexico near Grand Isle. Nesting

of any of these species has not been documented in Louisiana. However, sea turtles have been known to get stranded on Grand Isle and other beaches of Louisiana. Contractors would be informed of the potential of stranded turtles and would be directed to report any strandings to the Louisiana Department of Wildlife and Fisheries (LDWF) at (337) 962-7092.

West Indian Manatee (*Trichechus manatus)*
Manatees inhabit coastal areas from Florida to the Greater Antilles and suitable habitats in Central and South America. On occasion the West Indian manatee has been observed in eastern Louisiana waters but it is unlikely that they would be found near the beaches of Grand Isle, as they are not close to a fresh water source and the shallow water habitats surrounding Grand Isle do not provide an adequate food source for that species.

**Effects Analysis**
Piping Plover (*Charadrius melodus*)
This proposed action, the use of ACB to construct beach side passenger drop-off areas, and the construction of a raised timber crossing, is likely to adversely affect approximately 0.6-acre of designated critical habitat for roosting birds by placing material on the sandy area adjacent to the dune (above the annual high tide mark). The work would temporarily disturb roosting and foraging birds in the vicinity of the project area during construction due to equipment noise and human activity. Construction of beach side passenger drop-off areas could allow easier public access to the beach with motorized vehicles which could potentially create long-term disturbance to birds utilizing the Gulf shoreline in proximity to the crossover locations. However, use of the ACB material (as opposed to having black asphalt) would minimize impacts by allowing the impacted area to remain covered with sand while providing micro-topographic features when not being used by humans. Use of the passenger drop-off areas would be controlled by a locked gate with limited entry from late August through early May during bird migration and wintering presence in the area in order to reduce human disturbance. The passenger drop-off area at Birch would be closed during the winter months (November through February) to avoid disturbance to preferred habitats more heavily used by birds on the eastern end of the island. This would further minimize the impacts of human disturbance to wintering birds along that portion of the island.

Once constructed the .07 of an acre footprint of the raised timber crossing would result in an insignificant and discountable impact to critical habitat as it would be located adjacent to the vegetated dune. This area currently has a high disturbance from human traffic across the dune, therefore the project would not result in an increase of existing disturbance levels. The measures found in appendix C would be utilized during construction to further minimize impacts to piping plover and critical habitat.

It is the opinion of MVN that the completion of this proposed action may affect and is likely to adversely affect the piping plover and its designated critical habitat. Approximately 0.6-acre of designated piping plover critical habitat would be adversely affected by placement of the ACB material.

Red knot (*Calidris canutus*)

Impacts to the wintering red knot would be similar to those discussed above for the piping plover and would be minimized by the same measures discussed for the piping plover. The opinion of MVN is that the completion of this action may affect and is likely to adversely affect the red knot.

Marine Turtles

Due to the fact that all work would take place on land and no in-water activities are proposed, the proposed action would have no effect on the Green, Kemp's Ridley, Leatherback, Hawksbill and Loggerhead sea turtles.

West Indian Manatee (*Trichechus manatus*)

Due to the fact that all work would take place on land and no in-water activities are proposed, the proposed action would have no effect on the West Indian manatee.

**Effects on Protected Species**

MVN has assessed the environmental impacts of the proposed action on species found in the project area that are protected under the Marine Mammal Protection Act of 1972, the Migratory Bird Treaty Act of 1918 and Migratory Bird Conservation Act of 1929.

Birds

The area is known to support various species of shore birds, wading birds and songbirds. In a recent survey conducted by MVN biologists, the following species were identified as utilizing the beach, shrubs and/or waters adjacent to the proposed project sites: Sanderlings, kill deer, ruddy turnstones, sandpipers, snowy egrets, summer tanagers, herring gulls, laughing gulls, common terns, foresters terns, Caspian terns, royal terns, brown and white pelicans, magnificent frigate birds, barn swallows, cuckoos, bank swallows, eastern kings, painted bunting and red winged black birds. Foraging and roosting were the only activities exhibited during the duration of the surveys. Although none of these birds were observed nesting, the potential for nesting and suitable habitat exist within the project area. MVN has determined that, with use of guidelines from USFWS and a nesting bird abatement plan (Appendix D), the proposed action would have no adverse impacts on protected birds.

