

TOWN OF PALM BEACH

Office of the Town Clerk

REPORT OF THE SHORE PROTECTION BOARD MEETING HELD ON

APRIL 25, 1996

I. CALL TO ORDER: A meeting of the Shore Protection Board of the Town of Palm Beach was called to order by the Chairman, Garrison D. Lickle, at 2:00 P.M. on April 25, 1996.

II. ROLL CALL: On roll call, the following members of the Board were found to be present: Chairman Lickle, Vice Chairman Moffett, Mr. Isiminger, Mr. Dimm, Mr. Levy, Mr. Martino, Mrs. Curran, Mrs. Schrafft, and Mr. Raffo. Staff members attending were: Town Manager Doney, Assistant Town Manager Elwell, Public Works Director Dusey and Ms. Reedy of the Town Clerk's Office. Also in attendance were Councilman McLendon and Dr. Robert G. Dean of the University of Florida. Mr. Hennessy did not attend the meeting.

III. APPROVAL OF AGENDA: Mr. Lickle said he would like to add one item to the agenda. He said at the last meeting he was asked to prepare an outline for the submission of comments by the Board members which will be combined with reports by the Town Staff. Agenda was approved as amended.

IV. PRESENTATION BY DR. ROBERT DEAN, UNIVERSITY OF FLORIDA.

Dr. Dean explained he would begin his presentation with a brief background regarding the Town's beach renourishment.

Dr. Dean said it was his understanding that the Town is considering two options. He stated that he would like to discuss those two options, and then he would be available for questions.

Dr. Dean said the two options being considered by the Town are groins and beach nourishment. Mr. Lickle said those are the options which the Board has considered, but they are open to any suggestions or opinions that Dr. Dean might like to discuss.

Dr. Dean stated he was very interested in the shore lines around the State of Florida, and the Town of Palm Beach in particular. He said the Board's endeavor to find a permanent renourishment plan is very important to the Town's beaches. Dr. Dean said he would try to provide the Board with information which has not been presented to them by other experts. He explained there were two points he would like to emphasize before he begins his presentation. He said one

point is, that it is necessary to feed the shore line with sand to some degree, and that would depend on how much sand is stabilized within the system. He said the second point is the Sand Transfer Plant. Dr. Dean informed the Board that when the Sand Transfer Plant becomes operational it will take a very long time for the sand to work its way down the beach. He informed the Board that it is estimated that sand travels approximately one mile per year.

Dr. Dean stated that the Lake Worth Inlet, or Port of Palm Beach Inlet was cut in 1918, and the jetties were constructed over the next seven years. He said the littoral drift is from the north to the south and the net long shore southern transport is 130,000 cubic yards per year. Dr. Dean said there are several different numbers of estimated sand transport which is due to the lack of precision in quantifying the amount of sand transported to the south.

Dr. Dean said at the time the inlet was constructed the shore line was continuous. He stated the north shore line has advanced approximately 800 feet, but there has been substantial erosion of the southern shore line. Dr. Dean said there is a very strong southerly transport of sand from the north to the south, and that is not unique for the Port of Palm Beach entrance or other inlets on the east coast of Florida and many on the west coast.

Dr. Dean explained that all of the Federal Legislation relating to beaches originated in Florida, and a large portion of that legislation originated in Palm Beach. He gave an example of Federal Legislation Section 111 which relates to navigational entrances.

Dr. Dean stated that the sand transfer plant was put into operation in 1958. He said the inlet and the jetties blocked the southern transport of sand significantly, and there was substantial erosion to the south of the inlet. He stated that, in fact, the shore line had eroded all the way to the sea wall. Dr. Dean said there has been substantial nourishment by the Town since 1944. He explained the nourishment consisted of sand placement directly as nourishment by bypassing around the inlet, and by maintenance dredging of the inlet. Dr. Dean stated that in 1944 there were no beaches in the northern seven miles of Palm Beach. He said initially there was a lot of sand placed there, but the sand renourishment was gradually reduced until the sand bypassing began in 1958. Dr. Dean explained that over the period from 1944 to 1990 there was approximately 7.6 million cubic yards of sand placed in the northerly beach system in the area north of Worth Avenue. Dr. Dean said in a period of 46 years from 1944 to 1990 the northern seven miles of shore line was extended out about 50 feet due to the deposit of the 7.6 million cubic yards of sand.

