March 2013

Draft Environmental Assessment

MAINTENANCE DREDGING

12-FOOT CHANNEL, GORDON PASS TO NAPLES, FLA.

Naples, Collier County, Florida

U.S. Army Corps
of Engineers
Jacksonville District

ENVIRONMENTAL ASSESSMENT

ON

MAINTENANCE DREDGING

12-FOOT CHANNEL, GORDON PASS TO NAPLES, FLA.

NAPLES, COLLIER COUNTY, FLORIDA

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ENVIRONMENTAL ASSESSMENT

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1 PROJECT PURPOSE AND NEED

1.1 PROJECT AUTHORITY

Authorization for maintenance dredging operations of the Federal project at Gordon Pass is given in Section 107 of the River and Harbor Act of 1960. The deepening of the channel was specifically authorized by House Document 596/75/3 on June 20, 1938, and re-authorized on June 14, 1960 by House Document 183/86/1.

1.2 PROJECT LOCATION

The project is located in Naples Bay from Gordon Pass to Naples in Collier County, Florida. The project includes 4.5 miles of channel from the mouth of the Gordon River to downtown Naples (Figure 1).

1.3 PROJECT NEED OR OPPORTUNITY

The Jacksonville District of the U.S. Army Corps of Engineers (Corps) is planning to conduct maintenance dredging in the Gordon River from Gordon Pass to Naples, including the turning basin in upper Naples, Florida, and the turning basin adjacent to the municipal yacht basin (see Figure 1). This project is a federal project under the responsibility of the Corps. The local sponsor for the project is the City of Naples. They are responsible for the lands, easements, right of ways, relocations, and disposal areas for construction and maintenance of the placement areas. The Corps is responsible for maintenance of the waterway. Both the local sponsor's action and the Corps's action are federal actions requiring NEPA compliance and documentation. Dredging is anticipated to generate approximately 100,000 cubic yards of dredged material per dredging event (although this number can vary significantly based on shoaling rates). Frequency of dredging is on an as-needed basis.

Dredged material that meets the State of Florida's "Sand Rule" [62B-41.007(2)(j-k), F.A.C.] will be placed at the designated beach placement location or in the nearshore of this region based

on its suitability. Dredged material not suitable for beach or nearshore placement will be dewatered and transported to a suitable location provided by the local sponsor.

Figure 1. Project Location Map showing the location of the federal channel and the beach and nearshore placement areas.

1.4 AGENCY GOAL OR OBJECTIVE

The federal objective of this project is to maintain the waterway for navigation. The project includes Cuts 1 through 15. Project depths are 12 feet mean lower low water (MLLW) plus 2 foot allowable overdepth at the entrance cut, and 10 feet MLLW plus 2 foot allowable overdepth for the remainder of the channel (north of approximately Station 45). Cut 1 is authorized at 150 feet wide with a 100 foot settling basin adjacent to the north of the cut, and Cuts 2 through 15 are authorized at 100 feet wide.

1.5 RELATED ENVIRONMENTAL DOCUMENTS

The following documents are related to the proposed action, and they are incorporated into this document by reference:

- Environmental Assessment, Maintenance Dredging, Naples to Gordon Pass, Collier County, Florida (October 1992); and

- U.S. Fish and Wildlife Biological Opinion, FWS Log No. 4-00-01-F-411 (May 7, 2001).

1.6 DECISIONS TO BE MADE

This Environmental Assessment will evaluate whether to conduct operation and maintenance dredging of Cuts 1-15 of the federal channel from Gordon Pass to Naples, Florida, with disposal on the beach, in the nearshore environment, or at an appropriate upland site (based on suitability of material), and if so, evaluate alternatives to accomplish that goal.

1.7 SCOPING AND ISSUES

1.7.1 *Issues Evaluated in Detail*

The following issues were identified be relevant to the proposed action and appropriate for detailed evaluation:

1. Vegetation;
2. Threatened and Endangered Species;
3. Fish and Wildlife Resources;
4. Essential Fish Habitat;
5. Hardgrounds;
6. Coastal Barrier Resources;
7. Water Quality;
8. Air Quality;
9. Hazardous, Toxic and Radioactive Waste;
10. Noise;
11. Aesthetic Resources;

12. Recreation Resources;
13. Navigation;
14. Invasive Species; and
15. Historic and Cultural Resources.

1.7.2 *Issues Eliminated from Detailed Analysis*

There were no issues that were considered to be unimportant or irrelevant to the proposed action.

1.8 PERMITS, LICENSES, AND ENTITLEMENTS

A modification to the existing Joint Coastal Permit (0176979-003-JC) issued by the Florida Department of Environmental Protection (FDEP) is required in accordance with the Memorandum of Understanding between the FDEP and the Corps, and in accordance with Section 401 of the Clean Water Act of 1977, as amended, for the proposed action. This permit will be obtained prior to project construction. Please also refer to Section 4.35, Compliance with Environmental Requirements.

2 ALTERNATIVES

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

2.1 DESCRIPTION OF ALTERNATIVES

2.1.1 *Maintenance Dredging*

The proposed work includes conducting operations and maintenance dredging on Cuts 1 through 15 of the federal channel from Gordon Pass to Naples, Florida (see Figure 1). At the entrance to the channel, the federal channel is maintained at the project depth of 12 feet MLLW (plus 2 foot allowable overdepth) with a 100 foot wide settling basin located adjacent to the north of the Cut (also dredged to 12 feet MLLW plus a 2 foot allowable overdepth). The remainder of the channel (beginning at approximately Station 45) is maintained at 10 feet MLLW (plus an allowable 2 foot overdepth). Shoaled sediments are sandy at the entrance to the channel, becoming gradually siltier further upstream (at approximately Cut 5).

2.1.2 *Dredged Material Placement Options*

Based on the sand's suitability according to Florida law, there are several different placement options for the sediments dredged from the federal channel as outlined below.

2.1.2.1 Disposal of Dredged Materials on the Beach

The beach placement for the project is located south of Gordon Pass on Keewaydin Island. Predominantly sandy materials would be placed on this beach between Florida Department of Environmental Protection (FDEP) Reference Monuments R-90 and R-94, and is approximately 4000 feet in length.

2.1.2.2 Disposal of Dredged Materials in the Nearshore

The nearshore placement area is located immediately adjacent to the beach placement site below mean lower low water (MLLW) on Keewaydin Island in Collier County, Florida. It is also located between FDEP Reference Monuments R-90 and R-94, and is approximately 4000 feet in length.

2.1.2.3 Disposal of Dredged Materials at an Appropriate Upland Site

For materials that are not suitable for beach or nearshore placement, the City of Naples has identified a site for the dewatering of materials unsuitable for beach or nearshore placement. This EA assesses the impacts associated with the use of this site (see Figure 2). If another site is chosen for dewatering that would result in impacts not addressed in this EA, an additional analysis would be conducted. Following dewatering, the unsuitable materials would be hauled to an upland site. The upland site would most likely be a municipal landfill or other industrial site. If any impacts would result at the ultimate placement site for these materials, an additional analysis would be conducted prior to project implementation.

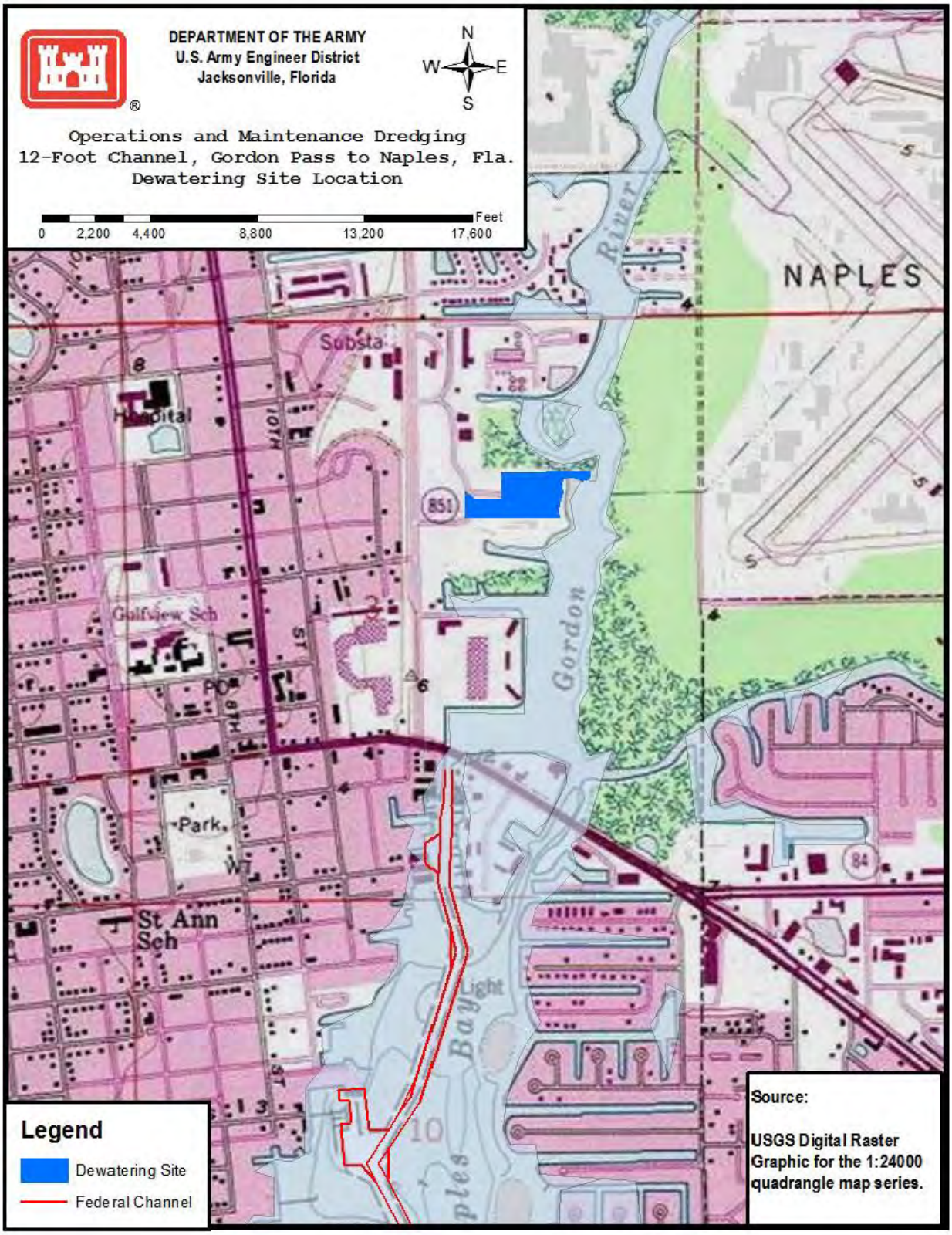


Figure 2. Dewatering Site Location.

2.1.3 *No Action Alternative*

The federal channel in the project area is experiencing shoaling that reduces the navigable capacity of the channel. The No Action alternative would be to allow the channel to continue shoaling and to potentially become non-navigable.

2.2 DREDGING METHODOLOGIES

In general, Corps does not specify types of equipment and construction methods in its project specifications due to the requirements of Federal acquisition regulations implementing the Competition in Contracting Act. This Act requires Federal agencies to limit how specific specifications are written to prevent limiting competition among contractors. The contractor selected by Corps will determine the most efficient construction methodology for the project, in their professional opinion, and submit that as part of a proposal to Corps. Corps can, and does, specify the intended results of construction through detailed plans and specifications. Generic information regarding several construction techniques is discussed below.

Dredging equipment uses either hydraulic or mechanical means to transport material from the substrate to the surface. Hydraulic dredges use water to pump the dredged material as slurry to the surface, while mechanical dredges use some form of bucket to excavate and raise the material from the channel bottom. The most common hydraulic dredges include suction, cutter-suction, and hopper dredges. The most common mechanical dredges in the U.S. include clamshells, backhoes, and marine excavator dredges. Public Law 100-329 requires dredges working on U.S. government projects to have U.S. built hulls, which can limit the options for equipment types. If a new type of dredge is developed overseas, the new technology is unavailable for use on U.S. government projects until it is adopted by a U.S. dredging company.

Various project elements influence the selection of the dredge type and size. These factors include: the type of material to be dredged (rock, clay, sand, silt, or combination); the water depth; the dredge cut thickness, length, and width; the sea or wave conditions; vessel traffic conditions; environmental restrictions; contaminants; other operating restrictions; and the required completion time. All of these factors impact dredge production, and as a result, costs. Multiple dredges of the same or different types may be used on projects where conditions vary between dredging locations or to expedite the work.

The following discussion of dredges and their associated impacts will be limited to the dredging equipment most likely to be utilized for this project based on the expert opinion of the Corps construction and operations staff. A more detailed description of types of dredging equipment and their characteristics can be found in Engineer Manual, EM 1110-2-5025, *Engineering and Design - Dredging and Dredged Material Disposal*. This Engineer Manual is available on the internet at http://www.usace.army.mil/publications/eng-manuals/em1110-2-5025/toc.htm.

2.2.1 *Hydraulic Dredging*

Hydraulic dredges mix dredged material into a sediment-water slurry and pump the mixture from the bottom surface to a temporary location such as a barge or re-handling site, or to a permanent location such as a confined or unconfined upland or aquatic site. The advantage of hydraulic dredges is that there is less turbidity (re-suspended sediments) at the dredge than with mechanical dredges. The disadvantage of hydraulic dredges is that a large quantity of water is added to the dredged material and this excess water must be dealt with at the disposal location.

2.2.1.1 Hopper Dredge

The hopper dredge, or trailing suction dredge, is a self-propelled ocean-going vessel with a section of the hull compartmented into one or more hoppers. Fitted with powerful pumps, the dredges suck sediment from the channel bottom through long intake pipes, called drag arms, and store it in the hoppers. Normal hopper dredge configuration has two dragarms, one on each side of the vessel. A dragarm is a pipe suspended over the side of the vessel with a suction opening called a draghead for contact with the bottom (Figure 2). Depending on the hopper dredge, a slurry of water and sediment is generated from the plowing of the draghead "teeth," the use of high pressure water jets, and the suction velocity of the pumps. The dredged slurry is distributed within the vessel's hopper, allowing for solids to settle out and the water portion of the slurry to be discharged from the vessel during operations through its overflow system. When the hopper attains a full load, dredging stops and the ship travels to an in-water disposal site, where the dredged material is discharged through the bottom of the ship by splitting the hull. Some hopper dredges are capable of pumping the material back out of the vessel through a series of shore-pipe to a designated placement/disposal location.

Hopper dredges are well suited to dredging heavy sands. They can maintain operations safely, effectively, and economically in relatively rough seas. Because they are mobile, they can be used in high-traffic areas. They are often used at ocean entrances and offshore, but cannot be used in confined or shallow areas. Hopper dredges can move quickly to disposal sites under their own power (maximum speed unloaded - ≤ 17 knots; maximum loaded - ≤ 16 knots), but since the dredging stops during the transit to and from the disposal area, the operation loses efficiency if the haul distance is too far. Based on the review of hopper dredge speed data provided by the Corps Silent Inspector program, the average speed for hopper dredges while dredging is between 1-3 knots, with most dredges never exceeding 4 knots (Jay Rosatti, ERDC; personal communication). Hopper dredges also have several limitations. Considering their normal operating conditions, hopper dredges cannot dredge continuously. The precision of hopper dredging is less than other types of dredges; therefore, they have difficulty dredging steep side banks and cannot effectively dredge around structures.

Environmental impacts from hopper dredges include localized suspended sediment along the bottom around the draghead and fine-grained sediment turbidity plumes from hopper overflow. This could impact both water quality and the hardbottom communities adjacent to the channel. The turbidity can be reduced or eliminated by restricting the amount of hopper overflow time, eliminating hopper overflow, or directing the hopper overflow toward the channel bottom through tubes.

Hopper dredges are also known to take protected sea turtles that are resting on the bottom of channels. To minimize the risk of incidental takes of sea turtles, Corps requires the use of sea turtle deflecting dragheads on all hopper-dredging projects where the potential for sea turtle interactions exist. The leading edge of the deflector is designed to have a plowing effect of at least 6 inches depth when the draghead is being operated. Appropriate instrumentation is required on board the vessel to ensure that the critical “approach angle” is attained in order to satisfy the 6 inch plowing depth requirement. Additional information on the potential environmental effects of hopper dredges and the measures implemented to minimize these effects is found in Section 4.

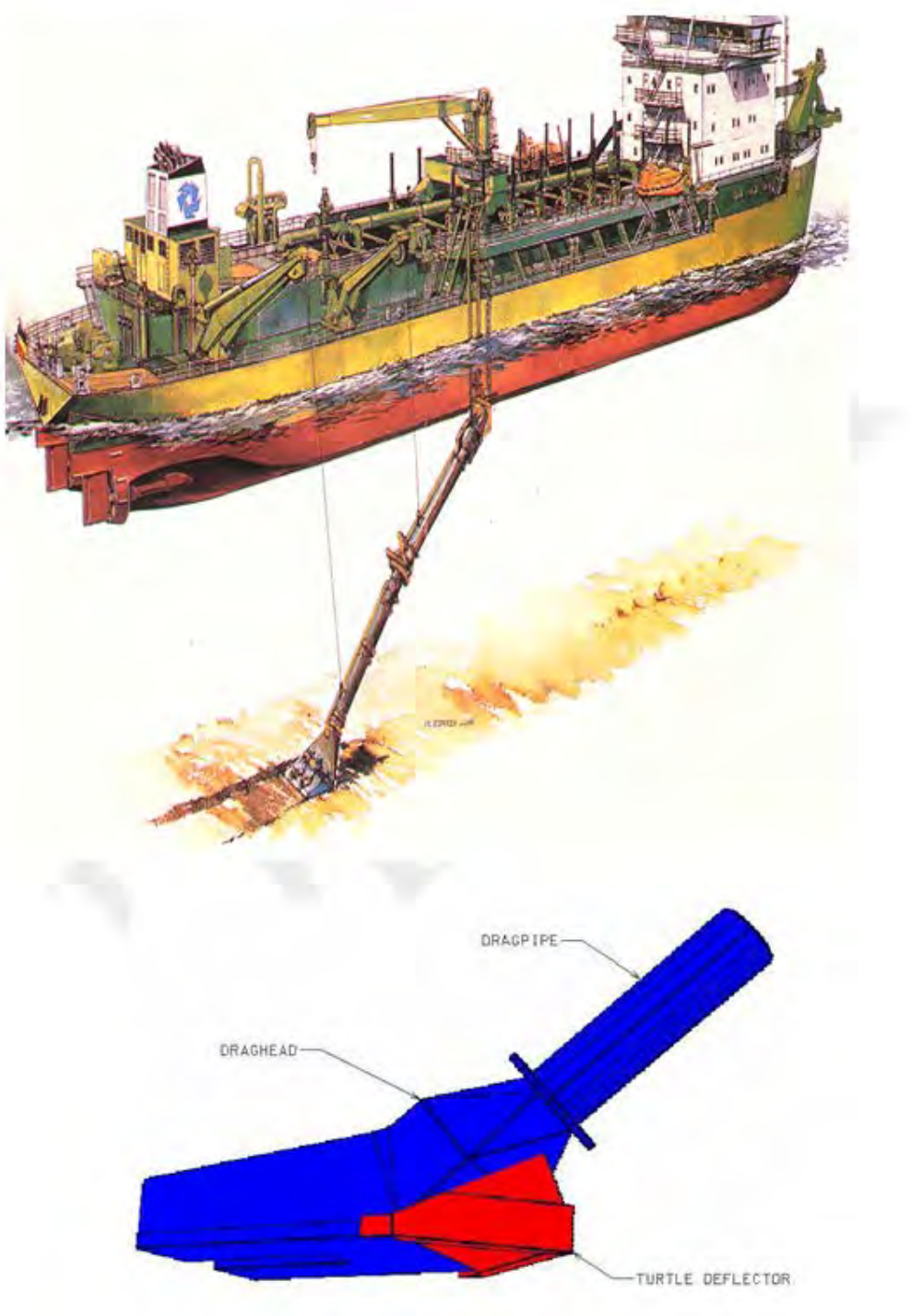


Figure 3. Hopper dredge and turtle deflecting draghead schematics.

2.2.1.2 Pipeline and Cutter Suction Dredge

Pipeline dredges are designed to handle a wide range of materials including clay, hardpan, silts, sands, gravel, and some types of rock formations without blasting. They are used for new work and maintenance in projects where suitable placement/disposal areas are available and

operate in an almost continuous dredging cycle resulting in maximum production, economy, and efficiency. Pipeline dredges are capable of dredging in shallow or deep water and have accurate bottom and side slope cutting capability. Limitations of pipeline dredges include relative lack of mobility, long mobilization and demobilization, inability to work in high wave action and currents, and are impractical in high traffic areas.

Pipeline dredges are rarely self-propelled and; therefore, must be transported to and from the dredge site. Pipeline dredge size is based on the inside diameter of the discharge pipe which commonly ranges from 6" to 36." They require an extensive array of support equipment including pipeline (floating, shore, and submerged), boats (crew, work, survey), barges, and pipe handling equipment. Most pipeline dredges have a cutterhead on the suction end. A cutterhead is a mechanical device that has rotating teeth to break up or loosen the bottom material so that it can be sucked through the dredge. Some cutterheads are rugged enough to break up rock for removal (Figure 3 and Figure 4).

During the dredging operation a cutterhead suction dredge is held in position by two spuds at the stern of the dredge, only one of which can be on the bottom while the dredge swings. There are two swing anchors some distance from either side of the dredge, which are connected by wire rope to the swing wenches. The dredge swings to port and starboard alternately, passing the cutter through the bottom material until the proper depth is achieved. The dredge advances by "walking" itself forward on the spuds. This is accomplished by swinging the dredge to the port, using the port spud and appropriate distance, then the starboard spud is dropped and the port spud raised. The dredge is then swung an equal distance to the starboard and the port spud is dropped and the starboard spud raised.

