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NAVIGATION IMPROVEMENTS FOR THE TAMPA HARBOR BIG BEND CHANNEL PROJECT, TAMPA HARBOR, FLORIDA

COMMUNICATION

FROM

ASSISTANT SECRETARY OF THE ARMY

TRANSMITTING

A LETTER FROM THE CHIEF OF ENGINEERS, DEPARTMENT OF THE ARMY DATED OCTOBER 13, 1998, SUBMITTING A REPORT WITH ACCOMPANYING PAPERS AND ILLUSTRATIONS

FEBRUARY 1, 2000.—Referred to the Committee on Transportation and Infrastructure and ordered to be printed

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LETTER OF TRANSMITTAL

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

02 DEC 1999

REPLY TO
ATTENTION OF

Honorable J. Dennis Hastert
Speaker of the House
of Representative
Washington, D.C. 20515

Dear Mr. Speaker:

Section 101(a)(18) of the Water Resources Development Act (WRDA) of 1999, authorized navigation improvements for the Big Bend Channel, Tampa Harbor, Florida. The Secretary of the Army supports the authorization and, subject to modifying the cost sharing as described in this report, plans to implement the project through the normal budget process.

The authorized project is described in the report of the Chief of Engineers dated October 13, 1998, which includes other pertinent reports and comments. These reports are submitted in partial response to resolutions adopted by the Senate Committee on Environment and Public Works on May 29, 1979, and the House Committee on Public Works and Transportation on November 14, 1979. The views of the State of Florida, the Department of the Interior, the Federal Energy Regulatory Commission, and the Environmental Protection Agency are set forth in the enclosed report.

The authorized project modifies the existing Big Bend Channel, which non-Federal interests originally constructed and maintained to a depth of 34 feet below mean low water (MLW), plus an additional 2 feet of depth for advance maintenance. The authorized project involves deepening the Big Bend entrance channel, east channel, and inner channel to a depth of 41 feet below MLW. The entrance channel would be widened from 200 feet to 250 feet, for a length of about 1.9 miles. Additionally, the existing turning basin would be deepened to a depth of 41 feet below MLW, and expanded in size to provide a minimum bottom width of 1,200 feet. An additional 2 feet of depth would be provided in the channels and turning basin for advance maintenance. As part of the project, berthing areas would be deepen and existing bulkheads would be modified. Approximately 3.5 million cubic yards of dredged material would be placed on Disposal Island 3D, which is about one mile from the entrance to the Big Bend Channel. The dikes on Island 3D would be raised approximately 7 feet to accommodate the material. A future raising of the dikes on Island 3D would be necessary to accommodate maintenance dredging. The project maximizes net national economic development benefits, and no separate fish and wildlife or cultural resources mitigation is required.

The Chief of Engineers recommends that the total project cost of $12,356,000, be shared at $6,235,000 Federal, and $6,121,000 non-Federal. However, during the Administration's review of the project, this cost sharing was modified. The project recommended by the Corps included Federal participation in the cost of two separate local access channels - the Inner Channel and the East Channel. The cost of these two project elements is estimated at $1,831,000, or about 15 percent of the total cost of the project. Each of these channels would serve for the foreseeable future only property owned by a single private entity. There are no public terminals on these channels, and they are not general navigation features as defined by Section 101 of WRDA 1986. Therefore, Federal participation should not have been recommended for either the initial construction or the operation and maintenance of these channels.

Based on April 1998 price levels, the Corps of Engineers estimates the total first cost of the project at $12,356,000. This cost includes $7,087,000 for cost shared general navigation features; $2,133,000 for the sponsor's modification of bulkheads; $1,831,000 for the sponsor's dredging local access channels; $867,000 for the sponsor's dredging and disposal of material from the berthing areas; and $438,000 for the Federal relocation of aids to navigation. There are no lands, easements, rights-of-way, or relocations required for the project. The project would be cost shared at $5,045,000 Federal, and $7,311,000 non-Federal.

The Office of Management and Budget advises that there is no objections to the submission of the report as modified by the Secretary of the Army to the Congress. A copy of its letter is enclosed in the report.

Sincerely,

Joseph W. Westphal
Assistant Secretary of the Army
(Civil Works)

Enclosure

COMMENTS OF THE OFFICE OF MANAGEMENT AND BUDGET

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

JUN 28 1999

The Honorable Joseph W. Westphal
Assistant Secretary of the Army for Civil Works
Pentagon - Room 2E570
Washington, D.C. 20310-0108

Dear Dr. Westphal:

As required by Executive Order 12322, the Office of Management and Budget has completed its review of your recommendation for the Tampa Harbor Big Bend Channel project, Florida.

The Administration supports authorization of this project for construction in accordance with the recommendation of your letter of January 22, 1999, with the following change. The recommended project includes Federal participation and cost-sharing for two separate side-channels, the Inner Channel and the East Channel. The first cost of these two project elements is estimated to be $1,831,000, or about 15 percent of the total investment cost of this project. Supporting material provided by the Corps of Engineers indicates that each of these channels would serve for the foreseeable future only property owned by a single private entity. In our view, Federal cost-sharing for these channels is inconsistent with the Corps of Engineers' single-owner policies. Therefore, there should be no Federal cost-sharing for the initial construction or the operation and maintenance for the Inner Channel and East Channel components of the project.

With this change in the way the project will be cost-shared, the Office of Management and Budget does not object to submission of this report to Congress.

Sincerely,

Kathleen Peroff
Deputy Associate Director
Energy and Science

COMMENTS OF THE STATE OF FLORIDA

STATE OF FLORIDA

DEPARTMENT OF COMMUNITY AFFAIRS

"Helping Floridians create safe, vibrant, sustainable communities"

LAWTON CHILES
Governor

JAMES F. MURLEY
Secretary

March 24, 1998

Mr. James Warren
Department of the Army
Policy Review Branch
Policy Division
Attn: CECW - AR (SA)
7701 Telegraph Road
Alexandria, Virginia 22315-3861

RE: U.S. Department of the Army - Navigation Projects - Revised Navigation Study for Tampa Harbor - Big Bend Channel - 10128 - Feasibility Report and Environmental Assessment - Chief of Engineers Report
SAI: FL9607180575CR

Dear Mr. Warren:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended, has coordinated a review of the above-referenced project.

The Department of Environmental Protection (DEP) indicates that previous concerns regarding impacts to manatees and seagrasses have been addressed; however, the DEP reiterates that loss of seagrasses should be avoided and turbidity in and around the dredge site should be minimized. An Environmental Resource Permit issued through the DEP will be required. The submerged lands in Hillsborough County are not state-owned; therefore, a sovereign submerged lands easement will not be required. The applicant should contact the DEP regarding permitting requirements. Please refer to the enclosed DEP comments.

Based on the information contained in the feasibility report and environmental assessment and the enclosed comments provided by our reviewing agencies, the state has determined that the

above-referenced project is consistent with the Florida Coastal Management Program. Comments received from the Tampa Bay Regional Planning Council are also enclosed for your review.

Thank you for the opportunity to review this project. If you have any questions regarding this letter, please contact Ms. Cherie Trainor, Clearinghouse Coordinator, at (850) 922-5438.

Sincerely,

Ralph Cantral, Executive Director
Florida Coastal Management Program

RC/cc

Enclosures

cc: Jim Wood, Department of Environmental Protection
John Meyer, Tampa Bay Regional Planning Council

COMMENTS OF THE DEPARTMENT OF THE INTERIOR

United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

ER 98/066

Mr. David B. Sanford, Jr.
Chief, Policy Division
Directorate of Civil Works
U.S. Army Corps of Engineers
ATTN: CECW-AR (SA)
7701 Telegraph Road
Alexandria, VA 22315-3861

FEB 20 1998

Dear Mr. Sanford:

The U.S. Department of the Interior has reviewed the Chief of Engineers Proposed Report for the Navigation Study on Tampa Harbor, Big Bend Channel, Hillsborough County, Florida.

The report adequately addresses fish and wildlife resources. Therefore, we have no comment and do not object to the proposed project.

Sincerely,

Terence N. Martin

for Willie R. Taylor, Director
Office of Environmental
Policy and Compliance

COMMENTS OF THE FEDERAL ENERGY REGULATORY COMMISSION

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D. C. 20426

OFFICE OF HYDROPOWER LICENSING

OHL/DLC

MAR 0 6 1998

Mr. James Warren
Policy Review Branch
Policy Division
ATTN: CECW-AR (SA)
7701 Telegraph Road
Alexandria, VA 22315-3861

Dear Mr. Warren:

This refers to the September 1996 Navigation Study for Tampa Harbor, Florida, prepared by the Office of the Chief of Engineers and the Jacksonville District Corps of Engineers, provided to our office for review and comment. The study evaluates the feasibility of navigation improvements and Federal maintenance of Big Bend Channel and the Alafia River Federal project at Tampa Harbor. The study recommends modifications only to Big Bend Channel, which include deepening and widening the channel to safely accommodate the existing and prospective vessel fleet.

Our review indicates that, because there are no hydroelectric developments near Tampa Bay, the proposed modifications will not impact existing hydroelectric facilities. Therefore, we have no comments on the Tampa Harbor Navigation Study.

We appreciate the opportunity to review this study. If you have any questions, please contact Allyson Lichtenfels at (202) 219-3274.

Sincerely,

Joseph D. Mayjen

Carol L. Sampson
Director
Office of Hydropower Licensing

cc: Public Files

COMMENTS OF THE ENVIRONMENTAL PROTECTION AGENCY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW
ATLANTA, GEORGIA 30303-8909

FEB 9 1999

Policy Review Branch
Policy Division
ATTN: CECW-AR (SA)
7701 Telegraph Road
Alexandria, VA 22315-3861

Attn.: Mr. James Warren

Subject: Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for the Tampa Harbor, Big Bend Channel, Hillsborough County, FL

Dear Sir:

Pursuant to Section 309 of the Clean Air Act, EPA, Region 4 has reviewed the subject document which discusses the immediate impacts and long-term consequences of upgrading the Big Bend Channel element of Tampa Harbor and have nothing to add to our original observations to the proposal.

Thank you for the opportunity to comment on this action. If we can be of further assistance in this matter, Dr. Gerald Miller (404-562-9626) will serve as initial point of contact.

Sincerely,

Heinz J. Mueller, Chief
Office of Environmental Assessment

TAMPA HARBOR, BIG BEND CHANNEL, FLORIDA

REPORT OF THE CHIEF OF ENGINEERS, DEPARTMENT OF THE ARMY

DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON, D.C. 20314-1000

REPLY TO
ATTENTION OF:

CECW-PE (10-1-7a) 13 OCT 1998

SUBJECT: Tampa Harbor, Big Bend Channel, Florida

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on the Tampa Harbor, Big Bend Channel, Florida, study of navigational improvements. It is accompanied by the reports of the district and division engineers. These reports are in partial response to House and Senate resolutions dated 14 November 1979 and 29 May 1979, respectively. The resolutions request review of the report of the Chief of Engineers on Tampa Harbor, Florida, House Document 401, Ninety-first Congress, second session, to determine if the authorized project should be modified. The resolutions specify that improving and maintaining the existing local project for Big Bend Channel and the existing Federal project for Alafia River be considered.

2. The reporting officers recommend modifying the Tampa Harbor navigation project to deepen the entrance channel, east channel, and inner channel at Big Bend from 34 feet to 41 feet below mean low water (MLW). The entrance channel would be widened from 200 feet to 250 feet for a length of 1.9 miles. Additionally, the existing turning basin would be deepened to 41 feet MLW and expanded to provide a minimum width of 1,200 feet. An additional 2 feet of depth would be dredged in the channels and turning basin in conjunction with the initial construction for purposes of advanced maintenance. Associated non-Federal facilities include deepening the berthing areas and modifying bulkheads. Approximately 3.5 million cubic yards of dredged material from the initial construction would be placed on Disposal Island 3D. The dikes on Island 3D would be raised approximately 7 feet to accommodate material from the initial construction of the Big Bend project. A future raising of the disposal area dikes on Island 3D would be necessary to accommodate maintenance dredging. With the authorization of the improvements noted above, the Big Bend channel will become part of the Federal improvements at Tampa Harbor. The plan recommended by the district engineer is the national economic development plan. Preconstruction engineering and design activities for this proposed project will be continued under the resolutions cited above.

3. Project costs are allocated to the commercial navigation project purpose. Based on April 1998 price levels, the estimated cost of the general navigation features (GNF) is $8,918,000. The

GNF costs include dredging of the channels and turning basin and construction of a dredged material disposal facility. In accordance with Section 101 of WRDA 1986, as amended by Section 201 of WRDA 1996, the Federal and non-Federal shares of GNF are estimated to be $5,797,000 and $3,121,000, respectively. In addition, the Federal government would incur the cost of navigational aids currently estimated to be $438,000. Ten percent of the non-Federal share of costs allocated to GNF may be initially Federally funded and repaid to the Federal government over a period not to exceed 30 years. The non-Federal interests may receive credits for the value of lands, easements, rights-of-way, and relocations (LERR) necessary for the Federal project.

4. Non-Federal interests must bear the cost of local service facilities, including dredging berthing areas, providing disposal area capacity to dispose of dredged materials from berthing areas, and modifying bulkheads. The estimated costs of non-Federal responsibilities that are not subject to cost sharing are estimated to be $2,133,000 for bulkhead modifications and $867,000 for berthing area dredging. This $3,000,000 total cost does not include disposal costs associated with berthing area material since the berthing area material will continue to be placed in the currently used private upland facility. Prior to or during initial construction, the non-Federal interests will also be responsible for the cost of the removal of any shoaled maintenance material from the existing Big Bend channel and turning basin. This cost is expected to be minimal since the existing channel is actively maintained to a depth of 36 feet below MLW, which includes 2 feet for advanced maintenance. Pre-condition surveys will be used to determine this non-Federal cost prior to initiation of construction.

5. The total cost for all features required to obtain the projected navigation benefits, including GNF, LERR, local service facilities, and aids-to-navigation are estimated to be $12,356,000. Of this amount, $6,235,000 would be Federal, and $6,121,000 would be non-Federal. The equivalent annual operation, maintenance, repair, rehabilitation, and replacement (OMRR&R) requirements are currently estimated at $295,000, based on maintaining the channels, the disposal site facilities, non-Federal berthing areas, and aids-to-navigation. These costs include future disposal facility improvements at Island 3D for creation of capacity for placement of maintenance materials. These disposal facility improvements would be cost shared as GNF. The equivalent annual OMRR&R costs would be allocated $246,000 Federal ($187,000 for maintenance dredging of the channel and turning basin, $3,000 for maintenance of navigation aids, and $56,000 for disposal facility improvements) and $49,000 non-Federal ($19,000 for maintenance dredging of the berthing area and $30,000 for disposal facility improvements). Island 3D is currently being used as a disposal site for the existing Tampa Harbor project and the estimated maintenance costs are $60,000 annually. Maintenance costs for the improved disposal site are not expected to increase over and above the current amount but will become a Federal responsibility. Average annual benefits and costs, based on April 1998 price levels and an discount rate of 7-1/8 percent, are estimated at $3,830,000 and $1,204,000, respectively, with a resulting benefit-cost ratio of 3.2 to 1.

6. Washington level review indicates that the proposed plan is technically sound, economically justified, and environmentally and socially acceptable. The proposed project complies with applicable U.S. Army Corps of Engineers planning procedures and regulations. Also, the views of interested parties, including Federal, State, and local agencies have been considered.

7. Accordingly, I recommend that the existing Tampa Harbor project be modified to provide navigation improvements generally in accordance with the reporting officers' recommended plan, and with such modifications as in the discretion of the Chief of Engineers that may be advisable. My recommendation is subject to cost sharing, financing, and other applicable requirements of Section 101 of WRDA 1986, as amended by Section 201 of WRDA 1996, for navigation projects. Also, this recommendation is subject to the non-Federal sponsor agreeing to comply with applicable Federal laws and policies, including the following requirements:

a. Provide, operate, maintain, repair, replace, and rehabilitate, at its own expense, the local service facilities in a manner compatible with the project's authorized purposes and in accordance with applicable Federal and State laws and regulations and any specific directions prescribed by the Federal Government;

b. Provide, at no cost to the Government, funds to pay the proportional cost of construction of any dredged material disposal facilities and maintenance thereof, necessary to dispose of dredged or excavated material for the local service facilities during the initial construction of the local service facilities and the operation, maintenance, repair, replacement, and rehabilitation of the local service facilities;

c. Provide all lands, easements, and rights-of-way, including those lands, easements, and rights-of-way required for dredged or excavated material disposal areas, and perform or ensure the performance of all relocations determined by the Federal Government to be necessary for the construction, operation, maintenance, repair, replacement, and rehabilitation of the general navigation features (including all lands, easements, rights-of-way, and relocations necessary for dredged material disposal facilities);

d. Accomplish all removals determined necessary by the Federal Government other than those removals specifically assigned to the Federal Government;

e. In accordance with Section 201 of the Water Resources Development Act of 1996, provide, during the period of construction, a cash contribution equal to the non-Federal cost share of the project's total cost of construction of the general navigation features, which include the construction of land-based and aquatic dredged material disposal facilities or improvements thereof that are necessary for the disposal of dredged material required for project construction,

operation, or maintenance and for which a Federal contract for the facility's construction or improvement was not awarded on or before October 12, 1996;

f. Repay with interest, over a period not to exceed 30 years following completion of the period of construction of the project, up to an additional 10 percent of the total cost of construction of general navigation features depending upon the amount of credit given for the value of lands, easements, rights-of-way, and relocations provided by the non-Federal sponsor for the general navigation features. If the amount of credit exceeds 10 percent of the total cost of construction of the general navigation features, the non-Federal sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of lands, easements, rights-of-way, and relocations in excess of 10 percent of the total cost of construction of the general navigation features;

g. Provide, or pay to the Federal Government, prior to or during the period of construction, the cost of removal of shoaled maintenance material from the existing Big Bend channel and turning basin which are currently maintained by non-Federal interests at a depth of 36 feet below MLW (when including added depth for advanced maintenance);

h. Give the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal sponsor owns or controls for access to the general navigation features for the purpose of inspection, and, if necessary, for the purpose of operating, maintaining, repairing, replacing, and rehabilitating the general navigation features;

i. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, replacement, and rehabilitation of the project, any betterments, and the local service facilities, except for damages due to the fault or negligence of the United States or its contractors;

j. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents, and other evidence is required, to the extent and in such detail as will properly reflect total cost of construction of the general navigation features, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and local governments at 32 CFR, Section 33.20;

k. Perform, or cause to be performed, any investigations for hazardous substances as are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9601-9675, that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be necessary for the construction, operation,

maintenance, repair, replacement, or rehabilitation of the general navigation features. However, for lands that the Government determines to be subject to the navigation servitude, only the Government shall perform such investigation unless the Federal Government provides the non-Federal sponsor with prior specific written direction, in which case the non-Federal sponsor shall perform such investigations in accordance with such written direction;

l. Assume complete financial responsibility, as between the Federal Government and the non-Federal sponsor, for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be necessary for the construction, operation, maintenance, repair, replacement, and rehabilitation of the general navigation features;

m. Agree that the non-Federal sponsor shall be considered the operator of the project for the purpose of CERCLA liability. To the maximum extent practicable, perform its obligations in a manner that will not cause liability to arise under CERCLA;

n. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987, and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way, required for construction, operation, maintenance, repair, replacement, and rehabilitation of the general navigation features, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;

o. Comply with all applicable Federal and State laws and regulations, including, but not limited to, Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d), and Department of Defense Directive 5500.11 issued pursuant thereto, as well as Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army";

p. Provide a cash contribution equal to the non-Federal cost share of the project's total historic preservation mitigation and data recovery costs attributable to commercial navigation that are in excess of 1 percent of the total amount authorized to be appropriated for commercial navigation;

q. Enter into an agreement which provides, prior to construction, 25 percent of preconstruction engineering and design (PED) costs;

r. Provide during construction, any additional funds needed to cover the non-Federal share of PED costs; and

s. Do not use Federal funds to meet the non-Federal sponsor's share of total project costs unless the Federal granting agency verifies in writing that the expenditure of such funds is authorized.

8. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It does not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program nor the perspective of higher review levels within the executive branch. Consequently, the recommendation may be modified before it is transmitted to Congress as a proposal for authorization and implementation funding. Prior to transmittal to Congress, we will coordinate any modifications with the Tampa Port Authority, the State of Florida, interested Federal agencies, and other parties, and these parties will be afforded an opportunity to comment further.

JOE N. BALLARD
Lieutenant General, U.S. Army
Chief of Engineers

REPORT OF THE DISTRICT ENGINEER

September 1996

(REVISED SEPTEMBER 1997)

Revised August 1998

NAVIGATION STUDY FOR TAMPA HARBOR - BIG BEND CHANNEL - 10128

FEASIBILITY REPORT AND ENVIRONMENTAL ASSESSMENT

US Army Corps of Engineers
Jacksonville District
South Atlantic Division

SYLLABUS

The Tampa Port Authority agreed to sponsor a study of Big Bend Channel and Alafia River. A United States House Committee Resolution adopted November 14, 1979, authorized the study and this report. The Alafia River portion of the study is a single owner situation, and the U.S. Army Corps of Engineers policy does not support improvements to benefit one owner. The feasibility study excluded Alafia River from further consideration. The study findings in this report are only for the Big Bend Channel portion.

The Big Bend Channel study considered engineering, economic, and environmental alternatives in deciding on a plan for improving navigation. The evaluations considered enlarging the channel bottom area as well as deeper depths over that area. Model simulation studies concluded that widening the existing entrance channel from 200 to 250 feet was necessary. That model also indicated a need to enlarge the turning basin for vessels changing direction between the entrance and inner channels. The inner channel and east channel increments of the project remain at an existing bottom width of 200 feet. Depth considered for the channel bottom area ranged from 36 to 46 feet. The selected depth from economic analysis is 41 feet. The total first cost of the navigation project is $11,348,000 and the total economic first cost is $11,398,000. The Federal share of the total first cost is $5,747,000 which includes navigation aid costs of $438,000. The sponsor's share is $5,601,000 which includes berth deepening and bulkhead modification costs.

Economic analysis determined the average annual equivalent (AAEQ) values for benefits and costs. The benefits are from transportation savings in the movement of coal, phosphate rock, and phosphate chemicals. The AAEQ benefits are about $3,729,000. The AAEQ costs include interest and amortization of the total first costs along with periodic maintenance dredging and disposal costs at an interest rate of 7.625 percent. That cost is an estimated $1,211,000. The benefit-to-cost ratio is 3.1 to 1.

An update of the economics and costs was completed in May 1998. Revised AAEQ benefits are $3,830,000. The revisions were based upon the current 1998 interest rate of 7.125 percent. The total project construction cost based on April 1998 prices is now estimated at $12,356,000. The Federal share of the construction cost is estimated to be $6,235,000 and the non-Federal share is estimated to be $6,121,000. The revised AAEQ costs which include interest and amortization of the total first costs along with periodic maintenance dredging and disposal costs at an interest rate of 7.125 percent. That cost is an estimated $1,204,000. The benefit-to-cost ratio is 3.2 to 1.

The study also explored the use of dredged material for environmental benefits. The estimated high fines content in the dredged material makes it unsuitable for direct deposit in an unconfined area. A beneficial use plan was not possible to do along with the proposed navigation project. The process to obtain suitable material for beneficial use involved placement of all excavated quantities first into disposal island 3D. That initial step enables the separation of fines from coarser grain materials within the disposal area. Material, not needed for dike construction, would be available for use in projects to benefit the environment. Consideration of a project for use of that material is more appropriate at some future date using an available authorization process to determine the most feasible plan.

SELECTED/NED PLAN COST SHARING
(April 1998 Price Level)

ITEM	TOTAL COST (000)	FEDERAL SHARE (000)	NON-FEDERAL SHARE (000)
General Navigation Features (GNF)			
Channels and Turning Basin	$5,248	$3,411 1/	$1,837 2/
Environmental Monitoring	92	60	32
Dike and weir construction	2,249	1,462	787
Preconstruction Eng & Design	591	384	207
Construction Management	738	480	258
Subtotal, GNF Costs	$8,918	$5,797	$3,121
Features not Cost Shared			
Berthing Areas 3/	$768	0	$ 768
Preconstruction Eng & Design	44	0	44
Construction Management	55	0	55
Subtotal, Berthing Areas	$867	0	$867
Bulkhead Modification 3/	2,133	0	2,133
Navigation Aids	438	438	0
TOTALS	$12,356	$6,235	$6,121

NOTES:

1/ The estimated Federal share of general navigation features is 65 percent. The non-Federal sponsor has no estimated credit.