Mr. Isiminger said according to Dr. Dean, from 1974 to 1990 there was a net increase in the shore line of 6.7 feet for the entire island, and in the northern area an increase of approximately 35 feet. He asked if the Sand Transfer Plant was working the entire time from 1974 till 1990. Dr. Dean replied affirmatively. Mr. Isiminger asked if the Army Corps of Engineers were also working

during that time? Dr. Dean said there was very little beach renourishment during that time. Mr. Isiminger asked if the increase in the beach could be attributed to bypassing, and is it known what the net numbers have been since 1990? Dr. Dean answered that the increase of the beach was because of the operation of the Sand Bypass Plant, but he hasn't really analyzed the data since 1990, but there has been about 300,000 cubic yards of beach nourishment by maintenance dredging of the inlet.

Mr. Isiminger asked if there was any data anywhere since 1990? Mr. Doney said that Mr. Dusey has the annual results of the maintenance dredging. Mr. Isiminger said he would like to know what has happened since 1990, such as has there been a net increase, has there been stabilization or has there been a net decrease? He said he would assume there has been a decrease. Mr. Elwell advised that the Town does not have that data as far as what has happened to the beach, but they have the data of the cubic yards of sand which was placed on the beach.

Dr. Dean said he has examined the Town's entire restoration system. He said this would allow comparison of two methods of beach restoration which are beach renourishment and sand bypassing without structural stabilization, and bypassing/nourishment stabilized by groins.

Dr. Dean said the island of Palm Beach is about 15 miles long, and he believed the net long shore sediment transport to the south is approximately 130,000 cubic yards per year. He said he calculates that the sand bypassing plant would transfer about 70 per cent of that amount, and the cost of sand bypassing is four dollars per cubic yard. Dr. Dean stated that it would require 50 cubic yards of sand per foot over the entire island in order to establish a beach. He estimated that would probably advance the shore line 60 to 70 feet, and nourishment sand costs seven dollars per cubic yard.

Dr. Dean said according to his estimates it would mean that the initial beach nourishment cost would be \$27,720,000, and the 8 percent interest to service that amount would be about \$2,200,000. He said the annual cost of bypassing 91,000 cubic yards of sand is \$364,000, and the annual cost of makeup sand which is the difference between the 130,000 and the 91,000 cubic yards of sand which would be 39,000 cubic yards at seven dollars per cubic yard. He estimated the total annual cost for the bypassing would be \$2,850,000. Dr. Dean said these are estimates, but he felt they represent reasonable costs.

Mr. Moffett asked if those figures include the sand that is realized by dredging the channel? Dr. Dean said that sand probably would be included in the 91,000 cubic yards of sand, and would apply to either system.

Dr. Dean stated the second option is beach nourishment and sand bypassing stabilized by groins. He said again these figures represent reasonable estimates. Dr. Dean said the estimate would

represent the groins being placed about 400 feet apart, but there probably are areas on the island where groins will not be necessary. Dr. Dean said he would estimate that 130 groins probably would be sufficient.

Dr. Dean said each groin would be constructed of steel sheet piling which probably would cost \$100,000. The initial nourishment would use half the amount of sand because it would now be stabilized by groins, and it is assumed that the groins are now stabilizing the beach system. This would not require an annual make up deposit of sand which would be required with the other system. Dr. Dean related to the Board that the two systems would cost about the same.

Dr. Dean advised that replacement sand is becoming more and more difficult to locate, so that would be a consideration when opting for one system or the other. He said groins are more effective in maintaining a uniform shore line, but they are more difficult to permit. Dr. Dean stated that another negative aspect of the groins is that they will be blamed for any irregularities which occur along the shoreline. He said groins are more controversial, and his feeling is that the State would prefer that communities use other options.