Cutterhead pipeline dredges work best in large areas with deep shoals, where the cutterhead is buried in the bottom. A cutterhead removes dredged material through an intake pipe and then pushes it out the discharge pipeline directly into the placement/disposal site. Most, but not all, pipeline dredging operations involve upland placement/disposal of the dredged material. Therefore, the discharge end of the pipeline is connected to shore pipe. When effective pumping distances to the placement/disposal site become too long, a booster pump is added to the pipeline to increase the efficiency of the dredging operation.

Environmental impacts from cutterhead dredges include localized suspended sediment along the bottom around the cutterhead and fine-grained sediment turbidity plumes from barge overflow or pipeline leaks. Overflow and leaks can be reduced or eliminated by restricting the amount of overflow time, eliminating barge overflow, and performing regular inspections of the pipeline. Locating barges the furthest possible distance from resources can further reduce environmental impacts. If booster pumps are used, noise impacts may increase.

Video clips of how cutterhead dredges operate are available on the following website: http://el.erdc.usace.army.mil/dots/trip.html.

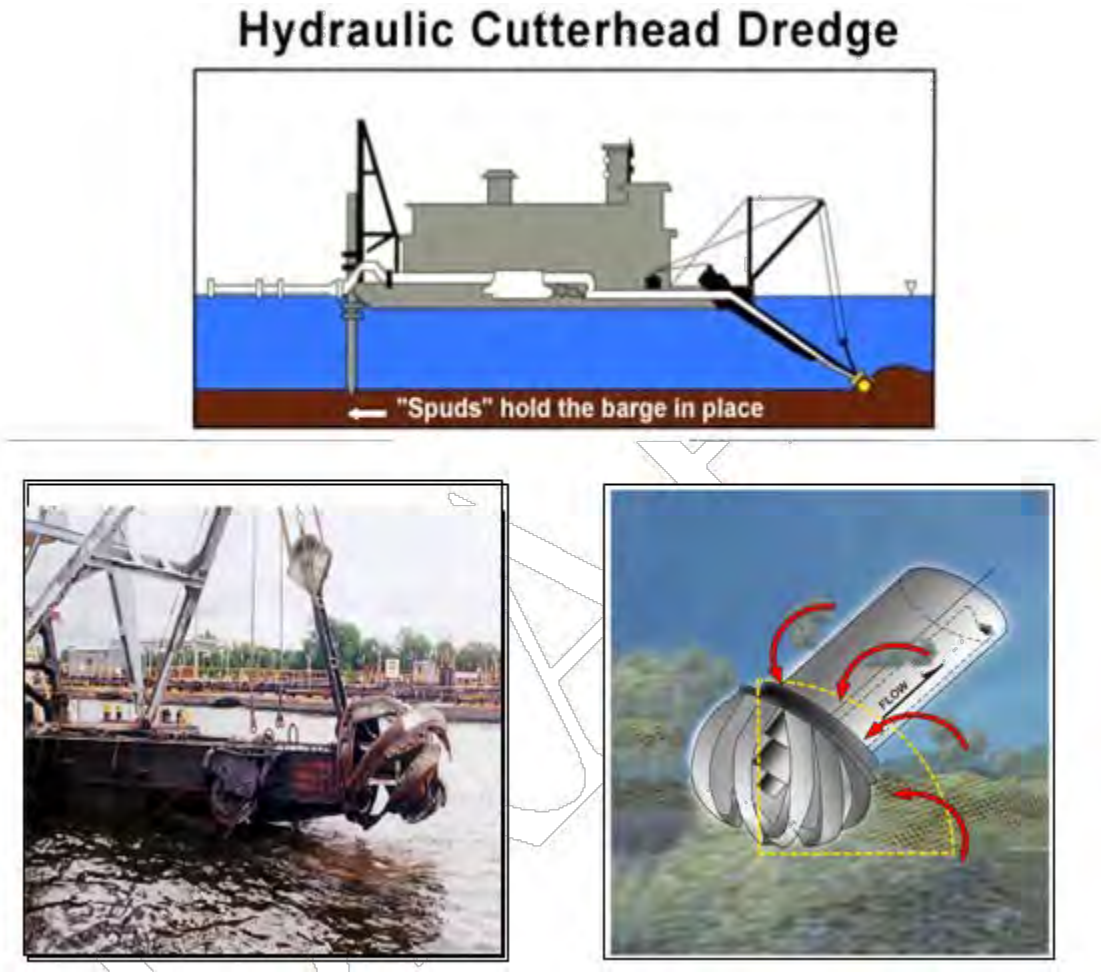


Figure 4: Cutterhead pipeline dredge schematic and representative close-up photographs (photo/drawing: Engineer Research and Development Center, 2007).

Figure 5: Typical large cutterhead.

2.2.2 *Mechanical Dredging*

Mechanical dredges are classified by how the bucket is connected to the dredge. The three standard classifications are structurally connected (backhoe), wire rope connected (clamshell), and chain and structurally connected (bucket ladder). The advantage of mechanical dredging systems is that very little water is added to the dredged material by the dredging process and the dredging unit is not used to transport the dredged material. This is important when the disposal location is remote from the dredging site. The disadvantage is that mechanical dredges require sufficient dredge cut thickness to fill the bucket to be efficient and greater re-suspended sediment is possible when the bucket impacts the bottom and as fine-grained sediment washes from the bucket as it travels through the water column to the surface.

2.2.2.1 Clamshell Dredge

Clamshell dredges are the most common of the mechanical dredges. Clamshell dredges use a number of different bucket types for mud, gravel, rock, or boulders. The clamshell dredging operation cycle lowers a bucket in the open position to the bottom surface; penetrates the bottom sediments with the weight of the bucket; closes the bucket using the weight of the bucket to penetrate the soil; and raises the bucket above hopper level, swinging forward to dump the material into the scow. The dredged material is placed in a scow or on a barge for transport to the disposal site. The bucket swings back around to the dredge site, and the process is repeated. The dredging depth is limited by the length of the wire used to lower the bucket, and production depends upon the bucket size, dredging depth, and type of material. Clamshell dredges are able to work in confined areas, can pick up large particles, and are less

sensitive to sea (wave) conditions than other dredges. However, their capacity is low and they are unable to dig in firm or consolidated materials, such as rock.

Clamshell dredges could be used for dredging the majority of the unconsolidated material at this project. The dredge requires a tug to move the dredge to and from a location. Clamshell dredging environmental impacts in unconsolidated sediments include re-suspension of sediments when the clamshell drops onto the bottom, and also when material washes from the bucket while it rises through the water column. Operational controls such as a reduction in bucket speed may reduce impacts, as would the use of a closed bucket system. Silt curtains may be deployed around the dredge if water quality standards cannot be met using operational controls. An animation showing the operation of a clamshell is located online at http://el.erdc.usace.army.mil/dots/trip.html.

Information on the environmental effects of clamshell dredges and the protection measures implemented to minimize impacts is discussed in Section 4.

Figure 6. Clamshell Dredge (left) with Scow (right). Photo courtesy of Great Lakes Dredge & Dock Company.

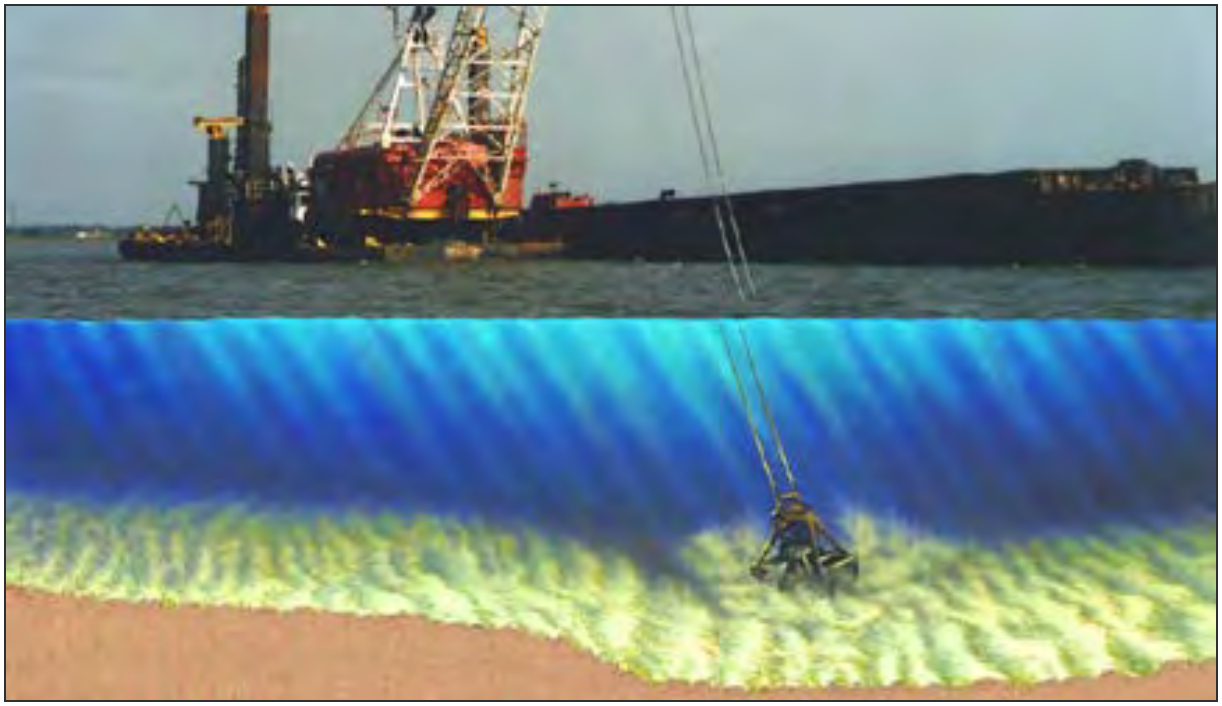


Figure 7. Mechanical Dredging with Clamshell (photo/drawing courtesy of the USACE Engineer Research and Development Center, 2007).

2.2.2.2 Backhoe Marine Excavator

A backhoe dredge is a back-acting excavating machine that is usually mounted on pontoons or a barge. The backhoe digs toward the machine with a bucket penetrating the surface from the top of the cut face. The operation cycle is similar to the clamshell dredge, as are the factors affecting production. Backhoe marine excavators have accurate positioning ability and are able to excavate firm or consolidated materials. However, they are susceptible to swells and have low to moderate production. Backhoe marine excavators could be used to excavate unconsolidated overburden, fractured rock, and possibly some unfractured rock. The dredge requires a tug to move the dredge to and from a location.

Environmental impacts from backhoe marine excavator dredging in unconsolidated sediment are similar to those of a clamshell dredge, as are the operational controls to reduce that impact. Slowing the movement of the bucket through the water is an example of an operational control. Environmental impacts are significantly less for a backhoe marine excavator dredge removing fractured (blasted) rock as the volume of fine-grained sediment is significantly less in fractured rock than unconsolidated sediment and as a result the potential for sediment re-suspension is reduced. The same operational controls can be applied to fractured rock as to unconsolidated sediment, such as slowing the bucket speed in the water.

2.2.3 *Dredge Material Transport Vessels*

All three barge types are typically pushed or pulled to the disposal site by a tug (Figure 7). For split hull and bottom dump barges, the disposal action is triggered remotely from the tug to the barge. The exact time the signal is given to the barge, the time the doors open, and the time the doors close are all recorded in a tracking system for further data analysis and compliance monitoring.

2.2.3.1 Split Hull Barge

A split hull barge (see Figure 7, Figure 8, and Figure 9) has two hulls connected with hinges at the front and back. The two-door hinged configuration allows the hulls to swing apart, opening at the bottom to allow dredged material to fall from the barge. This provides a rapid disposal of dredged material, which, as a result, is placed within a small area. The rapid descent of material through the water column reduces the potential for resuspension of sediments into the water column during disposal. Such a barge may be used for nearshore placement. A rubber seal (similar to a gasket or weather-stripping on a door), is pinched between the two doors, limiting the leakage from the barge of water and dredged material. This seal does not prevent 100 percent of water and dredged material from leaking; however, it minimizes it to the maximum extent practicable.

Figure 8. Split hull barge being pushed by tug.

During transport, the barge's draft and ullage are monitored and recorded, and this data is reviewed after each load to detect loss of draft. Any loss of draft is assumed to represent a loss of material during transport. If a barge has a net loss of more than one foot in draft between the dredge site and the disposal site(s) (averaged between the bow and stern monitoring locations), it serves as a "red flag" to conduct an investigation as to why the draft loss occurred. One-foot of loss has been determined by Corps and USEPA to be a good threshold for notification, because all barges have some minimal amount of draft loss from leakage or water sloshing out of the barge due to sea conditions and weather. If the draft loss is determined to be due to high seas and subsequent sloshing of material, no other action is required. If the loss is not a result of high seas and sloshing, the barge is temporarily removed from the rotation and has the seals tested and repaired (if necessary). Barges that demonstrate a trend of material loss that does not resolve itself after seal testing and repair are removed from the dredging operation.

Figure 9. View of stern of split-hull scow.

Figure 10. Loading a split-hull barge using a clamshell dredge.

2.2.3.2 Bottom Dump Barge

A bottom dump barge has doors on the bottom of the hopper, which open at the disposal site to allow the dredged material to fall to the bottom. This type of barge has slower disposal than split hull dump barges and material spreads over a larger area. This barge may be used for nearshore disposal. As with split hull barge, the bottom dump barge has seals around each of the doors to minimize leakage of material and water from the barge. The barge is monitored in the same method as the split hull barge and the same response is taken if the barge loses more than a net foot of draft.

Dredged materials are placed in bottom dump and split hull barges using a pipeline, bucket, or backhoe dredge. The dredging operation can choose to load one barge at a time (typical for mechanical dredging operations), or using a device called a “spider-barge” (Figure 10). Spider barges allow two barges to be in different states of loading (one being loaded, while one settles while a third is transiting to and from the disposal site), and it is a much more efficient system for loading barges for pipeline dredging operations.

Figure 11. Loading two scows using a "spider barge."

2.2.3.3 Flat Top Barge

A flat top barge transports dredged material stacked on a barge deck and must be unloaded mechanically at the disposal site. As a result disposal time is slow but it is possible to drain dredged material with filters prior to disposal. This type of barge generally has a shallower draft requirement than the other two barge types and may be used for construction of mitigation site during final filling stages or when access is limited by depth of water.

2.2.4 *Required, Allowable, and Over-cut Beyond the Project Depth or Width*

The plans and specifications normally require dredging beyond the project depth or width. The purpose of the "required" additional dredging is to account for shoaling between dredging cycles (reduce the frequency of dredging required to maintain the project depth for navigation). In addition, the dredging contractor is allowed to go beyond the required depth. This "allowable" accounts for the inherent variability and inaccuracy of the dredging equipment (normally ±2 feet). In addition, the dredge operator may practice over-cutting. An "over-cut" along the sides of the channel may be employed in anticipation of movement of material down the sides of the channel. Over-cut throughout the channel bottom may be the result of furrowing or pitting by the dredging equipment (the suction dredge's cutterhead, the hopper dredge's drag arms, or the clam-shell dredge's bucket). In addition, some mixing and churning of material below the channel bottom may occur (especially with a large cutterhead).

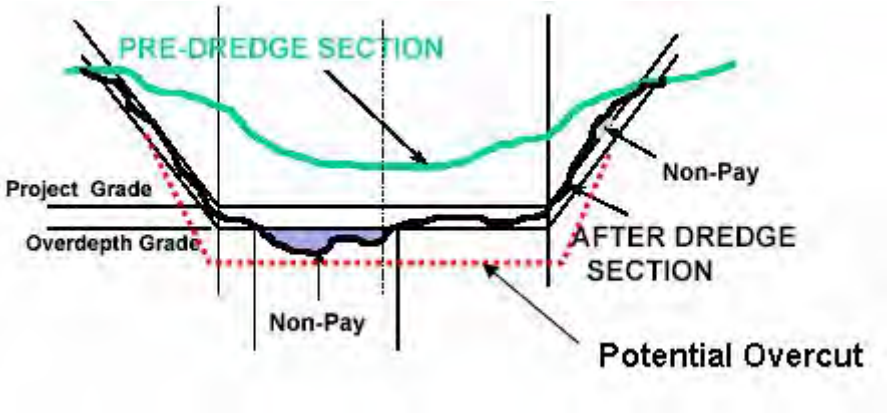
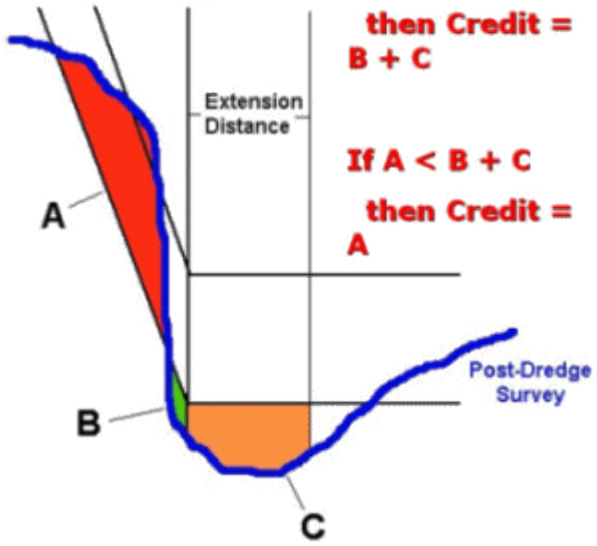


Figure 12. Example of a pre- and post- dredge section. The pre-dredge profile is shown in green, and the post-dredge profile is shown in black. Note that the dredged profile can be cut below the Project Grade; however, any dredging below the Overdepth Grade is not reimburseable.

Generally, the larger the equipment, the greater the potential for over-cut and mixing of material below the "allowable" channel bottom. Some of this material may become mixed-in with the dredged material. If the characteristics of the material in the overcut and mixing profile differ from that above it, the character of the dredged material may be altered. The quantity and/or quality of material for disposal or placement may be substantially changed depending on the extent of over-depth and over-cut.



Overcut Along the Sides and Bottom (=**B**+**C**)

Material from side above (**A**) would slough down to more or less fill the overcut

Figure 13. A second view of the post-dredge profile. Allowable overdepth provides the contractor with greater flexibility during dredging by allowing material to be taken from the bottom of the profile rather than from the side slopes, which is more difficult to reach. The material from the side slopes is expected to slough off the sides and fill in the space at the bottom of the profile.

2.2.5 *Use of a Drag Bar*

Since dredging equipment does not typically result in a perfectly smooth and even channel bottom (see discussion above), a drag bar, chain, or other item may be drug along the channel bottom to smooth down high spots and fill in low spots. This finishing technique also reduces the need for additional dredging to remove any high spots that may have been missed by the dredging equipment. It may be more cost effective to use a drag bar or other leveling device (and possibly less hazardous to sea turtles than additional hopper dredging).

2.3 ALTERNATIVES ELIMINATED FROM DETAILED EVALUATION

No additional alternatives were considered for this analysis.

2.4 COMPARISON OF ALTERNATIVES

Table 1 includes the 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	Maintenance Dredging	Disposal of Dredged Materials on the Beach	Disposal of Dredged Materials in the Nearshore	Disposal of Dredged Materials at an Appropriate Upland Site	No Action Alternative
VEGETATION	No impacts to seagrasses during dredging.	There are no seagrasses in the vicinity.	There are no seagrasses in the vicinity.	Accessing the dewatering site small area of mangrove habitat.	No impacts.
THREATENED AND ENDANGERED SPECIES	Temporary impacts to manatees, smalltooth sawfish, and sea turtles (if a hopper dredge is used) during project construction. Appropriate measures would be implemented to ensure the safety and protection of these species. The project would not adversely modify manatee critical habitat.	Temporary potential impacts to manatees and smalltooth sawfish during material placement. Appropriate measures would be implemented to ensure the safety and protection of these species. The project would not adversely modify manatee critical habitat.	Temporary potential impacts to manatees and smalltooth sawfish during material placement. Appropriate measures would be implemented to ensure the safety and protection of these species. The project would not adversely modify manatee critical habitat.	No additional impacts to threatened and endangered species would occur.	No impacts.
FISH AND WILDLIFE RESOURCES	Temporary impacts to fish and benthic invertebrates during project construction.	Temporary impacts to fish and benthic invertebrates during material placement.	Temporary impacts to fish and benthic invertebrates during material placement.	Species utilizing the mangrove habitat and shoreline at the dewatering location would be temporarily displaced.	No impacts.

ALTERNATIVE ENVIRONMENTAL FACTOR	Maintenance Dredging	Disposal of Dredged Materials on the Beach	Disposal of Dredged Materials in the Nearshore	Disposal of Dredged Materials at an Appropriate Upland Site	No Action Alternative
ESSENTIAL FISH HABITAT	Temporary unconsolidated substrate impacts to benthic invertebrates during dredging activities.	Temporary unconsolidated substrate impacts to benthic invertebrates at both the dredge area and in the water column during placement activities.	Temporary unconsolidated substrate impacts to benthic invertebrates at both the dredge area and in the water column during placement activities.	No additional impacts to essential fish habitat would occur.	No impacts.
HARDGROUNDS	No hardgrounds are located in the project area.	No hardgrounds are located in the project area.	No hardgrounds are located in the project area.	No hardgrounds are located in the project area.	No impacts.
COASTAL BARRIER RESOURCES	Temporary increase in turbidity during dredging activities in the Rookery Bay National Estuarine Research Reserve (NERR).	Temporary increase in turbidity during dredging activities in the Rookery Bay National Estuarine Research Reserve (NERR).	Temporary increase in turbidity during dredging activities in the Rookery Bay National Estuarine Research Reserve (NERR).	No impacts to Coastal Barrier Resources would occur as a result of utilizing the dewatering site.	No impacts.
WATER QUALITY	Temporary increase in turbidity during dredging activities.	Temporary increase in turbidity during placement activities.	Temporary increase in turbidity during placement activities.	Potential temporary increase in turbidity at the location of the return water from the dewatering site.	Temporary increases in turbidity if vessels strike the channel bottom during transit.
AIR QUALITY	Temporary decrease in air quality due to the operation of the dredging equipment.	Temporary decrease in air quality due to the operation of the equipment placing the materials.	Temporary decrease in air quality due to the operation of the equipment placing the materials.	Temporary decrease in air quality due to the operation of the equipment conducting the dewatering.	No impacts.
HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE	No impacts.	No impacts.	No impacts.	No impacts.	No impacts.