Bottlenose Dolphins

The waters adjacent to the project area are known to support Bottlenose dolphins. They are commonly seen on a daily basis from the shores of the proposed action. As all work would take place on land, there would be no impacts to Bottlenose dolphins.

**Conclusion and Determination of Effects**

Based on the above information, the MVN has determined that the proposed action would have no effect on the West Indian manatee or any of the listed sea turtles; may affect, and is likely to adversely affect the red knot and piping plover; is likely to adversely affect piping plover critical habitat; and would not adversely impact other protected species that could potentially be found in the project area. Please provide your opinion on our determination.

**Literature Cited**

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**Preparers**

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**NESTING BIRD ABATEMENT PLAN**
**RESTORATION OF FOUR EXISTING ARTICULATED CONCRETE BLOCK VEHICLE CROSSOVERS AND ONE WOODEN PEDESTRIAN CROSSOVER FOR THE GRAND ISLE AND VICINITY, LOUISIANA BEACH EROSION AND HURRICANE PROTECTION PROJECT, JEFFERSON PARISH, LOUISIANA**

Introduction

This nesting bird abatement plan outlines the known habitat conditions of the project area, expected and potential nesting migratory birds, regulatory overview of Federal and state statutes relating to the implementation of this plan, proposed abatement methods and techniques, safety and communication plans, , monitoring of the project area, and reporting the status of the abatement measures. The overall objective of this plan is to use a variety of harassment and abatement techniques to prevent migratory birds from nesting within the project area. The brown pelican (Pelicanus occidentalis), although recently delisted by USFWS, is protected from harassment in Louisiana since it is listed as a state endangered species.

Federal and State Laws

The Migratory Bird Treaty Act of 1918, as amended (MBTA), established a Federal prohibition, unless permitted by regulations, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this convention … for the protection of migratory birds … or any part, nest, or egg of any such bird." (16 U.S.C. 703) Simply put, the MBTA prohibits the capture or lethal take of migratory birds without a permit from the USFWS; however, it does not prohibit harassment of migratory birds. All colonial nesting wading, shore birds and water birds are protected by the MBTA.

The Endangered Species Act of 1973 (ESA), as amended, prohibits unauthorized taking of endangered or threatened species. Section 7 of the ESA requires Federal agencies to ensure that any action authorized, funded or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat. Since the brown pelican and bald eagle have been removed from the endangered species list, this act no longer applies to these two species.

State law in Louisiana also protects species listed as threatened or endangered under the ESA, or species determined by the secretary of the LDWF to be threatened or endangered. Brown pelicans and bald eagles are listed as state endangered. The taking of any state threatened or endangered species is prohibited by state law; therefore, abatement measures to prevent migratory bird nesting should not disturb brown pelicans or bald eagles. However, coordination

with LDWF has determined that harassment measures that may inadvertently affect non-nesting brown pelicans are allowed.

Existing Habitat

Grand Isle is a 7.5-mile long natural barrier island which is located at the southern end of the Barataria Bay Waterway on the west side of the channel in Jefferson Parish Louisiana. The island consists of Chenier forests, wetlands, open water, shoreline beaches and urbanized areas. The project area is located within the shoreline beach area only. The habitat within the project area consists of sandy beaches and associate grassy dunes but is adjacent to open water (Gulf of Mexico) and urbanized areas. These habitat types provide nesting, roosting and foraging grounds for various species of migratory birds.

Target Species

The area is known to support various species of shore birds, wading birds and song birds. In a recent survey conducted by CEMVN biologists, the following species were identified as utilizing the beach, shrubs and/or waters adjacent to the proposed project sites: Sanderlings, kill deer, ruddy turnstones, sandpipers, snowy egrets, summer tanagers, herring gulls, laughing gulls, common terns, foresters terns, Caspian terns, royal terns, brown and white pelicans, magnificent frigate birds, barn swallows, cuckoos, bank swallows, eastern kings, painted bunting and red winged black birds. This list is not all inclusive and may vary from season to season. Foraging and roosting were the only activities exhibited during the duration of the surveys. Although none of these birds were observed nesting, the potential for nesting and suitable habitat exist within the project area.

Abatement Measures

The key to deterring migratory birds from establishing active nests is timing, persistence, organization, and diversity of abatement measures. All abatement measures will be conducted by wildlife biologists who are familiar with bird ecology and are familiar with the proposed abatement methods.

