

**Responses to DEP Request for Additional Information (RAI #1) Dated 11-26 08
JCP File Number: 0163447-002-JC, Martin County
Applicant Name: Martin County
Project Name: Bathtub Beach Restoration**

This document and related attachments provide responses to the RAI of 11-26 08 for JCP File Number 0163447-002-JC, Martin County Bathtub Beach Restoration. The document shows questions and comments provided by DEP single-spaced in italic and regular typeface (as provided by DEP in their RAI letter). This document and related attachments provide Martin County responses. Within this document, bold typeface with line spacing of 1.5 lines indicates Martin County responses. The RAI refers to specific numbered items in the JCP application, and the Martin County responses are likewise numbered.

12. Has an Erosion Control Line been established pursuant to Sections 161.141 - 161.211, F.S.? If yes, please provide evidence that the ECL has been recorded and show the location of the established ECL on all appropriate drawings.

This item is complete. The Department has determined that an erosion control line will be required for this project. If you wish for assistance in establishing the ECL, the Project Manager in the Bureau's Beach Erosion Control Program (Mr. Wagner Yajure) may be able to help guide you through the process.

RAI #12 Response

The County is currently pursuing establishment of an Erosion Control Line (ECL). We request that the DEP consider the completion of the ECL process as a permit notice-to-proceed-item rather than delaying work to complete other permit review efforts during completion of the ECL process.

After discussions and email exchanges with staff of the Bureau of Beaches and Coastal Systems, (BBCS) including Merrie Neely and Wagner Yajure, and with Mr. Lamar Evers, Division of State Lands Survey and Mapping, we propose the following approach:

- **Martin County will send the ECL survey, performed by Morgan and Eklund Surveyors, to Mr. Evers, who will coordinate with the BBCS.**

- **Martin County will coordinate other ECL establishment activities through BBCS.**

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. The Bureau has requested a title determination from DSL on your behalf, but is still awaiting the results. No action is needed from you at this time.

RAI #13 Response
No Response Required

18.C. Signature of person authorizing access to the property; name of political subdivision, municipality, or business entity; and title of person signing on its behalf.

This signature was not provided. Please submit a signed copy of this page.

RAI #18c Response

The County will provide this signature page in a separate letter.

24. In addition to the full-size drawings requested above, the information required under Paragraphs (20), (22) and (23) above shall be provided on 8 1/2-inch by 11-inch paper, certified by an engineer duly registered pursuant to Chapter 471, Florida Statutes. Each drawing shall include an accurate scale or dimensions, and all information shown on the drawing shall be clearly legible.

Please add the R-35 profile in the design permit drawing for future submittals.

The Borrow Site drawings (D-1 to D-4) are marked "Draft." Please submit signed/sealed copies of these drawings, preferably with an index sheet.

Please identify the location of all potential staging and storage areas for the dredging and beach construction equipment, preferably called out on a recent aerial photograph.

RAI #24 Response

See Attachment A for the revised, signed, and sealed drawings. Note that drawing set has one index sheet (first page) that lists the signed and sealed drawings for the beach area (B1-B9) and for the proposed borrow area. and the Borrow Site Drawings (D1-D4).

27. Permit applications for excavation or fill activities shall include the following detailed information concerning the material to be excavated and the existing or native material at the beach fill site:

e. Representative physical samples and particle size, color and carbonate content of the existing or native material at the beach fill site.

The Department acknowledges that these items will be provided. Your application will remain incomplete until this item has been received and reviewed.

RAI #27e Response

Please see Attachment B for the Comparison of Sediments in Martin County report. The RAI response package includes borrow area sand samples.

Extreme rapid erosion and subsequent application of upland sand during the emergency fill activities in late summer – early fall 2008 have altered sand characteristics at Bathtub Beach. Immediately to the south, recent Sailfish Point beach nourishment with upland sand has likewise altered that sand quality. Thus, using the existing sand at Bathtub Beach or the immediately adjacent Sailfish Point Beach may not accurately reflect appropriate native sand characteristics. Martin County has used beach sand characteristics from the Martin County Shoreline Protection Project area (updrift of the project beach) and from the St. Lucie Inlet sand trap (downdrift of the project beach) to demonstrate that the proposed borrow area sand is very similar to sand from the SPP and the inlet sand trap, and that those two sites have performed as expected by the DEP. The DEP should already have representative samples from these sites as a result of permits for those projects.

