

**JOINT COASTAL PERMIT APPLICATION
SINGER ISLAND EROSION CONTROL PROJECT**

**PREPARED FOR
PALM BEACH COUNTY, FL**

**PREPARED BY
HUMISTON & MOORE ENGINEERS**

**H&M FILE 14-011
SUBMITTED JUNE 30, 2006**



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19.SIGNATURE(S)

A. By signing this application form, I am applying, or I am applying on behalf of the applicant, for the permit and any proprietary authorizations identified above, according to the supporting data and other incidental information filed with this application. I am familiar with the information contained in this application and represent that such information is true, complete and accurate. I understand this is an application and not a permit, that work prior to approval is a violation, and any permit issued or proprietary authorization issued pursuant thereto, does not relieve me of any obligation for obtaining any other required federal, state, water management district or local permit prior to commencement of construction. I agree, or I agree on behalf of my corporation, to operate and maintain the permitted system unless the permitting agency authorizes transfer of the permit to a responsible operation entity. I understand that knowingly making any false statement or representation in this application is a violation of Section 373.430, F.S. and 18 U.S.C. Section 1001.

Kenneth K. Humiston P.E. Humiston & Moore Engineers

Typed/Printed Name of Applicant (If no Agent is used) or Agent (If one is so authorized below)

Kenneth Humiston

June 30, 2006

Signature of Applicant/Agent

Date

(Name of political subdivision, municipality, or business entity and title of person signing on its behalf, if applicable)

AN AGENT MAY SIGN ABOVE ONLY IF THE APPLICANT COMPLETES THE FOLLOWING:

B. I hereby designate and authorize the agent listed above to act on my behalf, or on behalf of my corporation, as the agent in the processing of this application for the permit and/or proprietary authorization indicated above; and to furnish, on request, supplemental information in support of the application. In addition, I authorize the above-listed agent to bind me, or my corporation, to perform any requirement which may be necessary to procure the permit or authorization indicated above. I understand that knowingly making any false statement or representation in this application is a violation of Section 373.430, F.S. and 18 U.S.C. Section 1001.

Richard E. Walesky

Typed/Printed Name of Applicant

Richard E. Walesky

Signature of Applicant

6/28/06

Date

Director, Palm Beach County Department of Environmental Resources Management

(Name of political subdivision, municipality, or business entity and title of person signing on its behalf, if applicable)

Please note: The applicant's original signature (not a copy) is required

PERSON AUTHORIZING ACCESS TO THE PROPERTY MUST COMPLETE THE FOLLOWING:

C. I either own the property described in the application or I have legal authority to allow access to the property, and I consent, after receiving prior notification, to any site visit on the property by agents or personnel from the Department of Environmental Protection and the U.S. Army Corps of Engineers necessary for the review and inspection of the proposed project specified in this application. I authorize these agents or personnel to enter the property as many times as may be necessary to make such review and inspection. Further, I agree to provide entry to the project site for such agents or personnel to monitor permitted work if a permit is granted.

Typed/Printed Name of Applicant

Signature of Applicant

Date

(Name of political subdivision, municipality, or business entity and title of person signing on its behalf, if applicable)

Item 10. Have you obtained approval from the Department of State, Division of Historical Resources?

It is requested that the Division of State Lands conduct a title check for the project area.

Item 11. Has an Erosion Control Line been established pursuant to Sections 161.141 – 161.211, Florida Statutes?

An Erosion Control Line has not yet been established at the time of this application.

Item 12. Are you requesting authorization to use Sovereign Submerged Lands?

The proposed design requires the use of sovereign submerged lands for the breakwater and reef construction. We are requesting the authorization from the Florida Department Environmental Protection to use Sovereign Submerged Lands.

Item 13. A copy of the Division of State Lands title determination. If you do not have title determination, department staff will request that the Division of State Lands conduct a title check.

It is requested that the Division of State Lands make a title determination for this project area.

Item 14. Written evidence of title to the subject riparian upland property in the form of the recorded deed, title insurance, legal opinion of title, or a long term lease which specifically includes riparian rights. Evidence submitted must demonstrate that the applicant has sufficient title interest in the riparian upland property. If the applicant is not the property owner, then authorization for such use from the property owner must be provided.

The applicant is Palm Beach County, and the activity will take place on sovereign submerged land seaward of mean high water. A list of the riparian upland property owners landward of the project is provide under item 16.

