
APRIL 2004

MAINTENANCE DREDGING

PORT EVERGLADES
BROWARD COUNTY, FLORIDA

DRAFT ENVIRONMENTAL ASSESSMENT
AND DRAFT FINDING OF NO SIGNIFICANT IMPACT

**U.S. Army Corps
of Engineers**
Jacksonville District
South Atlantic Division

**ENVIRONMENTAL ASSESSMENT
ON
MAINTENANCE DREDGING
PORT EVERGLADES, BROWARD COUNTY, FLORIDA**

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ENVIRONMENTAL ASSESSMENT ON MAINTENANCE DREDGING PORT EVERGLADES, BROWARD COUNTY, FLORIDA

1.0 PROJECT PURPOSE AND NEED

1.1 INTRODUCTION

The U.S. Army Corps of Engineers (Corps), Jacksonville District, proposes to continue conducting routine maintenance dredging of the Port Everglades Federal Navigation Project, Broward County, Florida (see Figure 1, Plan View and Location Map). Approximately 100,000 cubic yards of sediment, resulting from shoaling, will be removed from the harbor on a three-year basis or as needed, to maintain the authorized depths of the Federal Navigation Project. Placement of dredged material for the ten-year life of this assessment will be in portions of the entrance channel which are deeper than the required navigation depth, the Environmental Protection Agency (EPA) approved Ocean Dredged Material Disposal Site (ODMDS), and on John U. Lloyd State Park beaches.

Although the Corps is preparing this Environmental Assessment (EA) to evaluate the effects of maintenance dredging the entire Federal Navigation Project for the next ten-years, recent shoaling in the port has spurred in the need for a maintenance event. As part of its navigation mandate, the Corps conducts annual surveys of the Federal Navigation projects. During the 2004 survey, it was determined that shoals had formed in various locations within Port Everglades and that these shoals have the potential to adversely effect vessel safety and port operations. Shoals have developed in the Main Turning Basin (MTB), Entrance Channel (EC) and in the North Turning Basin (NTB) of the port. Shoaling of the Inner Entrance Channel was addressed in a separate NEPA document completed by the Corps in November 2003 and is addressed in Section 1.5 of this document.

1.2 PROJECT AUTHORITY

Maintenance dredging of Port Everglades Entrance Channel was initially authorized under House Document 357/71/2 (July 1930), as well as subsequent authorizations associated with Port Expansion activities in 1935, 1938, 1946, 1958, 1974 and 1990. A Comprehensive list of these authorizations can be found at the District's Digital Project Notebook homepage (http://www.saj.usace.army.mil/digitalproject/dpn/sajn_020.htm).

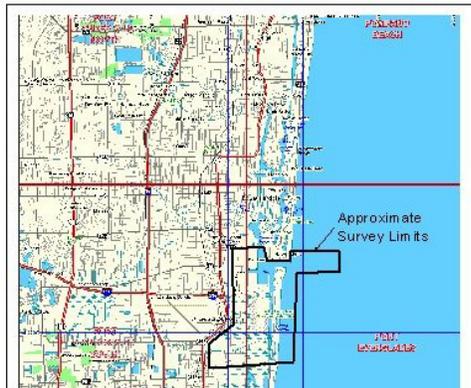
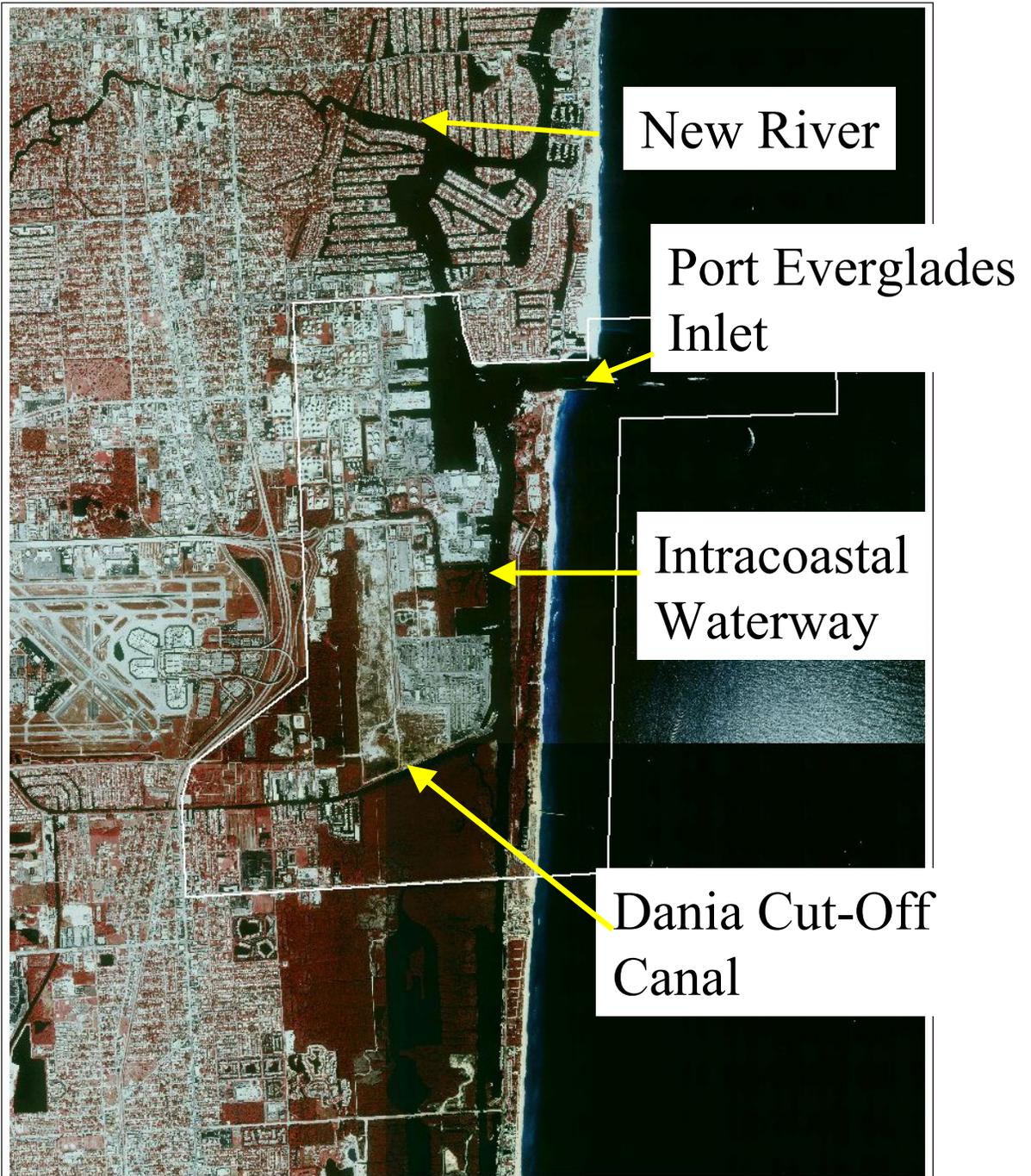
1.3 DECISION TO BE MADE

This Environmental Assessment (EA) will evaluate whether to maintain the Federal navigation project at Port Everglades and where to place dredged material after construction.

1.4 RELEVANT ISSUES

The following issues were identified as relevant to the proposed action and appropriate for detailed evaluation: (1) water quality degradation, especially in regards to turbidity and sediment contaminants; (2) impacts to endangered and threatened species occurring within the project area (i.e. manatees and sea turtles); (3) alteration of other wildlife resources; (4) potential damage to Essential Fish Habitat which may cause a reduction in standing stocks of certain managed species; (5) impacts to cultural resources; (6) beneficial or adverse effects to recreation; (7)

Fig 1 – Location Map and Plan View



0 3000 6000 9000 Feet



impacts to navigation; (8) socio-economic effects to individuals, families, and businesses harmed by or benefitting by the project, especially in regards to commercial and recreational navigation; and (9) impacts to aesthetics.

1.5 PREVIOUS NEPA DOCUMENTATION

Pursuant to the National Environmental Policy Act (NEPA), this EA was prepared by the Corps in order to address all of the current maintenance of the Federal Navigation Project at Port Everglades and placement alternatives. Maintenance dredging of the entrance channel was previously covered in three NEPA documents. Related environmental documents include the following:

Environmental Protection Agency. 2004. Environmental Impact Statement (EIS) for Designation of the Palm Beach Harbor Ocean Dredged Material Disposal Site and the Port Everglades Harbor Ocean Dredged Material Disposal Site. Palm Beach and Broward Counties. February 2004.

USACE, 2003. Maintenance Dredging - Port Everglades Entrance Channel, Broward County, Florida. Environmental Assessment. Nov 2003.

USACE, 1990. Navigation Study for Port Everglades Harbor, Florida, 10207 Feasibility Report and Environmental Assessment. EA for deepening and widening of 8,000 feet of the SAC and creation of a 750-foot by 900-foot TN; and Port Everglades.

USACE, 1987. Final Environmental Impact Statement, Proposed Expansion Port Everglades, Broward County, Florida. EIS for deepening and widening the SAC, bulkheading Port land, creation of the Turn Notch.

These documents are hereby incorporated by reference.

In addition to the previous NEPA documents, the Corps is currently preparing a Feasibility Study and Environmental Impact Statement for an expansion project at Port Everglades. That document is currently expected to be released in the Fall of 2004. The Corps and EPA recently completed the Draft Environmental Impact Statement for the designation of the Port Everglades and Palm Beach Harbor ODMDS. The notice of availability for this DEIS published in the Federal Register on March 26, 2004 (59 FR 15829).

Other NEPA documents that cover additional activities taking place in Broward County outside of the Federal Navigation Project boundaries include:

FERC, 2004. Tractebel Calypso Pipeline Project. Final Environmental Impact Statement. Docket #CP01-409-000

FERC, 2003. Ocean Express Pipeline Project. Final Environmental Impact Statement. AES Ocean Express LLC. Docket #CP02-090-001

USACE, 2003. Broward County Shore Protection Project, Segments II and III. Final Environmental Impact Statement, Jacksonville District. June 2003.

USACE, 1996. Coast of Florida Erosion and Storm Effects Study, Region III: Feasibility Report with Draft Environmental Impact Statement.

Additionally, Broward County is in the process of completing a feasibility study of sand-bypassing at the Port Everglades Entrance Channel. This report will be available from the county for review.

1.6 PERMITS REQUIRED

If the Corps performs the maintenance dredging operations, in accordance with Section 401 of the Clean Water Act (33 USC §1251 et seq), as amended, a Water Quality Certification will be required from the Florida Department of Environmental Protection (FDEP) for the proposed dredging activity. An application for this activity was submitted by the Corps to FDEP on September 12, 2003. A copy of this application is included in Appendix E of this EA.

1.7 METHODOLOGY

This EA will compile information from a variety of sources – the Broward County Shore Protection Project Final Environmental Impact Statement (BCSPP FEIS); the Draft EIS for the Designation of the Palm Beach Harbor ODMDS and the Port Everglades Harbor ODMDS; the Draft Feasibility Study and EIS currently in preparation by the Corps addressing the impacts of expansion activities at Port Everglades, as well as previous NEPA documents prepared for maintenance dredging of the Port referenced in section 1.5 of this document. All of these NEPA documents relied on an interdisciplinary team using a systematic approach to analyze the affected area, to estimate the probable environmental effects, and to prepare the documents. This included a literature search, coordination with Federal, State and local resource agencies having expertise in certain areas, and on-site field investigations.

2.0 ALTERNATIVES

2.1 INTRODUCTION

The Alternatives Section is perhaps the most important component of this EA. It describes the no-action alternative, the proposed dredging alternatives, as well as the dredged material placement alternatives. The beneficial and adverse environmental effects of the alternatives are presented in comparative form, providing a clear basis for choice to the decision maker and the public. A preferred alternative was selected based on the information and analysis presented in the sections on the Affected Environment and Probable Impacts.

2.2 DESCRIPTION OF ALTERNATIVES - DREDGING ALTERNATIVES

2.2.1 NO-ACTION ALTERNATIVE

The Federal Navigation Project at Port Everglades would not be maintained by the Corps of Engineers.

2.2.2 DREDGING ALTERNATIVE

Approximately 100,000 cubic yards of dredged material would be removed from the Federal navigation project every three years, or as conditions warrant.

2.3 DESCRIPTION OF ALTERNATIVES - PLACEMENT ALTERNATIVES

Placement of dredged material would only occur if the Federal Navigation project is maintained.

2.3.1 ENTRANCE CHANNEL PLACEMENT

This alternative would place material in the deeper part of the entrance channel between stations 29+00 and 46+00 (per the drawings in appendix D) to return the material to the littoral system. This material would be limited to material that is sandy and suitable for beach renourishment, typically coming from the Entrance Channel shoals. Dredging of this material was covered in the Nov 2003 EA recently completed by the Corps and listed in Section 1.5. Silty, clay material would not be placed in the entrance channel. In addition to the evaluation of effects of dredging this material from the Entrance Channel, this alternative has been previously permitted by the State of Florida Department of Environmental Protection (FDEP) (Permit #0112329-001 - dated August 21, 1998). The original permit issued by FDEP authorized placement between stations 10+00 and 30+00. A subsequent survey of this site identified seagrass and hardbottom resources within this footprint. As a result of these resources, the Corps has chosen to relocate the placement site. A copy of the permit is included in this EA in Appendix E. Placement of the material will be done with a bottom dump hopper dredge or bottom dump barge.

2.3.2 ODMDS PLACEMENT

Placement of the material in the designated ODMDS (Sheet 6 of 7 in Appendix D). Recently, the EPA released a DEIS for the designation of an ODMDS for the Port Everglades and Palm Beach Federal Navigation Projects. This DEIS is available from the Jacksonville District's website at: <http://planning.saj.usace.army.mil/envdocs/PalmBeachandBrowardco/index.html>. When the ODMDS is designated by EPA, the Corps will use it to place dredge material from the Port Everglades Federal Navigation Project. Placement of the material will be done with a bottom dump hopper dredge or bottom dump barge.

2.3.3 JOHN U LLOYD STATE PARK PLACEMENT

Placement of the beach quality material from on John U. Lloyd State Park (JUL) will be in concert with the Segment III of the Broward County Shore Protection Project (BCSPP) between DNR monument markers BRO-R-87 and BRO-T-89 if capacity is available and any environmental concerns specific to placement at the park can be addressed (see Sheet 7 of 7 in Appendix D). A Final EIS for this project was completed in June 2003. The EIS can be accessed from the Internet at

http://planning.saj.usace.army.mil/envdocs/Broward/BC_Shore_Protection_Proj/index.htm.

Material placement would be limited to JUL, unless the FDEP or the non-Federal sponsor requested that the material be placed elsewhere on beaches in the county and provided funding to cover any differences in cost. Placement of dredged material on the beach will normally be with a pumpout from a hopper dredge or a hydraulic dredge.

2.4 PREFERRED ALTERNATIVE

The preferred dredging alternative is to continue to maintain the Port Everglades Federal Navigation Project to the authorized depths and place the material at any of the placement sites based on site availability and dredged material suitability.

2.5 ALTERNATIVES REMOVED FROM DETAILED ANALYSIS

Upland placement was eliminated from detailed analysis as a viable placement alternative because, currently there is not an authorized upland placement site for dredged material in Broward County. However, should an upland alternative become available in the future, the Corps would review that possibility and address NEPA issues for that alternative at that time.

2.6 COMPARISON OF ALTERNATIVES

Table 1 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.

Table 1: Summary of Direct and Indirect Impacts

ALTERNATIVE ENVIRONMENTAL FACTOR	NO-ACTION ALTERNATIVE	DREDGING WITH PLACEMENT IN THE CHANNEL	DREDGING WITH PLACEMENT IN THE ODMDS	DREDGING WITH BEACH PLACEMENT AT JUL
WATER QUALITY	No impact.	Short-term localized increase in turbidity and concentrations of dissolved and particulate constituents within the placement site. Turbidity impacts are expected to be minimal since the source of the material is mostly the beachfront littoral system where the fines content is typically less than ten percent.	Short-term localized increase in turbidity and concentrations of dissolved and particulate constituents within the ODMDS site.	Short-term localized increase in turbidity at the dredge site and in the surf zone along the beach placement areas. Turbidity impacts are expected to be minimal since the source of the material is mostly the beachfront littoral system where the fines content is typically less than 2 percent.
MANATEES	No impact.	Dredging - No impact with implementation of standard protection conditions. Placement - no effect.	Dredging - No impact with implementation of standard protection conditions. Placement - no effect.	No impact with implementation of standard protection conditions. Placement - no effect.
SEA TURTLES	No impact.	Incidental take may occur if a hopper dredge is used. Minor impact to foraging habitat, if turtles are foraging in the entrance channel.	Incidental take may occur if a hopper dredge is used. No effect on nesting or foraging habitat as a result of placement.	Incidental take may occur if a hopper dredge is used. Minor short-term adverse impact on turtle nesting from placing the sand on the beach may occur. Increase in the overall available nesting habitat.
WHALES	No impact.	No adverse effects are anticipated	No adverse effects are anticipated	No adverse effects are anticipated.
WILDLIFE RESOURCES (OTHER THAN T&E SPECIES)	No impact.	Minor short-term disturbance.	Minor short-term disturbance.	Minor short-term disturbance.
ESSENTIAL FISH HABITAT	No impact.	Minor short-term disturbance.	Minor short-term disturbance.	Minor short-term disturbance.

ALTERNATIVE ENVIRONMENTAL FACTOR	NO-ACTION ALTERNATIVE	DREDGING WITH PLACEMENT IN THE CHANNEL	DREDGING WITH PLACEMENT IN THE ODMDS	DREDGING WITH BEACH PLACEMENT AT JUL
CULTURAL RESOURCES	No impact.	Minor short-term disturbance.	Minor short-term disturbance.	No adverse effects are anticipated.
RECREATION	Moderate long-term impact to recreational boating from loss of navigable capacity of the port. Potential longterm effect if entrance channel continues to shoal at accelerated rate without sand-bypassing.	Moderate long-term benefit to recreational boating from maintaining the channel. Short-term impact to recreational boat traffic from construction vessel congestion.	Moderate long-term benefit to recreational boating from maintaining the channel. Short-term impact to recreational boat traffic from construction vessel congestion.	Moderate long-term benefit to recreational boating from maintaining the channel. Short-term impact to recreational boat traffic from construction vessel congestion. Increase in available beach for recreation.
NAVIGATION (COMMERCIAL & MILITARY)	Major long-term reduction in navigable capacity of the port. Eventual reduction in port efficiency.	Major long-term benefit from maintaining the port. Short-term impact caused by construction vessel congestion	Major long-term benefit from maintaining the port. Short-term impact caused by construction vessel congestion	Major long-term benefit from maintaining the channel. Short-term impact caused by construction vessel congestion.
ECONOMICS	Major long-term impact from loss of commercial port facilities and reduced recreational boating.	Major long-term benefit from maintaining commercial port facilities and recreational boating opportunities.	Major long-term benefit from maintaining commercial port facilities and recreational boating opportunities.	Major long-term benefit from maintaining commercial port facilities and recreational boating opportunities.
AESTHETICS	No impact.	No adverse impacts are anticipated.	No adverse impacts are anticipated.	No adverse impacts are anticipated.

3.0 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

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 would affect or that would be affected by the alternatives if they were implemented, not the entire existing environment. This section and the description of the "no-action" alternative provide the basic information for determining the environmental impacts of the proposed action and reasonable alternatives.

3.2 GENERAL ENVIRONMENTAL SETTING

3.2.1 AREAS TO BE DREDGED

The Port Everglades Harbor is a major seaport located on the southeast coast of Florida, in the southeastern portion of Broward County. It is located at the adjoining city limits of Hollywood, Dania Beach and Fort Lauderdale, with immediate access to the Atlantic Ocean. The entrance of the Port is approximately 27 nautical miles north of Miami Harbor, Florida and 301 nautical miles south of Jacksonville Harbor, Florida. The Federal deep draft navigation project at Port Everglades services northport, midport and southport facilities. Major cargo includes container, break bulk, dry bulk and liquid bulk. Table 2 provides data on the authorized project features. If changes are made to the Federal Navigation project through a Congressional authorization, those dimensions will override those listed below.

