August 2002

Environmental Assessment

Lido Key Shore Protection Project

Sarasota County, Florida

U.S. Army Corps
of Engineers
Jacksonville District

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P. O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

LIDO KEY SHORE PROTECTION PROJECT
FEASIBILITY STUDY
LIDO KEY
SARASOTA COUNTY, FLORIDA
FINDING OF NO SIGNIFICANT IMPACT

I have reviewed the Environmental Assessment (EA) for the proposed action. This Finding incorporates by reference all discussions and conclusions contained in the Environmental Assessment enclosed hereto. Based on information analyzed in the EA, reflecting pertinent information obtained from agencies having jurisdiction by law and/or special expertise, I conclude that the proposed action will not significantly impact the quality of the human environment and does not require an Environmental Impact Statement. Reasons for this conclusion are in summary:

1. The project includes the nourishment of the Lido Key shoreline using material obtained from three offshore borrow sites, and the construction of a groin field at the southern end of Lido Key near Big Sarasota Pass. Minimal environmental resources occur within the project area.

2. The proposed action would not jeopardize the continued existence of any threatened or endangered species or adversely impact any designated "critical habitat".

3. The proposed project has been determined to be consistent with the Florida Coastal Zone Management Program.

4. State water quality standards will be met.

5. In coordination with the State Historic Preservation Officer, it was determined that the project will not impact any sites of cultural or historical significance.

6. Measures to eliminate, reduce, or avoid potential impacts to fish and wildlife resources include the following: (1) Offshore hardbottom formations would be protected with a 200-ft. buffer zone where no dredging would be permitted, (2) The standard manatee protection measures would be followed for all water based activities, (3) The Jacksonville District's Migratory Bird Protection Policy would be followed if any migratory birds are

encountered, (4) Measures to prevent or minimize impacts to sea turtles in accordance with the terms and conditions of the Biological Opinions from the U.S. Fish and Wildlife Service and the National Marine Fisheries Service will be implemented.

17 SEPTEMBER 2002
Date

James G. May
Colonel, U.S. Army
District Engineer

ENVIRONMENTAL ASSESSMENT
ON
LIDO KEY SHORE PROTECTION PROJECT
SARASOTA COUNTY, FLORIDA

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ON
LIDO KEY SHORE PROTECTION PROJECT
SARASOTA COUNTY, FLORIDA

1 PROJECT PURPOSE AND NEED

1.1 PROJECT AUTHORITY.

1.1.1 INITIAL AUTHORIZATION.

A beach erosion control project was authorized for Lido Key by the 1970 River and Harbor Act. The project provided for initial restoration and periodic nourishment for 1.2 miles of shoreline. The city of Sarasota completed the northern half of the project in 1970 with no Federal participation. The project was never completed and was deauthorized on 1 January 1990. Maintenance dredged material from the Federal navigation project at New Pass is periodically placed on Lido Key beach.

1.1.2 SUPPLEMENTAL APPROPRIATION.

The Water Resources Development Act of 1999 reauthorized the Lido Key Shore Protection Project, which allows for the continuation with the Feasibility phase of the study and preparation of the feasibility report.

1.2 PROJECT LOCATION.

The project is located in Sarasota County off the west coast of Florida, near the central portion of the Florida peninsula and about 45-miles south-southwest of Tampa. The island is approximately 2.5 miles in length and lies entirely within the corporate limits of the city of Sarasota. New Pass separates Lido Key from Longboat Key to the north and Big Sarasota Pass separates Lido Key from Siesta Key to the south. (see **figure 1**, vicinity map and **figure 2 and 3**, project plan view)

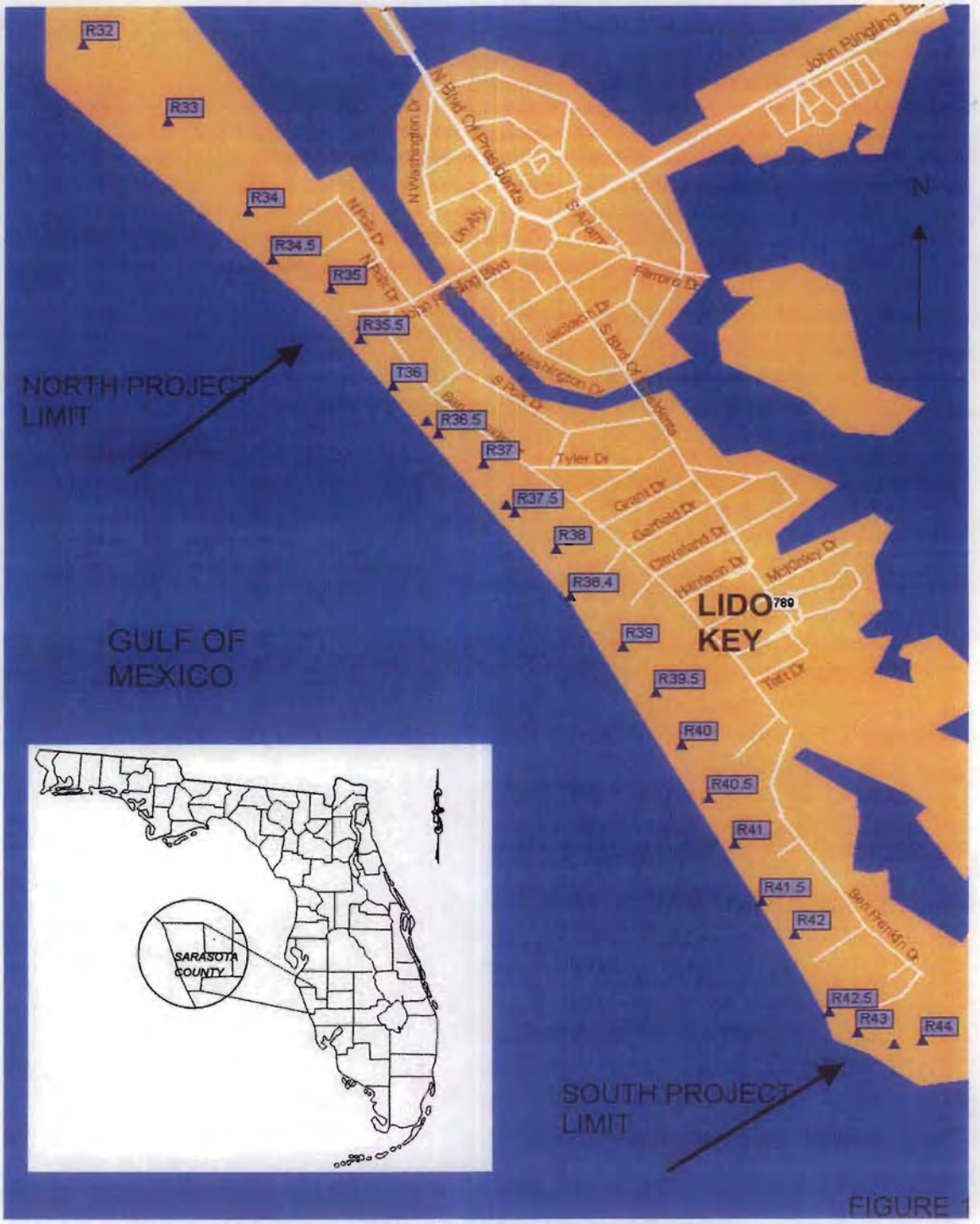
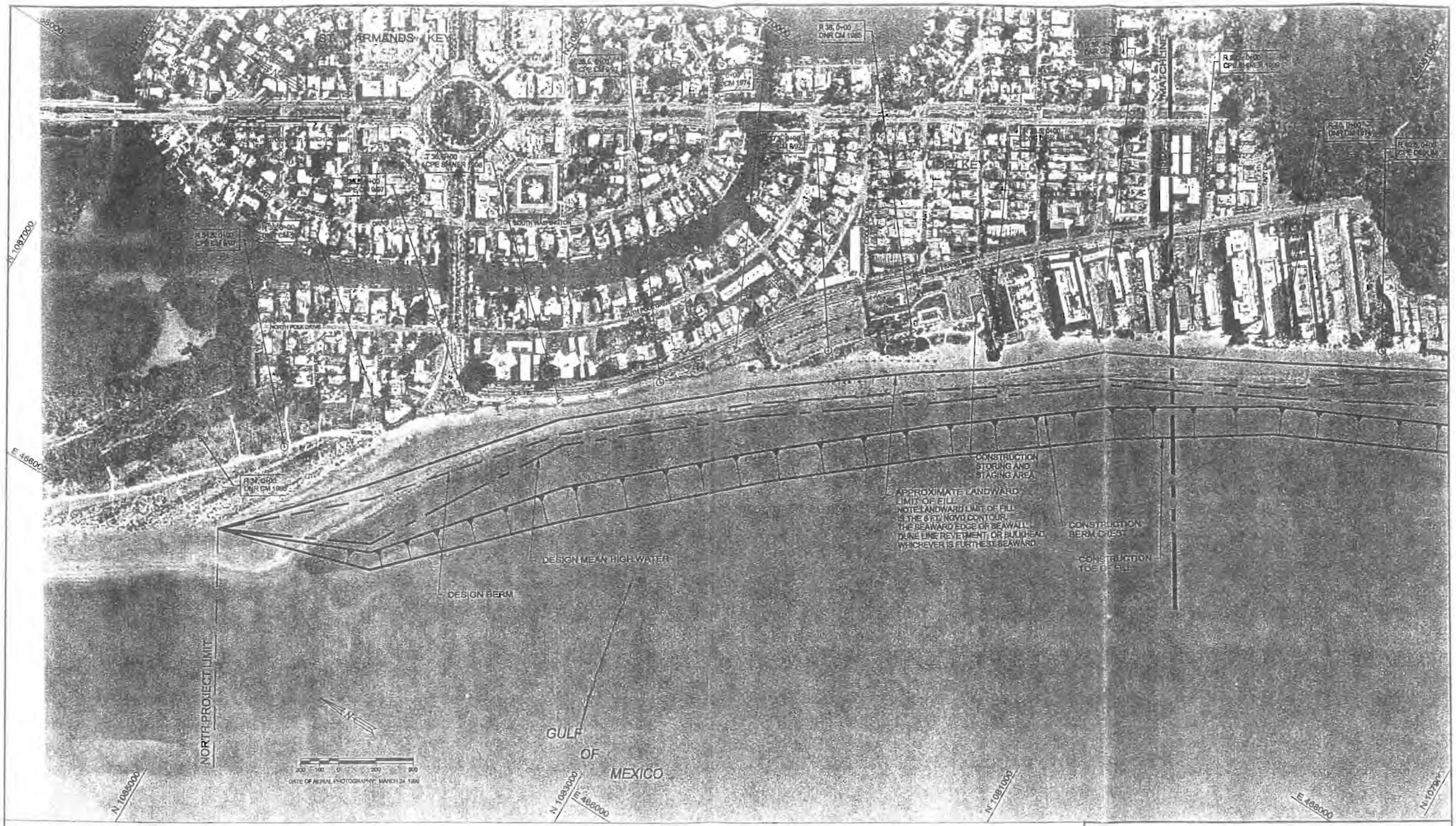


FIGURE 1. LIDO KEY VICINITY MAP



LIDO KEY, SARASOTA COUNTY, FL
SHORE PROTECTION PROJECT
PLAN VIEW

COASTAL PLANNING & ENGINEERING, INC
2481 NW BOCA RATON BLVD.
BOCA RATON, FL 33431

NOTES:

1. COORDINATES SHOWN HEREON ARE IN FEET BASED ON FLORIDA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NORTH AMERICAN DATUM 1983.
2. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NGVD 1929.

FIGURE 2

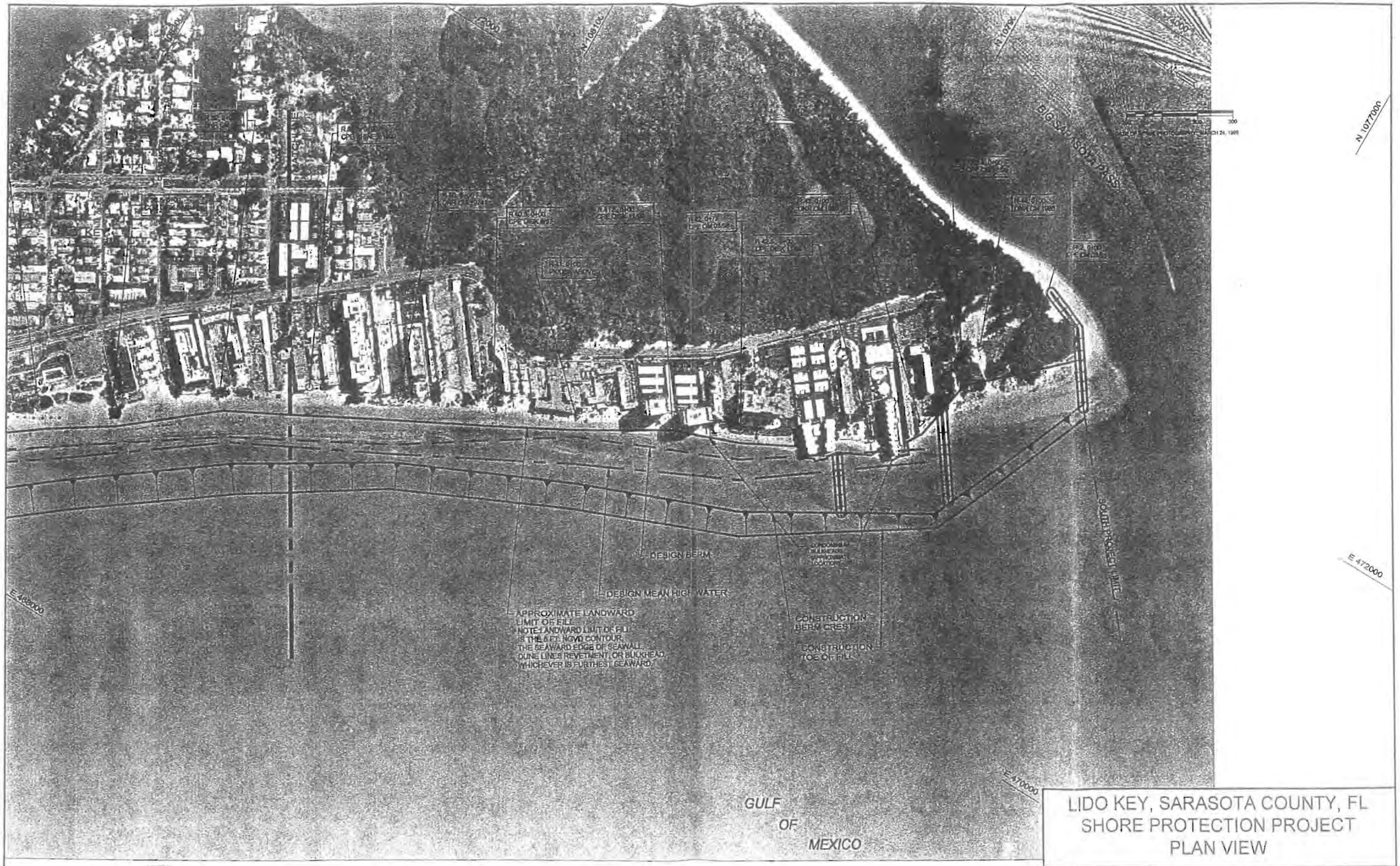


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FIGURE 3

1.3 PURPOSE OF AND NEED FOR ACTION.

The Coastal erosion has been, and continues to be, a persistent problem on Lido Key, threatening commercial and residential structures. Maintenance dredged material from the Federal navigation project at New Pass has periodically been placed on Lido Key at Federal expense. This material is dredged to keep the Federal navigation channel open, but this has not been sufficient to prevent the beaches of Lido Key from eroding. The impacts of several major storms from 1982 to the present have accelerated beach erosion and increased the probability for damage to structures at Lido Key.

The U.S. Army Corps of Engineers is conducting a feasibility phase study to investigate the benefits of beach nourishment on Lido Key including the provisions of groin structures at the south end of the island. Alternative plans considered for this study include no-action, beach nourishment, and groin structures. The selected plan consists of a beach fill and groin field with 1,000 ft. tapers at the northern and southern ends. The design berm would be 80-ft. at +5 ft-NGVD with a construction slope of 1/10. This plan would require approximately 479,000 cy of design fill and 502,754 cy of advance nourishment. Construction of three groins at the southern end of the island would also be part of the selected plan. Three offshore borrow areas were identified. Nourishment would be provided at 5-year intervals over the 50-year life of the project. Construction of the project would begin in 2004 and is expected to take 4-6 months to complete.

1.4 AGENCY GOAL OR OBJECTIVE.

The study objective is to analyze the environmental impacts of the alternatives, including the proposed action, while being consistent with protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal Planning requirements.

Objectives include: (1) the reduction of expected storm damage through beach nourishment and other project alternatives; (2) reestablishing beaches as suitable recreational areas; (3) maintaining suitable beach habitat for nesting sea turtles, invertebrate species and shorebirds; and (4) maintaining commerce associated with beach recreation in Sarasota County.

The Project goal is to reduce the continued erosion and provide hurricane and storm damage protection for the Gulf of Mexico shoreline of Lido Key (see **figure 1**, vicinity map, **figures 2 and 3**, project plan view and **figures 4 & 5**, typical cross sections).

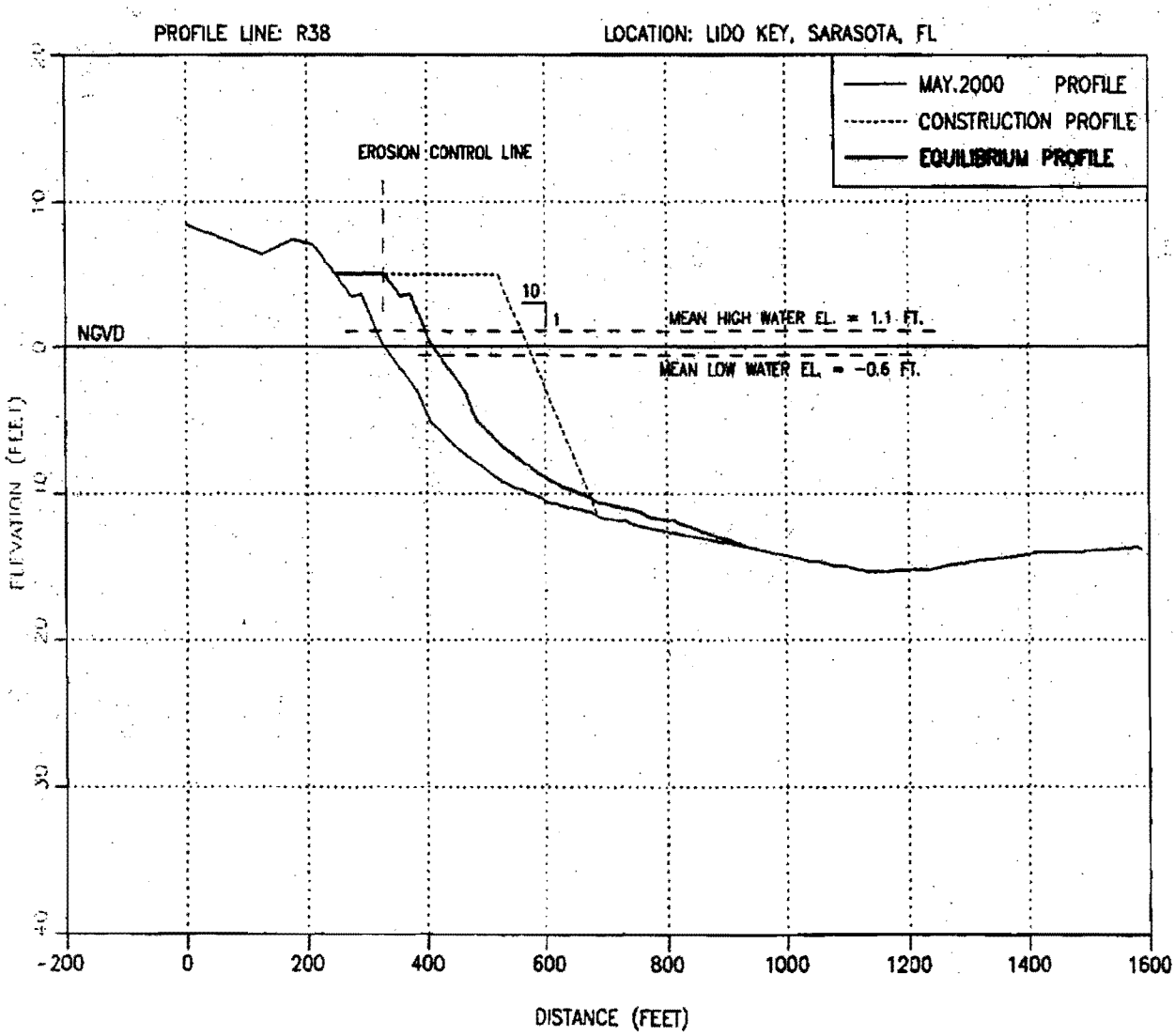

FIGURE 4. Typical Beach Cross Section, Lido Key, Sarasota, Florida

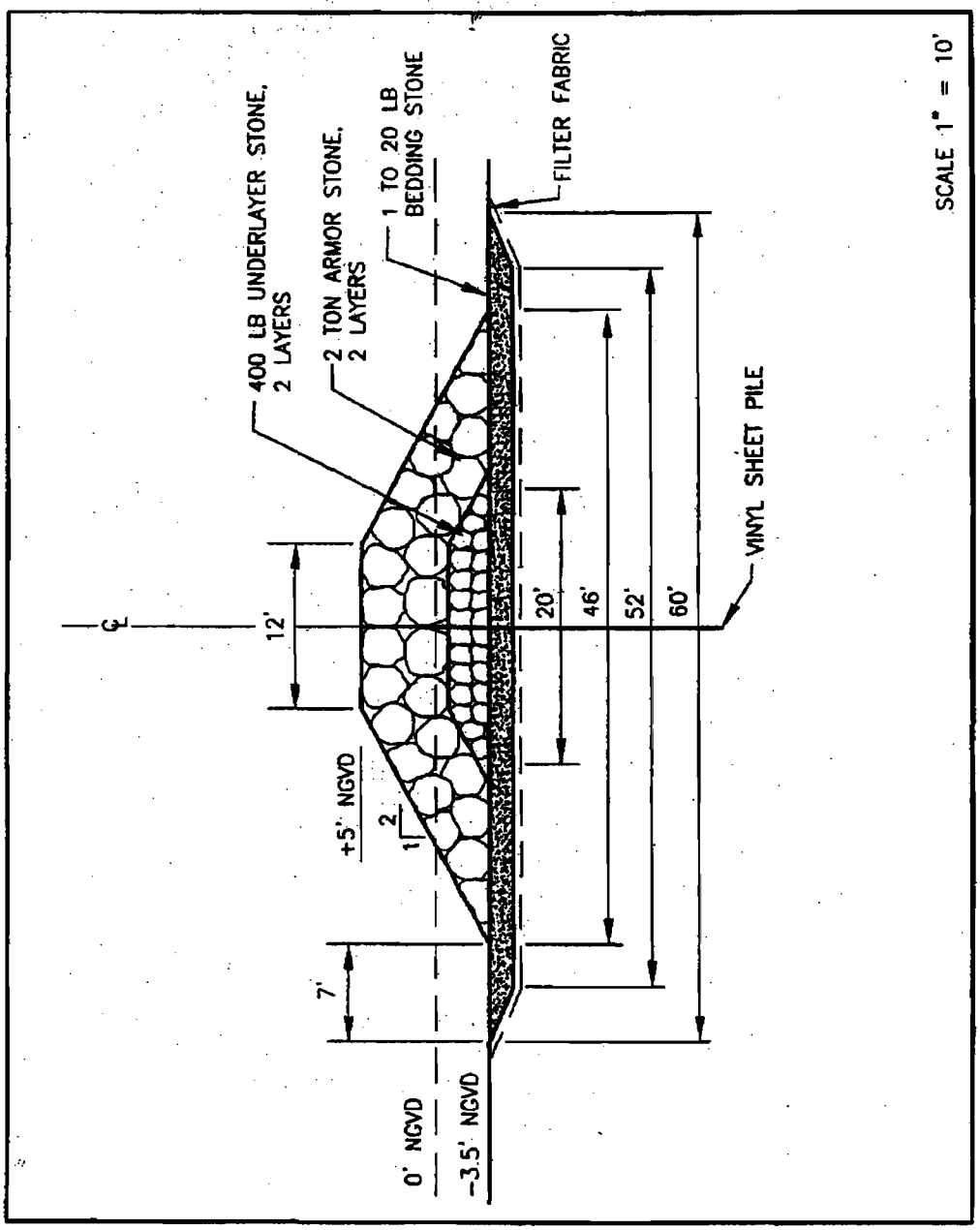

FIGURE 5. Typical Groin Cross Section, Lido Key, Sarasota, Florida

1.5 RELATED ENVIRONMENTAL DOCUMENTS.

•Beach Erosion Control Study, Interim Report on Lido Key, Sarasota County, Florida. U.S. Army Corps of Engineers, Jacksonville District, September 1968.

•Beach Erosion Control Study for Lido Key, A Reconnaissance Phase Assessment , Sarasota County, Florida. U.S. Army Corps of Engineers, Jacksonville District, January 1997.

1.6 DECISIONS TO BE MADE.

This Environmental Assessment will evaluate whether the proposed project would cause any significant environmental impacts and would make available to all decision makers and interested parties, a discussion of alternatives, which eliminate or minimize adverse impacts.

1.7 SCOPING AND ISSUES.

1.7.1 ISSUES EVALUATED IN DETAIL.

The following five environmental issues were identified to be relevant to the proposed action and appropriate for detailed evaluation. The issues identified were based on agency coordination during the scoping process and through resource surveys and prior studies conducted for the City of Sarasota.

a. Impacts on sea turtles.
b. Impacts to seagrass communities.
c. Impacts to hardground communities.
d. Impacts to shorebirds.
e. Impacts to manatees.

1.7.2 IMPACT MEASUREMENT.

The following provides the means and rationale for measurement and comparison of impacts of the proposed action and alternatives.

1.7.2.1 Sea Turtles: Continued beach erosion would reduce the amount of available sea turtle nesting habitat. The proposed renourishment project would have a positive impact on nesting loggerhead turtles by helping to maintain the nesting beach within the project area. Sea turtles may also be negatively impacted by nourishment activities and hopper dredge use. Concerns include the timing of construction activities, the potential burial of sea turtle nests, and compaction of beach sand due to construction activities. It is our goal to minimize impacts to sea turtles and to comply with the requirements of the Endangered Species Act.

1.7.2.2 Seagrass Communities: Seagrass beds represent one of the most productive and important habitats in the nearshore marine systems of Florida (Myers, 1990). Seagrasses are found at shallow depths in protected bays and lagoons and in patches along the continental shelf of the Gulf of Mexico. Two of the most extensive seagrass beds in continental North America occur along the southwest and north Florida Gulf coasts. Coverage in Florida Bay approximates 5000 km^2, while the beds lining the north Florida Gulf coast (Apalachee Bay) cover 3000 km^2 (Meyers, 1990). Seagrasses provide shelter, nursery and feeding habitat for many fish and shellfish. Grass beds also help to improve water clarity by anchoring bottom sediments and reducing nutrients in the water column (TBNEP 1996). Five species of seagrasses occur in waters of Sarasota County. Species common to the Sarasota Bay estuary and nearshore marine zones around Lido key include shoal grass (*Holodule wrightii*)), manatee grass (*Syringodium filiforme*), turtle grass (*Thalassia testudinum*), star-grass (*Halophila englemannii)* and widgeon grass (*Ruppia maritime*) (USFWS, 2002a).

1.7.2.3 Hardground Communities: Hardground communities are benthic habitats dominated by epifaunal organisms such as sponges, hard and soft corals, hydroids, anemones, barnacles, bryozoans, decapod crustaceans and gastropods. Hard bottom communities can be found throughout the central and southern coastal regions of Florida. Community composition varies as bottom type varies from the well-documented coral reefs of southeastern and Keys region of the state to the vermitid and coquina reefs of east central Florida and the limestone outcroppings of the west central coast (lewis and Savercool 1994). Based on experience with beach renourishment and use of off-shore borrow sources on the Gulf coast, impacts to hardground and reefs can be predicted based on proximity, currents, nature of borrow material, buffer zones and other factors (USACE, 1998). Our desire in selecting an alternative is to keep impacts to these resources to the minimum practicable in consideration of other project requirements.

1.7.2.4 Shorebirds: There may be a temporary adverse impact on migratory bird nesting should the construction occur during the 1 April through 31 August timeframe. However, the impact would be minimized by implementing the U.S. Army Corps of Engineers, Jacksonville District, Migratory Bird Protection Policy.

1.7.2.5 West Indian Manatee: Even though manatees may be found almost anywhere in Florida where water depths are greater than 3.3 to 6.6 ft (FWS 1996), the proposed project area is not considered a high use area by the manatee. Manatees are more likely to use the deeper channels to the north and south of Lido Key for traveling to the adjacent estuarine waters. These waters support viable seagrass beds and are potential foraging areas for the manatee. Protective measures would be established to minimize impacts to manatees.

1.7.3 ISSUES ELIMINATED FROM DETAIL ANALYSIS.

The following issues were not considered important or relevant to the proposed action:

1.7.3.1 Right Whale: The right whale is not known to frequent the shallow coastal waters near the fill site or borrow areas, but may be found in deeper, offshore waters during the winter months. Because of the nature of the work, this issue is eliminated from detail analysis.

1.7.3.2 Gulf Sturgeon: The Gulf sturgeon (*Acipenser oxyrinchus desotoi*) is essentially confined to the Gulf of Mexico river systems north of Tampa Bay. No information has been found to indicate a past history of negative impacts to Gulf sturgeon as a result of previous beach nourishment or offshore borrow area dredging activities in the project area. Gulf sturgeon are not likely to be affected by this project.

1.8 PERMITS, LICENSES, AND ENTITLEMENTS.

Water Quality Certification (WQC) would be applied for as required by Section 404(b)(1) of the Clean Water Act. The WQC would be submitted to the Florida Department of Environmental Protection by the local sponsor, Sarasota County.

2 ALTERNATIVES

The alternatives section is the heart of this EA. This section describes in detail the no-action alternative, the proposed action, and other reasonable alternatives that were studied in detail. Then based on the information and analysis presented in the sections on the Affected Environment and the Probable Impacts, this section presents the beneficial and adverse environmental effects of all alternatives in comparative form, providing a clear basis for choice among the options for the decision maker and the public.

2.1 DESCRIPTION OF ALTERNATIVES.

2.1.1 NO ACTION ALTERNATIVE (STATUS QUO)

This alternative assumes that the erosion will continue with no solutions or remedial measures being constructed. The no action would allow existing conditions to continue. The beach would continue to erode, property would become more vulnerable to damage from coastal storms, and a valuable recreation resource would be lost. Recession of the shoreline would occur with subsequent loss of valuable property and damage to structural improvements along the respective shorelines.

2.1.2 ALTERNATIVE A, BEACH FILL WITH PERIODIC NOURISHMENT

This alternative provides for initial restoration and periodic nourishment of the gulf shoreline on Lido Key. Beach compatible material would be obtained from offshore borrow sites. The project design would consist of an 80 ft. wide berm at Elevation +5 NGVD. The berm would run from DEP monument marker 35 to marker 43. The project would consist of a 9,000 ft. beach and would have a 990 ft. taper on the north past DEP monument 35 and an 850 ft. taper to the south past DEP monument 43. The berm will slope from +5 NGVD to existing ground on a slope of 1V on 10H. An estimated 982,000 cubic yards of material would be used. The renourishment interval is 3-years.

2.1.3 ALTERNATIVE B, BEACH FILL WITH PERIODIC NOURISHMENT WITH TERMINAL GROIN FIELD

This alternative provides the same beach nourishment features as alternative A, but also provides for the construction of three linear groins at the southern end of Lido Key near Big Sarasota Pass. These structures would range from 650 to 320 feet in length and would be oriented along a bearing of 55 degrees west of north. The groins would have a crest height of +5 ft. NGVD and extend to –3 ft. NGVD. This alternative would allow for a 5-year renourishment interval.

2.1.4 BORROW AREAS

Three offshore borrow areas, referred to as LKBA 5, LKBA 6 and LKBA 7, were identified for further investigation for this study. See **figure 6** for borrow area locations and **figure 7** for borrow area limits. LKBA 5 is located 7.2 nautical miles offshore of Lido Key. The deposits in this area consists of medium grained sand, with low silt content (1.7% to 2.6%) mixed with some shell fragments/hash. LKBA 6 is located 8.5 nautical miles offshore of Lido Key. The deposits in this area consists of medium grained sand, with low silt content (0.11% to 4.6%) mixed with some shell fragments/hash. LKBA 7 is located 9.5 nautical miles offshore of Lido Key. The deposits in this area consists of medium grained sand, with low silt content (1.7% to 3.0%) mixed with some shell fragments/hash. The borrow area sediment characteristics appear in **Table 1**. Due to distance of these borrow areas from Lido Key, it would be likely that a hopper dredge would be used to transport the material.

Table 1. Borrow Area Sediment Characteristics, Lido Key, Florida

	AVAILABLE VOLUME (c.y.)	MEAN GRAIN SIZE (mm)	MEAN GRAIN SIZE (phi)	SORTING (phi)
NATIVE BEACH		0.24	2.08	0.93
BORROW AREA 5	209,570	0.40	1.32	0.71
BORROW AREA 6	1,063,017	0.32	1.63	0.71
BORROW AREA 7	601,536	0.43	1.21	0.40

2.2 ISSUES AND BASIS FOR CHOICE

The alternative plans were evaluated based on analyses of historic shoreline trends, numerical coastal modeling, analyses of costs and benefits, and effect on the environment. The recommended plan is the alternative that provides shore protection and erosion control on Lido Key in a manner that provides the greatest National Economic Development (N.E.D.) benefits.

2.3 PREFERRED ALTERNATIVE

Alternative B is the preferred alternative. (See also **figures 1, 2 and 3** in section 1).

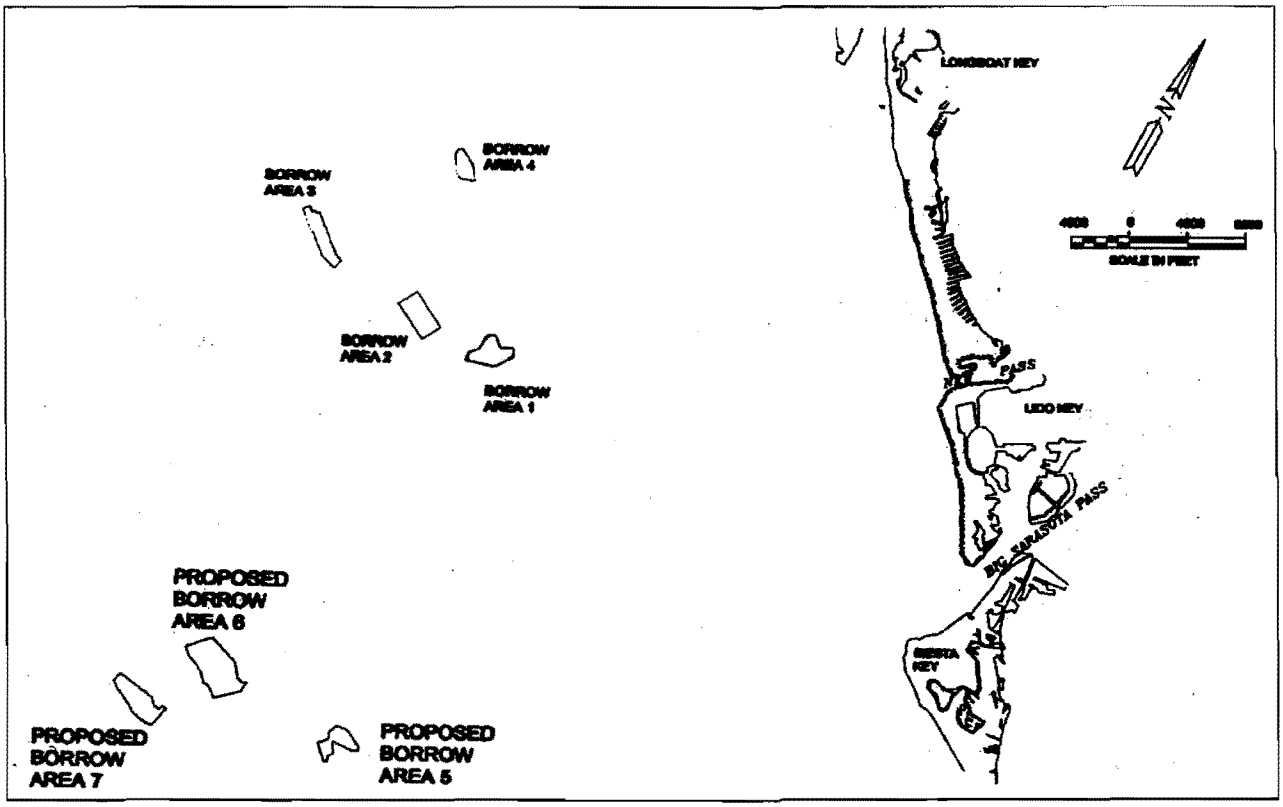

FIGURE 6. Proposed Borrow Area Locations (LKBA 5, 6, AND 7), Lido Key, Sarasota, Florida

E 424000 E 428000 E 432000 E 436000 E 440000

N 1048000

N

600 0 600 1200

SCALE IN FEET

B

B'

LIMITS OF
LKBA-6

LIMITS OF
LKBA-5

A

A'

N 1044000

C

C'

LIMITS OF
LKBA-7

N 1040000

E 424000 E 428000 E 432000 E 436000

LEGEND:

- LOW RELIEF
- POSSIBLE LOW RELIEF
- LK-19 DENOTES 2000 CPE CORES
- DENOTES CROSS-SECTION LOCATION

NOTE:

LOW RELIEF AND POSSIBLE LOW RELIEF AREAS ARE CONSIDERED POSSIBLE HARD BOTTOM.

LIDO KEY INTERIM BEACH NOURISHMENT PROJECT BORROW AREA 5,6, AND 7 PLAN VIEW

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FIGURE 7

2.4 COMPARISON OF ALTERNATIVES

Table 2 lists alternatives considered and summarizes the major features and consequences of the proposed action and alternatives. See section 4.0 Environmental Effects for a more detailed discussion of impacts of alternatives.

2.5 MITIGATION

As a means to protect, and avoid impact to hardgrounds near the borrow areas, a 200-ft. buffer zone would be established. No further mitigation is required. Section 4.21, Environmental Commitments, discuses other procedures that would be implemented to avoid or minimize potentially adverse environmental impacts.

Table 2: Summary of Direct and Indirect Impacts

ALTERNATIVE ENVIRONMENTAL FACTOR	A – Beach Fill with Periodic Nourishment	B – Beach Fill with Periodic Nourishment with Groin Field (Preferred Alternative)	Lido Key Borrow Area (LKBA) 5	Lido Key Borrow Area (LKBA) 6	Lido Key Borrow Area (LKBA) 7	No Action Status Quo
PROTECTED SPECIES	Beach fill activities could impact sea turtle nesting or hatching.	Beach fill activities could impact sea turtle nesting or hatching.	No impacts expected.	No impacts expected.	No impacts expected.	Beach would continue to erode, reducing or eliminating sea turtle nesting habitat.
HARD GROUND	No impact.	No impact.	No impact.	Potential indirect impacts, however, none expected.	Potential indirect impacts, however, none expected.	No impact.
SHORELINE EROSION	Beach erosion would be prevented or reduced.	Beach erosion would be prevented or reduced.	No impact.	No impact.	No impact.	Beach erosion and shoreline recession would continue.
FISH AND WILDLIFE RESOURCES	Temp. effect on fishes and infaunal communities. May affect nesting shorebirds.	Temp. effect on fishes and infaunal communities. May affect nesting shorebirds.	Temp. effect on benthic communities	Temp. effect on benthic communities	Temp. effect on benthic communities	Beach would continue to erode, reducing bird-nesting habitat.
VEGETATION	No impact expected.	No impact expected.	No impact expected.	No impact expected.	No impact expected.	No impact.
WATER QUALITY	Temp. increase in turbidity and suspended sediments.	Temp. increase in turbidity and suspended sediments.	Temp. increase in turbidity and suspended sediments.	Temp. increase in turbidity and suspended sediments.	Temp. increase in turbidity and suspended sediments.	No impact.

ALTERNATIVE ENVIRONMENTAL FACTOR	A – Beach Fill with Periodic Nourishment	B – Beach Fill with Periodic Nourishment with Groin Field (Preferred Alternative)	Lido Key Borrow Area (LKBA) 5	Lido Key Borrow Area (LKBA) 6	Lido Key Borrow Area (LKBA) 7	No Action Status Quo
HISTORIC PROPERTIES	No impact expected.	No impact expected	No impact expected.	No impact expected.	No impact expected.	No impact.
RECREATION	Provide increase opportunities for recreational activities.	Provide increase opportunities for recreational activities.	No impact.	No impact.	No impact.	Recreational opportunities could decrease due to erosion
AESTHETICS	Temp. impact due to presence of dredge & const. equipment.	Temp. impact due to presence of dredge & const. equipment.	Temp. impact due to presence of dredge.	Temp. impact due to presence of dredge.	Temp. impact due to presence of dredge.	No impact.
ECONOMICS	When compared to preferred alternative, would require more frequent renourishments at south end to maintain protection; thus, higher cost.	Reduced costs over the life of the project.	No impact.	No impact.	No impact.	Beach degredation with potential decrease in tourism and increase in storm damage costs.
ESSENTIAL FISH HABITAT	Potential indirect impacts associated with turbidity and sedimentation.	Potential indirect impacts associated with turbidity and sedimentation.	No impact expected.	Potential indirect impacts associated with turbidity and sedimentation.	Potential indirect impacts associated with turbidity and sedimentation.	No impact.

3 AFFECTED ENVIRONMENT

The Affected Environment section succinctly describes the existing environmental resources of the areas that would be affected if any of the alternatives were implemented. This section describes only those environmental resources that are relevant to the decision to be made. It does not describe the entire existing environment, but only those environmental resources that would affect or that would be affected by the alternatives if they were implemented. This section, in conjunction with the description of the "no-action" alternative forms the base line conditions for determining the environmental impacts of the proposed action and reasonable alternatives.

3.1 GENERAL ENVIRONMENTAL SETTING

Lido Key is a barrier island approximately 2.44 miles long, and ranges from 100 to 2,500 feet wide. Most of the uplands on Lido Key have been developed except for North Lido Public Beach and South Lido Park. Although undeveloped, a majority of the upland habitat in the parks is disturbed. The beachfront consists of hotels, motels, private residential, and seasonal rental properties (**Photograph No. 1**). Upland vegetation on Lido Key is composed of both exotic and native species such as Australian pine, sea grape, and wax myrtle. Plants such as palms, grasses, saw palmetto, and sea oats can be found on the upper beach, especially on the north and south ends of the island.

Photograph No. 1 – Lido Key Beach, looking north.

Wildlife on Lido Key is generally limited to small mammals and birds. A variety of shore and wading birds may be encountered including gulls, turns, plovers, sandpipers, black skimmers, and herons (**Photograph No. 2**). Nesting sea turtles, primarily the loggerhead, occasionally use Lido Key beaches.

Photograph No. 2 – Black Skimmers, Gulls, Terns on Lido Key Beach

Common marine species found in the nearshore areas (littoral and sublittoral zones) are sea urchins, sand dollars, crustaceans such as crabs, coquina clams, and several gastropod and bi-valve mollusk species.

Coastal waters off Lido Key support a variety of commercial and sport fishes. Major species include tarpon, grouper, red snapper, king mackerel, and Spanish mackerel. The manatee, bottlenose dolphin and sea turtles may also be present.
(See **figure 8**, Map of Environmental Resources).