Item 15. A detailed statement describing the existing and proposed upland uses and activities. For projects sponsored by a local government, indicate whether or not the facilities will be open to the general public. Provide a breakdown of any user fees that will be assessed to the general public and indicate whether or not such user fees will generate revenue or will simply cover costs associated with maintaining the facilities.

A section of upland property within the project area is a Palm Beach County recreational beach park. That use is expected to continue as recreational and be enhanced through improved beach recreation and storm protection as a result of this project. The facilities are open to the general public and no user fees are assessed to the general public.

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Item 16. A list of the names and addresses of owners of all riparian property within 1,000 feet (and within a 500 ft radius) of the proposed coastal construction, from the latest county tax roll. If the property is under cooperative or condominium ownership, the name and mailing address of the cooperative or condominium association will be adequate.

A list of all riparian property within 1000 feet of the proposed project will be provided.

Item 17. Written evidence, provided by the appropriate governmental agency having jurisdiction over the activity, that the proposed activity, as submitted to the Department, is consistent with the state-approved Local Comprehensive Plan.

A letter of local project consistency with the state-approved Palm Beach County Comprehensive Plan for the project is included as Attachment 17.

Item 18. A fee, as set forth in Rule 62B-49.006, Florida Administrative Code.

In accordance with Subsection 62B-41.0085(3), Florida Administrative Code, the fee is estimated to be \$31,955, as illustrated below. Verification of the fee is requested.

Permit Fee Calculation

| | |
|---|------------|
| 1st 100 feet | \$2,000.00 |
| Each Additional 500 feet or portion thereof | \$500.00 |

| Structure Length (in feet) | Initial 100 feet | Remaining Length | Total Cost | |
|-------------------------------|---------------------|-------------------------|---------------|-------------|
| 1 | 270 | \$2,000.00 | \$1,700.00 | \$4,000.00 |
| 2 | 320 | \$2,000.00 | \$2,200.00 | \$4,500.00 |
| 3 | 340 | \$2,000.00 | \$2,400.00 | \$4,500.00 |
| 4 | 361 | \$2,000.00 | \$2,610.00 | \$5,000.00 |
| 5 | 361 | \$2,000.00 | \$2,610.00 | \$5,000.00 |
| 6 | 361 | \$2,000.00 | \$2,610.00 | \$5,000.00 |
| 7 | 361 | \$2,000.00 | \$2,610.00 | \$5,000.00 |
| 8 | 361 | \$2,000.00 | \$2,610.00 | \$5,000.00 |
| 9 | 361 | \$2,000.00 | \$2,610.00 | \$5,000.00 |
| 10 | 361 | \$2,000.00 | \$2,610.00 | \$5,000.00 |
| 11 | 361 | \$2,000.00 | \$2,610.00 | \$5,000.00 |
| 12 | 361 | \$2,000.00 | \$2,610.00 | \$5,000.00 |
| 13 | 320 | \$2,000.00 | \$2,200.00 | \$4,500.00 |
| 14 | 492 | \$2,000.00 | \$3,920.00 | \$6,000.00 |
| | | Total | | \$68,500.00 |
| | | Palm Beach County's 50% | | \$34,250.00 |

Item 19. SIGNATURE(S)

A signature sheet is included in the application.

Item 20. Two copies of a topographic and bathymetric survey drawing of the proposed project site in accordance with Rule 62B-41 .007(1)(h), F.A.C. Identify the elevation of the mean high water and mean low water referenced to NGVD for each wetland or surface water site and the source of the tidal datum information.

To be provided.

Item 21. Provide a legal description of all property involved including sovereign submerged land used in carrying out the project.

A legal description of the property involved using sovereign submerged lands is included as Attachment 21.

Item 22. Describe how boundaries of wetlands or other surface waters were determined. If there has ever been a jurisdictional declaratory statement, a formal wetland determination, a formal determination, a validated informal determination, or a revalidated jurisdictional determination, provide the identifying number.

The wetland boundaries have been established through the delineation of mean high water as shown on the enclosed permit drawings. The project involves the construction of 13 breakwater segments and one artificial reef approximately 200' off of the beach. The proposed project will be located in the nearshore waters approximately between DEP Reference Monument R-61 and 500 feet south of DEP Reference Monument R-67 on Singer Island.

There is no jurisdictional wetland vegetation within the project limits.

Item 23. An engineering description or as-built drawings, if available, of any existing structures on the site which may be directly or indirectly affected by, or which may directly or indirectly affect, the proposed activity.

There are four seawalls within the project area, and one additional seawall application under review at the time of this application. The proposed activity is not expected to affect those structures, other than to improve beach stability in the vicinity of those structures. The seawall locations are shown on the application drawings included as attachment 25..