Table 2: Port Everglades Federal Navigation Project Features

Reach or Segment	Nominal Depth (feet MLLW)		Nominal Channel Width (ft)	
	As Authorized	As Maintained	As Authorized	As Maintained
Outer Entrance Channel (OEC)	45, 42	45, 42	500, 450	500, 450
Inner Entrance Channel (IEC)	42	42	450	450
Main Turning Basin (MTB)	42	42	Varies ¹	As Authorized
North Turning Basin (NTB)	31	31	Varies ²	As Authorized
South Turning Basin (STB)	31, 37, 36	34, 36, 37	Varies ³	As Authorized
Southport Access Channel (SAC)	42	42	400	400
Turning Notch (TN)	42	42	750 x 1,000	750 x 1,000

3.2.2 - HISTORICAL MAINTENANCE DREDGING AT PORT EVERGLADES

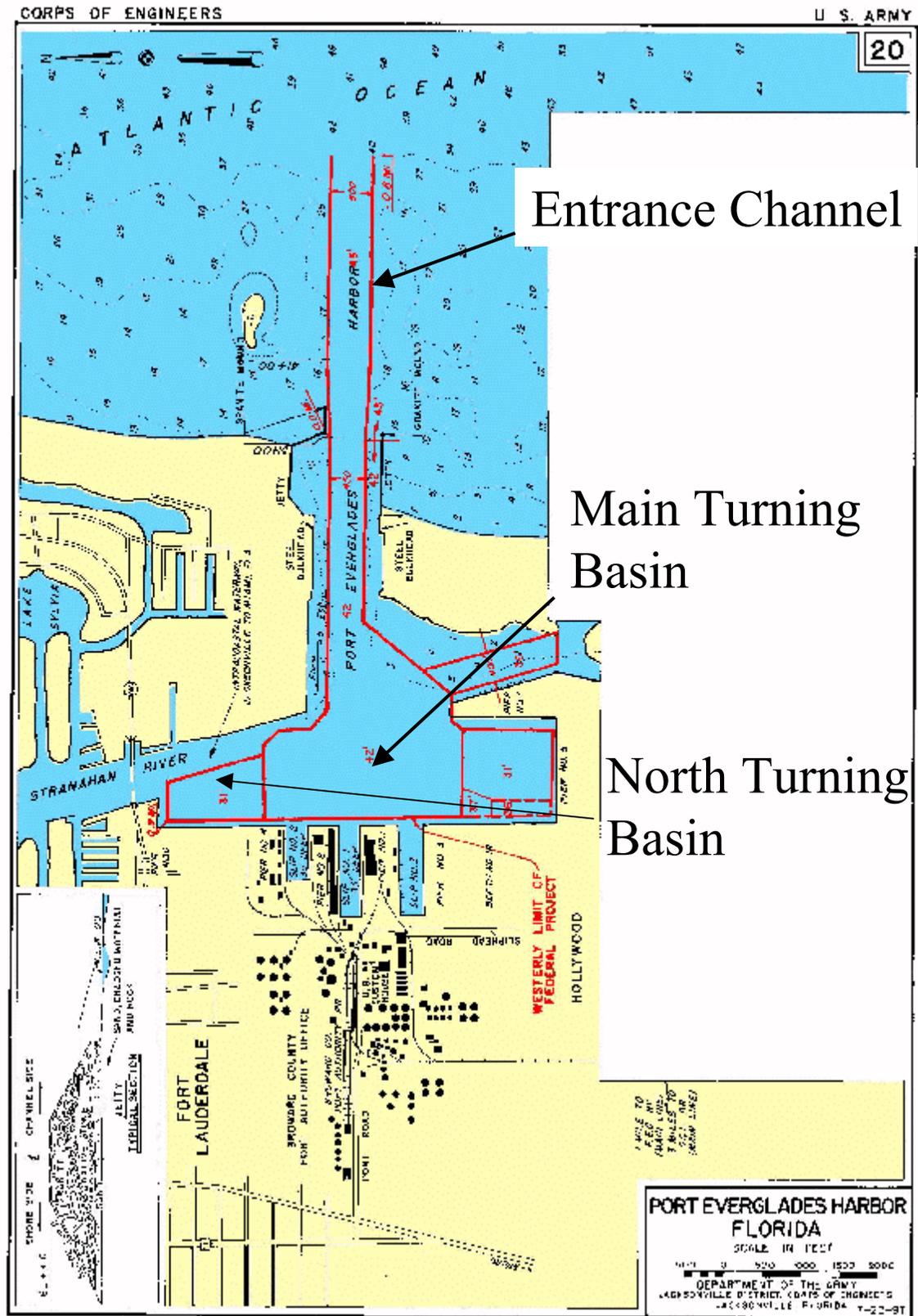
The Corps has records of maintenance events for Port Everglades dating to 1953. Dredged material was often disposed of offshore in “Interim Offshore Disposal Areas” marked on NOAA nautical charts of the waters offshore of the port. Some of the material during the 1961 and 1964 new work was side-cast to the north of the channel forming an “island” of material. This island has subsided due to wave exposure and has created a shoal of rock and rubble material, running parallel to the Entrance Channel. This “island” can also be seen in Figure 2. Maintenance events were also conducted in conjunction with new work in the port. Based on table #3, the average amount of maintenance material removed during maintenance only events is 99,124 cy with an estimated maintenance interval of 3-5 years. The Corps has calculated an average annual shoaling rate at Port Everglades of 30,000 cu yd./yr. However, a more detailed analysis by Broward County as part of a sand-bypassing feasibility study, showed an average shoaling rate

¹Irregular shaped basin that varies in width along the east side, is 2,600 feet along the west side, 800 feet along the north side and 1,100 feet along the south side.

²A turning basin extension 1,200 feet to the north with a depth of 31 feet and east-west dimension tapering for 800 to 500 ft.

³A turning basin to the south with a depth of 31 feet and measuring about 1,100 feet south-north and 1,100 feet east-west with a channel inside along the westerly edge varying in depth from 37 to 36 feet and narrowing in width from 300 feet to 150 feet over a distance of about 1,000 feet.

Fig 2 – Port Everglades Federal Navigation Project



on the north side of the Entrance Channel of up to 20,000 cu yds. per year as of 2001. More recent observation suggest that this rate may be increasing ©. Creed - pers.comm 2004). If Broward County implements sand-bypassing at the Entrance Channel, the volume of material shoaling in the channel is expected to decrease, and the frequency of maintenance activities in the Entrance Channel is also expected to decrease. However, if sand-bypassing is not implemented by the County, and the rate of shoaling is in fact increasing, then maintenance activities at the Entrance Channel may become more frequent.

Table #3 - Maintenance Dredging Events at Port Everglades

Year	Quantity	Type	Placement	Contractor
1953	83,000	MD	Ocean	Government
1960	142,645	MD	Ocean	Norfolk
1960	26,345	MD	Ocean	Government
1961	3,013,124	NW	Ocean	Hendry
1964	1,539,569	NW	Ocean	Hendry
1978	144,509	MD	Ocean	Government
1979	2,221,000	NW	Ocean	Western
1981	2,015,434	NW	Upland	Bultem
1984	32,237	NW	Upland	GLDD

(MD = Maintenance only; NW = New Work (Construction) and Maintenance)

3.2.3 - MITIGATION FOR MAINTENANCE EVENTS

The Corps does not conduct mitigation for maintenance activities on previously constructed Federal Projects, based on the sovereignty given to the Corps by the U.S. Congress to maintain navigation within Federal navigation projects. Projects constructed after the implementation of the NEPA have undergone coordination with Federal, State and Local environmental resource and permitting agencies. This coordination typically resulted in mitigation for any unavoidable impacts associated with construction of the Federal navigation project.

3.3 WATER QUALITY

3.3.1 WATER USE CLASSIFICATION

Waters within the proposed dredging area have been designated by the State of Florida as Class III Waters, suitable for recreation as well as propagation and maintenance of a healthy and well-balanced population of fish and wildlife. In addition to this classification, the waters within the JUL (specifically Whiskey Creek) have also been designated by the state as Outstanding Florida Waters. According to the FDEP, “the intent of an Outstanding Florida Water designation is to maintain ambient water quality, even if these designations are more protective than those required for the classification of the individual water body.”

3.3.2 WATER COLUMN ANALYSIS

Water which passes through the Port is conveyed via the New River System to the north, the Atlantic Intracoastal Waterway (AIWW) and the Dania Cutoff Canal, to the south. The New River and Dania Cutoff Canal are both used to move high levels of fresh water from the Everglades to the Intracoastal and out to the Atlantic Ocean east of Broward County. In addition, there are storm water collection systems both within the Port and in areas west and north of the Port which discharge into the Port. This water then flows out of the Entrance Channel on outgoing tides to the Atlantic Ocean.

Monitoring data indicate that water quality varies on a seasonal basis, and the physical parameters are influenced by freshwater run-off normally associated with the summer months.

No changes in salinity or flushing actions due to the removal of shoal material from within the Port or the entrance channel are expected to occur. Additionally, no changes in water quality of receiving waters, estuarine habitats and species located north or south of the Port are expected to occur.

3.3.3 SEDIMENT ANALYSIS

Types of sediments shoaling within Port Everglades vary by location. Sediments in inside the port are typically deemed “non-beach quality” in other words they may contain higher levels of clay and silt material (fines) than the State of Florida’s beach placement criteria⁴ (62B-41.005(15) FAC) allow. These materials would be analyzed to see if they meet the chemical requirements to be placed in the proposed ODMDS as requires by EPA and the Marine Protection Research and Sanctuaries Act (MPRSA). The Port does not handle fertilizers or pesticides as a bulk cargo and it is felt that any minor presence of these compounds may be associated with the urban run-off surrounding the Port. Any material dredged from within the port over the ten-year life of this EA will be tested for heavy metals and toxins before dredging to determine where the material should be placed. If the material does not meet the criteria for ocean disposal set forth by EPA, then the material would be placed in an upland site. Since Port Everglades currently does not have a federally approved upland site, the material could not be dredged until such a site became available.

Historically, shoal material encountered in the entrance channel is mostly poorly graded carbonate sand with shell. It consistently meets the criteria for beach placement as it contains less than 10% fines. Core borings collected in 2003 for the Entrance Channel dredging analyzed in the “Maintenance Dredging of the Port Everglades Entrance Channel Environmental Assessment completed with a Finding of No Significant Impact in November 2003”, found beach quality sand that appears to be migrating around the north jetty and spilling into the entrance channel. The drill logs for the core borings collected for the November 2003 EA can be found in Appendix D of that document.

3.4 ENDANGERED, THREATENED AND PROTECTED SPECIES

3.4.1 MANATEES

The West Indian manatee (*Trichechus manatus*) has been listed as a protected mammal in Florida since 1893. The manatee is also federally protected under the Marine Mammal Protection Act of 1972 (MMPA) as a depleted species. The manatee was listed as an endangered species throughout its range in 1967 (32 FR 4061) and received federal protection with the passage of the Endangered Species Act of 1973 (ESA). Although critical habitat was designated in 1976 for the Florida subspecies (*Trichechus manatus latirostris*) (50 CFR 19.95(a)), there is no Federally designated critical habitat in the project area. 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.

Within Broward County there exists both permanent and transient populations of manatees.

⁴ These regulations can be found at:
<http://www.dep.state.fl.us/legal/legaldocuments/rules/beach/62b-41.pdf>

Surveys show that during the winter months when temperatures drop, manatees from north Florida and Miami-Dade County will migrate to the Florida Power and Light (FP&L) power plant at the Port (Deutsch 2000). During cold weather as many as 234 manatees have been recorded at the FP&L power plant at one time (Mezich 2001). During the summer months when the water warms, manatees return to the counties to the north and south to forage and reproduce, however, telemetry and aerial surveys confirm manatees are present within Broward County all year (Deutsch 2000 and Mezich 2001). Manatees reside and feed mainly in the estuarine areas and around inlets, and are only occasionally observed in the open ocean. No significant foraging habitat is known to exist in the areas around the project sites in Broward County (USACE, 2002), nor have West Indian manatees been known to congregate in the nearshore environments within Broward County (USACE, 1996).

3.4.2 SEA TURTLES

Broward County is within the normal nesting areas of three species of sea turtles: loggerhead sea turtle (*Caretta caretta*), green sea turtle (*Chelonia mydas*), and leatherback sea turtle (*Dermochelys coriacea*). Additionally, two of the seven hawksbill turtle (*Eretmochelys imbricata*) nests laid in the State of Florida between the years 1979 and 1998 were in Broward County: one nest in 1994, and one in 1997 (Florida Marine Research Institute, 1999). The loggerhead is listed as a threatened species, while all other sea turtles are listed as endangered under the ESA. The nesting season for all species of sea turtles, as defined by the Florida Fish and Wildlife Conservation Commission, is between March 1 and October 31 in Broward County.

3.4.2.1 NESTING HABITAT

Overall, 2,425 nests were recorded in 2003 over the 24-mile beach from the Palm Beach County/Broward Line south to the Broward County/Dade County Line. Total nests recorded for the previous eight nesting seasons (2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995) were 2,073, 2,385; 2,942; 2,620; 2,857; 2,288; 2,810; and 2,634, respectively. The distribution of nests among species in 2003 was 2,335 loggerhead nests, 78 green sea turtle nests, and 12 leatherback nests. The distribution of nests among species in 2002 was 2,070 loggerhead nests, 216 green sea turtle nests, and 18 leatherback nests. (Lou Fisher, DPEP, pers.comm 2004).

The Florida statewide nesting database provides the nesting results of Florida's surveyed beaches for the years 1979 through 2002. A total of 1,216,471 loggerhead nests (an average of 50,686 per nesting season); 42,241 green sea turtle nests (an average of 1,760 per nesting season); 5,160 leatherback nests (an average of 215 per nesting season); and 7 hawksbill nests were documented on Florida beaches between 1979 and 2002. Two of the seven hawksbill nests were laid in Broward County, one in 1994, and one in 1997 (Florida Marine Research Institute, 1999).

Due to the heavily developed nature of the Broward County coastline, the relative location of Highway A-1-A to the beach, and extensive beach front lighting, all of which have the potential to negatively impact nesting sea turtles and their hatchlings, Broward County has relocated all discovered nests at Pompano Beach, Deerfield Beach, Hollywood-Hallandale, and Fort Lauderdale since the inception of its sea turtle conservation program in 1978 (Burney and Margolis, 1998). In 1998, hatching success was at its lowest level since the nest relocation program was initiated. However, loggerhead-hatching success was slightly higher in relocated nests than *in situ* nests, lending credence to the hypothesis those environmental factors, such as the unusually high early summer temperatures in 1998, negatively affected early loggerhead nests (Sterghos, 1998).

3.4.3 DOLPHINS AND WHALES

Rare, threatened, or endangered whale species that are infrequent visitors to the coastal waters off Broward County during their migration patterns include the finback whale (*Balaenoptera physalus*); humpback whale (*Megaptera novaeangliae*); northern right whale (*Eubalaena glacialis*); sei whale (*Balaenoptera borealis*); and the sperm whale (*Physeter macrocephalus catodon*) (USACE, 1996). A total of 21 stocks of marine mammals have been reported offshore of the project area (NMFS, 2002).

The bottlenose dolphin (*Tursiops truncatus*), is known to inhabit inshore and offshore waters in south Florida. The Corps expects to find bottlenose dolphins in the activity area as there are resident populations living in Biscayne Bay to the south and the Indian River Lagoon to the north, so it can be expected that dolphins could use the IWW as a travel corridor between these two bay systems and enter the Port from offshore via the Port Everglades Inlet. A few dolphins have been documented in the Port boundaries over the last five years by researchers conducting a bottlenose dolphin photo-identification study in the port, as well as outside of the entrance channel (Ed Keith, Nova University, pers. comm., 2003.).

There is not currently a stock assessment available from NMFS concerning the status of bottlenose dolphins in the inshore and nearshore waters off of south Florida (Emily Menashes, NMFS, pers.comm 2002). Additionally, no status reviews or published reports of status of dolphins residing in or near Port Everglades have been published (Lance Garrison, pers.comm 2003). The stocks of bottlenose dolphins that reside closest to the project area, that have a completed stock assessment report available for review is the western North Atlantic coastal stock and offshore stock of bottlenose dolphins. The assessment for these groups was updated in Jan 2002 (NMFS, 2002). The western North Atlantic coastal stock of bottlenose dolphins is considered "depleted" under the MMPA and is listed as a strategic stock.

3.4.4 JOHNSON'S SEAGRASS

While Johnson's seagrass is found in Broward county, it has not been found in the Port Everglades Federal Navigation Project channels, or in any of the proposed disposal areas.

3.5 WILDLIFE RESOURCES OTHER THAN ENDANGERED, THREATENED AND PROTECTED SPECIES

3.5.1 BEACH AND DUNE HABITAT

Very few birds utilize the beach and dunes in the project area due to intense coastal development. Several species of protected birds have been observed at JUL, including the Southeastern American Kestrel (*Falco sparverius paulus*), Eastern brown pelican (*Pelecanus occidentalis*), least tern (*Sterna antillarum*), little blue heron (*Egretta caerulea*), snowy egret (*Egretta thula*), tri-colored heron (*Egretta tricolor*), Roseate spoonbill (*Ajaia ajaja*), and osprey (*Pandion haliaetus carolinensis*) (Coastal Technology Corporation, 1994; Florida Game and Fresh Water Fish Commission, 1991).

Based upon database reports of the Florida Fish and Wildlife Conservation Commission (FFWCC), there are over 80 species of birds listed in the Federal Migratory Bird Treaty Act that have been recorded as inhabiting the southeast Florida coastline (Palm Beach, Broward, and Dade counties) between the surf zone and densely vegetated forest of the back dune for at least part of the year (USACE, 1996). However, very few species utilize the beach and dune areas in this area due to intense coastal development. Sanderlings (*Calidris alba*) and ruddy turnstones

(*Arenaria interpres*) are generally the only wintering species that are commonly observed foraging and resting on the beaches along Broward County. Royal terns (*Sterna maxima*), ring-billed gulls (*Larus delawarensis*), laughing gulls (*Larus atricilla*) and herring gulls (*Larus argentatus*) also winter along the southeast Florida coastline and are generally observed foraging and resting near fishing piers and on beaches adjacent to piers (USACE, 1996).

The beaches of Broward County are typical of southeast Florida beaches that receive the full impact of wind and wave action. The diversity of species that can survive in this environment is low, but the population density of the few resident species that are specialized to survive in this high-energy environment is usually very high. The upper portion of the beach, or subterrestrial fringe, is dominated by talitrid amphipods and ghost crab (*Ocypode quadrata*). In the midlittoral zone (beach face of the foreshore), polychaetes, isopods, and haustoriid amphipods are the dominant organisms. In the surf zone, coquina clams (*Donax* spp.) and mole crabs (*Emerita talpoida*) typically dominate the beach fauna (Spring, 1981; Nelson, 1985; and USFWS, 1997).

3.5.2 INLET COMMUNITIES

The area of vegetated estuarine wetlands surrounding Port Everglades Inlet is also limited due to the extensive development of the Port and adjacent urban areas, absence of stable substrate, and excessive water depth

Corals (*Siderastrea* spp., *Porites* sp., *Montastrea* sp., *Oculina* sp., and *Leptogorgia setacea*) and sponges (*Cliona* sp. and *Spheciospongia vesparium*) are sparsely distributed in some inlets in southeast Florida. Species commonly observed in association with jetty structures include fireworm (*Hermodice carunculata*), Cuban stone crab (*Menippe nodifrons*), flat crab (*Plagusia depressa*); sponges (*Haliclona* sp.), colonial anemone (*Zoanthus sociatus* and *Palythoa variabilis*), hydroids, and the octocoral, *Telesto riisei*. (CPE, 1992).