2/ Non-Federal sponsor cost is a 25 percent cash contribution plus 10 percent over 30 years for a total of 35 percent of the general navigation features .

3/ Berthing areas dredging and bulkhead modifications are 100 percent non-Federal expenses. Also included is a user fee of $222,000 to use disposal area 3D for placement of berthing area material.

SELECTED/NED PLAN COST SHARING
(April 1998 Price Level)

COST ACCOUNT/DESCRIPTION	TOTAL COST (000)	FEDERAL SHARE (000)	NON-FEDERAL SHARE (000)	FULLY FUNDED COST (000)	FEDERAL SHARE (000)	NON-FEDERAL SHARE (000)
12 DREDGING	$ 10,928	$5,317	$5,557	$ 11,678	$ 5,780	$ 5,898
Channels and Turning Basin	5,248	3,411	1,837	5,618	3,689	1,929
Environmental Monitoring	92	60	32	98	64	34
Navigation Aids	438	438	0	468	468	0
Disposal Areas	2,249	1,462	787	2,399	1,559	840
Berthing Areas	768	0	768	819	0	819
Bulkhead Modification	2,133	0	2,133	2,276	0	2,276
30 PLANNING, ENGINEERING AND DESIGN	$ 635	$ 384	$ 251	$ 658	$ 397	$ 261
Engineering & Design Complete	258	168	90	258	168	90
Engineering & Design	333	216	117	353	229	124
Engineering & Design (100% Non-Fed)	44	0	44	47	0	47
31 CONSTRUCTION MANAGEMENT	$ 793	$ 480	$ 313	$ 864	$ 523	$ 341
Construction Mgmt	738	480	258	804	523	281
Construction Mgmt (100 % non-Fed)	55	0	55	60	0	60
TOTALS	$12,356	$6,235	$6,121	$13,200	$ 6,700	$6,500

SUMMARY COMPARISON OF SELECTED PLAN BENEFITS AND COSTS

ITEMS	41 Feet
AAEQ Benefits	$3,830,000
Costs - Interests and Amortization 1/	909,000
Maintenance: Channel shoals 2/	206,000
Navigation aids	3,000
Disposal area costs 3/	86,000
Total AAEQ costs	$1,204,000
Benefit-to-cost ratio	3.2 to 1

NOTES:

1/ The total first cost ($12,356,000) plus IDC of $50,000 is the total economic cost for the project. That economic cost is then amortized over 50 years at an interest rate of 7.125 percent for the AAEQ cost for all channels (including Advanced Maint), turning basin, bulkhead modifications, berthing areas, and 7 feet of dike on disposal area 3D. During project construction, an additional 3 feet (above the 7 feet required for construction) will be constructed for maintenance at a cost of $1,906,000. The Big Bend Share is $423,000. This first cost is from the updated project cost estimate.

2/ Annual costs for maintenance to remove shoals include the excavation of material from the project channels, turning basin, and berthing areas with placement in disposal island 3D. Includes removal of 720,000 cy of material every nine years for the 50 year project life. Each maintenance event is estimated in current dollars at $2,517,000. The present worth of all of the maintenance events on 9 year cycles is $2,587,000. The present worth spread out over 50 years at 7.125% is $206,000. The Non-Federal portion of the cost is $19,000 for berthing area maintenance. The Federal portion is $187,000 for channel and turning basin maintenance.

3/ Average annual costs for disposal include the Big Bend Share (22.2%) of all dike improvements at Disposal Island 3D. In project year 7, an additional 10 feet of dike will be construction for maintenance at a cost of $7,729,000. The Big Bend Share is $1,716,000. The Present Value of $1,716,000 at 7.125% is $1,060,000 which is the total first cost of the Big Bend Share. The AAEQ of $1,060,000 at 7.125% over a 30 year life is $86,000. The non-Federal cost sharing is 35 percent of the $86,000 or $30,000. The Federal cost is 65 percent or $56,000.

INTRODUCTION

The Big Bend navigation features are now privately maintained to serve two land owners. Those owners handle phosphate rock and phosphate chemicals as well as coal for electric power generation. The Tampa Port Authority also owns land in the area with potential for future terminal development. The depth of the channels, berths, and turning basin is presently about 34 feet[1]. The entrance and inner channel widths are about 200 feet. The irregularly shaped turning basin has a turning diameter of about 1,000 feet.

A reconnaissance report was completed in 1980 that recommended further study for both Big Bend Channel and Alafia River. The following feasibility report recommended channel widths of 300 feet and depths of 43 feet for both Alafia River and Big Bend Channel. The feasibility report was submitted to the Board of Engineers for Rivers and Harbors in 1985 but was returned at the sponsor's request. Another reconnaissance report was prepared in 1991 which recommended further study of only Big Bend Channel. Alafia River was found to be a single owner situation and no further study was recommended for that portion. A Feasibility Cost Sharing Agreement (FCSA) was negotiated and executed in 1992 for a feasibility level study of Big Bend Channel. This report is the culmination of that study.

AUTHORITY

The present study is authorized by Senate and House Resolutions adopted 29 May 1979 and 14 November 1979, respectively. The content of the resolutions is as follows for the study area shown on figure 1:

"Resolved by the committee on Public Works and Transportation of the House of Representatives, United States, that the Board of Engineers for Rivers and Harbors is hereby requested to review the report of the Chief of Engineers on Tampa Harbor, Florida, printed in House Document No. 401, Ninety-First Congress, Second Session, and other pertinent reports, with a view of determining if the authorized project should be modified in any way at this time, with particular reference to improvement and maintenance of the existing local project for Big Bend Channel and the existing Federal project for Alafia River." and

[1] All depths in this report are referenced to mean low water except where stated otherwise.

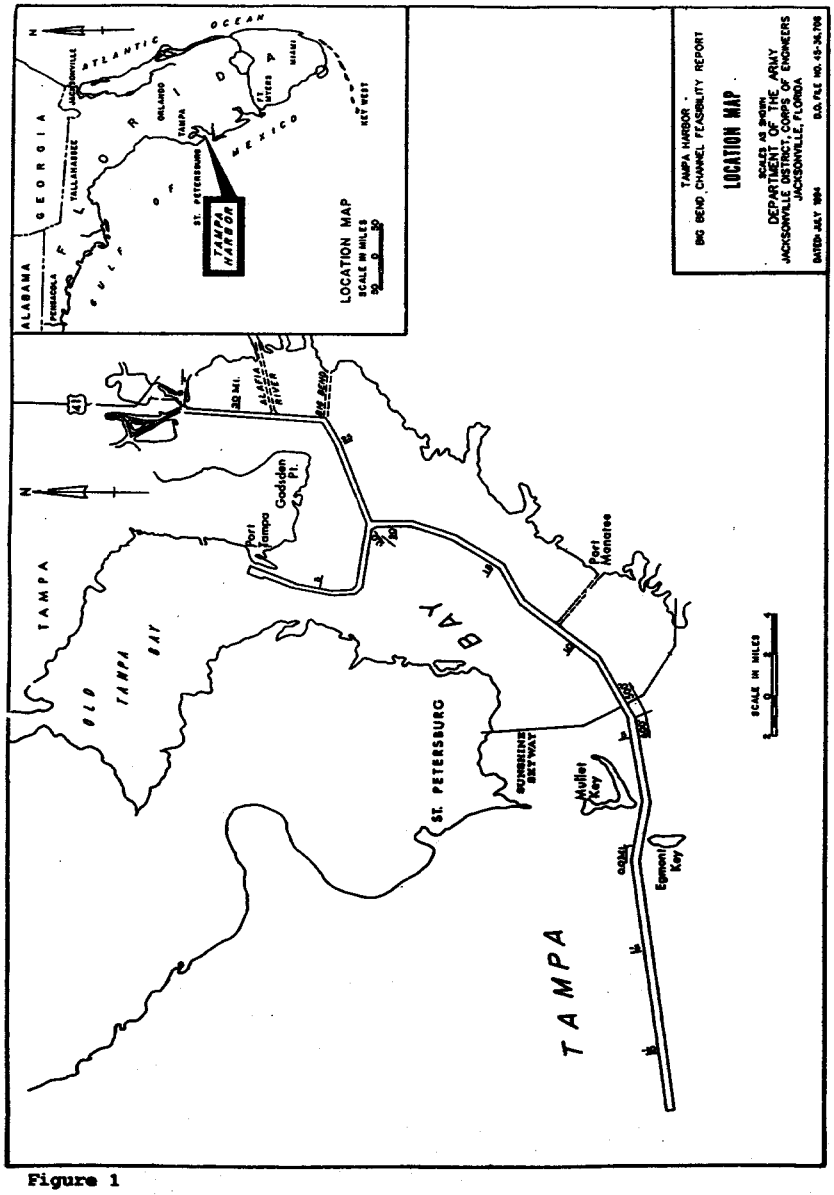
TAMPA HARBOR
BIG BEND CHANNEL FEASIBILITY REPORT
LOCATION MAP
SCALES AS SHOWN
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA
DATED: JULY 1994
D.O. FILE NO. 45-36,706
LOCATION MAP
SCALE IN MILES
ALABAMA
GEORGIA
ATLANTIC OCEAN
FLORIDA
GULF OF MEXICO
TAMPA HARBOR
ST. PETERSBURG
TAMPA
OLD TAMPA BAY
ST. PETERSBURG
TAMPA BAY
Port Tampa
Gadsden Pt.
Port Manatee
Mullet Key
Egmont Key
SUNSHINE SKYWAY
ALAFIA RIVER
BIG BEND
SCALE IN MILES

Figure 1

"Resolved by the committee on Environment and Public Works of the United States Senate, that the Board of Engineers for Rivers and Harbors is hereby requested to review the report of the Chief of Engineers on Tampa Harbor, Florida, printed in House Document No. 401, Ninety-First Congress, Second Session, and other pertinent reports, with a view of determining if the authorized project should be modified in any way at this time, with particular reference to improvement and maintenance of the existing local project for Big Bend Channel and the existing Federal project for Alafia River."

PURPOSE AND SCOPE

The Tampa Port Authority (TPA) is the sponsor for the recommended modifications to the existing project at Big Bend Channel. The purpose of this study is to consider the feasibility of further modifying the existing private navigation project for Big Bend Channel. Particular emphasis is placed on deepening and widening the existing channel to safely accommodate the existing and prospective vessel fleet. The channel provides access to the authorized 43-foot Tampa Harbor Main Shipping Channel. This report provides the results of investigations to determine the Federal interest and feasibility of project construction. The selected solution from that investigation is in concert with current policies for navigation improvements to the existing project at Big Bend Channel.

PRIOR STUDIES AND REPORTS

A second reconnaissance report on Big Bend Channel and Alafia River was completed in 1991. The recommendation in that report was only for more detailed study of the Big Bend Channel. This feasibility report contains the results of that study. The only other study and report on Big Bend Channel was in conjunction with the Alafia River. That report went to the Board of Engineers for Rivers and Harbors in 1985. That Board returned the report at the local sponsor's request.

The first favorable report for the Alafia River, contained in Senate Document 16, 77th Congress, First Session, recommended a channel 150 feet wide and turning basin to a depth of 25 feet in Alafia River. The second favorable report in House Document 258, 81st Congress, First Session, recommended a channel 200 feet wide and turning basin 700 feet by 1200 feet both to a depth of 30 feet in Alafia River. The River and Harbor Acts of 2 March 1945 and 17 May 1950, respectively, authorized those projects.

Numerous studies have been made on the existing Tampa Harbor project; the latest report is in House Document 91-401, 91st Congress, First Session, and the most recent Congressional project authorization is in the River and Harbor Act of 31 December 1970.

EXISTING PROJECTS

The existing Federal project in the study area is Tampa Harbor. The Tampa Harbor project provides a channel depth of 43 feet to phosphate terminals located in Hillsborough Bay (see figure 1). Alafia River is an existing Federal project as part of the Tampa Harbor project. As authorized, Alafia River has a channel depth of 30 feet water over a bottom width of 200 feet from the ship channel in Hillsborough Bay to and including a turning basin 700 feet wide and 1,200 feet long in Alafia River. The project length is about 3.6 miles.

Big Bend Channel is a privately constructed and maintained channel 34 feet deep by 200 feet wide from the main ship channel in Hillsborough Bay to and including a turning basin 1,000 feet long by 700 to 1,500 feet wide. The length of the project is about 2.2 miles (see figure 2).

EXISTING CONDITIONS

The navigation features at Big Bend consist of an entrance channel, turning basin, inner channel, and berthing areas. Private interests dredged a channel to provide access from the Tampa Harbor Main Ship Channel to the facilities in southeast Hillsborough County. Excavation began in 1967 to provide a channel 34 feet deep and 200 feet wide with dredged material going into a private upland area. Construction also included a turning basin and inner channel with project completion in 1969. Since construction, area interests have maintained the project with shoal material going into private upland areas.

PORT BERTHS AND TERMINAL FACILITIES

The general location of facilities at Big Bend are on figure 3. Those terminals enable the unloading of coal and the loading of phosphate rock, processed phosphate chemical, and phosphoric acid. Coal and phosphate rock are the major commodities. The coal terminal is on the southern end of the inner channel next to the coal-fired power plant (see figures 2 and 4). The phosphate loading terminal is on the south side of the channel that is off the eastern end of the turning basin. The sponsor has 150 acres of undeveloped land along the north side of that channel in the Port Redwing area.

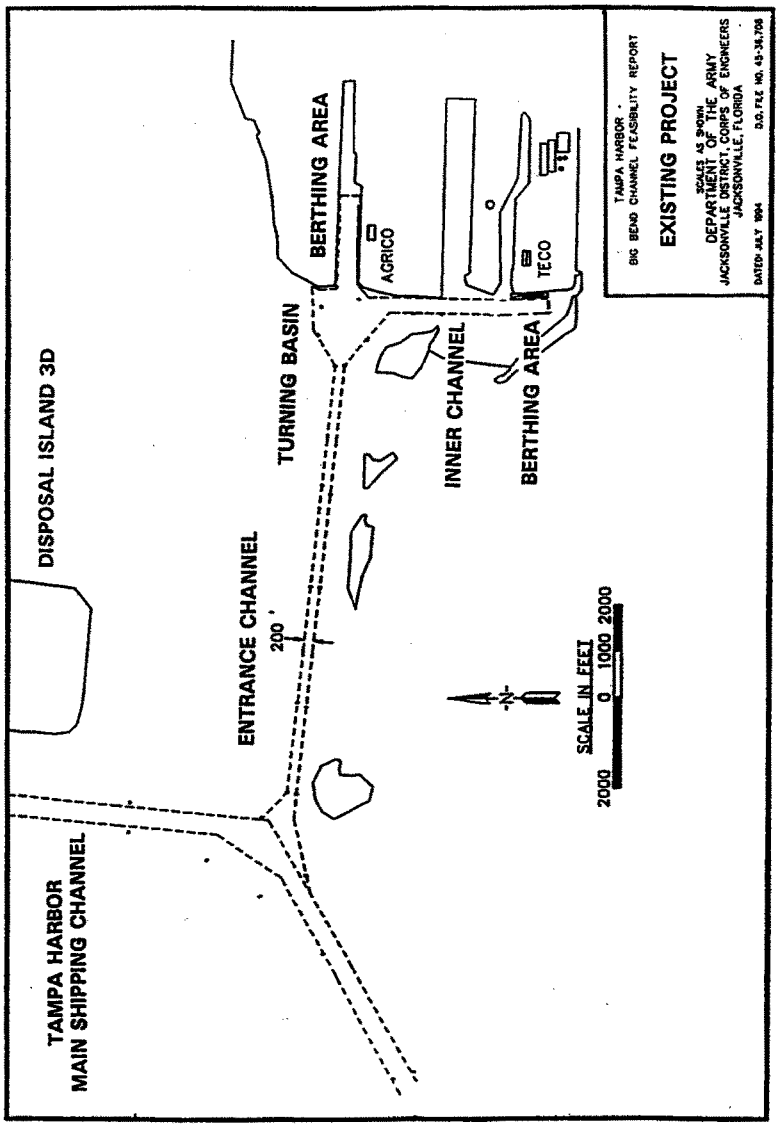
TAMPA HARBOR
MAIN SHIPPING CHANNEL
DISPOSAL ISLAND 3D
ENTRANCE CHANNEL
200'
TURNING BASIN
BERTHING AREA
AGRICO
INNER CHANNEL
BERTHING AREA
TECO
SCALE IN FEET
2000 0 1000 2000
TAMPA HARBOR
BIG BEND CHANNEL FEASIBILITY REPORT
EXISTING PROJECT
SCALES AS SHOWN
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA
DATE: JULY 1994
D.O. FILE NO. 45-36,706

Figure 2

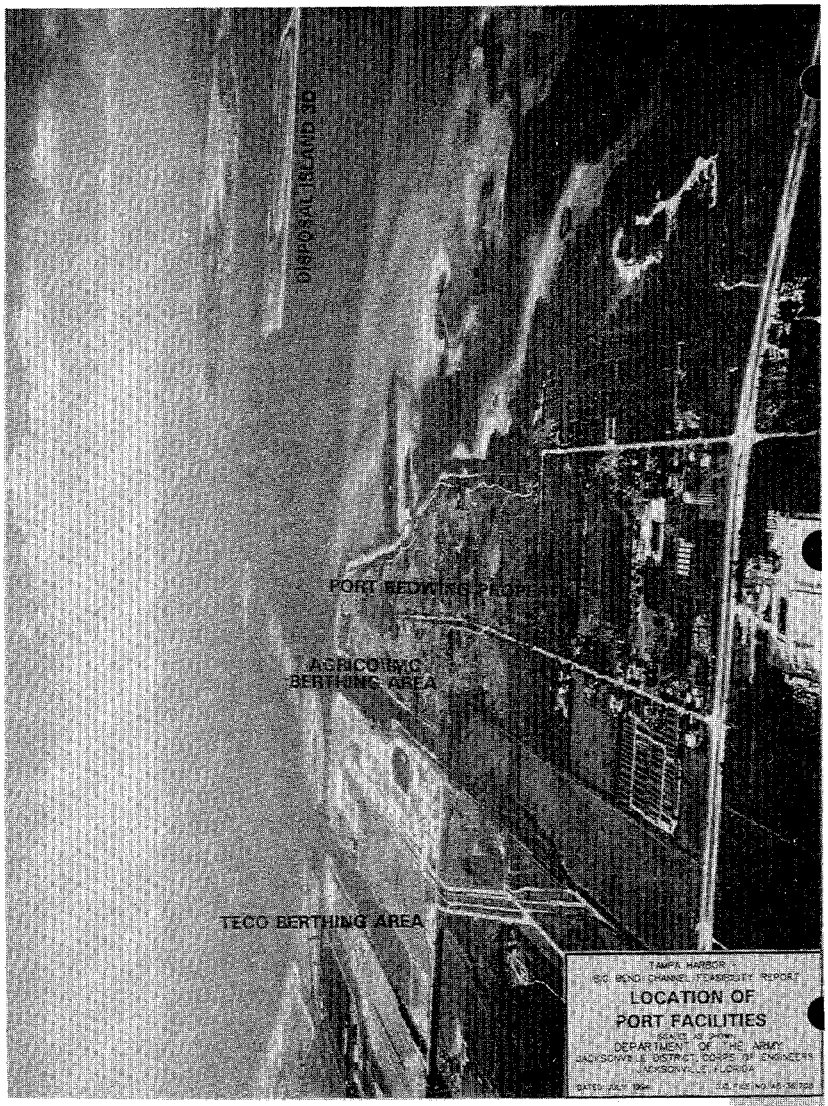
DISPOSAL ISLAND 3D
PORT REDWING PROPERTY
AGRICO/IMC
BERTHING AREA
TECO BERTHING AREA
TAMPA HARBOR
BIG BEND CHANNEL FEASIBILITY REPORT
LOCATION OF
PORT FACILITIES
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

FIGURE 3

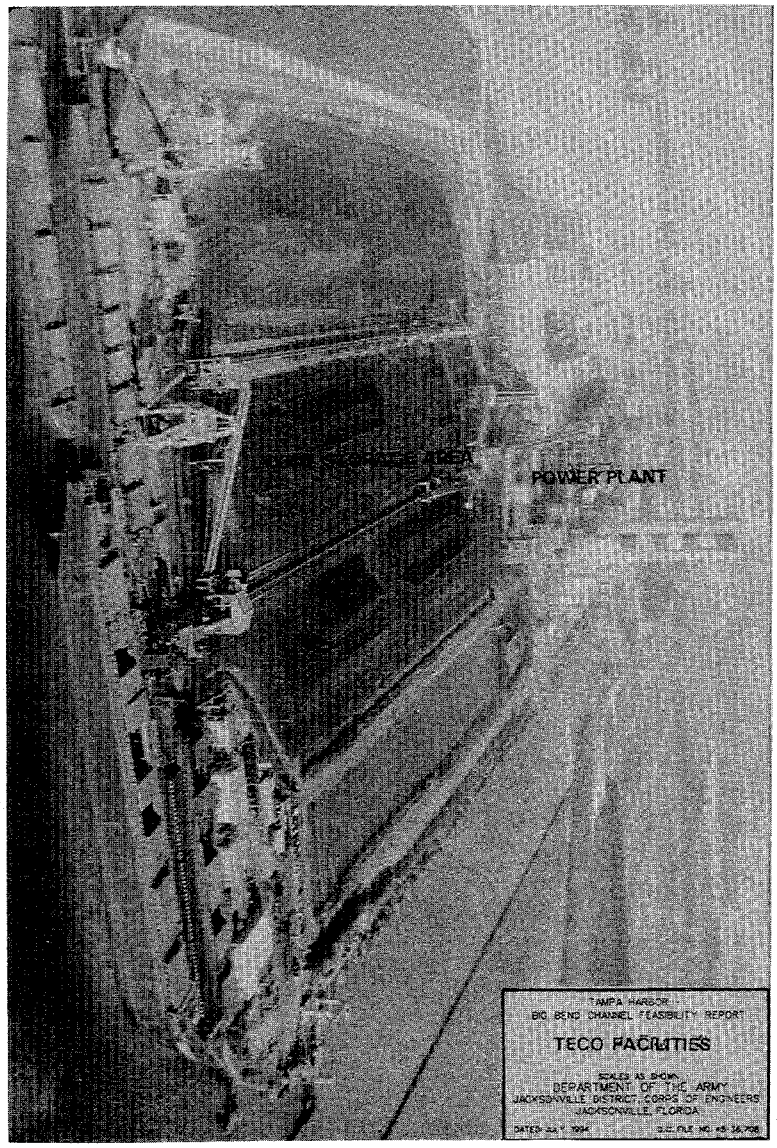
POWER PLANT
TAMPA HARBOR
BIG BEND CHANNEL FEASIBILITY REPORT
TECO FACILITIES
SCALES AS SHOWN
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

FIGURE 4

The terminal in figure 4 handles integrated tug-barge movements of coal. Useable wharf length at that terminal is about 1,100 feet with berth depths of 34 feet. The terminal has two overhead cranes, ladder and bucket type, for unloading coal from the barges. Each of those cranes has an unloading rate of about 2,000 short tons per hour. The coal moves on a conveyor to one of three storage areas in the figure. Those areas have a total static capacity of about 750,000 to 830,000 short tons depending on the coal density.

The phosphate rock terminal in figure 5 has 2,500 feet of usable wharf length with an adjacent berth depth of 34 feet. Phosphate rock and chemical or phosphoric acid can be loaded at any station along the berths. Storage facilities include six phosphoric acid tanks which can hold 60,000 short tons. The enclosed, dry storage area for phosphate chemicals holds 32,000 short tons. Storage of phosphate rock is in an open area with a capacity of about 2,200,000 short tons. Facilities are open to all on equal terms for movement of those specific commodities.

TRIBUTARY AREA

The primary commodities to be considered in the benefit analysis are phosphate rock, phosphate chemicals, and coal. The phosphate rock or ore comes primarily from mining operations in Polk County. The phosphate chemicals come from processing plants near the mines in Polk County. The phosphate terminal facility at Big Bend handles mainly wet phosphate rock and phosphate chemicals, Granulated Triple Super Phosphate (GTSP) and phosphoric acid. The coal facility unloads coal which comes mainly from a trans-shipment point at Davant, Louisiana.