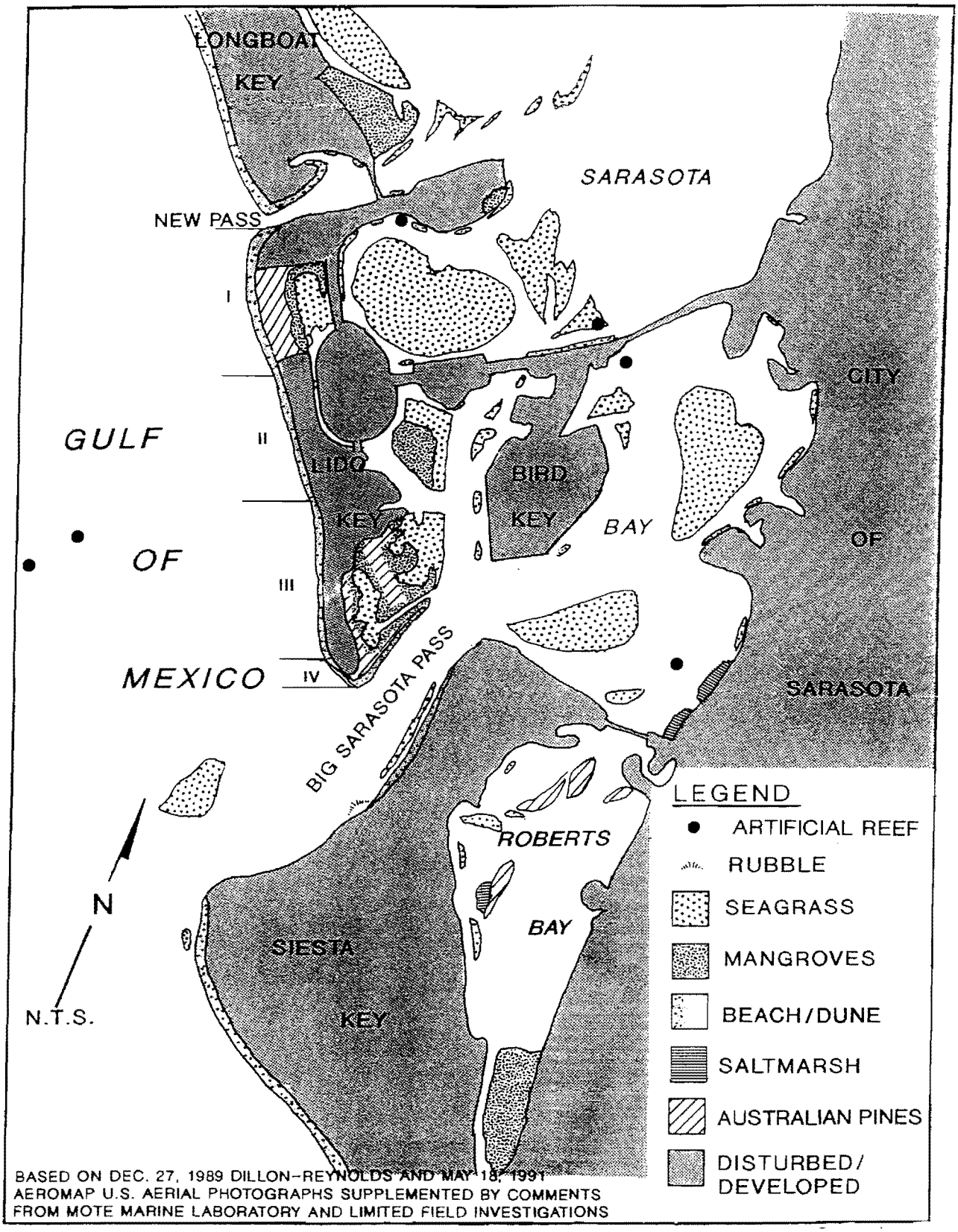


FIGURE 8

HABITATS ADJACENT TO LIDO KEY

3.2 VEGETATION

Dial Cordy and Associates, Inc. was contracted in 2001 by the Corps to conduct a marine resource survey of the nearshore area adjacent to Lido Key. The purpose of the study was to identify, map and characterize potential nearshore marine resources (i.e. seagrass, hardgrounds) associated with the project area. No seagrass/algal communities were observed in the footprint of the beach fill boundaries, which includes the project's equilibrium toe of fill (ETOF). Three small seagrass patches were observed over 500-feet seaward of the ETOF. Two of the three patches occurred at the northern end of the survey area, approximately 1,800 and 2,000 feet offshore from DEP monument R-35, perpendicular to the beach. The third small patch was located approximately 2,000 feet offshore from DEP monument R-43. The seagrass was identified as shoal-grass (*Halodule wrightii*).

Based on the September 2001 visual inspection of borrow areas by Coastal Planning & Engineering, Inc. (CP&E) and the U.S. Fish and Wildlife Service (USFWS) personnel, seagrasses were not found in the borrow areas; however, an isolated patch of turtle grass, estimated to be less than three feet in diameter was located within 200 feet outside of the LKBA 6 boundary. Seagrass was not observed with in the vicinity of LKBA 5 or 7 (USFWS, 2002a).

3.3 THREATENED AND ENDANGERED SPECIES

3.3.1 SEA TURTLES

Of the listed species found in or near the project area, the loggerhead sea turtle (*Caretta caretta*) is most likely to be affected by the proposed project. On the west coast there were 8,639 nests reported during the year 1999, of which Sarasota County accounted for 3,316.

The green sea turtle (*Chelonia mydas*) is also a listed species in Sarasota County. Nesting data from Meylan (1995) and the Florida Marine Research Institute (unpubl. Data) indicate that from 1979 through 2000, a total of 13 green turtle nests have been recorded in Sarasota County on the beaches of Casey Key, Manasota Key, and Venice. The same data indicated that no green sea turtle nests were recorded on Lido Key.

3.3.1.1 Nesting Habitat

Utilizing the best available data, it has been determined that only the threatened loggerhead sea turtle have known nesting habitat on Lido Key beaches. In comparison to other beaches in Sarasota County, the beaches of Lido Key have the least number of reported loggerhead nests. Information provided by the Florida Marine Research Institute indicates that from 1992 to 2000, loggerhead sea turtle nest numbers varied from 32 to 60 on the approximately 4.2-mile long Lido Key nesting beach (refer to **Table 3** for nesting data).

Table 3. Nesting data from 1992 to 2000 for C. caretta on Lido Key, Sarasota County, Florida.

Year	Beach Length	Days per Week	# False Crawls	# Nests
1992	4.2	7	42	32
1993	4.2	7	35	35
1994	4.2	7	34	37
1995	4.2	7	50	34
1996	4.2	7	35	50
1997	4.2	7	44	45
1998	4.2	7	94	42
1999	4.2	7	57	48
2000	5.3	7	52	60

The loggerhead nesting and hatching season for southern Gulf of Mexico beaches extends from April 1 to November 30. Incubation ranges fro 45 to 95 days. The green turtle nesting and hatching season on southern Gulf of Mexico beaches extends from May 15 to October 30. Incubation ranges from about 45 to 75 days (USFWS 1999)

3.3.1.2 Offshore Habitat

Sea turtles may use the hardground areas adjacent to the borrow sites for resting and foraging. Literature has not shown that sea turtles utilize sandy areas offshore for congregation or resting as they do navigation channels.

3.3.2 WEST INDIAN MANATEE

The proposed project area is not considered a high use area by the manatee. Manatees are more likely to use the deeper channels to the north and south of Lido Key for traveling to the adjacent estuarine waters (USFWS, 2000).

3.3.3 SHOREBIRDS

Since 1998, shorebirds have established a thriving multi-species nesting colony on Lido Key between R-34 and R-35 (USFWS, 2002a). Least terns (*Sterna antillarum*) were among species observed in the colony. These shorebirds nest from April through August (USFWS, 2002a). The piping plover (*Charadrius melodus*) may utilize Lido Key beaches on a seasonal basis (i.e. winter). However, the nesting range for the piping plover does not include Florida. The piping plover is listed as a threatened species by the State of Florida and the Federal government. Another bird known to utilize the habitat on Lido Key beaches is the snowy plover (*Charadrius alexandrinus*). In 1998, two hatchlings were observed at the Lido Key colony, and in 2000, four adults were

observed (USFWS, 2002a). Several other protected bird species known to utilize habitat within the project area are the black skimmer (*Rynchops niger*) and the brown pelican (*Pelecanus occidentalis*).

All shorebirds present on Lido Key are federally protected under the Migratory Bird Treaty Act. Certain species are also listed by the State of Florida.

3.4 HARDGROUNDS

In December 2000, magnetic and acoustic remote sensing investigations were conducted at the three proposed borrow sites. Side scan sonar yielded some evidence for scattered low-relief hardground resources adjacent to LKBA 6 and 7. No hardground resources were identified in the vicinity of LKBA 5. Due to the possible presence of hardground resources in close proximity to the proposed sites, the USFWS requested dive investigations near the borrow sites. All dives associated with the borrow area investigations were conducted on September 24, 2001. CP&E and the USFWS performed the diving investigations. A Corps representative was also present during the investigations. The investigators concur that the low relief habitats documented adjacent to LKBA 6 and 7 are comprised primarily of unconsolidated sediments with scattered hardbottoms. **Photograph No. 3** shows a representation of this habitat. There are no low relief hardbottoms present within 200 feet of LKBA 6 and 7. The total hardbottom coverage within 400 feet of the borrow site boundaries were estimated to be less than ten percent with an average maximum height and width of approximately eighteen inches and two feet, respectively (USFWS, 2002a).

Aerial photographs of the project area shoreline have no indication of nearshore hardgrounds. Additionally, Side-scan sonar detected no hardgrounds adjacent to Lido Key. A marine resource survey was conducted in July 2001 to verify side-scan sonar results. No hardbottom resources were observed during this marine resource survey.

3.5 FISH AND WILDLIFE RESOURCES

Marine species in nearshore areas (littoral and sublittoral zones) identified by CP&E (1992) include the following invertebrates: polychaete worms, sand bugs, isopods, amphipods, mole crabs, coquina clams, sand dollars, sea urchins, pelecypod mollusks, sea hares, spider crabs, hermit crabs, several shrimp species, and several gastropod species.

Coastal waters off Lido Key contain a variety of commercial and sport fishes. The major species include tarpon, grouper, red snapper, king mackerel, Spanish mackerel and little tunny. **Photograph No. 4** shows fish species encountered near Lido Key borrow areas.

A multispecies bird nesting colony on Lido Key is an important resource for shorebirds. The colony is comprised of terns, plovers, and black skimmers. This multi-species nesting colony is located on Lido Key between R-34 and R-35. The State Fish and Wildlife Conservation Commission seasonally closes this section of the Lido Key beach

to recreational use to minimize human disturbance in and around the nesting shorebird colony (USFWS, 2002a).

3.6 ESSENTIAL FISH HABITAT

Marine water column, vegetated bottoms, non-vegetated bottoms, live bottoms, and artificial reefs can be expected to occur in the area of Lido Key and the offshore borrow areas (NMFS letter dated October 25, 2000, Appendix C). These habitats are identified as Essential Fish Habitat (EFH) in the 1998 Amendment of the Fishery Management Plans for the Gulf of Mexico. This Amendment was prepared by the Gulf of Mexico Fishery Management Council as required by the 1996 amendment to the Magnuson-Stevens Fishery Conservation and Management Act. Important aspects of EFH that may be affected include spawning, foraging, and refuge habitats for managed species such as fishes of the snapper/grouper complex, penaeid shrimp and spiny lobster.

3.7 COASTAL BARRIER RESOURCES

Neither the fill site nor the proposed borrow areas are located or adjacent to a designated Coastal Barrier Resources System Unit.

3.8 WATER QUALITY

The waters off the coast of Lido Key are listed as Class III waters by the State of Florida. Class III waters are suitable for recreation and propagation by fish and wildlife. In Class III waters, Florida state guidelines limit turbidity values to under 29 NTU above ambient levels outside the turbidity mixing zone during beach nourishment activities.

3.9 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE

The Hazardous, Toxic and Radioactive Waste (HTRW) preliminary assessment indicated, that in general, no evidence of HTRW exists. During project construction HTRW awareness should be practiced.

The HTRW database review indicated that no contamination exists at the Lido Key disposal site.

3.10 AIR QUALITY

Ambient air quality along the Lido Key shoreline is good due to the presence of either onshore or offshore breezes.

3.11 NOISE

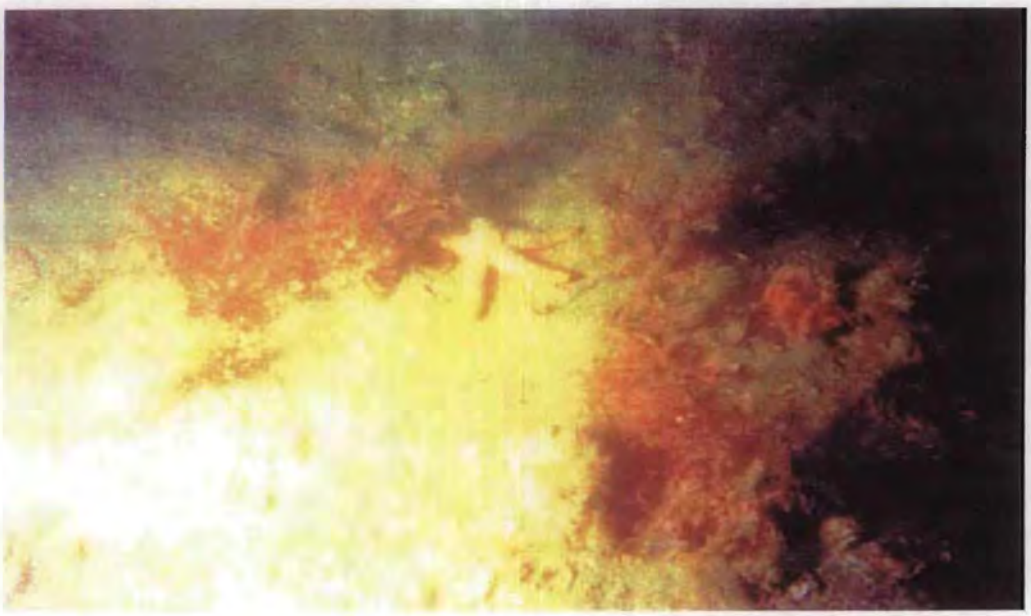
Ambient noise levels along coastal Sarasota County are low to moderate and are typical of recreational environments. The major noise producers are the breaking surf, adjacent commercial and residential areas, and traffic (boat, vehicular, and airplane).

3.12 AESTHETIC RESOURCES

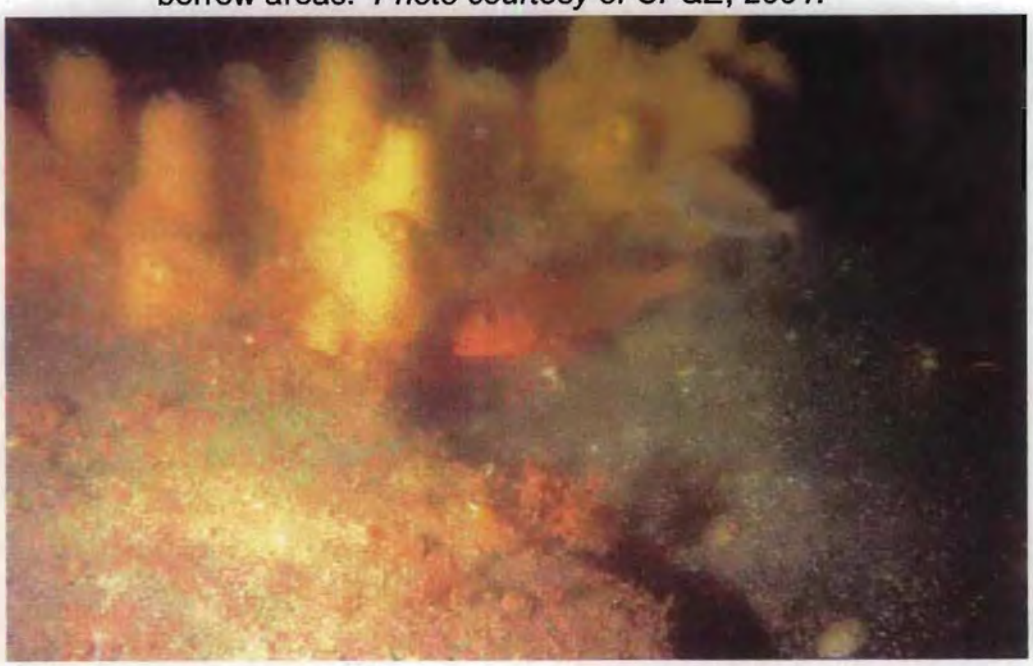
Most of the uplands on Lido Key have been developed except for North Lido Public Beach and South Lido Park. The beachfront consists of hotels, motels, private residential, and seasonal rental properties.

3.13 RECREATION RESOURCES

Recreational opportunities within and adjacent to the fill site include beach combing, swimming, windsurfing, sunbathing, walking, jogging, and beach volleyball. The waters above the borrow areas provide some recreational value for boaters.



Photograph No. 3 – Occasional low relief hardbottom habitat adjacent to Lido Key borrow areas. *Photo courtesy of CP&E, 2001.*



Photograph No. 4 – Red Grouper and Snapper near *Pseudoceratina sp.*, a sponge commonly found in the Lido Key area. *Photo courtesy of CP&E, 2001.*

3.14 NAVIGATION

The majority of boating activity is concentrated in close proximity to New Pass to the north and Big Sarasota Pass to the south. New pass is a Federal navigation project and the USACE is responsible for the periodic maintenance of the navigation channel at the Pass.

3.15 HISTORIC PROPERTIES

In December 2000, magnetic and acoustic remote sensing investigations were conducted at the three proposed borrow sites. This survey used underwater survey techniques and resulted in the identification of no cultural resources.

4 ENVIRONMENTAL EFFECTS

This section is the scientific and analytic basis for the comparisons of the alternatives. See table 2 in section 2.0 Alternatives, for summary of impacts. The following includes anticipated changes to the existing environment including direct, indirect, and cumulative effects.

4.1 GENERAL ENVIRONMENTAL EFFECTS

The placement of sand on the beach would restore some of the beach's ability to provide protection against storms and flooding. It would also enhance the appearance and suitability for recreation along the beach and would provide additional habitat for threatened and endangered sea turtles. The construction of a groin field would help reduce excessive loss of protective fill at the southerly end of Lido Key. Dredging in the proposed borrow areas would cause a depletion of sand. The infauna and some of the epifauna within the borrow area would be unavoidably lost during dredging. However, this habitat is unique and recovery could be expected within one year.

4.2 VEGETATION

4.2.1 ALTERNATIVE A, BEACH FILL WITH PERIODIC NOURISHMENT

There are no seagrass or algal communities present in the footprint of the beach fill area, including the equilibrium tow of fill (ETOF). No work would be performed on vegetated upland or dune areas.

4.2.2 ALTERNATIVE B, BEACH FILL WITH PERIODIC NOURISHMENT WITH TERMINAL GROIN FIELD

No seagrasses or algal communities are known to be present in the proposed beach fill and terminal groin field area based on nearshore surveys conducted in 1992 and July 2001. However, due to boat draft limitations and safety concerns, a portion of the proposed groin construction area was excluded from the recent nearshore survey conducted in July 2001. The USFWS made a recommendation in the FWS Coordination Act Report (2002a) to conduct additional groundtruthing in the proposed groin footprint to verify the presence or absence of seagrasses. On Jul 26, 2002, additional groundtruthing was conducted by Coastal Planning and Engineering. The results of the survey verified that neither seagrass nor hardbottom resources are present within the proposed groin field area.

4.2.3 BORROW AREAS

No impacts to vegetation are expected.

4.2.4 NO ACTION ALTERNATIVE (STATUS QUO)

This alternative would have no effect on marine vegetation. However, continued erosion could eventually result in the loss of upland vegetation adjacent to the beach.

4.3 THREATENED AND ENDANGERED SPECIES

4.3.1 ALTERNATIVE A, BEACH FILL WITH PERIODIC NOURISHMENT

Sea Turtles

Sea turtles may be potentially negatively impacted by beach nourishment activities. Concerns include timing of construction activities, the potential burial of sea turtle nests, and compaction of beach sand due to the presence of heavy equipment and sand depositions.

On Florida's west coast, nesting density is lower and construction during nesting season may occur without severe effects on sea turtle hatchling production for that year, if turtle nests are relocated outside the project area prior to construction (USFWS, 2000). Although beach nourishment may increase the potential nesting area, significant negative impacts to sea turtles may result if protective measures are not incorporated during construction.

Potential negative impacts on sea turtles would be avoided or minimized through the implementation of special precautionary measures. Refer to section 4.28, Environmental Commitments, for protection measures which would be implemented in accordance with the USFWS Biological Opinion dated February 25, 2002.

Manatees

Impacts to the West Indian manatee should be avoided through implementation of manatee protection measures. Refer to section 4.28, Environmental Commitments, for protection measures.

Other Listed Species (Shorebirds)

During the placement of material on the beach, there may be some interruption of foraging and resting activities among shorebirds. This impact would be short-term. Project activities may impact nesting, foraging and resting activities for migratory birds such as the black skimmer, piping plover and least tern. In accordance with the Migratory Bird Treaty Act of 1918, as amended, the Corps would provide protection to nesting migratory bird species that commonly use Lido Key beaches. If the area can not be avoided during nesting season, then a Site Protection Plan would be included in the Plans and Specifications detailing how the impacts on the birds would be avoided, minimized, or otherwise mitigated (refer to section 4.28, Environmental Commitments).

4.3.2 ALTERNATIVE B, BEACH FILL WITH PERIODIC NOURISHMENT WITH TERMINAL GROIN FIELD

Refer to Alternative A for beach fill with periodic nourishment impacts. Potential groin impacts are discussed below.

Sea Turtles
Improperly designed and/or placed groins could potentially interfere with sea turtle nesting and hatchling emergence and egress offshore. If constructed during sea turtle nesting season, construction activities and lighting would have similar affects on hatching orientation and nesting as beach fill activities.

Manatees
No adverse impacts are expected.

Other Listed Species
Refer to Alternative A for potential beach fill impacts to migratory shorebirds. No adverse impacts are expected to shorebirds due to groin construction activities.

4.3.3 BORROW AREAS

Formal consultation with the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act has been initiated for a "may affect" determination to sea turtles if a hopper dredge is used to excavate the offshore borrow areas. By letter dated August 9, 2001, the NMFS stated that they intend to include the proposed Lido Key Shore Protection Project into the scope of a "Regional Biological Opinion" for the Gulf Coast. A draft copy of the regional Opinion was submitted to the Corps on November 27, 2001. The Corps has reviewed the draft Opinion and commented by letter dated January 8, 2002 (refer to consultation letters in Appendix C). Since a hopper dredge would likely be used, the Corps would adhere to the Terms and Conditions outlined in the final Opinion. It is expected that the Terms and Conditions would include intake and overflow screening, sea turtle deflector draghead installation, and observer and reporting requirements.

Dredging would not occur on the hardgrounds and would not adversely affect sea turtles utilizing hardgrounds. Sea turtles are not expected to be found on the bottom of the sand dominated borrow areas.

4.3.4 NO ACTION ALTERNATIVE (STATUS QUO)

If no action is taken, the beach would continue to erode. If left to erode, this could result in the loss of sea turtle nesting habitat and/or poor nest site selection. Additionally, there could be a loss of shorebird nesting habitat.

4.4 HARDGROUNDS

4.4.1 ALTERNATIVE A, BEACH FILL WITH PERIODIC NOURISHMENT

Aerial photographs of the project area shoreline have no indication of nearshore hardgrounds. Additionally, Side-scan sonar detected no hardgrounds adjacent to Lido Key. A marine resource survey was conducted in July 2001 to verify side-scan sonar results. No hardbottom resources were observed during this marine resource survey.

4.4.2 ALTERNATIVE B, BEACH FILL WITH PERIODIC NOURISHMENT WITH TERMINAL GROIN FIELD

Refer to 4.4.1, Alternative A.

4.4.3 BORROW AREAS

Utilizing the proposed borrow areas is not expected to cause any direct impacts to the offshore hardbottom community. Scattered non-contiguous, offshore hardbottom formations would be protected with a 200-ft. buffer zone where no dredging would be permitted.

4.4.4 NO ACTION ALTERNATIVE (STATUS QUO).

There are no negative impacts to hardground habitats associated with the no-action alternative.

4.5 FISH AND WILDLIFE RESOURCES

4.5.1 ALTERNATIVE A, BEACH FILL WITH PERIODIC NOURISHMENT

Shorebirds

During the placement of material on the beach, there may be some interruption of foraging and resting activities among shorebirds. This impact would be short-term. Project activities may impact nesting, foraging and resting activities for migratory birds such as the black skimmer, piping plover and least tern. In accordance with the Migratory Bird Treaty Act of 1918, as amended, the Corps would provide protection to nesting migratory bird species that commonly use Lido Key beaches. If the area can not be avoided during nesting season, then a Site Protection Plan would be included in the Plans and Specifications detailing how the impacts on the birds would be avoided, minimized, or otherwise mitigated (refer to section 4.28, Environmental Commitments).

Cetaceans and Fishes

Coastal pelagic fishes and cetaceans are highly mobile species. These species would not likely be affected by beach fill activities. Populations of fish and free-swimming organisms would temporarily leave the construction area due to an increase in turbidity and construction related activities.

Infaunal and Benthic Species

The placement of sand on the beach would result in the burial and subsequent loss of most of the beach infauna. Common beach and surf zone inhabitants include decapods such as ghost crabs and other burrowing organisms. Several studies have investigated the recolonization of beach infauna following nourishment and found that beach and surf zone populations recover to prenourishment levels within one year after completion of nourishment.

4.5.2 ALTERNATIVE B, BEACH FILL WITH PERIODIC NOURISHMENT WITH TERMINAL GROIN FIELD

Refer to Alternative A for beach fill with periodic nourishment impacts discussion. Groin construction would also result in the burial and subsequent loss of most beach and surf zone infauna within the construction area. These impacts would be similar to those described for beach renourishment.

4.5.3 BORROW AREAS

Invertebrates and Fishes. Species of relatively nonmotile infaunal invertebrates, such as mollusks, may inhabit the proposed borrow areas. The benthic infaunal communities within the three proposed borrow areas will be negatively impacted by dredging activities. However, it is expected that recolonization of the borrow areas by the benthic infaunal communities will occur within two to three years. Motile organisms such as fish, crabs, and sand dwelling organisms should be able to escape the area during construction. Direct impacts to fish communities within and adjacent to the offshore borrow areas during dredging activities should be minimal due to their motility to leave the disturbed area during dredging.

4.5.4 NO ACTION ALTERNATIVE (STATUS QUO)

If no action is taken, the beach would continue to erode. If left to erode, this could result in the loss of shorebird nesting habitat. No adverse impacts are expected on other listed species.

4.6 ESSENTIAL FISH HABITAT

NOTE: Coordination of this EA constitutes initial consultation with the NMFS under provisions of the Magnuson-Stevens Fishery Conservation and Management Act relative to Essential Fish Habitat (EFH) effects resulting from the Lido Key Shore Protection Project. Based on analysis discussed in this EA, acute and cumulative effects on EFH resulting from the addition of the proposed project features are expected to be negligible.

4.6.1 ALTERNATIVE A, BEACH FILL WITH PERIODIC NOURISHMENT; ALTERNATIVE B, BEACH FILL WITH PERIODIC NOURISHMENT WITH TERMINAL GROIN FIELD; AND BORROW AREAS

Direct and indirect effects of dredging, sand placement, and groin construction activities may occur within the water column, and to the non-vegetated, vegetated, and live bottom communities. Vegetated communities (seagrasses) were not detected in the

project footprint during a resource survey conducted in 2001. Therefore, direct impacts to seagrass communities are not expected. However, seagrass habitats adjacent to the project footprint (south, near Siesta Key) may incur indirect impacts through the suspension of fine sediment into the water column during beach renourishment and groin construction activities. Additionally, nearshore resource surveys conducted at Lido Key in 2001 did not reveal the presence of hardbottom communities within the project footprint. Therefore, direct impacts to nearshore hardbottom habitats are not expected. Side-scan surveys of the proposed borrow areas conducted in 2001, identified possible low-relief hardbottom areas adjacent to LKBA 6 and LKBA 7. No hardbottom occurs within or adjacent to LKBA 5. Hardbottom was verified to occur within 200 feet outside LKBA 6 and 7 (CPE, 2001). These scattered hardbottoms would be protected with a 200-ft. buffer zone where dredging would not be permitted. Possible indirect impacts may occur to adjacent hardbottom habitats due to turbidity and siltation.

4.6.2 NO ACTION ALTERNATIVE (STATUS QUO)

There are no negative impacts to EFH associated with the no-action alternative.

4.7 HISTORIC PROPERTIES

A cultural resource survey was conducted for the project. No cultural resources were located. Based on this survey, in accordance with the procedures contained in 36CFR800, consultation between the Jacksonville District Corps of Engineers and the Florida State Historic Preservation Officer (2001)(project file 2001-07222) determined that the project would have no effect on any sites listed, or eligible for listing, in the National Register of Historic Places.

4.8 AESTHETICS

There would be a temporary reduction in aesthetics during construction. The sand color of the post-construction beach may be different from the sand color of the natural beach. Long-term adverse affects to the visual environment as a result of construction is not expected.

4.9 RECREATION

During beach nourishment activities, the use of the beach in the vicinity of construction would decline or be restricted temporarily. Use of the beach in the immediate area of the discharge pipe and equipment would be restricted for public safety. The improved beaches would provide increased opportunities for recreational activities.

4.10 COASTAL BARRIER RESOURCES

The proposed beach nourishment project will have no effect on coastal barrier resources since the project is not located within or adjacent to a designated Coastal Barrier Resources System Unit.

4.11 WATER QUALITY

The potential effects of dredging include sedimentation during dredging, which stresses the growth and reproductive energies of benthic organisms, and an increase in turbidity, which reduces the penetration of light, required by photosynthetic organisms. This would be limited to the immediate areas of dredging and disposal.

4.12 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

The preliminary assessment indicated that no hazardous, toxic and radioactive waste (HTRW), or other harmful substances are impacting the project area. However, if contaminants are found during property procurement or project construction, the site would be remediated.

4.13 AIR QUALITY

The short-term impacts fro emissions from the dredge and other construction equipment associated with the beach nourishment would not significantly impact air quality. No air quality permits are required for this project.

4.14 NOISE

There would be a temporary increase in the noise level during construction. The major source of noise would be the construction equipment at the discharge site. Noise levels would be minimized by the proper maintenance of the construction equipment. No adverse impacts to the surrounding environment are expected as a result of the temporary increase in the noise level during construction.

4.15 NATURAL OR DEPLETABLE RESOURCES

The depletable resource for the proposed project would be sand. Using sand from the proposed borrow areas would deplete the sand source from the areas dredged. Over time, the sand would be redistributed over the nearshore areas. Consequently, some of the sand would move further offshore or would be trapped in an ebb or flood tidal shoal.

4.16 SCIENTIFIC RESOURCES

There are no known impacts to scientific resources associated with the proposed project.

4.17 NATIVE AMERICANS

None of the proposed project activities occur on land belonging to Native Americans, therefore implementation of the proposed project would not result in any impacts to Native Americans or land belonging to Native Americans.

4.18 REUSE AND CONSERVATION POTENTIAL

There is no potential for reuse associated with the proposed project activities.

4.19 URBAN QUALITY

No direct environmental impacts related to urban quality are expected as a result of the proposed project.

4.20 SOLID WASTE

No impacts related to solid waste are expected as a result of this project. Disposal of any solid waste material into Gulf waters would not be permitted.

4.21 DRINKING WATER

No municipal or private water supplies are located within or near the project site, therefore drinking water supplies would not be impacted by the implementation of the proposed project.

4.22 CUMULATIVE IMPACTS

Cumulative impact is the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7).

The implementation of the proposed project, in conjunction with the Sarasota County's initial beach project and subsequent beach maintenance projects, would help maintain the Lido Key beach ecosystem and provide sea turtle nesting habitat. The cumulative effect of these projects would also help protect any adjacent dune habitat that may exist.

The use of sand from the proposed borrow areas would deplete the area of sand and species of relatively non-motile infaunal invertebrates (mollusks). Although infaunal organisms would be lost as a result of sand dredging, these organisms would be expected to quickly recolonize after project completion. This rapid recolonization significantly reduces the potential for cumulative impacts.

The cumulative impact of shore protection projects along the Florida coast has been to restore and maintain many beaches which otherwise would have experienced severe erosion or would have totally disappeared. In addition, these activities have reduced property damage and helped maintain property value.

4.23 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

4.23.1 IRREVERSIBLE

An irreversible commitment of resources is one in which the ability to use and/or enjoy the resource is lost forever. One example of an irreversible commitment might be the mining of a mineral resource. The energy and fuel used during construction would be an irreversible commitment of resources.

4.23.2 IRRETRIEVABLE

An irretrievable commitment of resources is one in which, due to decisions to manage the resource for another purpose, opportunities to use or enjoy the resource as they presently exist are lost for a period of time. An example of an irretrievable loss might be where a type of vegetation is lost due to road construction.

Benthic organisms within the borrow area and beach fill area that would be eliminated during construction would be irretrievably lost for a period of time. However, these organisms are expected to quickly colonize the disturbed sandy areas.

4.24 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

Species of relatively non-motile infaunal invertebrates, such as mollusks, that inhabit the borrow areas will unavoidably be lost during dredging. Those species that are not able to escape the construction area are expected to recolonize the disturbed sandy areas after completion of the project. There would be an unavoidable reduction in water clarity and increased turbidity and sedimentation. This would be limited to the immediate areas of dredging and disposal.

4.25 LOCAL SHORT-TERM USES AND MAINTENANCE/ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Shoreline protection using beach fill with periodic renourishment is an ongoing effort; no acceptable and permanent one-time fix has been identified. Renourishment efforts have a temporary and short-term impact on the biological resources offshore and onshore. During the placement of material on the beach, there would be a temporary impact on marine and shore life in the immediate vicinity of construction. Removal of material from offshore borrow areas has a long-term impact on the nature of the borrow areas. These impacts, however, are not substantial since there are no special resources within the proposed borrow areas.

4.26 INDIRECT EFFECTS

Indirect impacts may occur to seagrasses through the suspension of fine sediments into the water column during beach renourishment and groin construction activities. Tides and currents may transport these sediments over adjacent seagrass beds where they may be deposited, or reduce water clarity. Dredging would have no direct impact to hardgrounds. However, there is the possibility of local turbidity and siltation during dredging activities.

4.27 CONFLICTS AND CONTROVERSY

There are no known conflicts regarding the proposed action.

4.28 ENVIRONMENTAL COMMITMENTS

The U.S. Army Corps of Engineers and contractors commit to avoiding, minimizing or mitigating for adverse effects during construction activities by including the following commitments in the contract specifications:

4.28.1 TURBIDITY

The following measures shall be implemented to avoid/minimize turbidity related impacts:

1. The water quality (turbidity) at the borrow areas and discharge site would be monitored twice daily or as required by project permits.

2. If turbidity values at either the borrow areas or discharge sites exceed State water quality standards (29 NTU's above background), all dredging activities would immediately be suspended. Dredging would not resume until water quality levels meet State standards.

4.28.2 SEA TURTLES

The sea turtle protection measures stated in the Terms and Conditions of the USFWS Biological Opinion would be implemented to avoid/minimize potential take of loggerhead and green sea turtles. The Terms and Conditions, that must be adhered to, can be found in the USFWS Biological Opinion included in **Appendix D**.

The National Marine Fisheries Service (NMFS) has included the Lido Key Shore Protection Project in a Regional Biological Opinion (RBO) that includes hopper dredging of borrow areas along the west coast of Florida. The RBO is currently in draft stage. It is anticipated that the terms and conditions that will be established in the final RBO would include intake and overflow screening, sea turtle deflector draghead installation, and observer and reporting requirements. The terms and conditions as established in the final RBO will be implemented to avoid/minimize potential take of sea turtles.

4.28.3 MANATEES

The following standard protection measures would be implemented to minimize potential impacts to manatees:

1. The Contractor shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees.

2. All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972, the Endangered Species Act of 1973, and the

Florida Sanctuary Act of 1978. The Contractor may be held responsible for any manatee harmed, harassed, or killed as a result of construction activities.

3. Siltation barriers shall be installed and shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be monitored regularly to avoid manatee entrapment. Barriers shall not block manatee entry to or exit from essential habitat.

4. All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in water where the draft of the vessel provides less than four feet clearance from the bottom and that vessels shall follow routes of deep water whenever possible.

5. If a manatee is sighted within 100 yards of the project area, all appropriate precautions shall be implemented by the Contractor to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee. If a manatee is closer than 50 feet to moving equipment or the project area, the equipment shall be shut down and all construction activities shall cease. Construction activities shall not resume until the manatee has departed the project area.

6. Any collision with and/or injury to a manatee shall be reported immediately to the "Manatee Hotline" at 1-800-DIAL-FMP (1-800-342-5367). Collision and or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-232-2580) for north Florida or Vero Beach (1-561-562-3909) in South Florida.

7. Temporary signs concerning manatees shall be posted prior to and during construction/dredging activities. All signs are to be removed by the Contractor upon completion of the project.

8. If nighttime construction occurs, lights must be in place that illuminates a 100-foot radius around the construction site.

4.28.4 PROTECTION OF MIGRATORY AND/OR LISTED BIRD SPECIES

1. Construction activities will be under surveillance, management, and control to prevent impacts to migratory birds and their nests in accordance with the U.S. Army Corps of Engineers, Jacksonville District's Migratory Bird Protection Policy. Additionally, migratory birds are protected by the Florida Endangered and Threatened Species Act of 1977, Title XXVIII, Chapter 372.072, and the U.S. Fish and Wildlife Service pursuant to the Migratory Bird Treaty Act of 1918 and the Endangered and Threatened Species Act of 1982, as amended.

2. Monitoring of the construction area will begin 1 April through 31 August, if

construction activities occur during that period. Daily monitoring will be conducted.

3.Any nesting activity will be reported immediately to the Corps. Guidelines set forth in the Migratory Bird Protection Policy will be implemented should nesting occur within the construction area.

4.29 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

4.29.1 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

Environmental information on the project has been compiled and this Environmental Assessment has been prepared. The project is in compliance with the National Environmental Policy Act.

4.29.2 ENDANGERED SPECIES ACT OF 1973

Consultation was initiated with NMFS on July 17, 2001. NMFS indicated by letter dated August 9, 2001 that they intend to include the proposed Lido Key project in the new Gulf Coast Regional Biological Opinion (RBO). The draft RBO, dated 11/7/01 was received on 11/27/01. Consultation was initiated with USFWS on November 22, 2000 and completed on February 26, 2002 (see Appendix D for Biological Opinion). This project was fully coordinated under the Endangered Species Act and therefore, is in full compliance with the Act.

4.29.3 FISH AND WILDLIFE COORDINATION ACT OF 1958

This project has been coordinated with the U.S. Fish and Wildlife Service (USFWS). A final Coordination Act Report (FCAR) dated August 21, was submitted by the USFWS. There has been no change in the project design or the source of beach fill material since submittal of the CAR. This project is in full compliance with the Act.

4.29.4 NATIONAL HISTORIC PRESERVATION ACT OF 1966 (INTER ALIA)

(PL 89-665, the Archeology and Historic Preservation Act (PL 93-291), and executive order 11593)
Archival research, underwater survey, and consultation with the Florida State Historic Preservation Officer (SHPO), have been conducted in accordance with the National Historic Preservation Act, as amended; the Archeological and Historic Preservation Act, as amended and Executive Order 11593. SHPO consultation was initiated July 27, 2001. In a September 25, 2001 response, the SHPO concurred with the Corps' no effect determination. The project will not affect historic properties included in or eligible for inclusion in the National Register of Historic places. The project is in compliance with each of these Federal laws.

4.29.5 CLEAN WATER ACT OF 1972

Application for a Section 401 water quality certification will be submitted to the Florida Department of Environmental Protection. All State water quality standards will be met. The project is in compliance with this act. A Section 404(b) evaluation is included in this report as Appendix A.

4.29.6 CLEAN AIR ACT OF 1972

No air quality permits would be required for this project. This project has been coordinated with U.S. Environmental Protection Agency (EPA) and is in compliance with Section 309 of the Act.

4.29.7 COASTAL ZONE MANAGEMENT ACT OF 1972

A federal consistency determination in accordance with 15 CFR 930 Subpart C is included in this report as Appendix B. State consistency reviews were performed during the coordination of the Environmental Assessment. Consistency reviews can be found in Appendix C.

4.29.8 FARMLAND PROTECTION POLICY ACT OF 1981

No prime or unique farmland would be impacted by implementation of this project. This act is not applicable.

4.29.9 WILD AND SCENIC RIVER ACT OF 1968

No designated Wild and Scenic river reaches would be affected by project related activities. This act is not applicable.

4.29.10 MARINE MAMMAL PROTECTION ACT OF 1972

Incorporation of the safe guards used to protect threatened or endangered species during dredging and disposal operations would also protect any marine mammals in the area, therefore, this project is in compliance with the Act.

4.29.11 ESTUARY PROTECTION ACT OF 1968

No designated estuary would be affected by project activities. This act is not applicable.

4.29.12 FEDERAL WATER PROJECT RECREATION ACT

The principles of the Federal Water Project Recreation Act, (Public Law 89-72) as amended, have been fulfilled by complying with the recreation cost sharing criteria as

outlined in Section 2 (a), paragraph (2). Another area of compliance includes the public beach access requirement on which the renourishment project hinges (Section 1, (b).

4.29.13 FISHERY CONSERVATION AND MANAGEMENT ACT OF 1976

The project has been coordinated with the National Marine Fisheries Service (NMFS) and is in compliance with the act.

4.29.14 SUBMERGED LANDS ACT OF 1953

The project would occur on submerged lands of the State of Florida. The project has been coordinated with the State and is in compliance with the act.

4.29.15 COASTAL BARRIER RESOURCES ACT AND COASTAL BARRIER IMPROVEMENT ACT OF 1990

There are no designated coastal barrier resources in the project area that would be affected by this project. These acts are not applicable.

4.29.16 RIVER AND HARBOR ACT OF 1899

The proposed work would not obstruct navigable waters of the United States. The proposed action will be presented to the public by notice, hearing, and other evaluations normally conducted for activities subject to the act. The project is in full compliance.

4.29.17 ANADROMOUS FISH CONSERVATION ACT

Anadromous fish species would not be affected. The project has been coordinated with the National Marine Fisheries Service and is in compliance with the act.

4.29.18 MIGRATORY BIRD TREATY ACT AND MIGRATORY BIRD CONSERVATION ACT

The project has been coordinated with the U.S. Fish and Wildlife Service and the Florida Fish and Wildlife Conservation Commission and is in compliance with these acts.

4.29.19 MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT

The term "dumping" as defined in the Act (3[33 U.S.C. 1402](f)) does not apply to the disposal of material for beach nourishment or to the placement of material for a purpose other than disposal (i.e. placement of rock material as an artificial reef or the construction of artificial reefs as mitigation). Therefore, the Marine Protection, Research and Sanctuaries Act does not apply to this project. The disposal activities addressed in this EA have been evaluated under Section 404 of the Clean Water Act.

4.29.20 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

Coordination of the EA initiated consultation with the NMFS under provisions of this Act. Based on analysis discussed in this EA, the Corps has determined that the proposed action would not adversely affect the essential habitat of species managed under this Act. The NMFS concurred with this determination by letter dated June 19, 2002 (see letter in Appendix C).

4.29.21 E.O. 11990, PROTECTION OF WETLANDS

No wetlands would be affected by project activities. This project is in compliance with the goals of this Executive Order.

