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October 8, 2002

Dale Beter, Project Manager
U.S. Army Corps of Engineers
South Permits Branch
4400 PGA Boulevard - Suite 500
Palm Beach Gardens, Florida 33410

Dear Mr. Beter:

SUBJECT: PHIPPS PARK SEIS

Thank you for providing us the opportunity to comment on the draft SEIS for the Phipps Park Project. Palm Beach County supports the concept of beach restoration in this area and commends any effort to investigate the consequences of the many construction alternatives. We have the following comments concerning this report:

Plan Intentions
Considering the fact that the project area experienced a net increase in dry beach area from 1985-2000 (Appendix C, table 7), the purpose of including nesting habitat in the proposal is unclear.

Alternatives Analysis (Section 2)

The SEIS (pg. 2) states that "the existing groins north of Phipps Ocean Park deter southerly longshore transport to .... the project area ." Removing those groins would then appear to be an alternative that should be addressed.

The use of the "No Action" Model 1 is correctly dismissed in the text, as uniform hardbottom is known to exist underneath the sandy beach. Why it is included at all is unknown. Model 2 is also discounted in the text "(even though the natural rock may stabilize the shoreline)" because it also predicts shoreline loss. No description of how the models were calibrated, nor the eventual level of success of the verification run, is included in the report. The limitations of using the Genesis Model for this type of analysis should also be described if this model run is to remain part of the report. We suggest that the justification for dismissing the "No Action" alternative be based on an analysis of historical shoreline migration and beach volume loss rather than attempting to project some level of confidence in the results of a model run.

Using structures to supplement beach fill projects has proven to be effective in many instances, and as such should not be dismissed as an alternative after reviewing one simple alignment of shore-perpendicular groins. Nor should the financial impacts of using structures be based on the assumption that adequate borrow areas are available nearby for renourishment projects. Sand resource studies carried out to date indicate that renourishment of this project will require the use of more distant borrow areas and the eventual use of a hopper dredge, which would have a significant impact on project costs. The effectiveness of structures for storm protection and their potential value as replacement habitat should also be addressed. The 3.1 acres of mitigation reef required for the proposed project can be expected to cost well over $1.5 million. Nearshore structures may represent a method to provide some measure of "like-to-like" mitigation while providing shore protection.

A permit application from one of the property owners at the north end of the project area has been submitted to the agencies. The applicant plans to build two T-head groins. The impacts of those structures to the various alternatives should be addressed.

Shoreline location modeling throughout this section of the report should be utilized only with the inclusion of a discussion regarding model calibration/verification and software accuracy limitations.

Proposed Borrow Areas (Section 2.1.4)

Unfortunately, much of the information and conclusions in this section are based upon the Supplementary Geotechnical Analysis (CT 2000). The Analysis is based on an unusual sampling technique, the accuracy of which is discounted in the Summary and Conclusions sections because the error factor could be quite substantial. For some reason, "targeted samples" were taken apparently by collecting whatever shells and rocks could be found laying on the beach. Such sampling only demonstrates that shells and rocks can be found on the beach. Their use to establish a natural level of shell hash is not relevant unless the area, depth, and frequency of each deposit on that particular beach is known. The transect samples reflect what would be expected on a well-sorted beach in this area. Even with the coarse material apparently distributed throughout the project site by the beach rakes, virtually no measurable percentage of the total sampled volume contains coarse fractions.

The report includes estimated gravel percentages of cores taken by the county in 1993. Those cores were analyzed by weight, not volume and sieved at ½ phi intervals. We assume the estimates listed in the table were interpolated from the curves provided. The methodology also appears to utilize the entire core, regardless of the depth of cut.

During the analysis of the offshore cores, all of the material greater than 5/8" diameter was removed "to avoid bias in the gradation analysis". In presenting the data for each strata, the

relative volume of the "rock" is only estimated. Removing grossly coarser material from the sediment analysis provides more effective data for engineering calculations (i.e. overfill ratios, equilibrium estimates, erosion rates), but in situations where the percentages of "rock" are estimated to be as high as 50% in some strata, that argument is certainly questionable. Assessment of potential impacts to sea turtle nesting and the negative publicity associated with substandard material must include specific information on rock and shell content. Describing and weighing the material removed from the largest sieve and utilizing a series of even larger sieves when necessary would help to provide the required data.

Utilizing the proposed borrow area as designed would, by the consultant's estimate, add over 100,000 cubic yards of "rock" on the beach. Use of the proposed material may require substantial remediation if layers of coarse material are indicated. The cost of such remediation may exceed the extra cost of using material from another borrow area. Sieving would be another alternative, but that process, too, is costly.

It is the opinion of county staff that the information provided is not sufficient to accurately forecast the quality of sand that will eventually end up on the beach. Large pockets or lenses of shell or rock remain a possibility and would have to be isolated, removed and replaced with clean fill as the dredging progressed. Summary statistics for the sediment characterization (including sample size and standard errors of the mean) are needed to more accurately portray the borrow area and native beach materials.