- 24. Two complete sets of construction plans and specification for the proposed activity, certified by an engineer duly registered pursuant to Chapter 471, Florida Statutes. The plans shall include the following:**
- a. Plan view of the proposed activity depicting the mean high-water line, any easement boundary, or the erosion control line, within the area of influence of the proposed activity. Identify the boundaries of significant geographical features (e.g., channels, shoals) and natural communities (e.g., submerged grass beds, hardbottom, or mangroves) within the area of influence of the activity.**
 - b. A sufficient number of elevation views of the proposed activity depicting the mean high-water line, any easement boundary, and the erosion control line, within the area of influence of the proposed activity. Identify the boundaries of significant geographical features and natural communities in the area of influence of the proposed activity.**
 - c. Details of construction, including materials and general construction procedures and equipment to be used (e.g., construction access, dredging method, dredged material containment, pipeline location).**

Full size construction plans will be provided. For the purpose of initiating review of this application, enclosed as attachment 25 are two sets of signed and sealed 8 ½ x 11 inch permit drawings for the proposed segmented breakwater and artificial reef are included.

- 25. In addition to the full-size drawings requested above, the information required under Paragraphs (20), (23) and (24) above shall be provided on 8 1/2-inch by 11-inch paper.**

Enclosed are two signed and sealed 8 ½" x 11" permit drawings. The survey requested under (20) will be provided separately. The information requested under (23) is on the permit drawings.

- 26. An aerial map of a scale of 1" = 200', showing: the project boundaries, DNR Reference Monument locations, major county landmarks, and special aquatic or terrestrial sites (parks, sanctuaries, refuges, etc.) within the project boundary and one quarter mile in both shore parallel directions of the project boundary;**

Enclosed is a rectified aerial photograph at a scale of 1"=200' showing the project with DEP Reference Monuments, project boundary and adjacent areas extending up to one quarter mile in both directions.

- 27. A proposed construction schedule.**

It is anticipated that construction will commence within approximately 6 months of receipt of permits and construction will take approximately two years to complete.

28. Permit applications for excavation or fill activities shall include the following detailed information concerning the material to be excavated:

- a. **Core boring logs and sediment grain size analyses from representative points throughout the area to be excavated. Logs should extend at least two feet below the proposed bottom elevation. The depth of each visible horizon in the log should be reported relative to NGVD and the material in each stratum classified according to grain size.**
- b. **Particle size analysis to the sediment and a measure of the percent organics by dry weight. Gradation curves should be produced from sieve analysis of each stratum in the core. Grain size distribution must be determined down to the standard unit 200 sieve size.**
- c. **Chemical analyses shall be required if there is reason to suspect that the sediments are contaminated.**

Not applicable.

29. Using an established natural community classification system, describe each natural community within the area of influence of the proposed activity and include:

- a. **Acreage.**
- b. **Identification of the flora and fauna to the lowest taxon practicable.**
- c. **Characterization of dominant and important flora and fauna and estimates of percent biotic cover.**
- d. **Sampling locations, date of sampling or measurements; and methods used for sampling.**

a) The project area includes natural hardbottom. The amount of hardbottom evident at any given time is dependent on local sand budget and prevailing weather conditions as littoral drift covers portions of the rock substrate while other portions are exposed. The amount of exposed hardbottom had been mapped from six different aerial photographic surveys between 1993 and 2005. The amount of exposed hardbottom varies from 4 acres to 26 acres. As shown in Attachment 29 Figures 1 through 6. Analysis of these 6 hardbottom maps indicates that some areas are more persistently exposed than others. Figure 7 illustrates the most persistently exposed hardbottom, defined as the hardbottom which was found to be exposed on three or more of the surveys, which consists of approximately 8.9 acres.

b) A detailed study of the natural communities in the project area has not been completed, however, an April 2005 Nearshore Artificial Reef Monitoring report prepared for Palm Beach County Department of Environmental Resource Management by Continental Shelf Associates provides relevant data from the MacArthur Park beach nearshore hardbottom. The MacArthur Park hardbottom is immediately north of and contiguous with the hardbottom in the project area, and is part of the same geological feature which comprises the hardbottom in the project area. Additionally, the report uses the MacArthur Park hardbottom as being characteristic of natural nearshore hardbottom for a study which evaluates the performance of artificial hardbottom sites at several locations throughout Palm Beach County. The data for the MacArthur Park beach hardbottom is therefore considered to be representative of the hardbottom in the project area.