The phosphate has different destinations and modes of transport. Wet phosphate rock goes into barges for transport to Donaldsonville and Uncle Sam, Louisiana. Granulated Triple Super Phosphate (GTSP) moves by barge to Davant, Louisiana, and by ocean going vessel to ports world-wide. Phosphoric acid is a liquid requiring tank storage for movement. Movement is mainly by ocean going vessels to ports primarily in the Far East, Central America, and South America.

To comply with Clean Air Act Amendments of 1990, blending of low sulfur coals with current fuels is necessary at Big Bend. The various sources of coal come to the Electrocoal facilities at Davant, Louisiana, where they are trans-shipped to Tampa Harbor. Those sources are both domestic and foreign. The electric plants in the Tampa area convert coal to electricity that goes to over 491,000 customers in an area of about 2,000 square miles. That area includes most of Hillsborough County and parts of Pinellas and Polk Counties with a total population of over 1 million.

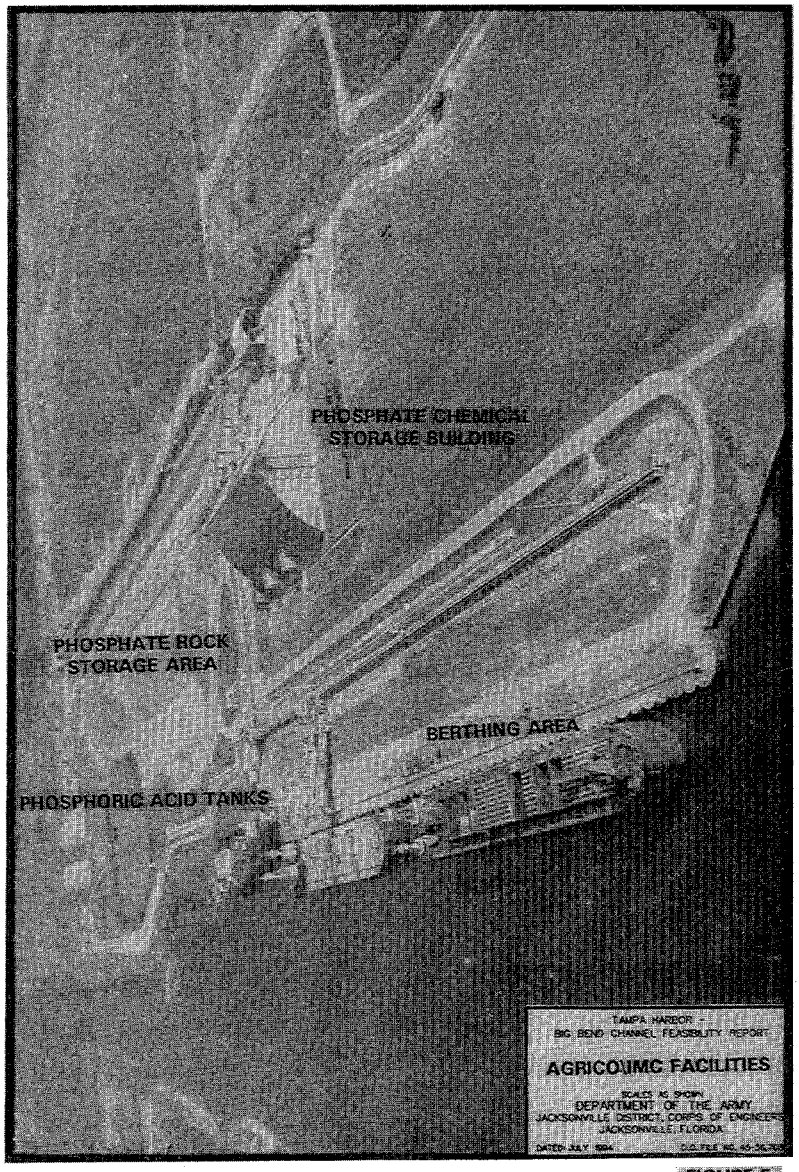
PHOSPHATE CHEMICAL
STORAGE BUILDING
PHOSPHATE ROCK
STORAGE AREA
BERTHING AREA
PHOSPHORIC ACID TANKS
TAMPA HARBOR
BIG BEND CHANNEL FEASIBILITY REPORT
AGRICO\IMC FACILITIES
SCALES AS SHOWN
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA
DATED: JULY 1984

FIGURE 5

SOCIO-ECONOMIC STATISTICS

Population projections of the Bureau of Economic Analysis regional area for the years 1995 - 2020 are given in table 1. Population projections are as reported in the Florida Statistical Abstract by the Bureau of Economic and Business Research, College of Business Administration, University of Florida (1994). Population in 1990 is from the April 1990 Census.

TABLE 1

POPULATION PROJECTIONS
TAMPA-ST. PETERSBURG REGIONAL AREA

COUNTY	1990	1995	2000	2005	2010	2015	2020
Charlotte	110,975	130,400	153,600	176,200	198,600	221,300	243,800
Citrus	93,513	106,800	123,100	138,800	154,400	170,100	185,700
Collier	152,099	187,600	222,200	256,000	289,500	323,400	357,100
De Soto	23,865	26,300	28,500	30,700	32,800	34,900	36,900
Hardee	19,499	22,300	23,100	23,800	24,500	25,200	25,800
Hernando	101,115	120,600	144,500	168,000	191,300	215,100	238,700
Highlands	68,432	78,500	85,400	94,000	102,400	110,900	119,200
Hillsborough	834,054	892,300	962,300	1,028,800	1,093,100	1,156,800	1,218,600
Lee	335,113	376,600	428,100	478,000	527,200	576,700	625,600
Manatee	211,707	232,700	257,400	281,100	304,300	327,500	350,200
Pasco	281,131	306,400	340,100	372,400	403,900	435,500	466,400
Pinellas	851,659	879,800	919,500	958,100	996,200	1,033,800	1,070,300
Polk	405,382	443,900	481,200	517,000	551,800	586,500	620,400
Sarasota	277,776	301,200	329,800	357,000	383,500	409,800	435,400
TOTAL	3,766,320	4,103,400	4,498,800	4,879,900	5,253,500	5,627,500	5,994,100

COMMODITIES

Commodity tonnage that moved over the Big Bend Channel in the past 20 years has experienced accelerated growth. During the first full year of operation in 1970, the channel had 302,000 tons of cargo as shown in table 2. The total tonnage in 1990 was 10,500,000 tons. Table 2 shows the development of tonnage by the various commodities from 1970 to 1994 on that channel. Appendix B provides more discussion and information concerning the commodity movements.

Phosphate Rock. Tug/barge units move the majority of phosphate rock from Big Bend to Donaldsonville or Uncle Sam, Louisiana. When Freeport/McMoran purchased Agrico Inc. in 1988, the operation became larger with the movement of Freeport/McMoran's operation from the East area in Tampa to Big Bend. The Big Bend terminal then went from loading on a standard 5 day week to a 7 day week, 24 hours a day. Table 2 shows the tonnage change and breakdown by commodity.

Coal. As electric demand increased and more generating capacity was added to the plant at Big Bend, table 2 shows an overall growth in coal movements. Nearly all of the coal arrives from Davant, Louisiana by tug/barge units. Since 1970, only one shipment by self-propelled bulk carriers moved coal from another source to the terminal at Big Bend.

Phosphate Chemical. Self-propelled bulk carriers normally transport Granular Triple Super Phosphate (GTSP) and Di-ammonium Phosphate (DAP) from Big Bend to destinations throughout the world. GTSP amounts generally show an overall growth with yearly fluctuations. Chemical tankers transport phosphoric acid to destinations in South and Central America, the Caribbean, and U.S. ports. Integrated tug/barge units transport phosphate chemicals mainly to Donaldsonville which is just upstream from Davant, Louisiana.

TABLE 2

COMMODITY HISTORY
(1,000 SHORT TONS)

YEARS	COAL	PHOSPHATE ROCK	GTSP	PHOSPHORIC ACID	MISC.	TOTAL
1970	301.7	0	0	0	0	**301.7**
1971	658.0	0	0	0	0	**658.0**
1972	1,216.1	0	0	0	0	**1,216.1**
1973	1,540.6	0	0	0	0	**1,540.6**
1974	1,826.7	0	0	0	4.8	**1,831.5**
1975	1,707.2	436.4	0	2.2	0	**2,145.8**
1976	2,216.6	1,295.5	122.6	89.7	0	**3,724.4**
1977	2,385.8	2,417.3	215.9	121.6	12.8	**5,153.4**
1978	2,551.5	2,725.0	352.4	156.2	23.1	**5,808.2**
1979	2,439.1	2,917.5	280.7	181.3	21.9	**5,840.5**
1980	2,429.5	2,847.0	320.3	177.1	10.2	**5,784.1**
1981	3,241.9	2,426.1	344.5	193.8	0	**6,206.3**
1982	2,870.9	2,115.6	244.6	212.7	0	**5,443.8**
1983	3,239.0	2,380.8	449.6	193.3	0	**6,262.7**
1984	3,196.0	2,755.4	381.3	309.4	0	**6,642.1**
1985	4,167.9	3,005.4	576.8	361.9	4.9	**8,116.9**
1986	3,390.2	2,704.9	441.1	269.8	25.0	**6,831.0**
1987	4,431.5	2,640.6	623.2	236.9	17.7	**7,949.9**
1988	4,507.2	3,732.6	514.8	313.9	18.5	**9,087.0**
1989	4,178.3	5,628.4	472.8	321.4	24.3	**10,625.2**
1990	4,160.9	5,683.4	490.2	218.8	44.0	**10,597.3**
1991	4,053.1	5,743.2	517.2	81.8	9.0	**10,404.3**
1992	4,442.7	5,537.5	562.7	164.8	0	**10,707.7**
1993	4,659.6	4,336.8	559.7	255.2	0	**9,811.3**

SOURCE: Tampa Port Authority

TAMPA HARBOR HISTORIC DREDGED VOLUMES

The Tampa Port Authority has a draft maintenance dredging disposal plan (1994) for Tampa Harbor. That plan was a source of historic data and potential projections for future maintenance dredging associated with the study area. Development data in appendix F, the dredged material management plan, came primarily from that document. An analysis of past construction and maintenance work provides a setting for future dredging and disposal efforts.

The Port Authority's maintenance disposal plan indicates material removed from the main ship channel in the study area amounted to about 32,500,000 cubic yards (CY) between 1978 to 1994. That plan used the year 1978 as a reference point based on availability and accuracy of data from that year. Since construction of disposal islands 2D and 3D around 1980, about 8,000,000 CY of maintenance and 1,000,000 CY of construction material have gone into the islands from dredging.

ALAFIA RIVER AND BIG BEND CHANNEL DISPOSAL SITES

Historically, disposal of dredged material from the Alafia River and Big Bend navigation projects involved only about five upland locations on the mainland. No dredged material went into disposal islands 2D or 3D which are primarily for the Tampa Harbor main ship channel. Only two of those upland locations had a significant amount of remaining capacity prior to 1994 and both are in private ownership. One is near Alafia River and is for maintenance of that project. The other is in the vicinity of Big Bend.

A 67-acre disposal site, located north of Alafia River, is in private ownership. It had about 600,000 CY of capacity prior to 1994. That site is exclusively for the disposal of dredged material from the Alafia River Channel and Turning Basin. Maintenance and deepening of the authorized ship channel on Alafia River in 1994-1995 resulted in the filling of that area to capacity.

The disposal area under private ownership at Big Bend has an estimated capacity of about 650,000 CY in 1996. That site is exclusively for disposal of dredged material from the private ship channels, basin, and berthing areas in the vicinity of Big Bend.

DISPOSAL ISLANDS 2D AND 3D CAPACITIES

The creation of disposal islands 2D and 3D was part of the Federal deepening of the Tampa Harbor navigation project in 1978 to 1982. Since construction, about 6,021,000 CY of dredged material has gone into 2D and 1,896,000 CY into 3D. Surveys in 1990 indicated the remaining capacities in 2D and 3D were about 4,018,000 and 3,614,000 CY, respectively. The dike elevation at the time of the survey was about 20 feet above mean low water and has remained at that height during this study. Placement of dredged material from 1990 to 1994 involved maintenance work on ship channels and berths and amounted to about 2,252,000 CY into 3D and 893,000 CY into 2D. Remaining capacities at the beginning of 1994 were about 1,362,000 CY in 3D and 3,125,000 CY in 2D.

BIG BEND MAINTENANCE AND DISPOSAL AREA

The estimated average shoaling rate on the existing navigation channel at Big Bend is about 60,000 CY a year. Completion of the most recent maintenance to remove shoals occurred in 1994. The after dredging survey is in appendix A. That survey information on depths was the basis for estimating quantities to improve depths and widths on the existing project. That maintenance work involved a required depth of 34 feet with an allowable overdepth of 2 feet. The dredged material from that maintenance went into a private upland site. Available information from the area indicates a private upland disposal area existed in 1995 with an estimated 650,000 CY of remaining capacity for disposal of dredged material.

VESSEL FLEET

The existing fleet of vessels currently using the Big Bend navigation project consists of integrated tug/barge units, self propelled bulk carriers, and self propelled chemical tankers. The vast majority of cargo movement is via barge to and from destinations on the Mississippi River. The integrated tug/barge units range in size from about 700 to 800 feet with beams of 85 feet and drafts up to 36 feet. Typical barges in the fleet are in table B-3 of appendix B. The bulk carriers range up to 740 feet in length and 106 feet in beam with maximum drafts of 41 feet. Drafts and beams of the tankers are comparable to the bulk carriers, with slightly shorter lengths. More information on the self-propelled ships in appendix B, tables B-26, B-30, B-58, and B-76.

FUTURE CONDITIONS WITHOUT NAVIGATION IMPROVEMENTS

The focus of the analysis on future conditions was mainly on the cargo movements at the Big Bend facilities and maintenance of the channels and berths serving the terminals. The cargo movements involve tonnage and vessels. Appendix B provides the projections of tonnage and vessel fleets to handle the movement of cargo. Appendix F provides a dredged material management plan for disposal of material in the upper Tampa Bay area involving the use of disposal islands 2D and 3D.

PORT CARGO TONNAGE

The prospective tonnages involve coal, phosphate ore, and phosphate products. The phosphate products are granulated triple super-phosphate (GTSP) and phosphoric acid. Steady increases in tonnage for coal, phosphate ore, and GTSP are likely into the future. The U.S. Department of Interior's Bureau of Mines provided information for the projection of phosphate related commodities. Appendix B provides a more detailed discussion which further explains the commodity projections.

Coal. Projected shipments relate to population which has risen steadily. Movements in 1990 were about 4.16 million tons[2] and 4.66 million tons in 1993. The estimate of projected tonnage in appendix B, table B-2, shows a leveling off in 2007 at about 5.96 million tons for the foreseeable future.

Phosphate Ore. Shipments of phosphate ore dominates the tonnage movement now from the phosphate terminal. Estimates for the near future are in appendix B, table B-29. Shipments of about 5.5 million tons in 1994 are likely to have only a slight annual growth to about 7.4 million tons in the year 2017. The forecast beyond that year is a gradual decline in tonnage to zero by the year 2029.

Phosphoric Acid. Shipments of phosphoric acid started in 1975. The product is a chemical liquid. As shown in tables 2 and B-75 in appendix B, records of past shipments show a very irregular annual tonnage over the years. The overall tonnage from 1977 to 1993 averages about 221,800 tons. No increase in that overall average annual tonnage is foreseeable in the near future for that product.

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[2] Tonnage measurements in this report are in short tons unless otherwise stated.

Granulated Triple Super Phosphate (GTSP). Tables 2 and B-45 in appendix B show GTSP tonnage beginning about 1976. Annual amounts have been somewhat irregular but overall have generally shown an increase through the years. Current estimates are for a gradual growth from about 530,000 tons in 1994 to about 713,000 tons in the year 2017. The fore-cast beyond that year is for a gradual decline in tonnage to zero by the year 2029.

FUTURE VESSEL FLEET MOVEMENTS

Projections for the vessel fleets are in appendix B and involve the use of bulk vessels to move cargo. Those vessels include deep draft barges and ships. Table references from that appendix provide the vessels sizes and tonnage distributions associated with the prospective fleet.

Coal Vessels. Barges are likely to handle most of the coal. Tables B-2 in appendix B shows the distribution between deep draft barge and self-propelled bulk carriers. Table B-3 shows the size barge which range from about 17,500 to 39,700 deadweight tons (DWT metric). Tables B-5 through B-11 show the barge tonnage relationship without improvement at a depth of 34 feet. The remaining coal movement is on self-propelled ships. Tables B-26 through B-28 show the without improvement depth of 34 feet for that portion of the movement.

Phosphate Vessels. Ore shipments in table B-29 move mainly on barges of about 23,100 to 39,700 DWT metric. Table B-30 provides the barge fleet characteristics. Tables B-31 through B-37 in appendix B show the distribution of tonnage for the without improvement depth of 34 feet. Granulated triple super-phosphate (GTSP) projections in table B-45 move by both deep draft barges and ships. Barge movements are in tables B-47 through B-53. Self-propelled carriers are in tables B-58 through B-74. The total shipment of GTSP is about equally distributed between barge and ship. Most of the phosphoric acid movements are on self-propelled bulk carriers of 10,000 to 20,000 DWT. Table B-75 shows the distribution between foreign and domestic. Tables B-76 through B-83 have the without improvement analysis at a depth of 34 feet.

TERMINAL FACILITIES

Current operations are likely to continue without improvements to existing navigation conditions. Loading and unloading facilities are in good condition and with proper maintenance are likely to remain that way for the near future without significant modification. The only change that could occur is with the Port Redwing property to the north of the phosphate rock and chemical loading facilities.

The Tampa Port Authority recently acquired about 150 acres, adjacent to the east channel in Port Redwing, for development. The port authority is promoting the area as a prime maritime/industrial site. The potential for future development exists with or without improvement.

BIG BEND DISPOSAL AREA

The existing navigation channel at Big Bend has an estimated shoaling rate of about 60,000 CY a year. Without any improvements proposed in this report, that shoal material is likely to continue at about the same average rate. Disposal will likely continue into the private upland site. That existing site would enable dredging and disposal operations for about 10 years of maintenance. At the end of that period, private interests in the area would have to review available options such as seeking other upland sites, reuse existing disposal sites, or negotiate with the Tampa Port Authority to use disposal island 3D.

DISPOSAL ISLANDS 2D AND 3D

The Tampa Port Authority needs to raise the dikes in disposal islands 2D and 3D for future maintenance of the Tampa Harbor navigation project. Both disposal islands have dikes now at an elevation of about 20 feet above mean low water. At that elevation, the remaining capacity in 1994 for 2D and 3D is about 3,125,000 CY and 1,362,000 CY, respectively. Based on subsurface conditions, the maximum dike elevation on disposal island 3D is 40 feet above mean low water (mlw). The area within disposal island 2D has two cells separated with a dike. The northern portion has the potential for a dike height of 40 feet above mlw. The southern portion has the potential for a dike height of only 25 feet above mlw.

Disposal Island 3D. Material for a maximum dike elevation does not exist on disposal island 3D. To add another 20 feet to the dike height requires about 3.34 million CY of suitable construction material. To make repairs to the existing dike requires about 35,000 CY. Only 1.7 million CY of material exists on the island for dike construction. The remaining material needs to come from another source. Maintenance in the near future is likely to provide a small amount of the required material.

Increasing the dike height with material from inside disposal island 3D adds capacity. Using the existing good material within the area to raise the dike and do repairs could help add capacity for future use. A 20-foot increase in dike height adds about 8,600,000 CY without considering the material used from inside the dikes (1.7 million CY) or existing capacity

within the area (1.36 million CY). The estimated combined capacity using the existing capacity with the amounts from potential dike increases and removal of inside material is about 11.7 million CY.

Excluding the shoal material from the navigation channels at Alafia River and Big Bend, the average annual maintenance material for placement in disposal island 3D is an estimated 280,000 CY a year from other project channel work. The average shoal removal from Alafia River is about 130,000 CY a year. Assuming half that amount goes into disposal island 3D in the future, the total maintenance amount going into that island increases to 345,000 CY a year. If the 60,000 CY a year of shoaling from the existing Big Bend private project goes into the island, the total amount increases to an estimated 405,000 CY a year.

Disposal Island 2D. Construction grade material for higher dikes on disposal island 2D does exist on the island. A maximum dike elevation in the northern and southern portion would enable an estimated increase in capacity of about 10 million CY. Adding that increase to the existing capacity of 3.125 million CY in 1994 gives a total of about 13.1 million CY.

Shoal material for placement in 2D accumulates at an average rate of about 371,000 CY a year, excluding the Alafia River shoal material. Using that rate decreases the existing capacity to 157,000 CY a year by the end of 1998. Higher dikes increase the capacity by about 10,000,000 CY. The addition of about 65,000 CY in shoal material a year from the Alafia River maintenance in the year 2000 increases the shoaling rate to 436,000 CY a year. The life expectancy from the year 2000 is about 22 years for disposal island 2D.

OTHER DREDGED MATERIAL USES

Maximizing the potential for disposal of maintenance material from a Federal project is an important objective for continued channel usage. Several opportunities are available for use of material in a manner beneficial to the environment. A number of deep holes exists in Tampa Bay. Filling of those holes would improve the environment in them. Using material to expand islands for bird nesting is beneficial. Consideration of material for those uses benefits the environment and reduces the need for space within a disposal area. A beneficial uses plan with dredged material can be studied under a separate authority.

PROBLEM IDENTIFICATION

The major problem to shippers, using the existing Big Bend navigation features, is the lack of navigable channel depths and widths for safe and economic transport of their commodities. The existing channel does not allow optimum use of the current vessel fleet. The use of shallow to moderate draft vessels occurs at a higher unit cost for transport. Deeper depths for more draft and tonnage reduces the unit cost for transport and enables a greater vessel selection from larger vessels in the world fleet. The problem becomes even more prominent as the trend toward larger and deeper draft vessels continues in the world fleet.

NAVIGATION PROBLEMS

Discussions with the pilots indicate that navigation on the Big Bend channel is difficult in non-ideal conditions. Ideal conditions are characterized by slack tide in daylight hours with no wind. Under such conditions, the pilots take precautionary measures to handle vessel maneuverability. Navigation is more difficult when pilots must move a vessel under non-ideal conditions.

Wind. The predominant external force in Hillsborough Bay is the wind. The pilots will not transit the channel with an integrated tug/barge when winds are greater than 18 knots. Winds and cross currents acting on those vessels will cause it to crab or skew in the channel (see figure 6). A vessel that moves at a slight angle to the centerline of the channel uses more channel width. A vessel length of 750 feet requires an angle less than 10 degrees in the existing bottom width of 200 feet. An angle equal to or greater than that between the centerline of the channel and the ship in the center of the channel would be sufficient to put that vessel beyond the channel boundaries. Crabbing in the Big Bend Channel is a common occurrence due to the frequent high winds on Hillsborough and Tampa Bays.

Speed. Under the current situation at Big Bend, vessel movements are one-way. Normal currents vary from 1 to 2 knots. The passage is normally at a slow speed for approaching or leaving the terminals. Slower speeds cause a smaller force to act on the rudder and less response to rudder changes. The result is more difficulty in maneuvering to keep the vessel aligned in the channel. Safe passage with no cross currents to impact vessel movement requires the vessel to remain in the center of the channel to minimized bank suction that can cause maneuvering problems.