Inlet By-Pass Sand Sources (Section 2.1.4.5)

Peanut Island is to be downloaded to the Lake Worth site. The construction contract is presently out to bid. The COE has expanded the settling basin just east of the north jetty. It is to be expanded further as part of the annual maintenance dredging contract, thus providing additional material to downdrift beaches.

Alternative 8 - Nearshore Berm (Section 2.3.5)

Nearshore berms offer some advantages which should be considered as part of the SEIS. As stated, they "can help restore an eroding beach and provide a measure of storm protection...". They could then be utilized to satisfy the purpose and need for the project and actually provide a better quality beach for both recreational and habitat requirements. Sand transported from a berm to the beach by wave action is sorted along the way, which may alleviate some of the risks associated with the proposed borrow areas. The project could be maintained during the summer months, which could lower construction costs.

A nearshore berm design should also be addressed in terms of an alternative disposal site for the expanded settling basin off the Lake Worth Inlet.

Alternative 11 (Section 2.3.8)

We are unaware of any "annual bypassing goals" for the sand transfer plant beyond maintaining the updrift beach at its present location.

Alternative 14 - (Section 2.3.11) as above (structures)

Alternative 16 - (Section 2.3.13)

A feeder beach system is essentially what the county, local municipalities and the COE have been working toward by nourishing beaches throughout the area and actively bypassing sand at the inlets. While the alternative is not a realistic one when addressing a single project area, the impacts of the larger program and the contribution this project could represent should be acknowledged.

Lake Worth Inlet Sediment Budget (Section 3.2.3)

Actually, the inlet was first opened in the early 1860's and the first jetties were installed in 1917. In addition to the plant improvements, the settling basin off the north jetty was expanded last year.

As some 288,900 yards of sand is bypassed mechanically every year in order to maintain inlet depths and limit north beach extent, one would assume that the net annual longshore sediment transport estimate would exceed that figure, especially considering the sand accumulating in the shoals and what little is bypassed naturally.

The summary on page 57 failed to include the sand dredged from the ebb shoal for the Midtown project with each renourishment, which would then indicate a budget surplus downdrift. If dredging the expanded settling basin is also included along with the improved capacity of the sand transfer plant since 1996, the estimates would not agree with any statements concerning the continued detrimental influence of the inlet (i.e. p.70-72)

Shoreline & Volumetric Changes (Section 3.2.3)

The beneficial impacts of the sand transfer plant are indicated by the significant volume loss throughout the study area, but especially in reach 2, when the plant was inactive.

The hypotheses on page 72 do not include an explanation of how they were reached or whether they include the established periodic renourishment of Midtown, plant improvements and the

expanded settling basin at the inlet. The summary is misleading in that it emphasizes present transfer activities rather than historic impacts. More emphasis should be placed on the loss of the beach system (dunes) to hardened structures and its subsequent inability to recover from periodic storm activities. Nourishment projects can not only replace the berm, but reestablish the dune. While inlet bypassing may stabilize the sediment budget, it will not replace the permanent loss of sand stored within the dune system.

Sand Quality (Sections 3.3 and 4.3)

3.1.2
The use of generalized historic data to represent the characteristics of the native beach is not justified in light of more specific data. To characterize the beach as more "stressed" in 1999 goes against the information presented earlier in the text that indicated a long-term erosional trend.

The county's 1993 Environmental Assessment of the project area indicated that the "native" beach sand could be characterized as:

0.42 mm mean grain size
0.57 sorting
.0006% silt
48% Carbonate
312 CPU average compaction

As stated above, the borrow material appears to contain a much larger fraction of coarse material than the native beach. The potential impacts of such material, in terms of project performance, recreational value and habitat degradation should be addressed.

The text does not describe which "native" sediment characteristics were used to calculate the overfill factor. Certainly the use of any other data but the most recent would not represent a reasonable calculation.

Again, summary statistics for the sediment characterization (including sample size and standard errors of the mean) are needed to more accurately portray these materials. The native beach sediments should include analysis of samples from the dry beach only if they are to be used in analysis of potential turtle nesting habitat.

3.3.2 & 4.3.3
The concluding sentence should explain that the composition of the borrow area sediments are not similar to the native beach and the mineralogy differences are unknown.

Threatened & Endangered Species (Section 3.5)

Sea Turtles (Section 3.5.1)

In general, this section fails to report the significance of sea turtle nesting in the area, county, and statewide toward the recovery efforts for the three species that nest in this area (loggerhead, leatherback and green sea turtles). The nesting density information provided does not specify which areas the data represents in relation to the project area or the adjacent areas. Nesting data collected from the previously un-surveyed beaches north of the project area in 2002 indicate higher nesting than expected and compared to the adjacent areas.

Hardbottom Resources (Section 3.7)
While the biological significance of the hardbottom areas is debated, the quality of habitat relative to other areas within the county should be reported.

Water Quality (Section 3.11)
Persistent increased turbidity following construction is not discussed.