The shallow unvegetated communities of the AIWW and basins associated with Port Everglades have been extensively surveyed in relation to monitoring of past maintenance dredging within the port area. This area consists of softbottom benthic communities interspersed with rubble left from previous dredging activities. Messing and Dodge (1997) and Rudolph (1986) have identified as many as 370 species of invertebrates within the shallow water benthic community. The most consistent fauna within these communities consist of several taxa of polychaete worms, oligochaetes, mollusks, sipunculans, peracarid crustaceans, platyhelminthes, and nemertina (Messing and Dodge 1997, Rudolph 1986). All of these studies were conducted in shallower areas adjacent to the existing channel or turning basin, and reflect a more diverse and abundant benthic community than likely occurs in the deeper federal channel or waterways of the Port.

3.5.3 NEARSHORE HARDBOTTOM COMMUNITIES

The nearshore hardbottom communities typically occur in 0 to 10 feet of water and exist in a physically stressed environment. This hardbottom area is part of the Miami Oolite Formation of Broward and Dade Counties (Hoffmeister et al. 1967). Hardbottom areas in Broward County run inside the nearshore reef tract, and are exposed where wave action has exposed the oolite formations. These hardbottom areas are comprised of exposed rock with a fine covering of sand. These oolitic limestone formations are covered with communities dominated by algae and sponges with interspersed gorgonians and hard corals. Nearshore hardbottom areas offshore of JUL were characterized using multi-spectral image analysis classification. The resulting

classification is shown in Figure 3. Ground truthing of these nearshore hardbottom areas was performed on May 16-17, 2001 as part of the Port Everglades Feasibility Study.

Seaward of the nearshore hardbottom area there are three separate parallel reef tracts. The first reef occurs from approximately 100 to 2000 feet from shore; the second reef is located 3,000 to 6,000 feet offshore; and the third reef is approximately 8,000 feet or more offshore (USACE 1996). There is an extensive sand area located between the second and third reef lines (USACE 1996). The area between the first and second reef lines is characterized by small isolated hermatypic coral heads and interspersed coral rubble, with areas of open sand.

3.5.5 ENTRANCE CHANNEL HARDBOTTOM COMMUNITIES IN PROPOSED DISPOSAL AREA

The Coast of Florida Study (USACE 1996) maps show reef resources located within the entrance channel and adjacent areas. Transects swum by divers from Broward County DPEP Marine Resources Division indicate that no reef is located in the channel in this area, rather the area consists of scattered hardbottom consisting of rock outcroppings (Broward County Shore Protection Project Graphic Information Systems Database, 2001). A thorough mapping of the marine resources within the Entrance Channel and the surrounding area was conducted on May 16-17, 2001 as part of the Port Everglades Feasibility Study to clearly define the type and quality of habitat present and will be used to characterize the environment for the purposes of this EA (Figure 4).

Based on the integrated video mapping survey conducted in May 2001, marine resources in the study area were reclassified and a resource mosaic prepared. Resources within the entire length of the OEC included sand, low-relief reef, high relief reef, scattered rock/rubble, and patchy sparse paddlegrass (*Halophila decipiens*) (Figure 5). The area of low-relief hardbottom in water greater than 42 feet is a viable community with both gorgonians and hard corals present. This habitat is not of the same quality as areas of hardbottom outside of the channel due to the disturbed nature of the area. This area of low-relief hardbottom is rock exposed from prior dredging events and re-colonized after dredging. This community is comprised mostly of fast colonizing species such as sponges (e.g. *Ircinia* sp., *Niphates* sp., *Cliona* sp., and *Iotrochota* sp.) and gorgonians (e.g. *Eunicea* sp., *Plexaura* sp. and *Pseudopterogorgia* sp) and these communities can be expected to colonize these areas after any future dredging events.

The proposed disposal site between stations 29+00 and 46+00 is characterized by a scattered rock-rubble habitat (Sheet 1 of 7, Appendix D; Figure 5).

3.5.6 FISHES - NEARSHORE COMMUNITY

The inshore surf zone fish community consists mainly of small species or juveniles (Modde, 1980). A relatively few species typically dominate the surf zone area (Modde and Ross, 1981; Peters and Nelson, 1987). Common surf zone fish include Atlantic threadfin herring (*Opisthonema oglinum*); blue runner (*Caranx crysos*); spotfin mojarra (*Eucinostomus argenteus*); southern stingray (*Dasyatis americana*); greater barracuda (*Sphyraena barracuda*); yellow jack (*Caranx bartholomaei*) and the ocean triggerfish (*Canthidermis sufflamen*); none of which are of local commercial value (USACE, 1998).

A mixture of coastal pelagic, surf zone, and reef fishes are attracted to the shelter and food source provided by the nearshore hardbottom along southeast Florida (USACE, 1996). Coastal pelagic species observed are primarily migratory species that include Spanish mackerel, *Scomberomorus maculatus*; bluefish, *Pomatomus saltatrix*; mullets, *Mugil* spp.; and jacks,

Fig 3 - Nearshore Marine Resource Cover Map

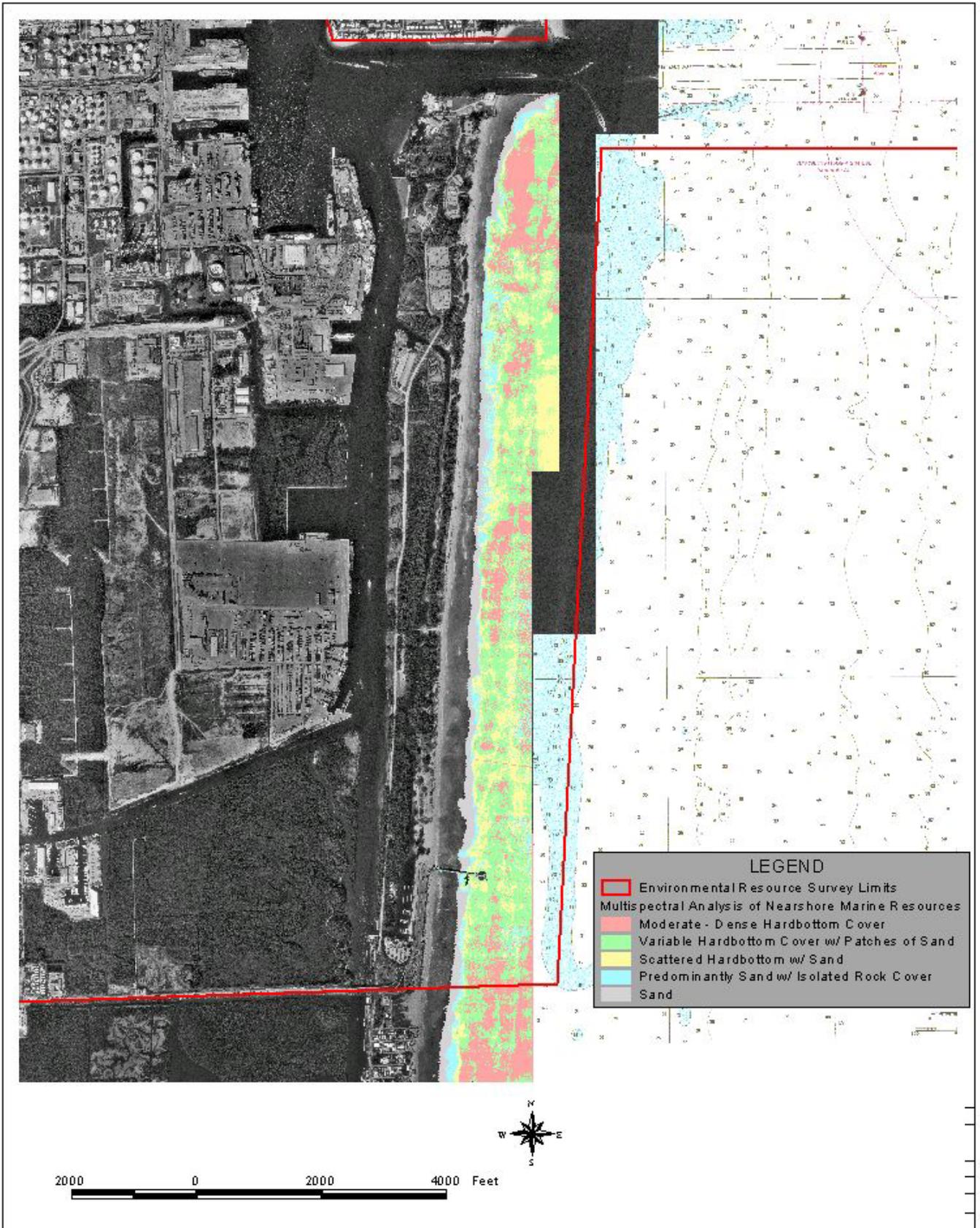
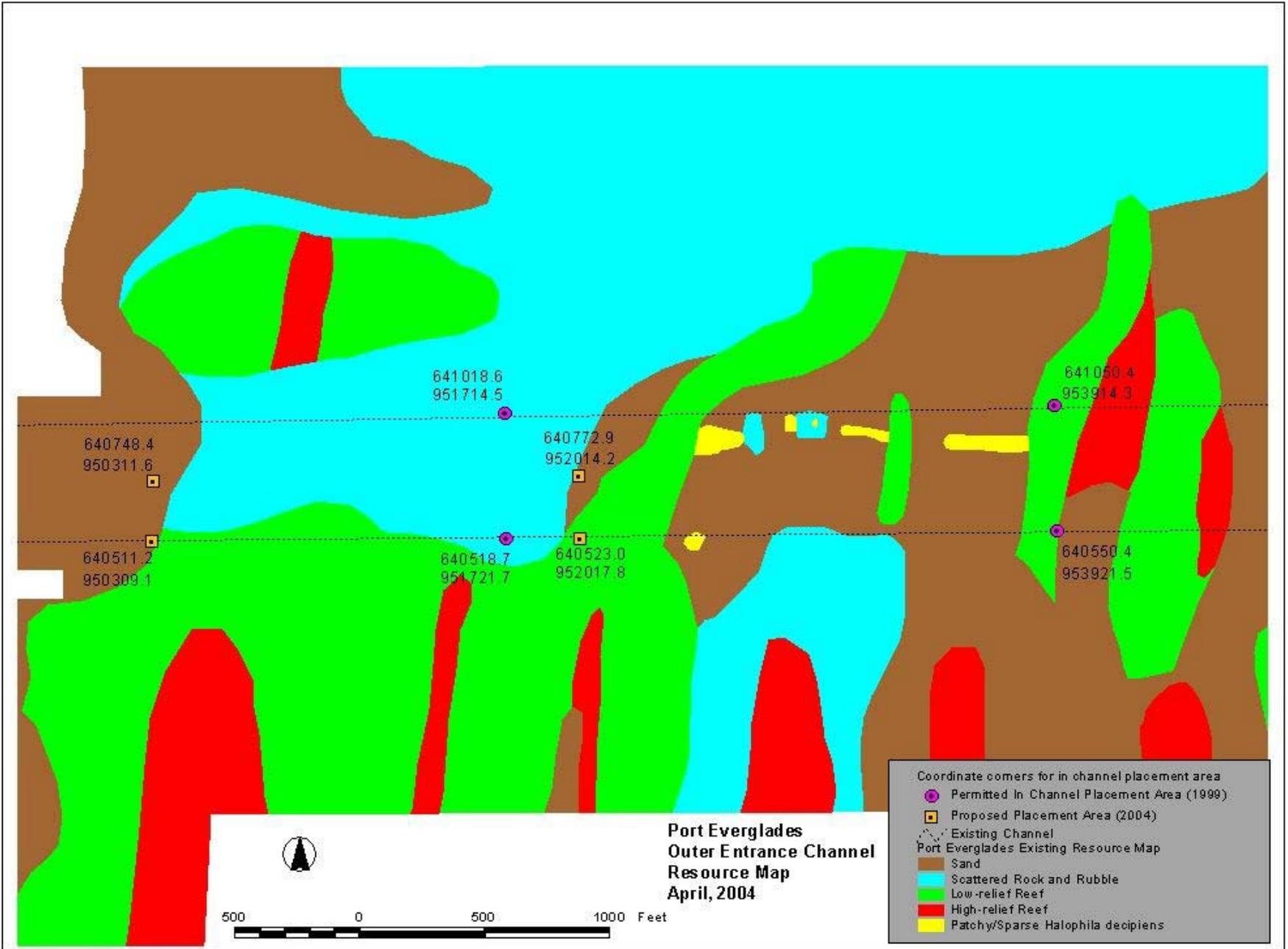


Fig 4 – Hardbottom and Reef Habitat Distribution



Figure 5 – Entrance Channel Disposal Site



Caranx spp. Only Spanish mackerel and mullet are of commercial value (USACE, 1996). Typical surf zone fishes observed in association with the rock outcrops of southeast Florida include Atlantic croaker, *Micropogonias undulatus*; pompano, *Trachinotus carolinus*; jacks, *Caranx* spp.; snook, *Centropomus undecimalis*; anchovies, *Anchoa* spp.; and herrings, *Clupea* spp. (USACE, 1996). Common snook (*C. undecimalis*) is listed as a species of special concern by the State of Florida. These species are not confined to the nearshore hardbottom areas and can be found along the sandy periphery of the rocks in the nearshore zone (Herrema, 1974; Futch and Dwinnel, 1977; Gilmore, 1977; Gilmore et al., 1981). In contrast to surf zone fishes, reef fishes are always associated with some form of natural or artificial bottom structure. The offshore reefs support the largest populations of reef fish. Reef species often observed along the nearshore rock outcrops include grunts, snappers, groupers, wrasses, damselfish, blennies, gobies, angelfishes, and parrot fishes.

Detailed surveys of nearshore fish abundance and densities were conducted as part of the BCSSP and details of those surveys can be located in Section 3.5.5.1 and 3.5.5.2 of that FEIS.

3.6 ESSENTIAL FISH HABITAT

3.6.1 NEARSHORE (BEACH AND IN CHANNEL DISPOSAL OPTIONS)

The South Atlantic Fisheries Management Council (SAFMC) has designated nearshore hardbottom areas within the study area as Essential Fish Habitat (EFH). The nearshore bottom of southeastern Florida has also been designated as EFH-Habitat Areas of Particular Concern (HAPC) (SAFMC 1998). Managed species that commonly inhabit the study area include pink shrimp (*Penaeus duorarum*), and spiny lobster (*Panulirus argus*). These shellfish utilize both the inshore habitats within the study area. Members of the 73 species snapper-grouper complex that commonly use the inshore habitats for part of their life cycle include blue stripe grunts (*Haemulon sciurus*), French grunts (*Haemulon flavolineatum*), mahogany snapper (*Lutjanus mahogoni*), yellowtail snapper (*Ocyurus chysurus*), and red grouper (*Epinephelus morio*). These species utilize the inshore habitats as juveniles and sub-adults and as adults utilize the hardbottom and reef communities offshore. In the offshore habitats, the number of species within the snapper-grouper complex that may be encountered increases. Other species of the snapper-grouper complex commonly seen offshore in the study area include gray triggerfish (*Balistes capriscus*) and hogfish (*Lachnolaimus maximus*). Coastal migratory pelagic species also commonly utilize the offshore area adjacent to the study area. In particular, the king mackerel (*Scomberomorus cavalla*) and the Spanish mackerel (*Scomberomorus maculatus*) are the most common. As many as 60 species of corals can occur off the coast of Florida (SAFMC 1998) and all of these fall under the protection of management plans.

3.6.2 OFFSHORE (ODMDS DISPOSAL OPTION)

The SAFMC (1998) has designated the following as EFH near to the ODMDS location: water column; Artificial/Man-made reefs; Sargassum and Live/Hardbottoms. All of these habitats are described in detail in section 3.6 of the DEIS for the Designation of the Port Everglades and Palm Beach ODMDS (EPA, 2004). Of the four designated EFH types, water column and live/hardbottoms habitats are found near the ODMDS.

3.6.2.1 WATER COLUMN

The marine water column is defined as the open water (ocean) environment. It extends vertically from the ocean bottom to the water surface. The water column provides habitat for

phytoplankton to carry out the processes of primary productivity. Zooplankton also utilize the water column for habitat thus creating the foundation of the ocean food web and ecosystem. Some benthic invertebrates filter the water column to collect food particles that are suspended in the water. Higher vertebrates (fishes, marine mammals and sea turtles) use the water column for foraging, migration and breeding.

3.6.2.2 HARDBOTTOM/LIVE BOTTOM

Areas of hardbottom are scattered throughout the continental shelf of the southeastern United States. These areas have been termed “live bottoms” because they generally support a diversity of sessile invertebrates such as corals and sponges. Because of their biological and physical complexity, live bottom habitats attract both commercial and recreational fish species.

From West Palm Beach to the Florida Keys, there are generally three separate series of reefs or hard bottoms. Typically, there is a sand and rubble zone between the first and second hard bottom areas and more abundant sand pockets between the second and third hard bottom areas. The biological communities in and adjacent to hardbottom areas are relatively consistent, although exact species composition may vary from site to site based on physical parameters such as distance from shore and hardground profile. No hardbottom have been observed within the ODMDS (EPA, 2004).

3.7 CULTURAL RESOURCES

In accordance with the recommendations of the State Historic Preservation Officer, the proposed dredging and disposal areas were surveyed for underwater historical properties using a magnetometer for the Broward County Shore protection project, the pending Port Everglades Feasibility Study, and the Port Everglades and Palm Beach ODMDS. All three studies were granted concurrence from Florida State Historic Preservation Officer. Copies of the concurrence documents are located in Appendix C of this EA. The surveys conducted for each of these consultations is available for review at the Jacksonville District offices.

3.8 RECREATION

The coastal waters of Broward county are used for a variety of recreational activities including swimming, fishing, water skiing, sailing, power boating, surfing, skin and SCUBA diving. Recreational boaters and divers use the Port Everglades primarily for accessing the offshore coral reefs and deep waters off of the county. In addition to the commercial port facilities, there are several large marinas to the north and south of the Port where pleasure craft of various types and sizes are moored. All of the beaches in the area support a wide variety of recreational activities such as surf fishing, swimming, and sun bathing.

3.9 NAVIGATION (COMMERCIAL & MILITARY)

Port Everglades is the second largest port facility on Florida’s Atlantic coast. More than 5,400 ships call at Port Everglades in a year forming the basis of a diverse maritime operation that includes a thriving cruise industry, containerized cargo, a major petroleum storage and distribution hub and South Florida's primary bulk cargo depot (Broward County, 2003).

Port Everglades has long been a favorite liberty port of call for U.S. Naval vessels. The port is a site for official ceremonies and a location for operational exercises in conjunction with the port-located U.S. Navy's South Florida Testing Facility. The port's deep harbor -- the only

commercial port south of Norfolk, VA, that can handle aircraft carriers at its docks make it an ideal stop for vessels operating in Atlantic and Caribbean waters.

Port Everglades is also soon to be the homeport of the USNS Hayes (T-AG). The Navy is relocating this acoustic survey vessel from Port Canaveral, Florida to Port Everglades in August 2005 (USN EA - Oct 20, 2000 - Environmental Assessment for the Relocation of the USNS Hayes and Construction of Shore Support Facilities).

3.10 ECONOMICS

Maintenance dredging of Port Everglades Navigation Project is necessary to allow deep-draft vessels continued safe access to and within the port. The port, in turn, provides employment and also produces income for the local community through the purchase of goods and materials. Maintenance dredging maintains safe navigation conditions for commercial fishermen, commercial dive boat operators and recreational boating enthusiasts as well. Boating opportunities and maintained beaches offer the local tourism industry attractions for generating revenue.