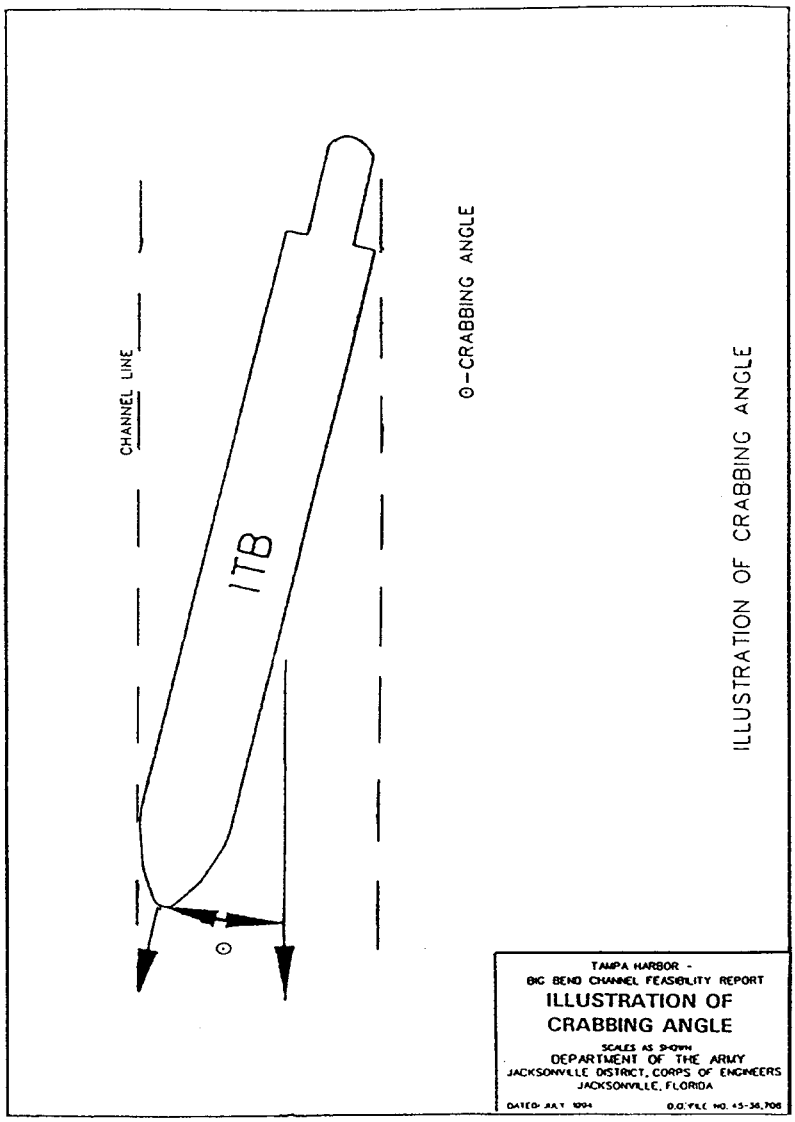

CHANNEL LINE
ITB
θ
θ-CRABBING ANGLE
ILLUSTRATION OF CRABBING ANGLE
TAMPA HARBOR -
BIG BEND CHANNEL FEASIBILITY REPORT
ILLUSTRATION OF
CRABBING ANGLE
SCALES AS SHOWN
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA
DATED: MAY 1994
D.O. FILE NO. 45-36,708

Figure 6

Bottom Width. Vessels that currently frequent the harbor have beams that range from 85 feet for barges to 106 feet for large bulk carriers. The existing channel bottom width is only 200 feet. The margin of safety is less than 50 feet on each side of larger ships with wide beams. The ratio of bottom width to vessel beam is less than 2 to 1 for the larger ships. The pilots prefer a 3 to 1 ratio for lesser risk when maneuvering difficulties occur in the channel. The extra width enables more response time to keep the vessel centered in the channel.

ECONOMIES OF SCALE

Inadequate channel depths and widths are resulting in ever-increasing inefficiencies in the use of the facilities located at Big Bend. Vessels currently utilizing Big Bend Channel are capable of handling more tonnage. Channel depths restrict drafts causing light-loaded conditions (vessels loaded to less than their maximum draft). Such movements are less efficient and result in higher shipping costs which can ultimately have an impact on competition within certain markets and consumer costs.

NEEDS AND OPPORTUNITIES

Opportunities arise from the channel widening which will minimize navigational difficulties associated with vessel transits into and out of Big Bend. Further opportunities exist in the form of advance maintenance since the channel is estimated to have a moderately high annual shoaling rate (80,000 CY per year) with more bottom area. Extra depth enables more shoal capacity to extend the time between maintenance cycles reducing the number performed over a 50 year project life and the overall costs.

Opportunities arise from increasing the efficiency of commodity movements through Big Bend Channel. Increases in efficiency would occur when vessels can carry more cargo per trip to reduce transportation costs and port visits associated with cargo movement. By increasing the amount of cargo per trip, the number of trips per year required to move a given amount of tonnage would decline resulting in less vessel traffic and lower unit costs for cargo transport.

PLANNING OBJECTIVES

The Federal objective in water and land resource planning is to make a contribution toward National Economic Development (NED) consistent with protecting the nation's environment. Specific planning objectives in conducting the study were to determine:

- The nature and extent of the navigation problems at Big Bend;
- The anticipated future navigation needs of the area;
- The resources that would be affected by the navigation improvements; and
- Executive Order 11988 which requires Federal agencies to recognize significant values of the 100-year flood plain and to consider the public benefits that would be realized from restoring and preserving those areas.

ALTERNATIVE PLAN EVALUATIONS

The alternatives included structural and non-structural plans. The structural alternatives involved various plans to consider channel depths, widths and disposal options during the formulation process. The non-structural plan is the most likely future condition without improvement or the "no action plan". A discussion of the various considered alternative plans is in subsequent paragraphs. The analysis is on the future conditions with those alternatives. The paragraphs provide the evaluation results that reduce the number of alternatives in order to identify the best plan for selection based planning objectives.

NO ACTION PLAN

Description. This plan provides nonstructural measures for future management and use of existing port facilities and navigation features in the study area. Maintenance of the existing navigation channels continues and current vessel criteria for entering and leaving the port would prevail with no change. Since Big Bend Channel is not a Federal project and no improvements would be constructed under this plan, maintenance of the existing navigation features continues to be non-Federal.

Discussion. The continuation of maintenance on the existing private project does not address the users need to handle future tonnage and vessel traffic in an efficient manner with minimum risk. The ability to increase efficiency, handle increasing tonnage demand, and reduce transportation costs is very limited for commodity movements on the existing Big Bend project. The plan does not meet the planning objectives set forth in this report but is the most likely base condition without improvement.

BOTTOM WIDENING PLAN

The U.S. Army Corps of Engineers' Waterways Experiment Station (WES) conducted a ship model simulation study on the Big Bend navigation features. That study was a design effort mainly to examine bottom alternatives such as width along the channel, wideners at turns, and turning basin area. The model simulates the forces, acting upon vessels as they transit the channels and turns at Big Bend. The model results are in appendix C as a Memorandum of Record with the subject "Final Findings on Big Bend Channel Navigation Study, Tampa Bay, Florida", dated 20 June 1994, from WES. Ship pilots, licensed for movement of vessels in the Big Bend area, assisted in simulating vessel movements on the model for evaluation and design selection.

Test Vessels. To be representative of the future fleet, the tests used two design vessels, an integrated tug and barge (ITB) unit and a self-propelled bulk carrier. The ITB had an overall length of 760 feet and a beam of 78 feet. The tug portion of the unit was twin screw. The barge had a bow thruster with no tug assistance. The ITB tests were with the barge at a light-loaded draft of 12 feet and a loaded draft of 32 feet. The bulk carrier had an overall length of 740 feet, beam of 105.75 feet, and a draft of 38 to 39 feet. The bulk carrier was single screw and used tug assistance for making turns in the turning basin and at the junction with the Tampa Harbor main ship channel.

Bottom clearances on the bulk carriers will likely remain the same as existing conditions resulting in some changes in bottom forces acting on the hull. Shallow water on each side of the channel causes the pilots to try and keep the vessels in the center of the channel to avoid bank suction. As vessels become wider, the bank clearances on either side of the vessel reduce if the channel width remains the same. That situation means the pilots have less channel area to correct for any unexpected change in vessel direction and a greater susceptibility to bank suction should the vessel deviate from the center area.

Channel Conditions. Model testing involved the existing channel bottom width, turn wideners, and turning basin except in one area. The figures in appendix C did not accurately depict the correct channel bottom limits on the Tampa Harbor main ship channel at the west end of the Big Bend entrance channel. The error is along the western edge of the main ship channel at the junction of A and C Cuts. The figures show a gap between the existing navigation channel markers and western edge of the channel. That is incorrect. The expanded area in figure 7 fills the gap and shows the correct location of the existing channel bottom that follows the markers around the turn.

Modeling Conditions. Model testing identified problems with maneuvering deeper loaded test vessels under existing channel bottom conditions with deeper depths. The ship simulation tracks in appendix C confirmed the areas that port pilot had difficulty staying within existing and corrected bottom width conditions. Model conditions also include design winds which were variable from the north averaging 15 knots.

Problem Analysis. Problems normally occur when water current and/or wind forces influence vessel movement. The impact of those forces is a serious problem in the entrance channel. That is the reach where the pilots reduce the speed of an incoming vessel in preparation for maneuvering and stopping in the turning basin to enter a berth. On leaving the port, the pilot is attempting to gain steerage and momentum in that reach.

When the pilot reduces speed, the vessel's propeller turns at slower revolutions per minute (RPM). The reduced RPMs decrease the water force on the surface of the rudder which reduces directional control of the vessel. That slowing process enables other forces (currents and winds) to become a greater influence on vessel movement. Attempts at maneuvering to overcome these forces are difficult at slower speeds.

Loaded vessels have more momentum and experience more difficulty in maneuvering than unloaded ones. This is due to the larger hull area under water for current forces to influence. Once underwater forces influence the vessel direction, it is very difficult to correct without increasing vessel speed to put more force on the rudder. The smaller the distance between the vessel hull and channel bottom results in greater resistance (bottom suction) to movement. The loaded vessels at Big Bend tend to have little bottom clearance which also causes slower responses in maneuvering.

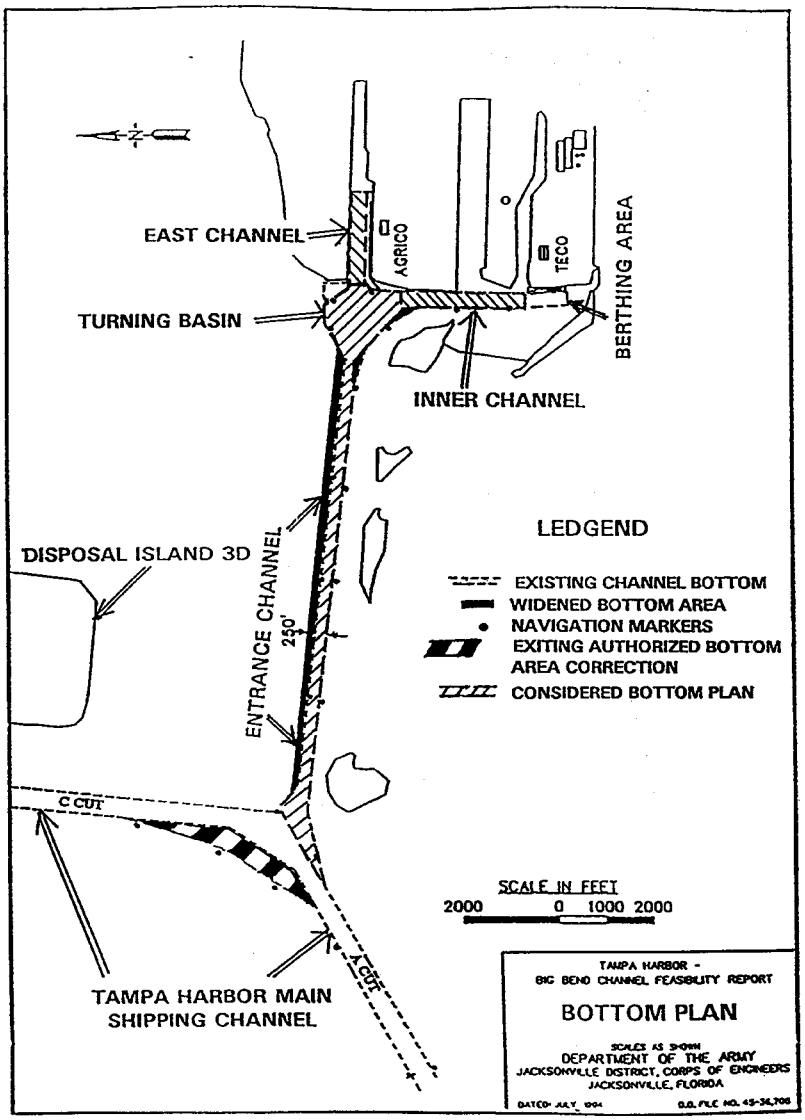

EAST CHANNEL
TURNING BASIN
AGRICO
TECO
BERTHING AREA
INNER CHANNEL
DISPOSAL ISLAND 3D
ENTRANCE CHANNEL
250'
C CUT
A CUT
TAMPA HARBOR MAIN
SHIPPING CHANNEL
LEDGEND
EXISTING CHANNEL BOTTOM
WIDENED BOTTOM AREA
NAVIGATION MARKERS
EXITING AUTHORIZED BOTTOM
AREA CORRECTION
CONSIDERED BOTTOM PLAN
SCALE IN FEET
2000 0 1000 2000
TAMPA HARBOR -
BIG BEND CHANNEL FEASIBILITY REPORT
BOTTOM PLAN
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

Figure 7

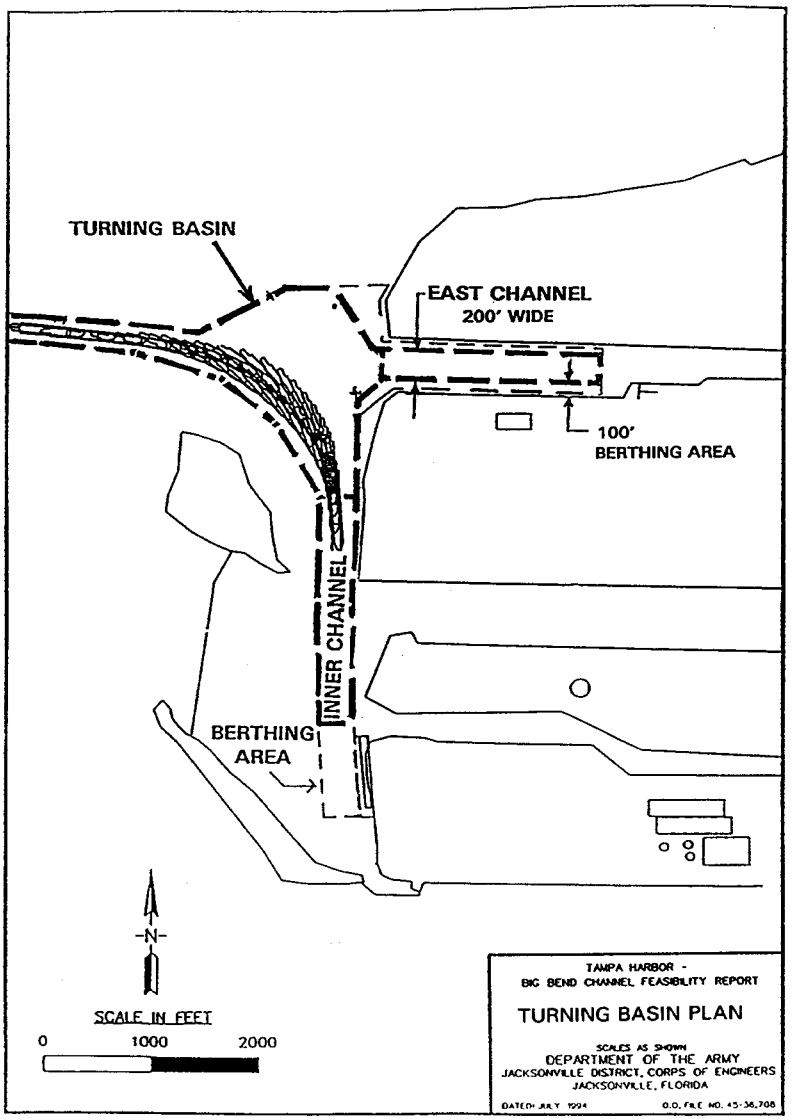
Wind forces have more influence on the unloaded vessels which have more surface area above water. Those vessels normally do not have any problems with bottom suction in their light loaded conditions. With less momentum, the vessels are more easily maneuvered for adjusting to directional shifts. The pilots need to be alert to sudden wind forces and be able to correct before going aground. Again, pilots require the extra channel width to maintain a correct vessel angle to avoid being forced out of the channel by a strong sustained wind.

Test Results. Testing of both design vessels shows the pilots have difficulty in specific areas under certain conditions. Maneuvering problems occurred mainly in the entrance channel and turn on eastern end of that channel. Although the turns between the Big Bend entrance channel and C Cut in the main Tampa Harbor ship channel appeared to be a problem from the figures in appendix C, the adjustment to correct the existing bottom on the main ship channel eliminated most of that problem. The existing bottom width on the inner channel was no problem and is to remain the same.

Entrance Channel Width. The larger, loaded vessel movements under existing conditions have insufficient channel width for pilots to keep them in the channel. Model testing to correct that deficiency considered widening the existing bottom width. Considering the tracks of the vessels, a minimum increase of 50 feet was necessary in the model tests. Provision of that increase is possible in two ways. Plan A added 25 feet both north and south of the existing width. Plan B added 50 feet all to the north. Model results indicated both were safe design conditions but Plan B was more effective and is the WES recommended bottom plan shown in figure 7.

Entrance Channel End Turns. Testing results in appendix C showed vessel tracks in relation to the channel bottom boundaries at each end of the entrance channel. The tracks indicate the pilots are able to keep the vessels within the channel markers except in certain areas. Only those areas that appeared to have sufficient justification and reasonably minimized risk remained in the plan as discussed below.

- East End. The turning basin is on the east end of the entrance channel. The pilots stayed within the existing channel markers except in the turn between the entrance channel and inner channel. The most problem was with the outbound integrated tug and barge (ITB) unit as shown in figures 9-16 in appendix C. The expansion of the widener in figure 8 added the width to enable safer maneuverability as part of Plan B. Figures 17-22 in appendix C show the ship tracks under the widened condition on the east end.


TURNING BASIN
EAST CHANNEL
200' WIDE
100'
BERTHING AREA
INNER CHANNEL
BERTHING
AREA
-N-
SCALE IN FEET
0
1000
2000
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TURNING BASIN PLAN
SCALES AS SHOWN
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

FIGURE 8

• West End. The pilots turn the vessels between A and C Cuts on the main Tampa Harbor channel and the Big Bend entrance channel as shown in figures 23-37 in appendix C. The results of the tests are as follows:

- A Cut. The pilots had no problems maneuvering the vessels within the existing bottom area between A Cut and the entrance channel. No changes are required for the turn.

- C Cut. Modification of the existing widener is not necessary on the west side of the Tampa Harbor channel. The pilots made the turns successfully and within existing navigation markers between C Cut and the entrance channel except in one circumstance. That occurrence was in turning an inbound, loaded, bulk carrier into the Big Bend channel from C Cut. The pilots slowed to around one knot and used tugs to stay within the channel. As the likelihood of that movement is rare based on past and prospective usage, benefits from any savings would be small. Shallow water in that area is likely to require an extensive amount of dredging and cost to widen. The small amount of usage does not provide sufficient justification for improvement. Widening in that area is not recommended.

Turning Basin. An expansion of the turning basin to the east beyond the existing markers could be a problem. Port Redwing does not have a bulkhead and water depths adjacent to the shoreline are shallow. Dredging close to the shoreline in that area could result in excessive dredging as side slopes cause loss of land. Depths are already shallow around the northeast marker in the basin. The recommendation is not to expand the basin any farther eastward than the existing marker to the southeast at the entrance to the phosphate terminal as shown in figure 8.

PLAN B - DEEPENING ALTERNATIVES

Figures 7 and 8 show Plan B (existing and expanded bottom area configurations). The areas under consideration for deeper depths are the entrance channel, turning basin, inner channel, east channel, and berthing areas. Depth selection is an economic determination based on the justification for deepening those bottom areas.

An economic analysis compares average annual equivalent (AAEQ) benefits with AAEQ costs for construction and maintenance of Federal and associated projects. That comparison enables a determination as to which depth provides the maximum excess benefits over costs. That depth identifies the National Economic Development Plan. A detailed evaluation of the benefits is in appendix B. Table 3 provides a summary of benefits from that appendix for the various depths under consideration.

TABLE 3

BENEFIT ESTIMATES BY PROJECT DEPTH

Items	Average Annual Benefits ($1,000) by project Depth in feet 1/						
	37	39	40	41	42	43	44
Barge Carriers							
Coal - Domestic Source	32.0	32.0	32.0	32.0	32.0	32.0	32.0
- Foreign Source	20.1	20.1	20.1	20.1	20.1	20.1	20.1
Phosphate Rock	651.9	703.5	703.5	703.5	703.5	703.5	703.5
Granulated Triple Super Phosphate	19.1	19.1	19.1	19.1	19.1	19.1	19.1
Self-Propelled, Bulk Carriers							
Coal	490.1	1,386.8	1,818.4	2,126.4	2,201.6	2,272.0	2,338.0
Granulated Triple Super Phosphate	355.5	413.1	428.4	443.6	449.4	449.4	449.4
Tankers Phosphoric Acid	277.8	373.1	384.1	384.1	384.1	384.1	384.1
Total Benefits	1,846.5	2,947.7	3,405.7	3,728.8	3,809.9	3,880.3	3,946.5

1/ Interest rate and discount rate are at 7.625 percent. Project life for the benefit analysis is 50 years. Vessel operating costs are at 1996 price levels.

Benefits come from transportation savings associated with the future vessel fleet using deeper drafts on considered channel depths for access to Big Bend terminals. The benefit evaluation for transportation savings involved the movement of coal to the Big Bend power plant and the movement of phosphate rock and chemicals from terminal facilities near the turning basin.

The coal and phosphate movements all use the entrance channel and turning basin. The inner channel connects the electric power plant coal terminal to the turning basin. The only movement on that channel is coal. The east channel extends east from the turning basin between Port Redwing and the phosphate terminal berths. Deepening of the east and inner channels is a separable element which considers only the respective bulk movements using them. The analysis of vessel loadings associated with prospective fleets at different channel depths provides the basis for the incremental analysis.

DISPOSAL ALTERNATIVE EVALUATION

Appendix F is a dredged material management plan for the Big Bend proposed project. The objective of that plan is to determine the most cost efficient method of disposal for initial construction and future maintenance over the first 20 years or more on the project. The least cost disposal alternative becomes a part of the National Economic Development (NED) plan. That plan must be consistent with environmental guidelines and regulations for implementation.

Disposal area evaluations in that appendix considered:

- Disposal island 3D,
- Upland areas on the mainland,
- Offshore site for Tampa Harbor,
- Beach placement, and
- Beneficial use areas for dredged material from construction and maintenance of Plan 1.

The subsequent discussion provides a brief summary of the findings in that appendix.

Offshore Dredged Material Disposal Site (ODMDS). The Environmental Protection Agency (EPA) selection process, ongoing for several years, is now complete. EPA has designated a site about 7.6 miles southwest of the entrance marker on the Tampa Harbor Federal Channel. Figure F-1 in appendix F shows the location of the ODMDS.

The Federal emphasis in dredging is to minimize cost consistent with environmental considerations. Estimated excavation and transport of the material for the most efficient cost uses a clamshell for dredging and barges for hauling to the ODMDS. Compared to upland disposal possibilities in the Big Bend area, the ODMDS cost is nearly twice that of upland disposal. That site is too far from the proposed project for economical use.

Beach Nourishment. The material dredged during construction and maintenance is expected to have a high percentage of fines. Such a percentage makes the material unsuitable for placement directly on a beach. Separation of fines is not a cost efficient process to enable suitable material for beach placement.

Disposal on Islands South of Big Bend Channel. Past dredging operations created two islands with two shallow water areas between them. Those areas are parallel with and south of the Big Bend Channel. The two areas are about 3 feet below mean low water (mlw). Environmental agencies strongly oppose any further disposal of material in that area due to the nearby presence of submerged aquatic vegetation and shallow water habitat. Based on the potential adverse environmental impact, that disposal option is no longer a consideration.

Upland Disposal. An analysis of upland alternatives involved over 30 old and new sites in the Big Bend and Alafia River area. About 10 of those sites had significant adverse environmental impacts associated with development resulting in their elimination. Historically, several existing upland areas have been in use within the study area. The two existing sites, one at Alafia River and the other at Big Bend, are for private use with limited capacity. Continued use of the areas is part of the analysis on available capacity for future disposal of material. The remaining sites underwent a cost analysis to determine the least cost alternative. The estimated cost on each of those sites was more than the cost to use disposal island 3D. No further consideration was given to use of those sites.

Disposal Island 3D. The Tampa Port Authority (TPA), as the sponsor of the proposed project, wants to use the island for disposal. Suitable material on the island is not sufficient to increase the dike height 20 feet. Big Bend new work dredging is a source of suitable material for that dike construction on 3D. Placement of initial construction material into that disposal island is the most cost efficient means of getting suitable material for raising the existing dikes.