The sand compatibility analysis developed for the RAI compares characteristic of sand from three sources:

- Proposed St. Lucie Inlet flood shoal sampled for the proposed project
- Martin County Shoreline Protection Project (SPP), which provide the primary updrift source of sand to Bathtub Beach,
- St. Lucie Inlet sand trap, used to nourish beaches on Jupiter Island, just south of the inlet

The report provides quantitative comparisons of the sand from those sources. Based on the similarity of the sand from the three sources, and the fact that the sand at the SPP and the Inlet sand trap have performed as expected physically and biologically, the proposed borrow area provides sand suitable both physically and biologically for use on Bathtub Beach.

f. A sediment QA/QC plan that will ensure that the sediment to be used for beach restoration or nourishment will meet the standards set forth in paragraph 62B-41.007(2)(j), F.A.C.

The Department acknowledges that a sediment QA/QC plan that will ensure that the sediment being placed on the beach will meet the standard in paragraph 62B-41.007(2)(j), F.A.C., will be developed and forwarded to the Department. Staff encourages you to submit a draft of this plan to the Department as soon as possible so that we may provide constructive feedback with minimal delay to the project. Your application will remain incomplete until this item is received and reviewed.

Please include any shapefiles and PDF files suitable for inclusion in ROSS, including but not limited to core locations and borrow areas.

Submit all geotechnical information in electronic file format suitable for input to the Department's Reconnaissance Offshore Sand Search (ROSS) database. The data may be submitted in Excel, Access or gINT files. The MS Access Front End Loader is available on the ROSS website <http://ross.urs-tally.com/>. Visit the gINT website <http://www.gintsoftware.com/> for downloads necessary for the ROSS data structure. Submit electronic geo-referenced maps (shapefiles and metadata) of borrow area boundaries, core boring locations, and seismic track lines with time stamps and shot points, and .pdf files of seismic images with time stamp annotations.

RAI #27f Response

See Attachment C for the Sediment QA/QC plan

See Attachment D in the enclosed CD for shapefiles of the borrow areas and location of the core borings.

31. A current Biological Opinion from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, when the Florida Wildlife Conservation Commission has determined that the proposed project will result in a take of marine turtles, which could not be authorized without an incidental take determination under federal law.

Please note that, because this project involves placing sand on a marine turtle nesting beach, an Incidental Take and Biological Opinions will be required from the U.S. Fish & Wildlife Service even if work were to occur outside sea turtle nesting season. Please note that nesting season begins March 1 in this part of the state, so any work on or after this date would be occurring during marine turtle nesting season. National Marine Fisheries Services, both Protected Species and Essential Fish Habitat, should be contacted to determine if incidental take authorizations are required from that agency due to the potential for impacts to near shore hard bottom habitats as well as impacts due to fill placement.

RAI #31 Response

Martin County and their consultants are working with the USACE and other federal agencies to resolve these issues.

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

a. Analysis of the expected physical effect of the proposed activity on the existing coastal conditions and natural shore and inlet processes. The analysis should include a quantitative description of the existing coastal system, the performance objectives of the proposed activity, the design parameters and assumptions, relevant computations, validation of the results and the data used in the analysis.

The CE section staff concurs with the Applicant's assessment that periodic beach/dune nourishment placed within the proposed construction fill template has minimum potential risk to the adjacent hardbottom. The CE section staff considers the proposed design of the construction fill template sufficient to minimize the potential for escarpment since the constructed beach profile will be adjusted to local conditions quickly due to the small fill volume. However, the proposed construction template with a high dune with a 1V:5H slope (see R-35F, R-35E, R-35C, R-35A, and R-34G) might cause a temporary formation of an escarpment, which might pose a temporary hazard for pedestrians and turtle nesting. Please address the associated concerns from the Florida Fish and Wildlife Conservation Commission (FWC) outlined in Item 35 below.