3.11 AESTHETICS

JUL is enjoyed by thousands of visitors every year, and commercial and recreational fisherman and divers that access the offshore coral reefs utilize the port channels to transit from local marinas.

4.0 ENVIRONMENTAL EFFECTS

4.1 INTRODUCTION

This section describes how the implementation of each alternative would affect the environmental resources listed in Section 3.0. A summary of these impacts can be found in Table 1 of Section 2.0. The following anticipated changes to the existing environment include direct, indirect, and cumulative effects.

4.2 WATER QUALITY

4.2.1 NO-ACTION ALTERNATIVE

There will be no impact to water quality if the Corps does not maintain the Federal Navigation project.

4.2.2 DREDGING ALTERNATIVE

The only anticipated change in water quality at the proposed dredge site will be a temporary increase in turbidity. According to the state of Florida's water quality standards, turbidity levels during dredging are not to exceed 29 nephelometric turbidity units (NTUs) above background levels within a 150-meter mixing zone. In order to comply with this standard, turbidity will be monitored during the proposed dredge work. If at any time the turbidity standard is exceeded, those activities causing the violation will cease.

4.2.3 ENTRANCE CHANNEL PLACEMENT

The only anticipated change in water quality at the proposed dredge site will be a temporary increase in turbidity. According to the state of Florida's water quality standards, turbidity levels during dredging are not to exceed 29 nephelometric turbidity units (NTUs) above background levels within a 150-meter mixing zone. In order to comply with this standard, turbidity will be

monitored during the proposed disposal work. If at any time the turbidity standard is exceeded, those activities causing the violation will cease.

4.2.4 ODMDS PLACEMENT

The disposal of dredged material is not expected to significantly degrade water quality within disposal sites. The disposal will locally and temporarily increase water column turbidity and concentrations of dissolved and particulate constituents. A detailed discussion of the effects of disposal of material from Port Everglades are discussed in Section 4.0 of the DEIS for the Designation of the Palm Beach Harbor and Port Everglades Harbor ODMDS and are hereby incorporated by reference (EPA 2004).

4.2.5 JOHN U LLOYD STATE PARK PLACEMENT

The effects of disposal at JUL, including the effects on water quality, are detailed in two previous NEPA documents completed by the Jacksonville District and are hereby incorporated by reference: USACE, 2003, Broward County Shore Protection Project, Segments II and III, Final Environmental Impact Statement, Jacksonville District, June 2003; and USACE, 2003, Maintenance Dredging - Port Everglades Entrance Channel, Broward County, Florida, Environmental Assessment, Nov 2003. Both of these documents can be located on the Jacksonville District environmental documents website under "Broward County" (<http://planning.saj.usace.army.mil/envdocs/envdocsb.htm#Broward-County>). The effects of placement at this site are minor and short term.

4.3 THREATENED, ENDANGERED AND PROTECTED SPECIES

4.3.1 NO-ACTION ALTERNATIVE

There will be no impact to threatened and endangered species if the Corps does not maintain Port Everglades.

4.3.2 DREDGING ALTERNATIVE

4.3.2.1 MANATEES

Coordination with the U.S. Fish and Wildlife Service (USFWS) has been initiated regarding possible impacts to the manatee caused by the proposed project (see Appendix C). The Corps determined that the project is not likely to adversely affect the manatee because the following standard protection measures will be implemented to minimize potential impacts to manatees:

- (1) The contractor will instruct all personnel associated with the construction of the project about the presence of manatees in the area and the need to avoid collisions with manatees. All construction personnel shall be responsible for observing water-related activities for the presence of manatees and shall implement appropriate precautions to ensure the protection of 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 Mammals Protection Act of 1972, the Endangered Species Act of 1973, and the Florida Sanctuary Act. The contractor shall be held responsible for any manatee harmed, harassed, or killed as a result of the construction of the project.
- (3) Prior to the commencement of construction, the construction contractor shall construct and install at least two temporary signs concerning manatees. These signs shall read "Caution: Manatee Habitat. Idle Speed is required if operating a Vessel in the Construction Area" and

"Caution: Manatee Habitat. Equipment must be Shutdown Immediately if a Manatee Comes Within 50 Feet of Operation".

(4) All vessels associated with the project will be required to operate at "no wake" speeds at all times while in waters where the draft of the vessel provides less than four feet of clearance from the bottom. All vessels shall follow routes of deep water whenever possible.

(5) If a manatee is sighted within a hundred yards of the construction area, appropriate safeguards will be taken, including suspension of construction activities, if necessary, to avoid injury to manatees. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee.

(6) The contractor shall maintain a log detailing sightings, collisions, or injuries to manatees should they occur during the contract. Any collision with and/or injury to a manatee shall be reported immediately to the Florida Marine Patrol at 1-800-DIAL-FMP (1-800-342-5367) and USFWS in Vero Beach.

4.3.2.2 SEA TURTLES

Coordination with the National Marine Fisheries Service (NMFS) has been completed regarding possible impacts to sea turtles below mean high water caused by the proposed dredging (see Appendix C). The Corps determined that the project may adversely effect sea turtles below mean high water if a hopper dredge is used, and NMFS concurred with the Corps' determination on 22 April 2004 (Consultation # I/SER/2004/00418 - Appendix C).

If a hopper dredge is utilized to clear the shoals within Port Everglades, compliance with all recommendations and requirements of the 1997 NMFS Biological Opinion regarding hopper dredging will be required to assure that incidental take of sea turtles are minimized during hopper dredging operations (Appendix C). The sea turtle deflecting draghead is required for all hopper-dredging projects during the months that turtles may be present, unless a waiver is granted by the Corps in consultation with NMFS. The 1997 amended Biological Opinion mandates that year round, one-hundred percent observer coverage is necessary for beach nourishment project in southeast Florida. One hundred percent inflow screening is required, and one-hundred percent overflow screening is recommended when observers are required on hopper dredges. If conditions prevent one hundred percent inflow screening, inflow screening can be reduced, but one hundred percent outflow screening is required, and an explanation must be included in the preliminary dredging report. Preliminary dredging reports which summarize the results of the dredging and any sea turtle take must be submitted within 30 working days of completion of any given dredging project. Logs of any sea turtle injuries or deaths due to hopper dredging activities will be maintained, with immediate notification to the Corps, Jacksonville District, USFWS and NMFS.

4.2.3.3 DOLPHINS AND WHALES

The proposed dredging is not expected to have any negative effect on dolphins that inhabit the waters in the port. No whales have been documented in the boundaries of the port. The dolphins that transit through the port are acclimated to large vessels and a large amount of vessel traffic.

4.3.3 ENTRANCE CHANNEL PLACEMENT

4.3.3.1 MANATEES

Coordination with the USFWS has been initiated regarding possible impacts to the manatee caused by the proposed project (see Appendix C). The Corps determined that the project is not likely to adversely affect the manatee because the standard protection measures previously cited in Section 4.3.2.1 will be implemented to minimize potential impacts to manatees.

4.3.3.2 SEA TURTLES

Coordination with the NMFS has been initiated regarding possible impacts to sea turtles below mean high water caused by the proposed project (see Appendix C). The Corps has determined that placement of sandy dredged material in the Entrance channel may effect, but is not likely to adversely effect sea turtles in the area of the Port. The Corps determined that the project may adversely effect sea turtles below mean high water if a hopper dredge is used.

4.3.3.3 DOLPHINS AND WHALES

No whales have been documented in the boundaries of the entrance channel near the jetties inside of the reef lines found offshore of Broward county. And as result of this, the project will have no effect on the whale species found offshore of Broward county.

The proposed placement is not expected to have an effect on dolphins that inhabit the waters in the entrance channel. The dolphins that transit through this area are acclimated to large vessels and a large amount of vessel traffic.

4.3.4 ODMDS PLACEMENT

The EPA has initiated consultation with NMFS as part of the DEIS for designation of the ODMDS for Port Everglades and Palm Beach, previously referenced in Section 1.5 of the EA and the Corps has initiated consultation with NMFS for placement of dredged material at the ODMDS

In Appendix E of the DEIS for the ODMDS designation, EPA has determined that since the ODMDS site it located offshore, manatees will not be found within the boundaries of the site, and thus will not be effected by dredged material placement. They also determined that the whales, dolphins and sea turtles found in south Florida (previously identified in Section 3.4 of this EA) are transient in nature and therefore, their presence in the ODMDS would be brief. All of the species are high motile and could easily avoid any dredged material placement activities that would occur at the designated ODMDS. The EPS made a determination that designation of the ODMDS will have no effect on listed species, the Corps has made the determination that the placement of material in the ODMDS may effect, but is not likely to effect listed species. Potential effects include vessel/whale interactions. Precautions will be implemented for observers to watch for any whales in the area of the ODMDS to prevent such interactions.

4.3.5 JOHN U LLOYD STATE PARK PLACEMENT

4.3.5.1 MANATEES

Coordination with the USFWS has been initiated regarding possible impacts to the manatee caused by the proposed project (see Appendix C). The Corps determined that the project is not likely to adversely affect the manatee because the standard protection measures previously cited in Section 4.3.2.1 will be implemented to minimize potential impacts to manatees.

4.3.5.2 SEA TURTLES

Placement of sand at JUL may increase sea turtle nesting habitat provided that the sand is highly compatible with naturally occurring beach sediments and that compaction and escarpment remediation measures are incorporated into the project.

Potential negative effects to sea turtles include possible destruction of nests deposited within the boundaries of the proposed project 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 and color of the 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. Protective measures can alleviate the potential for some of these negative impacts (i.e. compaction monitoring and tilling activities to reduce sand compaction, and leveling escarpments prior to nesting season).

Coordination with the USFWS under the ESA has been initiated regarding possible impacts to nesting sea turtles caused by the proposed project (see Appendix C). The Corps has determined that placement of sandy dredged material on JUL may affect, but is not likely to adversely affect nesting sea turtles because placement of sandy material will only take place outside of sea turtles nesting season (March - September) and State criteria for sand placement will be utilized to determine suitability of material for placement at JUL.

4.3.5.3 DOLPHINS AND WHALES

The proposed placement of dredged material at JUL is not expected to have any effect on dolphins and whales that inhabit the waters offshore of Broward county.

4.4 WILDLIFE RESOURCES OTHER THAN THREATENED, ENDANGERED AND PROTECTED SPECIES

4.4.1 NO-ACTION ALTERNATIVE

There will be no impact to wildlife resources other than threatened, endangered and protected species if the Corps does not maintain the Port Everglades Federal Navigation Project.

4.4.2 DREDGING ALTERNATIVE

4.4.2.1 BEACH AND DUNE HABITAT

Dredging of material from the Port Everglades Federal Navigation Project will have no effect on beach and dune habitat.

4.4.2.2 INLET COMMUNITIES

The benthic community in the port will be removed during the dredging activities, however it is expected to recover as has been demonstrated by previous maintenance events conducted during historic port dredging operations.

4.4.2.3 NEARSHORE HARDBOTTOM COMMUNITIES

There will be no impact to the nearshore hardbottom communities outside of the entrance channel during the maintenance dredging activities.

4.4.2.4 FISHES - NEARSHORE COMMUNITY

Maintenance dredging of the Port Everglades Federal Navigation Project may have temporary effects on fishes inhabiting the boundaries of the navigation project. Most fishes are motile and can move out of the dredge area, however some benthic or slower moving fishes may not be able to avoid the dredge. Eggs and larval fishes also may not be able to avoid the dredge and may be adversely impacted by the dredging. These impacts should be temporary in nature.

4.4.3 ENTRANCE CHANNEL PLACEMENT ALTERNATIVE

4.4.3.1 BEACH AND DUNE HABITAT

Placement of material in the deeper part of the entrance channel may make it available in the littoral system since it is placed outside of the mouth of the jetties.

4.4.3.2 INLET COMMUNITIES

Placement of dredged sandy material in the Entrance Channel will be outside of the inlet and will not effect the inlet communities.

4.4.3.3 NEARSHORE HARDBOTTOM COMMUNITIES

Placement of dredged sandy material in the Entrance Channel will be in the bottom of a channel more than 40 feet in depth. This is sandy, beach quality material and will either stay in the bottom of the channel or return to the littoral drift of sandy between the reeflines offshore of JUL.

4.4.3.4 FISHES NEARSHORE COMMUNITY

Placement of dredged sandy material in the Entrance Channel may bury scattered rock rubble in the entrance channel that have algae on them that certain fish species may feed on.

4.4.4 ODMDS PLACEMENT ALTERNATIVE

4.4.4.1 BEACH AND DUNE HABITAT

Disposal of dredged material into the designated ODMDS will have no effect on beach and dune habitat since the ODMDS is in open ocean at more than 4 miles from shore.

4.4.4.2 INLET COMMUNITIES

Disposal of dredged material into the designated ODMDS will have no effect on the inlet communities since the ODMDS is in open ocean at more than 4 miles from shore.

4.4.4.3 NEARSHORE HARDBOTTOM COMMUNITIES

Placement of dredged material into the designated ODMDS will have no effect on the nearshore hardbottoms since the ODMDS is in open ocean at more than 4 miles from shore.

4.4.4.4 FISHES NEARSHORE COMMUNITY

Placement of dredged material into the designated ODMDS will have no effect on the nearshore fish community since the ODMDS is in open ocean at more than 4 miles from shore.

4.4.5 JOHN U. LLOYD STATE PARK PLACEMENT ALTERNATIVE

4.4.5.1 BEACH AND DUNE HABITAT

The placement of sand on the beach will result in the burial and subsequent loss of most of the beach infauna. Sandy beaches are generally populated by small, shortlived organisms with great reproductive potential. Common beach and surf zone invertebrate inhabitants include ghost crabs, coquina clams and other bivalves, amphipods, polychaetes, and gastropods. 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 (Reilly and Bellis, 1983; Gorzelany and Nelson, 1987; Hurme and Pullen, 1988; and Dodge et al, 1991; 1995). The results of a beach invertebrate study following renourishment on the beaches of Bogue Banks, NC indicate that invertebrate populations decreased by 86-99% five to ten weeks following sand placement. The extreme decrease in the population of beach infauna was attributed to the poor match in grain size of the added sand to the natural beach. The sand source utilized in the Bogue Bank project provided sand with a very high shell content that was not comparable to the natural beach (Peterson et al, 2000). The sand source for the proposed project is compatible with the existing beach sediments and contains a

relatively low silt/clay content (average of 2.6%), which should promote rapid recovery of beach infauna within one year after sand placement. Impacts to beach infauna are therefore expected to be short-term.

No direct impacts to shorebirds are expected from project construction as birds are motile and can avoid construction activities. The placement of sand on the beach may temporarily interrupt foraging and resting activities of shorebirds that utilize the project area beach. This impact would be limited to the immediate area of placement and the duration of construction. The prey base for many shorebirds, which includes the organisms listed above, would be temporarily reduced in the areas of project fill. This impact would be short-term as recovery of beach infauna is expected within one year after sand placement.

4.4.5.2 INLET COMMUNITIES

Placement of dredged material onto JUL beaches will have no effect on the inlet communities as the placement area is located south of the south jetty that defines the boundary of the inlet and littoral coastal currents run from north to south and any sand material pulled off the beach will move toward the south, not north back into the inlet.

4.4.5.3 NEARSHORE HARDBOTTOM COMMUNITIES

A detailed evaluation of the effects of placement of sandy material on the beaches of JUL on nearshore hardbottom communities are found in Section 4.4.1.1 of the Final EIS for the BCSP. In summary - the FEIS found that nearshore hardbottoms directly adjacent to the park are ephemeral in nature, being alternatively covered and uncovered by shifting beach sand. Nearshore hardbottom burial events have been documented by Broward county both seasonally and over an extended period of time. JUL beaches have been nourished with dredged materials numerous times in the last 20 years as detailed in Section 1.3 of the FEIS for the shore protection project. The effects of placing sandy, beach quality dredged material from the Federal navigation project will be the same as those identified in the FEIS and are hereby incorporated by reference.

4.4.5.4 FISHES NEARSHORE COMMUNITY

The effect of placing sandy beach quality material on the beaches of JUL may effect nearshore fishes in the nearshore. The motility of most reef fish species should allow these species to leave the disturbed area during dredging and placement and return when conditions approximate previous levels. However, mortality of demersal and burrowing fish species inhabiting open sand, such as jawfish, garden eels, and hovering gobies, is likely during placement activities, as these species are limited in their mobility and may not be able to flee the area prior to disturbance.

4.5 ESSENTIAL FISH HABITAT

4.5.1 NO-ACTION ALTERNATIVE

There will be no impact to EFH if the Corps does not maintain the Port Everglades Federal Navigation project.

4.5.2 DREDGING ALTERNATIVE

All coastal inlets, such as the Port Everglades entrance channel, are considered by the South Atlantic Fishery Management Council to be habitat areas of particular concern for some commercially important species.

Removal of shoal material from the port will temporarily affect EFH within the coastal inlet. The most obvious direct of this alternative on managed species is the potential for mortality and/or injury of individuals through the dredging process. Species in the project area's habitats are susceptible. Fishes and invertebrates are at risk at any life-history stage; eggs, larvae, juveniles, and even adults may be inadvertently killed, disabled, or undergo physiological stress, which may adversely affect behavior or health. Forms that are less motile, such as juvenile shrimp, are particularly vulnerable. However, historic dredging episodes have shown that these species recolonize fairly quickly; so much of the impact would be temporary.

Impacts to the water column can have widespread effects on marine and estuarine species. Hence, it is recognized as EFH. The water column is a habitat used for foraging, spawning, and migration by both managed species and organisms consumed by managed species. Water quality concerns are of particular importance in the maintenance of this important habitat.

Temporary impacts to populations of managed species would occur due to dredging softbottom habitats found within the port. Dredging would remove benthic organisms used as prey by managed species and temporarily lower the carrying capacity of the project area for certain species, such as red drum, that largely forage on such taxa.

4.5.3 ENTRANCE CHANNEL PLACEMENT ALTERNATIVE

Placement of sandy material in the entrance channel placement site will bury rock-rubble habitat that is not classified as EFH. It will also temporarily increase turbidity in the area, however since this is sandy, beach quality material, there will be less than 10% fines and water quality impacts will be minimal and temporary in nature.

4.5.4 ODMDS PLACEMENT ALTERNATIVE

A detailed evaluation of the effects of disposing of dredged material from Port Everglades into the ODMDS was prepared for the EPA ODMDS DEIS (EPA, 2004). This evaluation, found in section 4.9 of the DEIS, includes findings concerning potential effects to water column; Artificial/Man-made reefs; and Sargassum and is hereby incorporated by reference.

4.5.5 JOHN U. LLOYD STATE PARK PLACEMENT ALTERNATIVE

A detailed analysis of the effects to Essential Fish Habitat as a result of placing sediment on the beach at JUL has been analyzed in the BCSPP FEIS (Section 4.6) and is incorporated by reference. It is unlikely that highly motile fishes in the surf zone will be directly impacted (through injury or death) by placement of sandy material and they will likely leave the area until placement of material is complete. They may be indirectly impacted by the burial of feeding habitat or prey species. Sessile species and life stages unable to relocate will likely be buried by sandy beach quality material. Based on previous placement activities throughout the southeast US, it is expected that they will recolonize within one calendar year. For more details, please refer to the BCSPP FEIS.

4.6 CULTURAL RESOURCES

4.6.1 NO-ACTION ALTERNATIVE

There will be no impact to cultural resources if the Corps does not maintain the Port Everglades Federal Navigation Project.

4.6.2 DREDGING ALTERNATIVE

Underwater cultural resource surveys have been conducted for the dredging portion of project area, within the Federal navigation project. No historic properties were located during the surveys. Based on the surveys a determination of no historic properties was made. The Florida State Historic Preservation Officer concurred with this determination (Division of Historic Resources #2002-09147, Appendix C).