4.29.22 E.O. 11988, FLOOD PLAIN MANAGEMENT

The project is in the base flood plain (100-year flood) and is being evaluated in accordance with this Executive Order.

4.29.23 E.O. 12898, ENVIRONMENTAL JUSTICE

The proposed project would not result in adverse human health or environmental effects, nor would the activity impact the subsistence consumption of fish and wildlife. The project is in compliance with this Executive Order.

4.29.24 E.O. 13089, CORAL REEF PROTECTION

The proposed project would not result in adverse impacts to coral reef ecosystems. No coral reef habitat exists within or near the proposed project. This act is not applicable.

4.29.25 E.O. 13112, INVASIVE SPECIES

Invasive species would not be affected by project activities. This act is not applicable.

5 LIST OF PREPARERS

5.1 PREPARERS

NAME	DISCIPLINE	ROLE
Yvonne Haberer	Biologist	Main Author
Grady Caulk	Archeologist	Historic Properties
Tommy Birchett	Archeologist	Historic Properties
Peter Besrutschko	Environmental Engineer	HTRW Analysis

5.2 REVIEWER

Kenneth Dugger	Chief, Gulf Coast Section	Review

6 PUBLIC INVOLVEMENT

6.1 SCOPING AND DRAFT EA

A Scoping letter dated September 28, 2000 was issued for this action. A draft EA and Preliminary Finding of No Significant Impact (FONSI) was made available to the public by Notice of Availability on May 29, 2002.

6.2 AGENCY COORDINATION

The proposed project has been coordinated with the following agencies: U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Environmental Protection Agency, Florida State Clearinghouse, Florida Fish and Wildlife Conservation Commission, Florida Department of Environmental Protection, and Florida State Historic Preservation Officer (SHPO). Any agency coordination letters can be found in Appendix C.

6.3 LIST OF RECIPIENTS

The draft EA/FONSI was circulated to Federal, State, and local agencies and other interested parties for review and comment. A complete mailing list is in Appendix C.

6.4 COMMENTS RECEIVED AND RESPONSE

Comments on the draft EA can be found in Appendix C.

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APPENDIX A - SECTION 404(B) EVALUATION

SECTION 404(b) EVALUATION

LIDO KEY SHORE PROTECTION PROJECT
SARASOTA COUNTY, FLORIDA

I. Project Description

a. Location. The proposed work will be performed in Florida, Sarasota County, Sarasota City Limits, Lido Key. Lido Key is a barrier island situated along the 35 mile Gulf shoreline of Sarasota County. The island is located between Longboat Key to the north, and Siesta Key to the south. The island is approximately 2.5 miles long, and ranges in width from 100 ft. to approximately 2500 ft.

b. General Description. The proposed plan calls for initial restoration and periodic nourishment of the gulf shoreline of Lido Key. The recommended plan also provides for the construction of a groin field, which includes three linear groins at the southern end of Lido Key near Big Sarasota Pass. Beach compatible material would come from offshore borrow areas located 7-10 nautical miles offshore of Lido Key.

c. Authority and Purpose. A beach erosion control project was authorized for Lido Key by the 1970 River and Harbor Act. The project provided for initial restoration and periodic nourishment for 1.2 miles of shoreline. The city of Sarasota completed the northern half of the project in 1970 with no Federal participation. The project was never completed and was deauthorized on 1 January 1990. Maintenance dredged material from the Federal navigation project at New Pass is periodically placed on Lido Key beaches.

The Water Resources Development Act of 1999 reauthorized the Lido Key Shore Protection Project, which allows for the continuation with the Feasibility phase of the study and preparation of the feasibility report.

d. General Description of Dredged or Fill Material.

(1) General Characteristics of Material. Details of the three (3) proposed borrow areas are listed below. In all three areas, unconsolidated material is mounded over a generally continuous and relatively flat limestone layer. The thickness of beach quality material in the three potential borrow areas range from 7 to 1 ft.
Borrow Area 5 is located 7.2 miles offshore of Lido Key. The deposits in this area consists of medium grained sand, with low silt content (1.7% to 2.6%) mixed with some shell fragments/hash.

Borrow Area 6 is located 8.5 nautical miles offshore of Lido Key. The deposits in this area consists of medium grained sand, with low silt content (1.7% to 2.6%) mixed with some shell fragments/hash.

Borrow Area 7 is located 9.5 nautical miles offshore of Lido Key. The deposits in this area consist of medium grained sand, with low silt content (0.11% to 4.6%) mixed with some shell fragments/hash.

(2) Quantity of Material. Total fill volume needed for initial construction would be 981,924 c.y. Available volume of material for each borrow area is, Borrow Area 5 = 209,570 c.y.; Borrow Area 6 = 1,063,017 c.y.; and Borrow Area 7 = 601,536 c.y.

(3) Source of Material. . Beach compatible material would come from three (3) offshore borrow areas located 7-10 nautical miles offshore of Lido Key.

e. Description of the proposed Discharge Site.

(1) Location. The berm would run from DEP monument marker 35 to marker 43. The project would consist of a 9,000 ft. beach and would have a 990-foot taper on the north past DEP monument 35 and an 850 ft. taper to the south past DEP monument 43.

(2) Size. The project would consist of a 9,000 ft. beach and would have a 990-foot taper on the north past DEP monument 35 and an 850 ft. taper to the south past DEP monument 43.

(3) Type of Site. The disposal site is an eroded, sandy, recreational beach.

(4) Type of Habitat. The habitat of the fill site includes supratidal dry beach, intertidal swash zone, and subtidal sandy areas. A vegetated dune exists along some portions of the beach.

(5) Timing and Duration of Discharge. Construction of the project would begin in 2004 and is expected to take 4-6 months to complete.

f. Description of Disposal Method. Due to distance these borrow areas are from Lido Key, it would be likely that a hopper dredge would be used to transport the material.

II. Factual Determinations

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The project design would consist of an 80 ft wide berm at Elevation +5 NGVD, this berm would run from DNR 35 to DNR 43. The project would have a 990 foot taper on the north past DNR 35 and an 850 foot taper to the south past DNR 43. The berm would slope from +5 NGVD to existing ground on a slope of 1V on 10H. In addition to the beach fill, 3 groins would be placed at the southern end of the project limits. These structures would range from 650 to 320 feet in length and will be oriented along a bearing of 55 degrees west of north. They would have a crest height of +5 ft NGVD and extend to -3 ft NGVD.

(2) Sediment Type.

Borrow Area 5 is located 7.2 miles offshore of Lido Key. The deposits in this area consists of medium grained sand, with low silt content (1.7% to 2.6%) mixed with some shell fragments/hash. Mean grain size of material is 0.40 mm and a sorting value of 0.71 phi.

Borrow Area 6 is located 8.5 nautical miles offshore of Lido Key. The deposits in this area consists of medium grained sand, with low silt content (1.7% to 2.6%) mixed with some shell fragments/hash. Mean grain size of material is 0.32 mm and a sorting value of 0.71 phi.

Borrow Area 7 is located 9.5 nautical miles offshore of Lido Key. The deposits in this area consist of medium grained sand, with low silt content (0.11% to 4.6%) mixed with some shell fragments/hash. Mean grain size of material is 0.43 mm and a sorting value of 0.40 phi.

(3) Dredge/Fill Material Movement. The fill material would be subject to erosion by waves with the net movement of material to the south.

(4) Physical Effects on Benthos. Some benthic organisms that are not mobile may be lost during dredging. Recolonization soon after project completion is expected to replace those organisms which do not survive project construction. It is anticipated that no long-term effects would occur.

b. Water Circulation, Fluctuation and Salinity Determination.

(1) Water Column Effects. During dredging, turbidity would increase temporarily in the water column. The increased turbidity would be short-term; therefore, placement of fill would have no long-term or significant impacts, if any, on salinity, water chemistry, clarity, color, odor, taste, dissolved gas levels, nutrients or eutrophication.

(2) Current Patterns and Circulation. The primary currents in the nearshore zone are wave-induced longshore currents. Longshore currents are dominant towards

the south, with reversals evident during periods of southern wave activity and in shadow areas around inlets.

(3) Normal Water Level Fluctuations and Salinity Gradients. Mean high water for Lido Key is at elevation 1.13 ft. National Geodetic Vertical Datum (NGVD). Salinity is that of normal Gulf of Mexico water.

c. Suspended Particulate/Turbidity Determinations.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site. There would be a temporary increase in turbidity levels during discharge of material.

(2) Effects on the Chemical and Physical Properties of the Water Column.

(a) Light Penetration. Some decrease in light penetration may occur in the immediate vicinity of the dredging areas. This effect would be temporary, limited to the immediate area of construction, and would have no adverse impacts on the environment.

(b) Dissolved Oxygen. Dissolved oxygen levels would not be altered by this project.

(c) Toxic Metals, Organics, and Pathogens. To toxic metals, organics, or pathogens are expected to be released by the project.

(d) Aesthetics. The aesthetic quality of the water in the immediate area of the project would be reduced during construction due to increased turbidity. This would be a short-term and localized condition.

(3) Effects on Biota.

(a) Primary Productivity and Photosynthesis. The proposed borrow areas and fill area are characterized by a sandy, featureless bottom. There are no known seagrass or algal communities present in these areas. The effects on phytoplankton, if any, would be minimal and short-term.

(b) Suspension/Filter Feeders. An increase in turbidity could adversely impact burrowing invertebrate filter feeders within and adjacent to the immediate construction area. It is not expected that a short-term, temporary increase in turbidity would have a long-term negative effect on these highly prolific organisms.

(c) Sight Feeders. No significant impacts on these organisms are expected as the majority of sight feeders are highly mobile and can move outside the project area.

d. Contaminant Determinations. Material which would be dredged from the proposed borrow sites would not introduce, relocate, or increase contaminants at the fill area.

e. Aquatic Ecosystem and Organism Determinations.

(1) Effects on Plankton. No adverse impact on autotrophic or heterotrophic organisms are anticipated.

(2) Effects on Benthos. No adverse long-term impacts to non-motile benthic invertebrates are anticipated.

(3) Effects on Nekton. These organisms are highly motile, and therefore no adverse impacts are expected.

(4) Effects on the Aquatic Food Web. No adverse long-term impact to any trophic group in the food web is anticipated.

(5) Effects on Special Aquatic Sites.

(a) Hardground and Coral Reef Communities. There are no known hardground reef communities located in the immediate nearshore area of Lido Key that would be affected by this beach project.

(b) Sanctuaries and Refuges. No such designated sites are located within the project area.

(c) Wetlands. Wetlands would not be affected by this project.

(d) Mud Flats. Mud flats would not be affected by this project.

(e) Vegetated Shallows. There are no known vegetated shallows within the project area.

(6) Endangered and Threatened Species. There would be no significant adverse impacts to any threatened or endangered species or to the critical habitat of any threatened or endangered species. Measures that would be implemented to protect endangered and threatened species are outlined in Section 4.28 of the EA.

(7) Other Wildlife. No adverse impacts to other wildlife is expected.

(8) Actions to Minimize Impacts. All practical safeguards would be taken during construction to preserve and enhance environmental, aesthetic, recreational, and economic values in the project area. Specific precautions that would be implemented in conjunction with the proposed project can be found in the EA.

f. Proposed Disposal Site Determinations.

(1) Mixing Zone Determination. A mixing zone variance application will be submitted to the Florida Department of Environmental Protection because the dredged material is expected to cause temporary increase in turbidity at the beach placement site. No adverse impacts related to depth, current velocity, direction and variability, degree of turbulence, stratification, or ambient concentrations of constituents are expected from implementation of the project.

(2) Determination of Compliance with Applicable Water Quality Standards. Because of the inert nature of the material to be dredged, Class III water quality standards would not be violated.

(3) Potential Effects on Human Use Characteristics.

(a) Municipal and Private Water Supplies. No municipal or private water supplies would be impacted by the project.

(b) Recreational and Commercial Fisheries. Fishing in the immediate construction area would be prohibited while construction is in progress. Recreational and commercial fisheries would not be otherwise impacted by implementation of the project.

(c) Water Related Recreation. Beach and water related recreation in the immediate vicinity of construction would be prohibited during construction activities. This would be a short-term impact.

(d) Aesthetics. The existing environmental setting would not be adversely impacted. The sand color of the post-construction beach may be different from the sand color of the natural beach. Long-term adverse affects to the visual environment as a result of construction is not expected.

(e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. No such designated sites are located within the project area.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. There would be no cumulative impact that results in major impairment of water quality of the existing aquatic ecosystem as a result of the placement of fill at the project site.

h. Determination of Secondary Effects on the Aquatic Ecosystem. There would be no secondary impacts on the aquatic ecosystem as a result of construction activities.

III. Findings of Compliance or Non-compliance with the Restrictions on Discharge.

a. No significant adaptations of the guidelines were made relative to this evaluation.

b. No practicable alternative exists which meets the study objectives that does not involve discharge of fill into waters of the United States.

c. After consideration of disposal site dilution and dispersion, the discharge of fill materials will not cause or contribute to, violations of any applicable State water quality standards for Class III waters. The discharge operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

d. The proposed Lido Key Shore Protection Project would not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973, as amended.

e. The placement of fill material will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic species and other wildlife will not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values will not occur.

f. On the basis of the guidelines, the proposed disposal site for the discharge of dredged material is specified as complying with the requirements of these guidelines.

APPENDIX B - COASTAL ZONE MANAGEMENT CONSISTENCY

FLORIDA COASTAL ZONE MANAGEMENT PROGRAM
FEDERAL CONSISTENCY EVALUATION PROCEDURES

LIDO KEY SHORE PROTECTION PROJECT
SARASOTA COUNTY, FLORIDA

1. Chapter 161, Beach and Shore Preservation. The intent of the coastal construction permit program established by this chapter is to regulate construction projects located seaward of the line of mean high water and which might have an effect on natural shoreline processes.

Response: The proposed plans and information will be submitted to the state in compliance with this chapter.

2. Chapters 163(part II), 186, and 187, County, Municipal, State and Regional Planning. These chapters establish the Local Comprehensive Plans, the Strategic Regional Policy Plans, and the State Comprehensive Plan (SCP). The SCP sets goals that articulate a strategic vision of the State's future. Its purpose is to define in a broad sense, goals, and policies that provide decision-makers directions for the future and provide long-range guidance for an orderly social, economic and physical growth.

Response: The proposed project has been coordinated with various Federal, State and local agencies during the planning process. The project meets the primary goal of the State Comprehensive Plan through preservation and protection of the shorefront development and infrastructure.

3. Chapter 252, Disaster Preparation, Response and Mitigation. This chapter creates a state emergency management agency, with the authority to provide for the common defense; to protect the public peace, health and safety; and to preserve the lives and property of the people of Florida.

Response: The proposed project involves the placing of beach compatible material onto an eroding beach as a protective means for residents, development and infrastructure located along the Gulf shoreline within Sarasota County. Therefore, this project would be consistent with the efforts of Division of Emergency Management.

4. Chapter 253, State Lands. This chapter governs the management of submerged state lands and resources within state lands. This includes archeological and historical resources; water resources; fish and wildlife resources; beaches and dunes; submerged grass beds and other benthic communities; swamps, marshes and other wetlands; mineral resources; unique natural features; submerged lands; spoil islands; and artificial reefs.

Response: The proposed beach nourishment would create increased recreational beach and potential sea turtle nesting habitat. No seagrass beds are located within the area proposed to receive fill. The proposed project would comply with the intent of this chapter.

5. Chapters 253, 259, 260, and 375, Land Acquisition. This chapter authorizes the state to acquire land to protect environmentally sensitive areas.

Response: Since the affected property already is in public ownership, this chapter does not apply.

6. Chapter 258, State Parks and Aquatic Preserves. This chapter authorizes the state to manage state parks and preserves. Consistency with this statute would include consideration of projects that would directly or indirectly adversely impact park property, natural resources, park programs, management or operations.

Response: The proposed project area does not contain any state parks or aquatic preserves nor are there any within the immediate vicinity of the project that would be affected. The project is consistent with this chapter.

7. Chapter 267, Historic Preservation. This chapter establishes the procedures for implementing the Florida Historic Resources Act responsibilities.

Response: This project has been coordinated with the State Historic Preservation Officer (SHPO). Historic Property investigations were conducted in the project area. An archival and literature search, in addition to a magnetometer survey of the proposed borrow area were conducted. The SHPO concurred with the Corps determination that the proposed project will not adversely affect any significant cultural or historic resources. The project will be consistent with the goals of this chapter.

8. Chapter 288, Economic Development and Tourism. This chapter directs the state to provide guidance and promotion of beneficial development through encouraging economic diversification and promoting tourism.

Response: The proposed beach nourishment would provide more space for recreation and the protection of recreational facilities along the receiving beach. This would be compatible with tourism for this area and therefore, is consistent with the goals of this chapter.

9. Chapters 334 and 339, Transportation. This chapter authorizes the planning and development of a safe balanced and efficient transportation system.

Response: No public transportation systems would be impacted by this project.

10. Chapter 370, Saltwater Living Resources. This chapter directs the state to preserve, manage and protect the marine, crustacean, shell and anadromous fishery resources in state waters; to protect and enhance the marine and estuarine environment; to regulate fishermen and vessels of the state engaged in the taking of such resources within or without state waters; to issue licenses for the taking and processing products of fisheries; to secure and maintain statistical records of the catch of each such species; and, to conduct scientific, economic, and other studies and research.

Response: The proposed beach fill may represent a temporary short-term impact to infaunal invertebrates by burying these organisms. However, these organisms are highly adapted to the periodic burial by sand in the intertidal zone. These organisms are highly fecund and are expected to return to pre-construction levels within 6 months to one year after construction. Nourishment activities would not be performed during the main part of the sea turtle nesting season. It is not expected that sea turtles would be significantly impacted by this project. Based on the overall impacts of the project, the project is consistent with the goals of this chapter.

11. Chapter 372, Living Land and Freshwater Resources. This chapter establishes the Game and Freshwater Fish Commission and directs it to manage freshwater aquatic life and wild animal life and their habitat to perpetuate a diversity of species with densities and distributions which provide sustained ecological, recreational, scientific, educational, aesthetic, and economic benefits.

Response: The project will have no effect on freshwater aquatic life or wild animal life.

12. Chapter 373, Water Resources. This chapter provides the authority to regulate the withdrawal, diversion, storage, and consumption of water.

Response: This project does not involve water resources as described by this chapter.

13. Chapter 376, Pollutant Spill Prevention and Control. This chapter regulates the transfer, storage, and transportation of pollutants and the cleanup of pollutant discharges.

Response: The contract specifications will prohibit the contractor from dumping oil, fuel, or hazardous wastes in the work area and will require that the contractor adopt safe and sanitary measures for the disposal of solid wastes. A spill prevention plan will be required.

14. Chapter 377, Oil and Gas Exploration and Production. This chapter authorizes the regulation of all phases of exploration, drilling, and production of oil, gas, and other petroleum products.

Response: This project does not involve the exploration, drilling or production of gas, oil or petroleum product and therefore, this chapter does not apply.

15. Chapter 380, Environmental Land and Water Management. This chapter establishes criteria and procedures to assure that local land development decisions consider the regional impact nature of proposed large-scale development. This chapter also deals with the Area of Critical State Concern program and the Coastal Infrastructure Policy.

Response: The proposed renourishment project will not have any regional impact on resources in the area. Therefore, the project is consistent with the goals of this chapter.

16. Chapters 381 (selected subsections on on-site sewage treatment and disposal systems) and 388 (Mosquito/Arthropod Control). Chapter 388 provides for a comprehensive approach for abatement or suppression of mosquitoes and other pest arthropods within the state.

Response: The project will not further the propagation of mosquitoes or other pest arthropods.

17. Chapter 403, Environmental Control. This chapter authorizes the regulation of pollution of the air and waters of the state by the Florida Department of Environmental Regulation (now a part of the Florida Department of Environmental Protection).

Response: A Draft Environmental Assessment addressing project impacts has been prepared and will be reviewed by the appropriate resource agencies including the Florida Department of Environmental Protection. Environmental protection measures will be implemented to ensure that no lasting adverse effects on water quality, air quality, or other environmental resources will occur. Water Quality Certification will be sought from the State prior to construction. The project complies with the intent of this chapter.

18. Chapter 582, Soil and Water Conservation. This chapter establishes policy for the conservation of the state soil and water through the Department of Agriculture. Land use policies will be evaluated in terms of their tendency to cause or contribute to soil erosion or to conserve, develop, and utilize soil and water resources both onsite or in adjoining properties affected by the project. Particular attention will be given to projects on or near agricultural lands.

Response: The proposed project is not located near or on agricultural lands; therefore, this chapter does not apply.

APPENDIX C - PERTINENT CORRESPONDENCE

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P. O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

SEP 28 2000

Planning Division
Environmental Branch

TO WHOM IT MAY CONCERN:

The Jacksonville District, U.S. Army Corps of Engineers, is gathering information to define issues and concerns that will be addressed in a Feasibility Study on erosion problems along the Gulf of Mexico shoreline of Lido Key, Sarasota County, Florida. Lido Key is a project reauthorized by the Water Resources Development Act of 1999.

As shown on enclosure 1, Lido Key is a small barrier island, approximately 2.44 miles long, located on the Gulf coast of Florida, about 45 miles south of the entrance to Tampa Bay. Alternatives being considered include no action, beach restoration, revetment, and terminal groin construction. Fill material would be obtained from offshore borrow areas. Potential borrow areas considered are shown on enclosure 2. During the Feasibility Study, environmental considerations will be addressed in an Environmental Assessment.

We welcome your views, comments and information about environmental and cultural resources, study objectives and important features within the described study area, as well as any suggested improvements. Letters, comments or inquiries should be addressed to the letterhead address to the attention of the Planning Division, Environmental Coordination Section and received within thirty days of the date of this letter.

Sincerely,

James C. Duck
Chief, Planning Division

Enclosures

STATE OF FLORIDA

DEPARTMENT OF COMMUNITY AFFAIRS

"Dedicated to making Florida a better place to call home"

JEB BUSH
Governor

STEVEN M. SEIBERT
Secretary

November 28, 2000

Department of the Army
Jacksonville District Corps of Engineers
Environmental Coordination Section
Post Office Box 4970
Jacksonville, Florida 32232-0019

Attn: Planning Division

RE: Department of the Army - District Corps of Engineers - Scoping Document - To Define Issues and Concerns to be Addressed in a Feasibility Study Regarding Erosion Problems Along the Gulf of Mexico Shoreline of Lido Key - Sarasota County, Florida
SAI: FL200010030661C

Dear Sir or Madam:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended, has coordinated a review of the above-referenced project.

The Department of Environmental Protection (DEP) offers several recommendations regarding the environmental assessment or environmental impact statement. In addition, DEP recommends that the Corps consult with DEP and the Florida Fish and Wildlife Conservation Commission on proposed borrow sites, fill, and structures. Please refer to the enclosed DEP comments.

Based on the information contained in the scoping document and the enclosed comments provided by our reviewing agencies, the state has determined that, at this stage, the above-referenced project is consistent with the Florida Coastal Management Program (FCMP). All subsequent environmental documents prepared for this project must be reviewed to determine the

project's continued consistency with the FCMP. The state's continued concurrence with the project will be based, in part, on the adequate resolution of issues identified during this and subsequent reviews.

Thank you for the opportunity to review the scoping document. If you have any questions regarding this letter, please contact Ms. Cherie Trainor, Clearinghouse Coordinator, at (850) 414-5495.

Sincerely,

Chris McCay

for Ralph Cantral, Executive Director
Florida Coastal Management Program

RC/cc

Enclosures

cc: Kate Muldoon, Department of Environmental Protection

Department of Environmental Protection

Jeb Bush
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

9 November 2000

Ms. Cherie Trainor
State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Blvd.
Tallahassee, FL 32399

RE: U.S. Army Corps of Engineers/ Scoping Notice for a Feasibility Study of Beach Renourishment on Lido Key, Sarasota County
SAI: FL200010030661C

Dear Ms. Trainor:

The Department of Environmental Protection (DEP) received the U.S. Army Corps of Engineers' Scoping Notice for a Feasibility Study of Beach Renourishment on Lido Key, Sarasota County. The proposed project is a feasibility study of alternatives to address continued shoreline erosion on Lido Key, a small barrier island offshore to Sarasota. Alternatives under consideration are : no action; beach restoration; revetment; and terminal groin construction. Fill would be obtained from offshore borrow areas. The Department has the following comments:

We recommend that the Environmental Assessment or Environmental Impact Statement:

1. be based upon recent data. Given that this area of Lido Key Beach has been renourished in the past, information from the previous feasibility studies may be out of date due to the dynamic nature of beach and coastal systems.

2. address the effects of an increase in the rate of erosion due to rising sea levels. A constant erosion rate (that does not account for sea level rise) used to extrapolate the expected loss of beach fill may result in a derived value that underestimates the amount of fill needed for periodic renourishment. Accordingly, a conservative estimate may also bias the benefit/cost ratio.

3. provide a discussion on the environmental control measures used to alleviate increased turbidity levels during the dredging process. The EA or EIS should also include a monitoring plan designed to check any violation of water quality standards according to Chapter 17-3, Florida Statutes.

4. identify and fully evaluate the extent of seagrasses, hardbottom, and benthic communities located in proposed offshore borrow areas, as well as adjacent to the beach proposed for renourishment. The Department also recommends that every effort be made to avoid potential impacts to sensitive areas, and to provide a mitigation plan for unavoidable impacts.

In addition, we recommend that the Corps consult with DEP and the Florida Fish and Wildlife Conservation Commission on proposed borrow sites, fill, and structures.

Thank you for the opportunity to review and comment upon this scoping notice. If you require additional information, please contact me at 850/487-2231.

Sincerely,

Kate Muldoon
Intergovernmental Programs

\kam
cc: file
Dianne McCommons-Beck
Roxane Dow
Susan Goggin

TY: Sarasota

ge:

DATE: 10/03/2000
COMMENTS DUE DATE: 11/02/2000
CLEARANCE DUE DATE: 11/13/2000
SAI#: FL200010030661C

STATE AGENCIES	WATER MANAGEMENT DISTRICTS	OPB POLICY UNITS
Community Affairs Environmental Protection Fish & Wildlife Conserv. Comm State X Transportation	Southwest Florida WMD	Environmental Policy/C & ED

T[illegible]ached document requires a Coastal Zone Management Act/Florida [illegible] Management Program consistency evalutation and is categorized a[illegible]e of the following:

___ Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.

_X_ Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.

___ Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.

___ Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:

Department of the Army - District Corps of Engineers - Scoping Document - To Define Issues and Concems to be Addressed in a Feasibility Study Regarding Erosion Problems Along the Gulf of Mexico Shoreline of Lido Key - Sarasota County, Florida.

To: **Florida State Clearinghouse**
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
(850) 922-5438 (SC 292-5438)
(850) 414-0479 (FAX)

EO. 12372/NEPA

☑ No Comment
☐ Comments Attached
☐ Not Applicable

Federal Consistency

☑ No Comment/Consistent
☐ Consistent/Comments Attached
☐ Inconsistent/Comments Attached
☐ Not Applicable

From:
Division/Bureau: FDOT
Reviewer: Sandra Hartmire

: Sarasota

Page:

DATE: 10/03/2000
COMMENTS DUE DATE: 11/02/2000
CLEARANCE DUE DATE: 11/13/2000
SAI#: FL200010030661C

STATE AGENCIES	WATER MANAGEMENT DISTRICTS	OPB POLICY UNITS
Community Affairs Environmental Protection Fish & Wildlife Conserv. Comm State Transportation	Southwest Florida WMD	X Environmental Policy/C & ED

RECEIVED
OCT 5 2000
OFFICE OF POLICY AND BUDGET
ENVIRONMENTAL POLICY UNIT

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Project Description:

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- [x] No Comment
- [ ] Comments Attached
- [ ] Not Applicable

Federal Consistency

- [ ] No Comment/Consistent
- [ ] Consistent/Comments Attached
- [ ] Inconsistent/Comments Attached
- [ ] Not Applicable

RECEIVED
OCT 11 2000
State of Florida Clearinghouse

From:
Division/Bureau: EO 6. OPB. Env. Policy
Reviewer:
Date: 10/10/2000

Southwest Florida Regional Planning Council

4980 Bayline Drive, 4th Floor, N. Ft. Myers, FL 33917-3909 (941) 656-7720

P.O. Box 3455, N. Ft. Myers, FL 33918-3455 SUNCOM 749-7720

FAX 941-656-7724

November 28, 2000

Mr. James C. Duck
Chief, Planning Division
U.S. Army Corps of Engineers
Post Office Box 4970
JACKSONVILLE, FL 32232-0019

RE: IC&R Project #2000-445
USACE Feasibility Study
Council Staff Reply to Request For Comments Regarding The Proposed Lido Key Shoreline Erosion Alternatives Study.

Dear Mr. Duck:

The staff of the Southwest Florida Regional Planning Council reviews various proposals, Notifications of Intent, Preapplications, permit applications, and Environmental Impact Statements for compliance with regional goals, objectives and policies, as determined by the Strategic Regional Policy Plan. Staff reviews such items in accordance with the Florida Intergovernmental Coordination and Review Process (Chapter 29I-5, F.A.C.), and adopted regional clearinghouse procedures.

Normally, staff provides such projects with a recommendation as to whether or not the project is regionally significant (or less than regionally significant) and whether the project is consistent with the adopted Strategic Regional Policy Plan. However, periodically Regional staff responds to requests for comment that do not require a consistency determination.

Lido Key is within the City of Sarasota, Sarasota County, and is therefore within the geographic jurisdiction of the Southwest Florida Regional Planning Council. The following staff comments are based upon the Council's adopted Strategic Regional Policy Plan, and the goals and policies therein.

1. In general, the Strategic Regional Policy Plan discourages any shoreline activities that involve adverse impacts to natural shoreline processes. Based upon this statement, Council staff would support either the "No Action" alternative, or the "Beach Restoration" alternative. However, due to the fact that the island includes a regionally significant hurricane evacuation route and bridge (scheduled for replacement), staff must support the "Beach Restoration" alternative.

2. Beach restoration upon Lido Key should be conducted within the following parameters, as applicable:

   a. Protection of marine life, including particularly West Indian manatees and sea turtles (including nests).

   b. Materials utilized for beach restoration should be compatible with the type and grain size of sand currently found on Lido Key.

   c. Private property owners should not directly benefit from the proposed activities (i.e., restoration materials should not be used to fill or restore private property), unless a clear public benefit can be achieved thereby.

   d. So far as possible, structural activity (construction of groins, seawalls, breakwaters, etc.) should be avoided. These structures tend, in many instances, to further erosion and may interfere with natural processes.

   e. The need for further beach restoration activities should be reviewed on a periodic basis.

Regional staff is willing to meet with the Corps of Engineers or its agents, to discuss the proposed activities and the staff comments. Likewise, staff would be willing to meet with other agencies concerning these issues. Please contact Mrs. Nichole Gwinnett, IC&R Coordinator, or Mr. Glenn Heath, Senior Planner, with any such request, or with any questions concerning staff review.

Sincerely,

SOUTHWEST FLORIDA REGIONAL PLANNING COUNCIL

Wayne E. Daltry
Executive Director

WED/GEH/NLG

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702

October 25, 2000

Colonel James G. May
District Engineer, Jacksonville District
Planning Division, Environmental Branch
Department of the Army, Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Dear Colonel May:

This is in response to your staff's letter, dated September 28, 2000, requesting information to define issues and concerns needed to be addressed in a Feasibility Study on erosion problems along the Gulf of Mexico Shoreline of Lido Key in Sarasota County, Florida. Alternatives being considered include no action, beach restoration, revetment, and terminal groin construction. Fill material would be obtained from offshore borrow areas.

Marine water column, vegetated bottoms, non-vegetated bottoms, live bottoms, and artificial reefs can be expected to occur in the area of Lido Key and the offshore borrow areas. These habitats are identified as Essential Fish Habitat (EFH) in the 1998 Amendment of the Fishery Management Plans for the Gulf of Mexico. This Amendment was prepared by the Gulf of Mexico Fishery Management Council as required by the 1996 amendment to the Magnuson-Stevens Fishery Conservation and Management Act.

Federal agencies which permit, fund, or undertake activities which may adversely impact EFH must undertake an EFH Consultation with the NMFS. EFH Assessments must include: 1) a description of the proposed action; 2) an analysis of the effects (including cumulative effects) of the proposed action on EFH, the managed fish species and major prey species; 3) the Federal agency's views regarding the effects of the action on EFH; and 4) proposed mitigation, if applicable. Additional information to include, as appropriate, are: 1) the results of on-site evaluations; 2) the views of recognized experts on the habitat or species affected; 3) a review of pertinent literature; and, 4) an analysis of alternatives, including actions to avoid or minimize impacts. Additional information regarding EFH in the Gulf of Mexico can be found at the following internet site: http://galveston.ssp.nmfs.gov/efh/default.htm.

We appreciate the opportunity to provide you with our comments. Please direct related comments, questions, or correspondence to Mr. David N. Dale in St. Petersburg, Florida. He may be contacted at 727/570-5311 or at the letterhead address above.

Sincerely,

W. Mark Thompson for

Andreas Mager, Jr.
Assistant Regional Administrator
Habitat Conservation Division

Planning Division
Environmental Branch

APR 09 2001

Mr. Jay Slack
Field Supervisor
U.S. Fish and Wildlife Service
South Florida Field Office
1339 20th Street
Vero Beach, Florida 32960

Dear Mr. Slack:

The Jacksonville District, U.S. Army Corps of Engineers (Corps) is conducting a feasibility ~~stage~~ Phase study to renourish 1.74 miles of shoreline on Lido Key in Sarasota County, Florida.

Pursuant to Section 7(a) of the Endangered Species Act, please find enclosed the Biological Assessment addressing the concerns of the threatened and endangered species under the purview of the U.S. Fish and Wildlife Service (FWS). The Corps has determined that the authorized project may affect nesting sea turtles, and, therefore requests that formal consultation with the FWS be initiated.

If you have any questions, please contact Ms. Yvonne Haberer at 904-232-1701.

Sincerely,

James C. Duck
Chief, Planning Division

L:group/pde/haber/LidoKeyBAltrFWS.doc

Planning Division
Environmental Branch

JUL 17 2001

Mr. Charles A. Oravetz
Chief, Protected Species Management Service
National Marine Fisheries Service
9721 Executive Center Drive North
St. Petersburg, Florida 33702

Dear Mr. Oravetz:

The Jacksonville District, U.S. Army Corps of Engineers (Corps) is conducting a feasibility phase study to renourish 1.74 miles of shoreline on Lido Key in Sarasota County, Florida.

Pursuant to Section 7 (a) of the Endangered Species Act, please find enclosed the Biological Assessment (BA) addressing the concerns of the threatened and endangered species under the purview of the National Marine Fisheries Service (NMFS). The Corps has determined that the authorized project may affect sea turtles, and therefore, requests that formal consultation with the NMFS be initiated.

If you have any questions, please contact Ms. Yvonne Haberer at 904-232-1701.

Sincerely,

James C. Duck
Chief, Planning Division

Enclosure

l:group/pde/haber/LidoNMFSBAltr.doc

ENDANGERED SPECIES ACT
BIOLOGICAL ASSESSMENT
LIDO KEY, SARASOTA COUNTY, FLORIDA
FEASIBILITY PHASE STUDY

1. PROJECT AUTHORITY: A beach erosion control project was authorized for Lido Key, Florida by the 31 December 1970 Rivers and Harbors Act. This project provided for restoration of 1.2 miles of the middle Gulf shore of Lido Key with periodic nourishment of the 1.2 mile reach as needed. Federal participation was limited to an initial period of 10 years. The City of Sarasota completed the northern half of the project in 1970 without Federal participation. The project was never completed and was deauthorized on 1 January 1990 in accordance with the provisions of Section 1001 (b) (1) of the 1986 Water Resources Act.

The Beach Erosion Control (BEC) Study for Lido Key was authorized by the U.S. House of Representatives Committee on Transportation and Infrastructure with a resolution adopted 14 September 1995. A Reconnaissance Phase Assessment was prepared in January 1997 and recommended a shore protection project along a 9,100 foot segment of Lido Key extending from Florida Department of Environmental Protection (FDEP) monuments R-35 to R-44.

2. LOCATION: Lido Key is a small barrier island, approximately 2.44 miles long, located on the west coast of Florida in Sarasota County. Lido Key is separated from Longboat Key to the north by New Pass (a Federal navigation project) and is separated from Siesta Key to the south by Big Sarasota Pass (see location map, figure 1).

3. DESCRIPTION OF PROPOSED ACTION: The proposed alternatives being studied in the feasibility stage include the placement of beach fill at varying berm widths between 0 and 100 feet on 1.74 miles of shoreline using an estimated 700,000 to 1,500,000 cubic yards of material, a terminal groin at the south end of Lido Key, and the combination of beach fill and a terminal groin. The project limits for the renourishment of the 1.74-mile design on Lido Key extend from Florida Department of Environmental Protection (FDEP) beach monument R-35 to R-44 (figure 1). Fill would be obtained from offshore borrow areas. Three offshore borrow areas have been identified for further study (see figure 2). These offshore borrow areas are located from 4 to 6 miles offshore. Due to the distance of the borrow areas, a hopper dredge may be used. Table 1 lists average mean grain size and silt content of material in each proposed borrow area.

Table 1: Average Mean Grain Size and Silt Content of Material in Proposed Borrow Areas

	MEAN GRAIN SIZE (mm)	PERCENT SILT
Borrow Area #5	0.43	2.19
Borrow Area #6	0.32	4.05
Borrow Area #7	0.43	2.48

4. LISTED SPECIES WHICH MAY BE AFFECTED: Listed species which may occur in the vicinity of the proposed work and are under the jurisdiction of the National Marine Fisheries Service (NMFS) are: loggerhead sea turtle (*Caretta caretta*, T), green sea turtle (*Chelonia mydas*, E), hawksbill sea turtle (*Eretmochelys imbricata*, E), Kemp's ridley sea turtle (*Lepidochelys kempi*, E), leatherback sea turtle (*Dermochelys coriacea*, E), Gulf sturgeon (*Acipenser oxyrhynichus desotoi*, T), blue whale (*Balaenoptera musculus*, E), finback whale (*Balaenoptera physalus*, E), humpback whale (*Megaptera novaeangliae*, E), sei whale (*Balaenoptera borealis*, E), and the sperm whale (*Physeter macrocephalus*, E).

Sea Turtles

Loggerheads, green turtles, and leatherbacks nest regularly in Florida. Nesting by the hawksbill turtle and the Kemp's ridley turtle in Florida is rare. During a 14-year study period (1979-1992), it was reported that 95.3% of all reported sea turtle nesting activity in the state of Florida occurred on the east coast, and 4.7% occurred on the gulf coast (Meyland, Schroeder, and Mosier 1995). The loggerhead sea turtle accounts for the vast majority of reported sea turtle nesting in Florida. The majority of loggerhead nesting on the gulf coast occurs from Sarasota through Collier counties. Sarasota County has the greatest amount of nesting activity, accounting for an average of 47.5% of all nesting on the west coast of Florida during 1988–1 992 (Meyland, Schroeder, and Mosier 1995).

The green turtle is a listed sea turtle species in Sarasota County. Nesting data from Meylan (1995) and the Florida Marine Research Institute (unpubl. data) indicate that from 1979 through 2000, a total of 13 green turtle nests have been recorded in Sarasota County on the beaches of Casey Key, Manasota Key, and Venice. The same data indicated that no green sea turtle nests were recorded on Lido Key. The green sea turtle nesting and hatching season for Southwest Florida extends from May 15 through October 31. Incubation ranges from about 45 to 95 days (USFWS 2000).

Utilizing the best available data, it has been determined that only the threatened loggerhead sea turtle have known nesting habitat on Lido Key beaches. In comparison to other beaches in Sarasota County, the beaches of Lido Key have the least number of reported loggerhead nests accounting for 1.4% of total nesting activity in Sarasota County during the year 1999. Information provided by the Florida Marine Research Institute indicates that from 1992 to 2000, loggerhead sea turtle nest numbers varied

from 32 to 60 on the approximately 4.2-mile long Lido Key nesting beach (see Table 2). The loggerhead sea turtle nesting and hatching season for Southwest Florida extends from April 1 through November 30. Incubation ranges from about 45 to 95 days.

Table 2: Nesting data from 1992 to 2000 for C. caretta on Lido Key, Sarasota County, Florida.

Year	Beach Length	Days per Week	# False Crawls	# Nests
1992	4.2	7	42	32
1993	4.2	7	35	35
1994	4.2	7	34	37
1995	4.2	7	50	34
1996	4.2	7	35	50
1997	4.2	7	44	45
1998	4.2	7	94	42
1999	4.2	7	57	48
2000	5.3	7	52	60

Gulf Sturgeon
Historically, the Gulf sturgeon occurred from the Mississippi River to Charlotte Harbor, Florida. It still occurs occasionally throughout this range but in greatly reduced numbers. River systems where the Gulf sturgeon are known to be viable today include the Mississippi, Pearl, Escambia, Yellow, Choctawhatchee, Apalachicola, and Swannee Rivers, and possibly others (USFWS 1995).

Whales
Since all construction activities will occur in shallow coastal waters not frequented by whales, the proposed project is not expected to have any effect on whales.

5. DISCUSSION OF POTENTIAL IMPACTS TO LISTED SPECIES: Of the listed sea turtle species, loggerheads are the most common sea turtle in the action area, followed by the green sea turtle. Of these two species, only the loggerheads nest in significant quantities on nesting beaches near the proposed borrow areas. Loggerheads could be affected if a hopper dredge is used, especially if dredging takes place during nesting season. Sporadic nesting of green turtles occurs on Sarasota beaches and they could be affected by dredging as well.

No information has been found to indicate a past history of negative impacts to whales or the Gulf sturgeon as a result of previous beach nourishment activities in the project area.

6. EFFORTS TO ELIMINATE POTENTIAL IMPACTS ON LISTED SPECIES: Potential negative impacts on sea turtles will be avoided or minimized through the implementation of the following measures:

a. The drag arms of the hopper dredge will be fitted with a rigid sea turtle deflector draghead, and modified as necessary to eliminate sites of inadvertent entrainment of sea turtles.

b. The inflow to the hoppers will be screened as close to 100% as possible. There will be 100% observer coverage to monitor the screens for evidence of turtle take.

c. To minimize the potential for sea turtle entrainment, the dredge pumps would be shut down before the draghead is lifted of the bottom and would not be turned on until the draghead is placed on the bottom. NOTE: If the actual dredging operation has difficulty with this procedure, the Corps reserves the right to re-consult with NMFS to delete or modify this requirement.

7. EFFECT DETERMINATION: Because of the nature of the work and the precautions to be taken as described in the previous section, the Corps has determined that the proposed action will have no effect on whales or Gulf sturgeon. The Corps has determined that sea turtles, however, may be affected by the proposed activities if a hopper dredged is used.

REFERENCES

Coastal Planning and Engineering, Inc. 1992. Environmental Study for the Lido Key Beach Nourishment Project in Sarasota County. 32 pp.

Florida Fish and Wildlife Conservation Commission. 1993-1999. Statewide Sea Turtle Nesting Beach Survey Database. Florida Marine Research Institute. St. Petersburg, Florida.

Meylan, A., Schroeder, B., and Mosier, A. 1995. Sea Turtle Nesting Activity in the State of Florida, 1979-1992. Florida Marine Research Publication, Number 52. Florida Marine Research Institute, St. Petersburg, Florida.

National Marine Fisheries Service. 1995. Regional Biological Opinion for Hopper Dredging along the South Atlantic Coast. NMFS Southeast Regional Office. Silver Spring, Maryland. 25 pp.

U.S. Army Corps of Engineers. 1990. Methods to Minimize Dredging Impacts on Sea Turtles. Proceedings of the National Workshop, Jacksonville, Florida. 89 pp.

U.S. Fish and Wildlife Service (FWS). 2000. Fish and Wildlife Coordination Act with Biological Opinion, Anna Maria Island, Manatee County, Florida.

U.S. Fish and Wildlife Service. 1988. Life History and Environmental Requirements of Loggerhead Turtles. Biological Report 88(23).