If the applicant or the applicant's consultant has any questions about the above comment, please feel free to directly contact Ms. Jenny Cheng, coastal engineer, at jenny.cheng@dep.state.fl.us or (850) 413-7845.

b. Analysis of the compatibility of the fill material with respect to the native sediment at the placement site. The analysis should include all relevant computations, the overfill ratios, and superimposed graphs of the cumulative grain-size distribution and the frequency distribution of the fill material over the data for the existing or native sediment at the placement site. Provide computations of borrow area volume and composite fill material characteristics (mean grain size and sorting, percent carbonate content) in an electronic spreadsheet.

A preliminary analysis consisting of the mean grain size of the native beach material and the borrow source material has been provided. In addition, please provide Munsell colors, carbonate content, percent silt and moment statistics.

Please provide a cumulative frequency plot of the grain size distribution of the dredge material and native beach composite for comparison.

RAI 33b Response

Please see Attachment B for the report providing sand quality analyses. Attachment B also contains a spreadsheet that provides the associated data.

Please note that Martin County proposes to use the sand characteristics from the Martin County Shoreline Protection Project and the St. Lucie Inlet sand trap as the site standards against which to evaluate the sand from the proposed borrow area. DEP has archived samples from those locations, thus we are submitting only sand samples from the

proposed borrow area. We have enclosed the borrow area sand samples with the rest of the RAI response package.

d. Analysis of how water quality and natural communities would be affected by the proposed project. Provide graphic representation (depiction) of the area of direct and secondary influence of the proposed activity and delineate the natural communities within that area. All required surveys shall be representative of conditions existing at the time of submittal. Surveys of submerged aquatic vegetation (SAV) shall be conducted in the field during the growing season for a given climatic region such that they capture the full areal extent and biomass of the SAV community. Species composition and spatial distribution shall also be addressed by the survey. Estimate the affected acreage of each impacted community.

Is there hard bottom in the intertidal zone? The aerial photographs include a darker area close to the shoreline – please describe this feature.

RAI 33d Response –

The intertidal zone at Bathtub Beach includes no hard bottom habitat. The darker area in the intertidal zone comprises relict estuarine sediments and tree stumps exposed by the recent series of evulsive events in the project area. The darker area does not comprise any hardbottom, coquina rock, or other hardbottom substrate.

You indicate that you do not propose a mixing zone, but then continue to suggest that a mixing zone of 150 meter radius may be required. Perhaps you meant that a variance is not proposed, but that a mixing zone of 150-meters from point of dredge or discharge is requested? Please clarify. Be advised, however, that the proposed borrow area is within the bounds of the Indian River Lagoon (Vero Beach to Ft. Pierce) Aquatic Preserve, so the dredge contractor will have to meet background water quality conditions outside any mixing zone. For a mixing zone of any size, provide a narrative description and graphic representation of the mixing zone. Identify any areas within the proposed mixing zone that contain significant submerged resources. Explain why the size of the proposed mixing zone is the minimum necessary to meet water quality standards and provide justification for that size.

RAI 33d Mixing Zone Response

Because the the proposed borrow area sand includes only 0.20% - 0.8% material tht passes through a #230 sieve, the project will not need a mixing zone in excess of a 150 meters from the point of discharge at the beach disposal site.

At the dredging site, we will also require a mixing zone of 150 meters. The proposed dredge template lies within the Vero to Ft. Pierce Aquatic Preserve and Martin County recognizes that the Florida Administrative Code allows no turbidity above background in the Aquatic Preserve. Martin County is requesting a variance from that requirement and

has attached an analysis of the potential plume associated with dredging the sediments within the proposed template. The Mixing Zone Study in Attachment E provides an analysis showing why the proposed mixing zone represents the minimum variance request in order to accomplish the dredging. Based on that analysis, Martin County requests a variance to allow a mixing zone of 150 meter radius down current of the dredge head. We understand that the DEP requires that the dredge contractor meet background water quality outside the proposed mixing zone.

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

The following additional information is required for the Florida Fish and Wildlife Conservation Commission to complete their review of this project.