Abatement measures will begin prior to the beginning of the breeding season. The intensity of the abatement measures will be highest from the period before the breeding season through the peak of the breeding season. If bird activity remains low within the vicinity of the project area, intensity may decrease after May.

To increase the effectiveness of the nesting prevention program, a combination of abatement measures will be employed. Additionally, the types of abatement measures, as well as their spatial and temporal deployment, will be changed frequently to reduce the chances that birds may become habituated to the abatement methods. Finally, monitoring the effectiveness of the abatement methods and adaptive management are extremely important to ensuring that the

nesting prevention program is successful. The following sections discuss the approaches to the nesting prevention program and specific techniques that could be used within each approach.

Active repellent techniques will involve personnel utilizing audio and visual dispersal methods. Active repellent will be most intense within areas known or expected to have nesting or roosting birds, but will also occur throughout the project area. Personnel will be onsite seven days a week prior to the onset of nesting season, and subject to the issuance of the NTP, through the end of the season. Starting in June, the numbers of days on site or the hours per day may be reduced if bird activity has been low. Intense effort will continue in areas that have had high activity. Active repellent techniques performed in the project area will primarily occur in the early morning and late evening (crepuscular periods) hours to disperse roosting birds. However, visits will also occur throughout the day and night to ensure the birds do not become habituated to the abatement timing.

Transportation throughout the project area will primarily involve pedestrian traffic. Pyrotechnics such as 37mm rounds, shell crackers, bangers, screamers, and banger-screamers will be used to disperse birds from the project area. Human induced methods including yelling, clapping will also be used. Other active auditory repellents might include air horns and bullhorns with siren capability. A combination of theses audio repellents will also be used to avoid habituation to any one measure. Deployment of such devices will be done in accordance with Federal, state, and local ordinances and be compatible with existing land use. All pyrotechnics will be deployed by personnel with demonstrated competence in their safe and proper use. The use of all pyrotechnic harassment measures will also be in accordance with EM 385-1-1 (USACE Safety and Health Requirements), latest edition and the Accident Prevention Plan (APP; Appendix B).

The continual presence of personnel within the project area usually serves as a deterrent to bird nesting. The activities of personnel in conjunction with erratic movements like arm waving and splashing water will also serve to repel some birds. Additionally, hand-held green lasers could be used in dispersing birds from roosting and nesting sites. These devices are particularly effective at dispersing birds from roosts at night. Green lasers, like the Avian Dissuader, are more visible in higher ambient light conditions than red lasers, thereby increasing their efficacy. Since hand-held lasers emit no sound they are compatible with most land uses.

Monitoring and Reporting

Reconnaissance within the project area will continue throughout the nesting season to observe birds and their behavior. The entire project area will be monitored daily. Monitoring will typically be done throughout the entire day using spotting scopes in association with active abatement methods.

Monitoring and abatement efforts will occur in a systematic and random fashion based upon access points and previously observed presence of birds. In order to avoid habituation and provide randomization of monitoring and abatement methods, a variety of access routes, abatement methods (and combination of methods), clothing, and times of day will be utilized. If birds are observed in the project area, the approximate number of individuals of each species, location, habitat, and time of day will be recorded. Observations of brown pelicans will also be recorded.

Any observed birds will then be dispersed using one or a combination of the active repellent techniques. The abatement technique used, number of individuals, efficacy of the technique, direction of dispersal, location and time of day will be recorded for each species dispersed. Additional, ancillary observations and comments will be recorded including, but not limited to, weather, general hydrologic conditions, habituation behavior observed, and access route for deployment. The daily observations will be summarized into a daily report, emphasizing monitoring efforts, nesting prevention measures, successes and failures, adaptive measures, habituation, and nesting activity.

The location of active nests will be recorded using a GPS and marked with flagging on stakes three feet above the ground and three feet from the nest. CEMVN will then coordinate with USFWS and LDWF to determine the need for suspension of work activities and whether exceptions can be made to the buffer based on site specific information. Harassment of actively nesting birds will not occur.

Monthly reports will be completed for the nesting prevention activities. These reports will include information taken from the daily logs, as well as foreseeable issues, habitat and/or bird impacts, descriptions of current problems, and suggested corrective actions. A final report will be completed at the end of the nesting season. This report will provide a comprehensive summary of all monitoring and nest prevention efforts. This report will include a narrative and graphical presentation of the results as well as lessons learned during the abatement process.