ALTERNATIVE ENVIRONMENTAL FACTOR	Maintenance Dredging	Disposal of Dredged Materials on the Beach	Disposal of Dredged Materials in the Nearshore	Disposal of Dredged Materials at an Appropriate Upland Site	No Action Alternative
NOISE	Temporary increase in noise levels in the vicinity of the dredging equipment.	Temporary increase in noise levels in the vicinity of the placement equipment.	Temporary increase in noise levels in the vicinity of the placement equipment.	Temporary increase in noise levels in the vicinity of the dewatering equipment.	No impacts.
AESTHETIC RESOURCES	Temporary decrease in the aesthetic value of the river during project construction.	Temporary decrease in the aesthetic value of the beach during project construction.	Temporary decrease in the aesthetic value of the nearshore area during project construction.	The dewatering site is a light industrial area, and is not anticipated to experience a significant decline in aesthetic appeal due to dewatering activities.	No impacts.
RECREATION RESOURCES	Temporary decrease in the availability of the river for use by recreational boaters; long term increase in the ability of boaters to utilize the river.	Temporary decrease in the availability of the beach for use by recreationalists; long-term benefit to the stability of the beach and its continued recreational usage.	Temporary slight decrease in the availability of the beach for use by recreationalists; long-term benefit to the stability of the beach and its continued recreational usage.	No additional decrease in recreational usage beyond that associated with the maintenance dredging activities.	Long term decline in recreational boating on the Gordon River.
NAVIGATION	Temporary decrease in the availability of the river for use by vessels; long term benefit to the navigable capacity of the channel.	No additional impacts to navigation would result from beach placement.	No additional impacts to navigation would result from nearshore placement.	No additional impacts to navigation would occur during the dewatering of the material.	Long term decline in the navigable capacity of the channel.

ALTERNATIVE ENVIRONMENTAL FACTOR	Maintenance Dredging	Disposal of Dredged Materials on the Beach	Disposal of Dredged Materials in the Nearshore	Disposal of Dredged Materials at an Appropriate Upland Site	No Action Alternative
INVASIVE SPECIES	Increased recreational boat traffic may introduce additional pathways for invasive species introduction.	No additional impacts resulting from beach placement.	No additional impacts resulting from nearshore placement.	Upland disposal of dredged material creates a habitat disturbance that may allow invasive species to recruit.	Existing invasive species are present in the action area and will not be affected.
HISTORIC AND CULTURAL RESOURCES	No effect to cultural resources. Identified potential resources will be buffered to avoid impacts.	No effect to cultural resources.	Additional cultural resources survey would be required for nearshore placement.	No effect to cultural resources.	No effect to cultural resources.

2.5 PREFERRED ALTERNATIVE(S)

The Preferred Alternative is to perform the proposed maintenance dredging of the project channel to maintain the authorized dimensions. Although the beach is the preferred placement site, the final placement site selection would be based on the suitability of the sand.

3 AFFECTED ENVIRONMENT

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

The Gordon River is a brackish river that discharges into the Gulf of Mexico. It is located along the southwestern coast of Florida, and experiences a subtropical climate. Dense residential development lines the Gordon River along the project length. Where residences and their associated yards are not located directly adjacent to the River, mangroves and other vegetation are present.

3.1 VEGETATION

Figure 11 shows the location of freshwater marshes, saltwater marshes, and mangrove habitat in the project area.

3.1.1 *Seagrasses*

Dial Cordy and Associates, Inc., conducted a benthic resources survey of the Gordon River from September 20 to September 30, 2009 (see Appendix E). The survey included 157 transects placed every 50 meters along the federal channel Cuts 1 to 15. Each transect extended 30 meters to each side of the channel edge or to the shoreline, whichever was shorter (Figure 12). Seagrass only occurred along 8 transects within the study area. In Cut 7, *Halophila decipiens* occurred along transects 74 to 81. A monospecific bed of *Halodule wrightii* was previously identified by others east of Transects 91 to 93, but it was outside of the study area. Divers confirmed its continued presence in this location, but did not delineate the bed or collect additional data (Figure 13).

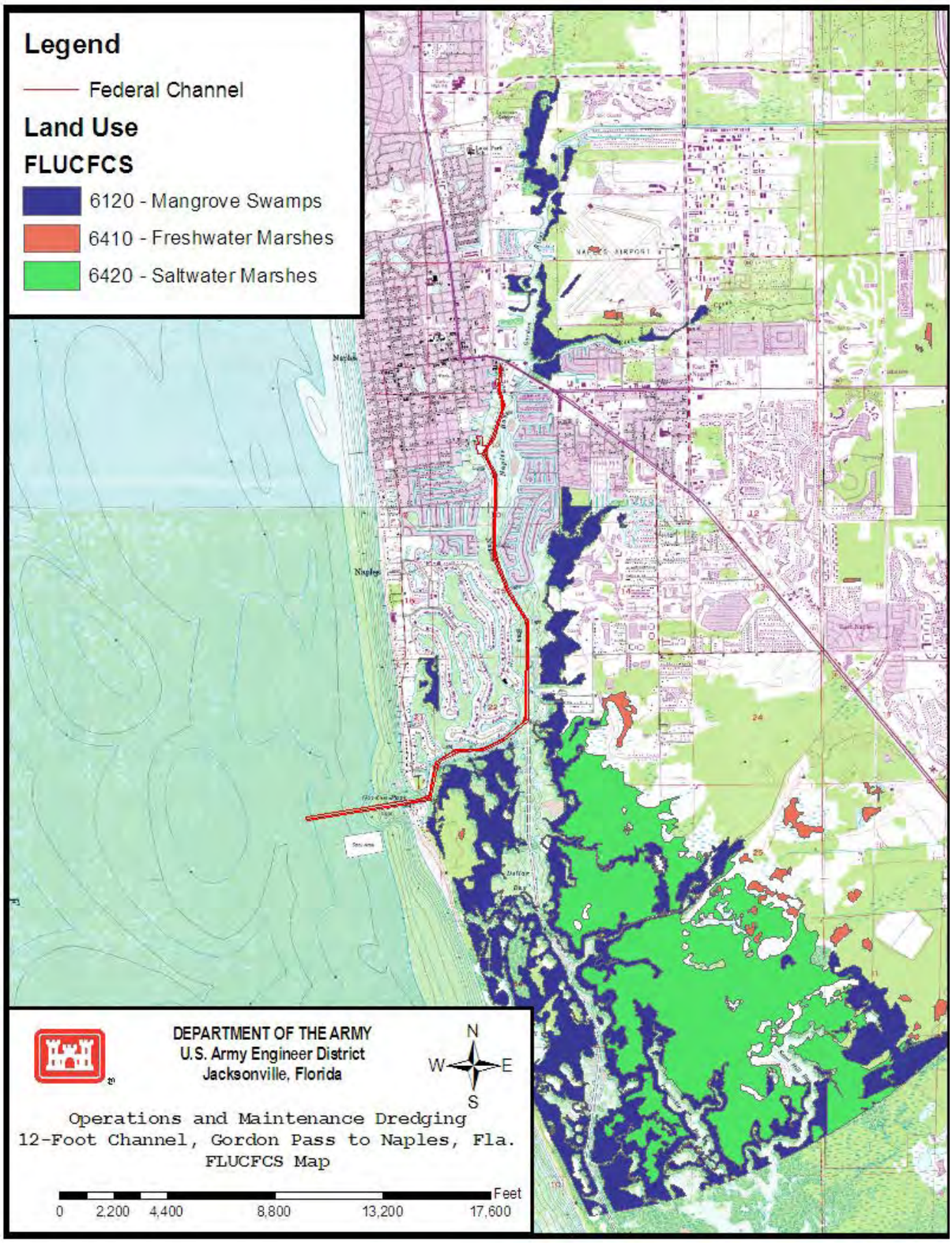


Figure 14: Land use map using the Florida Department of Transportation's Florida Land Use, Cover, and Forms Classification System (FLUCFCS).

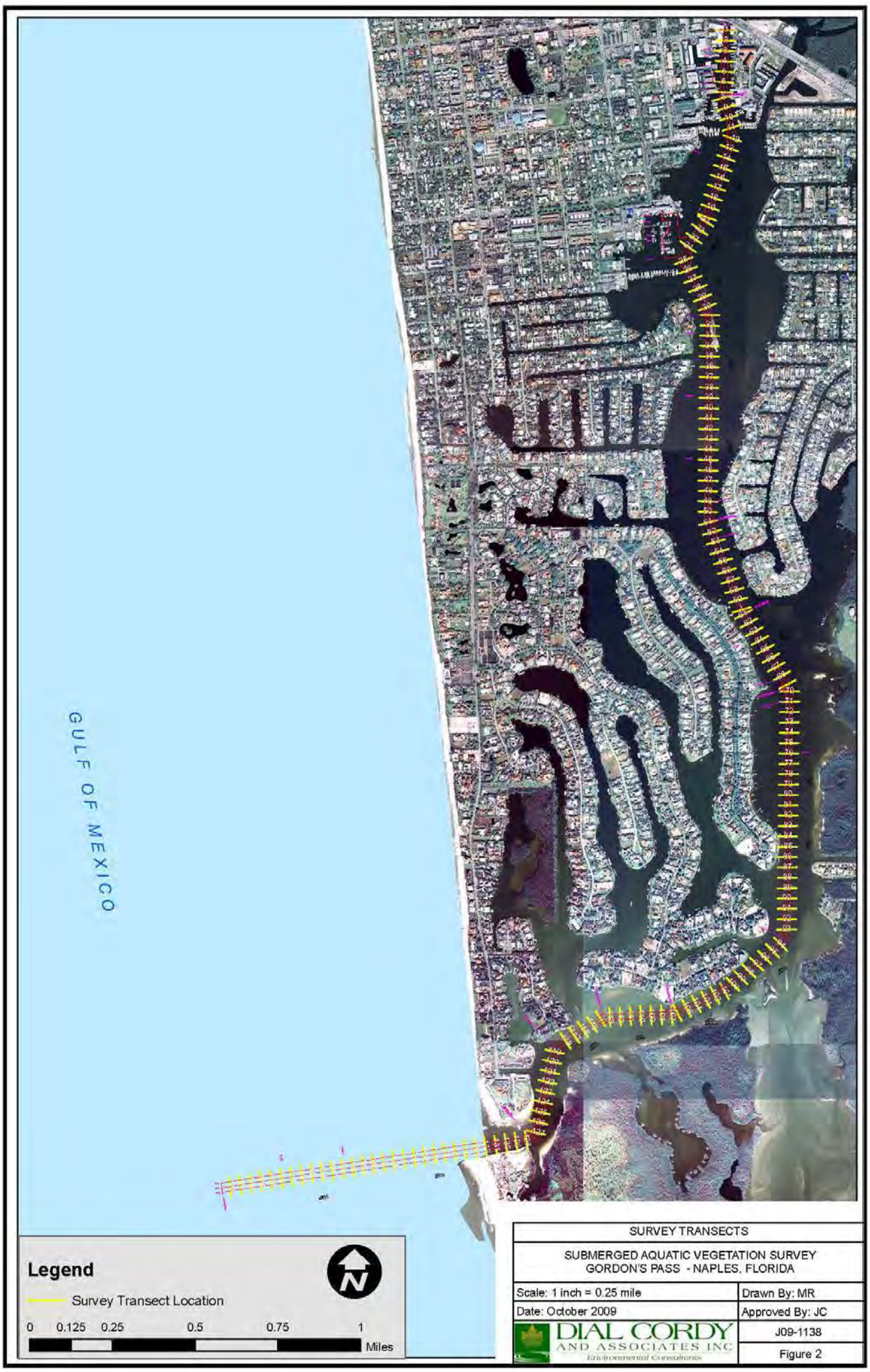


Figure 15: Locations of seagrass survey transects.

Figure 16: Location of submerged aquatic vegetation in the project area.

3.1.2 *Mangroves*

Mangrove communities are important aquatic resources in providing nursery and feeding habitat for fish and crustaceans, providing nesting and refuge for bird species, and acting as sediment and pollutant filtration systems for aquatic habitat. Mangroves are prevalent on the southwest coast of Florida and in Naples Bay. In the project area, mangrove habitats are located intermittently along the shorelines of the Gordon River. The closest mangrove habitats are more than 150 feet from the federal channel, shown in Figure 17 below.

There is a dense fringe of mangroves located along the shoreline of the proposed dewatering site. The non-native, invasive species Brazilian pepper (*Schinus terebi*) is intermixed with the mangroves along the shoreline.

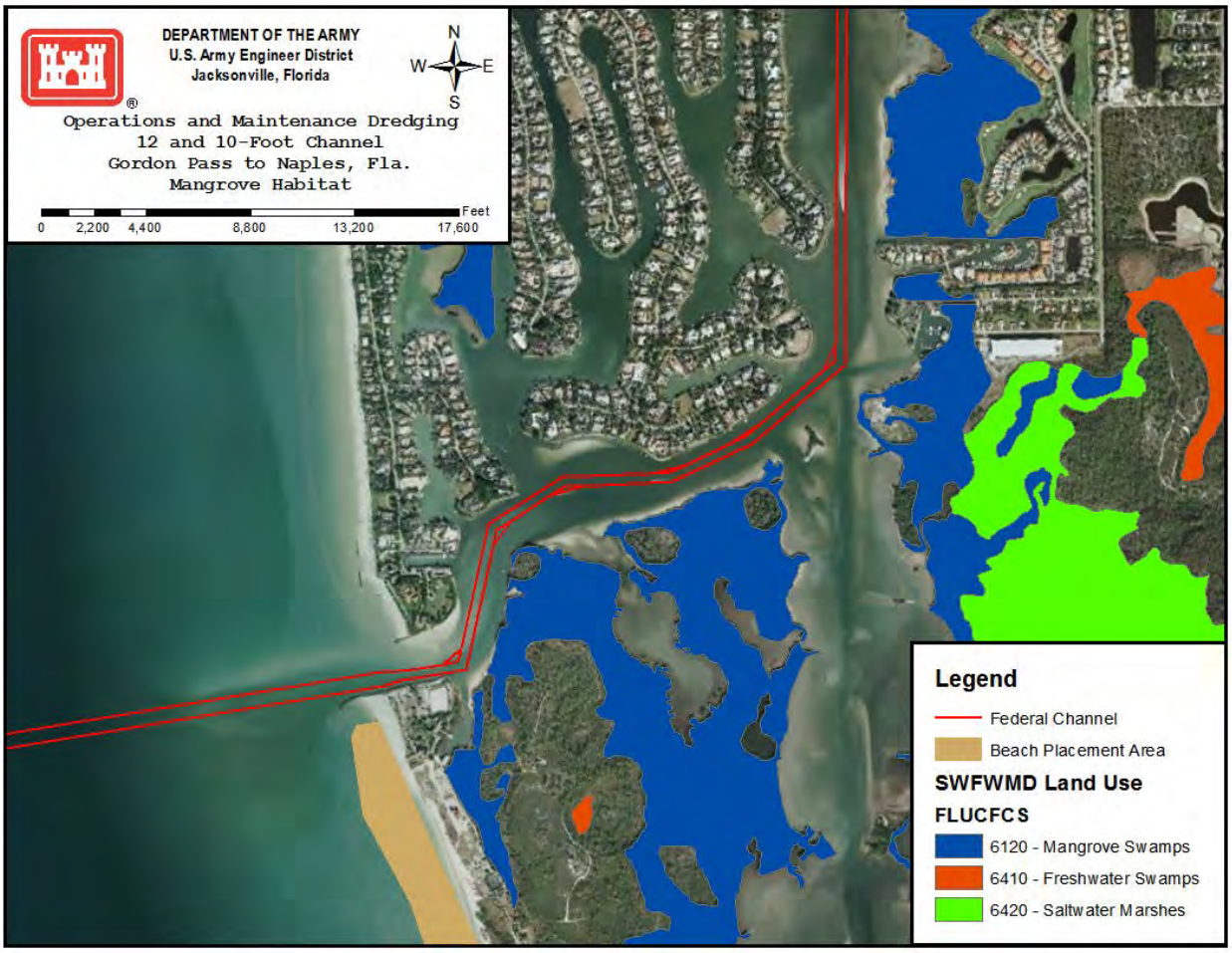


Figure 17. View of mangrove habitat in the vicinity of the federal channel.

3.2 THREATENED AND ENDANGERED SPECIES

3.2.1 *Sea Turtles*

Four species of sea turtles are known to occur in Naples Bay: loggerhead (*Caretta caretta*), green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), and Kemp's ridley (*Lepidochelys kempii*). These species utilize bays and estuaries for foraging as juveniles. The following table lists the current status of each species under the Endangered Species Act (ESA):

Common Name	**Scientific Name**	**Listing Status**
Loggerhead Turtle	Caretta caretta	Threatened
Green Turtle	Chelonia mydas	Endangered
Hawksbill Turtle	Eretmochelys imbricata	Endangered
Kemp's Ridley Turtle	Lepidochelys kempii	Endangered

No critical habitat for any of these species occurs in or near the project area.

Loggerheads and greens regularly nest on the beaches at Keewaydin Island. The Florida Fish and Wildlife Conservation Commission collects sea turtle nesting data with the help of volunteers who conduct daily surveys during the nesting season. Nesting data are reported by survey area, which represents a fixed length of beach. Figure 16 provides the boundaries for the Keewaydin Island North survey area, which measures approximately 5 kilometers.

SURVEY START DATE	SURVEY END DATE	LOGGERHEAD				GREEN TURTLE			
		NESTS	FALSE CRAWLS	FIRST NEST DATE	LAST NEST DATE	NESTS	FALSE CRAWLS	FIRST NEST DATE	LAST NEST DATE
5/15/02	8/15/02	70	131	5/5/02	8/6/02	4	0	6/19/02	7/26/02
5/15/03	8/15/03	55	93	5/6/03	7/22/03	0	0		
5/15/04	8/15/04	59	45	5/25/04	8/1/04	1	1	7/9/04	7/9/04
5/15/05	8/31/05	26	90	6/2/05	8/8/05	1	0	8/20/05	8/20/05
5/15/06	8/31/06	38	68	5/14/06	7/26/06	0	0		

SURVEY START DATE	SURVEY END DATE	LOGGERHEAD				GREEN TURTLE			
		NESTS	FALSE CRAWLS	FIRST NEST DATE	LAST NEST DATE	NESTS	FALSE CRAWLS	FIRST NEST DATE	LAST NEST DATE
5/15/07	8/31/07	43	57	5/14/07	7/19/07	5	0	5/26/07	7/30/07
5/15/08	8/31/08	82	97	5/22/08	8/8/08	0	0		
5/15/09	8/31/09	54	43	5/11/09	7/28/09	0	0		
5/15/10	8/31/10	73	75	5/21/10	8/14/10	0	0		
5/15/11	8/31/11	69	73	5/10/11	8/1/11	6	1	5/22/11	7/17/11

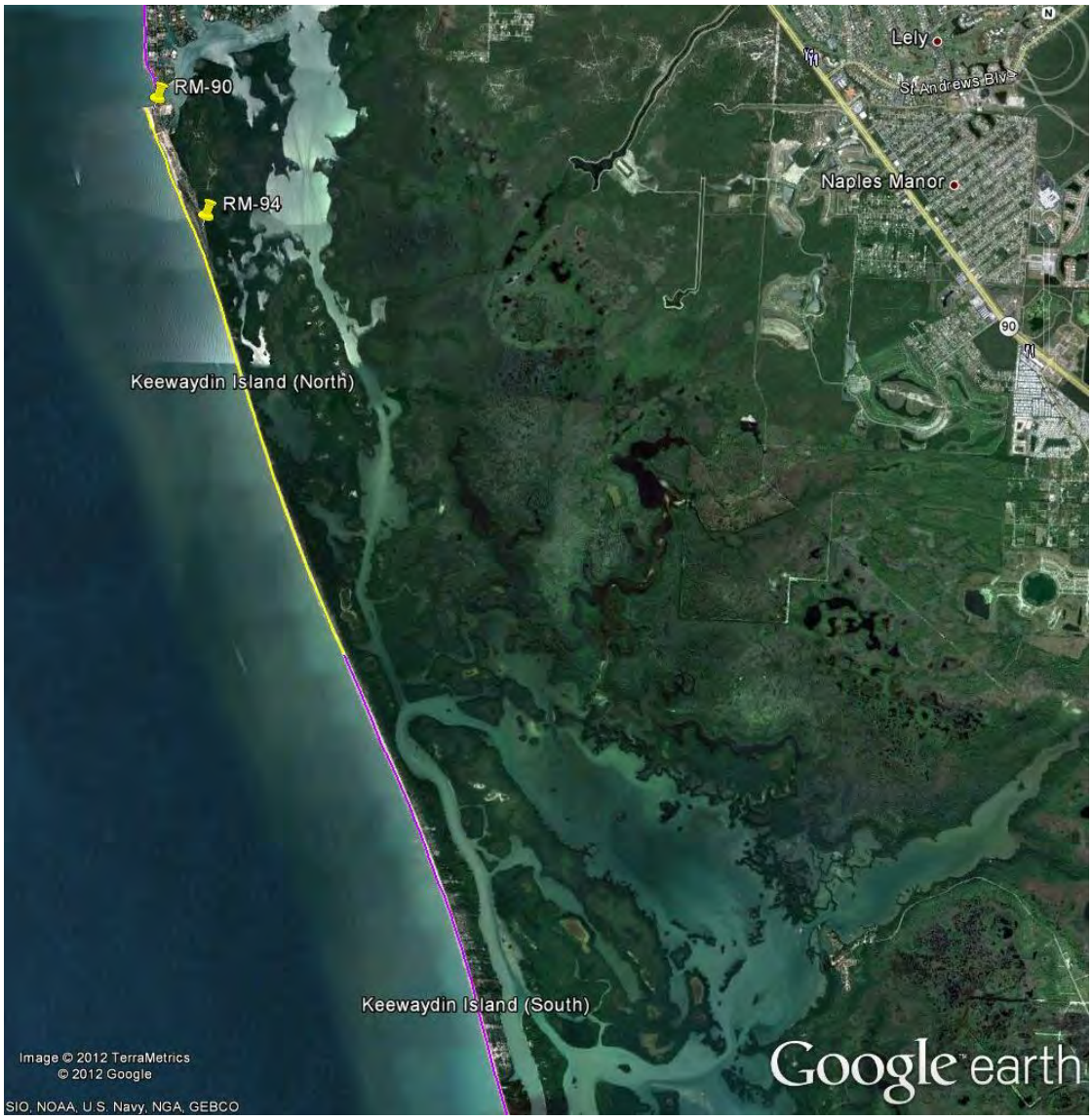


Figure 18. Graphic showing the boundaries of the Keewaydin Island North sea turtle survey data collection area in yellow. The proposed beach and nearshore placement areas for this project are located between Reference Monuments 90 and 94.