4.6.3 ENTRANCE CHANNEL PLACEMENT ALTERNATIVE

This is considered an open water placement, and since it will not contain rocky material, only beach quality sand, the Corps determines that there is no potential to effect Cultural Resources.

4.6.4 ODMDS PLACEMENT ALTERNATIVE

A consultation with the Florida Department of State - Division of Historical Resources found no significant archeological or historical sites recorded to be or likely to be within the ODMDS (Division of Historic Resources Project File No 951538, Appendix C). As such the Corps determines that there is no potential to effect Cultural Resources.

4.6.5 JOHN U. LLOYD STATE PARK PLACEMENT ALTERNATIVE

An underwater cultural resource survey has been conducted for the proposed placement area. No historic properties were located as a part of this study. Based on this study a determination of no historic properties was made. The Florida State Historic Preservation Officer concurred with this determination (Division of Historic Resources #2003-3635, Appendix C).

4.7 RECREATION

4.7.1 NO-ACTION ALTERNATIVE

Recreational boating, and access to offshore fishing and SCUBA diving would be impacted if the Port Everglades Entrance Channel were not dredged by Broward County because of increased shoaling and decreased navigable capacity of the project channel. This increased shoaling will restrict recreational vessel access when larger commercial or military vessels are in the channel, since the larger vessels will have even more limited maneuverability and channel width to use while entering and exiting the port.

4.7.2 DREDGING ALTERNATIVE

Recreational boat traffic would experience temporary delays due to construction traffic and congestion. However, recreational boat traffic would benefit from the increased navigable capacity of the channel.

4.7.3 ENTRANCE CHANNEL PLACEMENT ALTERNATIVE

Recreational boat traffic would experience temporary delays due to placement traffic and congestion. However, recreational boat traffic would benefit from the increased navigable capacity of the channel.

4.7.4 ODMDS PLACEMENT ALTERNATIVE

Of the many recreational activities that take place offshore of Broward county, few of these activities occur in, and none is restricted to, the ODMDS. Placement of dredged material in the ODMDS is not expected to have any significant impacts to recreation.

4.7.5 JOHN U. LLOYD STATE PARK PLACEMENT ALTERNATIVE

Minor temporary impacts would occur to recreational beach activities because of sand placement construction activities. Section 4.10 of the Broward County SPP FEIS presents a detailed analysis of placing sandy beach quality sediment on the JUL beaches and is hereby incorporated by reference. Recreational beach activities would benefit from the increased beach area resulting from the dredging and beach placement.

4.8 NAVIGATION (COMMERCIAL AND MILITARY)

4.8.1 NO ACTION ALTERNATIVE

If maintenance operations are not conducted within the Port Everglades federal navigation project, sediment will continue to accumulate in the Federal navigation project and will continue to hamper vessel navigation through the entrance channel and within the port, continuing to effect vessel safety and port efficiency. Port Everglades supplies 13 Florida counties and two Airports (FT Lauderdale and Miami) with petroleum. The vessels that bring in the petroleum are deep draft vessels. If insufficient clearance exists between the hull and the bottom of the channel, the vessels will be required to “light load” meaning less petroleum loaded on each vessel, thus increasing queuing of vessels at anchorage and more potential for problems such as breaking loose of anchors and impacting reefs, possible collisions, etc.

Port Everglades also services deep draft container vessels. If these vessels do not have enough clearance between the hull and channel bottom, the owners and operators of the vessels may opt to relocate their operations to other deep draft ports (as demonstrated at the Port of Palm Beach several years ago). Light loaded vessels are also more expensive to operate.

Insufficient water depths in the port will also limit US Naval operations from utilizing Port Everglades. Currently Port Everglades is a popular port for liberty or naval vessels, including aircraft carriers like the *USS Ronald Reagan* (CVN 76) which recently visited the port in November 2003 and the *USS Enterprise* (CVN 65) in April 2004. Without sufficient clearance, these deep draft military vessels would be unable to enter the Port.

4.8.2 DREDGING ALTERNATIVE

Dredging will maintain the full two-way navigable capacity of the project channel for deep-draft vessels and the required depth to berth deep draft vessels utilizing the port. Dredging activities will be coordinated with the Port, the Port Everglades pilots and the US Coast Guard to minimize the delays and any resulting effects.

4.8.3 ENTRANCE CHANNEL PLACEMENT ALTERNATIVE

Placement of sandy material in the entrance channel placement site may cause short term delays due to dredge equipment movements. It is expected that these delays will be temporary. Placement activities will be coordinated with the Port, the Port Everglades pilots and the US Coast Guard to minimize the delays and any resulting effects. Placement of sandy material in the entrance channel site will not effect the ability of vessels to navigate in the channel as the channel bottom in the proposed placement site is more than 50 feet in depth.

4.8.4 ODMDS PLACEMENT ALTERNATIVE

The Port Everglades ODMDS is located northeast and 4.0 miles seaward of the entrance channel to Port Everglades. While there are no designated shipping lanes beyond the entrance channel, the general area experiences heavy commercial shipping traffic. Vessel delays due to dredge transit to the ODMDS or placement operations in the ODMDS are not expected to effect either commercial or military navigation.

4.8.5 JOHN U. LLOYD STATE PARK PLACEMENT ALTERNATIVE

Placement of sandy beach quality material on JUL beaches is not expected to have an adverse effect on commercial or military navigation in Port Everglades.

4.9 ECONOMICS

4.9.1 NO-ACTION ALTERNATIVE

Sediment accumulation in the Federal navigation project hampers vessel navigation and increases transportation costs in two ways: first, vessel groundings would become more likely and frequent, resulting in additional costs for not only the grounded vessels, but also those vessels delayed by the obstruction, as well as the costs associated with restoration and mitigation of any damage that may have occurred as a result of the grounding; and second, deeply-laden vessels would incur delay costs awaiting tide for the necessary additional channel depth to enter/depart Port Everglades. The increased transportation costs are factored into businesses' decisions to locate or expand operations, reducing the competitive advantage offered by Port Everglades.

As previously detailed in Section 4.8.1, increases in delays of light loading has the potential of resulting in increased prices for petroleum, since less petroleum enters the marketplace. This also has the potential to impact tourists and residents in south Florida due to potential shortages of gasoline, higher consumer prices as higher fuel prices are passed down to consumers, as well as the potential for limited fuel for planes.

4.9.2 DREDGING ALTERNATIVE

Continued maintenance of the Federal navigation project will allow full access to and within Port Everglades. Transportation of commodities through the port creates a stimulus for attracting new business to the area. Recreational boaters as well as commercial fishing and diving enterprises also rely on the navigable capacity of the project channel for access purposes. Additionally, the port provides jobs and generates revenue for the surrounding community through the purchase of goods and materials.

4.9.3 ENTRANCE CHANNEL PLACEMENT ALTERNATIVE

As previously stated in Section 4.8.3 that placement of material in the entrance channel may cause temporary delays of vessels entering or exiting the port. Placement activities will be coordinated with the Port, the Port Everglades pilots and the US Coast Guard to minimize the delays and any resulting effects.

4.9.4 ODMDS PLACEMENT ALTERNATIVE

Placement of material in the ODMDS is not expected to have an effect on the economics of Port Everglades or South Florida.

4.9.5 JOHN U. LLOYD STATE PARK PLACEMENT ALTERNATIVE

Placement of material on the beaches of JUL will continue to maintain the beaches of this State park. Maintained beaches provide attractions that generate revenue for the local tourist industry.

4.10 AESTHETICS

4.10.1 NO-ACTION ALTERNATIVE

There will be no impact to aesthetics if Broward County does not dredge the Entrance Channel.

4.10.2 DREDGING ALTERNATIVE

Construction activities within the project channel would temporarily impact the aesthetic appeal of the area. Permanent impacts to the aesthetics of the area caused by the construction are not anticipated.

4.10.3 ENTRANCE CHANNEL PLACEMENT ALTERNATIVE

Construction activities within the entrance channel placement site would temporarily impact the aesthetic appeal of the area. Permanent impacts to the aesthetics of the area caused by the construction are not anticipated.

4.10.4 ODMDS PLACEMENT ALTERNATIVE

Placement activities within the ODMDS will cause no significant aesthetic resources.

4.10.5 JOHN U. LLOYD STATE PARK PLACEMENT ALTERNATIVE

Construction activities of placing sandy beach quality material on the beaches of JUL State park would temporarily impact the aesthetic appeal of the area. Permanent impacts to the aesthetics of the area caused by the construction are not anticipated.

4.11 CUMULATIVE IMPACTS

Cumulative impact are defined in 40 CFR 1508.7 as “impacts on the environment, which result 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 actions.” NEPA guidance requires that such connected, similar impacts be examined.

Port Everglades was authorized as a Federal project in 1930 (see section 1.2 for more detail on the history of authorization of the project and subsequent improvements). The port has undergone numerous maintenance events and various navigation improvements. We fully expect the port to remain viable for many years and to continue undergoing maintenance and navigation improvements. An EIS addressing proposed navigation improvements is underway. The Notice of Intent to prepare the Draft EIS appeared in the Federal Register on March 23, 2001. Cumulative impacts relative to placing sand on the Broward County shoreline have been addressed in earlier and current EISs, as well as EISs that review the impacts of placement in the ODMDS (all previously addressed in Section 1.5). Information on these and other NEPA documents can be viewed on the Internet at <http://www.saj.usace.army.mil/pd/envdocs/envdocsb.htm>. Maintenance dredging is an ordinary and reoccurring event for the port. The proposed maintenance dredging is not expected to represent a substantial increment of cumulative impact to the area.

4.12 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

4.12.1 IRREVERSIBLE

An irreversible commitment of resources is one in which the ability to use and/or enjoy the resource is lost forever. The only irreversible commitment of resources associated with the proposed project would be the expenditure of federal funds to complete the work.

4.12.2 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. Placement of dredged material at any of the placement sites would temporarily disrupt the normal use of these areas.

4.13 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

There may be short-term degradation of water quality due to turbidity caused by dredging and dredged material placement operations. The potential exists for the incidental taking of sea turtles during dredging operations. However, the implementation of standard protective measures should minimize and mitigate for this potential.

4.14 ENVIRONMENTAL COMMITMENTS

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

The Corps will comply with all requirements of the 1997 NMFS Regional Biological Opinion for the Continued Hopper Dredging of Channels and Borrow Areas in the Southeastern United States dated September 25, 1997.

4.15 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

4.15.1 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

Environmental information on the project has been compiled and this Environmental Assessment has been prepared. It is available to any interested parties. Via this EA, the project is in compliance with the National Environmental Policy Act.

4.15.2 ENDANGERED SPECIES ACT OF 1973

Consultation was initiated with the US Fish and Wildlife Service on April 14, 2004 (see Appendix C). Dredging operations have also been coordinated with the National Marine Fisheries Service (NMFS) by letter dated March 29, 2004, NMFS responded by letter dated April 22, 2004 agreeing that the Corps should utilize the Regional Biological Opinion for hopper dredging within the southeastern United States (September 29, 1997). All special conditions pertaining to the use of a hopper dredge will be implemented should one be used. This project was fully coordinated under the Endangered Species Act and is therefore, in full compliance with the Act.

4.15.3 FISH AND WILDLIFE COORDINATION ACT OF 1958

This project has been coordinated with the U.S. Fish and Wildlife Service (USFWS). A Coordination Act Report was not required for this project.

4.15.4 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, channel surveys, and consultation with the Florida State Historic Preservation Officer (SHPO), have been conducted for the shore protection project, the ongoing Port Everglades Feasibility Study and the ODMDS designation in accordance with the National Historic Preservation Act, as amended; the Archeological and Historic Preservation Act, as amended and Executive Order 11593. Copies of these surveys are available for review at the Jacksonville District offices in Jacksonville, Florida. The project is in full compliance with the Act.

4.15.5 CLEAN WATER ACT OF 1972

A Section 401 water quality certification will be required from the FDEP. All state water quality standards would be met. A Section 404(b) evaluation is included in this report as Appendix A. Public notices (Department of the Army and FDEP) either have been or will issued in a manner, which satisfies the requirements of Section 404 of the Clean Water Act and will be available for review at the Jacksonville District upon request.

4.15.6 CLEAN AIR ACT OF 1972

No air quality permits would be required for this project.

4.15.7 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. The Corps has determined that the project would have no unacceptable impacts and would be consistent with the Florida Coastal Management Plan. In accordance with the Memorandum of Understanding (1979) and the Addendum to the Memorandum (1983) concerning acquisition of Water Quality Certifications and other state authorizations, the preliminary Environmental Assessment and Section 404 (b)(1) Evaluation have been submitted to the state in lieu of a summary of environmental impacts to show consistency with the Florida Coastal Zone Management Plan. Final state concurrence will be received with the issuance of the Water Quality Certification.

4.15.8 FARMLAND PROTECTION POLICY ACT OF 1981

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

4.15.9 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.

4.15.10 MARINE MAMMAL PROTECTION ACT OF 1972

In consultation with NMFS and FWS, the Corps does determined that maintenance activities will not take any marine mammals during any activities associated with the project. However, should a marine mammal be identified within the project boundaries, they will be provided protections equal the ESA species that have had consultations completed, and as a result of this, the Corps believes that they are in compliance with the MMPA.

4.15.11 ESTUARY PROTECTION ACT OF 1968

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

4.15.12 FEDERAL WATER PROJECT RECREATION ACT

There is no recreational development proposed for maintenance dredging or placement. Therefore, this Act does not apply.

4.15.13 FISHERY CONSERVATION AND MANAGEMENT ACT OF 1976

Coordination with the National Marine Fisheries Service (NMFS) has been accomplished via this environmental assessment, as well as review of the Broward County SPP FEIS and Port Everglades ODMDS DEIS. The project will be in compliance with this Act.

4.15.14 SUBMERGED LANDS ACT OF 1953

The project will occur on submerged lands of the State of Florida. The project has been

coordinated with the State and will be in compliance with the act.

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

John U Lloyd State Park is listed as undeveloped coastal barriers as defined by the Coastal Barriers Resources Act. These parcels require coordination with the U.S. Fish and Wildlife Service prior to nourishment activities. The Corps completed this coordination on April 30, 2003 as part of the EIS process for the BCSPP. A copy of this coordination is found in Appendix C.

4.15.16 RIVERS AND HARBORS ACT OF 1899

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

4.15.17 ANADROMOUS FISH CONSERVATION ACT

Anadromous fish species would not be affected. Coordination with the National Marine Fisheries Service (NMFS) has been accomplished during review of the this EA, the Port Everglades ODMDS DEIS and the Broward County SPP FEIS. The project will be in compliance with this Act

4.15.18 MIGRATORY BIRD TREATY ACT AND MIGRATORY BIRD CONSERVATION ACT

No migratory birds would be affected by project activities. The project is in compliance with these Acts.

4.15.19 MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT

The Marine Protection, Research and Sanctuaries Act (MPRSA) (333 U.S.C. 1402)(f) regulates the transport and subsequent dumping of materials, including dredged material, into ocean waters. Section 102 of the MPRSA requires that EPA designate ODMDSs where needed (as currently underway via the Port Everglades DEIS). Section 103 regulates what material can be placed in the ODMDS. The term "dumping" as defined in MPRSA does not apply to the placement of material for beach nourishment or to the placement of material for a purpose other than placement (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 the placement of sandy material on the beach at JUL. Placement of material from the Port in the ODMDS has been evaluated. The placement activities addressed in this BCSPP FEIS and Port Everglades ODMDS DEIS have been evaluated under Section 404 of the Clean Water Act.

4.15.20 MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

This act requires preparation of an Essential Fish Habitat (EFH) Assessment and coordination with the National Marine Fisheries Service (NMFS). Pursuant to the Magnuson-Stevens Act, Essential Fish Habitat (EFH) consultation with the National Marine Fisheries Service for the proposed placement of the sediment on the beach was initiated by coordination of the Broward County SPP FEIS, placement of material in the ODMDS is coordinated as part of the Port Everglades ODMDS and placement of material in the Entrance Channel placement site via this EA. The project will be in full compliance with this act.

4.15.21 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.

4.15.22 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. Project will be in compliance with this Act.

4.15.23 E.O. 12898, ENVIRONMENTAL JUSTICE

The proposed action would not result in adverse health or environmental effects. Any impacts of this action would not be disproportionate toward any minority. The activity does not (a) exclude persons from participation in, (b) deny persons the benefits of, or (c) subject persons to discrimination because of their race, color, or national origin. The activity would not impact “subsistence consumption of fish and wildlife.”

4.15.24 E.O. 13089, CORAL REEF PROTECTION

This EO refers to "those species, habitats, and other natural resources associated with coral reefs." The reef distribution pattern for southeast Florida north of Key Biscayne consists of three separate parallel reef flats. The nearshore hardbottom epibenthic communities landward of the equilibrium toe of fill do not represent irreplaceable resources; and with proper placement of mitigative artificial reefs, suitable replacement habitat can be created for nearshore epibenthic species. The proposed project will be in compliance with this Executive Order.

5.0 LIST OF PREPARERS

5.1 PREPARERS

Preparer	Discipline	Role
Terri Jordan	Biologist	Principal Author
Brian Brodehl	Engineer	Engineering
Grady Caulk	Archaeologist	Historic Properties

5.2 REVIEWERS

Reviewer	Discipline	Role
Steven Ross	Engineer	Corps of Engineers – Project Manager – Port Everglades
Allan Sosnow	Marine Biologist	Environmental Manager – Port Everglades
Jim McAdams	Environmental Engineer	Supervisor - Atlantic Coast Section, Environmental Branch - Jacksonville District, COE

6.0 PUBLIC INVOLVEMENT

6.1 SCOPING

Scoping for the maintenance dredging and placement of material from Port Everglades has been addressed in previous and current NEPA documents as well as this EA. A draft of this EA will be made available to Federal, State, and local resource agencies as well as environmental groups and interested parties in May 2004 for review and comment.

6.1.1 PLACEMENT OF SANDY MATERIAL ON JUL BEACHES

A public notice for a Department of the Army Permit (199905545) dated April 26, 2000 was issued for the BCSPP and the FDEP issued a joint coastal permit on May 12, 2003 (File No. 0163435-001-JC). Additional scoping for the BCSPP EIS was initiated via a notice of intent to prepare an EIS for protect in the Federal Register (FR) on Oct 29, 1999 (64 FR 58351) and notices were mailed to appropriate local, state and Federal agencies as well as environmental groups. When the DEIS was complete, a notice of availability (NOA) was published in the FR on April 5, 2002 (67 FR 16376) and comments were accepted for 60-days. After review and incorporation of the comments, the FEIS was prepared and an additional NOA was published in the FR (69 FR 69). As of April 2004, a Record of Decision is pending on the FEIS.

6.1.2 PLACEMENT OF DREDGED MATERIAL IN THE ODMDS

A history of the Scoping and coordination of the DEIS for the ODMDS is located in Section 5.0 of the DEIS.

6.2 COMMENTS RECEIVED AND RESPONSES

Any comments received on this Draft Environmental Assessment will be incorporated into the Final EA before signature and publication of the FONSI.