Beneficial Use Sites. The beneficial use of dredged material involves the placement of material in a manner that could enhance the environmental quality of the area. Beneficial uses for dredged material were considered during the formulation of a disposal plan.

The Fish and Wildlife Service suggested two beneficial uses of the dredged material to enhance the environment. A discussion of the potential plans for beneficial use of dredged material is in appendix F. One is to use the material on Sunken Island shown on figure 9. About 545,000 cubic yards of suitable construction material is necessary to implement that plan. The second is to fill holes in the Whiskey Stump Key area shown on figure 9. An estimate of the material needed is about 950,000 cubic yards.

The fine material is likely to be in non-uniform layers and pockets throughout the dredging. Dredging mixes the good course material with the fines. The mixture is a problem because it will probably contain an estimated 40-50 percent fines. That high a percentage is a water quality problem for direct placement into a proposed beneficial use area. The mixture can cause high levels of turbidity that is undesirable in the beneficial use areas without adequate containment for control and separation.

The estimate of material, suitable for enlargement of Sunken Island, does not appear to be of sufficient quantity at this time to repair years of erosion. Filling the borrow holes at Whiskey Stump Key requires an estimated 950,000 cubic yards of material. The current estimates of suitable material appears less than sufficient to fill the holes. A possible solution is to use the fines in disposal island 3D as a substitute for suitable material. The process would involve placing the fines in the holes first then using the suitable material to form a cap over the fines. The amount of suitable material would need to be enough for a minimum thickness of 1-foot. The amount of material for that thickness would require about 80,000 cubic yards. A deeper cap of 3 to 6 feet may be possible if the current estimates of suitable construction material are accurate.

The estimated construction cost for filling the holes involves the movement of about 600,000 CY of fines and 350,000 CY of suitable material from disposal island 3D to Whiskey Stump Key. The added cost for that work, as part of the Big Bend dredging project, is estimated at $6.7 million. To do the work as a separate construction project after the Big Bend dredging has an estimated cost of about $5.2 million. Development of more detailed plans and costs is difficult until after disposal and separation occurs on disposal island 3D. A more accurate estimate will be possible at that time based on actual measurements.

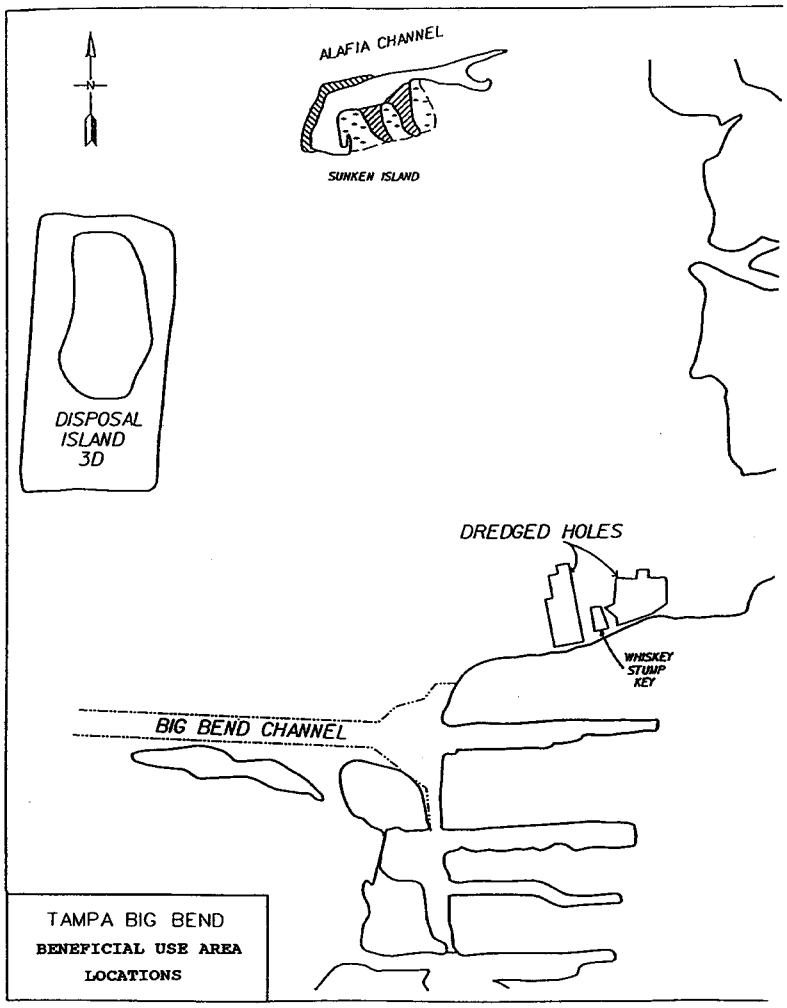
ALAFIA CHANNEL
SUNKEN ISLAND
DISPOSAL
ISLAND
3D
DREDGED HOLES
WHISKEY
STUMP
KEY
BIG BEND CHANNEL
TAMPA BIG BEND
BENEFICIAL USE AREA
LOCATIONS

FIGURE 9

The preliminary findings indicate the high percentage of fines in the dredged material is not desirable for a beneficial use plan. Such plans, using direct placement of that material into sites, have a high cost. Placing the material directly in disposal island 3D is more cost efficient. A beneficial use plan may be a consideration in the future using available material in disposal island 3D under another authority to benefit the environment.

Conclusion. The most cost efficient plan for disposal is to place the material into disposal island 3D. The estimated high amount of fine material to be dredged is a costly problem for placement in any other area that has no room for containment. The Tampa Harbor project needs the disposal area capacity for maintenance dredging. The material from the Big Bend dredging is necessary for dike construction to obtain a maximum elevation of 40 feet above mean low water. Based on the estimate of fines and an analysis of excavation quantities at different channel depths, not all deepening and widening plans provide sufficient suitable material for dike construction to the maximum elevation.

The Tampa Port Authority desires the first priority for use of the suitable material to be for dike construction. If dredging produces less fines than now estimated from the excavation, more suitable material would be available for use. The amount of material from the deepening and widening is also a factor in the determination of suitable material. Considering those variables, the first step is to assess the availability of suitable material for dike construction to an elevation of 40 feet above mean low water.

To determine the amount of suitable material to be derived from the dredging, a separation must occur first in a suitable area. A natural process occurs with hydraulic dredging and placement that causes most of the fine material to flow away from the discharge pipe and settle in the most distant area from that point. The suitable material settles with some of the fines nearest the discharge point. Once that natural process is complete, a determination is possible as to the quantity of suitable material for all desired uses. If sufficient suitable material is available, consideration may be possible for both dike construction and future beneficial uses.

DISPOSAL ISLAND 3D DIKING

The available capacity in disposal island 3D with the existing dikes is about 1,362,000 cubic yards (CY)in 1994. An increase in the dike elevation is possible with existing material in the southern end of that island. The amount of suitable construction material is an estimated 1,700,000 CY. That amount

is sufficient for construction of a dike to an elevation of about 32 feet above mean low water. The amount of material for excavation at various channel depths and the corresponding dike requirement for that material on disposal island 3D are in table 4.

MAINTENANCE COST EVALUATION

Maintenance on the existing channel, turning basin, and berthing areas involves the removal of shoal material and work on navigation aids to keep them operating. The U.S. Coast Guard estimates the maintenance of navigation aids on the bottom configuration from model testing at $3,000 a year. Estimates of shoaling come from historical records of such work performed at local expense.

TABLE 4

ESTIMATED EXCAVATION AND DIKE QUANTITIES

DEPTH (FEET) 1/	1,000 CUBIC YARDS		DIKE		
	2/	3/	4/	5/	6/
37	1,746	1,100	23	137	
38	1,949	1,230	24	220	2,360
39	2,273	1,430	24	220	2,360
40	2,561	1,610	25	322	2,800
41	2,857	1,800	26	443	3,260
42	3,161	1,990	26	443	3,260
43	3,477	2,190	27	582	3,700
44	3,809	2.40	28	740	4,150
45	4,164	2,620	29	916	4,580

1/ Required depth of dredging or contract depth.
2/ Gross dredging excavation quantity with the required depth plus an allowable of 1 foot.
3/ Silt estimated at 45 percent of dredged material. About 37 percent estimated to settle as fines. Amount of suitable material for dike construction estimated at about 63 percent of the dredged amount.
4/ Dike elevation in feet.
5/ Quantity of material needed to increase dike height over 20 feet in 1,000 cubic yards.
6/ Capacity in 1,000 cubic yards added with only the increase in dike height above 20 feet.

The average annual shoaling from past records is an estimated 60,000 cubic yards on the existing navigation conditions. Based on that information, an expansion in the bottom area with widening increases the potential shoaling area. That quantity spread over the existing bottom area provides a depth of about 0.44 feet of uniform shoaling.

The considered plans will increase the bottom from 3,645,000 to 4,943,000 square feet. That increase in bottom area raises the annual shoaling to about 80,000 cubic yards. That higher value became the basis for future shoaling with improvement. The different depth considerations are not likely to have a significant influence on the amount of shoaling.

The cost analysis is for the removal of about 240,000 cubic yards of accumulated sediment every 3 years. The estimated cost for that removal includes mobilization and demobilization of equipment along with turbidity monitoring. Past records on maintenance of Tampa Harbor indicate the costs of shoal removal are expensive and routinely done in one area at a time. The reasons are budget and environmental windows limiting dredging and disposal operations. Combining maintenance in two areas requires a significant budget and requires a larger environmental window than available for one dredge to complete the work.

Maintenance dredging every 3 years is likely to involve mobilization and demobilization of equipment for a majority of the work during a 50 year period. The combination of maintenance work at Big Bend is at best a possibility once every third cycle. The estimated cost of maintenance every 3 years with equipment mobilization, dredging 240,000 cubic yard, turbidity monitoring, and manatee monitoring is about $2,048,000. The removal of equipment mobilization reduces the cost down to $1,033,000 for removal of 240,000 cubic yards. The price level is April 1996.

The estimated present worth value of each maintenance event every 3 years over a project life of 50 years is $7,016,700 with no equipment mobilization every third cycle. Interest and amortization of that total present worth value at an interest rate of 7.625 percent over the project life produces an average annual equivalent (AAEQ) cost of $549,000 for shoal removal.

ENVIRONMENTAL EVALUATION

An environmental assessment of the dredging area indicates no significant impact on the quality of the human environment from the considered widening and deepening plans. The terminal owners in the area provided the existing manmade navigation features for deep draft vessel movements. They maintain those features for current vessel traffic.

Manatees. They are a threatened and endangered species that do appear in the area during certain seasons. A warm water outfall from the electrical generating plant attracts the manatees in winter months. They tend to congregate in that area which has barriers to separate it from the existing navigation features. Manatees have no easy or direct access from the warm water outfall area to the navigation channels. They normally do not frequent the navigation features as no seagrasses exist in that area for food. No problem with manatees has occurred in previous dredging events. Any dredging contract will include:

- Standard Federal and State manatee protection conditions;
- Provision for a trained biologist, approved by the Fish and Wildlife Service and/or Florida Department of Environmental Protection, to be aboard the dredge;
- No dredging at night during the winter manatee window with the use of a clamshell dredge to do the excavation; and
- Placement of propeller guards on the auxiliary vessels moving supplies and personnel between the dredge and shore.

Birds. There will be no impact to migratory birds if construction takes place between 1 September and 31 January.

Cultural Concerns. The dredging poses no threat to known sites of cultural or historical significance.

TERMINAL FACILITY EVALUATION

Deepening of the channels and turning basin at Big Bend will enable the use of deeper loaded vessels. To handle those vessels, changes are necessary in the berths and terminal facilities. Those changes are non-Federal costs and are identified as associated alternatives with the deepening project. Items that go under that classification include berth deepening, bulkhead modifications, and landside equipment and terminal changes as a result of the improvements.

Phosphate Terminal. To handle deeper loaded vessels at that terminal, the berthing area needs deepening with all channel depth considerations. The bulkhead, adjacent to the berth, is at a design depth that will enable berth deepening to match the channel depths under consideration without modification. Landside equipment and terminals are adequate to handle the prospective ships and cargo with deepening alternatives.

Coal Terminal. The coal terminal will require more extensive modifications. The berthing area needs deepening with all channel depth alternatives. The bulkhead adjacent to the

berthing area requires modification to enable deeper berth depths of 36 feet or more. To handle the self-propelled coal carriers in the benefit analysis, the terminal operator indicates the ladder loader needs to be replaced with a new bucket loader. The existing ladder loader was about 25 years old in 1996. The life expectancy is about 30 years. Replacement of the ladder loader is likely to occur under existing conditions in 2001.

FIRST COST ANALYSIS

To complete an economic evaluation for selection of a project depth, an analysis of first costs is necessary for channel deepening and material disposal along with the associated non-Federal costs necessary to obtain the benefits. Associated costs for the considered depths at Big Bend are necessary changes to existing berths and terminal facilities to accrue benefits from deeper loading of vessels. The depths under consideration apply to the bottom configuration in figure 7 and include berthing areas for the deeper draft ships. Quantity estimates on the amounts for excavation are from a 1994 hydrographic survey after maintenance work on the existing navigation features.

Deepening Plan. Each plan involves dredging to a certain depth and placing that material into disposal island 3D. Appendix A provides the engineering aspects considered for dredging and placing material into that island. Appendix F has the engineering aspects of raising the dikes in disposal island 3D for placement of the dredged material. The estimated cost includes the following on all depth considerations:

- Mobilization and demobilization of equipment,
- Dredging and disposal of material from navigation features and berthing areas,
- Dike construction,
- Navigation aids,
- Turbidity and manatee monitoring,
- Preconstruction engineering and design work, and
- Construction management.

Table 5 is an estimate of total first costs at April 1996 price levels for constructing different depths on the channels, turning basin, and berthing areas. The costs include one foot allowable overdepth for dredging inaccuracies. The U.S. Coast Guard provided estimates for placing and maintaining navigation aids. The costs of constructing navigation aids is the same for all depths. That cost includes new inbound and outbound ranges as well as new channel markers.

Associated Costs. The berth and terminal changes necessary for the realization of the benefits are the associated cost items for the various depth considerations. Those costs include dredging of the berthing areas, bulkhead work to enable deeper berth depths, and a replacement crane to unload coal from self-propelled ships. Information for the analysis of the bulkhead and crane replacement came from sources in the study area.

Berthing area and considered project dredging costs are together in that table under the heading of deepening plans. The estimated costs for modifying the coal terminal bulkhead is under the associated cost column heading in table 5 for each depth. The replacement crane for unloading coal from self-propelled bulk carriers was a consideration but a cost analysis indicated the bucket crane was the least cost alternative. That analysis took into account the initial and annual cost on both cranes as well as the remaining life and life expectancy of each one at a market interest rate of 9.75 percent. Unloading rates are not significantly different.

The existing ladder crane is about 25 years old with an estimated life of about 30 years. Replacement of that crane is likely to occur about the year 2001 without the considered navigation improvements. A similar crane has an estimated replacement cost of about $10-12 million. The approximate salvage value on the existing crane is about $595,000. The net cost is about $10.4 million ($11 million minus $595,000 salvage value). The present worth value of that amount from the years 2001 and 2031 to the year 1999 is about $9.16 million at an interest rate of 9.75 percent.

A replacement bucket crane has an estimated value of $5.2 million and a salvage value of $220,000. Using the salvage value of the ladder crane in 1999, the net replacement cost is $4.6 million in that year. The life of the bucket crane is about 27 years. The estimated replacement cost in 2026 is about $4.98 million. The total present worth value in 1999 for the initial and replacement bucket crane in the future is $5.01 million at 9.75 percent.

Maintenance of the two cranes involves routine and major overhaul cost over the projected life. The amounts for each are as follows:

Item	Amounts by Crane Ladder	Bucket
Routine annual maintenance ------	$ 80,500	$300,000
Major overhaul:		
Frequency (years)-	7	8
Cost per event ---	$952,000	$450,000
Average annual equivalent cost --	$172,000	$313,000

The average annual equivalent value of the first cost for the cranes needs to be added to the maintenance cost. Interest and amortization of the total present worth value for a bucket crane ($5.01 million) and ladder crane ($9.16 million) over 50 years at an interest rate of 9.75 percent is an average annual equivalent (AAEQ) value of $493,000 and $902,000, respectively. The combined AAEQ values for maintenance and first cost of the ladder ($1,074,000) and bucket ($806,000) cranes indicate the ladder crane has a higher AAEQ cost than the bucket by $268,000. A new bucket crane adds no additional cost over the without project condition with a ladder loader.

INTEREST DURING CONSTRUCTION

Interest During Construction (IDC) is on the total first cost of channel deepening with the associated costs. Calculation of IDC has several different conventions. The convention, used to calculate the IDC, involved payment at the beginning of every month with the interest (7.625 percent annually) applied at the middle of the month. Construction of the considered channel deepening plans is to be in one contract. Construction of associated items is concurrent with the channel. Interest starts to accrue during Preconstruction Engineering and Design (PED) and stops at the beginning of the base period for project life.

Period zero of the economic life is January 1999 since construction is scheduled for completion in March 1999 with the first full year of the project being the year 2000. PED will start near the end of Fiscal Year 1997 (September 1997). Appendix E provides an example of the detailed breakdown of those costs with respect to time. The distribution of those costs provide the basis for determining the IDC costs for implementation of each depth plan as summarized in table 5.

AVERAGE ANNUAL EQUIVALENT (AAEQ) COST

The total AAEQ cost on each depth plan consists of several components. The first component is the interest and amortization value of the total economic first cost on each deepening plan in table 5. The estimated maintenance of the channel and navigation aids is the second component. The third component being the added maintenance on the associated cost items. The total AAEQ costs is in table 6 for each depth under consideration.

TABLE 5

ESTIMATED TOTAL FIRST COSTS OF VARIOUS DEPTH PLANS

Depths in feet	Amounts in $1,000			
	Deepening Plan	Associated Cost 1/	IDC 2/	Total Economic Costs
37	5,217	1,333	17	6,567
38	5,733	1,467	19	7,219
39	6,270	1,600	20	7,890
40	7,217	1,733	24	8,974
41	7,789	1,867	42	9,698
42	8,229	2,000	44	10,273
43	9,215	2,133	50	11,398
44	10,264	2,266	79	12,609
45	11,382	2,400	88	13,870

1/ Bulkhead cost range from $1.2 million at a depth of 36 feet to $2.4 million at a depth of 45 feet.
2/ Interest during construction (IDC)

TABLE 6

SUMMARY COMPARISON OF BENEFITS AND COSTS BY DEPTH

ITEM	Average Annual Equivalent Amounts ($1,000) by Depth					
	37	39	40	41	42	43
Benefits	1846	2948	3406	3729	3810	3880
Costs - Economic 1/	514	617	702	759	804	892
Maintenance 2/	552	552	552	552	552	552
Total Costs	1066	1169	1254	1311	1356	1444
Net Benefits	780	1779	2152	2418	2454	2436
Benefit-to-cost ratio	1.7 to 1	2.5 to 1	2.7 to 1	2.8 to 1	2.8 to 1	2.7 to 1

1/ This is the channels (entrance, east and inner), turning basin, berths, and bulkhead modification total economic first costs amortized over a expected life of 50 years at an interest rate of 7.625 percent.

2/ Maintenance of the channel is $549,000 and navigation aids $3,000.

Total Economic First Cost. The average annual equivalent cost is over a specific period of time. That period on the deepening plans is a project life of 50 years with proper maintenance. The associated cost have an estimated life over that same period except for the replacement crane. The crane has an expected life of 27 years. The AAEQ values come from determining the interest and amortization values of the total economic first cost over the expected life of that placement with proper maintenance. The interest rate for determining the AAEQ values is 7.625 percent. The estimated values are in table 6.

Channel and Navigation Aids. The estimated cost for maintenance of the channel, turning basin, and navigation aids remains the same for each depth plan. The AAEQ cost for channel maintenance at each depth is an estimated $549,000. Maintenance of the navigation aids is an estimated $3,000 a year.

Associated Cost Items. The analysis of maintenance considered the berthing areas and bulkhead. The deeper berthing areas have no significantly increased area for accumulation of material. No additional maintenance is estimated for the berths. The modified bulkhead should not cause a significantly higher maintenance nor should there be any additional maintenance on the existing bulkheads.

DEPTH ANALYSIS

The analysis in table 6 is for the turning basin and connecting entrance, inner, and east channels. Amounts in that table are average annual equivalent (AAEQ) values for both costs and benefits over an economic project life of 50 years. The interest rate is 7.625 percent. The total present worth amount then converts to an AAEQ value using interest and amortization of that amount over the expected economic life of the deepening plan or associated item. The depth that maximizes excess AAEQ values of benefits over costs becomes the National Economic Development (NED) plan. The NED plan from table 6 is the selected depth.

Economic analysis of deeper draft ship movements provides a basis for comparing estimated benefits and costs. The estimated benefits are from transportation savings at each increment of depth in table 3. The costs are in table 6 and include annualized values for the economic first cost and maintenance. The comparison between annualized costs and benefits in table 6 is for the full length of the channels (entrance, east, and inner) and turning basin. A second analysis in table 7 and 8 is for the inner and east channels as separate increments.

All Channels and Turning Basin Combined. Table 6 provides the comparison of AAEQ values of costs and benefits at several depths for all channels and turning basin under consideration. Where benefits optimize over cost is the NED plan or the one that reasonably maximizes the net AAEQ value for benefits in excess of costs. As shown in that table, the net AAEQ benefits maximize at a considered project depth of 42 feet. Both coal and phosphate movements receive benefits with a depth of 42 feet.

Inner Channel Increment. The inner channel extends south from the turning basin shown in figures 7 and 8. Table 7 provides a summary of the average annual equivalent (AAEQ) values for benefits and costs for each depth increment along the inner channel segment. A sample of the initial cost for at a depth of 41 feet in that table and the AAEQ value is as follows:

Deepening the channel segment --------	$ 397,000
Berthing area dredging ----------	202,000
Dikes and weirs ----------	169,000
Environmental monitoring ----------	3,000
Subtotal ----------	$ 771,000
Design and costs ----------	62,000
Construction management ----------	77,000
Subtotal ----------	$ 910,000
Terminal bulkhead modifications ------	1,866,000
Total first costs ----------	$2,776,000
Average annual equivalent (AAEQ) value	$ 217,000

Table 7 has estimated AAEQ values of about $71,000 for dredge and disposal work as well as about $78,000 for maintenance of a project depth of 41 feet.

TABLE 7

SUMMARY COMPARISON OF BENEFITS AND COSTS INNER CHANNEL

INNER CHANNEL INCREMENTAL ANALYSIS						
ITEMS	Average annual Equivalent Amounts ($1,000) by Depth in Feet					
	37	39	40	41	42	43
Benefits	542	1438	1870	2179	2254	2324
Costs - Dredging 1/	116	125	137	149	155	169
- Bulkhead	104	125	136	146	156	167
Total costs	220	250	273	295	311	336
Net Benefits	322	1188	1597	1884	1943	1988
Benefit-to-cost ratio	1.7 to 1	5.8 to 1	6.8 to 1	7.4 to 1	7.2 to 1	6.9 to 1

1/ Dredging includes maintenance estimated to be an AAEQ value of about $78,000 at each depth.

The benefits from coal movements apply only to the inner channel. The coal benefits on that channel range from about 39 to 60 percent of total benefits at considered project depths of 37 to 43 feet, respectively. The incremental analysis in table 7 shows maximum net benefits over cost is at a depth of 43 feet. The incremental change in benefits and net benefits between 40 and 41 feet is significant (5 percent or greater) but between 41 and 42 as well as 42 to 43 they are not. Depths deeper than 41 feet do not show a significant incremental change in benefits or net benefits between depths. The selected depth for the inner channel is 41 feet which is the selected depth plan from table 6 for all the channels and turning basin.

East Channel Increment. The channel is east of the turning basin as shown in figures 7 and 8. Table 8 provides a summary of the average annual equivalent (AAEQ) values for benefits and costs at considered depth increments along that channel segment.

The incremental analysis in table 8 indicates the benefits are large in comparison with costs. The benefit-to-cost ratios for that channel are high. Comparison of costs with benefits is feasible. The table indicates the maximization of benefits over costs occurs at a depth of 42 feet. The incremental change in

benefits and net benefits between depths is significant if it is 5 percent or greater. Depths deeper than 39 feet do not show a significant incremental change in benefits or net benefits between depths. The costs for the various depth increments up to 43 feet are small. The benefits are from the phosphate rock and chemicals that move only on that channel.