Dr. Dean said they were looking at the big picture, and looking at sand replacement from a large scale view could provide valuable guidance as to which program would be the best approach for renourishment in Palm Beach. Dr. Dean advised the Board that a lot of detailed engineering would be required after a proper approach is decided upon.

Dr. Dean advised that when the Town comes to the stage where construction is ready to begin, the Town may want to consider something like staged, or phased construction. He said there are uncertainties in developing long term plans such as not knowing how a structure will affect the shore line. Dr. Dean stated it probably would be a good idea to install some elements, wait a few years to see how they perform, and then go on to the next set. He said that would apply to either beach nourishment alone or beach nourishment with some sort of stabilization. Dr. Dean stated this would require a monitoring program, but that could be achieved probably with aerial photography once or twice a year.

Dr. Dean stated it would be a good plan to adopt a beach management program which has been approved, and has gone through the process and has been permitted by the necessary agencies. He said that process would work well with the base construction such as, when an element of the plan has been implemented, and certain outcomes may change the details, but not the overall conceptual plan.

Mr. Moffett asked if the Town had funds and/or permits for only half, or even a third of the 130 groins, would that be an effective system? Dr. Dean said if fewer groins are placed farther apart the groins must be constructed longer to achieve the same effect. Dr. Dean said if only one third of the resources are available it would

be advisable to proceed with the fewer groins, but to also go forward in securing additional resources to bring the total of groins up to 130.

Mr. Moffett asked if it was possible to obtain permits for 130 groins? Dr. Dean said he really didn't have an answer to that question. Mr. Doney said Kirby Green from the Florida Department of Environmental Protection would speak to the Board later, and that question probably will be put to him.

Mr. Isiminger asked Dr. Dean if he could bring them up to date on the State of Florida permitting? Dr. Dean said that until about six years ago the State was very opposed to any coastal construction of any kind. Then things changed and in addition to the eleven groins in Palm Beach there are probably eight more along the east coast of Florida.

Mr. Isiminger asked Dr. Dean what he thought caused the change in procedure? Dr. Dean said there was a great deal of misinformation spread regarding adverse effects of coastal construction including sea walls and revetments. He said that groins have been misused, and there has been over reaction to rumors. Dr. Dean said it is important to carefully design any coastal structure project especially one which has the potential of trapping sand.

Mr. Moffett asked Dr. Dean if a series of groins are installed in Palm Beach, would he advise placing them in the north and move south? Dr. Dean replied that usually beach restoration is begun at the down drift end of the beach, because if you start at the up drift end which would be immediately south of the Port of Palm Beach entrance, there will be less sand transported. Dr. Dean said he would advise that the groins be installed in the areas where the beach is most eroded.

Mr. Moffett said the Sand Transfer Plant has not been in operation for some time now, and it was his understanding that the Town receives 130,000 cubic yards of sand per year from dredging. He said the Town must replace about half a million cubic yards of sand which would have been realized if the Sand Transfer Plant was pumping. He said the Town has placed approximately four or five hundred thousand cubic yards of sand on the beach from the Corps of Engineer's dredging which should have replaced the sand from the idle Sand Transfer Plant. He stated the Town's beaches have steadily eroded in the last five years despite the Corps placement of sand, and he questioned if that was because the Sand Transfer Plant has not been working, or does it mean that the Town needs a million cubic yards of sand per year? He said he is confused because the figures do not add up.

Mr. Dusey said the sand transfer plant pumps approximately 67,000 cubic yards of sand per year and the Corps averages a bit less than that. Mr. Dusey said since the sand transfer plan has not been working it's a whole different ball game. He said the Corps came in 1991 with approximately 70,000 cubic yards of sand, and then in 1993

they dredged about 184,000 cubic yards of sand, in 1994 and 1995 the amount was 200,000, and in 1996 the Town will receive 175,000 cubic yards of sand. Mr. Dusey said the north jetty is now full so there is a lot of sand in the inlet.