3.2.2 *Smalltooth Sawfish*

Smalltooth sawfish (*Pristis pectinata*) are tropical marine and estuarine fish that have the northwestern terminus of their Atlantic range in the waters of the eastern U.S. Currently, their distribution has contracted to peninsular Florida and, within that area, they can only be found with any regularity off the extreme southern portion of the state. Their distribution is centered in the Everglades National Park, including Florida Bay. The smalltooth sawfish is listed as endangered under the ESA. No designated critical habitat is located in the project area.

3.2.3 *West Indian Manatee*

The West Indian Manatee (*Trichechus manatus*) is present in many of the coastal waterways, rivers, and nearshore areas along the coast of Florida. The manatee frequents warm waters in bays and streams during the winter months, which leads to high frequencies of interactions with people during these months. Collier County maintains records of manatee sightings within the county. Manatees are known to occur in Naples Bay along the Gordon River.

The manatee is currently listed as endangered under the ESA. The entire project area is designated as critical habitat for the West Indian Manatee (see Figure 14).

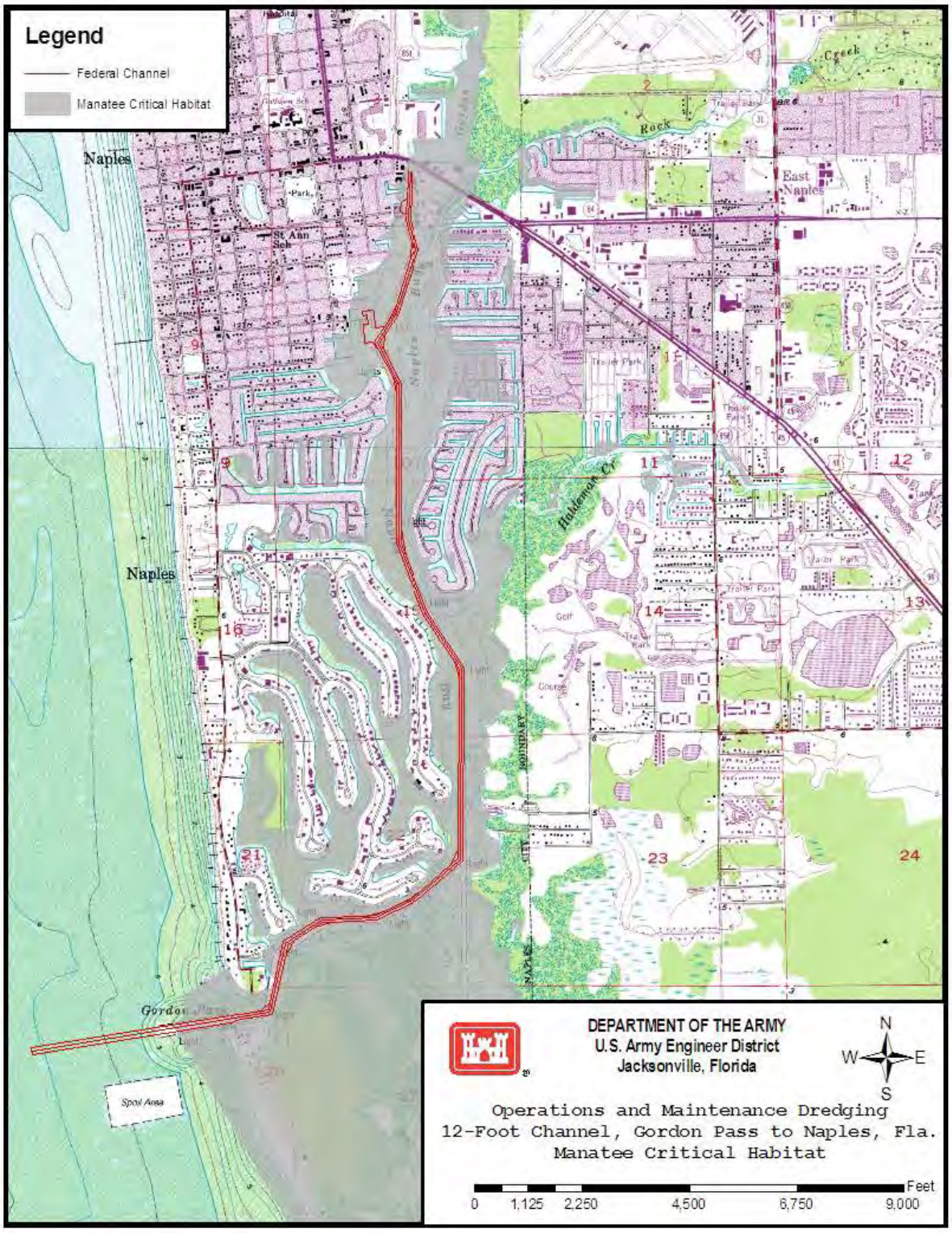


Figure 19. Manatee critical habitat in the project area.

3.3 FISH AND WILDLIFE RESOURCES

A variety of fish and wildlife species utilize the terrestrial and aquatic habitat in the Naples Bay and Gordon Pass vicinity. At least 25 species of fish are known to inhabit Naples Bay. Many of these are important game species and commercially exploited species such as grouper (*Epinephelus* spp. and *Mycteroperca* spp.), snook (*Centropomus undecimalis*), tarpon (*Megalops atlanticus*), snapper (*Lutjanus* spp.), and redfish (*Sciaenops ocellatus*).

Wading birds are common throughout the area and make use of the remaining mangrove fringes and tidal flats along the bay. However, no wading bird rookeries are located within the project area. Rookery Bay National Estuarine Research Reserve (NERR) abuts the federal channel near the mouth of the Gordon River, and is home to numerous species of fish and wildlife (see Figure 16). Rookery Bay NERR is designated as an Outstanding Florida Water by the State of Florida.

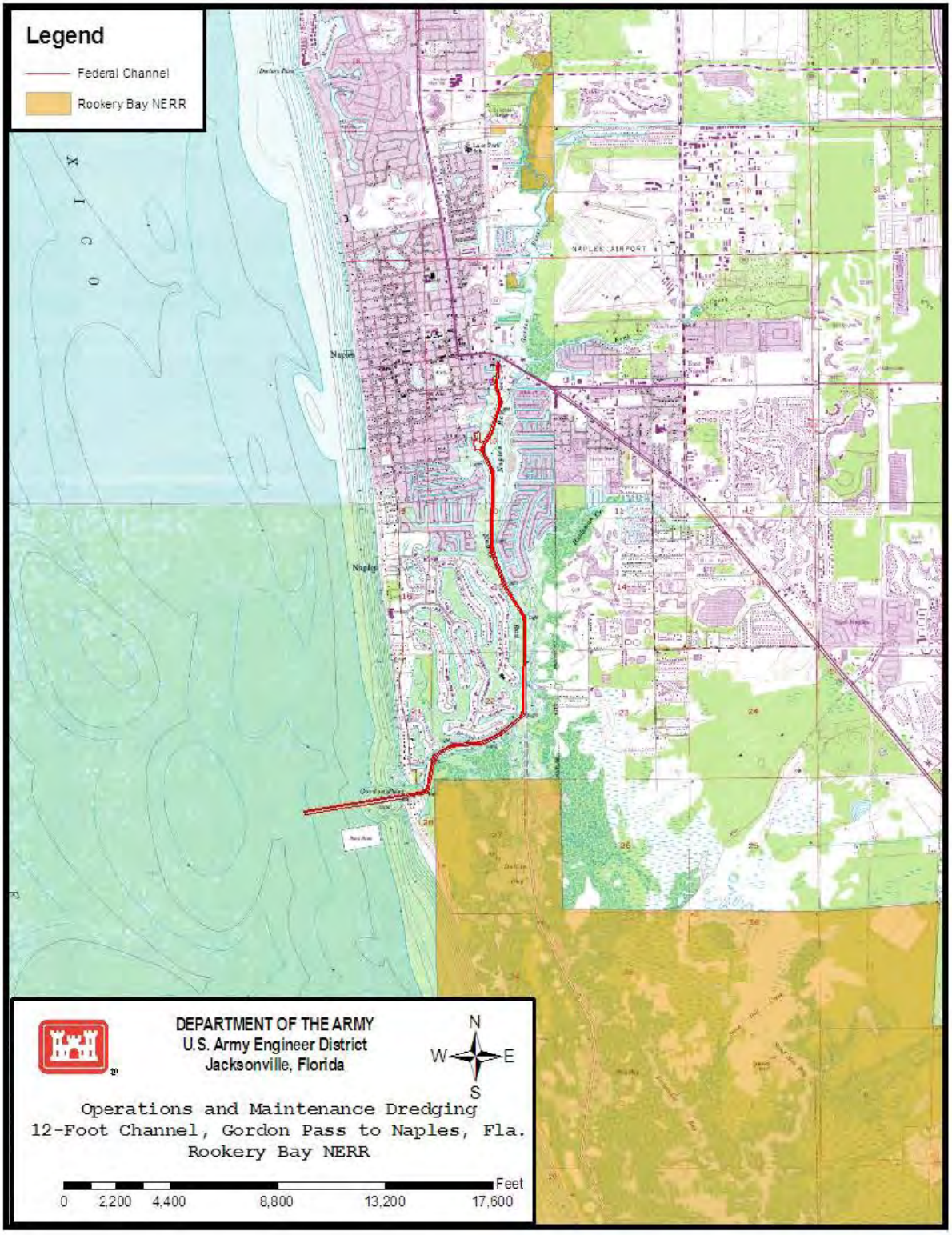


Figure 20: Location of Rookery Bay National Estuarine Research Reserve in relation to the project area.

3.4 ESSENTIAL FISH HABITAT

The Gulf of Mexico Fishery Management Council (GMFMC) has defined areas of vegetated and non-vegetated bottoms, live bottoms, and water columns within the study area as Essential Fish Habitat (EFH) in compliance with the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996. The project area and its vicinity have been designated as EFH for 16 species (see Figure 1). Managed species include three species of crustaceans from the Shrimp, Stone Crab and Spiny Lobster Fishery Management Plans, and 13 species of fishes from the Red Drum, Reef Fish, and Coastal Migratory Pelagic Fishery Management Plans.

Essential Fish Habitat in the project area includes mud, shell, and rock substrates, as well as the estuarine water column in Naples Bay. No Habitat Areas of Particular Concern (HAPCs) are located in the project area.

Table 2: Summary of species managed by the Gulf of Mexico Fisheries Management Council located in the project area (from NOAA's Center for Coastal Monitoring and Assessment website, 2009).

Species	Scientific Name	Larvae	Juveniles	Adults
Shrimp Fishery				
pink shrimp	*Farfantepenaeus duorarum*	X	X	
Stone Crab Fishery				
Florida stone crab	*Menippe mercenaria*	X	X	X
Spiny Lobster Fishery				
Spiny lobster	*Panulirus argus*	X	X	X
Red Drum Fishery				
red drum	*Sciaenops ocellatus*	X	X	X
Reef Fish Fishery				
gag grouper	*Mycteroperca microlepis*	X	X	X
scamp grouper	*Mycteroperca microlepsis*	X	X	X
gray snapper	*Lutjanus griseus*		X	
lane snapper	*Lutjanus synagris*	X		
greater amberjack	*Seriola dumerili*	X	X	X
lesser amberjack	*Seriola fasciata*	X	X	X
red snapper	*Lutjanus campechanus*	X		
yellowtail snapper	*Ocyurus chrysurus*	X		
Coastal Migratory Pelagic Fishery				

Species	Scientific Name	Larvae	Juveniles	Adults
king mackerel	*Scomberomorus cavalla*	X	X	X
Spanish mackerel	*Scomberomorus maculatus*		X	X
cobia	*Rachycentron canadum*	X	X	X
little tunny	*Euthynnus alletteratus*	X	X	X

3.5 HARDGROUNDS

Humiston and Moore Engineers, in conjunction with Dagostino and Wood, Inc., performed a benthic resource survey on North Keewaydin Island on August 26, 2008, in the proposed beach and nearshore placement areas. They did not locate any hardbottom or seagrass communities during their survey. Bottom substrate consisted of sand and shells.

3.6 COASTAL BARRIER RESOURCES

The southern portion of the beach/nearshore placement area is located within the boundaries of the Rookery Bay NERR. Rookery Bay NERR is also designated as John H. Chafee Coastal Barrier Resource System (CBRS) unit P16 (see Figure 17).

Figure 21. The location of CBRS Unit P16 in relation to the project area.

3.7 WATER QUALITY

The Florida International University Coastal Water Quality Monitoring Network has collected water quality data in the Cape Romano-Pine Island Sound area (including Naples Bay) on a monthly or quarterly basis since January 1999 through a contract with the South Florida Water Management District (Boyer and Briceno, 2007). Data from their website at http://serc.fiu.edu/wqmnetwork/SFWMD-CD/Pages/RB.htm indicate a slight decline in

dissolved oxygen and a more significant decline in total phosphorus during the period for which data were collected.

3.8 AIR QUALITY

Air quality in the project area is generally good. The project area is not located in a USEPA designated nonattainment area pursuant to the Clean Air Act.

3.9 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE

The Corps contracted sediment testing of the dredged materials in the federal channel to identify any hazardous or toxic substances that might be present in the sediments. Arsenic levels were above the FDEP's Soil Cleanup Target Levels (SCTLs) for residential areas in three of the four channel cuts surveyed; however, they did not exceed the SCTLs for commercial areas. Contamination of Arsenic, Copper, and Mercury were above FDEP's Sediment Quality Assessment Guidelines in two of the four channel cuts surveyed. All Synthetic Precipitation Leaching Procedure results were below the FDEP's Primary and Secondary Drinking Water Standards (Aerostar, 2011).

3.10 NOISE

The southern portion of the project area is dense residential, which does not experience high noise volumes. The northern portion of the project area is near downtown Naples, and the Naples Municipal Airport is located on the opposite bank of the river from the dewatering site. Moderate noise levels typical of those produced by a municipal airport are experienced in this vicinity.

3.11 AESTHETIC RESOURCES

Rookery Bay abuts the Gordon River and Naples Bay to the south, and is designated as a National Estuarine Research Reserve (Figure 16). The southern portion of the project area closest to Rookery Bay is habitat for mangroves, freshwater marshes, and saltwater marshes, and it is in a relatively pristine condition. The central portion of the project area is densely residential, and the northern project area is commercial and light industrial.

3.12 RECREATION RESOURCES

The Gordon River and Naples Bay are used by recreational boaters and fisherman. The Gordon River Greenway is located in the northern portion of the project area, and consists of a 1½ mile paved loop trail adjacent to the Naples Municipal Airport along the eastern shoreline of the river. It is ideal for walkers, hikers, runners, cyclists, and birders, and it has access to the river for kayakers. Rookery Bay to the south of the project is a popular destination for canoeing, kayaking, and birdwatching.

3.13 NAVIGATION

The navigation channel is primarily utilized by recreational and commercial boaters and fisherman. It provides access to the Gulf Intracoastal Waterway that leads through Rookery Bay to the Ten Thousand Islands region of Florida.

3.14 INVASIVE SPECIES

The non-native, invasive species Brazilian pepper (*Schinus terebinthifolius*) is intermixed with the mangroves along the shoreline of the proposed dewatering site (see Figure 2).

3.15 HISTORIC AND CULTURAL RESOURCES

No previous investigations of the navigation channel have been conducted, although surveys in the general vicinity of the channel have yielded results for the presence of cultural resources. However, no resources have been reported from past episodes of channel maintenance. Most recently, Cuts 1 to 4 of the channel were dredged to reduce shoaling in 2009 and in 2002. These events utilized the shoal disposal site and occurred adjacent to 8CR681, the Keewaydin Club, which is listed in the National Register of Historic Places. For both previous events, no impacts to cultural resources occurred. In addition to the Keewaydin Club, four prehistoric archaeological sites are located adjacent to the channel on land. These four are the Gordon Pass Midden (8CR58), Hamilton Midden (8CR537), Gateway Harbor (7CR515) and the Naples Midden 2 (8CR61). Because of the close proximity of these resources to the navigation channel, an underwater cultural resource survey was determined to be required to better understand the resources within the area of potential effect.

4 ENVIRONMENTAL EFFECTS

This section describes the probable consequences of implementing the Preferred Alternative and the No Action Alternative on selected environmental resources. These resources are directly linked to the relevant issues listed in Section 1.7 that have driven and focused the environmental analysis. This section summarizes the changes that may occur to the existing environment including the direct, indirect, and cumulative impacts. Cumulative impact is the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR § 1508.7).

Any irreversible or irretrievable commitments of resources are also discussed in this section. An irreversible commitment of resources is one in which the ability to use and/or enjoy the resource is lost forever, such as the mining of a mineral resource. An irretrievable commitment of resources is when opportunities to use or enjoy the resource as they presently exist are lost for a period of time due to decisions to manage the resource for another purpose. An example of an irretrievable loss might be where a type of vegetation is lost due to road construction.

This section compares the effects and commitments of resources for both the No Action Alternative and the Preferred Alternative.

4.1 VEGETATION

4.1.1 *Maintenance Dredging*

Dredging operations would produce temporary minor increases in turbidity levels within the mixing zone at the dredge site. Elevated turbidity levels are expected to dissipate rapidly, returning to background levels in a short period of time.

4.1.2 *Dredged Material Placement Options*

Temporary, minor elevations in turbidity levels will be experienced from the return water from the disposal sites. There is no vegetation located at the beach or nearshore placement site that would be affected by the construction activities.

Temporary minor elevations in turbidity levels will be experienced from the return water from the dewatering site. This turbidity may temporarily impact mangrove habitat near the shoreline of the dewatering site; however, the impact is not anticipated to be significant enough to have a permanent impact on any vegetation. To access the dewatering site, the project proposes to utilize a path previously cleared through the mangroves located along the

shoreline by a City of Naples project to access the site for similar purposes. The project will require a 50-foot pipeline corridor to access the site (see Figure 22). The Contractor will be directed to minimize mangrove impacts to the greatest extent possible by snaking the pipeline onto the shoreline and minimizing the use of equipment in this area. Since the pipeline corridor has not been recently utilized, there is a possibility that some mangrove regrowth will have occurred in this area. The maximum area to be impacted is approximately 50 feet by 50 feet, or 0.06 acre. At the end of the project, the cleared area will be re-graded, and mangroves would be re-planted in any areas where they were removed.

4.1.3 *No Action Alternative*

No vegetation would be impacted by the implementation of the No Action Alternative.