- i. It appears that the shoal material is bimodal in composition, with larger shell fragments and finer silicate sand grains. Are such sediments, with very large standard deviation for phi, appropriate for the models used to estimate project performance? Also the large amount of calcium carbonate (~54%) and larger grain size could have a negative impact on marine turtle nesting. [Please address.]

RAI #35 i Response

While the flood shoal contains coarse- and fine-grained materials, the proposed dredge template includes primarily coarser material that closely matches Martin County beaches. The dredge template sand includes a small fraction of larger shell fragments that provides a slightly bimodal distribution. The very fined-grained material lies below the proposed dredge cut elevation. The attached sand compatibility analysis addresses the question concerning bimodal distribution by comparing the proposed borrow sand from The Martin County Shoreline Protection Project (SPP) beach, which also shows a fraction of larger shell fragments. We discussed this question with Robert Ernest, President of EAI, the firm that monitors sea turtle nesting on that beach and on the Jupiter Island beach that receives sand from the inlet sand trap. He indicated that based on their data, he is aware of no negative impacts to the long-term nesting frequency at the SPP beach and the Jupiter Island beach. Thus, we do not expect that the use of similar sand on Bathtub Beach will result in a negative impact on turtle nesting there.

- ii. Creation of an elevated beach berm can expose marine turtle hatchlings to lights that were not visible prior to the beach project. Under existing state requirements, marine turtle nests cannot be relocated due to lighting. Prior to construction, the local government should ensure that appropriate measures are in place, such as a lighting ordinance, within the project area. Please provide a copy of the existing lighting ordinance for this area, some indication of efforts by the applicant to

ensure compliance with this ordinance, and a plan for surveying the beaches after construction to identify and resolve any lighting impacts.

35ii Response

Martin County adopted a sea turtle protection ordinance in 1988 (Martin County Land Development Regulations, Article 4, Division 4, Section 4.111 – Attachment F). That ordinance provides standards for beachfront lighting modeled after the State of Florida’s Model Lighting Ordinance for Marine Turtle Protection (Rule 62B-55). Since the County adopted their sea turtle protection ordinance, the County has regularly evaluated beachfront lighting conditions including those on Bathtub Beach. Properties with non-compliant lights receive notices of violation and required to implement appropriate protective measures.

EAI, Inc. has conducted several lighting surveys for Martin County including Bathtub Beach and adjacent beach areas. They conducted lighting surveys of the Martin county portion of Hutchinson Island including Bathtub Beach from 2002 through 2005. In 2007, they conducted five surveys along the filled portion of Sailfish Point (immediately south of Bathtub Beach). During 2008, EIS surveyed the entire County. They surveyed Bathtub Beach 2/21/08. The survey identified appropriate lighting conditions within the Park boundaries and some non-compliant conditions from adjacent homes, who the County notified as required in the ordinance. Martin County expects to continue conducting surveys approximately annually in the future.

The project lies mostly within the boundaries of Bathtub Beach County Park. After completion of construction, Martin County will conduct a lighting survey of the project area. The project beach area includes about 1,250 feet of beachfront along the Park and may include about 300 feet along several private properties to the north (depending on property owner agreement to establish an Erosion Control line along their properties). The lighting survey will identify any lighting impacts along the project reach. The County expects that lighting within the Park will remain compliant with the lighting ordinance, as is now the case. Private properties with noncompliant lighting conditions will receive notices of violation including requirements to implement appropriate protective measures.

- iii. Please discuss the potential for escarpment formation with the proposed construction and design templates.

RAI #35iii Response

The proposed beach design includes a seaward slope that closely approximates the natural beach slope. This design feature should minimize the potential for escarpment formation. In order to avoid and minimize potential sea turtle nesting impacts related to escarpments within the project beach, the applicant will monitor and remove escarpments in accordance with permit specific conditions.

We assume in this response that the marine turtle nesting season at the project areas extends from March 1 through October 31 of each calendar year. Should that assumption prove incorrect, we request that DEP appropriately revise the dates in the response provided below.