Mr. Dusey said there has been some storage of sand against the north jetty. He said in the last three years, on an annual basis there has been substantially more sand placed on the beach than in the combination of what they did in the past, and the Sand Transfer Plant.

Mr. Moffett said the numbers that have been discussed add up to close to half a million cubic yards of sand per year. Mr. Dusey said that was correct. He said since the Sand Transfer Plant has stopped working, the Corps has placed approximately 460,000 cubic yards of sand on the Town's beaches which would seem that the Town is mining sand. Mr. Isiminger stated that those numbers still did not come to six times 130. He said when the Sand Transfer Plant was operational the Town was receiving 60,000 cubic yards of sand from the Corps, and 67,000 from the Sand Transfer Plant which amounts to the 130,000 cubic yards of sand.

Mr. Isiminger said the Town also has a problem with monitoring the sand. He said they keep coming up with guesstimates which are done by various means, but there has been no real monitoring with which you could say "this is what has happened, from 1990 to 1996."

Mr. Moffett said a previous expert stated that the Town has five to seven different segments of beach or shore line. He said they were told that possibly 50 per cent of the Town's shore line would not need any renourishment. Mr. Moffett asked if that concept makes sense? Dr. Dean said he agrees with that concept. He said if the Town reinstates the sediment supply, the beach will tend to be healthier than it is at the present time.

Mrs. Schrafft asked if the T-groin would be a viable alternative for the Town's beaches? Dr. Dean said if the T-groins are prefilled, they work very well.

Mr. Isiminger said he has heard reference to several different structures, and he questioned if, from the stand point of macro engineering the Board has narrowed down options enough to be able to discuss groins as a final design before applying for permits? Dr. Dean said he would refer to most structures as shore line stabilization. Mr. Isiminger said he usually refers to structures as attached or detached, shore normal or shore parallel.

Mr. Dimm said he agrees that the Board should determine what the structures should be called in order to eliminate the "excess baggage" reference attached to groins. He asked Dr. Dean what should the language be when applying for permits? Dr. Dean replied, adjustable and low profile. He said low profile means that sand can flow over the groins. He said every adjustable groin he is aware of

works very well, but it is necessary to maintain them in order for them to work.

Mr. Raffo asked Dr. Dean what materiel he would recommend for the Town's groins? Dr. Dean said all the commonly used materials have advantages and disadvantages. He said steel is less expensive but it does corrode, and becomes a hazard and unsightly. Dr. Dean said if the Town is looking ahead to 25 years or so, he would look at the adjustable groins. Dr. Dean explained if he was beginning a project such as the Town is proposing, he would build one groin of each type and see which one works best.

Mr. Raffo asked if the Town wanted to install six groins as an experiment, would it be possible to get the necessary permits immediately? Dr. Dean said the Town has installed eleven groins, and he would suggest that someone should consult with the regulatory agents to obtain feedback on the existing groins. He estimated that it would take 9 months to a year to get permits for six groins.

Mrs. Schrafft asked if there is one type of groin that is less expensive than the others? Dr. Dean said that steel sheet piling would be the least expensive, and probably would last 30 years. He said the adjustable groins would probably be comparable to the steel ones.

Mr. Lickle said the Town has little or no data on monitoring the beach, and he wondered where they could obtain any existing data. He said there are markers in the intracoastal and he wondered if that was a state, county or local function? Dr. Dean said aerial photographs can be used to accumulate data. He said that most of the beaches are widest in September, and are more narrow in January so those are the two times of year to accumulate data. He said aerial photographs will not reveal if the beach has lost volume.

It will only show the beach profile. He said it would cost a great deal of money to determine how much sand is lost or gained in the system.