U.S. Fish and Wildlife Service. 1996. Florida manatee recovery plan. U.S. Fish and Wildlife Service; Atlanta, Georgia.

U.S. Fish and Wildlife Service. 1999. South Florida Multi-Species Recovery Plan. U.S. Fish and Wildlife Service; Atlanta, Georgia.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, FL 33702
(727) 570-5312, FAX 570-5517
http://caldera.sero.nmfs.gov

AUG -9 2001

F/SER3:EGH:mdh

Mr. James C. Duck
Chief, Planning Division
Department of the Army
Jacksonville District Corps of Engineers (COE)
P.O. Box 4970
Jacksonville, FL 32232-0019

Dear Mr. Duck:

We have received and reviewed your July 17, 2001, letter, and biological assessment (BA) for the COE's feasibility phase study to renourish 1.74 miles of shoreline on Lido Key in Sarasota County, Florida with sand obtained from three offshore borrow areas located from 4 to 6 miles offshore. The COE's BA concluded that the proposed action will have no effect on whales or Gulf sturgeon, but that it may affect sea turtles if a hopper dredge is used to excavate the offshore borrow areas. You requested formal consultation with the National Marine Fisheries Service (NMFS) pursuant to section 7 the Endangered Species Act (ESA).

Listed species under NMFS' jurisdiction that may occur at the project site are green, hawksbill, leatherback, Kemp's ridley, and loggerhead sea turtles; blue, fin, humpback, sei, and sperm whales; and gulf sturgeon. NMFS concurs with the COE's determination that the project as proposed may adversely affect sea turtles, and is unlikely to adversely affect whales, protected by the ESA under NMFS' purview. However, NMFS believes that gulf sturgeon may also be affected. There is no NMFS-designated critical habitat in the project area, thus, none will be affected.

NMFS finds that the BA is incomplete and requests that information on hopper dredge takes of sea turtles and sturgeon, from COE-permitted dredging of borrow areas in the South Atlantic and the Gulf of Mexico, be added. NMFS also requests that information be provided on the proximity of the proposed borrow areas to hardgrounds, and sea turtle presence at the hardgrounds and borrow sites. Hardgrounds may serve as foraging habitat for listed sea turtles.

Currently, NMFS has reinitiated section 7 consultation with the COE's Galveston and New Orleans Districts to update the regional, September 22, 1995, Biological Opinion (Opinion) on hopper dredging of navigation channels in Texas and Louisiana. The new Opinion is expected to be released this year. NMFS intends to include the COE Jacksonville District's proposed Lido Key beach renourishment action into the scope of the proposed action of the new Opinion. NMFS will also incorporate the ongoing consultation with the COE Jacksonville District on the

Lee County Shore Protection Project (renourishment of Gasparilla Island and Estero Island beaches with sand hopper-dredged from nearby offshore borrow areas) into the regional Opinion.

If the COE is aware of any other pending, proposed, planned, foreseeable, or imminent beach renourishment actions for the west coast of Florida that may occur within the next 5 years, please advise this office immediately so that they too may be incorporated into the scope of the regional Opinion currently in preparation. NMFS intends to incorporate hopper dredging guidelines into the forthcoming regional Opinion to account for unforseen beach renourishment activities that may arise in the future along the west coast of Florida, rather than consult individually on each proposed action as it occurs.

Section 7 allows NMFS up to 90 days to conclude formal consultation with your agency, and an additional 45 days to prepare our Opinion (unless we mutually agree to an extension) once all needed information is received from the action agency. Therefore, our anticipated Opinion completion date is 135 days from the date of receipt of the above-requested information. The ESA requires that after initiation of formal consultation the Federal action agency make no irreversible or irretrievable commitment of resources that limits future options. This practice ensures agency actions do not preclude the formulation and implementation of reasonable and prudent alternatives that avoid jeopardizing the continued existence of endangered or threatened species or destroying or modifying their critical habitats.

It is a pleasure working with the COE Jacksonville District to ensure the protection of Federally-listed species while meeting our respective agency missions and obligations. If you have any questions, please contact Eric Hawk, fishery biologist, at the number listed above, or by e-mail at eric.hawk@noaa.gov.

Sincerely,

for, Joseph E. Powers, Ph.D.
Acting Regional Administrator

cc: F/SER4
F/PR3

o:\section7\informal\lidokey.wpd
File: 1514-22.f.1 Jacksonville District

SEP 0 7 2001

Planning Division
Environmental Branch

Mr. Joseph E. Powers
Acting Regional Administrator
National Marine Fisheries Service
9721 Executive Center Drive North
St. Petersburg, FL 33702

Dear Mr. Powers:

This is in reference to the Lido Key Shore Protection Project, Sarasota County, Florida.

On July 17, 2001, the U.S. Army Corps of Engineers (Corps) submitted a Biological Assessment (BA) initiating Section 7 consultation for this project. Your office responded by letter dated August 9, 2001 requesting additional information on hopper dredge takes of sea turtles and sturgeon, information on the proximity of the proposed borrow areas to hardgrounds, and sea turtle presence at the hardgrounds and borrow sites.

In addition to the requests for information, your letter states that the National Marine Fisheries Service (NMFS) intends to include the proposed Lido Key Shore Protection Project into the scope of a new Regional Biological Opinion for the Gulf Coast currently in preparation and expected to be released this year.

Our office does not object to this project being included in the new Opinion. However, if the NMFS anticipates a delay in releasing the new Opinion, the Corps requests that a separate Biological Opinion and Incidental Take Statement be prepared to prevent delays in our project schedule. The environmental coordination for this project is scheduled to be complete by January 2002.

Enclosed is a revised BA, which addresses the additional information you requested. The Corps has determined that the proposed project may affect sea turtles, and therefore, requests that formal consultation with the NMFS be initiated.

If you have any questions, please contact Ms. Yvonne Haberer, biologist, at 904-232-1701, or by e-mail at Yvonne.l.haberer@SAJ02.usace.army.mil.

Sincerely,

James C. Duck
Chief, Planning Division

Enclosure

l:group/pde/haber/LidoNMFSBAltr2.doc

ENDANGERED SPECIES ACT
BIOLOGICAL ASSESSMENT
LIDO KEY SHORE PROTECTION PROJECT
SARASOTA COUNTY, FLORIDA

1. References. The following documents are incorporated into this biological assessment by reference:

a. U.S. Army Corps of Engineers (Corps) Biological Assessment dated July 17, 2001, Lido Key Shore Protection Project, Feasibility Study, Sarasota County, Florida.

b. U.S. Army Corps of Engineers Biological Assessment dated October 1994, Dredging Navigation Channels in the Southeastern United States from North Carolina Through Cape Canaveral, Florida.

c. National Marine Fisheries Service (NMFS) Regional Biological Opinion dated August 25, 1995, Hopper Dredging South Atlantic Coast.

d. NMFS Regional Biological Opinion dated September 25, 1997, The Continued Hopper Dredging of Channels and Borrow Areas in the Southeastern United States.

e. NMFS letter dated August 9, 2001, requesting additional information on the proposed Lido Key Shore Protection Project.

2. Description of Proposed Action. Reference 1a above. Three proposed borrow areas, located approximately 8-10 miles offshore, have been identified for the above referenced project (figure 1, location map). Side scan sonar employed near the borrow areas yielded some evidence for low-relief hardground communities (figure 2). The borrow areas will be designed to insure that dredging will not occur within a minimum of 200 feet from any hardgound area (figure 2, represented by green dashed line)

3. Identification of Listed Species. Reference 1a and 1e above.

4. Potential Impacts to Listed Species. Reference 1a, 1b, 1c, 1d, and 1e. Sea turtles may use the hardground areas adjacent to the borrow sites for resting and foraging; however, dredging will not occur on the hardgrounds and will not adversely effect sea turtles utilizing the

hardgrounds. Documented incidents of sea turtle takes by hopper dredges have occurred in navigation channels where sea turtles are known to congregate in large numbers. A review of the literature has not shown that sea turtles utilize sandy areas offshore for congregation or resting as they do navigation channels and therefore, are not expected to be found on the bottom of the borrow areas. To date, we are only aware of one documented incident of taking sea turtles while hopper dredging in offshore borrow areas for shore protection projects in Florida.

5. Efforts to Eliminate Potential Impacts. Procedures to minimize or eliminate adverse impacts on listed species are discussed in the referenced Biological Assessment and will be incorporated into this project. The terms and conditions outlined in the referenced Biological Opinions to minimize impacts to sea turtles and sturgeon will be followed.

6. Effect Determination. Because of the nature of the work and the precautions to be taken as described in the referenced Biological Assessment, the Corps has determined that the proposed action will have no effect on whales or Gulf sturgeon. However, the proposed dredging activities may affect sea turtles if a hopper dredge is used.

Planning Division
Environmental Branch

JAN 08 2002

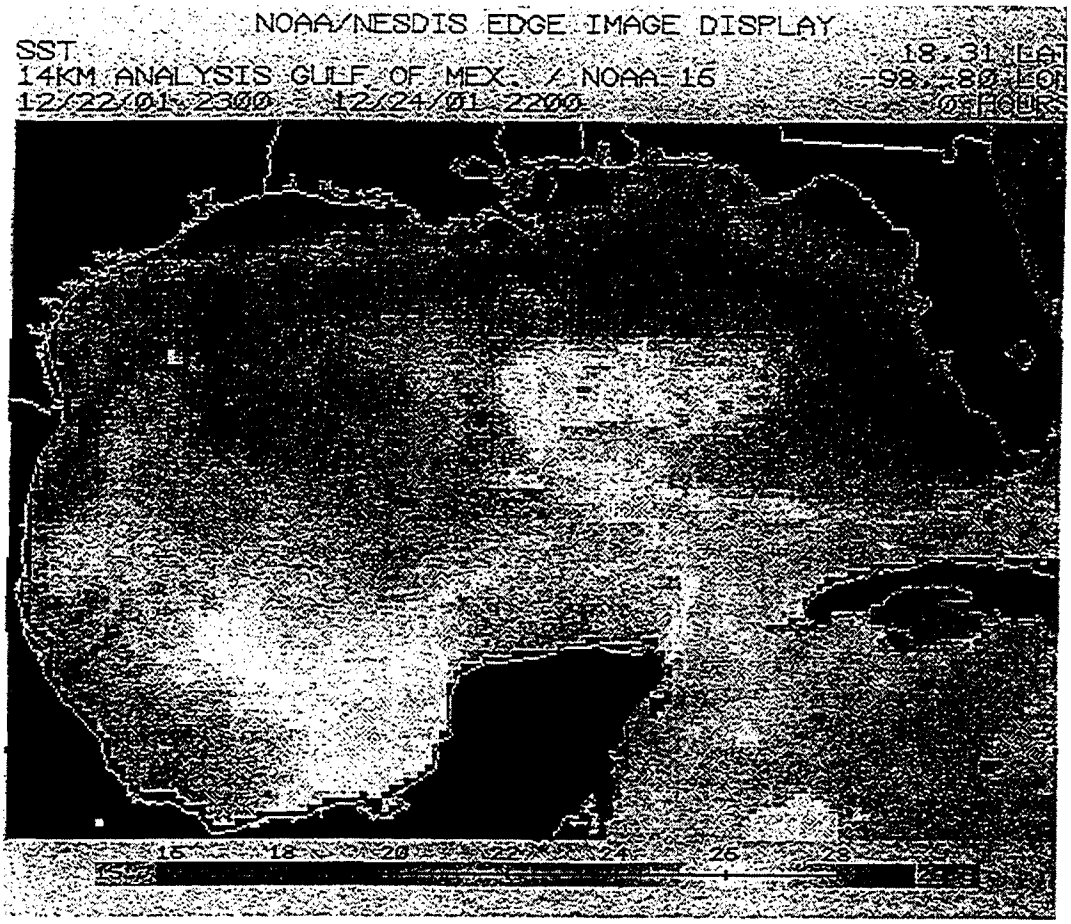
Ms Georgia Cranmore
National Marine Fisheries Service
Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702-2432

Dear Ms Cranmore:

This is in reference to our November 28, 2000 letter initiating consultation for hopper dredging in the Gulf of Mexico for projects within the jurisdiction of the Jacksonville District.

We would like to enter into further consultation into this matter and incorporate by reference the Regional Biological Opinion (RBO) for Hopper Dredging along the Southeastern United States. We have reviewed the draft RBO that your office has prepared and offer the following:

The State of Florida from Daytona south is located in the Neo-tropical Climate Zone. Below that climate zone, sea turtles remain year-round. NOAA water temperatures average well above the 59 degrees for locations from Pinellas County south to Key West (http://www.nodc.noaa.gov/dsdt/cwtg/egof.html). Therefore, water temperatures are not a controlling factor in presence/absence of sea turtles as with areas in the Atlantic Ocean above Canaveral Harbor. The results of the Corps telemetry study by Nelson (1999) (http://www.saj.usace.army.mil/pd/satelite.htm) and the Gulf Islands National Seashore Loggerhead Tracking Project (http://www.cccturtle.org/sat18.htm) conducted by Nicholas and the Resource Management Division of Gulf Islands National Seashore also indicates that turtles are present in all areas of the Gulf during the cooler months. As part of the Southeastern RBO for the Atlantic, no windows of operation have been placed on sea turtles except for the exclusionary zone within Canaveral Harbor. The only harbor



areas in this southern area where dredging has historically taken sea turtles has been Ft Pierce and Palm Beach Harbors. Tampa Harbor and Charlotte Harbor are not constructed through limestone formations creating reef-like walls in the same fashion as Ft. Pierce and palm Beach Harbors. Green sea turtles are drawn to the algae on the channel walls of those entrance channels since the rock faces act as reefs. Borrow areas have been excluded from windows because the sandy bottoms are located away from reefs that do not attract sea turtles. Therefore, we have determined that hopper dredges can be operated year-round along the Gulf Coast of Florida for beach-nourishment projects as well as harbor dredging without exceeding the take limit established by your office.

Since, turtles are present year-round, a window of operation for hopper dredges would not significantly reduce takes. Therefore, we are asking for a modification to the draft RBO, to make the operating window of December through March a Conservation Recommendation instead of a Reasonable

and Prudent Measure of the Incidental Take Statement. For further assistance in this matter contact Mr. Bill Fonferek at 904.232.2803 or by e-mail at william.j.fonferek@usace.army.mil

Sincerely,

James C. Duck
Chief, Planning Division

Copy furnished:

Commander, South Atlantic Division (CESAD-CM-PE)

Dr. Robbin Trindell, Florida Fish and Wildlife Conservation Commission, Office of Environmental Services, Protected Species Management, 620 South Meridian Street, Tallahassee, Florida 32399-6000

bcc:
CESAJ-DP-I
CESAJ-CO-N

L: group/pde/fonferek/rbo1

DIVISIONS OF FLORIDA DEPARTMENT OF STATE
Office of the Secretary
Office of International Relations
Division of Elections
Division of Corporations
Division of Cultural Affairs
Division of Historical Resources
Division of Library and Information Services
Division of Licensing
Division of Administrative Services

FLORIDA DEPARTMENT OF STATE
Katherine Harris
Secretary of State
DIVISION OF HISTORICAL RESOURCES

MEMBER OF THE FLORIDA CABINET
State Board of Education
Trustees of the Internal Improvement Trust Fund
Administration Commission
Florida Land and Water Adjudicatory Commission
Siting Board
Division of Bond Finance
Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

Mr. Tommy Birchett
Jacksonville District US Army Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

September 25, 2001

Re: DHR No. 2001-07222 / Received by DHR: July 27, 2001
Offshore Borrow Areas, Submerged Historic Properties Survey, Lido Key, Sarasota County, Florida (Draft Report)

Dear Mr. Birchett:

Our office has received and reviewed the above referenced project in accordance with Section 106 of the *National Historic Preservation Act of 1966* (Public Law 89-665), as amended in 1992, and *36 C.F.R., Part 800: Protection of Historic Properties*. The State Historic Preservation Officer is to advise and assist federal agencies when identifying historic properties listed or eligible for listing in the *National Register of Historic Places*, assessing effects upon them, and considering alternatives to avoid or minimize adverse effects.

Results of the remote sensing survey indicate that three anomalies were encountered within the project area of potential effect. All of these targets produced signature characteristics suggestive of modern debris. It is the opinion of Tidewater Atlantic Research that the proposed project will have no effect on any sites considered eligible for listing in the *National Register of Historic Places*. Based on the information provided, this agency concurs with this determination and finds the submitted report complete and sufficient.

If you have any questions concerning our comments, please contact Mary Beth Fitts, Historic Sites Specialist, at mbfitts@mail.dos.state.fl.us or (850) 245-6333. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

Frederick P. Gaske, Deputy SHPO

Janet Snyder Matthews, Ph.D., Director, and
State Historic Preservation Officer

Xc: Mr. Gordon P. Watts, Tidewater Atlantic Research, Inc.

APR 2 6 2002

Planning Division
Environmental Branch

James J. Slack
Fish and Wildlife Service
S. Fla. Ecological Services Office
1339 20th Street
Vero Beach, FL 32960

Dear Mr. Slack:

Thank you for the Draft Fish and Wildlife Coordination Act Report (CAR) of February 25, 2002, for the Lido Key Shore Protection Project in Sarasota County, Florida.

The U.S. Army Corps of Engineers has reviewed the CAR and a detailed reply to the nine recommendations is enclosed.

If you have any questions or need additional information, please contact Ms. Yvonne Haberer at 904-232-1701.

Sincerely,

James C. Duck
Chief, Planning Division

Enclosure

CF (w/encl):

National Marine Fisheries Service, Habitat Conservation Division, 9721 Executive Center Drive N., St. Petersburg, FL 33702 (David Dale)

National Marine Fisheries Service, Habitat Conservation Division, Panama City Field Office, 3500 Delwood Beach Road, Panama City, FL 32408-7499 (Mark Thompson)

DRAFT FISH AND WILDLIFE COORDINATION ACT REPORT
FWS RECOMMENDATIONS FOR THE
LIDO KEY SHORE PROTECTION PROJECT
SARASOTA COUNTY, FLORIDA

U.S ARMY CORPS OF ENGINEERS REPLY TO EACH RECOMMENDATION:

RECOMMENDATION 1. Prior to construction, conduct seagrass surveys during months of May through September between R-34 and R-35; and R-44 and R-44.5; shore parallel survey between R-34 and R-44.5; and within the groin construction footprint. Consult with the Service regarding survey methodology prior to initiation.

REPLY: A survey was conducted on July 3, 2001 using an underwater, vessel –towed video to identify and document potential nearshore marine resources found in the nearshore area within and adjacent to the proposed project area. Marine resource data were collected from twelve transects located perpendicular to the Lido Key shoreline. This survey, along with aerial photographs, indicated no seagrass communities present within the proposed project area or within 500 feet offshore from the project equilibrium tow of fill. The perpendicular transects commenced at DEP monument R-35 and continued to R-44. Due to boat draft limitations and safety concerns, video surveys were not conducted north of R-35 or south of R-44. These areas will be groundtruthed to verify the presence or absence of seagrass prior to construction. The Corps will consult with the Service regarding survey methodology prior to initiation.

RECOMMENDATION 2. Orient the pipeline corridor(s) to avoid nearshore and offshore seagrass areas (e.g. Big Sarasota Pass shoal).

REPLY: The pipeline corridor(s) would be oriented to avoid seagrass areas.

RECOMMENDATION 3. Develop a monitoring plan and survey methodology to determine the extent of the indirect and/or direct effects of sand placement, groin construction, and/or borrow site dredging on seagrass and/or hardbottom. A mitigation plan will be needed, if resources are adversely impacted. Prior to the initiation of the monitoring plan/and or surveys, please provide a copy to the Service for review.

REPLY: Based on the information currently available, there would be no adverse impacts to significant marine resources. Therefore, a mitigation plan has not been developed. Monitoring of construction activities such as sand placement, groin construction, and borrow site dredging is the responsibility of the Contractor as stated in our plans and specifications.

RECOMMENDATION 4. Establish a 400 foot buffer zone between the hardbottom and borrow site boundaries of LKBA 6 and 7.

REPLY: After further coordination with Ms. Trish Adams of your staff on April 19, 2002, and Mr. Mark Thompson, National Marine Fisheries Service (NMFS), on April 22, 2002, it was agreed that establishing a 200 ft. buffer zone between the hardbottom and borrow site boundaries of LKBA 6 and 7 would be acceptable. By establishing the buffer zone and adhering to construction specifications, direct impacts to the adjacent hardbottom habitat is not expected. Appropriate monitoring would be conducted due to the possibility of local turbidity and siltation during dredging activities.

RECOMMENDATION 5. Consult with the Service and the FFWCC to develop an appropriate and effective protection plan to further minimize the effects of the project on the Lido Key shorebird nesting colony

REPLY: The Contractor will keep construction activities under surveillance, management, and control to prevent impacts to migratory birds and their nests. All construction personnel will be advised that migratory birds are protected by the Florida Endangered and Threatened Species Act of 1977, Title XXVIII, Chapter 372.072, and the U.S. Fish and Wildlife Service pursuant to the Migratory Bird Treaty Act of 1918 and the Endangered and Threatened Species Act of 1982, as amended. If the area can not be avoided during nesting season, then a site protection plan would be included in the plans and specifications detailing how the impacts on the birds would be avoided, minimized, or otherwise mitigated

RECOMMENDATION 6. Avoid construction during the months immediately preceding shorebird nesting season to maximize prey species availability. Timing will be determined through the development of the shorebird monitoring plan.

REPLY: Construction activities will be under surveillance, management, and control to prevent impacts to migratory birds and their nests in accordance with the contract plans and specifications. Again, if the area can not be avoided during nesting season, then a site protection plan would be included in the plans and specifications.

RECOMMENDATION 7. Initiate consultation with NMFS to address EFH concerns.

REPLY: Coordination of the Environmental Assessment (EA) will constitute initial consultation with the NMFS under provisions of the Magnuson-Stevens Fishery Conservation and Management Act relative to Essential Fish Habitat (EFH) effects resulting from the Lido Key Shore Protection Project. Based on analysis discussed in the EA, acute and cumulative effects on EFH resulting from the addition of the proposed project features are expected to be negligible.

RECOMMENDATION 8. Incorporate invasive exotic plant removal and dune restoration into the project design where appropriate.

REPLY: The City of Sarasota has incorporated dune restoration in previous project designs. In the event that dune restoration is identified as a specific project need, based on existing conditions, it is reasonable to assume that the City of Sarasota will continue to

support restoration activities. Regarding the issue of exotic plant removal, the City of Sarasota and Sarasota County have established programs to address invasive species on public lands. The Sponsor supports exotic plant removal, but a mandate for program implementation on upland areas outside the project area is not reasonable.

RECOMMENDATION 9. Minimize direct and indirect effects of turbidity during hopper dredge operations by: ensuring proper maintenance of dredging equipment; when appropriate, use silt curtains or gunderbooms; and if possible, dredge when environmental conditions will minimize sediment transport, eliminate or reduce hoper overflow; lower hopper fill-levels; or use a recirculation system. When applicable, special equipment, such as pneuma pumps, closed buckets, large capacity dredges, and precision dredging tools and technologies, are recommended to further decrease the potential for adverse effects to marine communities (Corps, 2001 Best Management Practices).

REPLY: Concur.

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P. O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

Planning Division
Environmental Branch

MAY 2 9 2002

TO WHOM IT MAY CONCERN:

Pursuant to the National Environmental Policy Act and U.S. Army Corps of Engineers Regulation (33 CFR 230.11), this letter constitutes the Notice of Availability of the Preliminary Finding of No Significant Impact (FONSI) for the Lido Key Shore Protection Project, Sarasota County, Florida.

The EA and FONSI is available for viewing on the Corps of Engineers website under "Lido Key Shore Protection Project" at http//www.saj.usace.army.mil/pd/envdocsb.htm. Additionally, a copy of the EA and Preliminary FONSI is available at the Sarasota County Selby Public Library, 1331 First Street, Sarasota, Florida. For library hours phone 941-316-1181.

Comments or questions concerning the Environmental Assessment (EA) that led to the FONSI should be provided to Ms. Yvonne Haberer at the letterhead address within 30 days of receipt of this letter. Ms. Haberer can also be reached at 904-232-1701.

Sincerely,

James C. Duck
Chief, Planning Division

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P. O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

Planning Division
Environmental Branch

MAY 29 2002

Andreas Mager, Jr.
Assistant Regional Director
National Marine Fisheries Service
Southeast Regional Office
Habitat Conservation Division
9721 Executive Center Drive North
St. Petersburg, Florida 33702

Dear Mr. Mager:

Pursuant to the National Environmental Policy Act (NEPA), enclosed for your review and comment is a copy of the draft Environmental Assessment (EA) for the proposed Lido Key Shore Protection Project in Sarasota County, Florida. The EA also constitutes our Essential Fish Habitat (EFH) Assessment as required by the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA). With this letter, we are initiating EFH consultation with your agency.

We request your comments pursuant to NEPA and the MSFCMA within 30 days of receipt of this letter. If you have any questions or need further information, please contact Ms. Yvonne Haberer at 904-232-1701.

Sincerely,

James C. Duck

James C. Duck
Chief, Planning Division

Enclosure

CF (w/encl):

Mr. Mark Thompson, National Marine Fisheries Service, Panama City Field Office, 3500 Delwood Beach Road, Panama City, FL 32408-7499

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702

June 19, 2002

Colonel James G. May
District Engineer, Jacksonville District
Planning Division, Environmental Branch
Department of the Army, Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Dear Colonel May:

The National Marine Fisheries Service (NMFS) has reviewed your staff's letter dated May 29, 2002, requesting comments on the May 2002 Feasibility Report with Draft Environmental Assessment (EA) for the Hurricane and Storm Damage Reduction Project Lido Key, Sarasota County, Florida.

We find that the description of fishery resources and habitats in the project area and the assessment of potential adverse impacts associated with the proposed activities are adequate. Furthermore, based on this information, we anticipate that any adverse effect that might occur on marine and anadromous fishery resources would be minimal and, therefore, we do not have any additional comments to make on the EA or objections to the proposed action.

Pursuant to the Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act, no further coordination is necessary unless the project design is modified and you determine that implementation of those revisions could result in adverse impacts to EFH and dependent fishery resources. We appreciate the opportunity to provide you with our comments. If you have any questions, please contact Mr. Mark Thompson of our Panama City Office at 850/234-5061.

Sincerely,

for Andreas Mager, Jr.
Assistant Regional Administrator
Habitat Conservation Division

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL | # of pages ▸ 1

To Yvonne Haberer	From Mark Thompson
Dept./Agency COE - PD-EP	Phone # 850-234-5061
Fax # 904-232-3442	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

United States Department of the Interior

OFFICE OF THE SECRETARY

OFFICE OF ENVIRONMENTAL POLICY AND COMPLIANCE

Richard B. Russell Federal Building
75 Spring Street, S.W.
Atlanta, Georgia 30303

ER 02/535

July 26, 2002

Mr. James C. Duck
Chief, Planning Division
Department of the Army
Jacksonville District, Corps of Engineers
P.O. Box 4970
Jacksonville, FL 32232

RE: Feasibility Report with Draft Environmental Assessment, Lido Key Hurricane and Storm Damage Reduction Project, Sarasota County, FL

Dear Mr. Duck:

The Department of the Interior has reviewed the above document, and we have no comments at this time. If you have any questions I can be reached at 404-331-4524.

Sincerely,

Gregory Hogue
Regional Environmental Officer

cc:
OEPC, WASO
AValenta, FWS-R4

Department of Environmental Protection

Jeb Bush
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard, MS 47
Tallahassee, Florida 32399-3000

David B. Struhs
Secretary

July 31, 2002

Mr. James C. Duck
Chief, Planning Division
U.S. Army Corps of Engineers
Jacksonville District
Post Office Box 4970
Jacksonville, Florida 32232-0019

RE: Department of the Army – District Corps of Engineers – Hurricane and Storm Damage Reduction Project – Feasibility Report with Draft Environmental Assessment – Lido Key, Sarasota County, Florida
SAI: FL200205292097C

Dear Mr. Duck:

The Florida State Clearinghouse, pursuant to Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended, has coordinated the review of the above-referenced feasibility report and draft environmental assessment (EA) for the proposed shoreline protection project.

Department (DEP) staff note that the selected shoreline restoration plan includes the nourishment of 8,280 ft. of shoreline, the identification of three potential borrow areas, and the construction of three groins. Though the proposed beach fill design and borrow areas appear to meet all Department requirements and previous recommendations, staff still have concerns regarding the removal of shoals and the resultant impact on adjacent beaches, and the downdrift impact of the proposed erosion control structures. DEP Bureau of Beaches and Wetland Resources staff note that GENESIS model simulations were made to assess the impact of the groin field, and that provisions are contemplated to offset potential downdrift erosion. These must be examined in more detail should the Corps of Engineers or the local sponsor decide to pursue the project.

Water Quality Certification in the form of a Joint Coastal Permit (JCP) will be required for construction of the proposed project. We recommend that the Corps of Engineers and local project sponsor continue to coordinate with the DEP Bureau of Beaches and Wetland Resources and Florida Fish and Wildlife Conservation Commission, Bureau of Protected Species Management to resolve any outstanding issues related to: sediment quality and composition; beach fill placement; project design alternatives; dredging/disposal turbidity; seagrass bed, hardbottom, shellfish, marine turtle, and manatee protection; resource mitigation; etc. Please

contact the Project Manager for Southwest Florida, Mr. Phil Flood, at (850) 487-4471, ext. 168. For information on JCP permitting requirements, please contact Mr. Marty Seeling at ext. 104.

Based on the information contained in the subject report and the agency comments provided, as summarized above and enclosed, the state has determined that, at this stage of project development, the referenced project is consistent with the Florida Coastal Management Program (FCMP). All subsequent environmental documents prepared for this project must be reviewed to determine the project's continued consistency with the FCMP. The state's continued concurrence with the project will be based, in part, on the adequate resolution of issues identified during this and subsequent reviews.

Thank you for the opportunity to review this project. If you have any questions regarding this letter, please contact Ms. Lauren Milligan at (850) 922-5438.

Sincerely,

Sally B. Mann

Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/lm

Enclosures

cc: Roxane Dow, DEP, BBWR

FL20020529209JC

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P. O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

Planning Division
Environmental Branch

APR 2 4 2002

TO WHOM IT MAY CONCERN:

Pursuant to the National Environmental Policy Act and U.S. Army Corps of Engineers Regulation (33 CFR 230.11), this letter constitutes the Notice of Availability of the Preliminary Finding of No Significant Impact (FONSI) for the Lido Key Shore Protection Project, Sarasota County, Florida.

The EA and FONSI is available for viewing on the Corps of Engineers website under "Lido Key Shore Protection Project" at http//www.saj.usace.army.mil/pd/envdocsb.htm. Additionally, a copy of the EA and Preliminary FONSI is available at the Sarasota County Selby Public Library, 1331 First Street, Sarasota, Florida. For library hours phone 941-316-1181.

Comments or questions concerning the Environmental Assessment (EA) that led to the FONSI should be provided to Ms. Yvonne Haberer at the letterhead address within 30 days of receipt of this letter. Ms. Haberer can also be reached at 904-232-1701.

Sincerely,

James C. Duck

James C. Duck
Chief, Planning Division

STATE CLEARINGHOUSE

User: Lauren Milligan, , ENVIRONMENTAL PROTECTION

Project Information

Project:	FL200205292097C
Description:	Department of the Army - District Corps of Engineers - Hurricane and Storm Damage Reduction Project - Feasibility Report with Draft Environmental Assessment - Lido Key -Sarasota County, Florida.
Keywords:	ACOE - DEA - Storm Damage Reduction - Lido Key-Sar
Program:	

Review Comments 1/9

Reviewer:	COMMUNITY AFFAIRS
Date:	06/24/2002
Description:	NC
Comment Type:	○ Draft ◉ Final

SAI Routing Sheet

COUNTY: SARASOTA

DATE: 05/30/2002

Message:

SAI#: FL200205292097C

PROJECT TO BE REVIEWED BY: (Div/Program)	ASSIGNED REVIEWERS (Print Last Name)	IS PROJECT LOCATED IN APPROVED DRI? (Circle Yes/No) YES: Is Project Consistent with DO?	IS PROJECT LOCATED IN APPROVED DRI? (Circle Yes/No) NO: Is Project DRI Scale?	Is Project CONSISTENT w/ COMP PLAN? YES	Is Project CONSISTENT w/ COMP PLAN? NO	Is Project CONSISTENT w/ FCMP? YES	Is Project CONSISTENT w/ FCMP? NO	Do you have any COMMENTS on project? YES	Do you have any COMMENTS on project? NO	DATE REVIEW COMPLETED	RVWR/ SUPV INIT
DCP	RWD	YES / NO	YES / NO							6/18/02	
2/4/02 Date Rec'd		Monitoring Letter? YES / NO	Monitoring Letter? YES / NO								
Complete and forward to Div/Prog Below no later than: **6/28/02**											
DEM											
Date Rec'd											
Complete and forward to Div/Prog Below no later than: **6/28/02**											
CMP		Wetlands? YES / NO	Stormwater? YES / NO							6/24/02	
Date Rec'd											
Complete and forward to ACC Coordinator no later than: **6/28/02**											

Rec'd 6/10/02

RECEIVED

JUL 23 2002

OIP/OLGA

UNIT COORDINATORS for Intergovernmental Coordination and Review:

CMP	COASTAL MANAGEMENT PROGRAM	Ms. VANESSA HOLMES	2555 SHUMARD OAK BLVD	(850) 414-6563
DEM	EMERGENCY MANAGEMENT			( ) 413-9969
DCP	COMMUNITY PLANNING		ROOM 120.03 2555 SHUMARD OAK BLVD	(850) 488-2356

ıttached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evalutation and is categorized as one of the following:

— **Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.**

X **Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.**

— **Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.**

— **Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.**

Project Description:

Department of the Army - District Corps of Engineers - Hurricane and Storm Damage Reduction Project - Feasibility Report with Draft Environmental Assessment - Lido Key - Sarasota County, Florida.

EO. 12372/NEPA ☐ No Comment ☐ Comments Attached ☐ Not Applicable

Federal Consistency ☐ No Comment/Consistent ☐ Consistent/Comments Attached ☐ Inconsistent/Comments Attached ☐ N/A

INSTRUCTIONS:

1. UNIT COORDINATORS are responsible for logging in, logging out, and hand-carrying/mailing project packages to the next reviewing unit on this form, or to the ACC if all review requirements have been met. Failure to meet internal suspense dates may result in loss of opportunity to comment on critical issues.
2. Requests for EXTENSIONS should be made prior to due date, especially if COMMENTS will be submitted. Contact your UNIT COORDINATOR, who will request the EXTENSION from the ACC.
3. Agency COMMENTS on SAIs will be sent to the State Clearinghouse (SCH) and should be prepared in LETTER format for the Secretary's signature. Forward the project package to the next review unit while your COMMENTS are being drafted. Coordinate your comments with other reviewers prior to finalizing.

DIVISIONS OF FLORIDA DEPARTMENT OF STATE
Office of the Secretary
Office of International Relations
Division of Elections
Division of Corporations
Division of Cultural Affairs
Division of Historical Resources
vision of Library and Information Services
vision of Licensing
Division of Administrative Services

MEMBER OF THE FLORIDA CABINET
State Board of Education
Trustees of the Internal Improvement Trust Fund
Administration Commission
Florida Land and Water Adjudicatory Commission
Siting Board
Division of Bond Finance
Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

FLORIDA DEPARTMENT OF STATE
Katherine Harris
Secretary of State
DIVISION OF HISTORICAL RESOURCES

Mr. Mike Murray
Department of Community Affairs
Florida Coastal Management Program
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

June 24, 2002

RE: DHR No. 2002-05553 / Received by DHR: June 6, 2002
SAI #: 200205292097C
Feasibility Report with Draft Environmental Assessment – Hurricane and Storm Damage Reduction Project
Lido Key, Sarasota County, Florida

Dear Mr. Murray:

Our office received and reviewed the above referenced project in accordance with Section 106 of the *National Historic Preservation Act of 1966* (Public Law 89-665), as amended in 1992, and *36 C.F.R., Part 800: Protection of Historic Properties*. The State Historic Preservation Officer is to advise Federal agencies when identifying historic properties (listed or eligible for listing, in the *National Register of Historic Places*), assessing effects upon them, and considering alternatives to avoid or minimize adverse effects.

We have reviewed sections 3.15, 4.7 and 4.29.4, all dealing with Cultural Resources, of the referenced draft environmental assessment. Based on the information provided, it is the opinion of this office that the proposed undertaking will have no effect on historic properties.

If there are any questions concerning our comments or recommendations, please contact Sarah Jalving, Historic Sites Specialist, by electronic mail at sjalving@mail.dos.state.fl.us or at 850-245-6333 or SunCom 205-6333. Thank you for your interest in protecting Florida's historic properties.

Sincerely,

Frederick P. Gaske, Deputy SHPO

Janet Snyder Matthews, Ph.D., Director, and
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Project Information

Project:	FL200205292097C
Description:	Department of the Army - District Corps of Engineers - Hurricane and Storm Damage Reduction Project - Feasibility Report with Draft Environmental Assessment - Lido Key - Sarasota County, Florida.
Keywords:	ACOE - DEA - Storm Damage Reduction - Lido Key-Sar
Program:	

Review Comments

5/12

Agency: TRANSPORTATION

Date: 07/01/2002 (mm/dd/yyyy)

Description: Consistent; No Comments. LGS FDOT/D1

Comment Type: ○ Draft ◉ Final

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Lecanto, Florida 34461-8070
(352) 527-8131
SUNCOM 667-3271

June 11, 2002

Ms. Jasmin Raffington
Florida State Clearinghouse
Florida Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Subject: USCOE Hurricane and Storm Damage Reduction Project – Feasibility Report with Draft Environmental Assessment – Lido Key – Sarasota County, Florida
SAI#: FL200205292097C

Dear Ms. Raffington:

The staff of the Southwest Florida Water Management District (District) has conducted a consistency evaluation for the project referenced above. Consistency findings are divided into four categories and are based solely on the information provided in the subject application.

FINDING	CATEGORY
X	Consistent/No Comment
	Consistent/Comments Attached
	Inconsistent/Comments Attached
	Consistency Cannot be Determined Without an Environmental Assessment Report/Comments Attached

This review does not constitute permit approval under Chapter 373, Florida Statutes, or any rules promulgated thereunder, nor does it stand in lieu of normal permitting procedures in accordance with Florida Statutes and District rules.

If you have any questions or if I can be of further assistance, please contact me at extension 4419.

Sincerely,

Dianne McCommons Beck
Planner II

DMcB
Attachment

COUNTY: SARASOTA

DATE: 5/29/02
COMMENTS DUE DATE: 6/28/02
CLEARANCE DUE DATE: 7/28/02
SAI#: FL200205292097C

Message:

STATE AGENCIES	WATER MNGMNT. DISTRICTS	OPB POLICY UNITS
COMMUNITY AFFAIRS FISH and WILDLIFE COMMISSION STATE TRANSPORTATION ENVIRONMENTAL PROTECTION	X SOUTHWEST FLORIDA WMD	ENVIRONMENTAL POLICY UNIT

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evalutation and is categorized as one of the following:

— Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.

X Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.

— Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.

— Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:

Department of the Army - District Corps of Engineers - Hurricane and Storm Damage Reduction Project - Feasibility Report with Draft Environmental Assessment - Lido Key -Sarasota County, Florida.

To: Florida State Clearinghouse
AGENCY CONTACT AND COORDINATOR (SCH)
2555 SHUMARD OAK BLVD
TALLAHASSEE, FLORIDA 32399-2100
(850) 414-6580 (SC 994-6580)
(850) 414-0479

EO. 12372/NEPA
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☐ Not Applicable

Federal Consistency
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☐ Consistent/Comments Attached
☐ Inconsistent/Comments Attached
☐ Not Applicable

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From:
Division/Bureau: SWFWMD
Reviewer: Dianne McCommons Beck
Date: 6/11/02

COUNTY: SARASOTA

Message:

DATE: 5/29/02
COMMENTS DUE DATE: 6/28/02
CLEARANCE DUE DATE: 7/28/02
SAI#: FL200205292097C

STATE AGENCIES	WATER MNGMNT. DISTRICTS	OPB POLICY UNITS
COMMUNITY AFFAIRS FISH and WILDLIFE COMMISSION STATE TRANSPORTATION ENVIRONMENTAL PROTECTION	SOUTHWEST FLORIDA WMD	X ENVIRONMENTAL POLICY UNIT

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(850) 414-6580 (SC 994-6580)
(850) 414-0479

EO. 12372/NEPA
- ☑ No Comment
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Federal Consistency
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THE NATURAL RESOURCES CONSERVATION SERVICE
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FIELD SUPERVISOR
U S FISH AND WILDLIFE SERVICE
1339 20th STREET
VERO BEACH FL 32960

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OFFICE OF THE SECRETARY
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ANDREAS MAGER, JR.
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NAT MARINE FISHERIES SERV, HABITAT CONS
SOUTHEAST REGIONAL OFFICE
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UNITED STATES SENATOR
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HONORABLE DAN MILLER
13TH CONGRESSIONAL DISTRICT
2424 MANATEE AVE., WEST, #104
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HONORABLE MICHAEL S. BENNETT
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SUITE B-1, 7011 301 BLVD.
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HONORABLE NANCY C. DETERT
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HONORABLE DONNA CLARKE
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9/26/00

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ST. ARMANDS CIRCLE ASSOCIATION
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HOLIDAY INN LIDO BEACH
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KEY TOWERS SOUTH
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SARASOTA, FLORIDA 34236

[illegible] REGENCY CONDO ASSOC
[illegible] BENJAMIN FRANKLIN DRIVE
APT. 12
SARASOTA, FLORIDA 34236

LIDO TOWERS CONDO ASSOC
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LIDO AMBASSADOR ASSOC
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MANAGER
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CHAIRPERSON
GULF OF MEXICO FISHERY MNGT COUNCIL
LINCOLN CENTER SUITE 881
5401 WEST KENNEDY BLVD
TAMPA, FLORIDA 33609-2486

APPENDIX D – U.S. FISH AND WILDLIFE COORDINATION ACT REPORT AND BIOLOGICAL OPINION

United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

August 21, 2002

James C. Duck
U.S. Army Corps of Engineers
Chief, Planning Division
Post Office Box 4970
Jacksonville, Florida

Dear Mr. Duck:

In accordance with the Fiscal Year 2001 Transfer Fund Agreement between the Fish and Wildlife Service (Service) and the Army Corps of Engineers (Corps) Jacksonville District, the attached document is the Final Fish and Wildlife Coordination Act (FWCA) report for the Lido Key Shoreline Protection Project located in Sarasota County, Florida. This report is provided in accordance with the FWCA, as amended (49 Stat. 401; 16 U.S.C., 661 *et seq.*), and under the provisions of the Endangered Species Act of 1973, as amended (16 U.S.C., 1531 *et seq.*). The Final Report has been prepared to provide an evaluation of the environmental effects of sand placement and groin construction along approximately two miles of shoreline on Lido Key.

Comments on the Draft FWCA report were received from the National Marine Fisheries Service on April 9, 2002 and April 11, 2002. Copies of these documents have been included as an appendix to this report. This Final FWCA report constitutes the Secretary of the Interior's views and recommendations for this project, in accordance with section 2(b) of the FWCA.

Please contact Ms. Trish Adams at (772) 562-3909, extension 232, for any questions regarding the findings and recommendations contained in this final report.

Sincerely yours,

James J. Slack
Field Supervisor
South Florida Ecological Services Office

Enclosures

cc:
Service, Ecological Services-Jacksonville, Florida (Sandy MacPherson)
FWC, Office of Protected Species Management, Tallahassee, Florida (Robbin Trindell)
DEP, Division of Beaches and Coastal Systems, Tallahassee, Florida
NMFS, Habitat Conservation Division, St. Petersburg, Florida
NMFS, Protected Resources Division, St. Petersburg, Florida
EPA, West Palm Beach, Florida

FINAL
Fish and Wildlife Coordination Act Report

Lido Key Shore Protection Project, Lido Key, Sarasota County, Florida.