REFERENCES

- Broward County, 2003. Port Everglades Website. <http://www.broward.org/port>. Accessed on May 29, 2003.
- Broward County, 2001. Broward County Shore Protection Geographic Information Systems Database. 9 CD's December 2001.
- Burney, C. and W. Margolis. January 1998. Sea Turtle Conservation Report 1997 (Technical Report 97-08). Nova Southeastern University. Broward County Board of County Commissioners, Department of Natural Resource Protection Biological Resource Division. Dania, Florida.
- Burney, C. and W. Margolis. March 1999. Sea Turtle Conservation Report 1998 (Technical Report 99-09). Nova Southeastern University. Broward County Board of County Commissioners, Department of Natural Resource Protection Biological Resource Division. Dania, Florida.
- Coastal Planning & Engineering, Inc. (CPE). July 1992. Hillsboro Inlet Management Plan. Prepared for the Hillsboro Inlet Improvement and Maintenance District. Coastal Planning & Engineering: Boca Raton, Florida.
- Coastal Technology Corporation. March 1994. Port Everglades Inlet Management Plan. Prepared for the Department of Natural Resource Protection, Broward County, Florida. Coastal Technology Corporation: Coral Gables, Florida.
- Dean, Robert G., Director. Division of Beaches and Shores. Personal correspondence to Thomas J. Campbell, Coastal Planning & Engineering, Inc., January 22, 1987.
- Deutsch, C.J. 2000. Winter movements and use of warm-water refugia by radio-tagged West Indian manatees along the Atlantic Coast of the United States. Final Report prepared for Florida Power and Light Company and U.S. Geological Survey. 74pp. + append.
- Dodge, R. E., S. Hess, and C. Messing. January 1991. Final Report: Biological Monitoring of the John U. Lloyd Beach Renourishment: 1989. Prepared for Broward County Board of County Commissioners Erosion Prevention District of the Office of Natural Resource Protection. NOVA University Oceanographic Center: Dania, Florida. 62 pp. plus appendices.
- Dodge, R. E., W. Goldberg, C. Messing, and S. Hess. September 1995. Final Report: Biological Monitoring of the Hollywood-Hallandale Beach Nourishment Project. Prepared for the Broward County Board of County Commissioners Department of Natural Resources Protection, Biological Resources Division.
- Environmental Protection Agency 2004. Environmental Impact Statement (EIS) for Designation of the Palm Beach Harbor Ocean Dredged Material Disposal Site and the Port Everglades Harbor Ocean Dredged Material Disposal Site. Palm Beach and Broward Counties. February 2004.

Florida Game and Fresh Water Fish Commission. 1991. Nongame Wildlife Program Technical Report #10, Florida Atlas of Breeding Sites for Herons and Their Allies, UPDATE 1986-89. September 1991

Florida Marine Research Institute (FMRI). May 1999. Reported Sea Turtle Nesting Activity in Florida, 1993-1998.

Futch, C.R. and S.E. Dwinell. 1977. Nearshore Marine Ecology at Hutchinson Island, Florida: 1971-1974. Vol. IX, Lancelets and Fishes. Florida Marine Research Publication No. 25. 23 pp.

Gilmore R.G. 1977. Fishes of the Indian River Lagoon and Adjacent Waters, Florida. Bulletin of the Florida State Museum, Biological Science, 22(3): 101-148.

Gilmore R.G., J.C. Donahue, D.W. Cooke, and D.J. Herrema. 1981. Fishes of the Indian River Lagoon and Adjacent Waters, Florida. Harbor Branch Foundation, Inc., Technical Report No. 41. 36 pp.

Goldberg, W. M., P.A. McLaughlin, and S. Mehadevan. 1985. Long Term Effects of Beach Restoration in Broward County, Florida, A Three-Year Overview. Part II: Infaunal Community Analysis. Coral Reef Associates, Inc./Florida International University, Miami, Florida/Mote Marine Laboratory, Sarasota, Florida. 31 pp.

Gorzelay, J. F. and W. G. Nelson. 1987. The Effects of Beach Nourishment on the Benthos of a Subtropical Florida Beach. *Marine Environmental Research*. 21: 75-94.

Herrema, D. J. 1974. Marine and Brackish Water Fishes of Southern Palm Beach and Northern Broward Counties, Florida. MS Thesis, Florida Atlantic University. 257 pp.

Hoffmeister, J.E., K.W. Stockman, and H.G. Multer. 1967. Miami Limestone of Florida and its Recent Bahamian Counterpart. *Geological Society of America Bulletin* 78: 175-190.

Hurme, A.K. and E.J. Pullen. 1988. Biological effects of marine sand mining and fill placement for beach replenishment: lessons for other uses. *Marine Mining*. 7: 123- 136.

Marsh, G. A., P. R. Bowen, D. R. Deis, D. B. Turbeville, and W.R. Courtenay. 1980. Evaluation of Benthic Communities Adjacent to a Restored Beach, Hallandale (Broward County), Florida, Vol. 11, Ecological Evaluation of a Beach Nourishment Project at Hallandale (Broward County), Florida, MR 80-1(11), U.S. Army Corps of Engineers, Coastal Engineering Research Center.

Messing, C.G. and R.E. Dodge. 1997. Port Everglades Macroinvertebrate Monitoring. Monitoring of Benthic Macroinvertebrate Assemblages at the Southport Turning Basin and Adjacent Areas of John U. Lloyd State Recreation Area. Nova Southeastern University Oceanographic Center, Dania, FL. Prepared for Port Everglades Authority.

Mezich, R.R. 2001. Manatees and Florida Power and Light's Lauderdale and Port Everglades Power Plants. A Report Developed for the Florida Fish and Wildlife Conservation Commission, Office of Environmental Services. Bureau of Protected Resources.

Modde, T. 1980. Growth and Residency of Juvenile Fishes Within a Surf Zone Habitat in the

Gulf of Mexico. Gulf Research Report 6:377-385.

Modde, T. and S. T. Ross. 1981. Seasonality of Fishes Occupying a Surf Zone Habitat in the Northern Gulf of Mexico. Fisheries Bulletin 78:911-922.

National Marine Fisheries Service. 1997. Regional biological opinion-hopper dredging-South Atlantic coast.

National Marine Fisheries Service. 2002. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2002. NOAA Technical Memorandum NMFS-NE-169.

Nelson, W. G. 1985. Guidelines for Beach Restoration Projects. Part I - Biological. Florida Sea Grant College. SGC-76. 66 pp.

Odell, Daniel K. 1991. A Review of the Southeastern United States Marine Mammal Stranding Network: 1978-1987. *In*: Reynolds, J.E., III and D. K. Odell (eds.) Marine Mammal Strandings in the United States: Proceedings of the Second Marine Mammal Stranding Workshop; 3-5 December 1987, Miami Florida. *NOAA Technical Report NMFS 98*, pp. 19-23.

Peters, D. J. and W. G. Nelson. 1987. The Seasonality and Spatial Patterns of Juvenile Surf Fishes of the Florida East Coast. Florida Scientist 50(2): 85-99.

Reilly, F.J. and V.J. Bellis. 1983. The ecological impact of beach nourishment with dredged materials on the intertidal zone at Bogue Banks, North Carolina. U.S. Army Corps of Engineers Coastal Engineering Research Center. Misc. Report No. 80-1. 32 pp.

Rudolph, H. 1986. Broward County BAS Biological Study Results.

Shelton, C.R. and P.B. Robertson. 1981. Community Structure of Intertidal Macrofauna on Two Surf-exposed Texas Sandy Beaches. Bulletin of Marine Science 31: 833-842.

South Atlantic Fishery Management Council. 1998. Habitat plan for the South Atlantic region: essential fish habitat requirements for fishery management plans of the South Atlantic Fishery Management Council. 457 pp.

Spring, Keith D. June 1981. A Study of Spatial and Temporal Variations in the Nearshore Macrobenthic Populations of the Central Florida East Coast. A Thesis submitted to Florida Institute of Technology, Department of Oceanography and Ocean Engineering, Bio-Environmental Oceanography.

Sterghos, N. 1998. Great Balls O' Fire: Heat Records Set South Florida gets an August heat wave in June. Sun-Sentinel. Ft. Lauderdale, Florida. June 15, 1998.

U.S. Army Corps of Engineers (USACE). 1990. Broward County, Florida Shore Protection Project Segment III (Port Everglades to South County Line), General Design Memorandum, Addendum II (Hollywood/Hallandale First Renourishment), Vol. 1.

U.S. Army Corps of Engineers (USACE). 1996. Coast of Florida Erosion and Storm Effects Study, Region III, Feasibility Report with Final Environmental Impact Statement.

U.S. Army Corps of Engineers (USACE). July 1998. Beach Erosion Control and Hurricane Protection Project Dade County, Florida, Modifications at Sunny Isles, Final Environmental Impact Statement.

US. Department of Commerce, NOAA, 2002. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments - 2002. NOAA Technical Memorandum NMFS-NE-169. Sept 2002.

U.S. Fish and Wildlife Service. 1997. Fish and Wildlife Coordination Act Report, Modifications to: Sunny Isles Beach Project, Dade County, Florida. September 1997.

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APPENDIX A

SECTION 404(B) EVALUATION

SECTION 404(b) EVALUATION

MAINTENANCE DREDGING PORT EVERGLADES ENTRANCE CHANNEL BROWARD COUNTY, FLORIDA

1. Project Description
 - a. Location. The proposed work will be performed at Port Everglades, Broward County, Florida.
 - b. General Description. The proposed plan calls for the maintenance dredging of the Port Everglades Federal Navigation Project (FNP). Dredged material will be taken to the John U. Lloyd Beach State Park to the south of the port for use as beach sediments for the Broward County Shore Protection Project; to the Port Everglades Ocean Dredged Material Disposal Site or be placed within the Entrance Channel of the port.
 - c. Authority and Purpose. Maintenance dredging of Port Everglades Entrance Channel was initially authorized under House Document 357/71/2 (July 1930), as well as subsequent authorization associated with Port Expansion activities in 1935, 1938, 1946, 1958, 1974 and 1990. A Comprehensive list of these authorizations can be found at the District's Digital Project Notebook homepage (http://www.saj.usace.army.mil/digitalproject/dpn/sajn_020.htm). The purpose of the project is to maintain safe navigation conditions.
 - d. General Description of Dredged or Fill Material.
 - i. General Characteristics of Material. The physical structure of the sediments from the FNP can be divided into two categories - from inside the port and from the Entrance Channel (EC). Sediment cores collected inside the port indicate the material is 25-65% clays and silts (fines) with some sand. Sediment cores from the EC indicates that the composition is primarily beach quality sand. Examination of the sediments from the EC indicates that the composition is comprised primarily of fine carbonate based sand; therefore it meets the criteria for beach placement because it contains less than 10% silt and clay materials.
 - ii. Quantity of Material. Approximately 100,000 cubic yards of sediment will be removed from the FNP channels every three years or as needed.
 - iii. Source of Material. The source of the material is throughout the Port Everglades FNP boundaries. The Corps expects to dredge approximately 100,000 cu yds every three years, or as needed. Source of the material includes run off from the Port, the New River and Dania Cutoff canal as well as sandy sediments being carried around the north jetty by littoral dirft.
 - e. Description of the proposed Discharge Site.
 - i. Location. There are three proposed discharge sites:
 - (1) Within the Entrance Channel of the FNP (please refer to sheet 3 of 7 in Appendix D of the EA).
 - (2) John U Lloyd Beach State Park is located immediately south of the

Port Everglades Entrance Channel's south Jetty (please refer to sheet 7 of 7 in Appendix D of the EA).

- (3) Ocean Dredged Material Disposal Site currently undergoing authorization by the Environmental Protection Agency located east northeast of Port Everglades, approximately 4.5 nmi offshore.

ii. Size.

- (1) The Entrance Channel disposal site is approximately 10 acres in size.
- (2) John U. Lloyd Beach State Park is 251 acres of barrier island between the Atlantic Ocean and the Intracoastal Waterway, from Port Everglades on the north to Dania on the south.
- (3) The ODMDS is approximately one square mile.

iii. Type of Site.

- (1) The Entrance Channel Disposal site is a deep portion of the entrance channel, located outside of the jetties, on the southern side of the channel (please refer to Figure 5 of the EA). The bottom is characterized by a rock-rubble habitat.
- (2) The John U. Lloyd Beach State Park is a State Park barrier island beach. It has nearshore hard-bottoms and offshore hardbottoms associated with the beach. The beach disposal area is open, sandy beach.
- (3) The ODMDS is an open water site located approximately 4 nautical miles from the port.

iv. Type of Habitat. Please see Section 3 of the Environmental Assessment for a detailed discussion of each disposal area habitat.

v. Timing and Duration of Discharge. The dredging is currently scheduled to be started in September/October of 2005 and is expected to take from 10-14 days.

f. Description of Disposal Method. Disposal could be either from a pipeline or hopper dredge. Sand placed on the beach will be graded out with front-end loaders and bulldozers.

2. Factual Determinations

a. Physical Substrate Determinations.

- i. Substrate Elevation and Slope. The material is sediment that has accumulated in the port above the authorized depths of the port channels and turning basins.
- ii. Sediment Type. The sediment from the project area can be broken into two characteristic types based on source location. Inside the port, the sediments are primarily clays and silts (25-65%) with some sand, while sediments from the entrance channel consist of 66% carbonate sand with less than 10% silt and clay materials.
- iii. Dredge/Fill Material Movement. Material placed at the John U. Lloyd State Park beach placement area is subject to erosion by waves with net movement of fill material to the south. Similarly placement of material in the Entrance Channel site will also have a net movement to the south in the littoral zone to a minor extent. Based on the finding of the Port

- Everglades ODMDS EIS and dredged material dispersion studies conducted for the EIS show that material placed in the ODMDS is not expected to move and effect nearshore reefs in the area of the ODMDS.
- iv. Physical Effects on Benthos. The placement of sand on the beach will result in the burial and subsequent loss of most of the beach infauna. Small, short-lived organisms with high reproductive potential generally populate sandy beaches. Beach and surf zone infaunal populations should recover to pre-nourishment levels within one year after completion of nourishment. Placement of dredged material in the ODMDS may have short-term impacts on benthos in the site that, dependant upon the location of the Florida Current (AKA Gulf Stream) is oceanic or coastal in nature.
- b. Water Circulation, Fluctuation and Salinity Determination.
- i. Water Column Effects. Placement of fill material at the JUL beach placement site or the entrance channel site will cause a temporary increase in turbidity. Because the immediate nearshore area is subject to naturally occurring elevated turbidity levels caused by the surf, increases due to the project will not be significant. Fill placement will not have long-term or significant impacts, if any, on salinity, water chemistry, clarity, color, odor, taste, dissolved gas levels, nutrients or eutrophication. Placement of material at the ODMDS is expected to cause a temporary increase in turbidity levels in the general vicinity of the ODMDS. Detailed predications of the effects disposal in the ODMDS will be calculated periodically (every 3-5 years) as a requirement of Section 103 of MPRSA.
 - ii. Current Patterns and Circulation. Currents in the project area are both tidal and longshore. Net movement of water due to the longshore current is from the north to the south. Dredging of the Port and placement in the channel, on the beach or in the ODMDS will not affect the current patterns and circulation.
 - iii. Normal Water Level Fluctuations and Salinity Gradients. Tides in the project area are semi-diurnal. Elevations of mean high water and mean low water tidal datum in Broward County were reported to be +1.64 feet (NGVD) and -0.89 feet (NGVD) (USACE, 1994). Dredging and disposal operations will not affect normal tide fluctuations or salinity.
- c. Suspended Particulate/Turbidity Determinations.
- i. Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site. There will be a temporary increase in turbidity levels in the project area during dredging and placement. Turbidity will be short-term and localized and no significant adverse impacts are expected. State standards for turbidity should not be exceeded.
 - ii. Effects on the Chemical and Physical Properties of the Water Column.
 - (1) Light Penetration. The placement of fill on the beach or in the Entrance Channel will increase turbidity in the nearshore area during construction. Because the immediate nearshore area is a high wave energy system and subject to naturally occurring elevated turbidity and sediment, increases due to project

construction should not be significant. A nearshore turbidity-monitoring program with a plume-mixing zone of 150 meters from the discharge site will be implemented during construction.

Turbidity and sedimentation at the sand borrow site in the Entrance Channel is likely due to the filling/washing of the material on the hopper dredge. Turbidity will be monitored during construction, and State standards for turbidity should not be exceeded. Light penetration will decrease during discharge in the immediate area where sand is being deposited on the beach. This effect will be short-term and have limited adverse impacts on the nearshore environment during construction activities.

- (2) Dissolved Oxygen. Dissolved oxygen levels will not be altered by this project.
- (3) Toxic Metals, Organics, and Pathogens. No toxic metals, organics, or pathogens will be disturbed or released at levels that exceed state water quality standards. The material will be tested as required of MPRSA and the EPA to determine suitability of disposal.
- (4) Aesthetics. Aesthetic quality will be reduced during that period when work is occurring. There will be a long-term increase in aesthetic quality of the beach once the work is completed.

iii. Effects on Biota.

- (1) Primary Productivity and Photosynthesis. A temporary increased level of suspended particles will occur during construction and disposal. If material is placed at JUL, primary productivity is not a recognized significant phenomenon in the surf zone, there will be limited effects on nearshore productivity as a result of the proposed beach placement.
- (2) Suspension/Filter Feeders. There will be no long-term adverse impact to suspension/filter feeders.
- (3) Sight Feeders. There will be no long-term adverse impact to sight feeders.

iv. Contaminant Determinations. Constituents have been found in the Port Turning Basin sediments which could be considered above natural background, and from anthropogenic sources. Deposited fill material will not introduce, relocate, or increase contaminants above State water quality standards.

v. Aquatic Ecosystem and Organism Determinations. The grain size characteristics and composition exhibited by the proposed sandy fill material are similar to those of the existing beach sediments. Therefore, no sediment related impacts are expected. The proposed fill material at the beach and entrance channel sites meets the exclusion criteria; therefore, no additional chemical-biological testing will be required. Material to be dredged from within the Port boundaries (within the turning basins) will be tested for compliance with Section 103 of MPRSA.

- (1) Effects on Plankton. No adverse long-term impacts to planktonic

- organisms are anticipated.
- (2) Effects on Benthos. No adverse long-term impacts to non-motile or motile Benthic invertebrates or invertebrates.
 - (3) Effects on Nekton. No adverse long-term impacts to nektonic species are anticipated.
 - (4) Effects on the Aquatic Food Web. No adverse long-term impacts to any trophic group in the food web are anticipated.
 - (5) Effects on Special Aquatic Sites.
 - (a) Hardground and Coral Reef Communities. For placement of material at JUL and in the entrance channel - Nearshore hardbottoms directly adjacent to the park are ephemeral in nature, being alternatively covered and uncovered by shifting beach sand. Nearshore hardbottom burial events have been documented by Broward county both seasonally and over an extended period of time. JUL beaches have been nourished with dredged materials numerous times in the last 20 years as detailed in Section 1.3 of the FEIS for the shore protection project. The effects of placing sandy, beach quality dredged material from the Federal navigation project will be the same as those identified in the FEIS and are hereby incorporated by reference. No adverse long-term impacts to hardground and coral reef communities if material is disposed at the ODMDS.
 - (b) Sanctuaries and Refuges. There are no sanctuaries or wildlife refuges located within the proposed dredge or beach placement areas.
 - (c) Wetlands. There are no wetlands located within the proposed dredge or beach placement areas.
 - (d) Mud Flats. There are no mud flats located within the proposed dredge or beach placement areas.
 - (e) Vegetated Shallows. There are no known vegetated shallows (seagrasses) located within the proposed dredge or beach placement areas.
 - (f) Riffle and Pool Complexes. There are no riffle and pool complexes within the proposed dredge or beach placement areas.
 - (6) Endangered and Threatened Species. There will be no significant impacts on any threatened or endangered species or on designated Critical Habitat of any threatened or endangered species. Sea turtle nesting may occur in the project area during the time that dredging, entrance channel and beach disposal takes place. If construction occurs during the nesting season, a nest relocation program will be implemented as recommended by the USFWS. Manatee protection measures as specified by the USFWS will be followed to minimize the potential for harm. See Sections 3 and 4 of the Environmental Assessment.