V. CONSIDERATION OF TENTATIVE SCHEDULE OF FUTURE MEETINGS AND POTENTIAL ADDITIONAL INDIVIDUALS TO INVITE FOR PRESENTATIONS AND INFORMATION EXCHANGE-PLEASE SEE ATTACHED LIST OF PAST GUESTS AND SCHEDULED FUTURE GUESTS.
(Continued from Meeting on April 11, 1996)

Mr. Elwell said the present schedule of meetings is May 9th with Kirby Green from DEP, May 23rd with Dr. Finkl and possibly Debbie Flack, and June 13th with Eric Olsen. The Board decided to discuss whatever items they have suggested in the report at the next meeting. Mr. Doney said at some time in the future the Board will need to come to some sort of vote process which will allow Mr. Lickle to complete his report.

VI. CONFIRMATION OF DATE & TIME FOR THE NEXT MEETING OF THE SHORE PROTECTION BOARD. (May 9, 1996 at 2:00 P.M.)

The next meeting of the Shore Protection Board was set for May 9, 1996, at 2:00 P.M.

VII. ANY OTHER MATTERS. Mr. Lickle said he has prepared a suggested view point for the Board's written report. He said he has listed nine topic areas, but they could be expanded. He asked that the members of the Board review the suggestions and return at the next meeting with comments and/or additions.

Mr. Lickle stated he has broken down his report into four segments. He said they are: the historical perspective, review of speakers and presentations, conclusions, and recommendations. Mr. Lickle said the recommendations will then be combined with the Town Staff's report and presented as a written report.

Mr. Isiminger said it was his opinion that everyone should submit ideas, which would be distributed, and the Board would then have discussion on the items. Mr. Dimm said it was the Board's responsibility to come to some conclusions, and the Town Council did not want 10 opinions.

Mr. Raffo said he would like the Board to meet in two weeks, and answer the questions posed by Mr. Lickle and discuss those questions.

Mr. Elwell cautioned the Board members regarding the Sunshine Law. He said he would discuss the matter with Mr. Randolph, but it may be necessary for the Board members to distribute their suggestions through the Town Manager's Office.

Mr. Doney said he would like to identify the handouts to the Board Members today. He said the package contains a letter from Colonel Terry L. Rice, U.S. Army District Engineer to Senator Bob Graham regarding the Palm Beach Harbor project. The next item is the March/April Newsletter from the Florida Shore & Beach Preservation Association. The third item is from Mayor Ilyinsky to Congressman Shaw regarding the Mayor and Town Council's position on the proposal by the Federal Government to eliminate Federal cost sharing of shore protection projects. The next item is a letter from Mr. Dusey to Dr. Dean, and also a letter from Mr. Dusey to Dr. Finkl confirming his appearance at the May 23rd Board meeting, and the last item is a letter to Mr. Green of the Florida Department of Environmental Protection confirming that Mr. Green will appear at the Board's next meeting which is scheduled for May 9, 1996.

Mr. Dusey informed the Board members that the beach nourishment at Mid-Town is now completed. He said the Corps is still dredging, and the contract is for 175,000 cubic yards of sand, and it is expected that the Town will receive that amount. Mr. Dusey said the Corps will leave approximately 50,000 cubic yards of sand in the inlet because no more funds are available. Mr. Lickle asked if the

Town Council has considered providing funds so the Town can buy the additional 50,000 cubic yards of sand? Mr. Dusey said that had been discussed with the Corps and the State of Florida, but there is a problem with the time frame. He said the Corps must stop dredging by the 15th of May, and there would not be time for additional dredging. Also, he said the Town would need to have an agreement with the Corps in order for them to dredge the sand which makes it almost impossible for the Town to receive the additional 50,000 cubic yards of sand.

Mr. Dusey was questioned as to when the Town might receive the 50,000 yards of sand? Mr. Dusey said he wasn't sure but one good thing that has come out of all this, is that the Port of Palm Beach now realizes that they have an interest in the Sand Transfer Plant. He said for the past two years there has been a crisis at the Port with the sand washing in and causing shipping problems. Mr. Dusey said he expects to meet with the County and the Port in the next few weeks to try to formulate some kind of partnership to improve the entire program.

Mr. Dusey said he was also very encouraged by the meeting, and hopefully cooperation between the County and the Town of Palm Beach will result in an interlocal agreement.