Prepared for:
U.S. Fish and Wildlife Service
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

by:
Dial Cordy and Associates Incorporated
490 Osceola Avenue
Jacksonville Beach, Florida 32250

August 21, 2002

EXECUTIVE SUMMARY

The Lido Key Beach Shore Protection Project located in Sarasota County, Florida was re-authorized by Congress under the Water Resources Development Act (WRDA) of 1999. The proposed project consists of the construction of three terminal groins and the placement of approximately one million cubic yards of beach quality material along 1.9 miles of Lido Key shoreline from Florida Department of Environmental Protection (DEP) monuments R-34 to R-44.5. Construction is anticipated to occur over a four to six period. Three offshore borrow sites have been identified approximately 10 miles west of Lido Key. Due to the distance of the borrow sites, a hopper dredge will most likely be used. The Corps project that renourishment will likely occur at five-year intervals over the 50-year life of the federal project.

The Army Corps of Engineers (Corps) has determined that the proposed project may affect listed sea turtles, but is not likely to adversely affect the West Indian manatee since the Standard Manatee Protection Construction Standards will be implemented. The Fish and Wildlife Service (Service) concurs with these determinations. The Service's Biological Opinion regarding listed sea turtles was submitted to the Corps on February 25, 2002. Benthic resources and communities likely to be directly or indirectly affected by the project include seagrass, hardbottom, and shorebird nesting habitat. Benthic infaunal communities located in the project footprint and borrow sites will be directly impacted by the action, but are expected to recover within one to three years. Though seagrass and hardbottom resources have not been identified inside the project footprint or borrow sites, these resources are present in close proximity to different aspects of the project (e.g., borrow area, pipeline corridors, fill template, etc.) and may be adversely affected as a result of degraded water quality and/or sedimentation downdrift. However, adverse affects to fish and wildlife resources can be minimized, if project construction is scheduled outside of nesting seasons, pipeline corridors avoid seagrass, adequate buffer zones are designated, and sedimentation monitoring plans are developed and implemented.

The Service's draft FWCA report dated February 25, 2002, was made available for review to state and federal agencies and other interested parties. During the open comment period, the Service received comments from the National Marine Fisheries Service (NMFS) which have been incorporated into this report and included in Appendix B. This report is submitted in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended 16 U.S.C. 661 *et seq.*) (FWCA) and constitutes the final report of the Secretary of the Interior as required by Section 2(b) of the FWCA.

TABLE OF CONTENTS

1.0 INTRODUCTION

Historically, Lido Key was comprised of a group of mangrove islands and seagrass beds known then as the Creol Isles. In the 1920's, in an effort to expand development, Lido Key was created by dredge and fill activities within the Creol Isles. Prior to the 1940's, shoreline changes at Lido Key were attributed primarily to man-made and inlet-induced changes. However, in the 1940's and early 1950's, recession along north Lido Key can be related to the passage of three hurricanes. In 1964, the first supplemental placement of material occurred on north Lido Key during inlet maintenance activities as described in the 2001 document Lido Key, Sarasota County, Florida-Feasibility Phase Study for U.S. Army Corps of Engineers-Jacksonville District by Coastal Planning and Engineering (CP&E). Large-scale beach nourishment along Lido Key began in 1970 with periodic renourishment events continuing to the present. In addition to sand placement, seawalls, revetments and groins have been constructed in an effort to protect private, commercial, and public property.

The Corps states that the purpose of the Lido Key Shore Protection Project is to replace lost beach sand, provide storm protection to upland property, and to mitigate for the accelerated erosion rates in the vicinity of the three seawalls (approximately 550 feet) located on the southern portion of the island. The comprehensive project includes the nourishment of the shoreline using material obtained from three offshore borrow sites, and the construction of three terminal groins. This final FWCA report evaluates the possible adverse effects of the proposed Lido Key shoreline protection and groin construction project on fish and wildlife resources and is submitted in accordance with provisions of the FWCA and the Endangered Species Act (ESA) of 1973, as amended 16 U.S.C. 1531 *et seq.*).

2.0 PROJECT HISTORY

The Lido Key Beach Erosion Control Project was authorized in 1970 under the Rivers and Harbors Act, and was de-authorized in 1990, in accordance with the provisions of Section 1001(b) (1) of the 1986 WRDA. A U.S. House of Representatives resolution in 1995 authorized the Beach Erosion Control (BEC) Study for Lido Key. A Reconnaissance Phase Assessment was prepared in January 1997 and recommended a shore protection project along a 9,100 foot segment of Lido Key extending from DEP monuments R-35 to R-44. In August 1999, the Lido Key Beach Shore Protection Project was re-authorized by Congress under the WRDA of 1999.

As previously mentioned, large-scale beach nourishment along Lido Key first occurred in 1970, with subsequent nourishment in 1974, 1977, 1982, 1998, 1999, and 2001 along the middle and southern portions of the island. Several factors are attributed to Lido Keys changing shoreline. Those factors include: placement of maintenance dredge material, periodic renourishment, major storm events, and the influence of the bordering inlets to the north and south of Lido Key, creating erosion "hot spots". For example, since the renourishment events from 1970 to the present, shoreline recession between monuments R-35 to R-38 ranged from approximately four to 94 feet per year, particularly in the middle of the island. Despite frequent beach renourishment, periodic placement of sand dredged from navigation projects, groin construction, and shoreline armoring, shoreline recession continues. Consequently, in 1990 the DEP designated Lido Key, from monuments R-31 through R-44, as a critical erosion area (DEP 2000).

In the Public Notice dated April 9, 2001, the Corps provided the Service with a Biological Assessment, pursuant to section 7(a) of the ESA. The Corps determined the proposed project may affect nesting sea turtles, primarily the threatened loggerhead sea turtle (*Caretta caretta*), but is not likely to adversely affect the endangered West Indian manatee (*Trichechus manatus*), since the Corps has agreed to include the *Standard Manatee Protection Construction Conditions*

as a permit condition. The Service concurs with these determinations. Therefore, formal consultation concerning possible adverse effects of the project regarding listed sea turtles was initiated and the Service's Biological Opinion was submitted to the Corps on February 25, 2002.

The information that was used to evaluate the presence or absence of fish and wildlife resources present within the project area include a review of current and historic field surveys and reports, various publications, and unpublished data and reports from various resource agencies. In addition, independent field investigations of the inshore habitat and offshore borrow areas were conducted to determine what resources may be affected by the proposed project. Underwater video transects were performed to determine the presence of seagrass or hardbottom habitats within the nearshore area, while side-scan sonar and on-site SCUBA diving were utilized at the proposed borrow areas and surrounding area.

3.0 DESCRIPTION OF STUDY AREA

Lido Key is a small barrier island located in Township 36 South, Range 17 East, Sections 27 and 35, in Sarasota County, Florida. The project area includes the shoreline, nearshore, and three areas offshore of Lido Key (Figure 1). The island is approximately 2.44 miles long, and ranges from 100 feet to 2,500 feet wide. Lido Key is separated from Longboat key and Siesta Key by New Pass and Big Sarasota Pass to the north and south, respectively. The proposed project will extend along approximately two miles (10,500 feet) of shoreline, from DEP monument R- 34 to R-44.5, the southern terminus of the island.

Lido Key can be described as a highly developed commercial, private, and public, community resulting in extensive recreational use of the beach. Hotels, restaurants, condominiums, private homes, and public parks in the northern, central and southern portions of the island are the primary components of the developed shoreline. It has a tourism-oriented economy that is highly dependant on its beaches.

The north end of Lido Key from monument R-31 to R-35 (approximately 3,800 feet), is relatively undeveloped since it is owned and managed by the City of Lido Beach as the North Lido Public Beach. This area has experienced historic shoreline variation attributed to natural and man-made influences as described previously. Some native beach vegetation is present on the upland portions of the island; however, exotic vegetation is dominant. Moving south, the center portion of the island between R-35 to R-44 (approximately 9,000 feet) is fully developed with hotels, condominiums, private residences, restaurants, and contains the Lido Key pubic beach. Not only is this area highly utilized, but it also experiences the greatest shoreline fluctuations, particularly between monuments R-39 to R-44 (approximately 5,000 feet). In addition to periodic beach renourishment, construction of seawalls, revetments, and other shoreline armoring has occurred since the 1970's in attempt to off-set the effects of erosion. Approximately 16 seawalls exist in the area between monuments R-35 and R-43. The southern end of the island between R-43 to R-44.5 (approximately 1,500 feet) is sparsely developed except for recreational amenities such as picnic shelters, restrooms, parking areas, and hiking trails associated with the county-owned South Lido Park (CP&E 1992). Invasive exotic vegetation is dominant within the park.

Figure 1. Project Location

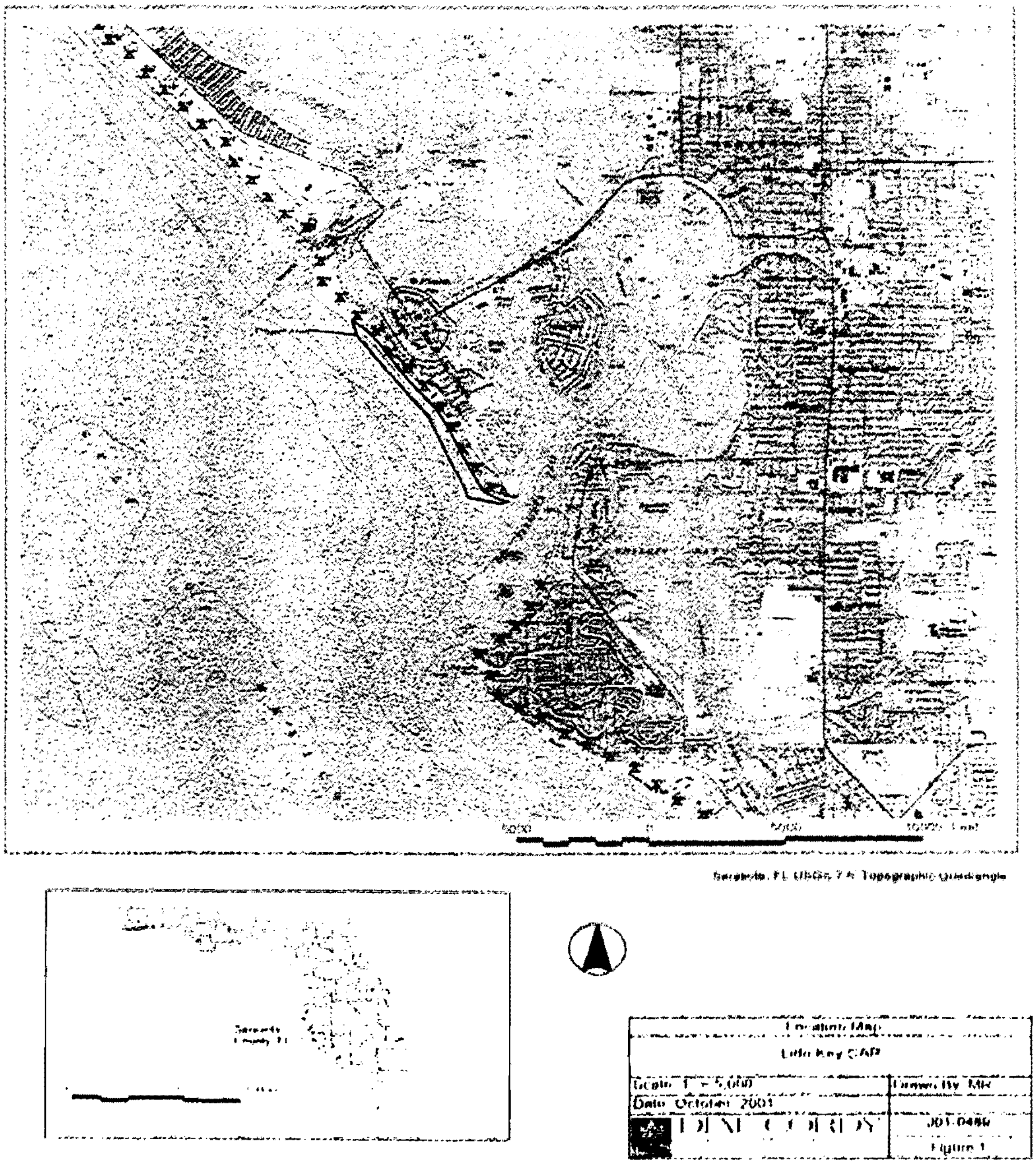

Figure 2: Lido Key Project Plan View

*Figs. A29-A, A29-B excerpted from Coastal Planning & Engineering, Inc. 2001. Lido Key, Sarasota County, Florida-Feasibility Phase Study, July 2001, for U.S. Army Corps of Engineers- Jacksonville District. Boca Raton, Florida

LIDO KEY, SARASOTA COUNTY, FL
SHORE PROTECTION PROJECT
PLAN VIEW

COASTAL PLANNING & ENGINEERING, INC.
2481 NW BOCA RATON BLVD.
BOCA RATON, FL 33431

NOTES:

1. COORDINATES SHOWN HEREON ARE IN FEET BASED ON FLORIDA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NORTH AMERICAN DATUM 1983.
2. ELEVATIONS SHOWN HEREON ARE IN FEET BASED ON NGVD 1929.

FIGURE A-29A

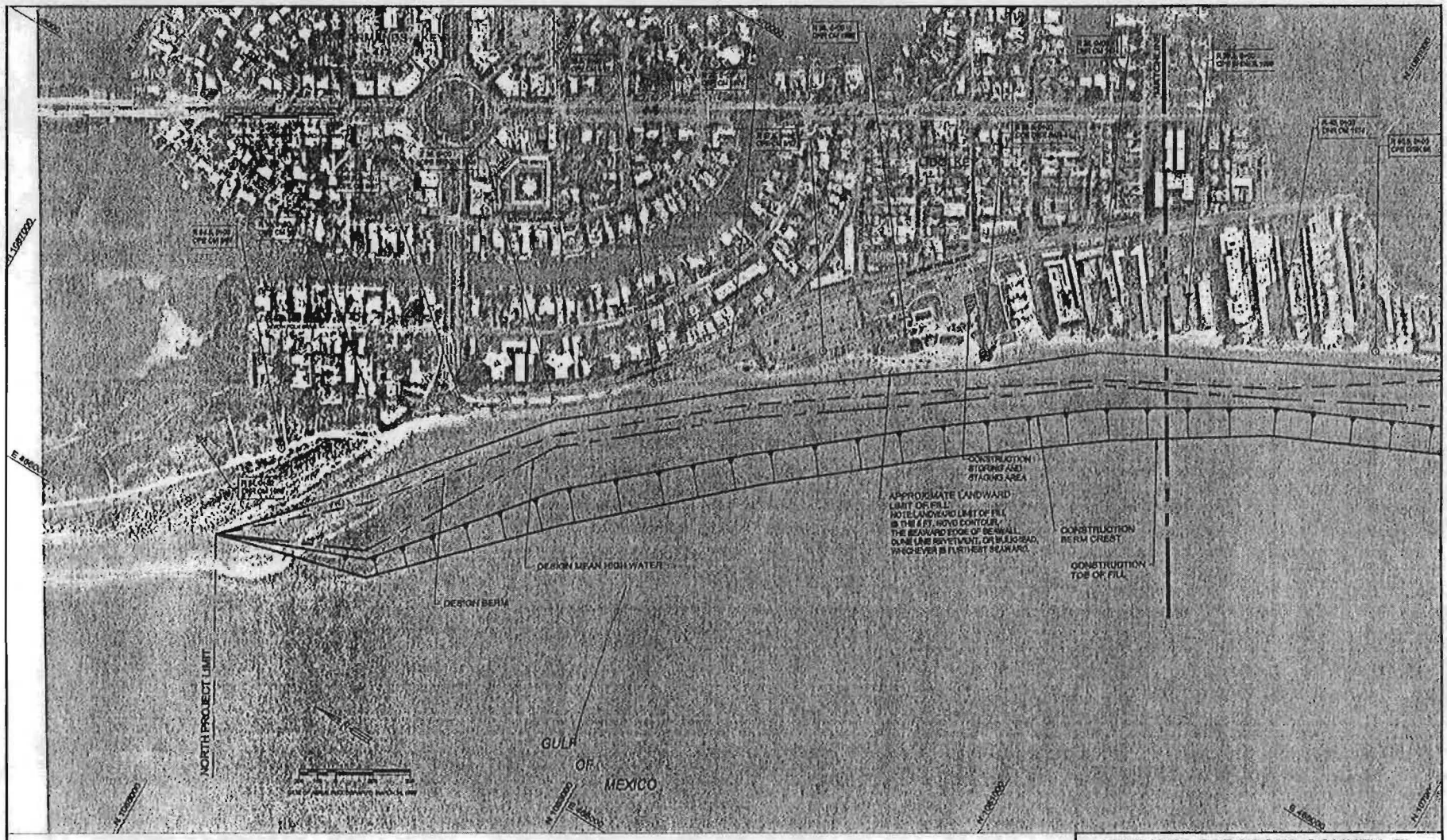

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FIGURE A-29A

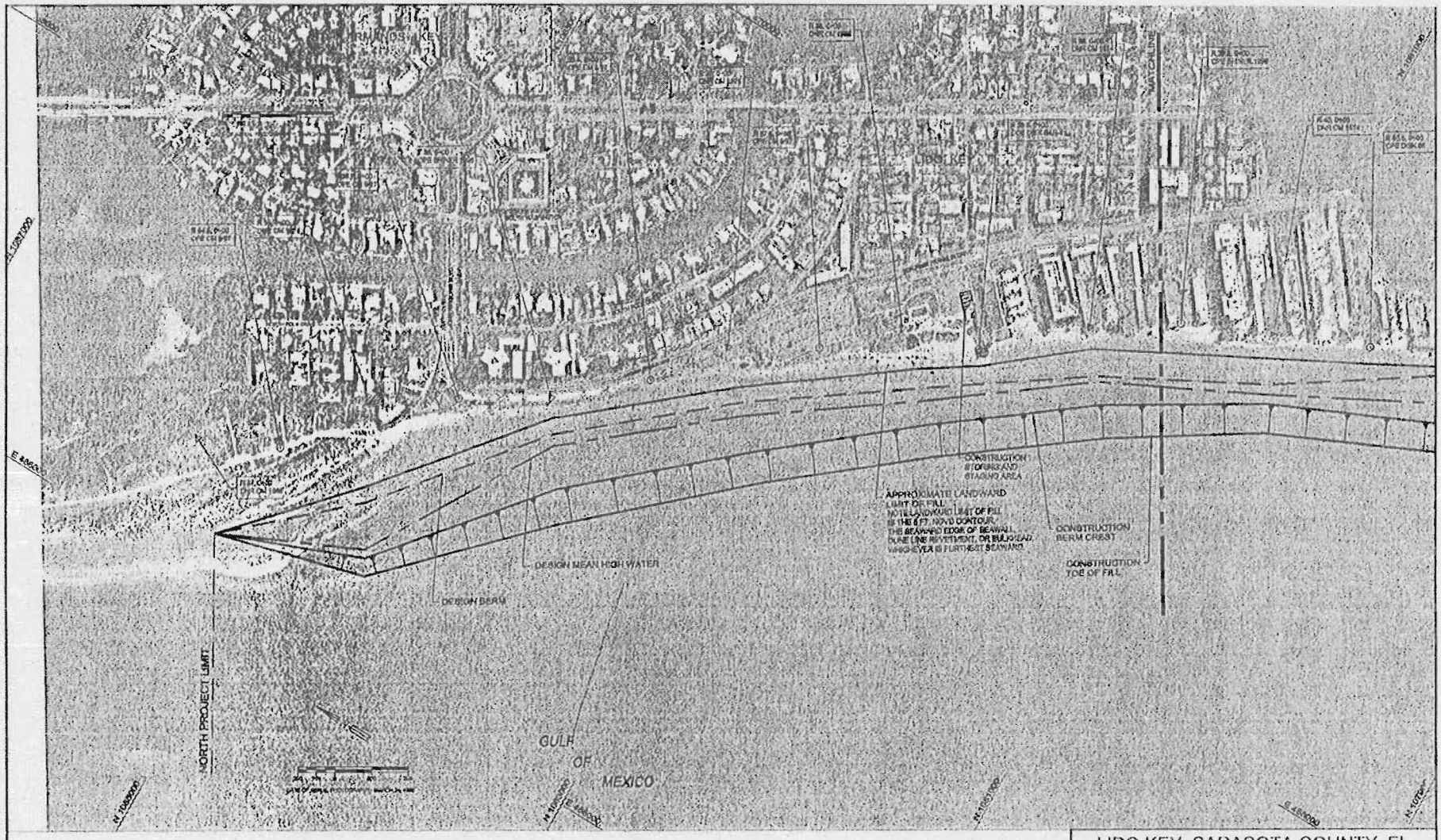

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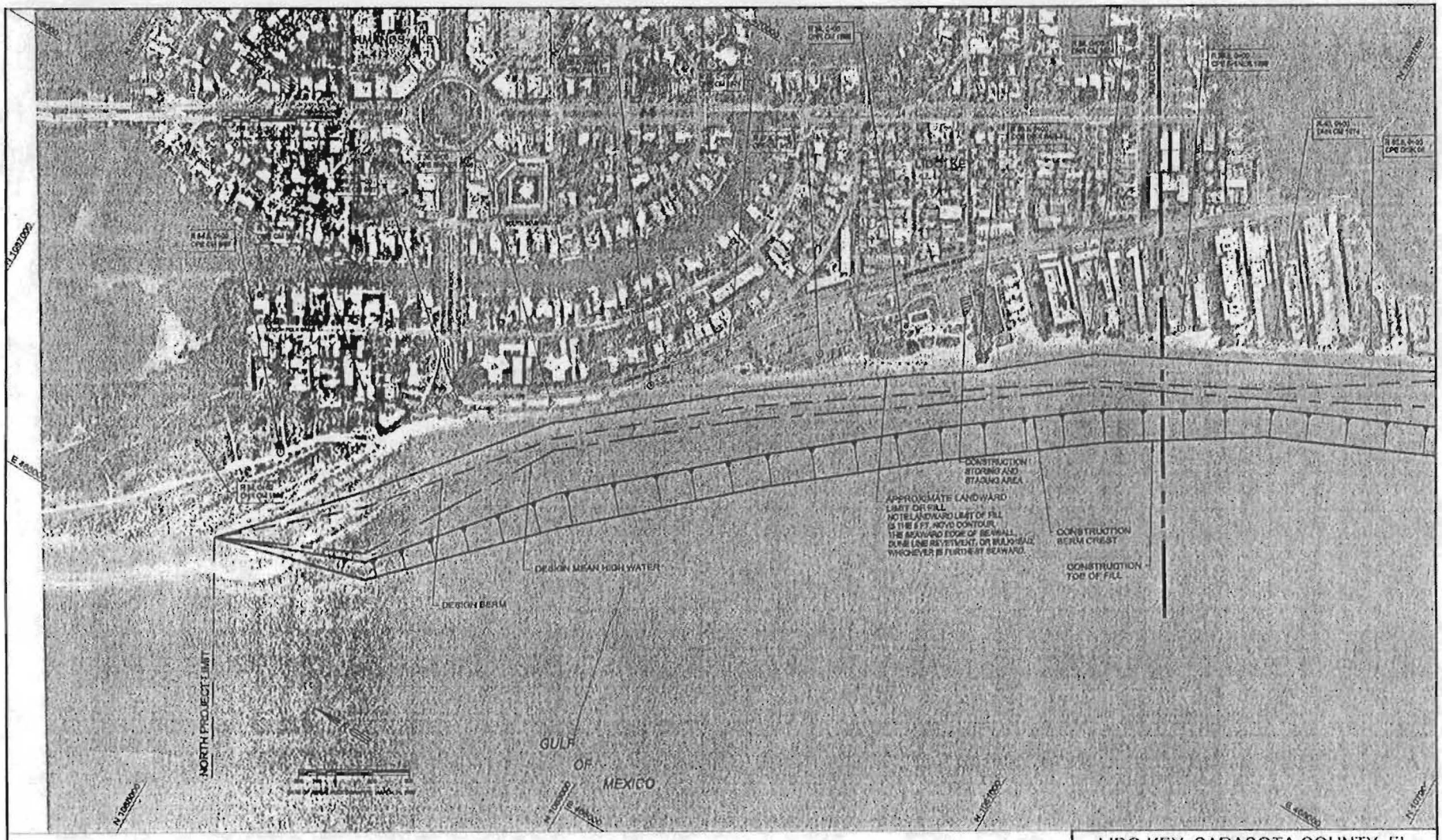
FIGURE A-29A



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2481 NW BOCA RATON BLVD.
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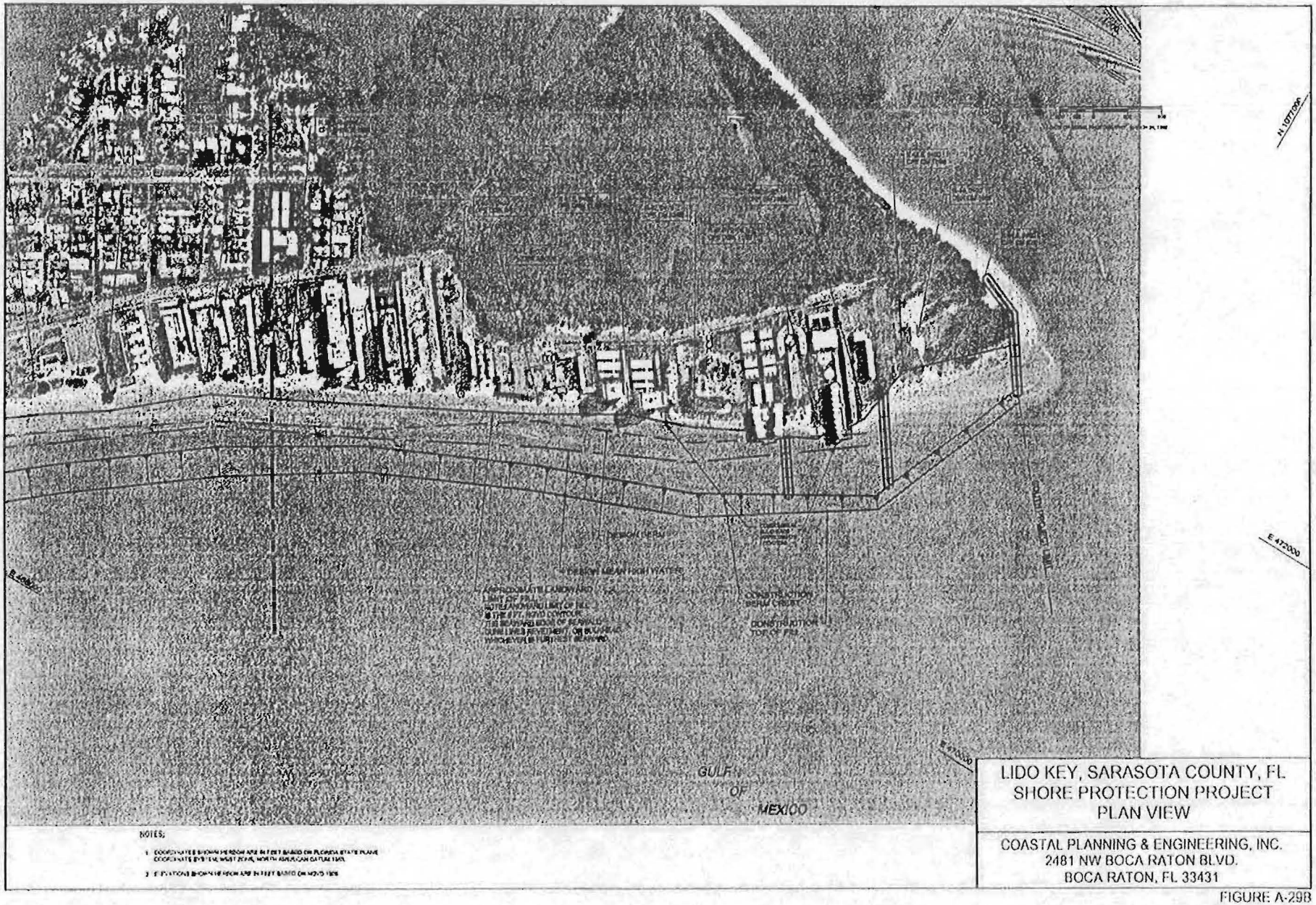
FIGURE A-29A



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LIDO KEY, SARASOTA COUNTY, FL
SHORE PROTECTION PROJECT
PLAN VIEW

COASTAL PLANNING & ENGINEERING, INC.
2481 NW BOCA RATON BLVD.
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FIGURE A-29B

Figure 3: Lido Key Resource Locations

4.0 PROJECT DESCRIPTION

The proposed shore protection project consists of dredging sand from three offshore borrow areas, placing the fill on and adjacent to the current Lido Key shoreline, and constructing three groins in the southern end of the project area. The Corps proposes to construct a berm 80- feet wide with a 10:1 slope along 1.74 miles of shoreline, from monument R-34 to R-44.5 (CP&E 2001). An estimated 982,000 cy of material will be obtained from three offshore borrow sites located approximately 10 nautical miles offshore, and identified as Lido Key Borrow Areas (LKBA) 5, 6, and 7. Due to the distance from the beach to the borrow areas, a hopper dredge and barge will likely be used to acquire and deliver the substrate.

The mean grain size of sediments in borrow areas LKBA 5, 6, and 7 were 0.40, 0.32, and 0.43 mm, while silt comprised 2.19, 4.05, and 2.48 percent of sediments, respectively (CP&E 2001). Sands on the existing beach have an average grain size of 0.24 mm, and comprised of 1.93 percent silt (CP&E 2001). No color comparison of the borrow material to the existing beach was provided.

Three terminal groins will be constructed between R-42 and R-44.5 using 2-ton armor stone over 400 pounds of underlayer stone and 1-20 pounds of bedding stone (Figure 2). The bedding stone will be underlain with filter fabric at minus 3.5 feet NGVD, and the armor stone will be placed to 5.0 feet NGVD. Groins will be 12 feet (top) to 46 feet (bottom) wide, with 45 percent side slopes. They will have total lengths of approximately 340, 520, and 1,320 feet for the northern, central, and southern groins, respectively. For the north and central groins, approximately half of the length of the groins will be above 0 feet NGVD; water level on the seaward half will average approximately minus 1 foot NGVD. Water depth at the terminal end of the groins will be approximately minus 2 feet NGVD. The exposed portion of the southern groin/bulkhead will be above 0 feet NGVD and will not extend seaward beyond mean high water.

The Corps anticipates that without the project, erosion near the center of the island is likely to continue, and the transport of beach material into nearshore shoal areas is probable. Certain areas on the island will lose a beach and dune habitat, while others may gain a beach or shallow-water habitat from the redistribution of sediments.

5.0 FISH AND WILDLIFE RESOURCES

5.1 Communities

5.1.1 Upland and Supralittoral Zone

Since Lido Key is man-made, the island generally lacks native vegetative communities. The uplands are dominated by exotic vegetation, primarily the Australian pine (*Casuarina equisetfolia*); however, some native vegetation, such as sand pine (*Pinus clausa*), sea grape (*Coscoroba uvifera*), and wax myrtle (*Myrica cerifera*) has become established. Dune vegetation such as salt grass (*Distichlis spicata*), sand spur (*Cenchrus spp.*), seaside spurge (*Chamaesyce polygonifolia*), and sea oats (*Uniola paniculata*) can be found on portions of the island, but these are most abundant at the north end of Lido Key. This section lies within the North Lido Pubic Beach. The center of the island is fully developed with little native vegetation remaining between the shoreline and buildings, due mainly to development and erosion. The southern portion of the Lido Key shoreline includes South Lido Park. Its uplands are dominated by stands

of Australian pine, while the seaward portions are sparsely covered with sea oats and other beach/dune vegetation particularly along the Big Sarasota Pass shoreline. Dune areas supporting woody vegetation are frequently used by roosting birds and may provide rookery sites. Other wildlife common to upland areas include small mammals, snakes, and lizards (CP&E 1992).

Florida's supralittoral zone or dry beach serves many ecological functions. This zone supports an abundant benthic infaunal assemblage of burrowing invertebrates that are well adapted to the relatively harsh conditions of the dry beach. As a result, biological diversity is generally lower in this zone when compared to the intertidal and subtidal zones. The beaches of Lido Key are typical of other Florida beaches. It is populated with small, short-lived infauna with low species diversity but high species density and substantial reproductive potential and recruitment. Common species include talitrid and haustoriid amphipod species and decapod crustaceans. These beaches usually have low species diversity, but populations of individual species are often very large. Species such as ghost crabs (*Ocypode quadrata*) are highly specialized to survive in this environment.

The supralittoral zone also serves as important nesting habitat for multiple federally and state listed sea turtles and shorebird species. Ground nesting shorebirds are particularly vulnerable to nest predation and disturbance associated with increased coastal development. As a result, the nests of both shorebirds and turtles may be inadvertently disturbed and/or destroyed by beachgoers or their pets. Historically, the available supralittoral habitat on Lido Key has undergone considerable variation, due to the natural and man-made alterations of the shoreline.

5.1.2 Intertidal Beach Zone

The intertidal beach zone is an important area for shorebird foraging, and comprises habitats for many invertebrates, including bivalves, decapod crustaceans, amphipods, and polycheates. Also, the intertidal zone must be crossed by nesting and hatchling sea turtles. Structures or escarpments that restrict this movement have decreased the amount of shoreline available for nesting activities.

The species diversity in the zone between mean-high water and mean-low water is greater than the supralittoral zone. Typical macrofauna found within this zone include haustoriid amphipods, polychaetes, isopods, mollusks and some larger crustaceans, such as mole crabs (*Emerita spp.*) and burrowing shrimp (*Callianassa spp.*). This zone is an important forage area for multiple shorebird species.

5.1.3 Subtidal Zone

The nearshore and offshore subtidal zone west of Lido Key is comprised of softbottom habitats of sand, shell, and silt substrate with little or no rock, limestone, or hard coral structure. The biota that comprises the subtidal zone include benthic invertebrate assemblages, epifaunal invertebrates, and macrophyte assemblages that form reef communities if hard substrate is present, and the fish and motile crustacean species that utilize this habitat. The organisms associated with the nearshore surf zone and deeper subtidal sand bottom habitats are generally dominated by polychaetes, amphipods, isopods, decapods, mollusks, echinoderms, and a variety of other taxa. Though many of the dominant infaunal species are found both in the surf and offshore subtidal zones, the diversity and abundance is greater in the subtidal zone. Other frequent occupants of these habitats include benthic fishes (e.g., flounders), bivalves, decapod crustaceans, and certain shrimp species.

Three subtidal areas have been selected as borrow sites for the proposed project. The borrow

sites are essentially slightly raised "plateaus" of sand in approximately 45 to 55 feet of water, where bottom elevations rise from approximately two to five feet from the surrounding seafloor.

In 1991, CP&E obtained and analyzed 12 samples of the nearshore and offshore benthic infauna of Lido Key. Their results showed that the offshore samples were dominated by the ostracod, *Podocopa sp.*, whereas the nearshore samples were dominated by the lancelet, *Branchiostoma floridae*. Offshore between the depths between minus 10 and minus 18 feet NGVD, *Podocopa sp.* clearly dominated. However, the New Pass north control station located at -22 feet was dominated by the bivalve, *Parvilucina multilineata*. At four of the seven stations located in less than minus 10 feet of water, *Brachiostoma floridae* was the dominant species present. Of the three remaining shallow water stations (approximately minus 5 feet NGVD), one station was dominated by the bivalve, *Donax variabilis*; another by the ostracod, *Podocopa sp.*; and the last station by the amphipod, *Eudevenopus honduranus* (CP&E 1992).

The deeper offshore samples exhibited greater species diversity and population density than did the nearshore samples. Offshore, the average number of species was twice that of the nearshore. Likewise, the average number of individuals in the offshore samples were six times that of the nearshore samples (CP&E 1992).

5.1.4 Seagrass Communities

Seagrasses are a vital component of the coastal ecosystem by serving as a primary producer, providing forage habitat and shelter for multiple organisms, improving water quality and clarity, and providing substrate stabilization. Seagrasses are a highly productive, faunally rich, and ecologically important habitat within the coastal lagoons, bays, and estuaries of south Florida. Rapidly growing seagrass shoots provide food for trophically higher organisms via direct herbivory or from the detrital food web. The canopy structure formed by these shoots offers shelter and protection. This combination of shelter and food availability results in seagrass beds being the richest nursery grounds in South Florida's shallow coastal waters. As such, many important commercial and recreational fisheries (e.g., clams, shrimp, lobster, fish) are associated with seagrass beds. Many of these recreationally and commercially important species rely on seagrasses for at least part, if not all, of their life history. Seagrass contributes to improving water quality and clarity by absorbing excess nutrients and trapping suspended solids. In addition, the roots and rhizomes of the seagrass help stabilize the substrate while the shoots of dense beds absorb wave energy, thereby buffering their effects on the shoreline.

Seagrasses have experienced declines in abundance and distribution due to water quality degradation and through the direct loss of habitat related to dredge and fill activities and boating impacts. The degradation of water quality is largely the result of point source pollution (e.g., wastewater discharge, agricultural runoff, excessive freshwater discharge); non-point source pollution (e.g., stormwater runoff, leaching from septic tanks); and the alteration of adjacent watersheds. The subsequent decline in seagrasses has significantly reduced the fisheries resources in south Florida. Implementation of several protective and restorative measures has improved water quality and radically reduced the rate of habitat loss within south Florida's estuaries. Such measures include the regulation of dredge and fill activities, the elimination of wastewater discharge to surface waters, the treatment of stormwater runoff, and the rehabilitation of adjacent watersheds.

Fauna utilizing seagrass beds range from invertebrates to top-level predators in multiple guilds. A few common species include: bittium (*Bittium* sp.), sea urchins (*Lytechinus variegatus*), pen shell (*Atrina rigida*), pink shrimp (*Penaeus duorarum*), spiny lobster (*Panulirus argus*), pinfish (*Lagodon rhomboides*), spotted sea trout (*Cynoscion nebulosus*), red drum (*Sciaenops ocellata*),

great blue heron (*Ardea herodias*), roseate spoonbill (*Ajaia ajaja*), osprey (*Pandion haliaetus*), West Indian manatee (*Trichechus manatus*), and green sea turtle (*Chelonia mydas*)(USDOI, 1982).

Of the seven species of seagrass occurring in Florida, five species are found in waters of Sarasota County. Species common to the Sarasota Bay estuary and nearshore marine zones around Lido Key include shoal-grass (*Halodule wrightii*), manatee-grass (*Syringodium filiforme*), turtle-grass (*Thalassia testudinum*), star-grass (*Halophila englemannii*),and widgeon-grass (*Ruppia maritima*). The inlets around Lido Key affect the occurrence and abundance of seagrass in several ways: high turbidity and low water clarity is common as Sarasota Bay is flushed. Tidal movement shifts and creates shoals, and directs or reflects wave energy to the center of the island. These factors likely attribute to the limited seagrass coverage nearshore of Lido Key at the northern and southern extents. Despite the dynamics of the area, seagrass has remained persistent off Lido Key since 1920, though it tends to be limited and ephemeral. This is reflected in the results of the two nearshore surveys conducted in 1991 and 2001according to CP&E, 1992 and Dial Cordy and Associates (DC&A), 2001.

The Lido Key Beach Nourishment Project Environmental Study (CP&E, 1992) involved biological and physical assessments for a beach renourishment project constructed in 1998 from monuments R-35 to R-40 (approximately 5,000 feet). In 1991, field surveys revealed two locations where seagrass was present nearshore of the project footprint (Figure 3). One of the two areas, comprised of approximately 200 square feet of scattered shoal-grass, was located approximately 100 feet from shore and 650 feet west-southwest of monument R-35. The larger of the two areas comprised scattered shoal-grass and manatee-grass over 47 acres, and was located 2,000-3,000 feet offshore from Siesta Key monuments R-44B and R-44C, in the northeast portion of the Big Sarasota Pass ebb shoal (CP&E 1992). Due to the significant seagrass presence on the ebb shoal, it was not considered as a potential borrow site. In July, 2001, 12 underwater video survey transects were conducted offshore and perpendicular from monuments R-35 to R-44, roughly every 1,000 feet (DC&A 2001) (Figure 3). Seagrass was detected at two points along the survey transect line at R-35 and at one point along R-43, approximately 600 feet southwest and approximately 1,100 feet west-southwest of the estimated equilibrium toe of fill, respectively.

The video survey detected the presence of a monotypic area of shoal grass at each of the aforementioned three locations. However, the extent of the seagrass coverage and its description could not be determined by the video. According to the Lido Key Marine Resource Report (LKMRP 2001), seagrass locations could not be ground-truthed due to poor visibility at the time of the survey (DC&A 2001). No resource surveys were conducted north of R-35 or south of R-44, which excludes approximately 1,500 feet of the project footprint. Due to boat draft limitations and safety concerns, a portion of the equilibrium toe of fill at each R-monument and within the groin construction footprint was excluded from the video survey. These areas were not ground truthed to verify the presence or absence of seagrass. However, the LKMRP concluded that no seagrasses were present within the equilibrium toe of fill and groin construction area. The Service did not support this conclusion and the issue was discussed with the Corps and DC&A.

Based on the September 2001 visual inspection of borrow areas by CP&E and Service personnel, seagrasses were not found in borrow areas; however, an isolated patch of turtle grass, estimated to be less than three feet in diameter was located within 200 feet outside of the LKBA 6 boundary. Seagrass was not observed with in the vicinity of LKBA 5 or 7.

5.1.5 Low-Relief Hardbottom

Nearshore and offshorelow-relief hardbottom are characterized by limestone, rock, or worn coral substrates that contain crevasses, holes, and low-lying ledges that create microhabitat diversity, and thereby can support higher species diversity than unvegetated, softbottom habitats. Low-relief hardbottom habitats are important for organisms such as crustaceans, notably, crabs, spiny lobster, and penaeid shrimp and numerous fishes, including species of the Snapper-Grouper complex. Several species utilize hardbottom as refugia during juvenile life-history stages, whereas adults of various predatory species use these areas as foraging grounds. Hardbottom fauna may be divided into sessile and motile components. The sessile component contains the primary producers, such as macroalgae; some grazers or first order consumers, planktivores, and filter feeders. Hard corals occupy niches as both producer and consumer. Zooxanthellic algae within coral polyps photosynthesize while the polyps themselves capture planktonic organisms for consumption. Similar to hard corals, tunicates and sponges concentrate carbon that is typically fixed far offsite. These attached filter-feeding organisms contribute to the organic base by trapping nutrient-rich plankton as it is swept past by wave and wind generated currents. Tunicates, sponges, and hydroids add structure to the bottom, providing shelter from predation for many crustaceans and smaller fishes.

Many fish and motile invertebrates are attracted to hardbottom habitat by its structure. The numerous crevices, holes, and epibiotic structure provide these organisms with a refuge from larger predatory fish. Structure can also provide barrier to currents and substrate for attaching demersal eggs. In addition to these features, the sessile organisms of the reef provide a large diverse food base on which some fish species feed directly. Others benefit from this indirectly by feeding on invertebrates and other smaller fish that are nurtured by sessile plant material.

Based on data from side-scan sonar and video surveys of Lido Key, hardbottom resources are not located in nearshore (i.e., fill deposition) areas of the project or within the boundaries of the offshore borrow areas (CP&E 2001 and DC&A 2001, respectively). However, side-scan sonar yielded evidence of possible low-relief hardbottom communities adjacent to LBBA 6 and 7, though no anomalies were detected outside of LKBA 5 (CP&E 2001).

On September 24, 2001, diver surveys were conducted by CP&E and the Service to verify the side-scan sonar anomalies detected at LKBA 6 and 7. Scattered, non-contiguous, low-relief, hardbottom areas were observed and these areas were comprised of similar species, but varied in size. The total hardbottom coverage within 400 feet of the borrow site boundaries were estimated to be less than ten percent with an average maximum height and width of approximately eighteen inches and two feet, respectively.