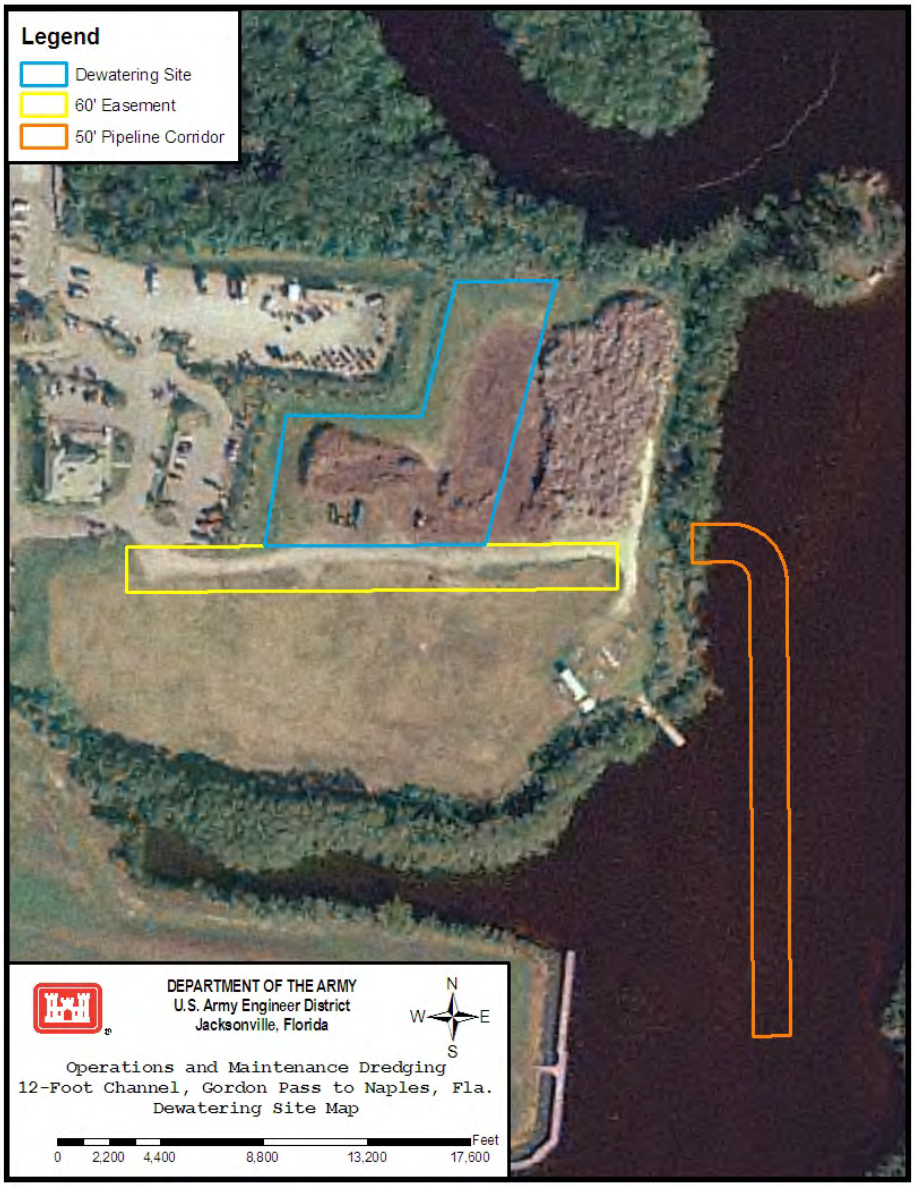


Figure 22. Detail of the dewatering site.

4.2 THREATENED AND ENDANGERED SPECIES

4.2.1 *Maintenance Dredging*

4.2.1.1 Sea Turtles

Maintenance dredging may have the potential to directly impact sea turtles during dredging activities if a hopper dredge were utilized for the project through possibly entrainment in the dredge. The National Marine Fisheries Service (NMFS) Gulf Regional Biological Opinion (GRBO) includes precautionary measures that are implemented to avoid impacts to sea turtles during

hopper dredging (NMFS Consultation No. F/SER/2000/01287; issued November 19, 2003 and subsequently revised in 2005 and 2007). In NMFS' GRBO, NMFS concluded that "hopper dredges…move relatively rapidly and can entrain and kill sea turtles, presumably as the drag arm of the moving dredge overtakes the slower moving turtle. In contrast to hopper dredges, pipeline dredges are relatively stationary, and therefore act on only small areas at any given time." In the event that a hopper dredge is utilized during dredging activities, it will be equipped with rigid draghead deflectors. In addition, all terms and conditions of the GRBO would be met.

4.2.1.2 Smalltooth Sawfish

This project occurs outside of designated smalltooth sawfish critical habitat, and the effects of the project on smalltooth sawfish were analyzed under the existing GRBO. Although extremely unlikely to occur, any smalltooth sawfish takes that occur pursuant to the maintenance dredging if a hopper dredge were utilized, if conducted in compliance with the GRBO, would be covered under the Incidental Take Statement.

4.2.1.3 West Indian Manatee

Since manatees are likely to be found in the vicinity of the project area, they may be affected by the proposed maintenance dredging. To ensure the protection of the manatees present, the standard state and federal manatee protection conditions would be implemented during construction. Therefore, maintenance dredging is not likely to adversely affect the manatee.

As the project includes only maintenance dredging and no new construction is proposed, the Corps has determined that the project is not likely to adversely modify manatee critical habitat.

4.2.2 *Dredged Material Placement Options*

4.2.2.1 Sea Turtles

Beach or nearshore placement of dredged materials may have the potential to impact sea turtles indirectly by temporarily decreasing the suitability of nesting habitat. Nesting season is considered to be from April 15 through November 15 in Collier County. Construction activities occurring on the beach could impact both nesting and hatchling sea turtles during these time periods.

Placing dredged materials on the beach or in the nearshore region may alter beach characteristics in a manner that impacts sea turtles. Scarp development, sand compaction, and changes in moisture levels are potential effects from nourishment that may alter nesting success following placement. Monitoring of the beach following construction would be necessary to minimize any impacts associated with dredged placement on the beach. Corps

will conduct sediment testing of the dredged material prior to dredging to ensure that it meets the criteria set forth by the FDEP for beach or nearshore placement [F.A.C. 62B-41.007(j)(1)].

The USFWS issued a Statewide Programmatic Biological Opinion (SPBO) on August 22, 2011 (FWS Log 41910- 2011-F-0170) stating that no adverse impacts would occur to nesting sea turtles if the terms and conditions they provided are followed. The USFWS terms and conditions include placing new sand similar to current beach conditions, daily monitoring of the project area within the nesting season, monitoring the compaction level of the nourished beach (tilling the beach can eliminate this condition), placing construction equipment off of the beach during the night, and reducing the amount of lighting in the project area except for safety requirements. Corps is required to provide USFWS with a 30-day consultation letter notifying them of their intent to utilize the SPBO for the project. This consultation will be conducted during the public review of this draft EA.

4.2.2.2 Smalltooth Sawfish

As this project is for maintenance dredging and occurs outside of designated critical habitat for NMFS protected species, it is covered by the existing GRBO for hopper dredging dated November 19, 2003 (and revised in 2005 and 2007). The GRBO also analyzed and discounted beach nourishment activities conducted using non-hopper-type dredges, including cutterhead, sidecast, and mechanical (clamshell-type) dredges as not likely to adversely affect the smalltooth sawfish.

4.2.2.3 West Indian Manatee

Since manatees are likely to be found in the vicinity of the project area, they may be affected by the dredged material placement options. To ensure the protection of the manatees present, the standard state and federal manatee protection conditions would be implemented during construction. Therefore, placement at any of the three alternatives is not likely to adversely affect the manatee or to adversely modify itscritical habitat.

4.2.3 *No Action Alternative*

As beach or nearshore placement may increase the habitat available to nesting sea turtles, the No Action Alternative may cause a decline in sea turtle nesting habitat through increased erosion. No other impacts to threatened or endangered species would result from the implementation of the No Action Alternative.

4.3 FISH AND WILDLIFE RESOURCES

4.3.1 *Maintenance Dredging*

Since no wading bird rookeries are located in the vicinity of the project, no impacts to wading birds or migratory birds are anticipated. The project will temporarily impact the water column, but these affects will be short-term. Fishes utilizing the water column will likely be able to move out of the way of the dredge equipment, and minimal impacts are expected. Dredging activities will disrupt benthic organisms utilizing the channel bottom, but it is anticipated that these impacts will be temporary in nature and the benthic ecosystem is expected to re-establish itself in approximately one to two years.

4.3.2 *Dredged Material Placement Options*

Dredged material placement will also temporarily impact the water column, but these affects will be short-term. Fishes utilizing the water column will likely be able to move out of the way of the dredge equipment, and minimal impacts are expected. Placement activities will disrupt benthic organisms utilizing the channel bottom, but it is anticipated that these impacts will be temporary in nature and the benthic ecosystem is expected to re-establish itself in approximately one to two years.

Some fish and wildlife utilizing the mangrove habitat adjacent to the dewatering site may be temporarily displaced due to the offloading of the material onto the site. The site is currently used for City waste disposal activities, and wildlife usage of the site is minimal.

4.3.3 *No Action Alternative*

No impacts to fish and wildlife resources would result from the No Action Alternative.

4.4 ESSENTIAL FISH HABITAT ASSESSMENT

The project description is found in Section 2.1. Section 3.5 describes the "existing conditions" of the Essential Fish Habitat (EFH), federally managed fisheries, and associated species such as major prey species, including affected life history stages. The following subsections describe the individual and cumulative impacts of the proposed action and alternatives on EFH, federally managed fisheries, and associate species such as major prey species, including affected life history stages.

4.4.1 *Maintenance Dredging*

Dredging with hydraulic dredges usually results in little to no effect on adult fish due to their size and ability to avoid the dredge. The same cannot be said of larval fish, which lack the ability to avoid the suction near the draghead or cutterhead. Larval distribution and concentrations in a channel are highly variable on a range of scales (spatially and temporally).

In addition, many larvae exhibit a vertical migration strategy that facilitates tidal stream transport. That is, larvae are in the water column during flood tide and descend to near the bottom during the ebb tide (Settle, 2003).

NOAA/NOS' National Centers for Coastal Ocean Science prepared a report entitled "Assessment of potential larval entrainment mortality due to hydraulic dredging of Beaufort Inlet (Settle, 2003)." In this assessment, NOAA found that the use of a 30-inch hydraulic dredge dredging 24-hours a day in Beaufort Inlet, North Carolina, would result in entrainment mortality "even under the worst case scenario" of $0.1\%/day^{-1}$. NOAA also found, and the Corps agrees that "any larvae entrained in the dredge are likely to be killed; it is likely that the impact at the population level would be insignificant (Settle, 2003)." It is anticipated similar entrainment of larvae would occur during the proposed project. Similar to the findings in the Beaufort Inlet, impacts at the population level are anticipated to be insignificant.

4.4.2 *Dredged Material Placement Options*

Some impacts to essential fish habitat could occur as a result of placing dredged materials on the beach or in the nearshore region. Impacts would occur to species utilizing the water column and benthic invertebrates inhabiting the unconsolidated substrate. Any impacts are anticipated to be temporary in nature, and the benthic community is expected to re-establish within six months to one year following material placement.

As stated in Section 4.1, temporary impacts to a minimal amount of mangrove habitat would occur should the dredged materials need to be dewatered prior to removal to an appropriate upland site.

4.4.3 *No Action Alternative*

Increased shoaling in the federal channel could lead to vessel bottom strikes, which would cause temporary increases in turbidity.

4.5 HARDGROUNDS

There are no known hardgrounds in the location of the proposed maintenance dredging activities (i.e., in or near the Federal Channel). Based on the surveys of the beach and nearshore regions conducted by Humiston and Moore Engineers, in conjunction with Dagostino and Wood, Inc., in 2008 (see Section 3.5), no hardgrounds are anticipated to occur in the areas proposed for beach or nearshore placement. Therefore, no impacts to hardgrounds are expected for any of the proposed Alternatives.

4.6 COASTAL BARRIER RESOURCES

The project proposes to place sand within the boundaries of the Coastal Barrier Resource System (Unit P16; see Section 3.6). However, a Federal expenditure is allowable within the CBRS if it meets any of the exceptions outlined in 16 U.S.C. § 3505(a)(1)-(5), which include "the maintenance or construction of improvements of existing Federal navigation channels (including the Intracoastal Waterway) and related structures (such as jetties), including the disposal of dredge materials related to such maintenance or construction. A Federal navigation channel or a related structure is an existing channel or structure, respectively, if it was authorized before the date on which the relevant System unit or portion of the System unit was included within the CBRS." This project would be exempt from the provisions of the Coastal Barrier Resources Act.

4.7 WATER QUALITY

4.7.1 *Maintenance Dredging*

Dredging operations would produce temporary minor changes in water quality. Turbidity levels in the areas of dredging would be elevated above normal during dredging within the mixing zone. Visible plumes at the water surface are expected in the immediate vicinity of the dredging operation. Elevated turbidity levels are expected to dissipate rapidly, returning to background levels in a short period of time. The increase in turbidity levels in the water column would result in temporary, spatially confined declines in water quality. No long term adverse impact on water quality is expected to occur as a result of the proposed maintenance dredging.

4.7.2 *Dredged Material Placement Options*

As with the dredging activity, the primary change in water quality during placement of dredged material on the beach or in the nearshore region would be a temporary increase in turbidity. Temporary minor elevations in turbidity levels could be experienced from the return water from the disposal site. These activities would be monitored similarly to the dredging activities.

4.7.3 *No Action Alternative*

Vessels moored in or travelling through the project area could disturb the bottom sediments of the project area with their propellers, causing a chronic increase in local turbidity levels.

4.8 AIR QUALITY

Although there would be some emissions from the dredge plant and other construction equipment, no noticeable depreciation in air quality is expected from maintenance dredging or dredged material placement at any of the proposed options.

4.9 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

4.9.1 *Maintenance Dredging*

The Corps contracted with Aerostar Environmental Services, Inc., to conduct sediment testing of the dredged materials in the Federal Channel to identify any hazardous or toxic substances that might be present in the sediments (see results summarized in Section 3.9; Aerostar, 2011). Based on the results of the sampling, there is no concern of hazardous, toxic, or radioactive materials being exposed during the proposed maintenance dredging.

4.9.2 *Dredged Material Placement Options*

The sampling conducted by Aerostar Environmental confirmed that the sediments in the upper reaches of the channel are suitable for placement at a landfill or public park facility should they not meet the requirements to be placed on the beach or in the nearshore region of Keewaydin Island.

4.9.3 *No Action Alternative*

The No Action Alternative would have no effect on hazardous, toxic, and radioactive waste in the project area.

4.10 NOISE

4.10.1 *Maintenance Dredging*

There would be a moderate increase in noise levels from dredging in Naples Bay, because background noise levels within the Bay are fairly low.

4.10.2 *Dredged Material Placement Options*

As with the maintenance dredging, there would be a moderate increase in noise levels at the beach or nearshore placement areas as a result of the dredge plant and associated construction material. This impact would only be present during construction. If upland placement were pursued, there would be increases in noise levels at the dewatering site due to the operation of the dewatering equipment; however, the dewatering site is located across the river from a municipal airport. Noise levels are not anticipated to rise to a level above that of the other light-industrial uses of the site and the surrounding landscape.

4.10.3 *No Action Alternative*

No additional noise pollution would result from the No Action Alternative.

4.11 AESTHETIC RESOURCES

4.11.1 *Maintenance Dredging*

Temporary increases in air pollution, water turbidity, and noise pollution can be expected during project construction. The dredge equipment will have a temporary effect on the view shed until the completion of the project.

4.11.2 *Dredged Material Placement Options*

Temporary increases in air pollution, water turbidity, and noise pollution can be expected during project construction. The dredge equipment will have a temporary effect on the view shed at the beach during dredged material placement there or in the nearshore region. However, dredged material placement on the beach or in the nearshore region of Keewaydin Island should augment the beach habitat and improve the aesthetic value of the area.

4.11.3 *No Action Alternative*

The No Action Alternative would not result in impacts to the aesthetic value of the project area.

4.12 RECREATION RESOURCES

4.12.1 *Maintenance Dredging*

The proposed maintenance dredging would provide increased opportunities for recreational boaters and fishermen to utilize the Gordon River.

4.12.2 *Dredged Material Placement Options*

Placement on the beach or in the nearshore region of Keewaydin Island would increase the recreational beach available to the public there.

4.12.3 *No Action Alternative*

The No Action Alternative would result in increased shoaling in the federal channel, decreasing the ability for recreational boaters to utilize the Gordon River.

4.13 NAVIGATION

4.13.1 *Maintenance Dredging*

The proposed maintenance dredging will result in some temporary disruption of normal vessel traffic in the federal channel due to the presence and operation of the dredged material transport and disposal equipment. There would be a long term beneficial impact on navigation through the maintenance of safe navigable channels.

4.13.2 *Dredged Material Placement Options*

None of the dredged material placement options would impact navigation.

4.13.3 *No Action Alternative*

The No Action Alternative would result in a decrease in the navigability of the federal channel over time as sediments accumulate in the channel and cause shoaling.

4.14 INVASIVE SPECIES

4.14.1 *Maintenance Dredging*

Increased boat traffic opens new pathways for invasive species to be introduced. Invasive species are typically opportunistic, and they often thrive in newly disturbed areas. As the navigational channel habitats will be disturbed, there is an increased possibility that invasive species could colonize these areas.

4.14.2 *Dredged Material Placement Options*

There is the possibility that invasive species may be transported from the dredge site to the beach or nearshore area; however, these sites are not far removed and any potential spreading of invasive species within this region is likely to have already occurred. Care would be taken to prevent the spread of Brazilian pepper at the dewatering site, and any invasive species encountered at the site would be removed.

4.14.3 *No Action Alternative*

The project area already experiences some impact from invasive species. This could continue with the No Action Alternative.

4.15 HISTORIC PROPERTIES

4.15.1 *Maintenance Dredging*

For the area of proposed dredging, staff determined that a survey would be needed and the Jacksonville District contracted Panamerican Consultants, Inc. (PCI) to conduct this survey. Enclosed is their draft report, *"Environmental Assessment and Resource Surveys Maintenance Dredging Naples to Big Marco Pass (Gordon Pass Collier County, Florida."* PCI identified 262 magnetic anomalies, 102 side scan sonar anomalies and 100 sub-bottom profiler anomalies. From these results, thirteen were determined to be potentially significant. Some of these thirteen share an association. One cluster is comprised of targets M011, M095, M150 and PS-0152, while another is comprised of two targets, M249 and SS04. Currently, a significant anomaly and feature (anomaly M150 and feature Pr-0112/-151) fall within the federal channel, while the rest fall outside the federal channel. For this planned dredging event, the Corps does

not wish to further investigate the potential significant anomalies, targets, or features and will avoid potential impacts to such resources. To protect each of these areas, the Corps will establish a minimum 100-meter buffer around all potential significant anomalies, targets, and features. An exception will be made for the subbottom feature comprised of CR-0117, CR-0150, PR-004 and PR-0000, where a 200-meter buffer will be established. No anchoring or spudding will be permitted within the buffers, and no dredging will occur where the areas fall within the federal channel.

4.15.2 *Dredged Material Placement Options*

The dewatering site is currently used as waste collection site by the City of Naples. As such, the site has been subject to intense disturbance. The dewatering site was subjected to a site visit by Corps staff archeologists (Dan Hughes and Wendy Weaver). The site visit occurred on July 8, 2010, and no cultural resources were observed within the project area.

Based on the underwater survey and staff archeologists' inspections of the de-watering site, there will be no associated affects to significant historic properties. Should the nearshore placement area be utilized, consultation will be updated and additional survey work will be required.

4.15.3 *No Action Alternative*

No effects to significant resources will occur.

4.16 CUMULATIVE IMPACTS

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

Since its initial construction, the Corps has conducted maintenance dredging numerous times along the 12-Foot, Gordon Pass to Naples, Florida project. Most impacts that occur as a result of the maintenance dredging activities are temporary in nature. Earlier projects placed the dredged materials in the uplands adjacent to the channel. More recent maintenance dredging events have attempted to locate beneficial uses for the dredged materials. Beach quality sands from the vicinity of Gordon Pass are typically placed on the adjacent beaches. The dredged materials from this project will be dewatered and placed at an appropriate upland site. Since dredging only occurs to the authorized depths, the cumulative impacts to the Gordon River and Naples Bay are minimal. The proposed project would not cumulatively impact the manatee due to the temporary nature of the proposed project. No other cumulative impacts are anticipated to occur. Water quality would only be temporarily affected by turbidity from construction

activities, and no cumulative impacts to water quality are anticipated from the Preferred Alternative.

The No Action Alternative would not result in any cumulative impacts.

4.17 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

An irreversible commitment of resources is one in which the ability to use and/or enjoy the resource is lost forever. 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. A long-term commitment has been made concerning the use and maintenance of the navigation channel. No other irreversible commitments are associated with the implementation of this project.

5 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

5.1 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

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

5.2 ENDANGERED SPECIES ACT OF 1973

This project has been coordinated with the National Marine Fisheries Service (NMFS) through the Gulf Regional Biological Opinion dated November 19, 2003, as amended on June 24, 2005 and January 9, 2007. Consultation was initiated with USFWS on March 4, 2013, and will be completed prior to finalizing this NEPA document (see Appendix C). This project will be fully coordinated under the Endangered Species Act and is in full compliance with the Act.

5.3 FISH AND WILDLIFE COORDINATION ACT OF 1958

This project will be coordinated with the USFWS during the public comment period associated with the Draft EA. This project is in full compliance with the Act.

5.4 NATIONAL HISTORIC PRESERVATION ACT OF 1966 (INTER ALIA)

Consultation with the Florida State Historic Preservation Officer (SHPO) was initiated in 2002 and is ongoing in accordance with the National Historic Preservation Act of 1966, as amended, and as part of the requirements and consultation processes contained within the NHPA implementing regulations of 36 CFR 800, this project is also in compliance, through ongoing consultation, with the Archeological Resources Protection Act (96-95), American Indian Religious Freedom Act (PL 33 95-341), Executive Orders (E.O) 11593, 13007, & 13175 and the Presidential Memo of 1994 on Government to Government Relations. Consultation has been completed with the SHPO and appropriate federally recognized tribes. SHPO consultation was initiated 24 August 2010. In a 13 October 2013 response, the SHPO concurred with the Corps' no adverse effect determination. The project will not affect historic properties included in or eligible for inclusion in the National Register of Historic places. The project is in compliance with each of these Federal laws.

5.5 CLEAN WATER ACT OF 1972

The project is in compliance with this Act. The Corps has applied for a modification to the existing Section 401 water quality certification for this project issued by the Florida Department of Environmental Protection (DEP permit #0176979-001-JC; Appendix C). All State water quality standards would be met. A Section 404(b) evaluation is included in this report as Appendix A.