TABLE 8

SUMMARY COMPARISON OF BENEFITS AND COSTS EAST CHANNEL

EAST CHANNEL INCREMENTAL ANALYSIS							
ITEMS	Average Annual Equivalent Amounts ($1,000) by Depth in Feet						
	37	38	39	40	41	42	43
Benefits	1304	1439	1509	1535	1550	1556	1556
Costs 1/	132	132	136	141	151	156	169
Net Benefits	1172	1307	1373	1394	1399	1400	1387
Benefit-to-cost ratio	9.9 to 1	10.9 to 1	11.1 to 1	10.9 to 1	10.3 to 1	10.0 to 1	9.2 to 1

1/ Dredging includes maintenance estimated to be an AAEQ value of about $67,000 at each depth.

The costs in table 8 include the initial costs for dredging and disposal of material as well as maintenance. The initial cost at a project depth of 41 feet is as follows to illustrate the initial costs which provides the basis for the AAEQ values in that table:

Deepening the channel segment --------	$ 481,000
Berthing area dredging ----------	240,000
Dikes and weirs ----------	186,000
Environmental monitoring ----------	4,000
Subtotal ----------	$ 911,000
Design and costs ----------	73,000
Construction management ----------	91,000
Total first costs ----------	$1,075,000

Table 8 includes the AAEQ value of $84,000 for the estimated initial costs at a project depth of 41 feet as well as about $67,000 for maintenance of that project depth.

Disproportionate Incremental Investment. EP 1165-2-1 (15 Feb 96) 12-6c, states the following in regard to the principle of progressive development: "The Federal interest is satisfied and the regular cost sharing requirements apply where the improvement serves/benefits two or more properties having different owners or one publicly-owned property at the outset or if new properties/owners would be served immediately after project completion. A principle of progressive development also applies. Progressive development includes nominal incremental extension "end of the line" situations where part of the improvement is a last project increment serving the last non-public property or property owner. The last property/property owner served may be "at the end" in terms of length, depth, or width, necessitating some project investment in that service alone. This is treated as a multiple-owner situation unless *disproportionate incremental investment* is required."

Disproportionate can be in the form of benefits and/or costs. The channel was incrementally justified so the additional costs for construction are less than the benefits from construction. The benefit to cost ratio is 7.4 for the inner channel and 10.3 for the east channel. The entire project involves construction of approximately 17,200 feet of channel. The increments in question amount to approximately 5,600 feet which is 33 percent of the channel length for 17.5 percent of the cost. The channels pass both tests.

Accuracy of costs and benefit calculations should also be considered. The project cost estimate has a 20 percent contingency factor. The benefit calculations are based upon projections over a fifty year life. The 17.5 percent portion of this project is well within the tolerances of accuracy for both cost and benefit calculations. Further, when assessed separably, the percentage values for each segment (8.0 and 9.5) are also within the realm or margin for analytical error regarding economic analyses (estimation of base vessel operating costs by IWR, aggregation of inputs for terminal and vessel operating parameters, and forecasts of future maritime activities pertinent to project studies). In addition, when assessed in combination or as separable elements, estimated benefits as assessed in the report exceed marginal costs by a considerable margin, which is consistent with overall findings for project studies and economic justification. Finally, the percentage shares when assessed separably are reasonable equivalent given consideration of total costs, and the placement of both features represents equitable treatment to both users of the waterway.

Risk and Uncertainty Associated With Critical Assumptions

Current requirements mandate examination of potential risk and uncertainty (R&U) associated with estimates and assumptions which are critical to project justification and\or plan formulation. R&U was assessed through basic sensitivity analyses and discussion of certain variables or influences viewed as critical to project justification. Project justification is based upon a limited number of port users, notably the Tampa Electric Company (TECO) and IMC\Agrico, Incorporated.

Respective to TECO and movements of coal, review of project benefits reveals that the majority of benefits are based upon expected transportation efficiencies for waterborne transport of domestic and foreign coal for Big Bend Station. For depths greater than 40 feet mlw, efficiencies for coal transport range from 55 to 60 percent of total benefits. Related efficiencies are largely attributable to self-propelled bulk carriers for handling coal from Indonesia via the Panama Canal or from nations such as Colombia and Venezuela on the northern coast of South America.

Exclusive use of domestic coal would preclude the ability to reduce emissions without significant plant retrofit. Exclusive use of low-sulphur coal would restrict fuel to low or possibly insufficient Btu rating for economical plant operation. The cost per Btu of fuel from low-sulphur coal has been equal or less than the average cost of domestic coal which is higher in sulphur and ash content. The coal sources are a consideration of operating costs relative to power generation subject to constraints imposed for air quality. Air quality is improved through the use of scrubber systems, efficiency measures in the boilers or combustion units, the use of cleaner-burning fuels (low sulphur coal), or some combination thereof. Air quality regulations place limits on sulphur content, ash content, energy generated unit of fuel, total operating cost per unit of energy, and technology of the generating facility. Relative sulphur content tends to be the most directly related to efforts to improve air quality when using coal. Relative sulphur content reductions result in lessening of sulphur dioxide (SO_2) emissions per unit of power. The SO_2 emissions are a primary component of present and evolving air quality regulations at State and Federal levels. The alternative to significant use of low-sulphur coal includes coal blends with higher sulphur content in combination with scrubber.

The Tampa Electric Company (TECO) is in the process of deciding on whether to employ additional scrubbers at Big Bend Station. Available information indicates the construction of such measures would cost $70 to $80 million dollars or more for initial construction and approximately $1.5 million or more for

maintenance and operation. Basic analysis of available information indicates channel improvements and importation of foreign-source coal on self-propelled carriers should be economically viable for the foreseeable future. The production of coal from foreign sources is expected to remain stable in availability and price as new sources such as China, South America, Australia, and Indonesia further develop the infrastructure needed to efficiently extract and transport known reserves. Proposed improvements should lower the costs of imported coal by approximately $3.60 to $4.30 per short ton which would make most imported coal from South America or Indonesia less costly than virtually all domestic sources. Even if implemented in tandem with scrubbing, available cost relationships for powerplant maintenance and operations indicate that fuel blending would still result in sufficient economic benefits for scrubber maintenance, plant operations, and fuel costs to more than offset associated costs of proposed waterway improvements.

TECO routinely employs multiple sources for fuel wherever practical to minimize dependency on one or a select few suppliers to encourage competitive pricing and limit susceptibility to price fluctuations in both domestic and foreign regional markets. TECO is expected to continue this practice.

TECO has to modify its current operations in order to achieve the benefits needed to justify the selected/NED plan. A lesser plan (37 feet) is economically justified and within current Administration policies. The Tampa Port Authority will not undertake the improvement project without the administrative and financial support from TECO and IMC/Agrico. Even if TECO has no plans to modify its current operations, a lesser channel of 37 feet could be constructed.

An element of uncertainty concerning benefits for IMC\Agrico operations is the exact time period for depletion or viability of phosphate reserves for exportation of wetrock and phosphate-related products. The period of reserve viability will be governed by market prices for phosphate products versus costs of extraction, quantity, and quality of product. Indications are that operations in the area should remain economically viable for at least 20 to 25 years beyond the project base year. Given the interest\discount rates mandated for life-cycle costing, any minor variability in the planning horizon would be of little concern.

Overall risks are small that a project would be constructed that will not realize enough benefits to cover the costs. The chances are higher that a lesser than authorized/NED plan could be constructed because the current users could realize benefits without making changes to their current operations.

Depth Summary. The entrance channel and turning basin provide access to the inner and east channels that have a separate incremental analysis. The incremental analysis of the inner and east channels is in tables 7 and 8. The overall analysis in table 6 is for all the channels (entrance, east, and inner) and the turning basin. All these tables show a maximization of benefits over costs occurs at a depth over 41 feet. However, tables 6 and 7 show the increase in benefits and net benefits between each increment of depth over 41 feet is not significant (less than 5 percent). The east channel analysis in table 8 indicates the increments of benefit between depths deeper than 39 feet is not significant. An overall depth of 41 feet is selected for all channels and turning basin in consideration of the following:

- Maximization of benefits over costs occur at depths deeper than 41 feet;

- East channel cost estimates are less than 5 percent of the overall project; and

- Maximum benefits with multiple usage is possible at a depth of 41 feet on the entrance channel and turning basin.

ADVANCED MAINTENANCE

The estimated AAEQ maintenance cost for each of the depths is a major portion of the total AAEQ costs in table 6. As mentioned in the Needs and Opportunities Section of this report, advance maintenance is a way to reduce that high annual costs. Two factors help lower the AAEQ cost:

- One is a deeper shoal depth to enable more cost efficient (lower unit cost) dredging and

- Two is an extension of time between maintenance cycles with added depth for more storage capacity to reduce the number of cycles in the 50 year economic life of a project.

The costs to mobilize and demobilize construction equipment for a project is a costly part of any maintenance work. More depth below that required for the project provides a basin for sediments. That basin increases the interval of time between each maintenance operation and reduces the number of cycles for shoal removal in a 50 year period. The advanced maintenance depth at Big Bend provides an opportunity for lower AAEQ maintenance costs.

Maintenance Data. The estimated mobilization and demobilization cost of equipment is $860,400 for each maintenance cycle. The average shoaling rate for proposed bottom configuration is 80,000 CY a year or about 0.44 feet of uniform shoaling throughout the bottom area. That rate of shoaling results in over a foot of uniform shoaling about every 3 years.

Advanced Maintenance Analysis. The analysis assumes that the channel shoaling is at a uniform rate and accumulates about 240,000 cubic yards every 3 years. Advanced maintenance provides additional depth below the selected project depth of 41 feet. The extra depth provides a basin for shoaling to accumulate before impacting the project depth. The analysis is for depths of 1, 2, 3, and 4 feet with corresponding time intervals of 6, 9, 12, and 15 years, respectively, estimated between each maintenance cycle.

Table 9 summarizes the data use to develop and compare the total average annual equivalent (AAEQ) cost for maintenance. The estimated cubic yards removed with each depth grouping provides a basis for estimating each maintenance cycle cost. The total present value of each future maintenance occurrence within the 50 year economic life of the project is the basis for estimating the AAEQ cost of that work at each depth.

Initial construction of the project includes the advance maintenance depth as required overdepth dredging. The additional first cost to provide that initial depth for advanced maintenance is in table 9. The AAEQ value of that cost at each considered depth is also a cost factor in determining the least cost alternative.

The analysis in table 9 adds the AAEQ values for maintenance and additional first cost. A comparison with the AAEQ cost of $549,000 for no advanced maintenance indicates the added depth considerations are a less costly alternative. The least cost alternative of all the considered depths is 2 feet with an estimated total AAEQ value of $325,000. That depth has an estimated maintenance cycle every 9 years after project construction.

To add 2 feet of required overdepth for advanced maintenance increases the total economic cost of the selected project depth of 41 feet by $1,700,000. This increase results in an additional AAEQ cost as shown in table 9. An increase of $133,000 in the AAEQ economic cost is more than offset with the reduction ($357,000) in AAEQ maintenance costs from $549,000 to $192,000.

TABLE 9

ADVANCED MAINTENANCE ANALYSIS

Items	Amounts (000) by Advanced Maintenance Depths in Feet			
	1	2	3	4
MAINTENANCE CYCLES	6 yr	9 yr	12 yr	15 yr
Per Cycle: Cubic Yards	480	720	960	1,200
Cost	$2,271	$2,388	$2,484	$2,712
Present value 1/	$3,978	$2,454	$1,703	$1,299
AAEQ cost	$311	$192	$133	$106
ECONOMIC COSTS				
Net increase 2/	$575	$1,700	$2,911	$4,172
AAEQ net increase	$45	$133	$228	$326
TOTAL AAEQ COSTS	$356	$325	$361	$432

1/ Present worth value of all the costs for estimated future maintenance work over a 50 year project life at an interest rate of 7.625 percent.

2/ Net increase determined from an estimated base economic cost in table 5 of $9,698,000 for a project depth of 41 feet with no advanced maintenance depth requirement.

SELECTED PLAN

The selected plan was derived from three evaluations. One is the bottom configuration which is the result of model simulation for safe navigation of the Big Bend Channels and Turning Basin as shown on figure 10. The second is a depth analysis that selects a depth of 41 feet over the selected bottom configuration. The third is an advanced maintenance overdepth analysis which added a required overdepth for maintenance of 2 feet. The costs include an allowable overdepth of 1-foot for dredging inaccuracies. That completes the plan selection for deep draft navigation at Big Bend. Those navigation features are the most responsive to the planning objectives and provide for the most efficient use of the area's commercial facilities while minimizing the impact to the area's environmental resources.

NAVIGATION PLAN FEATURES

The plan has a number of individual features that underwent separate consideration to addresses the planning objectives, needs, and opportunities set forth in earlier sections of this report. Considerations in development of those features included environmental, engineering, and economic quality to select a plan for implementation of a navigation project at Big Bend. The resulting features are in subsequent discussions.

Entrance Channel. Improvements to the entrance channel include: (1) deepening to a project depth of 41 feet and (2) widening the bottom by 50 feet on the north side. The total bottom width is 250 feet along the 1.9 miles of channel. An advanced maintenance overdepth of 2 feet makes the required dredging depth 43 feet over the entire bottom width.

Widener. The existing wideners between the entrance channel and Hillsborough Bay Channel Cuts A and C remain unchanged. The widener at the junction of the Hillsborough Bay Cuts A and C appeared to need widening which was later found to be in error. No correction is necessary in that area as the channel markers correctly show the westerly limits of the widener. The depths and widths in that area are sufficient without any dredging.

Turning Basin. The southwestern edge of the turning basin needed expansion to turn the larger ships. The turning diameter in the basin is 1,200 feet. The depth in the basin is to be 41 feet with 2 feet of advanced maintenance to make the total required depth for dredging 43 feet. The expansion provides a safer transition for larger ships from the entrance to the inner channel.

TABLE 9A

SELECTED PLAN COST SHARING
(1,000's)

Project Feature	37 Feet	39 Feet	40 Feet	41 Feet	42 Feet	43 Feet
Base Project + Inner Channel						
Benefits	542	1438	1870	2179	2254	2324
First Costs	5736	7008	8028	8623	9136	10094
AAEQ Costs	449	548	628	675	715	790
AAEQ O&M Costs	485	485	485	485	485	485
Sub-Total AAEQ Costs	934	1033	1113	1160	1200	1275
Net Benefits	-392	405	757	1019	1054	1049
B/C Ratio	.58	1.39	1.68	1.88	1.88	1.82
Base Project + Inner Channel + East Channel						
Benefits	1846	2948	3406	3729	3810	3880
First Costs	6567	7890	8974	9698	10273	11398
AAEQ Costs	514	617	702	759	804	892
AAEQ O&M Costs	552	552	552	552	552	552
Sub-Total AAEQ Costs	1066	1169	1254	1311	1356	1444
Net Benefits	780	1779	2152	2418	2454	2436
B/C Ratio	1.73	2.52	2.72	2.84	2.81	2.69
Advanced Maintenance						
First Costs	1323	1808	1299	1700	2336	2472
AAEQ Costs	104	141	102	133	183	193
AAEQ Maint Savings	-233	-233	-233	-233	-233	-233
Total Project						
Total Project - Benefits	1846	2948	3406	3729	3810	3880
First Costs	7890	9698	10273	11398	12609	13870
AAEQ Costs	618	758	804	892	987	1085
AAEQ O&M Costs	319	319	319	319	319	319
Sub-Total AAEQ Costs	937	1077	1123	1211	1306	1404
Net Benefits	909	1871	2283	2518	2504	2476
B/C Ratio	1.97	2.74	3.03	3.08	2.92	2.76

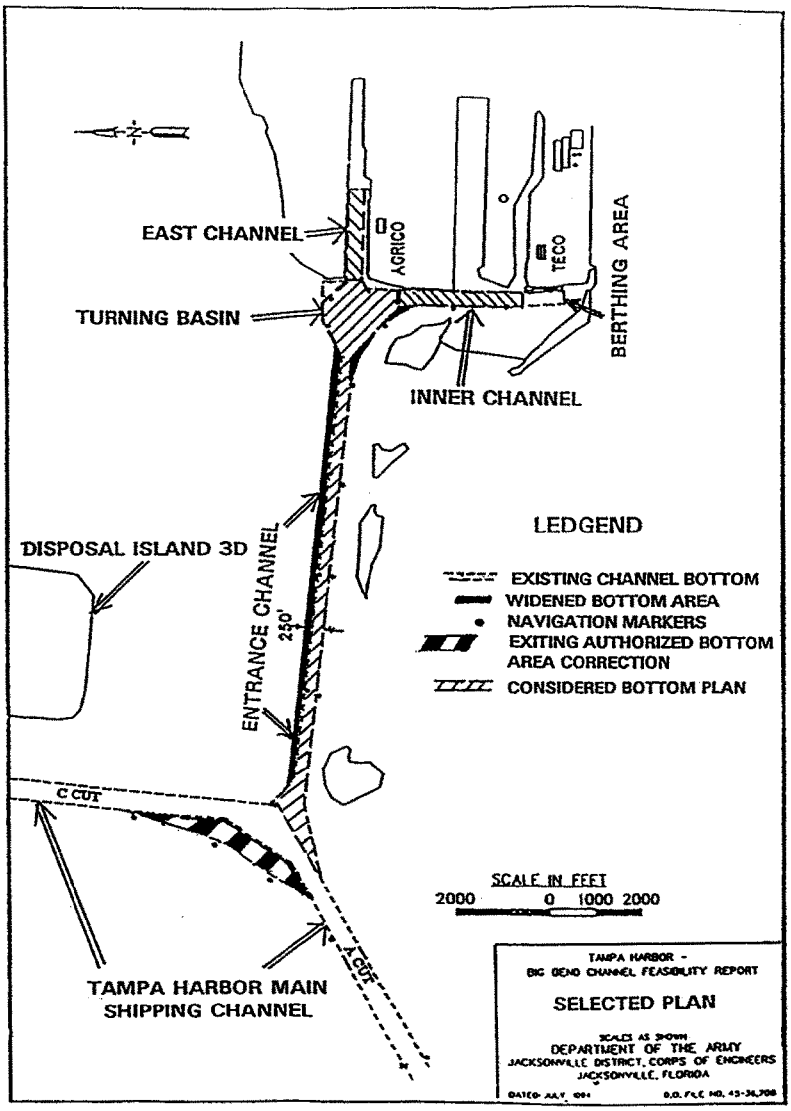
EAST CHANNEL
TURNING BASIN
AGRICO
TECO
BERTHING AREA
INNER CHANNEL
DISPOSAL ISLAND 3D
ENTRANCE CHANNEL
250'
C CUT
A CUT
TAMPA HARBOR MAIN
SHIPPING CHANNEL
LEDGEND
EXISTING CHANNEL BOTTOM
WIDENED BOTTOM AREA
NAVIGATION MARKERS
EXITING AUTHORIZED BOTTOM
AREA CORRECTION
CONSIDERED BOTTOM PLAN
SCALE IN FEET
2000 0 1000 2000
TAMPA HARBOR -
BIG BEND CHANNEL FEASIBILITY REPORT
SELECTED PLAN
SCALES AS SHOWN
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

Figure 10

Inner Channel. The inner channel bottom width of 200 feet remains the same but at a deeper project depth of 41 feet. An advanced maintenance overdepth of 2 feet makes the required depth 43 feet over that bottom width.

East Channel. The channel extends from the turning basin eastward at a project depth of 41 feet over a bottom width of 200 feet. An advanced maintenance overdepth of 2 feet makes the required depth 43 feet over that bottom area.

Berthing Areas. The existing berthing areas are 100 feet wide for coal and phosphate products and require deepening to fully utilize the entrance channel, turning basin, and inner channel project depths of 41 feet. The berthing area dredging is in the estimated cost for a project but is not a navigation feature included for cost sharing. The project sponsor is responsible for the costs to deepen the berths.

DESIGN

Project design involves the gathering of all necessary information related to an engineeringly safe, economically justified, and environmentally acceptable plan. Current laws and regulations provide environmental and economical guidelines which coupled with engineering experience enable plan formulation for an implementable project.

In the design for safety, vessel characteristics underway were a main consideration along with the channel bottom material. An analysis of existing and prospective vessel fleets helped identify potential usage problems or limitations with current conditions. Coordination with the sponsor, pilots, and local interests identified existing problems areas based on experience with navigating existing vessels on the waterway. Considering the existence of rock in the channel bottom and future vessel usage, the need for a ship simulation study was evident to aid in the design process and possibly reduce construction costs.

Model Simulation Studies. The Waterways Experiment Station (WES) did model simulation studies during 1993 and 1994 to consider the need for widening. The model conditions took into account the mean tidal range in the area of 1.8 feet and winds which impact primarily light-loaded vessels. Currents were a minimal consideration.

Design Vessels. The model results were for two design vessels. One was an integrated tug and barge (ITB) with a length overall of 760 feet, beam of 78 feet, loaded draft of 32 feet, and light draft of 12 feet. The other was a bulk carrier with a length overall of 740 feet, beam of 105.75 feet, and a loaded

draft of 37 feet. Underkeel clearances of 1 to 2 feet were a consideration. The bulk carrier was single screw and used tug assistance at the entrance to Big Bend Channel and in the turning basin. The ITB was twin screw and had a bow thruster. Design winds were variable from the north averaging 15 knots.

Model Results. The WES report is in appendix C. Pilots, licensed to handle ships in the Big Bend Channel, assisted with the development and evaluation of the plans and design alternatives. The model included a channel depth of 40 feet below mlw which provided a reliable variance of +/- 2 feet for that design condition. The channel width of 200 feet was the main design concern for evaluation.

The model considered an additional width of 50 feet necessary for navigation. Testing looked a placing the width all on one side or an equal amount on both sides. testing in addition to the existing 200 feet. WES recommended the alternative of widening all on the north side (Plan B) of the channel. That is the selected plan for implementation.

Test results also recommended a larger widener between the entrance and inner channel on the southwestern side of the turning basin at Buoy 10. That change was to provide more maneuvering room and clearance for tug assistance in making that turn in the turning basin. That recommended modification also enlarged the turning diameter to a diameter of 1,200 feet.

The turn between C Cut on the main Tampa Harbor channel and the Big Bend entrance channel was also a problem for vessels. The turn caused vessels to swing outside the western bottom boundary of the main ship channel at the junction of C and A Cuts. Depths in that area where the ships leave the channel are not a problem and no groundings occur as a result. To avoid leaving the channel, the recommendation is to move the channel markers to the west and provide more channel width in that area.

EXCAVATION

The geotechnical analysis in appendix A indicates the new work dredging involves mainly sand, silt, clay, shell, and some rock in the excavation. Available subsurface investigations indicate a considerable amount of fine material comprising as much as 40 to 50 percent of the total project excavation. The selected plan is for a required dredging depth of 43 feet (includes 2 feet of advanced maintenance) over the enlarged bottom area of the existing channel. Removal to that depth involves the excavation of about 3,238,000 cubic yards (CY) of material. A 1-foot allowable overdepth for dredging inaccuracies could result in a gross yardage of 3,477,000 CY.

DISPOSAL

Disposal island 3D is the primary disposal area for all excavated material. The disposal process provides a natural separation of the fine material from the coarser material suitable for construction. Approximately 3.24 to 3.48 million cubic yards (CY) of material to be excavated is to go into the disposal area from initial construction of the selected plan. That quantity includes an excavation allowance of 1 foot below the required depth (project depth plus required overdepth for advanced maintenance) to allow for dredging inaccuracies.

The material is to go into the southern end of the disposal island. The weirs for overflow waters are on the northern end. The coarse material is likely to settle in the southern end along with 8 percent of the total volume that is likely to be fines. Estimating fines at 45 percent of total excavation volume, the remaining 37 percent is likely to move to the northern end near the weirs. Suitable construction material settling on the southern end is estimated at 2.0 to 2.2 million CY. 1.7 million CY is necessary for dike construction on disposal island 3D.

DIKES

Placement of 3.2 to 3.5 million CY of material into disposal island 3D is possible only with construction of higher dikes. Assuming no existing capacity is available on that island, a dike height increase of 7 feet is necessary to hold 3.7 million CY of material. The existing dike is at an elevation of 20 feet above mean low water. The additional 7 feet requires 582,000 CY of suitable construction material plus about 35,000 CY for dike repairs on the southwest corner. The repair is maintenance work and not a cost for the project. The repair is necessary before prior to any increase the height. The material on the southern end of disposal island 3D has an estimated 1.7 million CY of suitable material. Sufficient material is available on disposal island 3D to raise the dike height and make repairs.