It is important to mention, the fish and motile invertebrate species typically associated with hardbottom habitat were notably absent during the investigations. During each of the six dives, numerous dead or incapacitated sessile and motile benthic marine species were observed. A red tide event was speculated and later verified by Mote Marine Laboratory staff. The red tide began approximately three weeks prior to the surveys and was exacerbated by the passage of Tropical Storm Gabrielle on September 13, 2001. Another effect linked to Tropical Storm Gabrielle included the observation of an extensive layer of sediment covering the exposed hardbottom adjacent to the borrow sites (Appendix A).

5.1.6 Essential Fish Habitat

The community types listed above, with the exception of the upland and supralittoral zones, are considered Essential Fish Habitat (EFH) as described in the Magnuson-Stevens Fishery

Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267). EFH provisions support the management goals of sustainable fisheries. EFH that may be directly and indirectly impacted by the proposed project are likely to include the water column, littoral zone, sublittoral zone, hardbottom, and seagrass habitats. Specific aspects of EFH that may be adversely affected include spawning, foraging, and refuge habitats for such managed species such as the snapper/grouper complex, penaeid shrimp, and spiny lobster. The NMFS is the lead agency responsible for the complete assessment of the possible adverse impacts of the proposed project to EFH in the vicinity of Lido Key and LKBA 5, 6, and 7.

5.2 Important Species

5.2.1 Sea Turtle

The ESA protects all six species of sea turtles that occur in the United States. Florida is a significant nesting region for three of the six species. Those species are the federally-listed endangered leatherback sea turtle (*Dermochelys coriacea*) and green sea turtle (*Chelonia mydas*), and the threatened loggerhead sea turtle (*Caretta caretta*). Of these, only the latter two regularly nest on the west coast of peninsular Florida. Furthermore, both nest in Sarasota County, though the loggerhead is the only species documented as nesting on Lido Key. The endangered Kemp's ridley turtle (*Lepidochelys kempii*) and the endangered hawksbill turtle (*Eretmochelys imbricata*) nest infrequently in Florida. However in 1999, one Kemp's ridley nest was located in Sarasota County. In general, threats to listed marine turtles include loss or degradation of nesting habitat from coastal development and shoreline armoring; disorientation of hatchlings by beach-front lighting; excessive nest predation by native and non-native predators; degradation of foraging habitat; marine pollution and debris; water-craft strikes and disease (such as Fibropapillomatosis); and incidental take as a result of dredging and commercial fishing activities. The distribution of sea turtle nesting activity along Florida's Southwest Gulf Coast (Sarasota, Charlotte, Lee, and Collier counties) is less understood than that of the east coast epicenter of sea turtle nesting between Brevard and Palm Beach counties (Addison *et al.* 2000). The Gulf Coast yields approximately 10 to 12 percent of the total loggerhead nesting and less than one percent of the total green sea turtle nesting activity on Florida's beaches. During the 1994 to 1999 nesting seasons, Sarasota, Charlotte, Collier, and Lee counties have accounted for 41, 14, 15, and 8 percent of the overall loggerhead nesting in the southwest Gulf Coast region, respectively. During the 2000 nesting season, 64 loggerhead and nine green sea turtle nests per-kilometer were documented along the surveyed beaches in Sarasota County (FMRI 2001b). In 2000, of the 4.2 miles of available nesting habitat along Lido Key, loggerhead nest density averaged 10 nests/km. No Kemp's ridley or green turtles have been documented as nesting on Lido Key.

5.2.2 Shorebirds

Florida's shoreline supports multiple shorebird species (e.g., terns, sandpipers, plovers, etc.) that are adapted to utilizing the supralittoral and intertidal zones for activities such as nesting and foraging. Typically, shorebirds prefer to nest on isolated, open beaches between the months of March through August. Ground-nesting shorebirds, such as the least tern, are sensitive to disturbance and are known to abandon their eggs and nesting sites, if disturbed. Frequent disturbance leaves untended nests vulnerable to overheating and predation. Other factors contributing to the decline of shorebird species include: habitat loss and degradation due to coastal development, anthropogenic disturbance and increased nest predation by unchecked natural predators and exotic predators, including domestic pets. In response, much of south Florida's least tern populations have selected less suitable nesting habitat on the rooftops of large, flat, tar and gravel commercial buildings such as grocery stores and pharmacies. Therefore, the newly established ground-nesting colony on Lido Key is important.

Since 1998, shorebirds have established a thriving multi-species nesting colony on Lido Key

between R-34 and R-35, or more specifically, located at 27 19.044', north latitude, 82°35.057' west longitude. The colony is comprised of several state listed species such as the threatened least tern (*Sterna antillarum*), black skimmer (*Rynchops niger*), a species of special concern; and threatened snowy plover (*Chadadrius alexandrinus*). Other shorebird species associated with the colony include the royal tern (*Sterna maxima*), common tern (*Sterna hirundo*), and brown pelican (*pelecanus occidentalis*). In addition, the federally-listed threatened piping plover (*Charadrius melodus*), may utilize the Lido Key beaches as over-wintering habitat.

These shorebirds nest from April through August. At the Lido Key colony, 37, 23, and 35 nests were found in 1998, 1999, and 2000, respectively (unpublished data, N. Douglas, FWC). The black skimmer, listed by FWC as a species of special concern, was observed in both 1990 (160 adults) and 2000 (172 adults; 15 nests). Black skimmers breed from May through September (Kale and Maehr 1990). The snowy plover nests March through July (Kale and Maehr, 1990). In 1998, two hatchlings were observed at the Lido Key colony, and in 2000, four adults were observed.

Three hundred and fifty royal terns which nest April through August (Kale and Maehr, 1990), were observed in 2000 at the colony (unpublished data, N. Douglas of FWC). Common terns, spring and fall migrants in Florida (Kale and Maehr, 1990), were also observed within the project area. In 2000, 20 common terns were observed at the colony (N. Douglas, personal communication 2001). Finally, brown pelicans , a state-listed species of special concern, are prevalent around Lido Key. They breed in October, and usually nest in coastal mangrove-islands colonies (Kale and Maehr, 1990).

All shorebirds present on Lido Key are federally protected under the Migratory Bird Treaty Act, and as mentioned, certain species are listed by the State of Florida. The FWC closes seasonally this section of Lido Key beach to recreational use to minimize human disturbance in and around the nesting shorebird colony.

5.2.3 Manatees

The range of the West Indian manatee extends from coastal areas of Beaufort, North Carolina, south through the Caribbean, with the highest occurrence in Florida. Manatees frequently inhabit shallow areas where seagrasses are present and are commonly found in protected estuaries, protected lagoons, and freshwater systems such as springs and rivers. Since manatees are prone to cold stress, frequently in the winter they will congregate in warm water refugias, such as natural warm water springs or warm water effluent produced by power plants. Very few manatees utilize the offshore waters from November through April. However, during the remainder of the year, manatees will use open ocean passages to travel between favored habitats (Hartman 1979).

The manatee is protected under the Marine Mammal Protection Act of 1972 and the ESA. Florida provided further protection in 1978 by passing the Florida Marine Sanctuary Act designating the state as a manatee sanctuary, and providing signage and speed zones in Florida's waterways. Manatees consistently use Sarasota Bay, east of Lido Key, but have not been formally documented west of the island in the winter (FWC, Florida Marine Research Institute aerial survey data, 1985, 1987, and 1992). However, manatees may be present within the project vicinity during the summer.

5.2.4 Cetaceans, Fishes, and Invertebrates

Many coastal-pelagic fish species and migratory cetaceans are known to utilize the Gulf of Mexico. Notable offshore cetacean species include short-finned pilot whale (*Globicephala macrorhynchus*), Atlantic bottlenosed dolphins (*Tursiops truncatus*), the endangered humpback whale (*Megaptera novaeangliae*), and the endangered sperm whale (*Physeter catodon*) (CP&E

1992).

Many commercially and recreationally valuable fish and invertebrate species are found within the Gulf of Mexico and rely on nearshore and/or estuarine habitats for part or all of their life cycle. These include those species in the snapper/grouper complex (families Lutjanidae and Serranidae), tarpon (*Megalops atlanticus*), king mackerel (*Scomberomorus cavalla*), Spanish mackerel (*Scomberomorus maculatus*), blue crab (*Callinectes sapidus*), stone crab (*Menippe mercenaria*), shrimp (*Penaeid* sp.), and southern quahog clam (*Mercenaria campechiensis*).

Table 1. Partial list of fish species commonly found in the vicinity of Lido Key (CP&E 1992).

Common Name	Scientific Name	Common Name	Scientific Name	Common Name	Scientific Name
Bonnethead shark	*Sphyrna tiburo*	Permit	*Trachinotus falcatus*	Gulf- butterfish	*Peprilus burti*
Atlantic stingray	*Dasyatis sabina*	Lane snapper	*Lutjanus synagris*	Barbfish	*Scorpaena brasiliensis*
Smooth butterfly ray	*Gymnura micrura*	Round scad	*Decapterus punctatus*	Leopard searobin	*Prionotus scitulus*
Clearnose skate	*Raja eglanteria*	Bluntnose jack	*Hemicaranx amblyrhychus*	Bighead searobin	*Prionotus tribulus*
Lady fish	*Elops saurus*	Lookdown	*Selene volmer*	Ocellated flounder	*Ancylopsetta quadrocellalata*
American eel	*Anguilla rostrata*	Pompano	*Trachinotus carolinus*	Spotted whiff	*Citharichthys macrops*
Gulf menhaden	*Brevoortia patronus*	Silver jenny	*Eucinostomus gula*	Gulf flounder	*Paralichthys albigutta*
Spanish sardine	*Sardinella anchovia*	Grunts	*Pomadasyidae*	Fringed flounder	*Etropus crossotus*
Scaled sardine	*Harengul jaguana*	Pigfish	*Orthopristis chrysoptera*	Lined sole	*Achirus lineatus*
Striped anchovy	*Anchoa hepsetus*	Sheepshead	*Archosargus probatocephalus*	Orange filefish	*Aluterus schoepfi*
Inshore Lizardfish	*Synodus foetens*	Pinfish	*Lagodon rhomboides*	Scrawled cowfish	*Lactophyrys quadricornis*
Hardhead catfish	*Arius felis*	Silver perch	*Bairdella chrysoura*	Smooth puffer	*Lagocephalus laevigatus*
gafftop catfish	*Bagrae marinus*	Sand seatrout	*Cynoscion arenarius*	Southern puffer	*Sphoeroides nephelus*
Atlantic midshipman	*Porichthys plectrodon*	Spot	*Leiostomus xanthurus*	Striped burrfish	*Chilomycterus schoepfi*
Skilletfish	Gobiesox stromosus	Kingfish, southern and gulf	*Menticirrhus americanus& littoralis*	Striped mullet	*Mugil cephalus*

Table 2. Partial List Common bivalve invertebrates of Lido Key (CP&E 2001).

Common Name	Scientific Name	Common Name	Scientific Name
Atlantic Abra	*Abra aequalis*	Florida Glassy lyonsia	*Lyonsia hyalina floridana*
Transverse ark	*Anadara transversa*	Narrowed macoma	*Macoma tenta*
Paper mussel	*Amygdalum papyrium*	Southern quahog	*Mercenaria campechiensis*
Pointed venus	*Anomalocardia cuneimeris*	Atlantic flat lepton	*Mysella planulata*
Broad-ribbed cardita	*Carditameria floridana*	Brown gem clam	*Parastarte triquerta*
Cross-barred venus	*Chinone cancellata*	Unequal spoon clam	*Perploma margaritareum*
Lunate crassinella	*Crassinella lunulata*	Tiny semele	*Semele nuculoides*
Atlantic diplodon	*Diplodonta punctata*	Purplish tagelus	*Tagelus divisus*
Morton's egg cockle	*Laevicardium mortoni*	Stout tagelus	*Tagelus plebeius*
Florida Lucina	*Lucina floridana*	Texas tellin	*Tellina texana*

6.0 DISCUSSION

Possible direct effects of the project on fish and wildlife resources include injury, mortality, or disturbance (i.e., interruption of an individual's life-history) that may occur as a direct result of dredging, filling, and loss or modification of habitats. Indirect impacts may occur to nearby habitats and/or animals during or after completion of dredging and construction activities. Direct and indirect impacts are anticipated for sea turtles and benthic organisms located in the supralittoral, intertidal, and subtidal zones within the project vicinity. Indirect adverse effects may occur to manatees, some fishes, certain shorebirds, and various species associated with low-relief hardbottom habitats.

6.1 Communities

6.1.1 Supralittoral and Littoral Zones

The supralittoral zone will be directly impacted by the placement of dredged material. Decapods, such as ghost crabs and other burrowing organisms, are at risk of direct burial. Though limited data describing the ability of decapods to escape burial exists, decreased population may be attributed to a response to the reduced food source in the intertidal zone rather than burial mortality (Nelson 1995). Infaunal communities found in the supralittoral and intertidal areas will be directly impacted by sand placement. The temporary loss of this prey base may adversely affect nesting and non-nesting shorebirds and/or waterbirds foraging in the intertidal and surf zones. The effect of these impacts should be short-term in duration, as community structure is expected to become re-established with immigrants within one year of dredging (Taylor *et. al* 1973).

The upper beach zone also provides nesting habitat for federally and state listed sea turtles and shorebird species. Potential impacts to sea turtles include loss of nests due to relocation or missed nests if the project is conducted during nesting season; reduced nesting activity; and

reduced hatchling survival from sand placement, sand compaction, escarpment formation, and sand color and texture changes.

The littoral zone of the beach supports a diversity of amphipods, polychaetes, gastropods, bivalves, and surf zone fishes. During the initial sand placement, many of the surf zone species may be adversely affected due to limited swimming capabilities, behavioral responses, and/or cryptic nature. Increased turbidity may affect the respiration of some species, which could cause suffocation and the loss of these individuals to the system. Recovery time varies greatly between species, but generally ranges from several months to five years or more depending on the level of impact. Information regarding the response of surf zone fishes is limited but generally states that most fish will flee and avoid the disturbed area and will return within a few months. Nelson (1985) suggests that loss of habitat may be more harmful to fish than elevated turbidity.

6.1.2 Seagrasses

As stated in the LKMRR, seagrasses were not detected in the areas surveyed within the proposed equilibrium toe of fill. However, seagrass habitats adjacent to the proposed fill area may be subject to indirect impacts. Indirect impacts may occur through the suspension of fine sediments into the water column during beach renourishment and groin construction activities (Figure 3). Tides and currents may transport these sediments over adjacent seagrass beds where they may be deposited, or at least reduce water clarity. Potential losses of habitat or a temporary reduction in seagrass productivity and habitat quality may result. Other indirect impacts may include the temporary displacement of fish and/or invertebrates from these habitats. Therefore, a temporary shift in community structure may occur. Littoral transport models (CP&E 2001) suggest the possibility that any re-suspended silt may disperse to the nearshore areas north or south of the island. Therefore, the shoal grass located adjacent to the project footprint and the 47-acre manatee/shoal-grass area off of Siesta Key may be adversely affected.

The seagrass present approximately 200 feet outside of LKBA6 is likely to be directly affected during the dredging activity despite the relatively low silt percentage of the material to be dredged. Since it is located downdrift of the prevailing currents, it is possible that this seagrass will be adversely effected as a result of the turbidity plume creating prolonged periods of sedimentation and reduced light conditions during dredging.

6.1.3 Low-relief Hardbottom

Nearshore and offshore hardbottom habitat may be directly or indirectly affected by sand placement, groin construction and/or offshore dredging activities. For instance, these resources may be directly buried by sand placement or by excessive sedimentation. In addition, the hardbottom organisms may become vulnerable to disease as a result of stress, if the area is subjected to elevated turbidity levels for prolonged periods during or after construction. Hardbottom habitat is recognized as a valuable fishery resource. The South Atlantic Fishery Management Council's Fishery Management Plan calls for avoiding impacts to this important resource. Where impacts cannot be avoided, the Service recommends mitigation through the creation of similar resources to those lost. Mitigation offsets should, as a minimum, be a ratio of 1:1 in basal area, with added compensation for the temporal loss of existing resource function.

Nearshore resource surveys conducted at Lido Key in 1991 and 2001, did not reveal the presence of hardbottom habitat within the project footprint. Therefore, adverse impacts to nearshore hardbottom habitat it is not anticipated during the groin construction and sand placement activities.

However, side-scan surveys of the borrow areas identified possible low-relief, hardbottom areas adjacent to LKBA6 and LKBA 7 (Appendix B). No hardbottom occurs within or adjacent to LKBA 5. Hardbottom was verified to occur within 200 feet outside LKBA 6 and 7. Because

nearly one million cubic yards of material is required for the project, a considerable amount of time will be spent conducting dredge operations. This would increase the possibility of local turbidity and siltation, which could adversely impact hardbottom habitats. Turbidity, which decreases light attenuation, may reduce photosynthetic activity in the hardbottom areas and therefore alter community structure. Several sessile organisms are adapted to cope with a light deposition of sediments, but if this deposition is too severe, or too long in duration, it could result in species mortality. Possible effects also include the temporary displacement of fish and invertebrates from the area due to turbidity, shifts in community structure, or the acoustic effects of dredging.

The removal of sand from proposed dredge areas may also indirectly affect adjacent hardbottom habitats. Because the borrow sites are slightly elevated areas, their removal will affect sea floor topography. This will likely alter how water currents move across adjacent hardbottom areas, and thereby affect the physical environment of that habitat.

6.1.4 Subtidal Zone

Dredging will directly impact the offshore subtidal habitats by primarily removing macroalgae, sessile and slower-moving invertebrates, and vertebrates. The effect of these impacts should be short-term in duration, as community structure is expected to become re-established with immigrants within one to three years of dredging (if the areas still comprise viable marine substrate) (Taylor *et. al* 1973). In sum, up to approximately 297 acres of un-vegetated, subtidal habitat may be altered during dredging of LKBA 5, 6, and 7 (42, 160, and 95 acres, respectively).

6.1.5 Essential Fish Habitat

Direct and indirect effects of dredging, sand placement, and groin construction activities may occur within the water column, and to the softbottom, seagrass, and hardbottom benthic communities. Dredging and construction activities may directly and indirectly impact benthic organisms that serve as food sources for EFH species, and may directly and indirectly impact seagrass communities as a result of siltation, and direct burial. For a complete assessment of the effects of the action on EFH, the Corps should contact the NMFS, Habitat Conservation Division, located in St. Petersburg, Florida to initiate consultation.

6.2 Important Species

6.2.1 Sea Turtles

The proposed action has the potential to adversely affect nesting females, nests, and hatchlings within the proposed project area. To summarize, potential effects include destruction of nests deposited within the boundaries of the proposed project; harassment in the form of disturbing or interfering with females turtles attempting to nest within the construction area or on adjacent beaches; disorientation of hatchling turtles from project lighting on beaches adjacent to the construction area, as they emerge from the nest and crawl to the water as a result of project lighting, and behavior modification of nesting females due to escarpment formation within the project area during the nesting season, resulting in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs. The quality of the placed sand could affect the ability of female turtles to nest, the suitability of the nest incubation environment, and the ability of hatchlings to emerge from the nest. These impacts should be minimized through adherence to the "Reasonable and Prudent Measures" and " Terms and Conditions" of the Service's 2002 Biological Opinion.

6.2.2 Shorebirds

Because various protected species and other birds are known to nest on Lido Key, beach habitat protection for birds is a significant issue. The FWC-protected multi-species nesting colony discussed in Section 5.2.2 is located at the northern boundary of the project area. Beach fill activities may directly impact nesting shorebirds through destruction of nests and eggs, or injury or mortality to nesting birds and hatchlings. Indirect effects may include altering of natural bird behaviors as a result of project activities, temporarily impacting foraging grounds (such as the intertidal zone), and introducing a beach substrate that is inadequate for nesting; however, the borrow site material selected for this project appears suitable for shorebird nesting.

Beach restoration activities south of the Lido Key nesting colony may temporarily affect feeding patterns of certain birds using the colony and/or beaches. Fill material will not initially contain an infaunal prey assemblage that can be utilized by plovers. Small fishes and invertebrates utilized by terns will be temporarily displaced, as well. Shorebirds may have to fly to adjacent beaches with established, intertidal infaunal resources (i.e., the shoreline north of monument R-35). From October through March, little activity is anticipated to occur at the nesting colony. However, feeding along the Lido Key shoreline remains important for birds (e.g., plovers) during that period.

6.2.3 Manatees

The construction activities associated with the proposed project may adversely effect manatees utilizing the nearshore areas adjacent to Lido. However, the Corps has stated they will include the *Standard Manatee Protection Construction Conditions* as permit condition to minimize possible adverse effects to manatees. Indirect effects to manatees mayoccur from the loss or degradation of seagrass habitat downdrift of the project as a result of increased turbidity or excessive sedimentation. As the DEP data suggests, manatees tend to utilize Sarasota Bay more frequently than the nearshore waters of Lido Key (DEP 2000). Therefore, the adverse effects to manatees are expected to be minimal. Consultation is documented for the West Indian manatee in the Service's 2002 Biological Opinion.

7.0 SERVICE'S MITIGATION POLICY

Potential impacts of the proposed beach nourishment and groin work include those to the upper beach zone, surf zone, seagrasses, and nearshore hardbottom, if present. Impacts may include burial from actual fill placement and equilibration, burial and suffocation from suspension and settling generated from surf zone washing of the fill material, and damage from groin removal, reconstruction, and new placement.

In developing the Service's Mitigation Policy (Federal Register 46 (15), Pg. 7656), the definition of mitigation contained in the Council on Environmental Quality's National Environmental Policy Act regulations (40 CFR 1508.20[a-e]) was used.

This definition recognizes mitigation as a step-wise process that incorporates both careful project planning and compensation for unavoidable losses and represents the desirable sequence of steps in the mitigation planning process. Initially, project planning should attempt to ensure that adverse effects to fish and wildlife resources are avoided or minimized as much as possible. In many cases, however, the prospect of unavoidable adverse effects will remain in spite of the best planning efforts. In those instances, compensation for unavoidable adverse effects is the last step to be considered and should be used only after the other steps have been exhausted.

The Service's Mitigation Policy focuses on the mitigation of fish and wildlife habitat values, and it recognizes that not all habitats are equal. Thus, four resource categories, denoting habitat type of varying importance from a fish and wildlife resource perspective, are used to ensure that the mitigation planning goal will be consistent with the importance of the fish and wildlife resources involved. These categories are based on the habitat's value for the fish and wildlife species in the

project area (evaluation species) and the habitat's scarcity on a national, regional or local basis. Resource Category 1 is of the highest value and Resource Category 4, the lowest. Mitigation goals are established for habitats in each resource category.

The mitigation goal for Resource Category 1 habitats is no loss of habitat value since these unique areas cannot be replaced. The goal for Resource Category 2 habitats is no net loss of in-kind habitat value. Thus, a habitat in this category can be replaced only by the same type of habitat (i.e., in-kind mitigation). The mitigation goal for Resource Category 3 habitats is no net loss of overall habitat value. In-kind replacement of these habitats is preferred, but limited substitution of different types of habitat (out-of-kind mitigation) perceived to be of equal or greater value to replace the lost habitat value may be acceptable. The mitigation goal for Resource Category 4 habitats (considered to be of marginal value) is to avoid or minimize losses, and compensation is generally not required.

Priority habitats in the project area are seagrasses and nearshore hardbottom. These habitats are considered by the Service to be in Resource Category 2, and no net loss of in-kind habitat value is recommended. However, we consider any significant colonies of hard (stony) coral in this area to be Resource Category 1. Research suggests that two species of brain and star coral grow at a rate of approximately 0.5 centimeter per- year (Dodge 1987). Based on this information, we estimate it would take these corals, and likely other hard coral species, at least 100 years to reach one meter in diameter.

8.0 RECOMMENDATIONS

The Service provided the following recommendations in the draft FWCA report dated February 25, 2002, to further avoid and/or minimize impacts to fish and wildlife resources. In a letter dated April 26, 2002, the Corps addressed the Service's concerns and provided the following response (in italics): Where warranted, the Service provides additional comment.

1. Prior to construction, conduct seagrass surveys during the months of May through September between R-34 and R-35; R-44 and R-44.5; shore parallel survey between R-34 and R-44.5; and within the groin construction footprint. Consult with the Service regarding survey methodology prior to initiation.

   ***Corps reply**: A survey was conducted on July 3, 2001, using an underwater, vessel-towed video to identify and document potential nearshore marine resources found in the nearshore area within and adjacent to the proposed project area. Marine resource data were collected from twelve transects located perpendicular to the Lido Key shoreline. This survey, along with aerial photographs, indicated no seagrass communities were present with the proposed project area or within 500 feet offshore from the project equilibrium tow of fill. The perpendicular transects commenced at DEP monuments R-35 and continued to R-44. Due to boat draft limitations and safety concerns, video surveys were not conducted north of R-35 or south of R-44. These areas will be groundtruthed to verify the presence or absence of seagrass prior to construction. The Corps will consult with the Service regarding survey methodology prior to initiation.*

   Service reply: During a telephone conversation on July 23, 2002, the Corps and the Service discussed the methodology to be used by the contractor (CP&E) during the July 26, 2002 groundtruthing effort to determine the presence or absence of seagrass within the areas indicated above which were omitted during the initial surveys in July 2001.

   The results of the July 26, 2002 survey verified that neither seagrass nor hardbottom resources are present between R-34 and R-35; R-44 and R-44.5 (Y. Haberer, personal communication 2002).

2. Orient the pipeline corridor(s) to avoid nearshore and offshore seagrass areas (e.g., Big Sarasota Pass shoal).

***Corps reply**: The pipeline corridors(s) would be oriented to avoid seagrass areas.*

3. Develop a monitoring plan and survey methodology to determine the extent of the indirect and/or indirect effects of sand placement, groin construction, and/or borrow site dredging on seagrass and/or hardbottom. A mitigation plan will be needed if resources are adversely impacted. Prior to the initiation of the monitoring plan and/or surveys, please provide a copy to the Service for review.

***Corps reply:** Based on the information currently available, there would be no adverse impacts to significant marine resources. Therefore, a mitigation plan has not been developed. Monitoring of construction activities such as sand placement, groin construction, and borrow site is the responsibility of the Contracted as stated in our plans and specifications.*

Service reply: Though seagrass and hardbottom are not present within the project footprint, these significant marine resources are present adjacent to the area identified for sand placement and within 200 feet outside of borrow sites 6 and 7. These resources are likely to be affected by dredging and/or sand placement activities by the initial project construction and by renourishment activities every five years as projected by the Corps over the 50-year project life span. Therefore, the Service reiterates our recommendation to develop a monitoring plan and survey methodology, particularly at the borrow sites, to determine the extent of the effects on these resources as indicated in the "Corps reply" below.

4. Establish a 400 foot buffer zone between the hardbottom and borrow site boundaries of LKBA 6 and 7.

***Corps reply:** After further coordination with Ms. Trish Adams, U.S. Fish and Wildlife Service on April 19, 2002, and Mr. Mark Thompson, National Marine Fisheries Service (NMFS), on April 22, 2002, it was agreed that establishing a 200 foot buffer zone between the hardbottom and borrow site boundaries of LKBA 6 and 7 would be acceptable. By establishing the buffer zone and adhering to construction specifications, direct impacts to the adjacent hardbottom habitat is not expected. Appropriate monitoring would be conducted due to the possibility of local turbidity and siltation during dredging activities.*

5. Consult with the Service and the Florida Fish and Wildlife Conservation Commission to develop an appropriate and effective protection plan to further minimize the effects of the project on the Lido Key shorebird nesting colony.

***Corps reply:** The Contractor will keep construction activities under surveillance, management, and control to prevent impact to migratory birds and their nests. All construction personnel will be advised that migratory birds are protected by the Florida Endangered and Threatened Species Act of 1977, Title XXVIII, Chapter 372.072; the U.S. Fish and Wildlife Service pursuant to the Migratory Bird Treaty Act of 1918; and the Endangered and Threatened Species Act of 1982, as amended. If the area can not be avoided during the nesting season, then a site protection plan would be included in the plans and specifications detailing how the impacts on the birds would be avoided, minimized, or otherwise mitigated.*

6. Avoid construction during the months immediately preceding shorebird nesting season to maximize prey species availability. Timing will be determined through the development

of the shorebird monitoring plan.

Corps reply: *The contractor will keep construction activities under surveillance, management, and control to prevent impact to migratory birds and their nest in accordance with the contract plans and specifications. Again, if the area can not be avoided during nesting season, then a site protection plan would be included in the plans and specifications.*

Service reply: During the continued coordination with the Corps, the Service continued to express its concern regarding the potential abandonment of the shorebird ground-nesting colony that is present within the project footprint as a result of construction activities. This colony is comprised of State-listed shorebirds species which are sensitive to disturbance. In section 4.28 of the draft Environmental Assessment (EA), the Corps states that monitoring for shorebird nesting activities will be conducted daily. If nesting occurs, the Corps will be notified and the Migratory Bird Protection Policy, prepared by Corps in conjunction with FWC and the Audubon Society, will be implemented (Y. Haberer, personal communication 2002).

The Service requests a copy of the Migratory Bird Protection Plan for the Lido Key Shoreline Protection Project upon its completion for our records.

7. Initiate consultation with NMFS, St. Petersburg at (727) 570-5311 to address Essential Fish Habitat concerns.

Corps reply: *Coordination of the draft EA will constitute initial consultation with the NMFS under provisions of the Magnuson-Stevens Fishery Conservation and Management Act relative to Essential Fish Habitat (EFH) effects resulting from the Lido Key Shore Protection Project. Based on analysis discussed in the EA, acute and cumulative effects on EFH resulting from the addition of the proposed project features are expected to be negligible.*

8. Incorporate invasive exotic plant removal and dune restoration into the project design where appropriate.

Corps reply: *The City of Sarasota has incorporated dune restoration in previous project designs. In the event that dune restoration is identified as a specific project need, based on existing conditions, it is reasonable to assume that the City of Sarasota will continue to support restoration activities. Regarding the issue of exotic plant removal, the City of Sarasota and Sarasota county have established programs to address invasive species on public lands. The Sponsor supports exotic plant removal, but a mandate for a program implementation on upland areas outside the project area is not reasonable.*

The Service's intention was to suggest elements that the Corps may consider for inclusion in the project design that would benefit fish and wildlife resources and extend the renourishment interval. Therefore, we recommend restoration or enhancement of the dune feature of this project as part of this project.

9. Minimize direct and indirect effects of turbidity during hopper dredge operations by: ensuring proper maintenance of dredging equipment; when appropriate, use silt curtains or gunderbooms; and if possible, dredge when environmental conditions will minimize sediment transport, eliminate or reduce hopper overflow; lower hopper fill-levels; or use a recirculation system. When applicable, special equipment, such as pneuma pumps, closed buckets, large capacity dredges, and precision dredging tools and technologies as identified in the Corps' 2001 Best Management Practices, are recommended to further decrease the potential for adverse effects to marine communities.

***Corps reply**: Concur*

9.0 CONCLUSION

In conclusion, benthic resources and communities likely to be directly or indirectly affected by the project include resources such as seagrass, hardbottom, and shorebird nesting habitat. Benthic infaunal communities located in the project footprint and borrow sites will be directly impacted by the action, but are expected to recover within one to three years. Though seagrass and hardbottom resources have not been identified inside the project footprint or borrow sites, these resources are present in close proximity to different aspects of the project and may be adversely affected as a result of degraded water quality and/or sedimentation downdrift of the project. However, adverse affects to these resources and species can be minimized if project construction is scheduled outside of nesting seasons (sea turtle and shorebird), pipeline corridors avoid seagrass, the proposed 200 foot buffer is maintained at the specified borrow sites, turbidity/sedimentation monitoring plans and shorebird nesting colony protection plans are implemented with contingency plans and mitigation, if necessary.

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APPENDIX
A

FIELD OBSERVATION REPORT

PROJECT: Lido Key Federal Shore Protection Project Feasibility Study - Proposed Borrow Site Environmental Investigations
DATE: September 24, 2001
CPE COMMISSION NO.: 8486.35
LOCATION: Lido Key, Florida
CPE FIELD REPRESENTATIVES: Craig J. Kruempel and Myles Loesel
AGENCY REPRESENTATIVES: Trish Adams, U. S. Fish and Wildlife Service
Yvonne Haberer, U. S. Army Corps of Engineers

INTRODUCTION

Geotechnical investigations were conducted by Coastal Planning & Engineering, Inc. (CPE) offshore of Lido Key (City of Sarasota) in 2000 as part of the Federal Lido Key Shore Protection Project Feasibility Study. The purpose of these investigations was to identify suitable sand resources for a proposed island-wide beach renourishment project. After evaluating adjacent Gulf of Mexico bottom features of higher relative relief, referred to as "bathymetric highs", CPE identified several sites that were considered potential sources of beach quality sand. Vibracores operations were conducted in August 2000, and three potential borrow sites (5, 6 and 7) were further delineated based on sand quality and quantity evaluations.

In December 2000, magnetic and acoustic remote sensing investigations were conducted at the three proposed borrow sites in order to ascertain the presence or absence of submerged cultural resources in, and adjacent, to the area. A Klein 595 digital dual side scan sonar was employed to collect acoustic data in the survey areas. The dual frequency towfish provided standard (100 kHz) and high resolution (500 kHz) capabilities. Because of the historical nature of the area and the requirements for collecting magnetic data, acoustic data were collected along transects spaced on 150-foot intervals with a range scale of 50 meters selected to provide a combination of 100% coverage of the survey areas and high target signature definition. Acoustic data were recorded on thermal paper recorder and tied to the magnetic and positioning data by the computer navigation system. (*Offshore Borrow Areas Submerged Historic Properties Survey, Lido Key, Sarasota County, Florida.* Tidewater Atlantic Research, Inc. 19 October 2001)

The study area located approximately 6 miles offshore of Lido Key is delineated in Figure 1. No surface anomalies were identified in the vicinity of the Borrow Area 5, but the side scan sonar survey delineated several surface anomalies adjacent to Borrow Sites 6 and 7 (Figures 2 and 3) that had a signature characteristic of scattered low relief hardbottom. Several additional anomalies were delineated, but the characteristics of the record could not conclusively identify them as scattered low relief hardbottom. Due to the presence of these anomalies in close proximity to the proposed borrow sites, the City of Sarasota and the U. S. Army Corps of Engineers requested that Coastal Planning & Engineering, Inc. conducted investigative SCUBA dives near the borrow sites proposed for use in the Federal Lido Key Shore Protection Project.

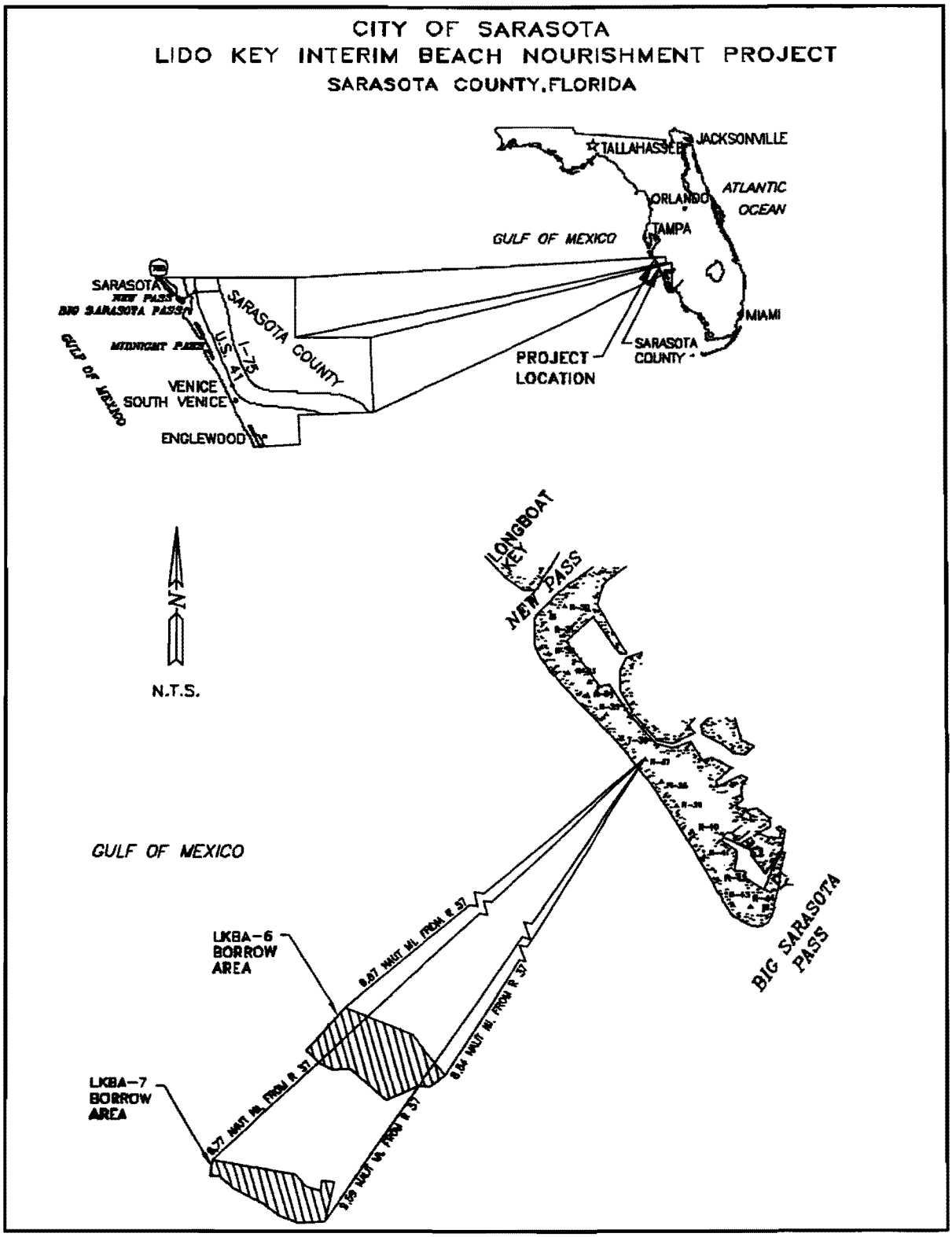


FIGURE 1

LIDO KEY BEACH NOURISHMENT PROJECT LOCATION MAP

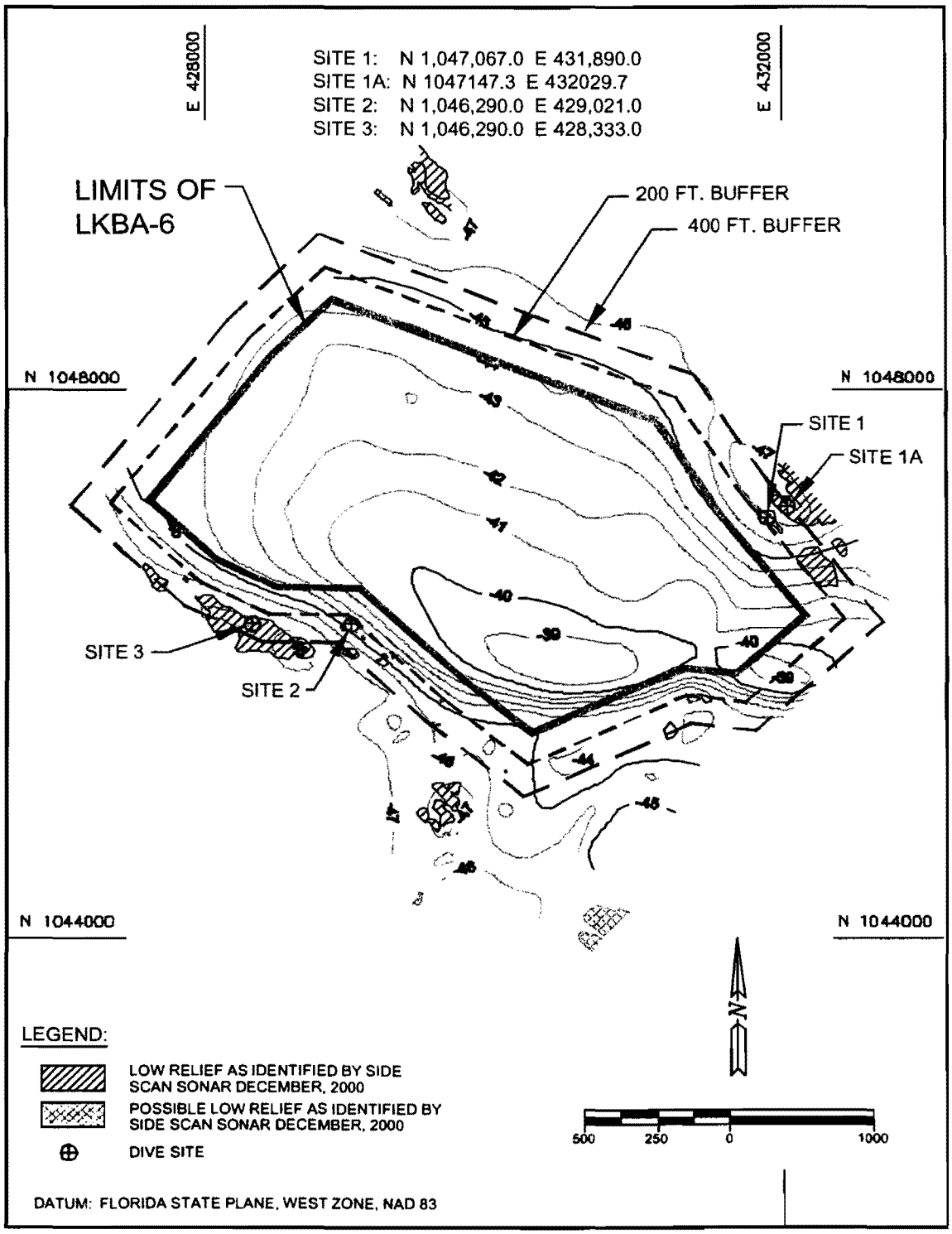


FIGURE 2

LIDO KEY FEDERAL SHORE PROTECTION
BORROW SITE ENVIRONMENTAL INVESTIGATION PROJECT
BORROW AREA 6 PLAN VIEW

COASTAL PLANNING & ENGINEERING, INC.