Mr. Raffo said he would hope that in two weeks the Board can present an awareness program to alert the Town residents as to what the Board and the Town Council are trying to accomplish. He said it would be helpful if the press would report to the people what is going on with the beach renourishment. Mr. Doney said Palm Beach County and the State of Florida should also be included in the program.

Mrs. Boulis who lives on Ibis Isle said she agrees with Mr. Martino regarding the Town's dunes. She said the dunes at Phipps Park, which is public beach, are in desperate need of restoration. She said the town houses at Sloan's Curve have restored their dunes and she has obtained the name of the man who did the work there. She said the gentleman's name is Robert H. Barron, and she would leave his card with the members of the Board. She suggested that Mr. Barron may be able to assist the Town with permitting. Mr. Dusey said Mr. Barron did the dune plantings at Mid-Town, and the Town is familiar with his work.

Mr. Lickle asked if that was the project where there was a lot of discussion regarding funding for those dunes, and it was an issue whether dunes were private or public?

Mr. Elwell said that was correct. He said there is a project known as the Palm Beach/South Palm Beach Dune Restoration Project which is focused at Phipps Ocean Park with a possibility that the Par 3 Golf Course may be included in the project. Mr. Elwell said the private property owners decided not to participate in that project. He stated if the property owners in the south end of Town want to participate in the Town's program they should contact the Town

Elwell said the County is paying for the public portions of the project.

Mr. Martino said he has been involved in dune restoration through the condominium association and Mr. Barron has helped them a lot. Mr. Martino felt the private property owners should be encouraged to participate in the dune restoration program.

Mr. Bresee said he would like to address Mr. Moffett's problem with arithmetic. He said he didn't follow the figures, but they will never match. He stated there are two reasons why they will be different. Mr. Bresee said one reason is, at the top of the jetty just west of the top of the sluice zone, there are two brass bench marks. He said there are black and red dots which are twenty feet apart. Mr. Bresee explained that if you go out approximately 200 feet to the east, there is a big hole under the jetty. Mr. Bresee said the second reason is there are large amounts of sand going over the top of the jetty at the top of the sluice zone when the right type of waves come to shore. He stated these conditions are not being addressed, and the Town will never solve the erosion problem until they are addressed.

Mr. Bresee stated there is a dune on the north side of the south jetty which should not be there. He said there is deep water on three sides of the dune, and the only way the dune can remain there is to add as much, or more, sand that is being eroded away. There are only two places the sand can come from. One is under the jetty through the hole and over the top, and the arithmetic in that situation is, if you put 100,000 cubic yards of sand on the south side of the jetty, 30,000 goes through and over the jetty. The Corps replaces the 30,000 yards of sand, but you are still counting back to the 100,000 yards of sand so the figures don't match.

Mr. Lickle asked if the Town is aware of the hole in the jetty? Mr. Dusey said he believed the Corps is aware of the problem and will be looking at it to determine the extent of the problem.

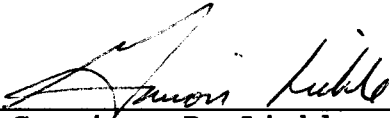
Mr. Isiminger said erosion has been a problem since 1944, and the Board should keep the renourishment project in perspective. Mr. Lickle said the problem goes back to 1934.

Mr. Raffo said it was his understanding that it takes one year for sand to move one mile, and he questioned if the Town would have to wait 15 years for sand to move down to the other inlet? Dr. Dean said that was the rule of thumb. He said sand doesn't instantly move from the north end of the island to the south, so if nourishment begins at the north end, the south end would not receive any real benefit of that sand for a long time, possibly 15 years or so.

Dr. Dean said there is an association called the American Shore and Beach Preservation Association who has published a magazine on beaches since 1930, and the archives has all the publications. He said it was amazing how often the Town of Palm Beach, both government and private citizens, play a role in the beaches and shores.

Shore Protection Board Meeting of April 25, 1996.

VIII. ADJOURNMENT. There being no further business to come before the Board the meeting was adjourned at 4:15 P.M.



Garrison D. Lickle, Chairman