Foundation conditions limit the ultimate dike height on disposal island 3D to an elevation of 40 feet above mean low water. Construction of the dike to that elevation requires about 3.34 million CY of suitable construction material. Dike repairs to the southwest corner require another 35,000 CY for repairs to the southwest corner. About 1.675 million CY of additional suitable material is necessary with the 1.7 million CY in 3D to obtain the maximum height. The most cost efficient source of material is from the dredging of navigation features at Big Bend. The material also needs to go into disposal island 3D to separate most of the fines from coarse materials.

WEIRS

Disposal island 3D has the potential to accommodate the material from the initial construction. The existing weirs are usable with some repairs. Costs are in the estimates to repair and raise the existing weirs consistent with dike construction for disposal of the Big Bend dredged material.

ENVIRONMENTAL CONSIDERATIONS

The selected plan considers the potential impact that construction and disposal activities can have on bird nesting and manatees in the area. To avoid impacts to bird nesting on disposal island 3D, the construction schedule is to exclude disposal operations during the bird nesting season from 1 April-31 August. The construction contract for dredging will include the following to protect the manatees:

- Standard Federal and State manatee protection conditions;
- Provision for a trained biologist, approved by the Fish and Wildlife Service and/or Florida Department of Environmental Regulation, to be aboard the dredge;
- No dredging at night during the winter manatee window with the use of a clamshell dredge to do the excavation; and
- Placement of propeller guards on the auxiliary vessels moving supplies and personnel between the dredge and shore.

Environmental interest indicated that Sunken Island was a higher priority than Whiskey Stump Key. However, the amount of suitable material available will likely determine the best plan. Filling the holes at Whiskey Stump Key raises the bottom depths to an elevation consistent with the existing bottom in the surrounding area. The higher bottom elevation creates an estimated 53 acres of habitat for the marine environment.

The use of the dredged material to benefit the environment has a high priority in the Tampa Bay area. The selected plan includes the placement of all dredged material onto disposal island 3D for raising the dikes. If suitable material is available after required dike construction, the excess would be available for improvements to the environment. Consideration at that time would determine the most feasible use of the material based on available authorizing legislation.

PRECONSTRUCTION PLANNING

Additional hydraulic and subsurface information will be obtained during preconstruction planning to more accurately define the conditions for construction. Upon completion of plans and specifications, a contract would be advertised and awarded for project construction.

CONSTRUCTION

Assuming funding availability, the estimated construction time is about 4 months. During that period after contract award, excavation and disposal is to involve approximately 3.2 to 3.5 million cubic yards of material to modify existing channel conditions. To the extent possible, the construction is to avoid the nesting season of migratory birds. If construction during the bird window is unavoidable, provisions satisfactory to the U.S. Fish and Wildlife Service and State environmental agencies would be made to accommodate any nesting pairs. Standard precautionary measures are to be taken for locating and minimizing possible impacts to any manatees that happen into the area during the dredging operations.

Project construction is expected to involve the following:

- Excavation of material from the project channels, turning basin, and berthing areas with placement of the material in disposal island 3D.

- Installation of appropriate navigation aids by the U.S. Coast Guard along the project waterways.

The estimated costs for the project anticipate the use of a hydraulic dredge with a cutterhead to excavate material for larger channel and basin conditions. The excavated material is to be pumped through a pipeline to disposal island 3D.

NAVIGATION PLAN FIRST COST

Table 10 contains the major items of the selected plan for navigation improvements at Big Bend. The excavation quantity is for construction of the required project depth of 41 feet plus 2 feet of advanced maintenance. Excavation of berthing areas to the same depths and bulkhead modifications to enable those depths are separate from the channel and turning basin dredging because they are sponsor costs. Attachment 3 of appendix A provides a breakdown of cost but does not include the bulkhead estimate. That estimate came from area interests. The dredging costs include a 1 foot allowable overdepth for dredging inaccuracies.

TABLE 10

SELECTED PLAN ESTIMATED TOTAL FIRST COST

ITEM	COSTS
Mobilization and Demobilization - Hydraulic Dredge	$861,000
- Dike Equipment	80,000
Excavation - Hydraulic Dredge with Upland Disposal	4,097,000
Berthing Area - Hydraulic Dredge with Upland Disposal	517,000
Aids to Navigation	438,000
Turbidity and Manatee Monitoring	87,000
Disposal Area Preparation - Dike construction	1,644,000
- Weir work	152,000
Bulkhead modifications - coal terminal	2,133,000
Preconstruction Engineering and Design	595,000
Construction Management	744,000
TOTAL FIRST COST	$11,348,000

OPERATION AND MAINTENANCE

A required overdepth for advanced maintenance increases the time between maintenance cycles to approximately 9 years. The disposal area for maintenance material is disposal island 3D. Higher dikes will be necessary to accommodate the maintenance material from Big Bend and other areas that use the island for disposal of shoal material such as the Tampa Harbor Main Shipping Channel.

Annual Shoaling. Dredged material from maintenance of the Big Bend Channel is to be placed in disposal island 3D. That island also has other shoal material sources besides Big Bend as discussed in appendix F. The other sources have an estimated potential shoaling rate which combined with Big Bend forms an annual estimate in the future as follows:

	Annual amounts in 1,000's		
3D Shoal Sources	1998	1999	2000-2047
Other Tampa Harbor projects	280	280	280
Big Bend project	80	80	80
Alafia River project	-	-	65
TOTAL	360	360	425

Based on the above annual shoaling rates, the estimated Big Bend portion ranges from 22.2 percent in 1998 and 1999 to 18.8 percent from the year 2000 into the future.

Disposal Capacity. An analysis of capacity in disposal island 3D is in appendix F. That island can accommodate all the construction material from Big Bend with an increase in dike height of about 7 feet assuming no existing capacity. However, that island is primarily a disposal area for maintenance material from the Tampa Harbor Federal project. Further increases in dike height will be necessary to enlarge the capacity for future maintenance of the harbor.

An increase in dike height of 20 feet provides an added capacity for future maintenance disposal. Determining that capacity involves an accounting for material coming from Big Bend not used in the dike construction as well as the existing capacity. The material not used in the dike construction reduces the capacity an estimated 1.56 million cubic yards (3,238,000 CY - 1,675,000 CY). The following is an approximate estimate of capacity within the disposal area after a 20-foot increase in dike height:

	Million CY
20 feet of dike ----------	8.6
Estimated capacity - 1997 ----	0.3
Dike material from inside 3D -	3.4
Big Bend material reduction	(1.6)
TOTAL CAPACITY ----------	10.7

The above potential capacity is for shoal material from Tampa Harbor and Big Bend. The Tampa Harbor project has an estimated shoaling for disposal of about 345,000 cubic yards a year. The Big Bend selected plan has maintenance of about 80,000 cubic yards a year. The estimated future shoaling rate of 425,000 cubic yards a year into disposal island 3D results in a life expectancy of about 25 years with the inclusion of half the annual maintenance from Alafia River. Any removal of material from the disposal island in the future for beneficial environmental uses can extend the life of that area even more. Big Bend, as part of the Tampa Harbor project, has a long tern management plan for disposal of shoal material from maintenance work.

ECONOMIC ANALYSIS

The economic analysis consists of an evaluation of the average annual equivalent (AAEQ) costs and benefits for the selected plan. The benefits come from the movement of coal, phosphate rock, and phosphate chemicals on the deeper depth channel of 41 feet. Development of the benefits is in appendix B. The AAEQ benefit from the movement of coal on deeper draft vessels is an estimated $2,179,000 and for the phosphate rock and chemicals $1,550,000. Table 11 provides the total benefit for all the channels and turning basin.

TABLE 11

SUMMARY COMPARISON OF SELECTED PLAN BENEFITS AND COSTS

ITEMS	41 Feet
AAEQ Benefits	$3,729,000
Costs - Interests and Amortization 1/	892,000
Maintenance: Channel shoals 2/	192,000
Navigation aids	3,000
Disposal area costs	124,000
Total AAEQ costs	$1,211,000
Benefit-to-cost ratio	3.1 to 1

NOTES:
1/ The total first cost ($11,348,000) plus IDC of $50,000 is the total economic cost for the project. That economic cost is then amortized over 50 years at an interest rate of 7.625 percent for the AAEQ cost for all channels, turning basin, bulkhead modifications, and berthing areas.
2/ Annual costs for maintenance to remove shoals include the excavation of material from the project channels, turning basin, and berthing areas with placement in disposal island 3D.

The AAEQ costs come from interest and amortization of the total initial economic first cost and maintenance of the project in the future. More detailed discussions are in the subsequent subheadings for different elements in the maintenance costs.

Channel Maintenance. The results of the advanced maintenance analysis show the most cost efficient overdepth for maintenance is 2 feet. Removal of about 720,000 cubic yards of shoal material with that overdepth dredging is estimated to occur about once every 9 years. The estimated maintenance cost for that removal is about $2,388,000. The present worth value of that maintenance cost every 9 years over the 50 year project life is about $2,454,000. The estimated average annual equivalent (AAEQ) cost for that removal is $192,000 as shown in table 11.

Dike Maintenance. Dike construction on disposal island 3D is essential for continued maintenance of the Federal navigation project for Tampa Harbor. The existing dike has little remaining capacity. The 1994 estimate of capacity was about 1,362,000 CY. Maintenance accumulations on the Tampa Harbor project without the Alafia River project is an estimated 280,000 CY a year. Disposal island 3D has about 5 years of maintenance capacity with existing dikes. An increase in dike height for more capacity is necessary by 1999 for continued maintenance of Tampa Harbor. Adding 7 feet of dike height for construction of the selected plan to deepen Big Bend will not significantly improve the disposal capacity in 3D for disposal of material from maintenance to remove shoals.

The construction equipment for raising the dike height on disposal island 3D can provide the 7 feet for the Big Bend work as well as additional height for the Tampa Harbor project. That saves the equipment mobilization cost for raising the dikes in two separate occurrences. If construction of the Big Bend deepening project does not occur before 1999, the Tampa Harbor project will likely require the higher dikes for maintenance. The likely increments for dike increases just for the Tampa Harbor project are 10 feet.

The first increment of 10 feet should be done as part of dike work for the Big Bend project. The first 7 feet is part of the Big Bend project costs and uses about 580,000 CY of material from within disposal island 3D. The estimated total material for dikes in the first 10 feet is about 1,108,000 CY which is available in disposal island 3D. Material from the Big Bend dredging will enable the construction of the last increment of 10 feet.

Dike Costs. The estimates of disposal area costs for the different increments of dike height have the same equipment mobilization and demobilization cost ($80,000) for dike construction. The estimated costs below exclude mobilization and demobilization, preconstruction engineering and design costs, as well as construction management costs:

Dike Increment in feet	Costs (000) Total	Increment
7	$1,796	$ 0
10	3,411	1,615
20	9,893	6,482

An additional 10 feet of dike height above the existing height adds about 5.0 million CY of capacity to disposal island 3D. That equates to about 500,000 CY a foot. To raise the existing dike height 20 feet requires the use of an estimated 1.7

million CY of suitable material from dredging the Big Bend Channel improvement. That material is still within the disposal area after the initial dredging of the Big Bend Channel. Usable capacity for maintenance of the Tampa Harbor project with the 10-foot dike increase consists of about 1.5 million CY (3 feet x 500,000 CY a foot) plus the space where about 1.1 million CY came from inside 3D to raise the dike 10 feet. That total amount is about 2.6 million CY plus whatever existing capacity was in the disposal area at the time of construction.

The maintenance cost for the Big Bend Channel project would have a portion of the overall dike cost associated with disposal island 3D. Tampa Harbor with the Big Bend Channel project and without Alafia River has a total estimated annual shoaling of about 360,000 cubic yards. The Big Bend share(80,000 cubic yards) of that maintenance is about 22.2 percent. The extended life for use of the island to dispose of maintenance material from Tampa Harbor and Big Bend Channel is about 7 to 8 years (2,600,000 CY/360,000 CY a year).

The Big Bend project provides 7 feet of the initial 10 feet of dike increase above existing levels. The remaining 3 feet is for maintenance of the modified Tampa Harbor project to include Big Bend. The cost of that 3 feet is an estimated $1,615,000. The estimated preconstruction engineering and design costs along with the construction management costs are about $291,000. The estimated total is $1,906,000. The Big Bend share is an estimated $423,000 ($1,906,000 x 0.222) for future maintenance.

The second 10 feet of dike has an estimated dike and weir costs of $6,482,000. The estimated mobilization and demobilization, preconstruction engineering and design, and construction management costs are about $1,247,000. The estimated total is $7,729,000. The Big Bend portion of that dike cost for maintenance is an estimated $1,716,000 ($7,729,000 x 0.222).

The total maintenance cost for disposal area work includes the initial cost $423,000 for 3 feet of the initial 10 feet and $1,715,000 about 7 years later to raise the dike another 10 feet. The present worth value of $1,715,000 at an interest rate of 7.625 percent is $1,025,000. The total present worth value of the two increments is $1,448,000. The total capacity with the 20 feet of dike is about 10.7 million CY. That capacity provides about 30 years of disposal for 360,000 CY of shoaling material a year. The average annual equivalent (AAEQ) value of $1,448,000 over 30 years is about $124,000. That AAEQ value is in table 11 as the amount for the estimated project life of 50 years.

The economic appendix of the report includes a discussion of risk associated with the dependence of project justification on coal movements for Big Bend station. To summarize, the selection for mode of transport concerning coal is largely dictated according to the origin or selected source, which in turn is primarily driven by total acquisition and\or delivered cost(s) and quality (i.e., sulfur and ash content, Btu output, etc.). Given consideration of air quality standards, alternatives for regulatory compliance, cost, and quality of coal available both domestically and from foreign sources, it is highly probable that TECO will continue to import foreign coal. This determination is further supported by the location of TECO's generation plant with access to a major deep-draft waterway system which makes direct water transport practical and highly cost-effective with proposed improvements. Under such circumstances, the importation of foreign coal whether from Indonesia or South America is economically facilitated via self-propelled carriers of foreign registry due to scale and costs of associated vessel operations and is competitive with domestic barge operations such as GCT as demonstrated in the report appendix. As an example, Table B-15 and B-20 of the draft report and revised appendix illustrate that the lowest cost per ton for domestic barge services is $4.66 per short ton while review of Table B-26-b is $4.10 or less for service by self-propelled carrier for a waterway depth of 37.0 feet or greater. The relative spread for stated costs illustrate the advantage of waterborne transport with improvements (for further information concerning preceding discussion, refer to the economic appendix for Big Bend Channel).

PLAN IMPLEMENTATION

The sponsor, the Tampa Port Authority, is in agreement with the selected plan based on recent coordination. Implementation of that plan is dependent on further review within the U.S. Army Corps of Engineers and the Secretary of the Army's Office before going to the U.S. Congress for authorization as a Federal project. Authorization enables plan implementation with the sponsor providing the necessary non-Federal cooperation items. Non-Federal responsibilities include work that requires cost sharing and some that is 100 percent sponsor cost such as berthing area dredging, bulkhead modifications, and disposal area work. The Water Resources Development Act (WRDA) of 1986 established the formula for Federal and non-Federal shares of the estimated construction cost for the general navigation features of the selected plan.

IMPLEMENTATION AUTHORITY

Senate and House Resolutions requested the study of the Big Bend Channel in 1979. Those resolutions authorized the study and this report on the findings. The normal process for a Congressional study authorization is to send a final report back to Congress for project authorization first then request funding to implement the authorized project. That process takes time as the report goes to Congress for authorization in a Water Resources Development Act. Funding to construct the project normally occurs after Congressional authorization.

NON-FEDERAL RESPONSIBILITIES

Implementation of the selected plan involves specific non-Federal responsibilities. New cost-sharing in the Water Resource Development Act of 1986 requires the non-Federal sponsor to share in the costs of general navigation features (GNF). The GNF on the Big Bend project include the:

- Entrance, east and inner channels;
- Turning basin that connects the three channels; and
- Dikes and weirs for disposal of dredged material from initial construction.

Congress included dikes and weirs as GNF for cost sharing in the Water Resources Development Act of 1996. The sponsor's share of GNF for a project with commercial navigation benefits is:

- 25 percent in cash during the period of construction for a project depth of 41 feet and
- 10 percent over 30 years provided there is no non-Federal credit for the 10 percent.

Sponsor costs for relocations, lands, easements, and right-of-way are allowable non-Federal credits. The sponsor's credit cannot exceed 10 percent of the total GNF costs. Table 12 shows the total GNF costs to be $8,167,000 but no costs for any allowable non-Federal credits.

The berthing area dredging and bulkhead modification are 100 percent non-Federal responsibilities. Removal of shoal material on the existing non-Federal project to a required depth of 34 feet either prior to or during construction is a 100 percent sponsor responsibility and costs. The study identified no relocation nor cultural resources in the area that interferes with implementation of the selected plan. Standard cooperation agreement items of sponsor responsibility for project

implementation are in the RECOMMENDATIONS section of this report. These items are standard for any non-Federal sponsor, but they do not all apply to the proposed project. Relocation does not apply in this case and table 11 has no cost for that item. The estimated items that apply are shown in that table.

FEDERAL RESPONSIBILITIES

The authorization of a Federal project for implementation incurs certain Federal responsibilities. Those responsibilities relate primarily to the general navigation features and aids to navigation. The aids to navigation are a 100 percent Federal responsibility. The Federal responsibility for initial cost of general navigation features is 65 percent for a project depth of 41 feet if the sponsor has no 10 percent credit. The non-Federal sponsor has no credits identified for the selected plan. That leaves the Federal percentage at 65 percent. The estimated current value of Federal cost is $5,309,000 (without the $438,000 for navigation aids). Table 12 shows the estimated values of Federal and non-Federal costs.

Once authorization of a project occurs, the Federal Government responsibilities also involve the following:

a. Subject to and using funds provided by the sponsor and appropriated by the Congress, the Government shall expeditiously construct the general navigation features of the project (including relocations or alterations of highway and railroad bridges and approaches thereto), applying those procedures usually followed or applied in Federal projects, pursuant to Federal laws, regulations, and policies.

b. To the extent possible, the sponsor shall be afforded the opportunity to review and comment on all:

- Contracts, including relevant plans and specifications, prior to the issuance of invitations for bids and

- Modifications and change orders prior to the issuance to the contractor of a Notice to Proceed. The Government will consider the comments of the sponsor, but contract award, modifications or change orders, and performance of all work thereunder (whether the work is performed under contract or by Government personnel) shall be exclusively within the control of the Government.

c. The Government shall operate and maintain the general navigation features (including any improvements made to Disposal Island 3D) of the project assigned to commercial navigation. Maintenance of the project is a Federal expense provided the sponsor furnishes the non-Federal responsibilities.

TABLE 12

SELECTED PLAN COST SHARING

ITEM	TOTAL COST (000)	FEDERAL SHARE (000)	NON-FEDERAL SHARE (000)
General Navigation Features (GNF)			
Channels and Turning Basin	$4,958	$3,223 1/	$1,735 2/
Environmental Monitoring	87	57	30
Dike and weir construction	1,876	1,219	657
Preconstruction Eng & Design	554	360	194
Construction Management	692	450	242
Subtotal, GNF Costs	$8,167	$5,309	$2,858
Features not Cost Shared			
Berthing Areas 3/	$517	0	$ 517
Preconstruction Eng & Design	41	0	41
Construction Management	52	0	52
Subtotal, Berthing Areas	$610	0	$610
Bulkhead Modification 3/	2,133	0	2,133
Navigation Aids	438	438	0
TOTALS	$11,348	$5,747	$5,601

NOTES:

1/ The estimated Federal share of general navigation features is 65 percent. The non-Federal sponsor has no estimated credit.

2/ Non-Federal sponsor cost is a 25 percent cash contribution plus 10 percent over 30 years for a total of 35 percent of the general navigation features .

3/ Berthing areas dredging and bulkhead modifications are 100 percent non-Federal expenses.

FLOOD PLAIN ASSESSMENT

Executive Order 11988 requires the Federal Government to avoid, to the extent possible, adverse impacts associated with the occupancy and modification of flood plains and to avoid direct or indirect support of flood plain development wherever there is a practical alternative. All lands within the Big Bend area current or potential supporting port facilities lie within the flood plain determined by a 100-year frequency flood elevation.

Navigation improvements at Big Bend would encourage the expansion of the existing cargo handling area. Alternative location of those facilities outside the flood plain is impractical. Also, development of additional facilities at alternative ports to handle prospective future tonnages would likely involve development within the flood plain at their respective sites.

COASTAL ZONE MANAGEMENT ACT

The Coastal Zone Management Act of 1972, as amended (PL 92-583) requires all Federal activities inside or outside a state's coastal zone to be consistent to the maximum extend practicable with the state's coastal zone management plan (CZMP) if the activities affect natural resources, land or water uses within the coastal zone. The State of Florida reviewed the proposed project and determined it is consistent with the State's CZMP.

COASTAL BARRIER RESOURCES ACT

The proposed new Federal investment decision for the Big Bend Channel navigation improvements does not include any recommendations which would result in any new Federal expenditures or financial assistance prohibited by the Coastal Barrier Resources Act (Public Law 97-348); nor were funds obligated in the past years for this project for purposes prohibited by this Act.

PUBLIC INVOLVEMENT

The Environmental Assessment (EA) contains letters and other pertinent correspondence that was received as a result of public and interagency meetings and coordination conducted during the study process. The draft report coordination with the public occurred between June 28 and July 29 of 1996. Comments and responses on the draft report are in the EA.

The main comment on the report was from the U.S. Department of Interior, Office of Environmental Policy and Compliance. The comment was over concerns by the Fish and Wildlife Service (FWLS) about the potential adverse effect on the manatee. The options to avoid adverse impacts were to avoid dredging during the winter months (November 15 - March 31) or provide a trained biologist, approved by the FWLS, to watch for manatees and require all service boats to have propeller guards. The latter option is a part of the selected plan for the project.

An informal public meeting on July 29 provided an opportunity for public comment. No adverse comments received from that public meeting on the draft report.

CONCLUSIONS

To consider resources in the area of the proposed improvement, plan formulation involved several alternatives. The no action plan provided nonstructural measures for future management and use of the existing facilities and navigation features to include continued maintenance of those features. Model simulation looked at the existing non-Federal channels and turning conditions to assess minimum changes needed for safe navigation. Selected plan conditions included the following:

- Entrance channel bottom width of 250 feet,
- Inner channel bottom width of 200 feet,
- East channel bottom width of 200 feet,
- An increase in the turn widener from the entrance channel to the inner channel, and
- Movement of navigation markers on the existing non-Federal channel.

Enlargement of the widener in the turn between the entrance and inner channels enables vessels to stay inside the bottom boundaries and also provides a turning diameter in the basin of 1,200 feet. Alternatives depths for deepening in all channels, the turning basin, and berthing areas ranged from 33 to 45 feet. Formulation considered measures to avoid or minimize impacts to significant environmental resources in the area. Plan implementation includes no dredging or disposal during the migratory bird season. Concerns about the manatee resulted in the following measure to be a part of dredging contract:

- Standard Federal and State manatee protection conditions;
- Provision for a trained biologist, approved by the Fish and Wildlife Service and/or Florida Department of Environmental Regulation, to be aboard the dredge;
- No dredging at night during the winter manatee window with the use of a clamshell dredge to do the excavation; and
- Placement of propeller guards on the auxiliary vessels moving supplies and personnel between the dredge and shore.

The no action plan provided a non-structural base condition without improvement but did not meet the planning objectives. The National Economic Development (NED) plan is for a project depth of 41 feet, an advanced maintenance depth of 2 feet, and an allowable overdepth of 1 foot. The NED plan is the selected plan which minimizes overall project costs and maximizes benefits in excess of costs. Based on the study findings, that plan has a total economic first cost of $11,348,000. The non-Federal share is $5,601,000 which includes berthing area dredging and bulkhead modifications.

Average annual equivalent (AAEQ) benefits are $3,729,000 from savings in transportation costs in the deep-draft vessel movements of coal, phosphate rock, and phosphate chemicals. AAEQ costs are $1,211,000 which includes interest and amortization of the total economic first cost and future maintenance of the channel and navigation aids. An interest rate of 7.625 percent provided the basis for discounting future benefits and costs. The benefit to cost ratio is 3.1 to 1. Sufficient estimated capacity exists in disposal island 3D for over 20 years of maintenance to remove shoal material from the selected plan.