Environmental Consequences (Section 4.0)

4.4.3
There is no time-frame provided for the recovery of beach fauna other than "rapid".

4.5.3
The discussion concerning impacts to sea turtles is incomplete. There is no discussion of nest washout or erosion following construction and subsequent equilibration of the beach. The assumption is made that turtles simply nest elsewhere following the project with no negative effects. While it is documented that nesting appears to take place elsewhere, the consequences to those animals failing to nest is not known.

Additionally there is no discussion relating to the changes to sediment temperature and incubation environment. Temperature may account for the lower hatch success documented on nourished beaches in Martin and Palm Beach Counties in 1999.

Efforts to eliminate impacts from erosional losses may be impossible due to high nesting densities or permit conditions. Early completion of the project to allow subsequent equilibration prior to nesting season has been documented to reduce erosional impacts (Juno Beach, 2001).

4.7, 4.8, 4.10
Long term and persistent turbidity following construction is not discussed.

4.20
There is no discussion of cumulative impacts to sea turtles. Erosion of nests, possible temperature lethal limits (Wibbels), increased energy expenditures from abandoned nesting attempts, and reduced hatch and emergence success are all beach related issues. The significance of nesting along the east coast of Florida, with the multitude of projects underway or planned, warrants discussion of cumulative impacts.

Table 4.1
The Phipps project is listed for two fill cycles in the "Present" section. In the "Proposed" section, it has an additional 3.1 acres of hardbottom impact listed.

4.21.1
Irreversible commitments should include the lost hardbottom, as maintaining the project will keep them buried. Mitigation provides a resource, but does not change the commitment.

4.22
The unavoidable adverse environmental effects should include loss of hardbottom and impacts on turtle nesting.

Public Involvement (Section 6.0)

The county has no record of being copied on the scoping letter.

CUMULATIVE IMPACT ASSESSMENT (Appendix C)

2.1
The sea turtle nesting data is presented for Lake Worth Inlet only. This area regularly receives fill material from the inlet maintenance dredging projects and is not representative of the project area or the adjacent areas. Data collected from the previously un-surveyed beaches north of the project area in 2002 indicated higher nesting densities. The limited data from this areas prohibits establishing nesting trends and can be misleading.

This section fails to report the significance of sea turtle nesting in the area, county, and statewide toward the recovery efforts for the three species that nest in this area (loggerhead, leatherback and green sea turtles).

6.1.1, Figure 2 and Appendix A
The multi-spectral image analysis of hardbottom resources from the project area includes schools of fish and areas that are likely drift algae. The analysis should be reviewed and confirmed by an experienced analyst.

6.2.1
Long term/persistent turbidity is not discussed.

6.2.2.
Other effects to sea turtles not discussed include unusual and seaward nest placement, scarping, temperature, energy expenditures from abandoned nesting attempts, and other unknown factors contributing to reduced crawl (both nests and non-nesting emergence) activity.

6.3.2
With the general increasing trend in sea turtle nesting totals statewide, it is unlikely that the increase in nesting in this areas is due to the sand transfer plant pumping. More beach does not necessarily result in more sea turtle nesting and information should not be presented as such.

The cumulative impacts from beach projects in the area and along the east coast of Florida have not been studied. Therefore claims regarding cumulative impacts cannot be made.

8.1
As improvements in inlet bypassing are making up for the erosion rate cited, and numerous fill projects are in the pipeline, it is likely that cumulative effects will include indirect burial of hardbottom.

REEF MITIGATION PLAN AND MONITORING PROGRAM (Appendix E)

Recent analysis and evaluation of the Juno Beach artificial reef fish communities has indicated that roving fish counts are a more effective sampling method than the fish counts using the modified Bohnsack method. In the Juno area, larger than expected sample sizes are needed to accurately evaluate fish diversity and abundance. Power analysis should be performed to evaluate the effectiveness of the sampling program.

PHYSICAL AND BIOLOGICAL MONITORING PROGRAM (Appendix F)

Part 4 - Marine Sea Turtles

In order to maintain consistency with other monitoring efforts throughout the state and county, we recommend the following changes:

Section b
It is our recommendation that the construction of the project be completed before March 1 (or earlier) to allow for equilibration of the beach profile prior to the nesting season and to minimize interference with early season leatherback turtle nesting.

Section m
Samples should be collected from *just above* the high water line.

Section mi
The material *should* be removed from the hole to ensure accurate readings.

Section mii
There should be a minimum of five (5) replicate readings.

Section p
The sea turtle report needs to include analysis of:

1) Historical nesting densities and nesting success
2) Washout/erosion rates
3) Nest placement (relative to dune and high water line)
4) Hatch and Emergence success of all or at least 100 nests left in place within the fill beach area and an equal number of nests from nearby "control" non-nourished beaches.
5) Sediment compaction summary
6) Sediment grain size analysis

If you should have any questions please call me or the program supervisor, Daniel Bates at 561-233-2400.

Sincerely,

Richard E. Walesky

Richard E. Walesky, Director
Environmental Resources Management

REW:DB:kfs

cc: Sandra Tate, Coastal Management Coordinator
Town of Pam Beach