- (7) Other Wildlife. No adverse impacts to small foraging mammals, reptiles, wading birds, or wildlife in general are expected.
 - (8) Actions to Minimize Impacts. All practical safeguards will be taken during construction to preserve and enhance environmental, aesthetic, recreational, and economic values in the project area. Specific precautions that will be implemented in conjunction with the proposed project are discussed elsewhere in this 404(b) evaluation and in the Draft Environmental Impact Statement for the ODMDS. See Section 4 of the Environmental Assessment.
- d. Proposed Disposal Site Determinations.
- i. Mixing Zone Determination. During the placement operations, there will be temporary elevated levels of turbidity in the surrounding waters.
 - ii. Determination of Compliance with Applicable Water Quality Standards. The work will be conducted in accordance with the state of Florida Joint Coastal permit which provides State water quality certification.
 - iii. Potential Effects on Human Use Characteristics.
 - (1) Municipal and Private Water Supplies. No effects are anticipated.
 - (2) Recreational and Commercial Fisheries. Impacts caused by dredging and placement activities will be minor and short-term.
 - (3) Water Related Recreation. Construction activities will temporarily disrupt recreational opportunities. Dredging will maintain the navigational capacity of the project channel for recreational boaters. Placement of dredged material on the beach will preserve and enhance recreational beach activities.
 - (4) Aesthetics. Construction will temporarily adversely impact the aesthetics of the area. Placement of dredged sand on the beach will compensate for losses caused by erosion and improve the aesthetics of the beach environment.
 - (5) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. The 1.5-mile section of beach between R-86 and R-94 at John U. Lloyd Beach State Park has already been restored through nourishment with a periodic renourishment interval of 6 years. Biological monitoring of the JUL Beach Renourishment of 1989 revealed that although major faunal shifts occurred in the softbottom communities within the toe of fill site of the beach nourishment area, no pattern of hardground organism abundance relative to dredge or fill activities was observed (Dodge et al., 1991). Coordination with the Ranger of the JUL Beach State Park revealed that beach nourishment was needed to combat erosion near the parking areas (Leve, 1995).
 - (6) Determination of Secondary Effects on the Aquatic Ecosystem. There will be no significant cumulative impacts that result in a major impairment of water quality of the existing aquatic ecosystem as a result of placement of fill at the project site.
3. 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 maintenance dredging of the port Everglades entrance channel will 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**

**MAINTENANCE DREDGING
PORT EVERGLADES FEDERAL NAVIGATION PROJECT
BROWARD COUNTY, FLORIDA**

1. Chapters 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. It's 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 and NEPA coordination processes. The project meets the primary goal of the State Comprehensive Plan through preservation and protection of the shorefront development and infrastructure.

3. Chapters 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 dredging of the Port Everglades Federal Navigation Project (FNP) in order to maintain safe navigation conditions. It also involves the placing of beach compatible material onto an eroding beach as a protective means for residents, development and infrastructure located along the Atlantic shoreline within Broward 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: Maintenance dredging of the Port Everglades FNP has been performed on multiple

occasions in the past. Project activities have complied with state regulations pertaining to the above resources. 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 will affect the John U. Lloyd Beach State Park. Project related activities have been fully coordinated with the state. 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). Survey results indicated no historical properties in the project area. The project will be consistent with the goals of this chapter.

8. Chapters 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 maintenance dredging of the Port Everglades FNP encourages economic growth of the area. Also, 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: The maintenance dredging of the Port Everglades FNP promotes navigation within the harbor and the Intracoastal Waterway.

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: Dredging activities should not adversely impact saltwater living resources. The placement of sand on the beach will create a larger more suitable area for nesting sea turtles. The proposed disposal at any of the three sites may represent a temporary short-term impact to invertebrates by burying these organisms. However, these organisms are typically highly adapted to periodic burial by sand. These organisms are highly fecund and are expected to return to pre-construction levels within 6 months to one year after construction. 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. Therefore, the work would comply with the goals of this chapter.

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. Chapters 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. Chapters 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. Chapters 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 dredging of the Port Everglades FNP has been coordinated with the local regional planning commission. 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 increase the potential 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: Environmental protection measures will be implemented to ensure that no lasting adverse effects on water quality, air quality, or other environmental resources will occur. The project complies with the intent of this chapter.

18. Chapters 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.

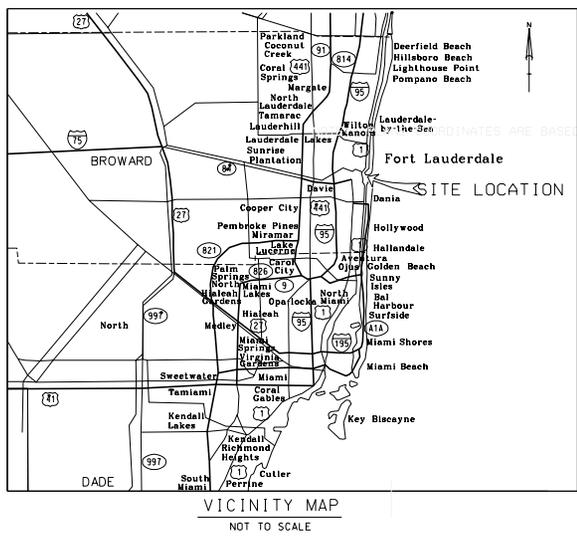
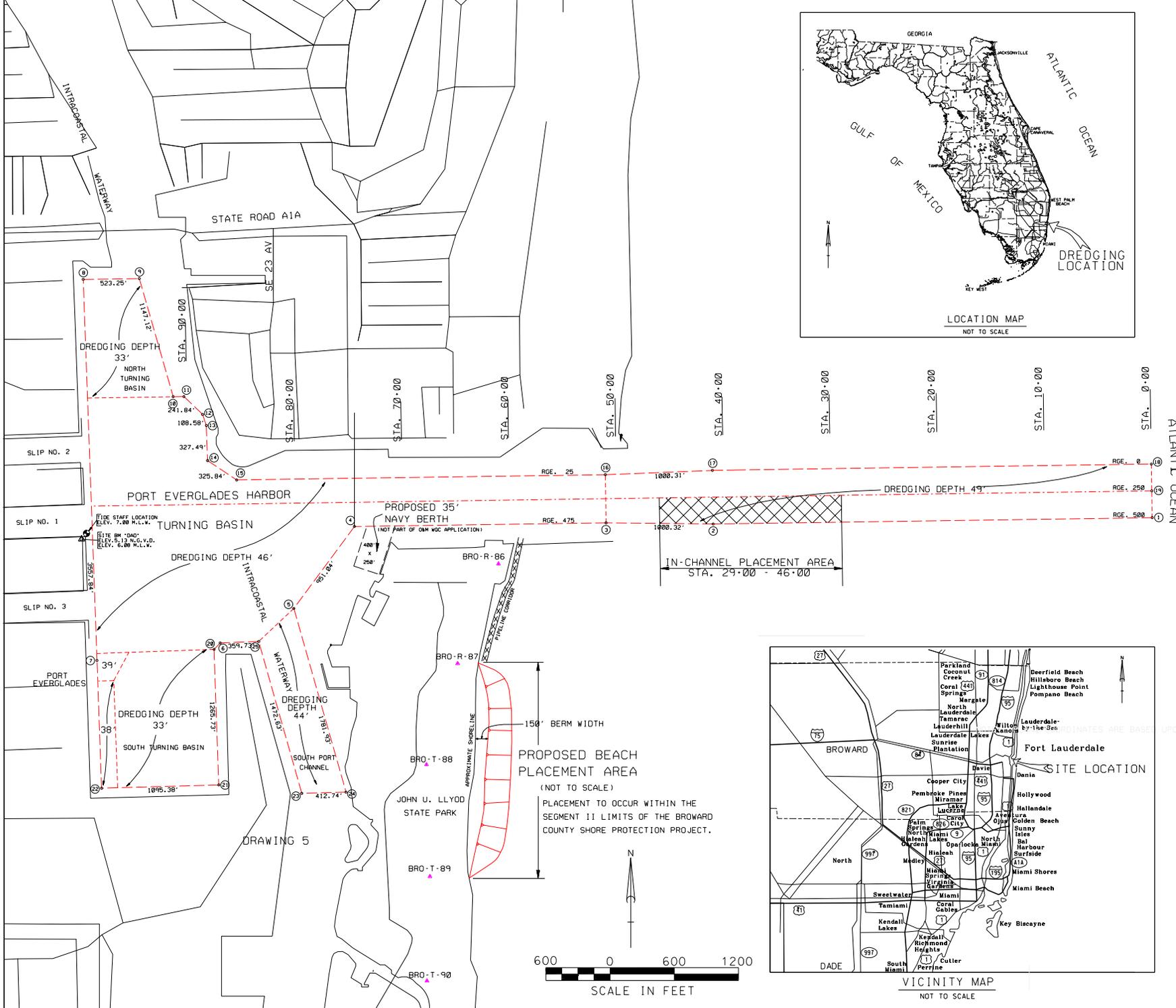
Response: The proposed project is not located near or on agricultural lands; therefore, this chapter does not apply.

APPENDIX C

PERTINENT CORRESPONDENCE

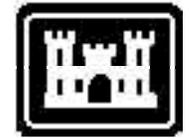
APPENDIX D

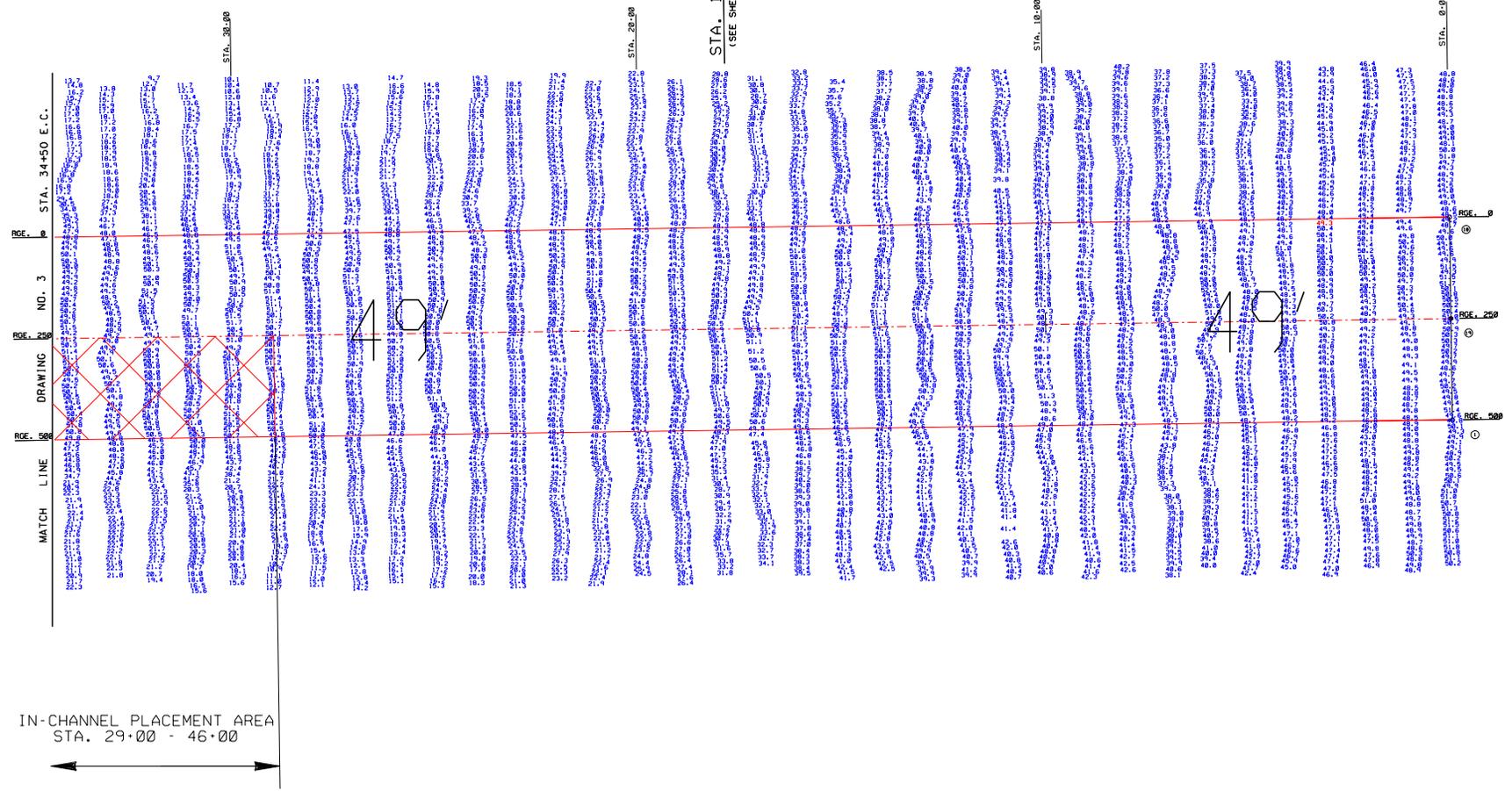
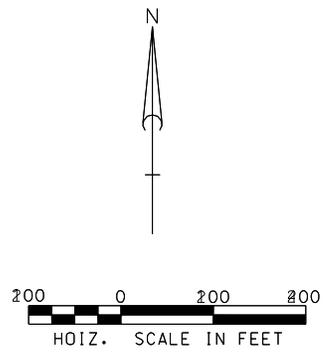
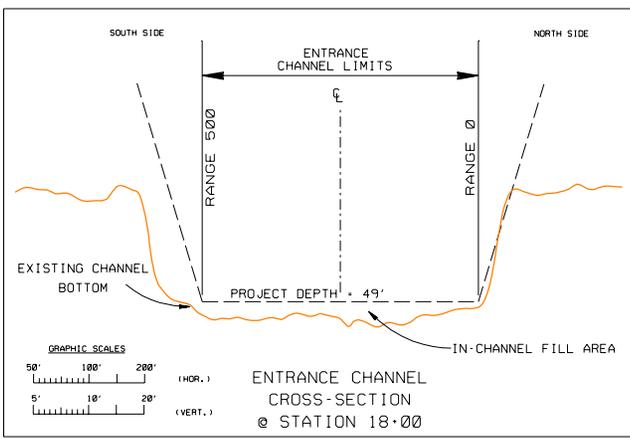
2002 PROJECT CONDITIONS SURVEY - PORT EVERGLADES FEDERAL NAVIGATION PROJECT AND PLACEMENT PLANS



APPLICANT: U.S. ARMY CORPS OF ENGINEERS
 PROJECT: MAINTENANCE DREDGING,
 PORT EVERGLADES HARBOR, FLORIDA
 DATE: APRIL 2004 SHEET 1 OF 7

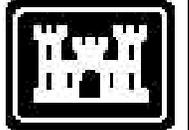
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 APPLICATION FOR WATER QUALITY
 CERTIFICATE SUBMITTED TO THE
 FLORIDA DEPARTMENT OF
 ENVIRONMENTAL PROTECTION

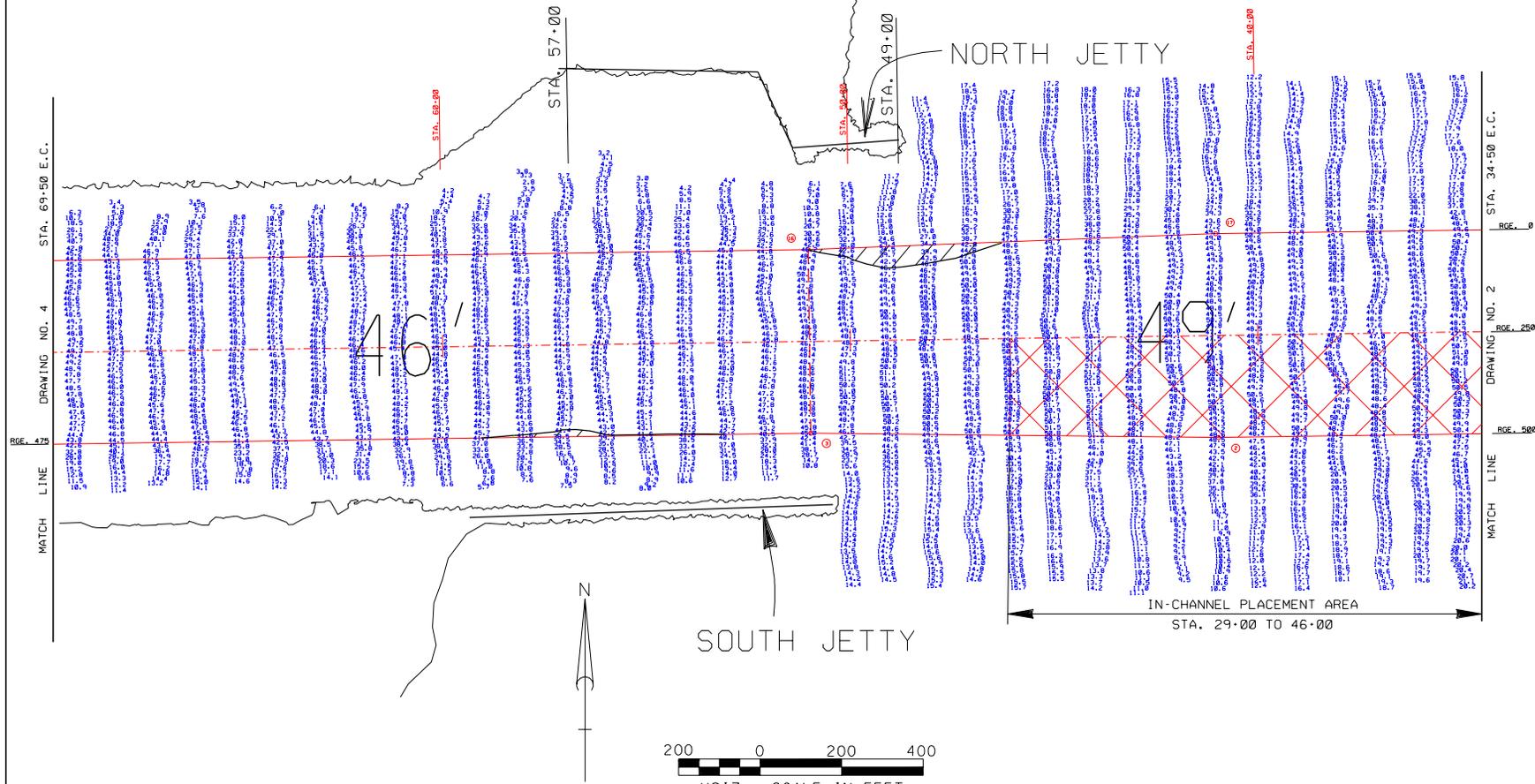
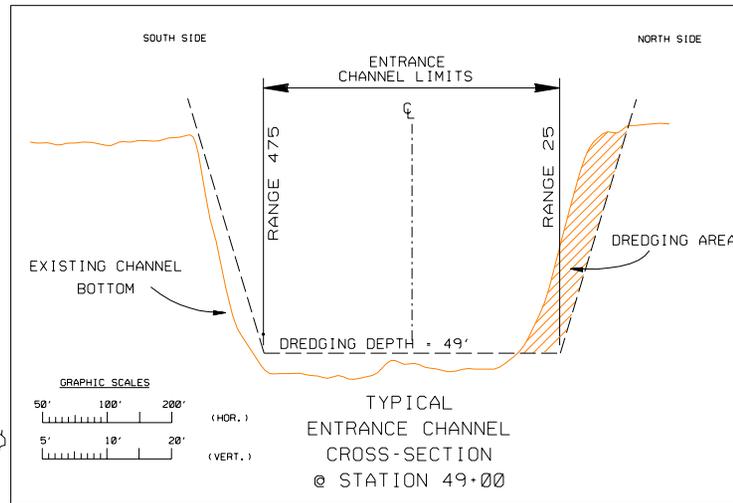
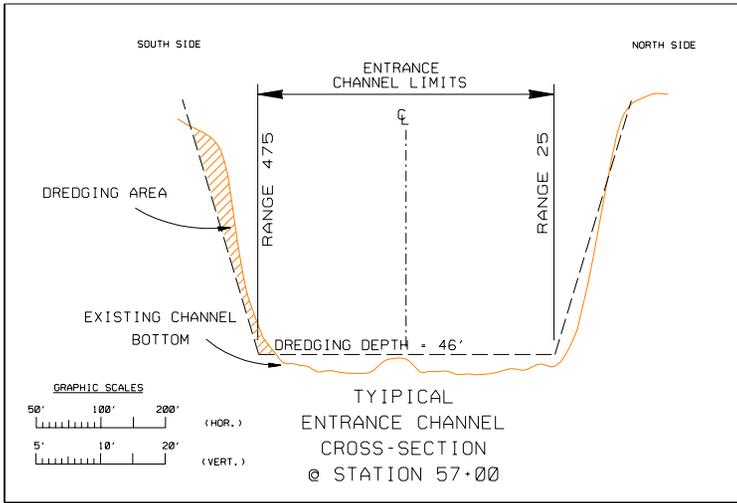