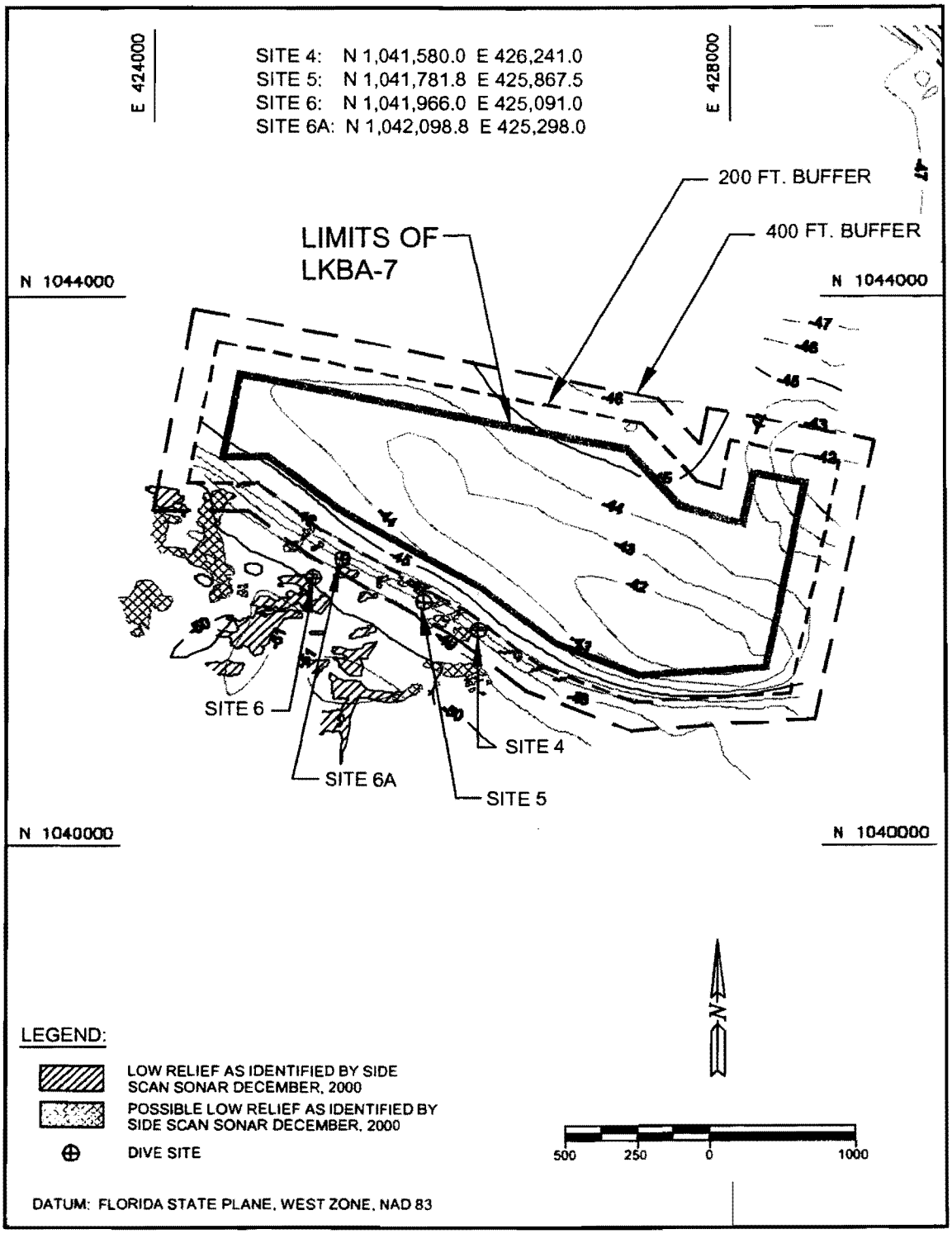


FIGURE 3

LIDO KEY FEDERAL SHORE PROTECTION
BORROW SITE ENVIRONMENTAL INVESTIGATION PROJECT
BORROW AREA 7 PLAN VIEW

COASTAL PLANNING & ENGINEERING, INC.

SURVEY METHODS

The navigation and positioning system used during the Lido Key Federal Shore Protection Project Feasibility Study – Borrow Site Environmental Investigations was a Trimble 4000 DL/RL Global Positioning System (GPS) with ProBeacon interfaced to the Coastal Oceanographic Hydrographic Data Collection and Processing (HYPACK) System. The system utilized differential correction from the U.S. Coast Guard Navigation Beacon located in Tampa. The Trimble Navigation Model 4000 DL (Differential Locator) in Tampa is designed for moderate precision static and dynamic positioning applications. It provides time and 3-dimensional station coordinates and velocity measurements at a once per second rate. The 4000 DL receives the civilian signal from the global positioning systems (GPS) NAVSTAR satellites. The locator automatically acquires and simultaneously tracks GPS satellites and precisely measures code phase and Doppler phase shift and computes positions and velocity. The 4000 DL automatically determines time, latitude, longitude, height and velocity, once per second. The Trimble 4000 DL/RL accuracy, with differential correction as used in this study, provides for a position accuracy of 1 to 3 meters. The U.S. Army Corps of Engineers has conducted tests of the U.S. Coast Guard beacons and found accuracy of within 1.5 meters, 94% of the time.

Six areas representing identified and potential marine resources were selected for investigation by SCUBA divers based on their signature and proximity to the proposed borrow sites. Coordinates (Florida State Plane Coordinate System, West Zone, NAD 83) for each dive site were entered into the HYPACK program and the survey vessel proceeded to each site. Delineation of the dive sites investigated is provided in Figures 2 and 3. Once on site, a weighted line with a buoy attached was dropped to provide subsurface and surface positioning for the divers and boat operator. Two divers entered the water and conducted their investigations of the site, noting their observations, species identified and photographically documenting significant observations. Upon completion of each site specific investigation, the divers exited the water and proceeded to the next site.

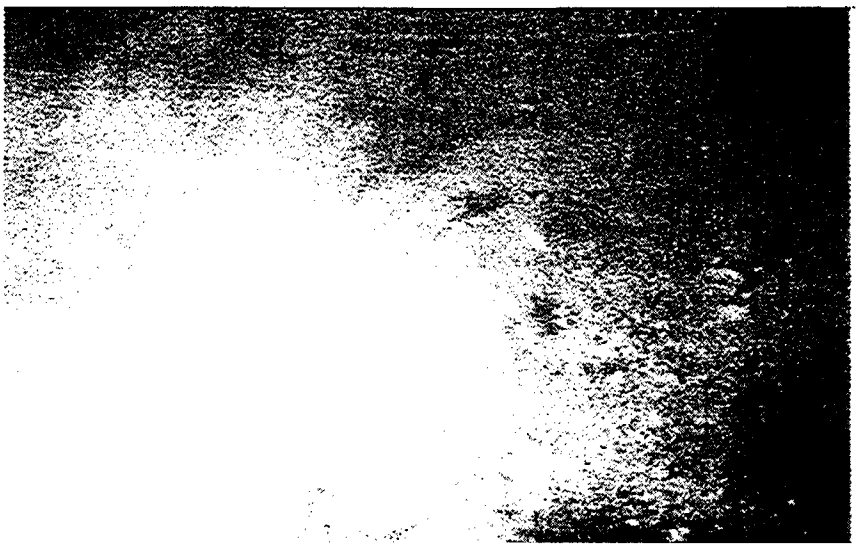
OBSERVATIONS

All dives associated with the borrow area investigations were conducted on September 24, 2001. Trish Adams (USFWS) and Craig Kruempel (CPE) performed the diving investigations while Yvonne Haberer (USACE) and Myles Loesel (CPE) served in a diver support and boat operation / navigation capacity. Sea state during the investigations was generally less than two feet, but increased to approximately three feet when a squall passed the study area later in the afternoon. After passage of the squall, sea conditions moderated slightly. Atmospheric conditions were generally partly cloudy with mild temperatures in the mid 80's. Underwater visibility was approximately three to four feet from the surface to a depth of approximately ten feet, and then increased to approximately six to eight feet once the divers reached depths in excess of ten feet. A thermocline was noted at a water depth of approximately 30 feet.

It should be noted that during the first dive, numerous dead or incapacitated benthic and motile marine species were observed. Discussions between the investigators identified the likely cause as a red tide event. This fact was later confirmed by researchers at Mote Marine Laboratory (MML), who stated

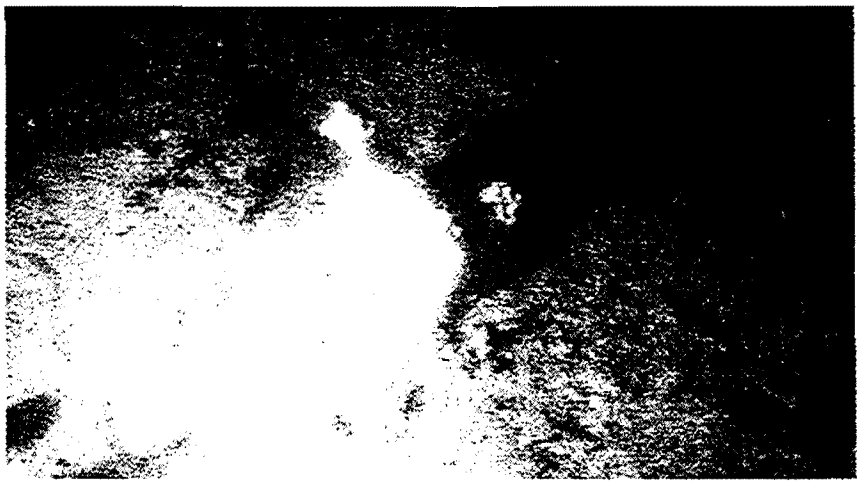
that the event had first been observed approximately two to three weeks prior to our investigations and was exacerbated by the passage of Tropical Storm Gabrielle. MML personnel stated that their monitoring indicated that the event was nearing an end as evidenced by a decrease in the concentrations of the toxic dinoflagellate *Gymnodinium breve* in water samples analyzed at the facility.

Borrow Area 6 – Dive Sites 1 and 1A: Buoys were set at Dive Site 1 and 1A using the vessel positioning described above. The dive plan called for the divers to enter the water at Dive Site 1, investigate the area and surface swim approximately 215 feet to Dive Site 1A which was described from the side scan sonar records as being more contiguous hardbottom. The divers entered the water at 1037 and proceeded to investigate Dive Site 1. The area was characterized as having a thin to moderate veneer of sand over rock, with occasional areas of exposed hardbottom ranging in height from flush with the surrounding sand (Photograph No. 1), to areas of no greater than eight inches in height. The exposed hardbottom coverage in this area was less than ten percent by visual estimation.



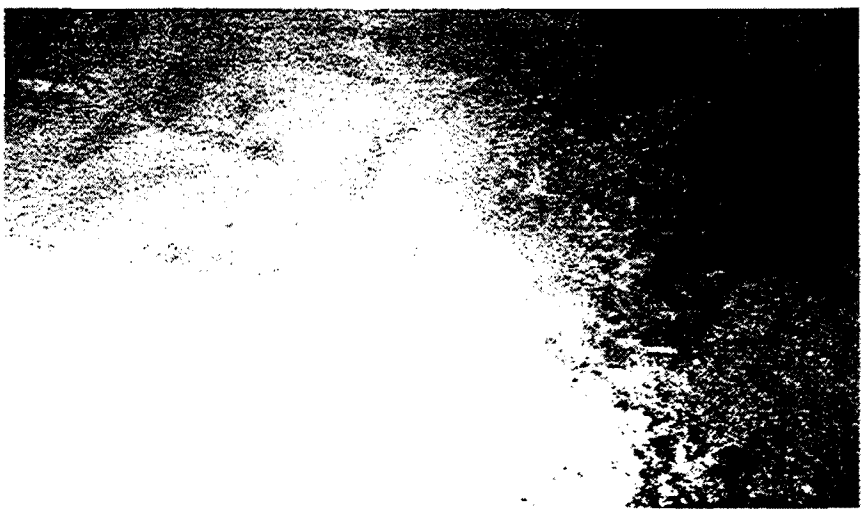
Photograph No. 1 - Sea Robin (*Prionotus ophryas*) at Dive Site 1

Two species of unidentified sponge were occasionally observed at the site, and included an orange rope sponge as well as the species documented in Photograph No. 2. Due to the feasibility level investigative nature of the study, samples of specific organisms were not obtained for identification. Several invertebrate species were identified during investigation and included the black urchin (*Echinometra lucunter*) and tests of the burrowing heart urchin *Moira artropos*; sea stars *Astropecten articulatus* and *Echinaster spinulosis*; sea biscuit (*Clypeaster rosaceus*) and the sand dollar *Mellita* sp. Due to the infrequency of observation, it is believed that the red tide event dramatically impacted the vertebrate and invertebrate populations within the study area.



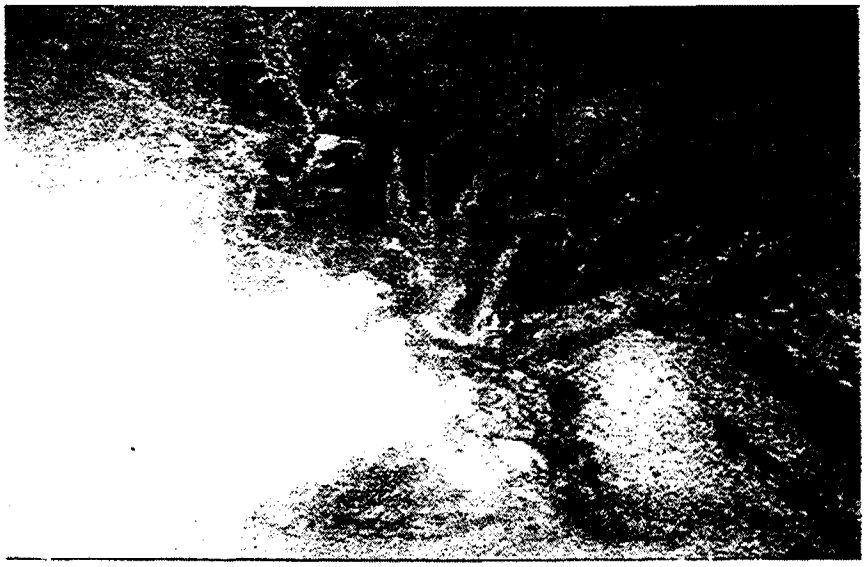
Photograph No. 2 - Unidentified sponge at Dive Site 1

Several species of macroalgae were observed during investigation of Dive Site 1, and included *Sargassum* sp. and *Caulerpa mexicana* (Photograph No. 3). Hydroids (unid. sp.) were commonly observed in those areas of exposed hardbottom. Scleractinian coral species identified at the site were limited to *Solenastrea hyades*, *Siderastrea* sp. and *Cladocora arbuscula*.



Photograph No. 3 - *Caulerpa mexicana* at Dive Site 1

During the investigation of Dive Site 1, a single small area of *Thalassia testidinum* (Photograph No. 4) and several occurrences of the octocoral *Leptogorgia virgulata* were observed. The *Thalassia testidinum* at Dive Site 1 was approximately three feet along its longest axis and varied from one to one and one-half feet in width. This single occurrence was the only observation of seagrass during the field investigations of Borrow Sites 6 and 7.



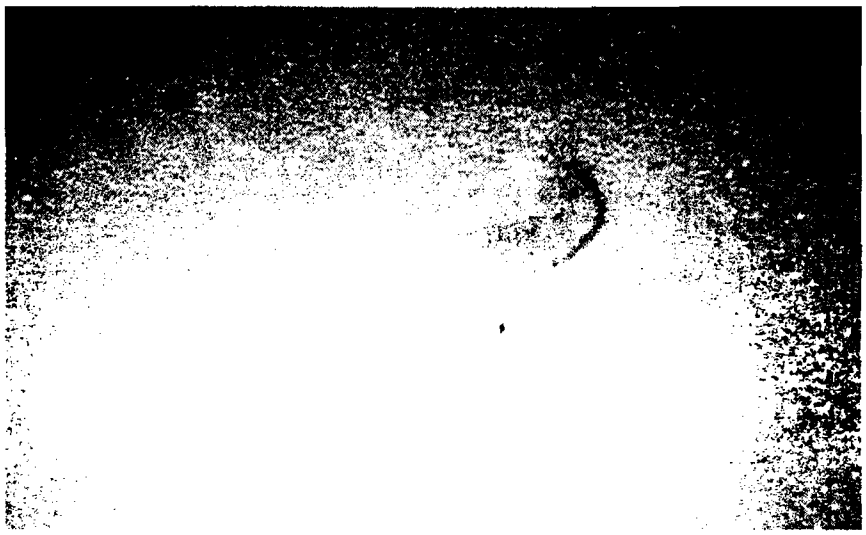
Photograph No. 4 - Seagrass species *Thalassia testudinum*

The divers surfaced at 1101 and swam to the buoy marking Dive Site 1A. This site was found to be similar to Dive Site 1 with occasionally exposed hardbottom. It should be noted that both dive sites had significant sedimentation over the hardbottom areas benthos (Photograph No. 5). With the exception of *Thalassia testudinum*, all species observed at Dive Site 1 were observed at Dive Site 1A (Photograph No. 6). The divers exited the water at 1133. The deepest depth the divers reached during these two dives was 48 feet of sea water. No tide correction was applied to dive depths.

Photograph No. 5 - Sedimentation of exposed hardbottom at Dive Site 1A

Photograph No. 6 - Unidentified rope sponge at Dive Site 1A

Borrow Area 6 – Dive Site 2: The divers entered the water at 1230 and proceeded to investigate Dive Site 2. The investigators found a predominately coarse grained sand bottom with sparse occurrences of low relief exposed hardbottom. Several detached orange rope sponges were documented at Dive Site 2 and hydroids (unid. sp.) were common on the exposed hardbottom. The echinoderm *Clypeaster rosaceus* (Photograph No. 7) and sand dollar (*Mellita* sp.) were seen at the site. A gray triggerfish (*Balistes capriscus*) was observed at the site.



Photograph No. 7 - Echinoderm (*Clypeaster rosaceus*)

The divers exited the water at 1249 and their deepest depth was 45 feet of sea water. No tide

correction was applied to the dive depth.

Borrow Area 6 – Dive Site 3: The divers entered the water at 1325 and proceeded to investigate Dive Site 3. The area was characterized as having one to four inches of sand over the base rock. In those instances where exposed hardbottom was observed, it ranged in height from a few inches (Photograph No. 8), to areas of no greater than eight inches in height. The exposed hardbottom coverage in this area was less than ten percent by visual estimation. Several species of sponge were observed at the site, and included an orange rope sponge as well as *Pseudoceratina* sp. a species common to the Gulf of Mexico (Photograph No. 9).

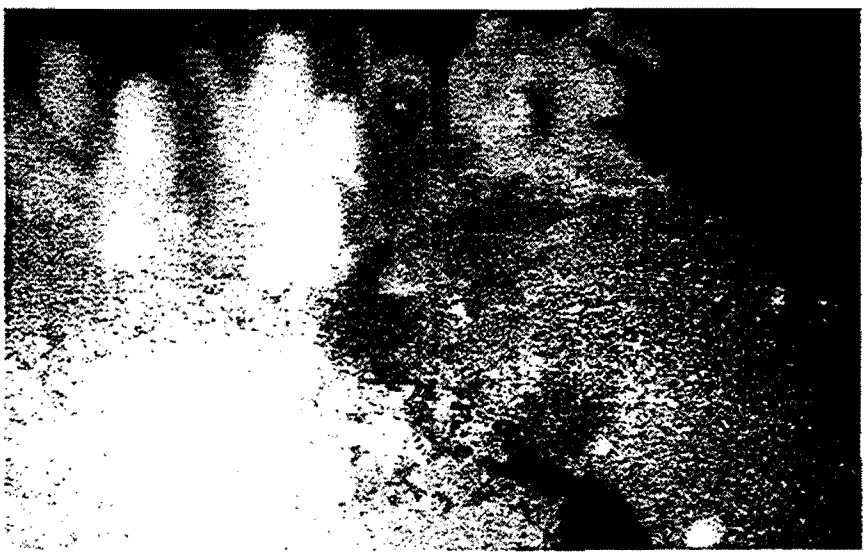
Photograph No. 8 – Sedimentation of occasional low relief hardbottom at Dive Site 3

Photograph No. 9 – *Pseudoceratina* sp. a sponge commonly found in the Lido Key area

Observed species of macroalgae at Dive Site 3, included *Sargassum* sp., *Wrangelia* sp. and *Caulerpa prolifera*. Hydroids (unid. sp.) were commonly observed in those areas of exposed hardbottom. Scleractinian coral species identified at the site were limited to *Solenastrea hyades*, *Siderastrea* sp. and *Cladocora arbuscula* and the octocoral *Leptogorgia virgulata* (Photograph No. 10).

Photograph No. 10 – *Solenastrea hyades* and *Leptogorgia virgulata*

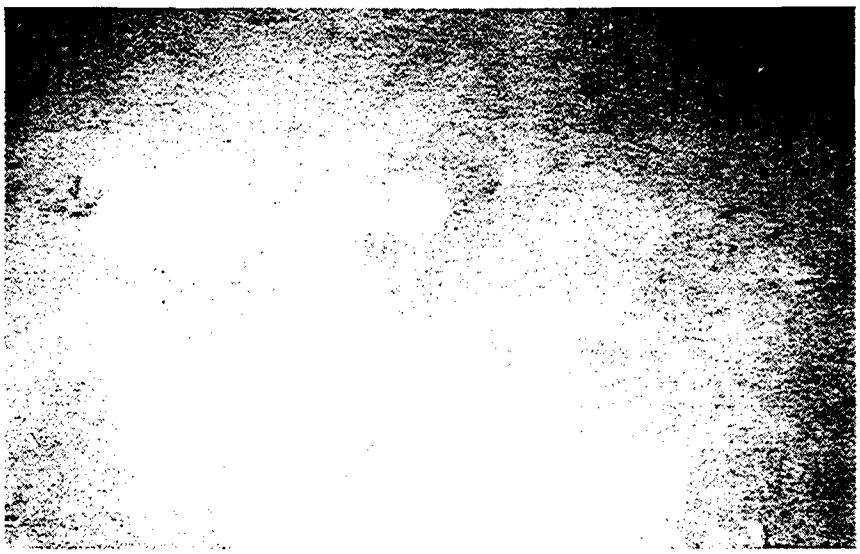
A wider range of fish was observed at this site than the others investigated. A white grunt (*Haemulon plumieri*), several tomtates (*Haemulon aurolineatum*) and a red grouper (*Epinephelus morio*) were documented at Dive Site 3 (Photograph No. 11). Those individuals observed at Dive Site 3 exhibited signs of stress such as erratic movement and "gulping" water. Although no tests were conducted, it could be assumed that the red tide has decreased oxygen levels in the water column. The sea star *Echinaster spinulosis* was documented at Dive Site 3.



Photograph No. 11 – Red Grouper and snapper near *Pseudoceratina* sp.

The divers exited the water at 1350 and their deepest depth was 48 feet of sea water. No tide correction was applied to the dive depth.

Borrow Area 7 – Dive Site 4: The divers entered the water at 1448 and proceeded to investigate Dive Site 4. This area was characterized by the side scan sonar record as possible low relief habitat that should be investigated to document the presence or absence of hardbottom resources. The investigation revealed that the area was comprised of fine sand with a flat profile, bordered by coarser sand with sand waves of three to four inches. Numerous dead Florida fighting conchs (*Strombus alatus*) and fish were observed at this site. Living sand dollars (*Mellita* sp.) and the pale anemone *Aiptasia* sp. (Photograph No. 12) were the predominant invertebrates documented.



Photograph No. 12 – Pale anemone (*Aiptasia* sp.) at Dive Site 4

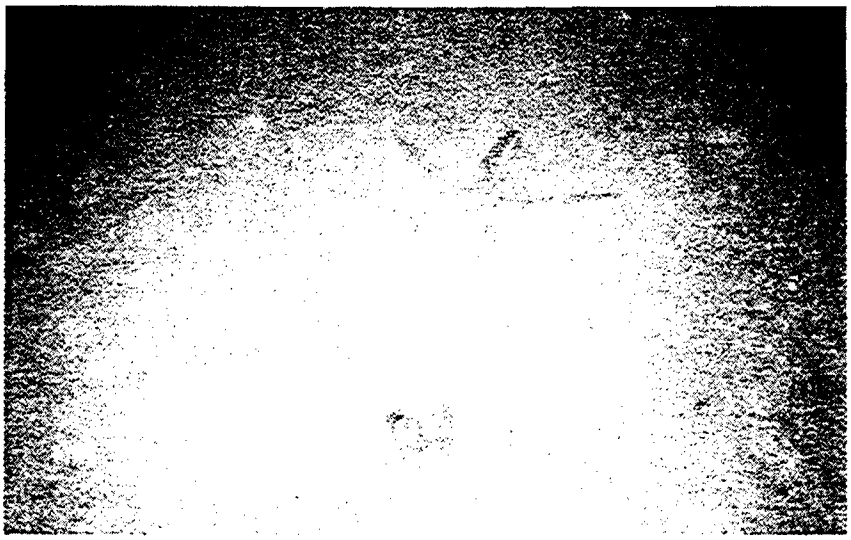
The divers exited the water at 1503 and their deepest depth was 50 feet of sea water. No tide correction was applied to the dive depth. After exiting the water, the investigators discussed their observations. It was agreed that the irregular profile of the finer sand bordering coarser material with waves likely contributed to the delineation of this area as possible hardbottom. The investigators agreed that no further investigation of possible hardbottom sites would be required, and they would be classified as sand substrates with differing material characteristics.

Borrow Area 7 – Dive Site 5: This site was categorized during the side scan sonar survey data reduction as an area of possible hardbottom. Based on the findings at Dive Site 4, the investigators eliminated this site from further study.

Borrow Area 7 – Dive Site 6: The divers entered the water at 1523 and proceeded to investigate Dive Site 6. The site was selected as the border between sand bottom and low relief hardbottom. The investigators entered the water and found a fine sand layer, with a flat profile bordered by coarser

material with sand waves four to six inches in height. The divers swam in a southwest direction in an attempt to locate hardbottom resources as they were mapped by the side scan sonar, but were unable to confirm their presence.

The burrowing heart urchin *Moira artropos*, sea star *Astropecten articulatus* (Photograph No. 13) and unidentified polychaete worms were documented at Dive Site 6. The divers exited the water at 1539 and their deepest depth was 52 feet of sea water. No tide correction was applied to the dive depth.



Photograph No. 13 – *Astropecten articulatus*

Borrow Area 7 – Dive Site 6A: There was interest by the investigators in further confirming that those areas identified as possible hardbottom resources did not contain any significant habitats. Therefore, Dive Site 6A was selected based on its proximity to Borrow Area 7. A diver entered the water at 1543 and found the area to be similar to that observed at Dive Sites 4 and 6. The only exception was the presence of several deposits of fine material approximately three to four feet across. The investigator found that there was generally two to six inches of fine material (Photograph No. 14) over much coarser sand. Surrounding these areas of fine material "pockets" was a region of coarser material with the typical sand wave configuration observed previously. Based on the field investigations, those areas of possible hardbottom as described from the side scan sonar records are likely soft bottom regions of differing sand characteristics and not areas of low relief hardbottom.

Photograph No. 14 – Fine material pocket at Dive Site 6A

CONCLUSIONS

The investigating team was able to confirm the presence of scattered low relief hardbottom resources adjacent to the proposed borrow sites. The presence of these resources, at the "base" of bathymetric highs, is consistent with CPE's findings adjacent to sand resources throughout the nearshore and offshore Gulf of Mexico waters of west Florida. These habitats, and the biota associated with them, are frequently exposed to sedimentation and increased turbidity conditions from natural events. There appears to have been a more dramatic impact on the viability of the habitats from the recent red tide event than from the sedimentation occurring after Tropical Storm Gabrielle, although conclusive evidence is not available to confirm this assumption.

The investigators concur that the low relief habitats documented adjacent to Borrow Areas 6 and 7 are comprised primarily of unconsolidated sediments with scattered hardbottom. A conservative estimate of hardbottom in the area was approximately ten percent of the region as defined by the side scan sonar survey. Using this assumption as the basis for quantitative evaluation of the low relief marine resources in close proximity to the proposed borrow sites, no low relief hardbottom is present within 200 feet of the defined limits of Borrow Area 6. Approximately 16,704 square feet (0.38 acres) of low relief hardbottom is estimated to be present within 400 feet of the defined limits of Borrow Area 6. Adjacent to the defined limits of Borrow Area 7, there is no low relief hardbottom within 200 feet, and 4,552 square feet (0.10 acres) within 400 feet of the site proposed for use in the upcoming Federal Shore Protection Project. Based on the investigating team's observations, the U. S. Fish and Wildlife Service and U. S. Army Corps of Engineers can proceed with the environmental evaluations required to complete the Feasibility Study for the Lido Key Federal Shore Protection Project.

APPENDIX
B

RECEIVED

BY:----------

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, FL 33702
(727) 570-5312; Fax 570-5517
http://caldera.sero.nmfs.gov

APR -9 2002

F/SER3:DLK

Ms. Trish Adams
South Florida Ecological Services Office
U.S. Fish and Wildlife Service
1339 20th Street
Vero Beach, Florida 32960

Dear Ms. Adams :

This letter is in reply to the request for comments on the Draft Fish and Wildlife Coordination Act Report- Lido Key Shore Protection Project, Lido Key, Sarasota County Florida (including the biological opinion [BO] for the project) received by the National Marine Fisheries Service (NMFS) Protected Resource Division (PR) on February 28, 2002. The U.S. Fish and Wildlife Service (FWS) has requested comments from NMFS PR regarding project effects to protected marine species, to be considered by FWS in preparing the final report for this project. The report evaluates the environmental effects of sand placement and groin construction along approximately two miles of Lido Key shoreline.

NMFS and FWS share jurisdiction over sea turtle issues, with NMFS responsible for sea turtles in the aquatic environment. The issue of sea turtle impacts from hopper dredging to obtain sand for this project is currently being addressed in a separate consultation by NMFS. In the above referenced draft report and BO FWS has included analysis of the potential effects that the presence of groins may have on sea turtles in the aquatic environment (i.e. interfering with nesting turtle access to the beach, trapping of hatchlings, and the concentration of predators) as well as potential foraging habitat issues. NMFS feels that FWS has adequately addressed these issues, and has no additional comments.

NMFS PR agrees with FWS that the U.S. Army Corps of Engineers, who constitute the action agency on this project, needs to consult with the NMFS' Habitat Conservation Division because of the potential impact to essential fish habitat (EFH), pursuant to the EFH consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1855(b)(2) and 50 CFR 600.905-.930, Subpart K). The HCD biologist for this region is Mark Thompson. If you have any questions about consultation regarding essential fish habitat for this project, please contact Mr. Thompson at (850) 234-5061.

If you have any questions, please contact me at the number above or by e-mail at Dennis.Klemm@noaa.gov.

Sincerely,

Dennis L. Klemm
Fishery Biologist

File: 1514-22 c.
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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702

April 11, 2002

Mr. James J. Slack, Field Supervisor
United States Department of the Interior
Fish and Wildlife Service
South Florida Ecosystems Office
1339 20th Street
Vero Beach, Florida 32960

Dear Mr. Slack:

The National Marine Fisheries Service (NMFS) has reviewed the Draft Fish and Wildlife Coordination Act Report (CAR) dated February 25, 2002, on the environmental effects of sand placement of 982,000 cubic yards of material and groin construction along 1.9 miles of Lido Key Shoreline in the Gulf of Mexico, Sarasota County, Florida, as prepared by the Fish and Wildlife Service (FWS). Based on the review of the information provided and discussion with your staff, the NMFS has concerns with the potential impact to seagrass, live hard bottom, and non-vegetated bottoms within the influence of the project. The area of influence includes 1.9 miles of beach area, borrow sites, pipeline corridors, and the adjacent area that may be impacted by turbidity and sedimentation downdrift.

Seagrasses, live hard bottoms, and non-vegetated bottoms are identified as Essential Fish Habitat (EFH) by the Gulf of Mexico Fishery Management Council (GMFMC). Specifically, seagrass is identified as EFH for postlarval/juvenile and subadult pink shrimp, postlarval/juvenile red drum, juvenile red and gag groupers, yellowtail and lane snappers, and postlarval/juvenile and adult gray snapper. Other habitats in the area benefit Spanish mackerel, king mackerel, cobia, and bluefish as well. Detailed information on red drum, shrimp, and other Federally managed fisheries and their EFH is provided in the 1998 amendment of the Fishery Management Plans for the Gulf of Mexico prepared by the GMFMC. The 1998 generic amendment was prepared as required by the Magnuson-Stevens Fishery Conservation and Management Act.

Seagrasses were noted to have existed within the footprint and south of the proposed fill area during the 1991 seagrass survey. The 2001 survey only showed seagrasses offshore of the project. Seagrass areas may naturally wax and wane throughout the photic zone and the degree of direct and indirect impact can only be assessed during the seagrass growing season (May through September) just prior to project construction. Also, adjacent hard bottom habitat exist in the nearshore and offshore areas.

Analysis of the material to be dredged indicates that the silt content varies between 2.19 to 4.05 percent, which relates to the possible placement of between 20,622 to 39,771 cubic yards of silt along the beach. In addition to the direct placement, a main concern is the potential impact to the adjacent fishery habitats as a result of the redistribution of the silt that may occur from both the placement and the dredging.

The FWS has adequately identified potential project impacts and has provided recommendations to avoid and minimize these impacts to fishery resources. These recommendations include providing an updated seagrass survey prior to construction, developing a monitoring plan to determine the extent of the direct and indirect impacts of dredged material placement/borrow site dredging, providing mitigation if impacts do occur, establishing a 400-foot buffer in certain areas, placing the pipeline in areas devoid of seagrass, and minimizing direct and indirect effects of turbidity from the hopper dredging. Therefore, the NMFS concurs with the recommendations and conclusions of the CAR. We appreciate the opportunity to provide these comments and request that the final CAR be provided to our Panama City Office at 3500 Delwood Beach Road in Panama City, Florida 32408. If you have any questions, please contact Mark Thompson at 850/234-5061.

Sincerely,

W. Mark Thompson for
Andreas Mager, Jr.
Assistant Regional Administrator
Habitat Conservation Division

cc:
F/SER4

email
F/SER3

United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

February 25, 2002

Colonel James G. May
U.S. Army Corps of Engineers
Jacksonville District
Post Office Box 4970
Jacksonville, Florida 32232-0019

Service Log No.: 4-1-02-F-873
Dated: April 9, 2001
Sponsor: City of Sarasota
County: Sarasota

Dear Colonel May:

This document is the Fish and Wildlife Service's (Service) Biological Opinion based on our review of the proposed Lido Key Shoreline Protection Project in Sarasota County, Florida, and its effects on the federally-listed threatened loggerhead sea turtle (*Caretta caretta*), endangered green sea turtle (*Chelonia mydas*), endangered leatherback sea turtle (*Dermochelys coriacea*), and endangered hawksbill sea turtle (*Eretmochelys imbricata*) in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Although one endangered Kemp's ridley (*Lepidochelys kempii*) and one leatherback sea turtle have been documented nesting in Sarasota County, the likelihood that either species will nest on Lido Key during project construction is low. In addition, no hawksbill sea turtles have ever been documented as nesting in Sarasota County. Therefore, since loggerhead and green sea turtles are the only species that predictably and regularly nest in Sarasota County, this biological opinion pertains only to those two species.

This Biological Opinion is based on information provided in the Public Notice for the proposed project, field investigations, meetings, letter correspondence, email correspondence, and phone conversations with the U.S Army Corps of Engineers (Corps); the Corps consultants, Dial Cordy and Associates and Coastal Planning and Engineering; the Florida Fish and Wildlife Conservation Commission (FWC), Mote Marine Laboratory, and other sources of information. A complete administrative record of this consultation is on file at the South Florida Ecological Services Office in Vero Beach, Florida.

CONSULTATION HISTORY

- On April 9, 2001, the Corps submitted a Biological Assessment and determined the actions of the proposed project are not likely to adversely affect the manatee, but may affect the threatened loggerhead and endangered green sea turtles. Consequently, the Corps requested initiation of formal consultation with the Service concerning above listed species.

- On November 5, 2001, the Service requested and received additional sea turtle nesting information during a telephone conversation with Mote Marine Laboratory.

- On January 7, 2002, the Service requested and received additional sea turtle nesting information during a telephone conversation with Mote Marine Laboratory.

- This Biological Opinion is submitted in conjunction with the Service's draft Fish and Wildlife Coordination Act report, in accordance with the provisions of the Fish and Wildlife Coordination Act of 1958 (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*).

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The Corps proposes to construct a berm 80 feet wide with a 10:1 slope along 1.74 miles of shoreline, from Florida Department of Environmental Protection (DEP) monument R-34 to R-44.5 (CP&E, 2001). An estimated 982,000 cubic yards of material will be obtained from three offshore borrow sites located approximately ten nautical miles offshore, and identified as Lido Key Borrow Areas (LKBA) 5, 6, and 7. Due to the distance from the beach to the borrow areas, a hopper dredge and barge will likely be used to acquire and deliver the substrate.

The mean grain size of sediments in candidate borrow areas LKBA's 5, 6, and 7 were 0.40, 0.32, 0.43 mm, and silt comprised 2.19, 4.05, and 2.48 percent of sediments, respectively. In 2001, the existing beach had an average grain size of 0.24 mm, and comprise 1.93 percent silt. In comparison, the borrow site material is more coarse than the material obtained from the existing beach between R-37 and R-39. However, this section of beach was renourished in 2001 and the sediment data relating to that project has not been made available.

Three terminal groins will be constructed between R-42 and R-44.5 using 2-ton armor stone over 400 lb. underlayer stone and 1-20 lb. bedding stone. The bedding stone will be underlain with filter fabric at -3.5 feet NGVD, and the armor stone will be placed at 5.0 feet NGVD. Groins will be 12 feet (top) to 46 feet (bottom) wide, with 45 percent side slopes. They will have total lengths of approximately 340, 520, and 1,320 feet for the northern, central, and southern groins, respectively. For the north and central groins, approximately half of the length of the

groin will be above 0 feet NGVD; water level on the seaward half will average approximately one-foot (-1 foot NGVD). Water depth at the terminal end of the groin will be approximately two feet (-2 feet NGVD). The exposed portion of the southern groin/bulkhead will be above 0 feet NGVD; it will not extend seaward beyond mean high water.

The Corps anticipates that without the project, erosion near the center of the island is likely to continue, and the transport of beach material into nearshore shoal areas is probable. Certain areas on the island will lose beach and dune habitat, while others may gain beach or shallow-water habitat from the redistribution of sediments.

STATUS OF THE SPECIES/CRITICAL HABITAT

Species/critical habitat description

Loggerhead Sea Turtle

The loggerhead sea turtle (*Caretta caretta*), listed as a threatened species on July 28, 1978 (43 FR 32800), inhabits the continental shelves and estuarine environments along the margins of the Atlantic, Pacific, and Indian Oceans. Loggerhead sea turtles nest within the continental U.S. from Louisiana to Virginia. Major nesting concentrations in the U.S. are found on the coastal islands of North Carolina, South Carolina, and Georgia, and on the Atlantic and Gulf coasts of Florida (Hopkins and Richardson 1984).

No critical habitat has been designated for the loggerhead sea turtle.

Green Sea Turtle

The green sea turtle (*Chelonia mydas*) was federally listed as a protected species on July 28, 1978 (43 FR 32800). Breeding populations of the green turtle in Florida and along the Pacific Coast of Mexico are listed as endangered; all other populations are listed as threatened. The green turtle has a worldwide distribution in tropical and subtropical waters. Major green turtle nesting colonies in the Atlantic occur on Ascension Island, Aves Island, Costa Rica, and Surinam. Within the U.S., green turtles nest in small numbers in the U.S. Virgin Islands and Puerto Rico, and in larger numbers along the east coast of Florida, particularly in Brevard, Indian River, St. Lucie, Martin, Palm Beach, and Broward Counties (National Marine Fisheries Service and U.S. Fish and Wildlife Service 1991a). Nesting also has been documented along the Gulf coast of Florida on Santa Rosa Island (Okaloosa and Escambia Counties) and from Pinellas County through Collier County (Florida Department of Environmental Protection, unpublished data). Green turtles have been known to nest in Georgia, but only on rare occasions (Georgia Department of Natural Resources, unpublished data). The green turtle also nests sporadically in North Carolina and South Carolina (North Carolina Wildlife Resources Commission,

unpublished data; South Carolina Department of Natural Resources, unpublished data). Unconfirmed nesting of green turtles in Alabama has also been reported (Bon Secour National Wildlife Refuge, unpublished data).

Critical habitat for the green sea turtle has been designated for the waters surrounding Culebra Island, Puerto Rico, and its outlying keys.

Life history

Loggerhead Sea Turtle

Loggerheads are known to nest from one to seven times within a nesting season (Talbert *et al.* 1980, Richardson and Richardson 1982, Lenarz *et al.* 1981, among others); the mean is approximately 4.1 (Murphy and Hopkins 1984). The interval between nesting events within a season varies around a mean of about 14 days (Dodd 1988). Mean clutch size varies from about 100 to 126 along the southeastern United States coast (National Marine Fisheries Service and U.S. Fish and Wildlife Service 1991b). Nesting migration intervals of 2 to 3 years are most common in loggerheads, but the number can vary from 1 to 7 years (Dodd 1988). Age at sexual maturity is believed to be about 20 to 30 years (Turtle Expert Working Group 1998).

Green Sea Turtle

Green turtles deposit from one to nine clutches within a nesting season, but the overall average is about 3.3. The interval between nesting events within a season varies around a mean of about 13 days (Hirth 1997). Mean clutch size varies widely among populations. Average clutch size reported for Florida was 136 eggs in 130 clutches (Witherington and Ehrhart 1989). Only occasionally do females produce clutches in successive years. Usually 2, 3, 4, or more years intervene between breeding seasons (National Marine Fisheries Service and U.S. Fish and Wildlife Service 1991a). Age at sexual maturity is believed to be 20 to 50 years (Hirth 1977).

Population dynamics

Loggerhead Sea Turtle

Total estimated nesting in the Southeast is approximately 50,000 to 70,000 nests per year (National Marine Fisheries Service and U.S. Fish and Wildlife Service 1991b). In 1998, there were over 80,000 nests in Florida alone. From a global perspective, the southeastern U.S. nesting aggregation is of paramount importance to the survival of the species and is second in size only to that which nests on islands in the Arabian Sea off Oman (Ross 1982, Ehrhart 1989, National Marine Fisheries Service and U.S. Fish and Wildlife Service 1991b). The status of the Oman colony has not been evaluated recently, but its location in a part of the world that is vulnerable to disruptive events (e.g., political upheavals, wars, catastrophic oil spills) is cause for considerable concern (Meylan *et al.* 1995). The loggerhead nesting aggregations in Oman, the

southeastern U.S., and Australia account for about 88 percent of nesting worldwide (National Marine Fisheries Service and U.S. Fish and Wildlife Service 1991b). About 80 percent of loggerhead nesting in the southeastern U.S. occurs in six Florida counties (Brevard, Indian River, St. Lucie, Martin, Palm Beach, and Broward Counties) (National Marine Fisheries Service and U.S. Fish and Wildlife Service 1991b).

Green Sea Turtle

About 200 to 1,100 females are estimated to nest on beaches in the continental U.S. In the U.S. Pacific, over 90 percent of nesting throughout the Hawaiian archipelago occurs at the French Frigate Shoals, where about 200 to 700 females nest each year. Elsewhere in the U.S. Pacific, nesting takes place at scattered locations in the Commonwealth of the Northern Marianas, Guam, and American Samoa. In the western Pacific, the largest green turtle nesting aggregation in the world occurs on Raine Island, Australia, where thousands of females nest nightly in an average nesting season. In the Indian Ocean, major nesting beaches occur in Oman where 6,000 to 20,000 females are reported to nest annually.

Status and distribution

Loggerhead Sea Turtle

Genetic research (mtDNA) has identified four loggerhead nesting subpopulations in the western North Atlantic: (1) the Northern Subpopulation occurring from North Carolina to around Cape Canaveral, Florida (about 29° N.); (2) South Florida Subpopulation occurring from about 29° N. on Florida's east coast to Sarasota on Florida's west coast; (3) Northwest Florida Subpopulation occurring at Eglin Air Force Base and the beaches near Panama City; and (4) Yucatán Subpopulation occurring on the eastern Yucatán Peninsula, Mexico (Bowen 1994, 1995; Bowen *et al.* 1993; Encalada *et al.* 1998). These data indicate that gene flow between these four regions is very low. If nesting females are extirpated from one of these regions, regional dispersal will not be sufficient to replenish the depleted nesting subpopulation. The Northern Subpopulation has declined substantially since the early 1970s, but most of that decline occurred prior to 1979. No significant trend has been detected in recent years (Turtle Expert Working Group 1998, 2000). Adult loggerheads of the South Florida Subpopulation have shown significant increases over the last 25 years, indicating that the population is recovering, although a trend could not be detected from the State of Florida's Index Nesting Beach Survey program from 1989 to 1998. Nesting surveys in the Northwest Florida and Yucatán Subpopulations have been too irregular to date to allow for a meaningful trend analysis (Turtle Expert Working Group 1998, 2000).