A copy of the 2005 report which includes data on the flora and fauna of this hardbottom area is included in Attachment 29b.

Attachment 29 describes the epibiota of the natural hardbottom as very dynamic, showing considerable variation among surveys. Taxa, including macroalgae and worm rock, are ephemeral, reaching high values during certain seasons and

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being totally absent during others. This reflects the physically dynamic nature of the nearshore environment in which there is frequent burying and uncovering of hardbottom.

- c) The predominant taxon for MacArthur Park hardbottom is turf algae with coverage of 40%, followed by microalgae represented by green algae and brown algae. The epibiota also include sponges, hydrozoans, encrusting bryozoans, and ascidians. No stony corals or octocorals were observed. The percent biotic cover for MacArthur Park Beach is given in Table 4 of Attachment 29b.
- d) Sampling locations, dates and procedures are provided in Attachment 29b.

30. Detailed information on season of occurrence, density, and location of threatened or endangered species whose range occurs within the proposed activity.

John D. MacArthur State Park lies immediately to the north of the project area. A The Unit Management plan for the park provides some information on listed species for the area which borders the north side of the project area.

The Unit Management Plan lists three species of federally listed sea turtles, Loggerhead, Leatherback and Green turtles, which use the beach for nesting. Most nesting activity occurs between April and September, peaking in late June through mid-July. Two other species that have been observed in park waters, the Hawks Bill and Kemps Ridley.

The Unit Management Plan also lists the Florida Manatee as commonly being observed in park waters, and Least Terns and Black Skimmers as foraging in marine and estuarine waters surrounding the park. However, the park includes the Lake Worth waterfront as well as the Atlantic Ocean waterfront, and the Management Plan does not report to what extent such sightings may have occurred on Lake Worth, as opposed to the Atlantic Ocean beach which is adjacent to the project area.

Appendix 5 of the Unit Management plan provides a listing of species and ranking according to the U.S. Fish and Wildlife Service (USFWS), the Florida Wildlife Conservation Commission (FWC), and the Florida Natural Areas Inventory (FNAI) for species observed at this State Park.

Use of the adjacent park by various species does not imply the same level of use by those species of the adjacent heavily developed project area to the south. Where beach conditions are suitable, sea turtle nesting does occur, and coastal water birds may also forage along the project beach. It is anticipated that the proposed activity will improve the project beach as habitat for use by these species.

Attachment 30 is a copy of the April, 2005 John D. MacArthur Beach State Park Unit Management Plan prepared by the DEP Division of Recreation and Parks. Addendum #4 in the report provides a listing of recorded plants and animals located in the general vicinity of the project site.

31. Results of available wildlife surveys that have been conducted on the site, and any comments pertaining to the proposed activity from the Florida Game and Fresh Water Fish Commission and the U.S. Fish and Wildlife Service.

A summary of Sea turtle nest monitoring data collected by a volunteer organization is provided in Attachment 31.

The FWC and FWS have not yet provided any comments.

32. A general description of all commercial and recreational fisheries, diving regions, and other recreational uses within the area of influence of the proposed activity.

Attachment 32 is Chapter 3 of The Socioeconomic Study of the Reefs in Southeast Florida, performed by Hazen and Sawyer Environmental Engineers & Scientists. This chapter outlines the use and value of the nearshore reefs in Palm Beach County, based on direct and indirect benefits from fishing, scuba diving and snorkeling. There are 32 artificial reefs in the waters off Palm Beach County, and approximately one third of the economic contribution of reef-related recreational pursuits off the Palm Beach County coast is attributed to the use of artificial reefs. This project will create additional hardbottom and artificial reef recreational opportunities, and the artificial reef at the south end of the project will also enhance recreational opportunities for surfers using the beaches in the vicinity of the County's Ocean Reef Park.

33. Analysis of the expected effect of the proposed activity on the coastal system including but not limited to:

a. Analysis of the expected effect of the proposed activity on the existing coastal conditions and natural shore and inlet processes.

The project is designed to reduce erosion stress along 1.5 miles of severely eroded shoreline. It is expected that beach salients will worm in the lees of each breakwater segment, but the combination of offshore distance with ratio of segment length to gap width will not result in the formation of tombolos. Additionally, the low crest of the breakwater segments will allow a significant amount of wave overtopping so that littoral transport will continue throughout the project area, but the transport gradient that has contributed to erosion will be reduced.

b. Analysis of the compatibility of the fill material with respect to the native sediment at the disposal site. The analysis should include all relevant computations, the overfill ratios, and composite graphs of the grain-size distribution of the fill material and the native sediment at the disposal site.