5.6 CLEAN AIR ACT OF 1972

No air quality permits would be required for this project. The draft version of this EA serves as coordination with the U.S. Environmental Protection Agency (EPA) and is in compliance with Section 309 of the Act. This project would not produce any significant new atmospheric emissions; therefore, this project complies with the Clean Air Act.

5.7 COASTAL ZONE MANAGEMENT ACT OF 1972

A federal consistency determination in accordance with 15 CFR 930 Subpart C is included in this report as Appendix B. State consistency review will be performed during the coordination of this draft EA.

5.8 FARMLAND PROTECTION POLICY ACT OF 1981

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

5.9 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.

5.10 MARINE MAMMAL PROTECTION ACT OF 1972

To ensure the protection of any manatees present in the project area, the Standard Manatee Conditions for In-Water Work (2009 revision) will be implemented. These include the following measures:

1. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.

2. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

3. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.

4. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

5. Any collision with or injury to a manatee shall be reported immediately to the FWC Hotline at 1-888-404-FWCC. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-731-3336) for north Florida or Vero Beach (1-772-562-3909) for south Florida.

6. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Awareness signs that have already been approved for this use by the Florida Fish and Wildlife Conservation Commission (FWC) must be used (see MyFWC.com). One sign which reads *Caution: Manatee Habitat* must be posted. A second sign measuring at least 81/2" by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities.

In addition, a special dedicated manatee monitor will be assigned to watch for manatee conflicts if dredging is conducted with a clamshell dredge. Therefore, this project is in compliance with the Marine Mammal Protection Act of 1972.

5.11 ESTUARY PROTECTION ACT OF 1968

Rookery Bay National Estuarine Research Reserve (NERR) is located adjacent to the project area, and some beach placement of dredged materials may occur on beaches in the Rookery Bay NERR. The project is not anticipated to adversely affect the estuary, and is consistent with the purposes of the Act.

5.12 FEDERAL WATER PROJECT RECREATION ACT

There is no recreational development proposed as part of this maintenance dredging and disposal project. Therefore, this project is in compliance with this Act.

5.13 SUBMERGED LANDS ACT OF 1953

The project would occur on submerged lands of the State of Florida. The project will be coordinated with the State and is in compliance with the Act.

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

The Coastal Barrier Resources Act (CBRA) and the Coastal Barrier Improvement Act of 1990 (CBRIA) limit federally subsidized development within the CBRA Units to limit the loss of human life by discouraging development in high risk areas, to reduce wasteful expenditures of Federal resources, and to protect the natural resources associated with coastal barriers. CBRIA provides development goals for undeveloped coastal property held in public ownership, including wildlife refuges, parks, and other lands set aside for conservation (OPAs). These public lands are excluded from most of the CBRA restrictions, although they are prohibited from receiving Federal Flood Insurance for new structures.

Federal monies can be spent within the CBRS for certain activities, including (1) projects for the study, management, protection, and enhancement of fish and wildlife resources and habitats; (2) establishment of navigation aids; (3) projects funded under the Land and Water Conservation Fund Act of 1965; (4) scientific research; (5) assistance for emergency actions essential to saving lives and the protection of property and the public health and safety, if preferred pursuant to the Disaster Relief Emergency Assistance Act and the National Flood Insurance Act and are necessary to alleviate the emergency; (6) maintenance, repair, or reconstruction, but not expansion, of publically owned or publically operated roads, structures, or facilities; (7) nonstructural projects for shoreline stabilization that are designed to mimic, enhance, or restore a natural stabilization system; (8) any use or facility necessary for the exploration, extraction, or transportation of energy resources; (9) maintenance or construction of improvements of existing federal navigation channels, including the disposal of dredge materials related to such projects; and (10) military activities essential to national security.

The purpose of this project (to maintain an existing federal navigation channel and to dispose of dredged materials associated with this maintenance) is consistent with the CBRA regulations.

Rookery Bay NERR is part of the CBRA and CBRIA system, and it is located in the project area (see Table 18 and Figure 31). The proposed project does not include the construction of structures that would require Federal Flood Insurance in any areas designated as “otherwise protected areas” pursuant to the CBRIA; therefore, Federal expenditures for the proposed project should not be restricted.

5.15 RIVERS AND HARBORS ACT OF 1899

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

5.16 ANADROMOUS FISH CONSERVATION ACT

Anadromous fish species would not be affected by the proposed work. The project will be fully coordinated with the National Marine Fisheries Service, and it is in compliance with the Act.

5.17 MIGRATORY BIRD TREATY ACT AND MIGRATORY BIRD CONSERVATION ACT

No migratory birds would be affected by project activities. However, the Corps will implement the Jacksonville District's Migratory Bird Protection Policy during project construction to ensure the protection of any migratory birds in the project area. The project is in compliance with these Acts.

5.18 MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT

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

5.19 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT (MSFCMA)

This act requires preparation of an Essential Fish Habitat (EFH) Assessment and coordination with the National Marine Fisheries Service (NMFS). Pursuant to a 1999 NMFS Finding, Corps's NEPA process for Federal Civil Works activities can be used to satisfy the consultation requirements of the MSFCMA. This Draft EA will serve as the EFH Assessment for the proposed project. It includes a description of the proposed action (Section 2.1.1); an analysis of the effects on EFH, Federally managed fisheries, and associated species such as major prey species, including the affected life history stages (Sections 3.5 and 4.4); and the Corps determination regarding the effects (Section 4.4.1). No mitigation is proposed as part of this action.

5.20 E.O. 11990, PROTECTION OF WETLANDS

Section 4.1.1 describes the measures taken to minimize degradation to mangrove habitat located at the dewatering site. No means exist to access the dewatering site from the waterway other than through the mangrove habitat. Minimal impacts will occur to mangroves, as measures will be taken to carefully locate the pipeline around and through mangroves and their shoots to the greatest extent possible. This Draft EA is made available to the public for review and comment of the proposed action for a 30-day commenting period. The minimal impacts to mangrove habitat will not affect public health, safety, or welfare. Since any

mangroves impacted by the project will be replanted, the natural system will be maintained. Therefore, this project is in compliance with the goals of this Executive Order.

5.21 E.O. 11988, FLOOD PLAIN MANAGEMENT

This project will not cause adverse effects to floodplains in the project area, nor will it include any incompatible uses of the floodplain. This project is in compliance with this Executive Order.

5.22 E.O. 12898, ENVIRONMENTAL JUSTICE

This project would not result in adverse human health or environmental effects. In addition, no impacts on the ability of minority or low-income populations to obtain fish or wildlife for subsistence consumption will occur. Therefore, no impacts to minority or low-income populations would occur. This project is in compliance with this Executive Order.

5.23 E.O. 13089, CORAL REEF PROTECTION

There are no coral reefs located in the project area, nor are there any "species, habitats, and other natural resources associated with coral reefs." This project is in compliance with this Executive Order.

5.24 E.O. 13112, INVASIVE SPECIES

This project will have a minor positive effect on the status of invasive species by minimally clearing Brazilian pepper (*Schinus terebinthifolius*) in the pipeline corridor at the dewatering site that is intermixed with mangroves. This project is in compliance with this Executive Order.

5.25 E.O. 13186, MIGRATORY BIRDS

This Executive Order requires, among other things, a Memorandum of Understanding (MOU) between the Federal Agency and the U.S. Fish and Wildlife Service concerning migratory birds. Neither the Department of Defense MOU nor the Corps Draft MOU clearly address migratory birds on lands not owned or controlled by the Corps. For many Corps civil works projects, the real estate interests are provided by the non-Federal sponsor. Control and ownership of the project lands remain with a non-Federal interest. Measures to avoid the destruction of migratory birds and their eggs or hatchlings are described in Section 5.17 above on the Migratory Bird Treaty Act.

6 LIST OF PREPARERS

6.1 PREPARERS

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6.2 REVIEWERS

Paul DeMarco, Biologist (Corps)
Jason Spinning, Supervisory Biologist (Corps)
Milan Mora, Project Management (Corps)

7 PUBLIC INVOLVEMENT

7.1 SCOPING AND DRAFT EA

The Draft EA and Finding of No Significant Impact (FONSI) will be made available to the public by Notice of Availability and by publication on the Corps, Jacksonville District website at http://www.saj.usace.army.mil/About/DivisionsOffices/Planning/EnvironmentalBranch/EnvironmentalDocuments.aspx#Collier.

When the EA is made final and the FONSI is finalized, both will be posted to the website.

7.2 AGENCY COORDINATION

Coordination will occur with the USFWS for ESA and MMPA issues, and with NMFS for EFH issues under separate cover. All agency coordination letters are included in Appendix C.

7.3 LIST OF RECIPIENTS

Copies of the Draft EA and Draft FONSI were mailed to the individuals and organizations on the mailing list included in Appendix E.

7.4 COMMENTS RECEIVED AND RESPONSE

Any comments received on the Draft EA will be included with the Corps response in this section of the Final EA.

8 REFERENCES

Aerostar Environmental Services, Inc. 2011. Sediment Sampling and Analysis for Naples to Gordon Pass Maintenance Dredging. USACE Contract Number W912EP-08-D-0004, DO#0014. Aerostar Project #0110-514-07.

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9 INDEX

APPENDIX A - SECTION 404(B) EVALUATION

SECTION 404(b) EVALUATION

MAINTENANCE DREDGING
12-FOOT CHANNEL, GORDON PASS TO NAPLES
NAPLES, COLLIER COUNTY, FLORIDA

I. Project Description

a. Location. The project is located in Naples Bay from Gordon Pass to Naples in Collier County, Florida. The project includes 4.5 miles of the Gulf Intracoastal Waterway (GIWW) from the mouth of the Gordon River to downtown Naples (see Figure 1, Project Location Map, in Section 1 of the EA).

b. General Description. The proposed project includes operations and maintenance dredging of Cuts 1 through 15 of the federal channel from Gordon Pass to Naples, Florida. Project depths are 12 feet mean lower low water (MLLW) plus 2 foot allowable overdepth at the entrance cut, and 10 feet MLLW plus 2 foot allowable overdepth for the remainder of the channel. Cut 1 is authorized at 150 feet wide with a 100 foot settling basin adjacent to the north of the cut, and Cuts 2 through 15 are authorized at 100 feet wide. Beach quality dredged materials would be placed on the beach between Reference Monuments 90 and 94. Dredged materials that are not suitable for beach placement would either be placed in the nearshore region below MLLW between Reference Monuments 90 and 94, or pumped to an upland location adjacent to the channel for dewatering. After the water was removed from the dredged materials, they would be transported to an appropriate upland disposal site.

c. Authority and Purpose. Authorization for maintenance dredging operations of the Federal project at Gordon Pass is given in Section 107 of the River and Harbor Act of 1960. The deepening of the channel was specifically authorized by House Document 596/75/3 on June 20, 1938 and re-authorized on June 14, 1960 by House Document 183/86/1.

d. General Description of Dredged or Fill Material

(1) *General Characteristics of Material*. The dredged materials are primarily sandy sediments from Cuts 1 to 7, and silty sediments in Cuts 7 through 15.

(2) *Quantity of Material*. The quantities will vary depending on the frequency of dredging.

(3) *Source of Material*. Cuts 1 through 15 of the Gordon Pass to Naples, Fla., federal project.

e. Description of the Proposed Discharge Site(s)

(1) *Location*. The beach/nearshore placement site is located between Reference Monuments 90 and 94 on Keewaydin Island, just south of Gordon Pass. Silty sediments would be dewatered at a site located along the western shoreline of the Gordon River, north of the federal channel and across from the Naples Municipal Airport. The dewatered materials will be transferred to an appropriate upland site.

(2) *Size*. The beach/nearshore placement area is approximately 4000 linear feet. The dewatering site is approximately 1.8 acres.

(3) *Type of Site*. The discharge sites are sandy beach (beach placement), shallow Gulf waters below MLLW (nearshore placement), or unconfined, cleared land (dewatering site).

(4) *Type(s) of Habitat*. The beach placement site is sandy beach with several shore-parallel riprap breakwaters. The nearshore habitats do not include any submerged vegetation or hardbottom habitat. The dewatering sites and the proposed placement sites are all cleared land with herbaceous vegetation.

(5) *Timing and Duration of Discharge*. The timing of dredging operations is unknown at this time.

f. Description of Disposal Method. This project could feasibly be constructed by a hopper dredge, cutter-suction dredge, or mechanical dredge using a barge/scow with pump-out capabilities. If a hopper dredge were used, the material would be either piped onto the beach, bottom dumped in the nearshore (if the material is not beach quality), or piped onto the dewatering site. If a cutter-suction or mechanical dredge were used, the material would be piped from barges/scows into the nearshore area, onto the beach, or to the dewatering site.

II. Factual Determinations

a. Physical Substrate Determinations.

(1) *Substrate Elevation and Slope.* The channel bottom floor comprises shoaled sediments. Project depths are 12 feet mean lower low water (MLLW) plus 2 foot allowable overdepth at the entrance cut, and 10 feet MLLW plus 2 foot allowable overdepth for the remainder of the channel. Cut 1 is authorized at 150 feet wide with a 100 foot settling basin adjacent to the north of the cut, and Cuts 2 through 15 are authorized at 100 feet wide.

(2) *Sediment Type*. Shoaled sediments in the channel are siltiest at the upstream locations, becoming gradually sandier toward the inlet. Dredged materials from Cuts 1 through 7 are anticipated to be beach quality sand, while the silt content of materials from Cuts 7 through 15 will require this material to be placed either in the nearshore, or dewatered and placed at an appropriate upland site.

(3) *Dredged/Fill Material Movement.* The dredged material placed on the beach will become part of the littoral drift system, moving offshore and onshore with seasonal wave action, and also southward as part of the longshore sediment transport processes.

(4) *Physical Effects on Benthos.* Benthic organisms would be temporarily impacted by beach placement operations; however, they should begin to recolonize in less than one year. Full recovery is anticipated over several years.

(5) *Actions Taken to Minimize Impacts.* Beach placement activities will be monitored to ensure that turbidity levels do not exceed allowable levels, and that sand is constrained to the project profile. Post-construction monitoring will also be conducted to survey for compaction and performance.

b. Water Circulation. Fluctuation and Salinity Determinations.

(1) *Water Column Effects.*

(a) Salinity: No significant effect.
(b) Water Chemistry: No significant effect.
(c) Clarity: A temporary increase in turbidity would reduce water clarity in the nearshore area.
(d) Color: Temporary turbidity would alter the water color.
(e) Odor: No significant effect.
(f) Taste: No significant effect.
(g) Dissolved Gas Levels: No significant effect.
(h) Nutrients: No significant effect.
(i) Eutrophication: No significant effect.

(2) *Current Patterns and Water Circulation*.

(a) Current Patterns and Flow: Currents in the project area are primarily tidal. The project is not anticipated to alter tidal patterns or local water circulation.

(b) Velocity: No significant effect.

(c) Stratification: No significant effect.

(d) Hydrologic Regime: No significant effect.

(3) *Normal Water Level Fluctuations.* Tides in the project area are semi-diurnal with varying levels throughout the year. The project would not affect normal water level fluctuations.

(4) *Salinity Gradients.* The project would not affect salinity gradients.

(5) *Actions That Will Be Taken to Minimize Impacts.* As previously mentioned, turbidity will be monitored during project construction. No other significant effects to water circulation, fluctuation, or salinity are anticipated to occur.

c. Suspended Particulate/Turbidity Determinations.

(1) *Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site.* There will be a temporary increase in suspended particulates and turbidity levels in the vicinity of the disposal sites.

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

(a) Light Penetration. Light penetration would temporarily decrease during beach or nearshore placement operations.

(b) Dissolved Oxygen. No significant effect.

(c) Toxic Metals and Organics. No significant effect.

(d) Pathogens. No significant effect.

(e) Aesthetics. Turbidity would temporarily decrease the aesthetic value of the nearshore waters. The turbidity is expected to return to pre-construction levels shortly after construction is complete.

(3) *Effects on Biota*

(a) Primary Production, Photosynthesis. No significant effect.

(b) Suspension/Filter Feeders. Turbidity would temporarily affect filter feeders during construction.

(c) Sight Feeders. Turbidity would temporarily affect sight feeders during construction.

(4) *Actions taken to Minimize Impacts*. As previous mentioned, turbidity will be monitored during project construction to ensure that levels due not exceed authorized levels. Should turbidity levels exceed authorized levels, construction activities would cease until turbidity could be maintained at appropriate levels.

d. Contaminant Determinations. Levels of contaminants are not expected to have a significant impact on plankton, benthos, nekton, or the aquatic food web.

e. Aquatic Ecosystem and Organism Determinations.

(1) *Effects on Plankton.* No significant effect.

(2) *Effects on Benthos.* Benthic invertebrates would be affected by the project, but they would be expected to begin recovery within one year.

(3) *Effects on Nekton.* No significant effect.

(4) *Effects on Aquatic Food Web.* Although benthic invertebrates would be affected, significant affects on the aquatic food web are not anticipated.

(5) *Effects on Special Aquatic Sites.*

(a) Sanctuaries and Refuges. The project area includes a portion of the Rookery Bay National Estuarine Research Reserve, which may receive dredged materials on their shoreline depending upon the quantities of shoaled material found. No other sanctuaries or refuges are known to be found in the project area.

(b) Wetlands. A small portion of mangrove habitat would be affected to provide pipeline access to the dewatering site. This area would be restored to its original condition following construction.

(c) Mud Flats. No significant effect.

(d) Vegetated Shallows. Not applicable.

(e) Coral Reefs. There are no coral reefs located in the project area. Impacts to nearshore hardbottom habitats were mitigated through the construction of artificial reefs as part of previous nourishments of this project.

(f) Riffle and Pool Complexes. No significant effect.

(6) *Threatened and Endangered Species.* Although the project occurs in designated manatee critical habitat, the project is not anticipated to adversely modify this habitat. Standard protection measures for in-water work would be implemented to protect listed species in the project area, including manatees, sea turtles, and smalltooth sawfish. Measures to protect the wintering piping plover would also be implemented. The project would not have a significant impact on threatened and endangered species.

(7) *Other Wildlife.* Other wildlife would not be able to utilize the beach during project construction, which could cause a temporary adverse impact.

(8) *Actions to Minimize Impacts.* Measures will be taken to avoid and/or minimize impacts to protected species and other wildlife. Please see Sections 4.3 and 4.4 of the Environmental Assessment for additional information.

f. Proposed Disposal Site Determinations.

(1) *Mixing Zone Determination.* The mixing zone determination will be in accordance with the Water Quality Certification issued for this project.

(2) *Determination of Compliance with Applicable Water Quality Standards.* The work will be conducted in accordance with the Water Quality Certification issued for this project.

(3) *Potential Effects on Human Use Characteristic.*

(a) Municipal and Private Water Supply. No effects are anticipated.
(b) Recreational and Commercial Fisheries. No significant effect.
(c) Water Related Recreation. Temporary impacts to water related recreation would occur during project construction.
(d) Aesthetics. The aesthetic appeal of the beach and the nearshore area would be impacted during project construction. In addition, the dredge will be occupying channel space during construction and may not be visually appealing to those recreating on the beach or on boat in the vicinity.
(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. Rookery Bay National Estuarine Research Reserve is located south of the project, and a portion of the beach placement area could fall within its boundaries. Beach placement of material is not expected to have an adverse impact on the Reserve.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. The project will help to maintain sediments within the sediment budget to prevent erosional impacts due to stabilization of Gordon Pass. Although temporary impacts will occur to benthic habitats, the long-term effects will be generally beneficial.

h. Determination of Secondary Effects on the Aquatic Ecosystem. Adding sand to the system at the project location will provide a source of sand for downdrift beaches, potentially decreasing erosion rates there.

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

a. Adaptation of the Section 404(b)(l) Guidelines to this Evaluation. No significant adaptations of the guidelines were made relative to this evaluation.

b. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem. Beach and nearshore placement of suitable dredged materials is considered to be the best use of this material. It keeps the material in the littoral system, and helps to prevent erosion on downdrift beaches. The current EA evaluates the proposed discharge site and the no action alternative. The no action alternative does not meet project needs, and would allow continued shoaling of the channel.

c. Compliance with Applicable State Water Quality Standards. Beach placement activities would be performed in compliance with the Water Quality Certification issued by the State of Florida.

d. Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 Of the Clean Water Act. The discharge operation would not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

e. Compliance with Endangered Species Act of 1973 (ESA). The project will be coordinated with both the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. The proposed project would not jeopardize the continued existence of any species listed under the ESA, nor would it result in the destruction or adverse modification of any critical habitat as specified by the Act.

f. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972. There are no national marine sanctuaries located in the project area; therefore, this Act does not apply to this project.

g. Evaluation of Extent of Degradation of the Waters of the United States

(1) *Significant Adverse Effects on Human Health and Welfare*
   (a) Municipal and Private Water Supplies. No significant effect.
   (b) Recreation and Commercial Fisheries. Recreational and commercial fishing interests would not be able to use the area surrounding the borrow sites or the nearshore area for fishing during project construction. No other impact is anticipated.
   (c) Plankton. No substantial adverse effects are anticipated.

(d) Fish. No substantial adverse effects are anticipated.
(e) Shellfish. No substantial adverse effects are anticipated.
(f) Wildlife. No substantial adverse effects are anticipated.
(g) Special Aquatic Sites. No substantial adverse effects are anticipated.

(2) *Significant Adverse Effects on Life Stages of Aquatic Life and Other Wildlife Dependent on Aquatic Ecosystems.* Most impacts would not be significant, and would be short-term in duration.

(3) *Significant Adverse Effects on Aquatic Ecosystem Diversity, Productivity and Stability.* No significant adverse effects on aquatic ecosystem diversity, productivity and stability are anticipated.