Martin County will survey for escarpment surveys for escarpments along the beach fill area immediately after completion of the beach nourishment project and prior to the March 1 date following construction and for two additional years if placed sand remains on the beach. Martin County will level the scarps or reconfigure the beach profile to minimize scarp formation. In addition, weekly surveys of the project area shall be conducted during two nesting seasons following completion of fill placement

Assuming that project construction extends into the turtle season and that the USFWS grants incidental take permit for construction between March 1 and April 30 (inclusive) Martin County will knock down escarpments and perform compaction testing or plow to provide appropriate beach turtle nesting conditions prior to May 1 of the construction period only.

Each survey will record the number of escarpments and their locations (length) relative to the DNR-DEP reference monuments and height.

- The survey report will include the length of each escarpment as percent length of beach surveyed.**
- The survey report will include the height of any escarpment as one of the following:**
 - 0 -2 feet**
 - 2 - 4 feet**
 - 4 feet and higher**

Prior to March 1, Martin County will level escarpments that interfere with sea turtle nesting or exceed 18 inches in height for a distance of 100 feet to the natural beach contour. Martin County will report any escarpment removal location relative to R-monuments.

After March 1 and during the subsequent marine turtle nesting season (prior to November 1), Martin County or their contractor will immediately contact FWC if any weekly survey documents formation of escarpments that interfere with sea turtle nesting or exceed 18 inches in height for a distance of 100 feet. FWC will determine the appropriate action for the County to perform. Upon written notification, the County will level escarpments in accordance with the mechanical methods FWC prescribes.

- iv. The near shore reefs and hard bottom along Florida's East Coast provide significant foraging ground for marine turtles, particularly juveniles of the endangered green turtle. Please discuss monitoring for juvenile green sea turtles on any near shore hard bottom that will be impacted by the project.

RAI #35iv Response

The project design specifically minimizes the volume of sand placed and the seaward extend of the placement during and after construction. Specifically, the design avoids impacts to the hardbottom habitat adjacent to the project beach. Therefore, the application proposes no monitoring of juvenile sea turtles.

39. A fee, as set forth in Rule 62B-49.006, F.A.C. A spreadsheet is available on the Bureau's web page to aid in calculating the correct application fee. In order to calculate the fee, please provide the following: the acreage of proposed filling seaward of the MHW line; the acreage of proposed dredging; the cubic yardage of fill to be placed on the beach (above and below the MHW line); the cubic yardage of material to be dredged from an inlet and then placed either in an upland or offshore disposal site; the length of rigid coastal structures (groins, breakwaters, jetties, seawalls and revetments); and the number of inlet-related structures (new channels, sand traps and bypassing plants).

The sum of the fees required by Chapters 62-4, 62B-41, and 18-21, Florida Administrative Code, has been calculated as **\$10,000**. The components of this fee are as follows: Rule 62-4.050(4)(h) requires \$8,000 for the dredging and filling of between 50 acres and 100 acres of sovereign submerged land and Rule 62B-41.0085(3)(b) requires \$2,000 for the 25,000 cubic yards of beach fill. Please note that Rule 62B-41.0085(6) provides for a waiver of that portion of the fees above the local government pro rata share for the fees required under Chapter 62B-41. If you wish to request this waiver, please contact Mr. Wagner Yajure, Project Manager in the Bureau's Beach Erosion Control Program, to determine your cost share eligibility and deduct the proportional

amount from the \$2,000 fee listed above. For example, if the state will pay for 50% of the total (non-federal) project cost, then you may deduct (50% x \$2,000) \$1,000 from the total \$10,000 fee indicated.

Please publish the enclosed Notice of Application. Pursuant to Section 403.815, Florida Statutes and Rule 62-110.106, Florida Administrative Code, you (the applicant) are required to publish at your own expense the enclosed Notice of Application. This notice shall be published one time only within 14 days, in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, Florida Statutes, in the county where the activity is to take place. The applicant shall provide proof of publication to the Department within seven (7) days of publication.

RAI #39 Response

The State of Florida will provide 50% of the project funding from the Bureau of Beaches and Coastal Systems Beach Management Funding Assistance Program (FY 07/08 Grant Number 07M12). Therefore, we request a waiver of \$1000 from the fee indicated above. Martin County will provide DEP a check for \$9,000 in a separate letter.

The County will publish the Notice of Application provided with the RAI and mail the Bureau of Beaches and Coastal Systems a proof of publication.