Not applicable to this project

c. Demonstration of consistency with an inlet management plan or a proposed draft inlet management plan in accordance with Rule 62B-41.005(16), F.A.C. If the proposed project is not included in the inlet management plan the applicant will provide the information specified in Rule 62B-41.008(1)(m), F.A.C.

The Inlet Management Plan for Lake Worth Inlet, adopted in November 1996, does not make any recommendations for the project area which lies approximately 7,500 feet north of the inlet. This item is therefore not applicable to this project

- d. Analysis of how water quality and natural communities will either be impacted, undisturbed, preserved or maintained within the area of influence of the proposed activity with an estimate of the affected acreage of each impacted community.**

Water quality will not be affected by this project other than the normal short term effects of temporary turbidity associated with construction of rubble mound structures.

The project area includes natural hardbottom. The amount of hardbottom evident at any given time is dependent on local sand budget and prevailing weather conditions as littoral drift covers portions of the rock substrate while other portions are exposed. The amount of exposed hardbottom had been mapped from six different aerial photographic surveys between 1993 and 2005. The amount of exposed hardbottom varies from 4 acres to 26 acres. As shown in attachment 29a-1 thru 29a-6. Analysis of these 6 hardbottom maps indicates that some areas are more persistently exposed than others. Figure 7 illustrates the most persistently exposed hardbottom, defined as the hardbottom which was found to be exposed on three or more of the surveys, consists of approximately 8.9 acres.

34. Describe the location and details of the erosion, sediment and turbidity control measures to be implemented during each phase of construction and all other measures used to minimize adverse affects to water quality.

The project area has been eroding at approximately 15 feet per year since 2001. The erosion escarpment has advanced to within a few feet of several of the condominiums. Seawalls have been constructed to protect some of the upland properties, and unless the erosion problem is addressed, the entire project area may end up with seawalls and no beach. The rock that will be placed in constructing the segmented breakwater will be clean and turbidity is not expected to be a problem during construction.

35. Describe any methods proposed to protect threatened or endangered species.

The following measures are proposed to protect threatened or endangered species:

1. The construction will take place offshore from barges and is not expected to interfere with turtle nesting.
2. Standard manatee protection conditions will be included as part of the technical specifications for the contractor.

36. A written statement providing the necessity and justification for the potential impacts to the coastal ecosystem which may be caused by the proposed coastal construction.

The project area has been eroding at approximately 15 feet per year since 2001. The erosion escarpment has advanced to within a few feet of several of the condominiums. Seawalls have been constructed to protect some of the upland properties, and unless the erosion problem is addressed, the entire project area may end up with seawalls and no beach. The rock that will be placed in constructing the segmented breakwater will be clean and turbidity is not expected to be a problem during construction.

37. A narrative description of any proposed mitigation plans, including purpose, maintenance, monitoring, estimated cost, construction sequence and techniques.

The most significant potential impact is the covering of some natural hardbottom by the beach salients in the lee of the breakwater segments, and the covering of some natural hardbottom by the foundation of the breakwater segments themselves. However, the structures are to be built using native limestone will mitigate for the impacts to natural hardbottom. Of the estimated 8.9 acres of hardbottom in the project area, approximately 6.3 acres will be covered due to shoreline response to the structures and .05 acres will be covered by the structures themselves. The rock structures will create approximately 14.6 acres of hardbottom, a mitigation ratio of approximately 2.3:1.

The majority of the natural hardbottom lies between depths of -7 feet and -16 feet NGVD. The structures will create approximately 14.6 of the new hardbottom within this depth range. The structures will create a total of XXX acres of hardbottom between 0.0 and -16.0 NGVD,

38. An analysis of available alternatives to the proposed coastal construction, on meeting the stated performance objectives and any related affects on the coastal system.

Not addressing the erosion problem would be expected to result in continued severe erosion and ultimately the construction of seawalls throughout the project area. The preferred alternative to erosion control structures is beach restoration, however, in this project area the amount of hardbottom that would be covered by the necessary amount of beach fill would be unacceptable. Beach fill was therefore eliminated as an alternative.

Various groin, T-groin, and breakwater configurations were considered. The proposed segmented breakwater was determined to be the most effective for achieving the project goal of stabilizing the beach while minimizing impact to the natural hardbottom, and the breakwaters segments and artificial reef will create hardbottom in compensation for the natural hardbottom that will be impacted.