(4) *Significant Adverse Effects on Recreational, Aesthetic, and Economic Values.* Recreation and aesthetic values would be temporarily disrupted due to construction activity, but significant effects are not anticipated.

h. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem. Appropriate and practicable steps will be taken during project construction to minimize the potential adverse impacts of the discharge on the aquatic ecosystem. As was previously mentioned, turbidity monitoring will occur during project construction to ensure recommended levels are not exceeded. For more information, see Section 4 of the EA.

i. On the basis of the guidelines, the proposed disposal site(s) for the discharge of dredged or fill material is specified as complying with the requirements of these guidelines, with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects on the aquatic ecosystem.

FINDING OF COMPLIANCE

FOR

MAINTENANCE DREDGING
12-FOOT CHANNEL, GORDON PASS TO NAPLES, FLA.
NAPLES, COLLIER COUNTY, FLORIDA

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

2. Three alternative disposal sites are available for this project based on the suitability of the dredged materials. Neither the dredging activities nor any of the disposal alternatives will have a significant effect on water levels, fluctuation, circulation, or currents.

3. The planned disposal of dredged material would not violate any applicable State water quality standards with the possible exception of turbidity. Turbidity standards would be monitored pursuant to the Water Quality Certification issued by the State of Florida. If a violation is observed, disposal operations will cease until turbidity levels can be maintained at authorized levels. The disposal operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

4. The proposed discharge of sandy material on the beach will not harm any endangered species or their critical habitat.

5. The proposed disposal of dredged material will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic life 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.

6. Appropriate steps to minimize potential adverse impacts of the discharge on aquatic systems include cessation of disposal activities during extreme tidal velocities associated with spring tides.

7. On the basis of these guidelines, the proposed disposal site for the discharge of dredged material is specified as complying with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects to the aquatic ecosystem.

APPENDIX B - COASTAL ZONE MANAGEMENT CONSISTENCY

FLORIDA COASTAL ZONE MANAGEMENT PROGRAM

FEDERAL CONSISTENCY EVALUATION PROCEDURES

Operations and Maintenance Dredging
Naples to Gordon Pass
Collier County, Florida

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

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

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

Response: The proposed project has been coordinated with various Federal, State and local agencies during the planning process. The project meets the primary goal of the State Comprehensive Plan through the maintenance of navigational channels.

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

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

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

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

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

Response: A portion of the affected property is in public ownership, and the project does not require the state to acquire any additional land. These chapters do not apply to this project.

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 Rookery Bay National Estuarine Research Reserve and the Rookery Bay Aquatic Preserve are located within the project boundaries. The project may involve the placement of beach quality sand on the beaches of the Preserve, which will provide potential sea turtle nesting habitat and contribute to shorebird nesting and foraging habitat. 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 will be coordinated with the State Historic Preservation Officer (SHPO). Historic Property investigations were conducted in the project area. An archival and literature search, in addition to a magnetometer survey of the proposed borrow area were conducted. The SHPO concurred with the Corps determination that the proposed project will not adversely affect any significant cultural or historic resources. The project will be consistent with the goals of this chapter.

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

Response: The operations and maintenance dredging of Gordon Pass and the Gordon River will allow for easier passage of the channel by recreational vessels. In addition, the proposed beach placement of the dredged materials would provide more space for recreation and the protection of recreational facilities along the receiving beach. This would be compatible with tourism for this area and therefore, is consistent with the goals of this chapter.

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

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

10. Chapter 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.

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

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

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

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

13. Chapter 379, Fish and Wildlife Conservation. This chapter establishes the Florida Fish and Wildlife Conservation Commission, and it regulates the conservation of marine and freshwater aquatic and wild animal life and their habitats to perpetuate a diversity of species with densities and distributions sufficient to provide sustained ecological, recreational, scientific, educational, aesthetic, and economic benefits.

Response: The proposed beach fill may represent a temporary short-term impact to infaunal invertebrates by burying these organisms. However, these organisms are highly adapted to the periodic burial by sand in the intertidal zone. These organisms are highly fecund and are expected to return to pre-construction levels within six months to one year after construction. As sea turtle nesting is not significant in this location, the project is not expected to significantly impact sea turtles. In addition, the project will have little effect on freshwater aquatic life or wild animal life. Based on the overall impacts of the project, the project is consistent with the goals of this chapter.

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

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

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

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

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

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

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

APPENDIX C - PERTINENT CORRESPONDENCE

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

REPLY TO
ATTENTION OF

Planning and Policy Division
Environmental Branch

21 MAR 2013

To Whom It May Concern:

Pursuant to the National Environmental Policy Act and U.S. Army Corps of Engineers (Corps) Regulation (33 CFR 230.11), this letter constitutes the Notice of Availability of the Draft Environmental Assessment (EA) for operations and maintenance dredging of Cuts 1 through 15 of the existing Federal navigation channels in the Gordon River and Gordon Pass in Naples, Collier County, Florida. The project depths are 12 feet mean lower low water (MLLW) plus 2 foot allowable overdepth at the entrance cut, and 10 feet MLLW plus 2 foot allowable overdepth for the remainder of the channel. Cut 1 is authorized at 150 feet wide with a 100 foot settling basin adjacent to the north of the cut, and Cuts 2 through 15 are authorized at 100 feet wide.

This draft EA and draft Finding of No Significant Impact are available on the Corps, Jacksonville District website at the following address for your review:

http://www.saj.usace.army.mil/About/DivisionsOffices/Planning/EnvironmentalBranch/EnvironmentalDocuments.aspx.

At this time, we are inviting agencies, interest groups, and the public to provide input on the proposed alternatives and to identify significant resource concerns. Your comments will be incorporated into the final EA. Comments should be addressed to the Corps at the following address:

U.S. Army Corps of Engineers
Jacksonville District
Attention: Jason Spinning (CESAJ-PD-EC)
Post Office Box 4970
Jacksonville, FL 32232-0019

Please provide written comments within 30 days of the date of this letter.

If you have any questions or comments, please contact Jason Spinning at (904) 232-1231 or Jason.J.Spinning@usace.army.mil.

Sincerely,

Eric P. Summa
Chief, Environmental Branch

Enclosure

APPENDIX D – BENTHIC RESOURCES SURVEY

Pre-Construction Seagrass Survey
Maintenance Dredging
Naples to Big Marco Pass (Gordon Pass)
Collier County, Florida

Final Report

December 2009

Prepared for:
G.E.C.
GEC Headquarters
9357 Interline Avenue
Baton Rouge, LA 70809
and
U.S. Army Corps of Engineers
Jacksonville District
701 San Marco Blvd.
Jacksonville, FL 32207

Prepared by:
Dial Cordy and Associates Inc.
490 Osceola Ave.
Jacksonville Beach, FL 32250

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

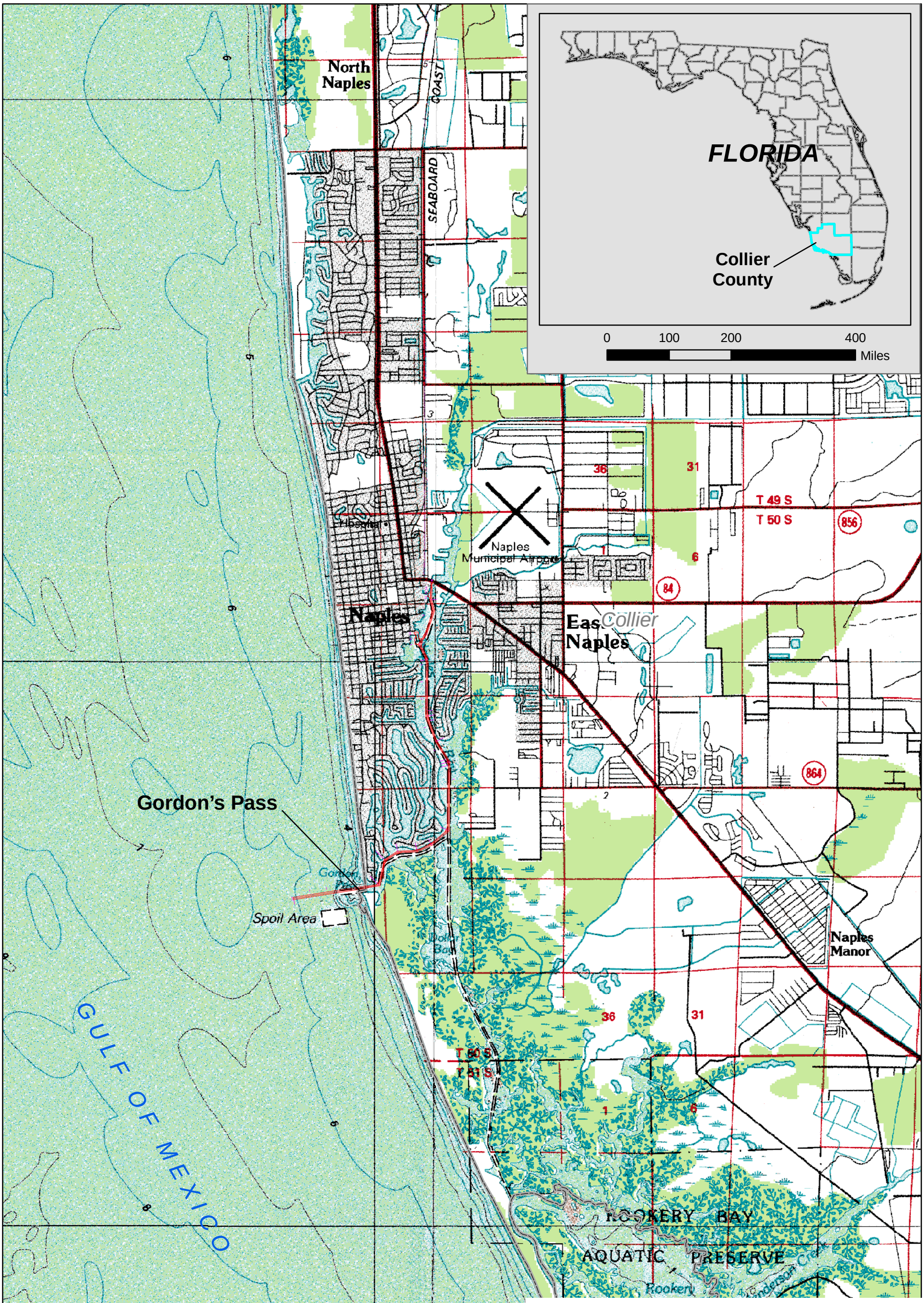
Dial Cordy and Associates Inc. (DC&A) was contracted by G.E.C. for the Jacksonville District, U.S. Army Corps of Engineers (USACE) to conduct a pre-construction seagrass survey in support of maintenance dredging of the Big Marco Pass (Gordon Pass) channel (G.E.C. Contract number W912EP-09-0005). The maintenance dredging for this project consists of dredging the shoaled areas in Cuts 1 through 15. The required dredging depth for Cuts 1through 15 is 10 feet MLLW and the allowable over-depth for Cuts 1through 15 is 2 feet. The total quantity to be dredged is approximately 35,000 C.Y. of material. All material shall be dewatered and placed into the designated upland disposal site, Collier County Landfill. This report details the findings of marine resources surveys conducted prior to construction (dredging).

2.0 TECHNICAL APPROACH

This section describes the technical approach used to collect and analyze data to characterize and document marine seagrass communities within the study area (Figure 1). Surveys were conducted from September 20 through September 30, 2009.

2.1 Seagrass Survey and Map

Survey transects covered the areas composed of Cut 1 to the end of Cut 15, commencing within the channel area and extending perpendicular to the channel and extending 30 m (100 ft) on either side of the channel or shoreline, whichever was shorter. Seagrass distribution was mapped along 157 transects placed every 50 m by locating the end positions using Differential Global Positioning System (DGPS), laying a weighted line marked in one-meter increments from the endpoint, and then conducting a visual diver survey along the weighted line to document seagrass distribution and occurrence between the end points of each transect (Figure 2). Seagrass habitat and bottom type observed while crossing each transect were noted. Divers swam to the next transect, and if any seagrass was found between transects, a GPS position at the start and end of the grass bed was recorded, and the width of the grass bed estimated. Information recorded on seagrass habitat type and distribution was transferred from field logs and entered into a spreadsheet. This approach allowed a visual representation of species' associations and occurrences across the shelf, channel, and slope as compared with bottom depth. Maps were produced for all stations surveyed that had seagrass present. Arc GIS was used to generate seagrass distributional maps for the study area.



LOCATION MAP	
SUBMERGED AQUATIC VEGETATION SURVEY GORDON'S PASS - NAPLES, FLORIDA	
Scale: 1 inch = 1 mile	Drawn By: MR
Date: October 2009	Approved By: JC
DIAL CORDY AND ASSOCIATES INC Environmental Consultants	J09-1138
	Figure 1

Legend

Survey Transect Location

0 0.125 0.25 0.5 0.75 1 Miles

SURVEY TRANSECTS	
SUBMERGED AQUATIC VEGETATION SURVEY GORDON'S PASS - NAPLES, FLORIDA	
Scale: 1 inch = 0.25 mile	Drawn By: MR
Date: October 2009	Approved By: JC
DIAL CORDY AND ASSOCIATES INC Environmental Consultants	J09-1138
	Figure 2

2.2 Seagrass Occurrence, Abundance, and Density

A SCUBA point-intercept survey was performed along each transect to obtain biological data regarding the location, occurrence, abundance, and density of marine seagrass. For each transect, the average percent (percent of 100 10 x 10 cm sub-units within a 1 m^2 quadrat that Contained at least one seagrass shoot) was estimated in 1 m^2 quadrats at 10 m intervals along the transect line (Fonseca et al. 1998; Braun-Blanquet 1965). Specific data recorded within each 1 m^2 quadrat for each seagrass species present included the number of sub-units containing at least one shoot, an average cover abundance score (Braun-Blanquet 1965), a description of substrate type, and any other observations considered useful. The cover abundance scale is discussed below.

The cover abundance was recorded beginning at the zero point and at 10 m intervals along each transect. The content of each quadrat was visually assessed and a cover abundance scale value assigned to the seagrass coverage.

The scale values are:

0.1 = Solitary shoots with small cover
0.5 = Few shoots with small cover
1.0 = Numerous shoots but less than 5% cover
2.0 = Any number of shoots but with 5-25% cover
3.0 = Any number of shoots but with 25-50% cover
4.0 = Any number of shoots but with 50-75% cover
5.0 = Any number of shoots but with >75% cover

From the survey of quadrats along each transect, frequency of occurrence, abundance, and density of seagrass were computed as follows:

Frequency of occurrence = Number of occupied sub-units/total number of sub-units
Abundance = Sum of cover scale values/number of occupied quadrats
Density = Sum of cover scale values/total number of quadrats

2.3 Analysis and Interpretation of Seagrass Data

Distribution of seagrass community types and their potential occurrence in an area were mapped for each transect from survey data. Frequency of occurrence, abundance, and density were calculated from the quadrat data based on Braun-Blanquet (1965) methodology.

3.0 RESULTS

This section includes a description and review of the results of the seagrass survey. It outlines the findings of the seagrass community survey, including species occurrence, abundance, and density for the current sampling event (Table 1). As shown in the table, seagrass only occurred along 8 transects within the study area. This lone bed of *Halophila. decipiens* was located along transects 74 to 81 in Cut 7 (Figure 3). A monospecific bed of *Halodule wrightii* was previously identified by others east of Transects 91-93 but was outside of the study area (Figure 3) However, divers confirmed the presence of this bed but did not delineate or collect data.

Table 1 Frequency of Occurrence, Abundance, and Density Values for *Halophila decipiens* Cut 7, September 2009

Transect	Cut	Frequency of Occurrence	Abundance	Density
74	7	0.068	1.0	0.10
75	7	0.056	1.0	0.10
76	7	0.054	1.0	0.10
77	7	0.087	1.0	0.20
78	7	0.044	1.0	0.10
79	7	0.056	1.0	0.10
80	7	0.024	1.0	0.20
81	7	0.012	1.0	0.10

3.1 Seagrass Distribution

3.1.1 Seagrass Species Frequency of Occurrence, Abundance, and Density

General Occurrence

The only seagrass that was found during the survey was a bed of *Halophila decipiens* located along transects 74 to 81 in Cut 7. This bed was approximately 500 meters long and had an average width of approximately 10 meters along its length.

Frequency of Occurrence

Frequency of occurrence is expressed as a percentage and is determined by dividing the number of occupied sub-units by the total number of sub-units. Frequency of occurrence for this small bed of *H. decipiens* ranged from 0.012 to 0.0870.

Legend

Submerged Aquatic Vegetation

Species

- H. decipiens
- H. wrightii

0 125 250 500 750 1,000 Feet

SUBMERGED AQUATIC VEGETATION OCCURRENCE	
SUBMERGED AQUATIC VEGETATION SURVEY GORDON'S PASS - NAPLES, FLORIDA	
Scale: 1 inch = 250 feet	Drawn By: MR
Date: October 2009	Approved By: JC
DIAL CORDY AND ASSOCIATES INC Environmental Consultants	J09-1138
	Figure 3

Abundance

Abundance is expressed as a sum of the cover abundance scores divided by the number of quadrats where the specific species was assigned a score. Scores range from 0 to 5, where 1.0 is <5% cover, 2.0 is 5 to 25% cover, 3.0 to 4.0 is 25 to 50% cover, 4.0 is 50 to 75% cover, and 5.0 is >75% cover. Abundance is an indicator of the overall density of a particular species in the areas where it occurs. Abundance scores for *H. decipiens* within the study area were 1.0 (<5%) cover. These low scores are attributed to the very sparse small bed located within the study area.

Density

Density is expressed as the sum of the cover abundance scores divided by the total quadrats sampled. Scores range from 0 to 5, where 1.0 is <5% cover, 2.0 is 5 to 25% cover, 3.0 to 4.0 is 25 to 50% cover, 4.0 is 50 to 75% cover, and 5.0 is >75% cover. Density values of *H. decipiens* ranged from 0.10 to 0.20. When compared to abundance values, density values were very low because values are averaged across all quadrats within each transect, rather than only at occupied quadrats.

3.1.2 Potential Seagrass Impacts

No potential seagrass impacts should be expected from maintenance dredging of the channel adjacent to the seagrass bed that was mapped during this survey. The bed is an average of 67 feet outside of the channel, with the nearest point 29 feet from the edge of the channel. As long as the area is labeled to avoid any direct impact from anchoring of equipment or ship movement during dredging, no direct impacts should occur. Indirect impacts should also not be a factor if turbidity is kept to a minimum during construction.

4.0 REFERENCES

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Resource Survey Report

Prepared September 9, 2008

PROJECT:	**North Keewaydin Island Erosion Control Project, Phase II**
DATE OF SURVEY:	**August 26th, 2008**
WEATHER:	**Sunny and Hot ~90°**
VISIBILITY:	**Approximately 3 to 6 feet.**
PERSONNEL:	**Paul Lewis, Environmental Scientist, H&M Engineers** **Steve Foge, Engineer, H&M Engineers** **Dave Dagostino, Surveyor, Dagostino and Wood Inc.**

1.0 Scope and Purpose

Humiston and Moore Engineers in conjunction with Dagostino and Wood Inc. performed a benthic resource survey on North Keewaydin Island. The survey was performed in response to habitat and resource questions related to the Department of Environmental Protection Joint Coastal Permit Application #0185549-002-JC and US Army Corps of Engineers permit application SAJ-2001-3434. The project is located at the North end of Keewaydin Island in Collier County, Florida, in Section 28, Township 50S, Range 25E.

The purpose of this survey is to assess the potential impacts to seagrasses or hardbottom habitats by the proposed erosion control structures. This survey will provide information to design the proposed project, and to determine if there will be any impacts to existing resources. The general scope of work performed at the site is summarized below.

1.) Humiston and Moore Engineers staff waded, snorkeled and used SCUBA equipment to dive the project area to determine the location & type of seagrass and hardbottom habitats that may be within the project area.
2.) Humiston and Moore Engineers photo documented the shoreline erosion and escarpment condition following tropical storm Fay. The escarpment top and bottom was located by Dagostino and Wood surveyors.
3.) Humiston and Moore Engineers collected representative beach sand samples from the project beach.

2.0 Survey Methodology

Paul Lewis, Environmental Scientist, and Steve Foge, Engineer, of Humiston and Moore Engineers performed the survey. The survey baseline and transects were set up by Dave Dagostino of Dagostino and Wood Inc. The area was inspected using SCUBA diving, snorkeling, and wading observation. The surf zone and shallow areas were surveyed by wading

with polarized sunglasses. The deeper areas of the transects were inspected by snorkeling and SCUBA diving. The transects were inspected seaward of the baseline a minimum of 300'. The transects and baseline used in the survey are shown in Figure 1.

3.0 Survey Results

Surface water conditions at the time of the survey were mostly calm, waves ranged from 1' to 2' during the entire survey. The water temperature was approximately 89°F. Visibility was fair, ranging between 3' and 6' during the entire survey. The survey baseline transects and limits of area surveyed are shown in Figure 1.
The bottom typically consisted of sand and shells. There were no hardbottom or seagrass resources observed during the survey. Visibility was limited during the survey, however, the area was consistently observed as only sand and shells. Other species observed during the water portion of the survey included Starfish (*class Asteroidea),* Sand dollars *(mellita spp.) and* Parchment worms (*Chaetopterus spp.*).

The results of this survey indicate that there will be no impacts to seagrass or hardbottom communities as a result of this project. This report was prepared by Paul Lewis of Humiston and Moore Engineers. Paul can be reached by email at plewis@humistonandmoore.com or by phone at 239-594-2021.