DRAWINGS TO ACCOMPANY THE APPLICATION FOR WATER QUALITY CERTIFICATE SUBMITTED TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

APPLICANT: U.S. ARMY CORPS OF ENGINEERS
PROJECT: MAINTENANCE DREDGING,
PORT EVERGLADES HARBOR, FLORIDA
DATE: APRIL 2004 SHEET 2 OF 7

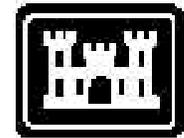


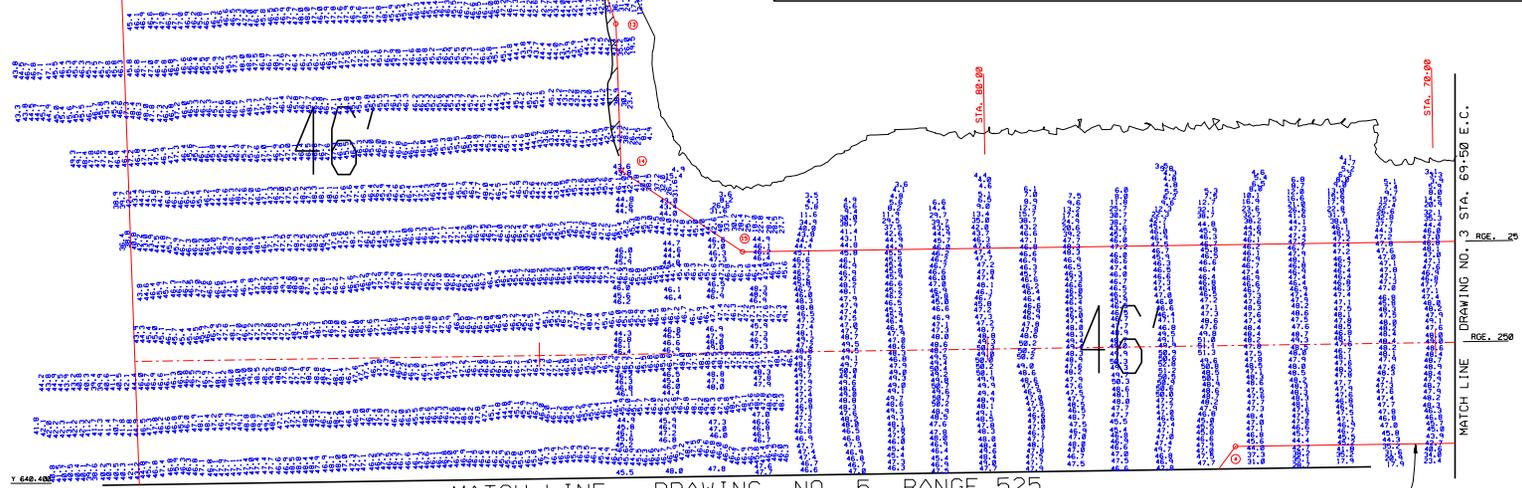
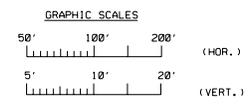
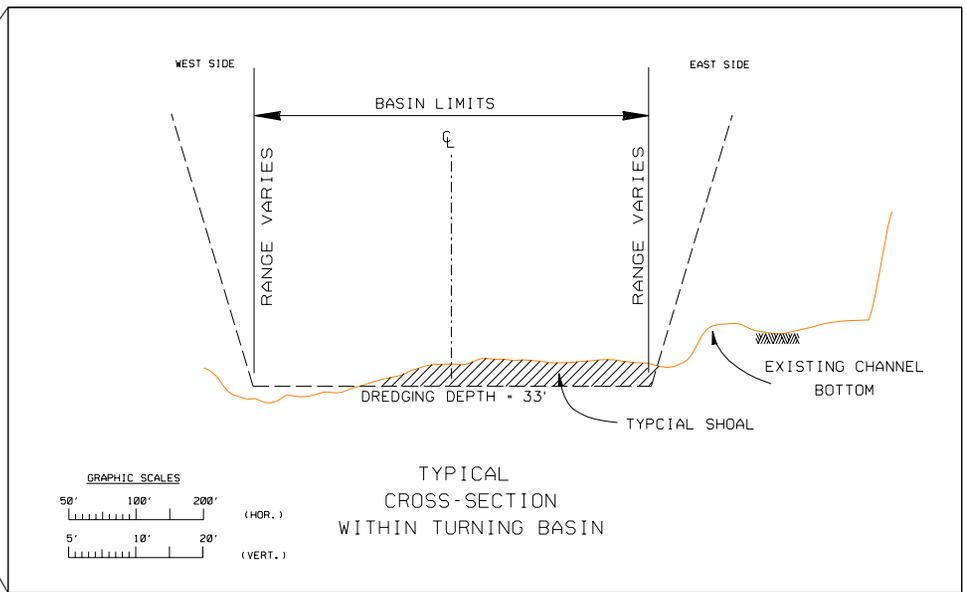
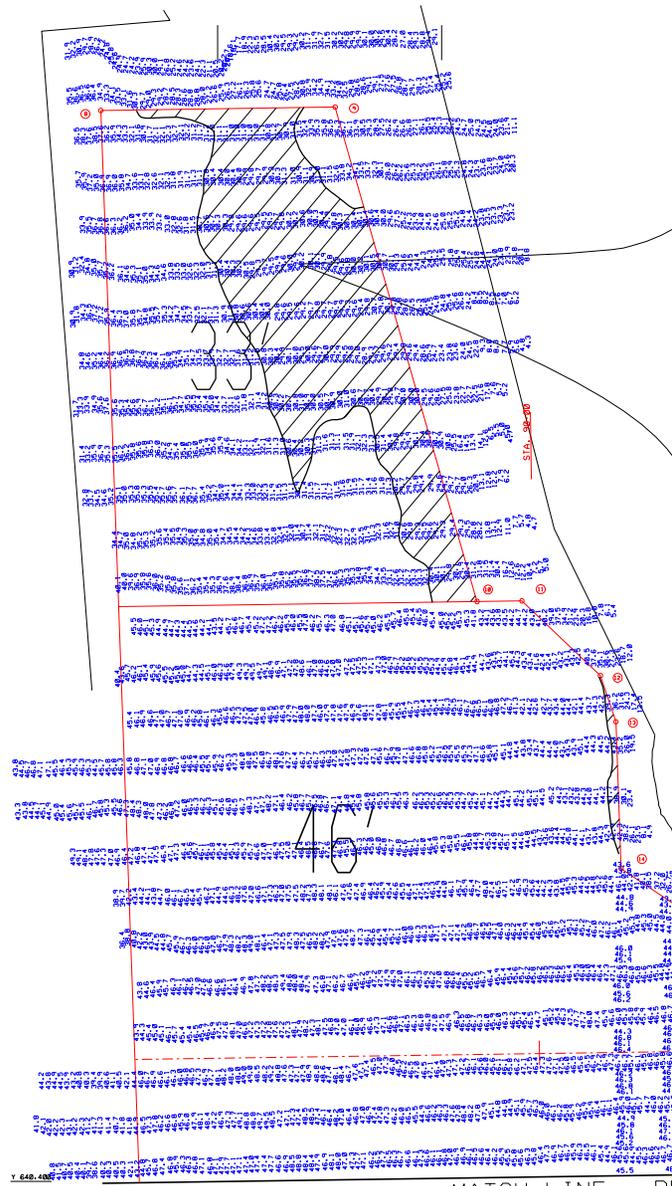


NOTE: DEPTHS SHOWN ARE DREDGING DEPTHS, NOT AUTHORIZED PROJECT DEPTHS

APPLICANT: U.S. ARMY CORPS OF ENGINEERS
PROJECT: MAINTENANCE DREDGING,
PORT EVERGLADES HARBOR, FLORIDA
DATE: APRIL 2004 SHEET 3 OF 7

DRAWINGS TO ACCOMPANY THE
APPLICATION FOR WATER QUALITY
CERTIFICATE SUBMITTED TO THE
FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION



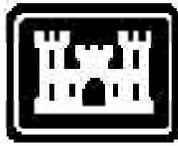


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NOTE: DEPTHS SHOWN ARE DREDGING DEPTHS, NOT AUTHORIZED PROJECT DEPTHS

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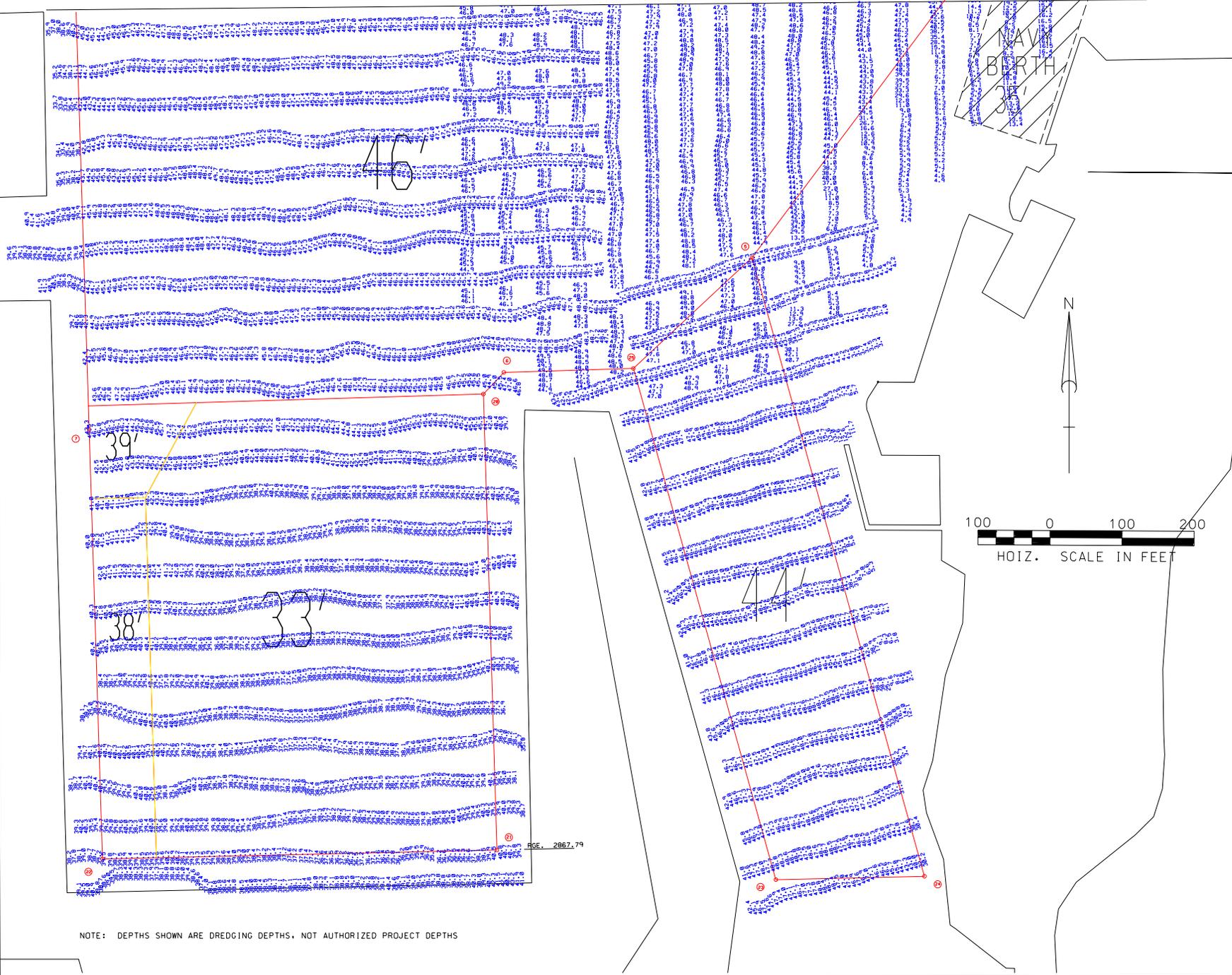


APPLICANT: U.S. ARMY CORPS OF ENGINEERS
PROJECT: MAINTENANCE DREDGING,

PORT EVERGLADES HARBOR, FLORIDA

DATE: APRIL 2004 SHEET 4 OF 7

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APPLICANT: U.S. ARMY CORPS OF ENGINEERS
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 DATE: APRIL 2004 SHEET 5 OF 7

DRAWINGS TO ACCOMPANY THE
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 FLORIDA DEPARTMENT OF
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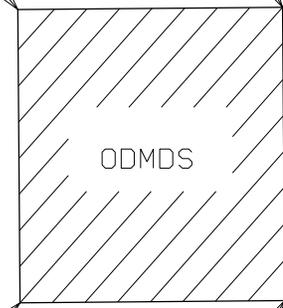
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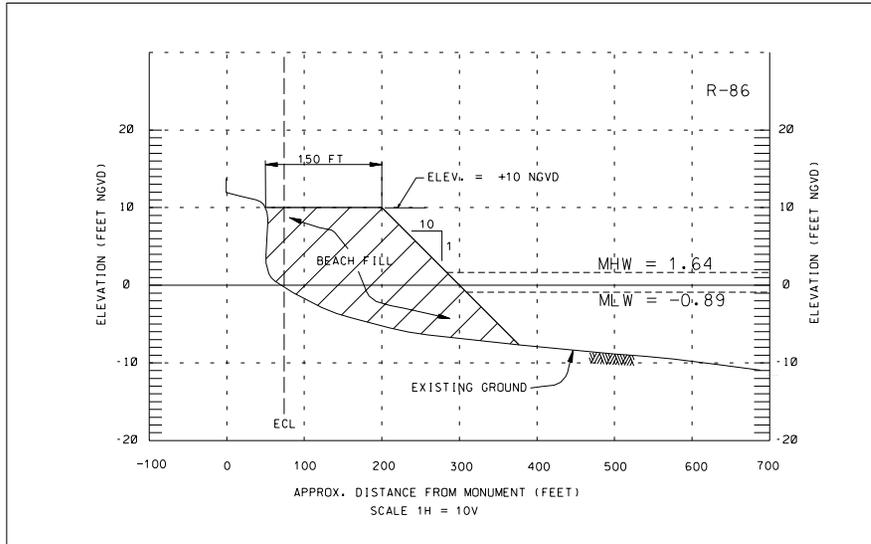
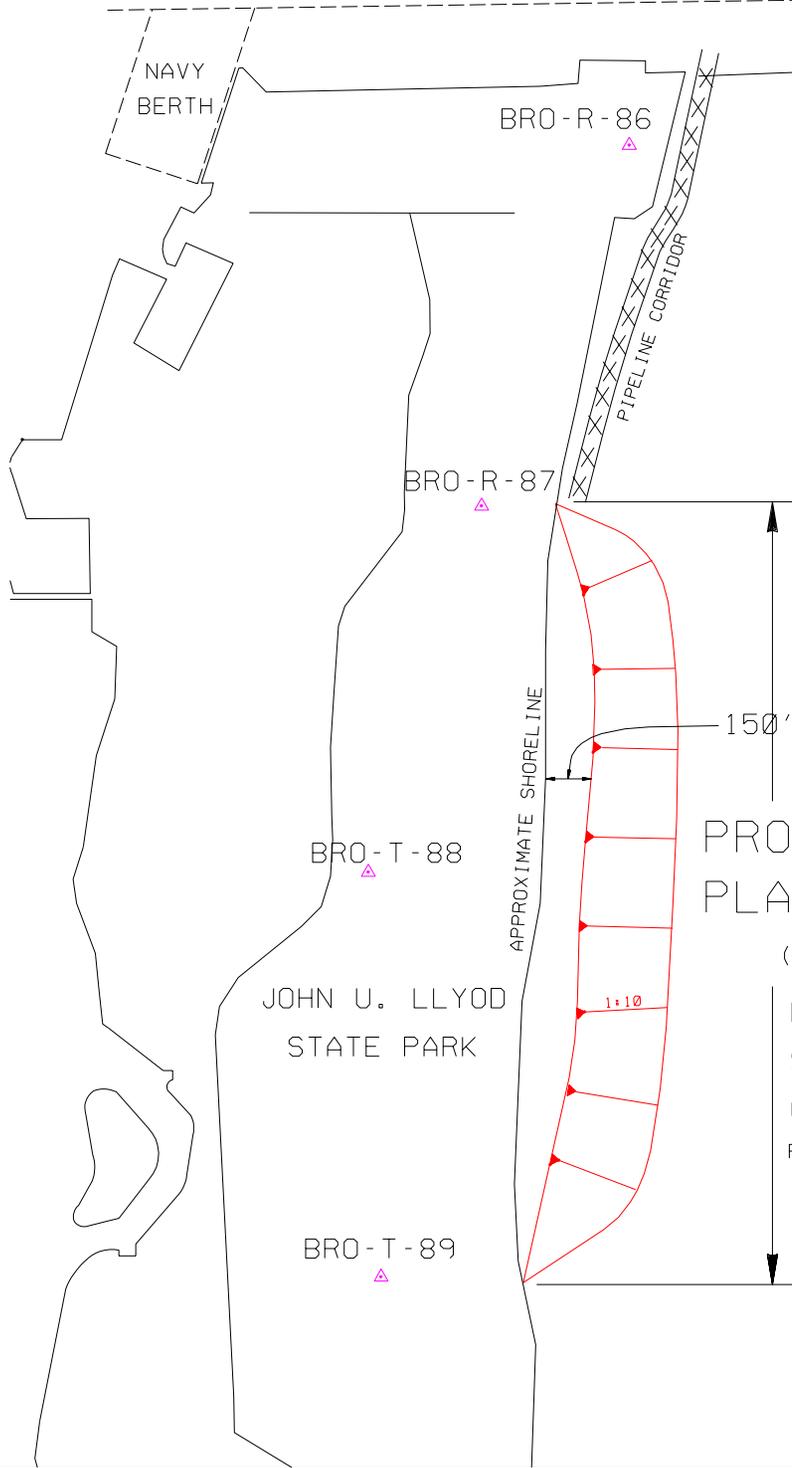
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APPLICANT: U.S. ARMY CORPS OF ENGINEERS
PROJECT: MAINTENANCE DREDGING,
PORT EVERGLADES HARBOR, FLORIDA
DATE: APRIL 2004 SHEET 6 OF 7



ENTRANCE CHANNEL

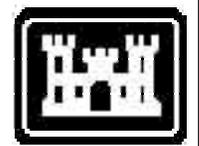


(NOT TO SCALE)

PLACEMENT TO OCCUR WITHIN THE
SEGMENT II LIMITS OF THE BROWARD
COUNTY SHORE PROTECTION PROJECT.
REFERENCE FINAL EIS, VOLUME I, DATED JUNE 2003

APPLICANT: U.S. ARMY CORPS OF ENGINEERS
PROJECT: MAINTENANCE DREDGING,
PORT EVERGLADES HARBOR, FLORIDA
DATE: APRIL 2004 SHEET 7 OF 7

DRAWINGS TO ACCOMPANY THE
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APPENDIX E

**PREVIOUS PERMITS FOR MAINTENANCE DREDGING IN PORT
EVERGLADES AND CURRENT APPLICATION FOR WATER QUALITY
CERTIFICATE**