Threats include incidental take from channel dredging and commercial trawling, longline, and gill net fisheries; loss or degradation of nesting habitat from coastal development and beach armoring; disorientation of hatchlings by beachfront lighting; excessive nest predation by native

and non-native predators; degradation of foraging habitat; marine pollution and debris; watercraft strikes; and disease. There is particular concern about the extensive incidental take of juvenile loggerheads in the eastern Atlantic by longline fishing vessels from several countries.

Green Sea Turtle

Total population estimates for the green turtle are unavailable, and trends based on nesting data are difficult to assess because of large annual fluctuations in numbers of nesting females. For instance, in Florida, where the majority of green turtle nesting in the southeastern U.S. occurs, estimates range from 200 to 1,100 females nesting annually. Populations in Surinam, and Tortuguero, Costa Rica, may be stable, but there is insufficient data for other areas to confirm a trend.

A major factor contributing to the green turtle's decline worldwide is commercial harvest for eggs and food. Fibropapillomatosis, a disease of sea turtles characterized by the development of multiple tumors on the skin and internal organs, is also a mortality factor and has seriously impacted green turtle populations in Florida, Hawaii, and other parts of the world. The tumors interfere with swimming, eating, breathing, vision, and reproduction, and turtles with heavy tumor burdens may die. Other threats include loss or degradation of nesting habitat from coastal development and beach armoring; disorientation of hatchlings by beachfront lighting; excessive nest predation by native and non-native predators; degradation of foraging habitat; marine pollution and debris; watercraft strikes; and incidental take from channel dredging and commercial fishing operations.

Analysis of the species/critical habitat likely to be affected

The proposed action has the potential to adversely affect nesting females, nests, and hatchlings within the proposed project area. The effects of the proposed action on sea turtles will be considered further in the remaining sections of this biological opinion. Potential effects include destruction of nests deposited within the boundaries of the proposed project, harassment in the form of disturbing or interfering with female turtles attempting to nest within the construction area or on adjacent beaches as a result of construction activities, harm to nesting females and hatchlings by heavy equipment, entrapment of nesting females and hatchlings by groins, disorientation of hatchling turtles on beaches adjacent to the construction area as they emerge from the nest and crawl to the water as a result of project lighting, increased hatchling predation due to predator concentration at the groins, and behavior modification of nesting females due to escarpment formation within the project area during a nesting season resulting in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs. The quality of the placed sand could affect the ability of female turtles to nest, the suitability of the nest incubation environment, and the ability of hatchlings to emerge from the nest.

Critical habitat has not been designated in the continental United States; therefore, the proposed action would not result in an adverse modification.

ENVIRONMENTAL BASELINE

Status of the species within the action area

The distribution of sea turtle nesting activity on Florida's Southwest Gulf Coast (Sarasota, Charlotte, Lee, and Collier Counties) is understood less than that of the East Coast epicenter of sea turtle nesting between Brevard and Palm Beach counties (Addison *et al.* 2000). Ten to twelve percent of the total nesting activity on Florida's beaches occurs on Florida's Gulf Coast (Addison *et al.* 2000). During the 1993 to 2000 nesting seasons, Sarasota, Charlotte, Collier, and Lee Counties have accounted for 42,11, 15, and 10 percent of the overall nesting in the southern Gulf coast region, respectively. During the 2000 nesting season, of the 34.7 miles of Sarasota County shoreline surveyed, data show a total of 6194 sea turtle emergences (3571 nests and 2623 false crawls) according to the FWC's Statewide Sea Turtle Nesting Survey Data, 2000 (Table 1).

Table 1: Sarasota County Sea Turtle Nesting 1993-2001 (FWC Statewide Sea Turtle Nesting Survey Data, 2000)

Year	Survey Length (km)	*C. caretta* Nest	*C. caretta* False Crawl	*C. mydas* Nest	*C. mydas* False Crawl	*L.kempii* Nest	*L. kempii* False Crawl
2000	55.8	3562	2621	9	2	0	0
1999	53.9	3316	2392	0	0	2	0
1998	53.8	4146	4034	3	0	0	0
1997	53.8	3438	2378	4	0	0	0
1996	53.8	3064	2602	1	0	0	0
1995	53.8	3502	3535	0	0	0	0
1994	53.9	2543	2050	5	0	0	0
1993	53.9	1916	2067	0	0	0	0

One Kemp's ridley sea turtle was documented nesting on Siesta Key, Sarasota County, twice during the 1999 nesting season. The turtle was photo documented during each nesting event and tissue from hatchlings is documented at University of Florida (J. Foote, Mote Marine Lab, personal communication 2002). Kemp's ridley sea turtles sporadically nest in Florida, only six nests have been identified between the 1993 and 1999 nesting seasons (FWC Statewide Sea Turtle Nesting Survey Data, 2000). Although Siesta Key is due south of Lido Key, Kemp's ridley sea turtles are not addressed in this opinion due to the irregular and unpredictable nature of Kemp's ridley nesting activity in Florida and the unlikelihood that a Kemp's ridley turtle would nest on Lido Key during project construction.

During the 2001 nesting season, one leatherback sea turtle was photo documented nesting on Longboat Key, Sarasota County (J. Foote, Mote Marine Lab, personal communication 2002).

Leatherback sea turtles regularly nest in the U.S. in Puerto Rico, the U.S. Virgin Islands, and along the Atlantic coast of Florida as far north as Georgia (National Marine Fisheries Service and U.S. Fish and Wildlife Service 1992). Leatherback nesting also has been reported on the northwest coast of Florida (LeBuff 1990; Florida Department of Environmental Protection, unpublished data). A single false crawl has been observed on Sanibel Island (LeBuff 1990). Although Longboat Key is due north of Lido Key, leatherback sea turtles are not addressed in this opinion due to the irregular and unpredictable nature of leatherback sea turtle nesting activity in Southwest Florida and the unlikelihood that a leatherback sea turtle would nest on Lido Key during project construction.

Loggerhead Sea Turtle

The loggerhead sea turtle nesting and hatching season for Southern Gulf of Mexico beaches (includes Pinellas through Monroe Counties in Florida) extends from April 1 through November 30. Incubation ranges from about 45 to 95 days.

Lido Key is a small barrier island located in Sarasota County, Florida. The island is approximately 2.44 miles long, and ranges from 100 to 2,500 feet wide. The entire length of the Lido Key shoreline, including the beaches at the north and south ends of the island (2.6 miles), is surveyed daily from May through October for sea turtle nesting activity. Although loggerhead, green, leatherback and Kemp's ridley sea turtles are all known to nest in Sarasota County, all nesting activity on Lido Key has been by loggerhead sea turtles (Table 2).

Table 2: Lido Key Loggerhead Nesting Data 1993-2001 (J.Foote, Mote Marine Lab, pers. comm., 2001)

Year	Nest	False Crawl
2001	16	57
2000	59	52
1999	48	57
1998	42	95
1997	45	44
1996	50	35
1995	34	50
1994	37	34
1993	35	35

Prior to the establishment of the Sarasota County lighting ordinance in 1997, beach front lighting associated with private homes, hotels, street lights, and automobiles attributed to the high level of sea turtle disorientation recorded on Lido Key. Compliance with the lighting ordinance has greatly decreased disorientation along Lido Key; however, sea turtles continue to become

disoriented near the hotels and in other areas where automobile lights illuminate the beach (J. Foote, Mote Marine Lab, personal communication, 2001). Nesting activity is greater on the northern end of Lido Key where development is minimal. It has been reported nest inundation is a common occurrence due to the low beach slope and total beach elevation existing along the Lido Key shoreline (J. Foote, Mote Marine Lab, personal communication, 2001).

Green Sea Turtle

The green sea turtle nesting and hatching season for Southern Florida Gulf of Mexico beaches (includes Pinellas through Monroe Counties) extends from May 15 through October 31. Incubation ranges from about 45 to 75 days.

Between 1993 and 2000, ten percent of all green sea turtle nesting on the west coast of Florida occurred in Sarasota County. More then 50 percent of all green sea turtle nesting activity within Sarasota County occurs on the southern end of the county, on Manasota Key. No green turtle nesting activity has ever been documented on Lido Key; however, green turtles have nested on neighboring Siesta Key.

Factors affecting the species environment within the action area

In the 1920's, Lido Key was created by dredge and fill activities within a group of mangrove islands formerly known as the Creole Isles. Today, Lido Key can be described as highly developed (commercially, privately and publicly) resulting in extensive recreational use of the beach. Hotels, restaurants, condominiums, private homes, and public parks in the northern, central and southern portions of the island are the primary components of the developed shoreline. It has a tourism-oriented economy that is highly dependant on its beaches.

The project area includes the shoreline, nearshore, and three areas offshore of Lido Key. The island is approximately 2.44 miles long, and ranges from 100 to 2,500 feet wide. Lido Key is separated from Longboat key and Siesta Key by New Pass and Big Sarasota Pass to the north and south, respectively. The proposed sand placement and groin construction project will extend along approximately two miles of shoreline, from R-34 to R-44.5, the southern terminus of the island.

Large-scale beach nourishment along Lido Key first occurred in 1970, with subsequent nourishment in 1974, 1977, 1982, 1998, 1999, and 2001 along the middle and southern portions of the island. Several factors are attributed to Lido Keys changing shoreline. Those factors include: placement of maintenance dredge material, periodic renourishment, major storm events (e.g., hurricanes and winter storms), and the influence of the bordering inlets to the north and south of Lido Key creating erosion "hot spots."

For example, since the renourishment events from 1970 to the present, shoreline recession between R-35 to R-38 ranged from approximately 4 to 94 feet per-year, particularly within the

"hot spot" in the middle of the island. Despite frequent beach renourishment, periodic placement of sand dredged from navigation projects, groin construction, and shoreline armoring, the shoreline recession continues. Consequently, the DEP designated Lido Key, from R-31 through R-44, as a critical erosion area in 1990 (DEP, 2000).

The north end of Lido Key from R-31 to R-35 (~3,800 feet), is relatively undeveloped since it is owned and managed by the City of Lido Beach as the North Lido Public Beach. This area has experienced historic shoreline variation attributed to natural and man-made influences such as storm events, tidal movement through the New Pass, and the placement of sand from maintenance dredging activities. Some native beach vegetation is present on the upland portions of the island; however, exotic vegetation is dominant.

Moving south, the center portion of the island between R-35 to R-44 (~9,000 feet) is fully developed with hotels, condominiums, private residences, restaurants and contains the Lido Key public beach. Not only is this area highly utilized, but it also experiences the greatest shoreline fluctuations particularly between R-39 to R-44 (~5,000 feet). In addition to periodic beach renourishment, construction of seawalls, revetments, as well as, other shoreline armoring has occurred since the 1970's in the attempt to off-set the effects of erosion. Approximately 550 feet of seawall exists in this area.

The southern end of the island between R-43 to R-44.5 (1,500 feet) is sparsely developed except for recreational amenities such as picnic shelters, restrooms, parking areas, and hiking trails associated with the County-owned, South Lido Park (CP&E, 1992).

EFFECTS OF THE ACTION

Analyses for effects of the action

Beneficial Effects

The placement of sand on a beach with reduced dry fore-dune habitat may increase sea turtle nesting habitat if the placed sand is highly compatible (i.e., grain size, shape, color, etc.) with naturally occurring beach sediments in the area, and compaction and escarpment remediation measures are incorporated into the project. In addition, a nourished beach that is designed and constructed to mimic a natural beach system may be more stable than the eroding one it replaces, thereby benefitting sea turtles.

Direct Effects

Placement of sand on a beach in and of itself may not provide suitable nesting habitat for sea turtles. Although beach nourishment may increase the potential nesting area, significant negative impacts to sea turtles may result if protective measures are not incorporated during project construction. Nourishment and groin construction during the nesting season, particularly on or

near high density nesting beaches, can cause increased loss of eggs and hatchlings and, along with other mortality sources, may significantly impact the long-term survival of the species. For instance, projects conducted during the nesting and hatching season could result in the loss of sea turtles through disruption of adult nesting activity and by burial or crushing of nests or hatchlings. While a nest monitoring and egg relocation program or a nest mark and avoidance program would reduce these impacts, nests may be inadvertently missed (when crawls are obscured by rainfall, wind, and/or tides) or misidentified as false crawls during daily patrols. In addition, nests may be destroyed by operations at night prior to beach patrols being performed. Even under the best of conditions, about 7 percent of the nests can be misidentified as false crawls by experienced sea turtle nest surveyors (Schroeder 1994).

Potential adverse impacts during the project construction phase include disturbance of existing nests, which may have been missed, disturbance of females attempting to nest, and disorientation of emerging hatchlings. Heavy equipment will be required to install the groins, and this equipment will have to traverse the sandy beach to the project site, which could result in harm to nesting females, nests, and emerging hatchlings. Since a large trench will be excavated on the beach and be present during the night for some portion of the construction, a potential threat to nesting females and emerging hatchlings will exist.

Three permanent terminal groins are proposed to be constructed at the southern end of the island, between R-42 and R-44.5. Each groin will be 46 feet wide along the bottom edge and will be exposed above the sand. The 138 foot total width of the three groins will be permanently unavailable as nesting habitat. Following construction, the presence of groin structures has the potential to impact sea turtles in several ways. They may interfere with nesting turtle access to the beach, result in a change in beach profile and width (downdrift erosion, loss of sandy berms, and escarpment formation), trap hatchlings, and concentrate predators.

1. Nest relocation

Project construction, including both sand placement and groin construction, is likely to occur during the sea turtle nesting season, therefore, sea turtle nest relocation is a possibility during the estimated four to five month project construction window. Besides the potential for missing nests during a nest relocation program, there is a potential for eggs to be damaged by their movement, particularly if eggs are not relocated within 12 hours of deposition (Limpus *et al.* 1979). Nest relocation can have adverse impacts on incubation temperature (and hence sex ratios), gas exchange parameters, hydric environment of nests, hatching success, and hatchling emergence (Limpus *et al.* 1979, Ackerman 1980, Parmenter 1980, Spotila *et al.* 1983, McGehee 1990). Relocating nests into sands deficient in oxygen or moisture can result in mortality, morbidity, and reduced behavioral competence of hatchlings. Water availability is known to influence the incubation environment of the embryos and hatchlings of turtles with flexible-shelled eggs, which has been shown to affect nitrogen excretion (Packard *et al.* 1984), mobilization of calcium (Packard and Packard 1986), mobilization of yolk nutrients (Packard *et al.* 1985), hatchling size (Packard *et al.* 1981, McGehee 1990), energy reserves in the yolk at hatching (Packard *et al.* 1988), and locomotory ability of hatchlings (Miller *et al.* 1987).

Comparisons of hatching success between relocated and *in situ* nests have noted significant variation ranging from a 21 percent decrease to a 9 percent increase for relocated nests (Florida Department of Environmental Protection, unpublished data). Comparisons of emergence success between relocated and *in situ* nests have also noted significant variation ranging from a 23 percent decrease to a 5 percent increase for relocated nests (DEP, unpublished data). A 1994 Florida Department of Environmental Protection study of hatching and emergence success of *in situ* and relocated nests at seven sites in Florida found that hatching success was lower for relocated nests in five of seven cases with an average decrease for all seven sites of 5.01 percent (range = 7.19 percent increase to 16.31 percent decrease). Emergence success was lower for relocated nests in all seven cases by an average of 11.67 percent (range = 3.6 to 23.36 percent) (Meylan 1995).

2. Equipment

The placement of pipelines, groin materials, and the use of heavy machinery or equipment on the beach during a construction project may also have adverse effects on sea turtles. They can create barriers to nesting females emerging from the surf and crawling up the beach, causing a higher incidence of false crawls and unnecessary energy expenditure. The equipment can also create impediments to hatchling sea turtles as they crawl to the ocean.

3. Artificial lighting

Visual cues are the primary sea-finding mechanism for hatchling sea turtles (Mrosovsky and Carr 1967, Mrosovsky and Shettleworth 1968, Dickerson and Nelson 1989, Witherington and Bjorndal 1991). When artificial lighting is present on or near the beach, it can misdirect hatchlings once they emerge from their nests and prevent them from reaching the ocean (Philbosian 1976; Mann 1977; DEP, unpublished data). In addition, a significant reduction in sea turtle nesting activity has been documented on beaches illuminated with artificial lights (Witherington 1992). Therefore, construction lights along a project beach and on the dredging vessel may deter females from coming ashore to nest, misdirect females trying to return to the surf after a nesting event, and misdirect emergent hatchlings from adjacent non-project beaches. Any source of bright lighting can profoundly affect the orientation of hatchlings, both during the crawl from the beach to the ocean and once they begin swimming offshore. Hatchlings attracted to light sources on dredging barges may not only suffer from interference in migration, but may also experience higher probabilities of predation to predatory fishes that are also attracted to the barge lights. This impact could be reduced by using the minimum amount of light necessary (may require shielding) or low pressure sodium lighting during project construction.

4. Entrapment/physical obstruction

Adult females approaching the nesting beach may encounter the groin structures and either go around them, abort nesting activities for that night, and/or move to another section of beach to nest. The groins may act as barriers between beach segments and also prevent nesting on the groin alignment. The groins could confuse or misorient nesting or hatchling turtles and prolong their time on the beach, making them vulnerable to predation, exhaustion, or dessication.

5. Predator concentration
The presence of groins has the potential to attract and concentrate predatory fishes and provide perching spots for predatory birds, resulting in higher probabilities of hatchling predation as hatchlings enter the ocean.

Indirect Effects

Many of the direct effects of beach nourishment and groin construction may persist over time and become indirect impacts. These indirect effects include increased susceptibility of relocated nests to catastrophic events, the consequences of potential increased beachfront development, changes in the physical characteristics of the beach, the formation of escarpments, future sand migration, accelerated downdrift erosion, and the impacts of debris on the beach from groin breakdown.

1. Increased susceptibility to catastrophic events
Nest relocation may concentrate eggs in an area making them more susceptible to catastrophic events. Hatchlings released from concentrated areas also may be subject to greater predation rates from both land and marine predators, because the predators learn where to concentrate their efforts (Glenn 1998, Wyneken *et al.* 1998).

2. Increased beachfront development
Pilkey and Dixon (1996) state that beach replenishment frequently leads to more development in greater density within shorefront communities that are then left with a future of further replenishment or more drastic stabilization measures. Dean (1999) also notes that the very existence of a beach nourishment project can encourage more development in coastal areas. Following completion of a beach nourishment project in Miami during 1982, investment in new and updated facilities substantially increased tourism there (National Research Council 1995). Increased building density immediately adjacent to the beach often resulted as older buildings were replaced by much larger ones that accommodated more beach users. Overall, shoreline management creates an upward spiral of initial protective measures resulting in more expensive development which leads to the need for more and larger protective measures. Increased shoreline development may adversely affect sea turtle nesting success. Greater development may support larger populations of mammalian predators, such as foxes and raccoons, than undeveloped areas (National Research Council 1990a), and can also result in greater adverse effects due to artificial lighting, as discussed above.

3. Changes in the physical environment
Beach nourishment may result in changes in sand density or compaction, beach shear resistance or hardness, beach moisture content, beach slope, sand color, sand grain size, sand grain shape, and sand grain mineral content if the placed sand is dissimilar from the original beach sand (Nelson and Dickerson 1988a). These changes could result in adverse impacts on nest site selection, digging behavior, clutch viability, and emergence by hatchlings (Nelson and Dickerson 1987, Nelson 1988).

Beach compaction and unnatural beach profiles that may result from beach nourishment activities could negatively impact sea turtles regardless of the timing of projects. Very fine sand and/or the use of heavy machinery can cause sand compaction on nourished beaches (Nelson *et al.* 1987, Nelson and Dickerson 1988a). Significant reductions in nesting success (i.e., false crawls occurred more frequently) have been documented on severely compacted nourished beaches (Fletemeyer 1980, Raymond 1984, Nelson and Dickerson 1987, Nelson *et al.* 1987), and increased false crawls may result in increased physiological stress to nesting females. Sand compaction may increase the length of time required for female sea turtles to excavate nests and also cause increased physiological stress to the animals (Nelson and Dickerson 1988c). Nelson and Dickerson (1988b) concluded that, in general, beaches nourished from offshore borrow sites are harder than natural beaches, and while some may soften over time through erosion and accretion of sand, others may remain hard for 10 years or more.

These impacts can be minimized by using suitable sand and by tilling compacted sand after project completion. The level of compaction of a beach can be assessed by measuring sand compaction using a cone penetrometer (Nelson 1987). Tilling of a nourished beach with a root rake may reduce the sand compaction to levels comparable to unnourished beaches. However, a pilot study by Nelson and Dickerson (1988c) showed that a tilled nourished beach will remain uncompacted for up to 1 year. Therefore, the Service requires multi-year beach compaction monitoring and, if necessary, tilling to ensure that project impacts on sea turtles are minimized.

A change in sediment color on a beach could change the natural incubation temperatures of nests in an area, which, in turn, could alter natural sex ratios. To provide the most suitable sediment for nesting sea turtles, the color of the nourished sediments must resemble the natural beach sand in the area. Natural reworking of sediments and bleaching from exposure to the sun would help to lighten dark nourishment sediments; however, the timeframe for sediment mixing and bleaching to occur could be critical to a successful sea turtle nesting season.

4. Escarpment formation

On nourished beaches, steep escarpments may develop along their water line interface as they adjust from an unnatural construction profile to a more natural beach profile (Coastal Engineering Research Center 1984, Nelson *et al.* 1987). In addition, escarpments may develop on the crenulate beaches located between groins as the beaches equilibrate to their final positions. These escarpments can hamper or prevent access to nesting sites (Nelson and Blihovde 1998). Researchers have shown that female turtles coming ashore to nest can be discouraged by the formation of an escarpment, leading to situations where they choose marginal or unsuitable nesting areas to deposit eggs (e.g., in front of the escarpments, which often results in failure of nests due to prolonged tidal inundation). This impact can be minimized by leveling any escarpments prior to the nesting season.

5. Downdrift erosion.

Groins, in conjunction with beach nourishment, can help stabilize U.S. East Coast barrier island beaches (Leonard *et al.* 1990). However, groins and breakwaters often result in accelerated

beach erosion downdrift of the structures (Komar 1983, National Research Council 1987, U.S. Army Corps of Engineers 1992) and corresponding degradation of suitable sea turtle nesting habitat (National Marine Fisheries Service and U.S. Fish and Wildlife Service 1991a, 1991b, 1992). Impacts first are noted and greatest changes are observed close to the structures, but effects eventually may extend great distances along the coast (Komar 1983). Beach nourishment only partly alleviates impacts of groin construction on downdrift beaches (Komar 1983).

Groins operate by blocking the natural littoral drift of sand (Kaufman and Pilkey 1979, Komar 1983). Once sand fills the updrift groin area, some littoral drift and sand deposition on adjacent downdrift beaches occurs due to spillover. But, groins often force the river of sand into deeper offshore water, and sand that previously would have been deposited on downdrift beaches is lost from the system (Kaufman and Pilkey 1979).

6. Groin breakdown
As the groin structures fail and break apart, they spread debris on the beach, which may further impede nesting females from accessing suitable nesting sites (resulting in a higher incidence of false crawls) and trap hatchlings and nesting turtles (U.S. Fish and Wildlife Service 1991a, 1991b, 1992, 1993).

Species' response to the proposed action

Ernest and Martin (1999) conducted a comprehensive study to assess the effects of beach nourishment on loggerhead sea turtle nesting and reproductive success. The following findings illustrate sea turtle responses to and recovery from a nourishment project. A significantly larger proportion of turtles emerging on nourished beaches abandoned their nesting attempts than turtles emerging on Control or pre-nourished beaches. This reduction in nesting success was most pronounced during the first year following project construction and is most likely the result of changes in physical beach characteristics associated with the nourishment project (e.g., beach profile, sediment grain size, beach compaction, frequency and extent of escarpments). During the first post-construction year, the time required for turtles to excavate an egg chamber on the untilled, hard-packed sands of one treatment area increased significantly relative to Control and background conditions. However, in another treatment area, tilling was effective in reducing sediment compaction to levels that did not significantly prolong digging times. As natural processes reduced compaction levels on nourished beaches during the second post-construction year, digging times returned to background levels.

During the first post-construction year, nests on the nourished beaches were deposited significantly farther from both the toe of the dune and the tide line than nests on control beaches. Furthermore, nests were distributed throughout all available habitat and were not clustered near the dune as they were in the control. As the width of nourished beaches decreased during the second year, among-treatment differences in nest placement diminished. More nests were washed out on the wide, flat beaches of the nourished treatments than on the narrower steeply sloped beaches of the control. This phenomenon persisted through the second post-construction year

monitoring and resulted from the placement of nests near the seaward edge of the beach berm where dramatic profile changes, caused by erosion and scarping, occurred as the beach equilibrated to a more natural contour.

As with other beach nourishment projects, Ernest and Martin (1999) found that the principal effect of nourishment on sea turtle reproduction was a reduction in nesting success during the first year following project construction. Although most studies have attributed this phenomenon to an increase in beach compaction and escarpment formation, Ernest and Martin indicate that changes in beach profile may be more important. Regardless, as a nourished beach is reworked by natural processes in subsequent years and adjusts from an unnatural construction profile to a more natural beach profile, beach compaction and the frequency of escarpment formation decline, and nesting and nesting success return to levels found on natural beaches.

The Corps anticipates renourishment of Lido Key to occur every five years. Therefore, approximately 982,000 cubic yards of material may be placed along 1.74 miles of the 2.6 miles of nesting beach habitat available on the island at a five year interval. According to the results of the Ernest and Martin study, nesting success was shown to decrease the first year following sand placement and then subsequently returned to levels found on natural beaches. However, the long-term effect of a short renourishment interval on sea turtle nesting is unknown.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Service is not aware of any cumulative effects in the project area.

CONCLUSION

After reviewing the current status of the loggerhead and green sea turtles, the environmental baseline for the action area, the effects of the proposed sand placement and groin construction project, and the cumulative effects, it is the Service's biological opinion that the construction project, as proposed, is not likely to jeopardize the continued existence of the loggerhead and green sea turtles and is not likely to destroy or adversely modify designated critical habitat. No critical habitat has been designated for the loggerhead and green sea turtles in the continental United States; therefore, none will be affected.

The proposed project will affect only 1.74 miles of the approximately 1,400 miles of available sea turtle nesting habitat in the southeastern United States. Research has shown that the principal effect of beach nourishment on sea turtle reproduction is a reduction in nesting success, and this reduction is most often limited to the first year following project construction. Research has also shown that the impacts of a nourishment project on sea turtle nesting habitat are typically short-

term because a nourished beach will be reworked by natural processes in subsequent years, and beach compaction and the frequency of escarpment formation will decline. Although a variety of factors, including some that cannot be controlled, can influence how a beach renourishment and/or groin construction project will perform from an engineering perspective, measures can be implemented to minimize impacts to sea turtles.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered or threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be implemented by the Corps so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps must report the progress of the action and its impacts on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

The Service anticipates 1.74 miles of nesting beach habitat could be taken as a result of this proposed action. The take is expected to be in the form of: (1) destruction of all nests that may be constructed and eggs that may be deposited and missed by a nest survey and marking program within the boundaries of the proposed project; (2) destruction of all nests deposited during the period when a nest survey and marking program is not required to be in place within the boundaries of the proposed project; (3) reduced hatching success due to egg mortality during relocation and adverse conditions at the relocation site; (4) harassment in the form of disturbing or interfering with female turtles attempting to nest within the construction area or on adjacent

beaches as a result of construction activities; (5) behavior modification of nesting females or hatchlings due to the presence of groins, which may act as barriers to movement; (6) behavior modification of nesting females if they dig into shallowly buried groins, resulting in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs; (7) misdirection of hatchling turtles on beaches adjacent to the construction area as they emerge from the nest and crawl to the water as a result of project lighting; (8) behavior modification of nesting females due to escarpment formation within the project area during a nesting season, resulting in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs; and (9) destruction of nests from escarpment leveling within a nesting season when such leveling has been approved by the Fish and Wildlife Service.

Incidental take is anticipated for only the 1.74 miles of beach that have been identified for sand placement and groin construction. The Service anticipates incidental take of sea turtles will be difficult to detect for the following reasons: (1) the turtles nest primarily at night and all nests are not found because [a] natural factors, such as rainfall, wind, and tides may obscure crawls and [b] human-caused factors, such as pedestrian and vehicular traffic, may obscure crawls, and result in nests being destroyed because they were missed during a nesting survey and egg relocation program; (2) the total number of hatchlings per undiscovered nest is unknown; (3) the reduction in percent hatching and emerging success per relocated nest over the natural nest site is unknown; (4) an unknown number of females may avoid the project beach and be forced to nest in a less than optimal area; (5) lights may misdirect an unknown number of hatchlings and cause death; and (6) escarpments may form and cause an unknown number of females from accessing a suitable nesting site. However, the level of take of these species can be anticipated by the disturbance of renourishment and groin construction on suitable turtle nesting beach habitat because: (1) turtles nest within the project site; (2) beach renourishment and groin construction will likely occur during a portion of the nesting season; (3) groin construction will modify beach profile and width and is likely to increase the presence of escarpments; (4) beach renourishment will modify the incubation substrate, beach slope, and sand compaction; and (5) artificial lighting will deter and/or misdirect nesting females and hatchlings.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species. Critical habitat has not been designated in the project area; therefore, the project will not result in destruction or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of loggerhead and green sea turtles.

1. Beach quality sand suitable for sea turtle nesting, successful incubation, and hatchling emergence must be used on the project site.

2. If the beach nourishment project will be conducted during the sea turtle nesting season, surveys for nesting sea turtles must be conducted. If nests are constructed in the area of beach nourishment, the eggs must be relocated.

3. Immediately after completion of the beach nourishment project and prior to the next three nesting seasons, beach compaction must be monitored and tilling must be conducted as required to reduce the likelihood of impacting sea turtle nesting and hatching activities.

4. If the groin construction project will be conducted during the sea turtle nesting season, sea turtle protection measures must be employed to minimize the likelihood of take.

5. Immediately after completion of the construction project and prior to the next three nesting seasons, monitoring must be conducted to determine if escarpments are present and escarpments must be leveled as required to reduce the likelihood of impacting sea turtle nesting and hatching activities.

6. The applicant must ensure that contractors conducting the beach renourishment and groin construction work fully understand the sea turtle protection measures detailed in this incidental take statement.

7. During the sea turtle nesting season, all construction equipment and materials must be stored in a manner that will minimize impacts to sea turtles to the maximum extent practicable.

8. During the sea turtle nesting season, lighting associated with the project must be minimized to reduce the possibility of disrupting and misdirecting nesting and/or hatchling sea turtles.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. All fill material placed on the beach must be analogous to that which naturally occurs within the project location or vicinity in quartz to carbonate ratio, color, median grain size and median sorting. Specifically, such material shall be predominately of carbonate, quartz or similar material with a particle size distribution ranging between 0.62 mm and 4.76 mm (classified as sand by either the Unified Soil Classification System or the Wentworth classification). The

material shall be similar in color and grain size distribution (sand grain frequency, mean and median grain size, and sorting coefficient) to the material in the existing coastal system at the disposal site and shall not contain:

- greater than five percent, by weight, silt, clay, or colloids passing the #230 sieve;
- greater than five percent, by weight, fine gravel retained on the #4 sieve;
- coarse gravel, cobbles, or material retained on the 3/4 inch sieve in a percentage or size greater than found on the native beach;
- construction debris, toxic material, or other foreign matter; and
- not result in cementation of the beach.

These standards must not be exceeded in any 1000 square foot section, extending through the depth of the renourished beach. If the natural beach exceeds any of the limiting parameters listed above, then the fill material must not exceed the naturally occurring level for that parameter.

2. Daily early morning surveys for sea turtle nests will be required if any portion of the beach nourishment project and/or groin construction project occurs during the period from April 1 through November 30. Nesting surveys must be initiated 65 days prior to nourishment and/or groin construction activities or by April 1, whichever is later. Nesting surveys must continue through the end of the project or through September 30, whichever is earlier. If nests are constructed in areas where they may be affected by beach nourishment activities, eggs must be relocated per the following requirements.

2a. Nesting surveys and egg relocations will only be conducted by personnel with prior experience and training in nesting survey and egg relocation procedures. Surveyors must have a valid Florida Fish and Wildlife Conservation Commission permit. Nesting surveys must be conducted daily between sunrise and 9 a.m. Surveys must be performed in such a manner so as to ensure that beach nourishment activity does not occur in any location prior to completion of the necessary sea turtle protection measures.

2b. Only those nests that may be affected by beach nourishment activities will be relocated. Nests requiring relocation must be moved no later than 9 a.m. the morning following deposition to a nearby self-release beach site in a secure setting where artificial lighting will not interfere with hatchling orientation. Nest relocations in association with beach nourishment activities must cease when beach nourishment activities no longer threaten nests.

2c. Nests will not be relocated for groin construction purposes unless beach nourishment activities are in progress or will be starting within 65 days. Nests deposited within areas where beach nourishment activities have ceased or will not occur for 65 days must be marked and left in place unless other factors threaten the success of the nest. Any nests left in the groin construction area must be clearly marked. Nests will be marked and the actual location of the clutch determined. A circle with a radius of 10 feet, centered at the clutch, will be

marked by stake and survey tape or string. No construction activities will enter this circle and no adjacent construction that might directly or indirectly disturb the area within the staked circle will be allowed.

3. Immediately after completion of the beach nourishment project and prior to April 1 for 3 subsequent years, sand compaction must be monitored in the area of restoration in accordance with a protocol agreed to by the Service, the State regulatory agency, and the applicant. At a minimum, the protocol provided under 3a and 3b below must be followed. If required, the area must be tilled to a depth of 36 inches. All tilling activity must be completed prior to April 1. If the project is completed during the nesting season, tilling will not be performed in areas where nests have been left in place or relocated. An annual summary of compaction surveys and the actions taken must be submitted to the Service. (NOTE: The requirement for compaction monitoring can be eliminated if the decision is made to till regardless of post-construction compaction levels. Also, out-year compaction monitoring and remediation are not required if placed material no longer remains on the dry beach.)

3a. Compaction sampling stations must be located at 500-foot intervals along the project area. One station must be at the seaward edge of the dune/bulkhead line (when material is placed in this area), and one station must be midway between the dune line and the high water line (normal wrack line).

At each station, the cone penetrometer will be pushed to a depth of 6, 12, and 18 inches three times (three replicates). Material may be removed from the hole if necessary to ensure accurate readings of successive levels of sediment. The penetrometer may need to be reset between pushes, especially if sediment layering exists. Layers of highly compact material may lay over less compact layers. Replicates will be located as close to each other as possible, without interacting with the previous hole and/or disturbed sediments. The three replicate compaction values for each depth will be averaged to produce final values for each depth at each station. Reports will include all 18 values for each transect line, and the final 6 averaged compaction values.

3b. If the average value for any depth exceeds 500 pounds per-square inch (psi) for any two or more adjacent stations, then that area must be tilled immediately prior to April 1. If values exceeding 500 psi are distributed throughout the project area but in no case do those values exist at two adjacent stations at the same depth, then consultation with the Service will be required to determine if tilling is required. If a few values exceeding 500 psi are present randomly within the project area, tilling will not be required.

4. Visual surveys for escarpments along the project area must be made immediately after completion of the beach nourishment project and prior to April 1 for 3 subsequent years. Escarpments that interfere with sea turtle nesting or that exceed 18 inches in height for a distance of 100 feet must be leveled to the natural beach contour by April 1. If the project is completed during the sea turtle nesting and hatching season, escarpments may be required to be leveled

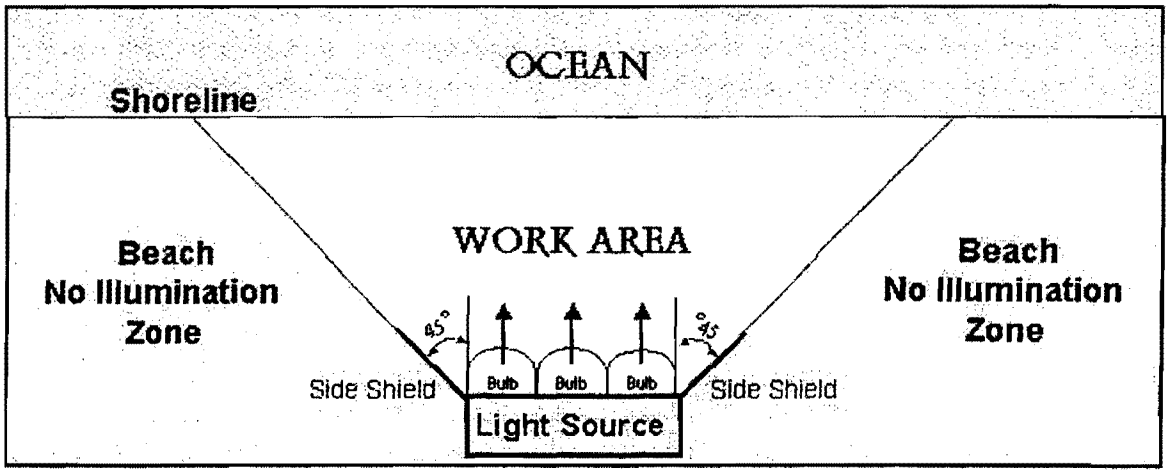
immediately, while protecting nests that have been relocated or left in place. The Service must be contacted immediately if subsequent reformation of escarpments that interfere with sea turtle nesting or that exceed 18 inches in height for a distance of 100 feet occurs during the nesting and hatching season to determine the appropriate action to be taken. If it is determined that escarpment leveling is required during the nesting or hatching season, the Service will provide a brief written authorization that describes methods to be used to reduce the likelihood of impacting existing nests. An annual summary of escarpment surveys and actions taken must be submitted to the Service. (NOTE: Out-year escarpment monitoring and remediation are not required if placed material no longer remains on the beach.)

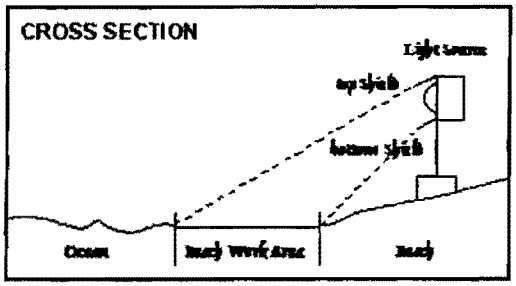
5. The applicant must arrange a meeting between representatives of the contractor, the Service, the FWC, and the permitted person responsible for nest marking and/or egg relocation at least 30 days prior to the commencement of work on this project. At least 10 days advance notice must be provided prior to conducting this meeting. This will provide an opportunity for explanation and/or clarification of the sea turtle protection measures.

6. From April 1 through November 30, staging areas for construction equipment must be located off the beach to the maximum extent practicable. Nighttime storage of construction equipment and groin construction materials not in use must be off the beach to minimize disturbance to sea turtle nesting and hatching activities. In addition, all construction pipes and groin construction materials that are placed on the beach must be located as far landward as possible without compromising the integrity of the existing or reconstructed dune system. Temporary storage of pipes and groin construction materials must be off the beach to the maximum extent possible. Temporary storage of pipes on the beach must be in such a manner so as to impact the least amount of nesting habitat and must likewise not compromise the integrity of the dune systems (placement of pipes perpendicular to the shoreline is recommended as the method of storage).

7. During groin construction, no temporary lighting of the groin construction area is authorized at anytime during the sea turtle nesting season from April 1 through November 30 with the following exception. Lighting will be allowed if safety lighting is required at any excavated trenches that must remain on the beach at night. This lighting must be limited to the immediate construction area only and must be the minimal lighting necessary to comply with safety requirements.

8. During sand placement, from April 1 through November 30, direct lighting of the beach and near shore waters must be limited to the immediate construction area and must comply with safety requirements. Lighting on offshore or onshore equipment must be minimized through reduction, shielding, lowering, and appropriate placement to avoid excessive illumination of the waters surface and nesting beach while meeting all Coast Guard, EM 385-1-1, and OSHA requirements. Light intensity of lighting plants must be reduced to the minimum standard required by OSHA for General Construction areas, in order not to mis-direct sea turtles. Shields must be affixed to the light housing and be large enough to block light from all lamps from being





BEACH LIGHTING SCHEMATIC

transmitted outside the construction area (see figure below).

9. No permanent exterior lighting will be installed in association with this construction project.

10. In the event a groin structure fails or begins to disintegrate, all debris and structural material must be removed from the nesting beach area and deposited off-beach immediately. If maintenance of a groin structure is required during the period from April 1 to November 30, no work will be initiated without prior coordination with the South Florida Ecological Services Office.

11. The terminal groin(s) must be removed if it is determined to not be effective or to be causing a significant adverse impact to the beach and dune system.

12. A report describing the actions taken to implement the terms and conditions of this incidental take statement must be submitted to the South Florida Ecological Services Office

within 60 days of completion of the proposed work for each year when the activity has occurred. This report will include the dates of actual construction activities; names and qualifications of personnel involved in nest surveys, marking, and relocation activities; descriptions and locations of self-release beach sites; nest survey, marking, and relocation results; and hatching and emerging success of nests.

13. In the event a sea turtle nest is excavated during construction activities, the permitted person responsible for nest marking and/or egg relocation for the project must be notified so the eggs can be moved to a suitable relocation site.

14. Upon locating a sea turtle adult, hatchling, or egg harmed or destroyed as a direct or indirect result of the project, notification must be made to the FWC, Bureau of Marine Enforcement (formerly the Florida Marine Patrol) at 800-342-5367. Care should be taken in handling injured turtles or eggs to ensure effective treatment or disposition, and in handling dead specimens to preserve biological materials in the best possible state for later analysis.

The Service believes that incidental take will be limited to the 1.74 miles of beach that have been identified as the project area which includes sand placement and groin construction. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. The Service believes that no more than the following types of incidental take will result from the proposed action: (1) destruction of all nests that may be constructed and eggs that may be deposited and missed by a nest survey and marking program within the boundaries of the proposed project; (2) destruction of all nests deposited during the period when a nest survey and marking program is not required to be in place within the boundaries of the proposed project; (3) reduced hatching success due to egg mortality during relocation and adverse conditions at the location site; (4) harassment in the form of disturbing or interfering with female turtles attempting to nest within the project construction area or on adjacent beaches as a result of construction activities and/or groin presence; (5) behavior modification of nesting females or hatchlings due to the presence of the groins which may act as barriers to movement; (6) behavior modification of nesting females if they dig into shallowly buried groins, resulting in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs; (7) misdirection of hatchling turtles on beaches adjacent to the construction area as they emerge from the nest and crawl to the water as a result of project lighting; (8) behavior modification of nesting females due to escarpment formation within the project area during a nesting season, resulting in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs; and (9) destruction of nests from escarpment leveling within a nesting season when such leveling has been approved by the Fish and Wildlife Service. The amount or extent of incidental take for sea turtles will be considered exceeded if the project results in more the placement of sand at more than a five year interval on the 1.74 miles of beach proposed for beach renourishment and/or groin construction. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation

of consultation and review of the reasonable and prudent measures provided. The Corps must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Construction activities for this project and similar future projects should be planned to take place outside the sea turtle nesting and hatching season.

2. Appropriate native salt-resistant dune vegetation should be established on the restored dunes. The DEP Office of Beaches and Coastal Systems can provide technical assistance on the specifications for design and implementation.

3. Surveys for nesting success of sea turtles should be continued for a minimum of three years following project construction to determine whether sea turtle nesting success has been adversely impacted.

4. More in-depth research should be conducted to assess the potential of the groin structures to impact nesting sea turtles, nest incubation, and movement of hatchlings from the nest to the ocean.

5. Educational signs should be placed where appropriate at beach access points explaining the importance of the area to sea turtles and/or the life history of sea turtle species that nest in the area. Diligent compliance and enforcement of the Sarasota County Lighting Ordinance should occur prior to and continue through the sea turtle nesting season, April 1 through November 30.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the action outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Should you have additional questions or require additional clarification regarding this matter, please contact Trish Adams at (561) 562-3909, extension 232.

Sincerely yours,

for James J. Slack
Field Supervisor
South Florida Ecological Services Office

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APPENDIX A

ENGINEERING ANALYSIS AND DESIGN