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1100 5TH AVE S STE 311
NAPLES, FL 34102

ADVENTURERS CLUB INC
% BARBARA EDGAR
1100 8TH AVE S
NAPLES, FL 34102

LIEBIG, WOLFGANG & ELKE A
1111 GALLEON DR
NAPLES, FL 34102

BLATT, RONALD D & ELISA T
1171 VALLEY RD
NEW CANAAN, CT 6840

GORDON RIVER HOTEL ASSOCS
1221 5TH AVE S
NAPLES, FL 34102

JOHNSON, ELDON E & PAMELA B
1231 GALLEON DR
NAPLES, FL 34102

FOLEY, NOEL K
1241 GALLEON DR
NAPLES, FL 34102

STUCKEY, HAROLD P
KATHERINE L STUCKEY
1251 GALLEON DR
NAPLES, FL 34102

MC CORD TR, HERBERT W
1299 GALLEON DR
NAPLES, FL 34102

WINDOVER FORT MYERS BEACH LLC
13 ELM ST
MANCHESTER, MA 1944

DRALLE, GREGORY A
DAVID L DRALLE JR
1300 CURLEW AVE
NAPLES, FL 34102

CENDES, ZOLTAN J & MARIE E
1300 GULFSTAR DR S
NAPLES, FL 34112

POWELL, WILLIAM R & PAULA W
1300 MARLIN DR
NAPLES, FL 34102

COMBS FISH COMPANY
1302 5TH AVE S
NAPLES, FL 34102

STEINBERG, DALE H & JOYCE B
1313 PELICAN AVE
NAPLES, FL 34102

KOTSCHENREUTHER, FRANKE A
1314 OSPREY AVE
NAPLES, FL 34102

BARNETT, WILLIAM E & CHRISTINE
1320 OSPREY AVE
NAPLES, FL 34102

PALMER, RONALD & MARGARET
1333 OSPREY AVE
NAPLES, FL 34102

HOWARD, COREY L & CYNTHIA J Y
1340 PELICAN AVE
NAPLES, FL 34102

KLETKWICZ, JOHN & BEVERLEY M
1343 OSPREY AVE
NAPLES, FL 34102

GREGG DEVELOPMENT / NAPLES INC
1345 5TH AVE S
NAPLES, FL 34102

WARD, GEORGE B & NANCY Y
1360 GULFSTAR DR S
NAPLES, FL 34112

FLYNN, ROBERT J & MARGARET A
1366 OSPREY AVE
NAPLES, FL 34102

DODD, RICHARD S & FRANCESCA M
1390 GULFSTAR DR S
NAPLES, FL 34112

P-M
14070 MCGREGOR BLVD
FORT MYERS, FL 33919

HALL TR, GLORIA B
GLORIA B HALL LIV/TR 2-13-96
1415 GALLEON DR
NAPLES, FL 34102

STAR, STANLEY A
ELIZABETH A STAR
1435 GALLEON DR
NAPLES, FL 34102

LA GRIPPE, JAMES A
1450 GULFSTAR DR S
NAPLES, FL 34112

CALDWELL TR, ROBERT J
1511 GALLEON DR
NAPLES, FL 34102

MORTON, EDWIN H & KRISTIN W
1515 DOLPHIN LN
NAPLES, FL 34102

GEIGER, ERICH A & BRIGITTA
1525 DOLPHIN LN
NAPLES, FL 34102

MATTIELLO, WARREN G & BONNIE C
1555 DOLPHIN LN
NAPLES, FL 34102

LEE, ALBERT S & TIFFANY
1578 ESCADRILLE DR
TALLAHASSEE, FL 32308

COSTELLO, JOHN
1580 DOLPHIN CT
NAPLES, FL 34102

FAUTH, JOHN JOSEPH
GEREN WATSON FAUTH
1599 GALLEON DR
NAPLES, FL 34102

POLISSENI, WANDA
16 BEAUCLAIRE LN
FAIRPORT, NY 14450

CITY OF NAPLES AIRPORT ATHRTY
160 AVIATION DR N
NAPLES, FL 34104

CHARLES E RAWLEY III QPR TRUST
JANICE T RAWLEY QPR TRUST
1611 GALLEON DR
NAPLES, FL 34102

COLEMAN, KEVIN G & BARBRA B
1620 DOLPHIN CT
NAPLES, FL 34102

STORER, JAMES P & DOLORES D
1629 BERKSHIRE RD
GATES MILLS, OH 44040

COLLINS, PHILIP N AND KIMBERLY A LARSON COLLINS
1640 DOLPHIN CT
NAPLES, FL 34102

ABBAZIO, FREDERICK J & JOETTA
1679 GALLEON DR
NAPLES, FL 34102

ALLEN, ARTHUR L
1680 GULF SHORE BLVD S
NAPLES, FL 34102

ARMSTRONG, C MICHAEL & S ANNE
1683 GALLEON DR
NAPLES, FL 34102

WINDSTAR MASTER ASSOC INC
1700 WINDSTAR BLVD
NAPLES, FL 34112

MCMUNN, CHARLES ANTHONY
PATRICIA LYTHGOE MCMUNN
1741 GALLEON DR
NAPLES, FL 34102

HARVEY JR, WILLIAM J
1777 GALLEON DR
NAPLES, FL 34102

LAUTENBACH, CYNTHIA R
1801 GALLEON DR
NAPLES, FL 34102

THREE PALMS DESIGN BUILD LLC
1810 GULF SHORE BLVD N APT 301
NAPLES, FL 34102

RIESS, ROBERT D & BARBARA J
1825 8TH ST S
NAPLES, FL 34102

DEVOE, MARK A & BERNADETTE
1843 8TH ST S
NAPLES, FL 34102

SENLER, TUFAN I & JACKIE F
18440 BRIDGEMORE LN
LOUISVILLE, KY 40245

FUEREDI, ADAM & MATHILDE
1857 GALLEON DR
NAPLES, FL 34102

BUTLER, PATRICK R & VIRGINIA C
1880 KINGFISH RD
NAPLES, FL 34102

BRITANNIC PROPERTIES INTNATL
1888 KINGFISH RD
NAPLES, FL 34102

STEPHENS, MICHAEL E
1896 KINGFISH RD
NAPLES, FL 34102

COYLE TR, CYNTHIA H
18TH AVE TRUST UTD 6/5/09
CHESTERFIELD, MO 63005

HORNE, JUDITH
1900 KINGFISH RD
NAPLES, FL 34102

BUONAVOLONTA, JAMES J
1901 GALLEON DR
NAPLES, FL 34102

RYAN, THOMAS A & PATRICIA J
1905 8TH ST S
NAPLES, FL 34102

GRIFFIN JR, GREGORY A
KRISTIN GRIFFIN
1920 TARPON RD
NAPLES, FL 34102

LUKE HOLDINGS LLC
1925 E GORDON DR
NAPLES, FL 34102

MUELLER, N SUE
1925 GALLEON DR
NAPLES, FL 34102

SMITH, WILLIAM L
JENNIFER G SMITH
1932 KINGFISH RD
NAPLES, FL 34102

BACHMANN, JACK
1942 KINGFISH RD
NAPLES, FL 34102

COUTURE, STEPHEN R
1947 GORDON RIVER LN
NAPLES, FL 34104

SOWERS, MALGORZATA EWA
1959 8TH ST S
NAPLES, FL 34102

GIDDENS, JOANNE N
1960 KINGFISH RD
NAPLES, FL 34102

ORR, SANDRA L
DEBRA A ORR
1974 KINGFISH RD
NAPLES, FL 34102

MATERNE, S KIRK & STUART M
1976 GALLEON DR
NAPLES, FL 34102

ANDREWS, JACK B
ROSE M ANDREWS
1991 8TH ST S
NAPLES, FL 34102

GAGLIANO, JOHN & JULIE
1993 8TH ST S
NAPLES, FL 34102

KAPNICK, SCOTT B & KATHLEEN G
20 E 73RD ST
NEW YORK, NY 10021

UCCI, PATRICK J
2026 7TH ST S
NAPLES, FL 34102

YEAGER JR, JOHN C & JILL T
2036 8TH ST S
NAPLES, FL 34102

WILSON, GARY K & SHARON L
2037 LAGUNA WAY
NAPLES, FL 34109

GRIFFIS, GWEN A
2080 KINGFISH RD
NAPLES, FL 34102

LAMBERSON, C DAVID & SHIRLEE
2100 KINGFISH RD
NAPLES, FL 34102

KELLER, DANIEL N & ANN L
2107 21ST CT S
NAPLES, FL 34102

LINDABURY, PAUL D & KATHLEEN N
2125 MARINA DR
NAPLES, FL 34102

STRUM, THOMAS R & DIANE N
2140 KINGFISH RD
NAPLES, FL 34102

TUCKER, MICHAEL S & RENEA M
2143 MARINA DR
NAPLES, FL 34102

EBEL, GEORGE F
SHIRLEY M EBEL
2160 KINGFISH RD
NAPLES, FL 34102

BOLLINGER, BRUCE & NANCY
2170 KINGFISH RD
NAPLES, FL 34102

WIESEN, SCOTT L
2180 KINGFISH RD
NAPLES, FL 34102

TAMULIS, WALTER W & CAROL A
2184 KINGFISH RD
NAPLES, FL 34102

BERE JR, JAMES F & SUSAN S
220 LIMEKILN DR
NEENAH, WI 54956

WESTBURY NELSONS WALK INC
2200 GORDON DR
NAPLES, FL 34102

WILLIAM F AVERY REV TRUST
KATHLEEN J AVERY REV TRUST
2200 KINGFISH RD
NAPLES, FL 34102

WELSH, MICHAEL A & HOLLY J
2211 MARINA DR
NAPLES, FL 34102

SORHEGUI, ROBERT & ANNA
2260 KINGFISH RD
NAPLES, FL 34102

ROBERTSON, WILLIAM S
2261 TROUT CT
NAPLES, FL 34102

WENKMAN, GREGORY J
2300 KINGFISH RD
NAPLES, FL 34102

MARINA MANOR III ASSOCIATION
C/O GULF VIEW PROPERTY MGT
2335 TAMIAMI TRL N STE 505
NAPLES, FL 34103

SHERBURNE, GILBERT P
PHYLLIS M SHERBURNE
2350 KINGFISH RD
NAPLES, FL 34102

THALHEIMER, SELDA
2360 KINGFISH RD
NAPLES, FL 34102

COLON, GARY P & KELLY A
2370 KINGFISH RD
NAPLES, FL 34102

PASSIDOMO, MICHAEL A
2475 SANTA BARBARA BLVD
NAPLES, FL 34116

FAISON, WILLIAM F & SUSAN P
2555 TARPON RD
NAPLES, FL 34102

WILDNER, WILLIAM M & COLLEEN B
2575 TARPON RD
NAPLES, FL 34102

HUSSEY, KEITH P & JOANNE M
2585 TARPON RD
NAPLES, FL 34102

DEL DUCA, MICHAEL & DAWN
2595 TARPON RD
NAPLES, FL 34102

MILLER, MARK H & DARLENE
2605 TARPON RD
NAPLES, FL 34102

SCHWARTZ, THOMAS E
KATHERINE M BRAYTON
2610 TARPON RD
NAPLES, FL 34102

JOHNSON, PAMELA L
TIMOTHY NELSON
2621 TARPON RD
NAPLES, FL 34102

MORRILL TR, ERNEST GRAVES
LENORE FRANCES MORRILL TR
2645 TARPON RD
NAPLES, FL 34102

LICHY, DALE M & BARBARA
2651 TARPON RD
NAPLES, FL 34102

KNAUST, HENRY E
2655 TARPON RD
NAPLES, FL 34102

NASSIF, DAVID E & DIANE R
28 SALT SPRAY LN
CAPE ELIZABETH, ME 4107

PATON, AMELIA E
3 EMS T33 LN
LEESBURG, IN 46538

HAMILTON HARBOR MARINA INC
3003 TAMIAMI TRL N
NAPLES, FL 34103

COLLIER CNTY
COLLIER CO COURTHOUSE
3301 TAMIAMI TRL E BLDG F
NAPLES, FL 34112

Joseph and Jaye Semrod
333 Cove Ln.
Naples, FL 34102-7902

MCKECHNIE, THOMAS & KAREN
3510 WILDERNESS TRL
LOUISVILLE, KY 40299

REMINGTON, JOHN D & JACKIE S
3525 GORDON DR
NAPLES, FL 34102

BASIL STREET PARTNERS LLC
3530 KRAFT RD STE 300
NAPLES, FL 34105

SOLIMENE, MICHAEL P
3685 NELSONS WALK
NAPLES, FL 34102

EVANOVICH, PETER J & JANET S
3695 NELSONS WALK
NAPLES, FL 34102

MAPLE CITY BUILDERS LLC
371 CLEVELAND RD
NORWALK, OH 44857

TIITF/ST OF FL
% DEP DOUGLAS BLDG
3900 COMMONWEALTH BLVD
TALLAHASSEE, FL 32399

VINCENT INVESTMENTS LIMITED
C/O GERMAN SERVICES, INC.
3960 RADIO RD STE 208
NAPLES, FL 34104

PRATT, ARTHUR D & SALLY
4005 RUM ROW
NAPLES, FL 34102

THORNTON, JOHN T & PATRICIA C
4100 RUM ROW
NAPLES, FL 34102

Joseph G Fogg III
Leslie Kirk Solbert Fogg
4295 Cutlass Ln.
Naples, FL 34102-7960

William E. Bindley Trust
4301 Cutlass Lane
Naples, FL 34102-7902

David L. Coffin Est.
c/o Bank of America NA PR
4305 Cutlass Ln.
Naples, FL 34102-7943

HALFMOONWALK LLC
4500 MUCHMORE RD
CINCINNATI, OH 45243

GLORIA J CHRISTNER FMLY LLC
4525 E 100TH ST
TULSA, OK 74137

BAYFRONT INC
465 BAYFRONT PL
NAPLES, FL 34102

YANOWITZ, MARK R & CARRIE L
5 COBBLEFIELD RD
MENDHAM, NJ 7945

POHLMANN JR TR, HERBERT CHAS
UTD 6-15-90
501 GOODLETTE RD N STE D100
NAPLES, FL 34102

LEVINE, JULES B
505 E BAY DR
LONG BEACH, NY 11561

HARTMAN, JEFFREY R
505 S 5TH ST
CHAMPAIGN, IL 61820

ZAISER, LENOIR E & WANDA
550 ADMIRALTY PARADE
NAPLES, FL 34102

PORT O'CALL OF NAPLES INC
550 PORT O CALL WAY
NAPLES, FL 34102

ROSEMURGY, DAVID C
5519 CARUTH BLVD
DALLAS, TX 75209

DRACKETT, LU M
555 ADMIRALTY PARADE
NAPLES, FL 34102

GOODLETTE ROAD LP
5610 YAHL ST STE 6
NAPLES, FL 34109

SCHIFF JR, ROBERT C & DAWN W
5695 DRAKE RD
CINCINNATI, OH 45243

SRS FLORIDA HOLDINGS LLC
5700 6TH AVE
ALTOONA, PA 16602

PRYM EST, LIESELOTTE
% MICHAEL H REYNOLDS PR
590 ADMIRALTY PARADE W
NAPLES, FL 34102

PFLEEGER, JAMES E & DONNA L
5N536 FOXMOOR DR
SAINT CHARLES, IL 60175

AUTERA, MICHAEL E & MARTHA T
605 ADMIRALTY PARADE
NAPLES, FL 34102

MONROE ET AL, VICKI LYNN
615 CHURTON GROVE BLVD
HILLSBOROUGH, NC 27278

TRIGG DR, DAVID D & KAREN L
6158 STATE ROAD 144
GREENWOOD, IN 46143

EVANOVICH, PETER S
700 ADMIRALTY PARADE
NAPLES, FL 34102

TAUB, STEPHEN GERALD
715 RIVERA DR PO BOX 11419
NAPLES, FL 34101

BAHNMAN, ALVIN G
7316 BELL SCHOOL LINE
MILTON, CA

SHAFFER, EVELYN
7331 TILDEN LN
NAPLES, FL 34108

CIOFFI, RALPH & PHYLLIS
734 FLOYD ST
ENGLEWOOD CLIFFS, NJ 7632

CITY OF NAPLES
735 8TH ST S
NAPLES, FL 34102

NAPLES BAY BOAT DOCK ASSOC
745 12TH AVE S STE AA
NAPLES, FL 34102

GARATONI, LAWRENCE H
JUDITH A GARATONI
753 RIVER POINTE PL
MISHAWAKA, IN 46544

RODRIGUEZ, RICARDO
MARJORIE E STONE
785 ADMIRALTY PARADE
NAPLES, FL 34102

OLDE NAPLES SEAPORT LLC
792 BROAD AVE S
NAPLES, FL 34102

HAMSTRA, GEORGE & ARLENE
7981 W 1100 N
DEMOTTE, IN 46310

ROONEY III, LAURENCE FRANCIS
KATHLEEN C ROONEY
800 ADMIRALTY PARADE E
NAPLES, FL 34102

FEHRENBACH, ALICE I
801 GALLEON DR
NAPLES, FL 34102

HEALY, JAMES D & KATHY J
8019 W 124TH ST
PALOS PARK, IL 60464

LORENZEN, KYLE
810 RIVER POINT DR
NAPLES, FL 34102

HIDY, DAVID D & CAROL C HIDY
818 NELSONS WALK
NAPLES, FL 34102

YAWNEY, EDWARD T & SUSAN O
820 JAMAICA LN
NAPLES, FL 34102

YEAGER, C CHAD
820 RIVER POINT DR
NAPLES, FL 34102

STANCO, ERIC R
830 RIVER POINT DR
NAPLES, FL 34102

FERGUS II TR, JOHN C
RONDA HARTMAN FERGUS TR
8377 GREEN MEADOWS DR N STE A
LEWIS CENTER, OH 43035

SANSBURY, THOMAS WALTER
840 RIVER POINT DR
NAPLES, FL 34102

ROBINSON, CHARLES SEAVER
845 ADMIRALTY PARADE
NAPLES, FL 34102

RALTON, KENNETH & HERIETTE
854 21ST CT S
NAPLES, FL 34102

SHERMAN, MICHAEL H
868 NORTH ST
GREENWICH, CT 6831

ALAN FRASER HOMES CORP
C/O HUNTINGTON BANK
8889 PELICAN BAY BLVD STE 101
NAPLES, FL 34108

NAPLES SAILING CLUB INC
896 RIVER POINT DR
NAPLES, FL 34102

MURRAY, ROBERT
HELEN MURRAY
899 DICK RD
WAVERLY, OH 45690

RING, PATRICIA TAYLOR
900 ADMIRALTY PARADE
NAPLES, FL 34102

HELLER, ALEXANDRA EVANOVICH
901 GALLEON DR
NAPLES, FL 34102

NAPLES BOAT CLUB MASTER ASSN
909 10TH ST S # 101
NAPLES, FL 34102

NBC BUILDING TWO LLC
909 10TH ST S STE 105
NAPLES, FL 34102

DEL BELLO, RICHARD P
PATRICIA K DEL BELLO
921 GALLEON DR
NAPLES, FL 34102

GARIPPA, JOHN E & LINDA T
925 ADMIRALTY PARADE
NAPLES, FL 34102

HOBBS, JANIS A
935 ADMIRALTY PARADE
NAPLES, FL 34102

COX JR, EDWARD A & ROSEMARY T
950 ADMIRALTY PARADE
NAPLES, FL 34102

BOTHE, STEFAN & JENNIFER CHENG
950 NELSONS WALK
NAPLES, FL 34102

PADLO, LAWRENCE E & VICKI P
953 18TH AVE S
NAPLES, FL 34102

NYCUM, MICHAEL W
963 18TH AVE S
NAPLES, FL 34102

DAVID M LOCKTON QPR TRUST
MARY D LOCKTON QPR TRUST
974 ADMIRALTY PARADE
NAPLES, FL 34102

HCP PROPERTIES INC
974 PAVILION ST
CINCINNATI, OH 45202

GRATZ, GEORGE O & DIANE
980 NELSONS WALK
NAPLES, FL 34102

BURGER, ROBERT
989 ADMIRALTY PARADE E
NAPLES, FL 34102

BUYSSE, LIANA M
989 AQUA CIR
NAPLES, FL 34102

BUECHEL JR, FREDERICK F and JEANNE
990 17TH AVE S
NAPLES, FL 34102

KLINGLER, RICHARD & PAULINE
996 ADMIRALTY PARADE
NAPLES, FL 34102

MC KINLAY, CAROL G
999 ADMIRALTY PARADE
NAPLES, FL 34102

BUECHEL, FREDERICK F
999 AQUA CIR
NAPLES, FL 34102

BROWN, JOANNE D
99B MAIN ST
W HAMPTON BCH, NY 11978

STECHL, WOLFRAM & CHRISTINE
ATTLERAU 6
WASSERBURG, GE

HOLY, JOCHEN
HINDENBURG STR 15
METZINGEN, GE

Vivian and Dominki Oliver
Holy Florida GBR
HINDENBURGSTRASSE 15
METZINGEN
GERMANY 72555

SOUTHPOINTE AT WINSTAR MARINA
ASSOCIATION INC
PO BOX 110339
NAPLES, FL 34108

ISLAND AT SOUTHPOINTE
HOMEOWNERS ASSOCIATION INC
PO BOX 11553
NAPLES, FL 34101

LOFGREN TR, DARLENE S
ITF D S LOFGREN REV/TR 3-10-92
PO BOX 1500
NAPLES, FL 34106

SAMPLE TR, JOSEPH S
JOSEPH S SAMPLE 1976 TRUST
PO BOX 279
BILLINGS, MT 59103

SEXTON, DAVID N & PATRICIA A
PO BOX 336
NAPLES, FL 34106

FERRY, WILLIAM P
PATRICIA A PATTERSON
PO BOX 750
NAPLES, FL 34106

NEFAM LLC
UHLENGRUND 13H
BUCHHOLZ, GE