The selected plan appears to provide sufficient material for dike construction. Excess material for beneficial use to enhance the environment would not be available at the time of construction. Direct use of dredged material from deepening and widening is not advisable due to the large amount of estimated fines in that material. To separate the fines from more usable material, placement in disposal island 3D is recommended to enable a natural separation to occur. Once that separation takes place, any excess material not needed for dike construction could be considered at a later date for beneficial use to enhance the environment. Consideration and recommendation of beneficial uses of that material is possible in the future under available Congressional legislation.

The Tampa Port Authority, the project sponsor, provided a letter in support for the selected plan. That letter is in appendix G. The Tampa Port Authority indicates full support for the project and is budgeting for their cost. The sponsor is aware of the cost sharing and required items of local cooperation for project construction. Construction will be completed under one contract. The sponsor has indicated willingness and financial support for the project.

The sponsor has also requested in a letter that the U.S. Army Corps of Engineers assume all applicable responsibilities for dredged material disposal facilities required for the Big Bend Channel project and the entire Tampa Harbor Project. This report serves as the decision document for the Big Bend Channel portion. The project cost sharing has been adjusted accordingly. The Project Cooperation Agreement will reflect the new responsibilities. A separate decision document will be prepared for the remaining Tampa Harbor portions and the existing cooperation agreement will be modified.

RECOMMENDATIONS

I recommend authorizing construction of navigation improvements and maintenance to non-Federal channels as a modification to the Tampa Harbor project in accordance with the plan selected herein, which is the National Economic Development Plan, with such modifications as in the discretion of the Commander, HQUSACE, may be advisable; at a first cost to the United States presently estimated at $5,842,000, with annual operation and maintenance costs of $255,000 to the United States.

These recommendations are made with the provision that the exact amount of non-Federal contribution shall be determined by the Commander, HQUSACE prior to project implementation, in accordance with the following required items of cooperation to which the non-Federal sponsor (Tampa Port Authority) shall agree to perform prior to implementation:

a. Provide, operate, maintain, repair, replace, and rehabilitate, at its own expense, the local service facilities in a manner compatible with the project's authorized purposes and in accordance with applicable Federal and State laws and regulations and any specific directions prescribed by the Federal Government;

b. Provide all lands, easements, and rights-of-way, including those lands, easements, and rights-of-way required for dredged or excavated material disposal areas, and perform or ensure the performance of all relocations determined by the Federal Government to be necessary for the construction, operation, maintenance, repair, replacement, and rehabilitation of the general navigation features (including all lands, easements, rights of way, and relocations necessary for dredged material disposal facilities);

c. Accomplish all removals determined necessary by the Federal Government other than those removals specifically assigned to the Federal Government;

d. Provide, during the period of construction, a cash contribution equal to 25 percent of the total cost of construction of the general navigation features (which include the construction of land based and aquatic dredged material disposal facilities that are necessary for the disposal of dredged material required for project construction, operation, or maintenance and which a contract for the facility's construction or improvement was not awarded on or before October 12, 1996) for costs attributable to dredging to a depth in excess of 20 feet but not in excess of 45 feet;

e. Repay with interest, over a period not to exceed 30 years following completion of the period of construction of the project, an additional 10 percent of the total cost of construction of general navigation features depending upon the amount of credit given for the value of lands, easements, rights-of-way, and relocations provided by the non-Federal sponsor for the general navigation features. If the amount of credit exceeds 10 percent of the total cost of construction of the general navigation features, the non-Federal sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of lands, easements, rights-of-way, and relocations in excess of 10 percent of the total cost of construction of the general navigation features;

f. Give the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal sponsor owns or controls for access to the general navigation features for the purpose of inspecting, and, if necessary, for the purpose of operating, maintaining, repairing, replacing, and rehabilitating the general navigation features;

g. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, replacement, and rehabilitation of the project and any betterments, and the local service facilities, except for damages due to the fault or negligence of the United States or its contractors;

h. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents, and other evidence is required, to the extent and in such detail as will properly reflect total cost of construction of the general navigation features, and in accordance with the standards for financial management system set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 CFR, Section 33.20;

i. Perform, or cause to be performed, any investigations for hazardous substances as are determined necessary to identify the existence and extent of any hazardous sub-stances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 USC 9601-9675, that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be necessary for the construction, operation, and maintenance, repair, replacement, or rehabilitation of the general navigation features. However, for lands that the Government determines to be subject to the navigation servitude, only the Government shall perform such investigation unless the Federal Government provides the non-Federal sponsor with prior specific written direction, in which case the non-Federal sponsor shall perform such investigations in accordance with such written direction;

j. Assume complete financial responsibility, as between the Federal Government and the non-Federal sponsor, for all necessary cleanup and response costs of any CERCLA regulated materials located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be necessary for the construction, operation, maintenance, repair, replacement, and rehabilitation of the general navigation features;

k. To the maximum extent practicable, perform its obligations in a manner that will not cause liability to arise under CERCLA;

l. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 CFR, Part 24, in acquiring lands, easements, and rights-of-way, required for construction, operation, maintenance, repair, replacement, and rehabilitation of the general navigation features, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act;

m. Comply with all applicable Federal and State laws and regulations, including, but not limited to, section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d), and Department of Defense Directive 5500.11 issued pursuant thereto, as well as Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army;" and

n. Provide a cash contribution equal to 25 percent of the total historic preservation mitigation and data recovery costs attributable to commercial navigation that are in excess of 1 percent of the total amount authorized to be appropriated for commercial navigation;

o. Enter into an agreement which provides, prior to construction, 25 percent of preconstruction engineering and design (PED) costs.

The sponsor furnishes the above assurances during the development of plans and specifications after the project has been authorized for construction.

In agreeing to the assurances, the sponsor incurs several obligations. The most prominent ones involve the responsibility for a cash contribution equal to twenty-five (25) percent of the costs for general navigation features prior to advertisement of the project for bids and the liability for cleanup costs of hazardous materials located on submerged project lands. At this time, there are no known hazardous or toxic materials located on the submerged project lands or in local berthing areas.

The recommendations contained herein reflect the information available at this time and current Departmental policies governing formulation of individual projects. They do not reflect program and budgeting priorities inherent in the formulation of a national Civil Works construction program nor the perspective of higher review levels within the Executive Branch. Consequently, the recommendations may be modified before they are transmitted to Congress as proposals for implementation funding. However, prior to transmittal to the Congress, the sponsor, the State, interested Federal agencies, and other parties will be advised of any modifications and will be afforded the opportunity to comment further.

for TERRY L. RICE
Colonel, Corps of Engineers
Commanding

JAMES A. CONNELL
LTC, Corps of Engineers
Deputy Commander

ENVIRONMENTAL ASSESSMENT

AND FINDING OF NO SIGNIFICANT IMPACT (FONSI)

TAMPA HARBOR - BIG BEND CHANNEL

NAVIGATION IMPROVEMENTS

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

REPLY TO ATTENTION OF

TAMPA HARBOR - BIG BEND NAVIGATION STUDY
HILLSBOROUGH COUNTY, FLORIDA
FINDING OF NO SIGNIFICANT IMPACT

I have reviewed the Environmental Assessment (EA) of the proposed action. Based on information analyzed in the EA, reflecting pertinent information obtained from other agencies, and special interest groups having jurisdiction by law and/or special expertise, I conclude that the proposed action will have no significant impact on the quality of the human environment. Reasons for this conclusion are, in summary:

1. There will be no significant adverse impacts to endangered or threatened species. The proposed action is in compliance with the Endangered Species Act and the District's Migratory Bird Protection Policy.

2. In coordination with the State Historic Preservation Officer, it was determined there would be no impacts on sites of cultural or historical significance.

3. State water quality standards will be met. Water Quality Certification will be obtained during project design.

4. We have determined that the proposed project is consistent with the Florida Coastal Zone Management Program. We have obtained concurrence in our determination from the State Clearinghouse.

5. Measures to eliminate, reduce, or avoid potential impacts to fish and wildlife resources will be implemented during project construction, including migratory bird nesting habitat.

6. Benefits to the public will be increased navigable capacity, increased vessel safety, improvements to the local economy, increased water quality benefits, and increased migratory bird nesting sites.

In consideration of the information summarized, I find that the proposed action will not significantly affect the human environment and does not require an Environmental Impact Statement.

20 SEP 96
Date

TERRY L. RICE
Colonel, Corps of Engineers
Commanding

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EXHIBIT V	COASTAL ZONE CONSISTENCY DETERMINATION
EXHIBIT VI	SECTION 404(b)(1) EVALUATIONS

1.0. **PURPOSE OF AND NEED FOR ACTION**. The purpose of this study is to consider the feasibility of further modifying the existing Tampa Harbor Federal navigation project to include the Big Bend Navigation Channel. Particular emphasis is placed on deepening and widening the existing channels to accommodate the existing and prospective vessel fleet. The channels provide access to the authorized 43-foot Tampa Harbor channel.

The economic savings or benefits gained by maintenance dredging arise from the ability to reliably provide a navigation channel at the depth needed for deep draft transits. When project shoaling reduces the channel depth, certain losses will occur. If restrictive shoaling in Big Bend Channel is allowed to happen, definite economic losses will be realized in the form of higher transportation costs. The higher costs for goods entering or leaving through the channel will negatively impact the Bureau of Economic Analysis regional area and the Nation's trade balance.

The local pilots have complained of wind forces acting on the light loaded or empty barges when passing through the channel. Several groundings and collisions with channel markers have occurred and are attributed to wind forces. The wind in the area can be extreme.

1.1. **INTRODUCTION**. The existing Federal project in the study area is Tampa Harbor. The Tampa Harbor project provides a 43-foot channel to public phosphate terminals located in East Bay and Hillsborough Bay. Big Bend Channel is a privately constructed and maintained channel 34 feet deep by 200 feet wide from the main ship channel in Hillsborough Bay to and including a turning basin 1,000 feet long by 700 to 1,500 feet wide. Length of the project is about 2.2 miles.

A prior study on Big Bend Channel was conducted in combination with Alafia River and was submitted to the Board of Engineers for Rivers and Harbors in 1985 but was returned at the local sponsor's request. Numerous studies have been made on the existing Tampa Harbor project.

1.2. **AUTHORITY**. The present study is authorized by Senate and House Resolutions adopted 29 May 1979 and 14 November 1979, respectively. These resolutions request review of the Chief of Engineer's report on Tampa Harbor, Florida, printed in House Document 401, 91st Congress, 2nd Session, and other pertinent reports, with a view of determining if the authorized project should be modified in any way at this time, with particular reference to improvement and maintenance of the existing local project for Big Bend Channel.

1.3. **DECISION TO BE MADE**. The decision to be made is whether improvements to the existing channel are feasible, to what extent the project should be modified, if dredging is required, and where to place the material.

1.4. **RELEVANT ISSUES**. The following issues have been determined to be relevant to the decision:

a. Water quality.

b. Navigation.

c. Manatees.

d. Seagrasses.

e. Migratory birds.

f. Historic, archeological, and cultural resources.

g. Recreation.

h. Aesthetics.

i. Economics.

1.5. **PERMITS REQUIRED**. The dredging and disposal of dredged material would require a State of Florida Water Quality Certification in accordance with the provisions of the Memorandum of Agreement between the U.S. Army Corps of Engineers and the State of Florida.

1.6. **METHODOLOGY.** An interdisciplinary team used a systematic approach to analyze the affected area, to estimate the environmental effects, and to write the environmental assessment. This included literature searches, coordination with agencies and private groups having expertise in particular areas, and field investigations.

2.0. **ALTERNATIVES INCLUDING THE PROPOSED ACTION.**

2.1. **INTRODUCTION**. The alternatives section is the heart of this Environmental Assessment. This section describes in detail the no-action alternative, the proposed action, and other reasonable alternatives that were studied in detail. Then based on the information and analysis presented in the sections on the Affected Environment and the Probable Impacts, this section presents the beneficial and adverse environmental effects of all alternatives in comparative form, providing a clear basis for choice among the options for the decisionmaker and the public. The heart to this section is the alternative comparison chart, Figure 1, page 5. This section contains five parts:

a. A description of the process used to formulate alternatives.

b. A description of alternatives that were considered but were eliminated from detailed consideration.

c. A description of each alternative.

d. A comparison of the alternatives.

e. The identification of the preferred alternative.

2.2. **HISTORY OF ALTERNATIVE FORMULATION.** Initially, numerous alternatives were considered and eliminated in the reconnaissance phase of the study (USACE, 1991). The general alternative of channel improvements was considered the most practical. This alternative was divided into dredging and disposal alternatives.

2.2.1. **Disposal alternatives.** Initial options considered were based on the Upland Disposal Area Study for the Final Environmental Impact Statement for the Environmental Protection Agency's Ocean Dredged Material Discharge Site for Tampa Harbor. Several sites were considered, including the most feasible, the Port Redwing Site located near the Big Bend Channel. These were compared to the use of the existing disposal areas, CMDA-2D, CMDA-3D and the designated ODMDS (Appendix F). Of these, the most economical was the use of the existing disposal area, CMDA-3D. The US Fish and Wildlife Service recommended through the preparation of the Fish and Wildlife Coordination Act Report several Beneficial Uses of Dredged Material which would aid wildlife or improve water quality. The first option was the expansion of Sunken Island for bird habitat which originated with the Audubon Society. The second option was generated by the Corps and the USFWS. It includes the filling of former dredge borrow areas near Whiskey Stump Key.

2.2.2. **Dredging alternatives.** The dredging alternatives were divided into width and depth categories. The U.S. Army Corps of Engineers, Waterways Experiment Station conducted a study using the Ships Simulation Model to determine the most feasible width design for the channel (WES, 1994) (Appendix D). The model is based on a simulated ship usage, local water and weather conditions, and licensed pilot navigation using those simulated conditions. The optimum channel dimensions were determined to be a 250-foot width with a 41-foot mean lower low water depth. The channel depths where evaluated between 35 and 45 feet at 1-foot increments. The most economical depth was determined to be 41 feet with 2 feet advanced maintenance.

2.3. **DESCRIPTION OF ALTERNATIVES.**

2.3.1. **No Action Alternative.** The No Action Alternative would leave the channel in its existing condition.

2.3.2. **Dredging Plan**. The Federal project would start at the main ship channel and extend 10,200 feet with a channel 41 feet deep (with 2 feet of required advanced maintenance) by 250 feet wide which would connect to a turning basin. The channel widening would occur on the north side of the channel. The turning basin would be part of the Federal project and is irregularly shaped to provide a turning diameter of 1,200 feet. The Federal project would also include a channel 200 feet wide and 41 feet deep (with 2 feet of required advanced maintenance) which extends from the southern edge of the turning basin a distance of 2,700 feet to the coal dock facilities. The berthing area for the coal dock would be deepened to 41 feet (with 2 feet of required advanced maintenance) at 100 percent non-Federal expense. The berthing area for the phosphate dock would also be deepened to 41 feet plus 2 feet of advanced maintenance at 100 percent non-Federal expense. The project would also include the area called the east channel. It extends eastward from the turning basin at a project depth of 41 feet over a bottom width of 200 feet. with an advanced maintenance depth of 2 feet. With all disposal options within efficient pumping distance, the use of a hydraulic, pipeline dredge with a cutter-head is the method of choice for cost estimating purposes. Standard State and federal manatee protection conditions would be implemented during dredging to eliminating impacts to the species (Exhibit I). Turbidity monitoring is would also be implemented to insure that State water quality standards are met. The dredge plan also includes the periodic maintenance of the channel and the placement in disposal area CMDA-3D. It is estimated that the frequency of maintenance dredging would be 9 years between cycles. Beneficial uses of that material will be looked for and analyzed at that time.

2.3.2. **Alternative Disposal Plan C1/C2 (CMDA-3D)**. The entire project (Federal and Non-Federal) would be placed in Disposal Area CMDA-3D. The estimated island capacity is not sufficient at this time to hold the dredged material from the proposed construction of the project at Big Bend. Initial diking would be required in order to place all the material into 3D. Work would be scheduled to avoid the migratory bird nesting season (1 April-31 August).

2.3.3. **Alternative Disposal Plan C4 (Sunken Island).** This alternative is a one time only proposal. It is considered a beneficial use of dredged material as defined by Section 204 of the Water Resources Development Act of 1992. The materials could come from either the construction of the new channel or periodic maintenance of the channel. Approximately 95,000 CY of material is needed for the west and northwest banks of the island to mitigate erosion. Placement would be along roughly 3200 feet of shoreline to extend the shoreline outward an average of 100 feet at an elevation of 3 feet above mlw. The land would then be graded from a land surface elevation of +3 feet above mlw to a bay bottom elevation of about 5 feet below mlw. Figure F-4, Appendix F, provides a cross section of the shoreline extension. Material placed in that area is still susceptible to continued erosion. *Spartina alternaflora* would be used to provide vegetative stabilization to the shoreline. The south side of the island would be extended with one or two sawtooth-shaped land areas. Development of those land areas would require an estimated 310,000 CY to raise the existing bay bottom of 5 feet below mlw to land surface elevation of 5 feet

above mlw. *Spartina sp.* plants would be planted along 2700 feet of shoreline on the eastern and southeastern banks of the sawtooth land area(s). The planting zone for *Spartina sp.* would extend from the shoreline to about 50 feet off shore. Mangroves stands are expected to rapidly develop in the Spartina planting areas. The elevation of the bay bottom adjacent to the sawtooth-shaped land areas would be raised to create shallow bay areas suitable for the development of mudflats and marsh habitats. That filling would require an estimated 140,000 CY to raise the bay bottom from 5 feet below mlw. The resulting bay depth would be 1 to 2 feet below mlw. Plan and cross sectional views of the sawtooth extension(s) and adjacent bay areas are in Figure F-4, Appendix F. Dredged material from Big Bend would be pumped a distance of about 3 miles to Sunken Island. Material may need to be stock-piled to facilitate the construction process. Silt curtains would be used to control the level of turbidity entering the bay. Specialized construction equipment may be required, such as hydraulic amphibious excavators. Work would be scheduled to avoid the migratory bird nesting season (1 February-31 August) for the island.

2.3.4. **Alternative Disposal Plan C3 (Whiskey Stump Key).** This alternative is a one time only proposal. It is considered a beneficial use of dredged material as defined by Section 204 of the Water Resources Development Act of 1992. The materials could come from either the construction of the new channel or periodic maintenance of the channel. Two large holes and one small hole exist on the east and west side of Whiskey Stump Key shown on Figure F-3, Appendix F. The holes were apparently dredged for fill material and they cover an area of about 53 acres. The holes have existing depths around 12 feet below mlw. The plan is to fill the holes to a depth of 1 foot below mlw using material from both 3D and Big Bend. Filling the holes will require about 950,000 CY of material. To help reduce the level of impact, several measures would be taken in the discharge area. Double silt curtains will be required to keep unacceptable levels of turbidity from entering the surrounding bay area. The discharge pipe would be positioned near the bottom of the holes to minimize the volume of fines in suspension. Pumping rates would be reduced to provide more time for fines to settle and consolidate. A spreader head would be attached to the end of the discharge pipe to help distribute the capping material more uniformly over the fines, minimizing the heaving effect. Pumping rates would be reduced to provide more time for fines in the material to settle and consolidate. A small channel 2 to 6 feet in depth, located south of the holes, would remain to permit shallow draft vessel access.

2.4. ALTERNATIVE COMPARISON.

Figure 1, Alternative Comparison

Resources	No Action Alternative	Alternative Plan C1- Dredging and CMDA-3D Disposal	Alternative Plan C4 - Dredging and Sunken Island Disposal	Alternative Plan C3 - Dredging and Whiskey Stump Key Disposal
Water quality	No adverse impacts.	Minor short-term increase in turbidity levels at the dredging site. No impact from disposal area return water.	Minor short-term increase in turbidity levels at the dredging site. Major short-term increases in turbidity levels at disposal site. Will require turbidity screens to minimize impacts.	Minor short-term increase in turbidity levels at the dredging site. Major short-term increases in turbidity levels at disposal site. Will require turbidity screens to minimize impacts. Moderate long-term benefit to water quality from the elimination of oxygen-poor water quality in man-made dredged holes in the Bay bottom
Navigation	Moderate long-term adverse impact on vessel safety and long-term size and tonnage capacity limitation of the channel.	Moderate short-term adverse impact from dredging equipment hampering commercial navigation. Moderate long-term benefit from increased vessel capabilities using the port and from safer navigability of the channel.	Moderate short-term adverse impact from dredging equipment hampering commercial navigation. Moderate long-term benefit from increased vessel capabilities using the port and from safer navigability of the channel.	Moderate short-term adverse impact from dredging equipment hampering commercial navigation. Moderate long-term benefit from increased vessel capabilities using the port and from safer navigability of the channel. Minor long-term adverse impact on recreational navigation by reducing navigable capacity of Whiskey Stump Key area.
Manatees	No adverse impacts.	There would be no impacts on manatees if the State manatee protection conditions are adhered to.	There would be no impacts on manatees if the State manatee protection conditions are adhered to.	There would be no impacts on manatees if the State manatee protection conditions are adhered to.

Resources	No Action Alternative	Alternative Plan C1- Dredging and CMDA-3D Disposal	Alternative Plan C4 - Dredging and Sunken Island Disposal	Alternative Plan C3 - Dredging and Whiskey Stump Key Disposal
Seagrasses	No adverse impacts.	No adverse impacts.	No adverse impacts.	Long-term benefit by providing suitable habitat for seagrass growth provided water quality improves.
Migratory birds	No adverse impacts.	Moderate adverse impact on nesting during 1 April-31 August nesting window. No adverse impact if work is conducted outside window. Moderate long-term benefit from the revitalization of nesting habitat.	Moderate adverse impact on nesting during 1 April-31 August nesting window. No adverse impact if work is conducted outside window. Moderate long-term benefit from the revitalization of nesting habitat.	No adverse impacts.
Historic, Archeological, and Cultural Resources	No adverse impacts.	No adverse impacts on known cultural resources.	No adverse impacts on known cultural resources.	No adverse impacts on known cultural resources.
Recreation	No adverse impacts.	Minimal temporary adverse impacts from dredging operation.	Minimal temporary adverse impacts from dredging operation.	Minimal temporary adverse impacts from dredging operation.
Aesthetics	No adverse impacts.	Minimal temporary adverse impacts from dredging operation.	Minimal temporary adverse impacts from dredging operation.	Minimal temporary adverse impacts from dredging operation.
Economics	Minor long-term adverse impact on the economy of the area from the reduced port capabilities.	Minor short-term stimulus from sale of goods and service during construction. Moderate long-term benefit to the local economy from the increased port capabilities.	Minor short-term stimulus from sale of goods and service during construction. Moderate long-term benefit to the local economy from the increased port capabilities.	Minor short-term stimulus from sale of goods and service during construction. Moderate long-term benefit to the local economy from the increased port capabilities.

2.5. **PREFERRED ALTERNATIVE.** The preferred alternative would be the construct alternative with any combination of the disposal alternatives.

3.0. **AFFECTED ENVIRONMENT.**

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

a. Water quality.
b. Navigation.
c. Manatees.
d. Seagrasses.
e. Migratory birds.
f. Historic, archeological, and cultural resources.
g. Recreation.
h. Aesthetics.
i. Economics.

3.2. **GENERAL DESCRIPTION.** Tampa Bay is the largest estuary on the west coast of Florida (USFWS,1984). As man developed the Bay, the resources have been impacted. The Bay has been excavated for navigation purposes; islands and fast land have been created from the dredged material; ports and residential development have encroached on the aquatic environment; and numerous effluents have been discharged into the Bay.

3.2.1. Aquatic Resources: The Bay supports a wide variety of aquatic life including the American oyster which is harvested from the lower Tampa Bay, three species of clams, blue crab, and numerous species of fish: the red drum, spotted seatrout, snook, sheepshead, southern flounder, Florida pompano, striped mullet, Gulf menhaden, and the black drum (USFWS, 1984). Many offshore fish spend their juvenile stages in the Bay estuary. These include the red and gag groupers, jewfish, scamp, and the red and mangrove snappers.

3.2.2 Avian Resources: Development has reduced the nesting areas available for birds. However, this same development (including dredging and the creation of dredged material disposal areas) has recreated suitable areas for nesting, contributing to the increased carrying capacity of the Bay area. Gulls, terns, sandpipers, plovers, stilts, skimmers and oystercatchers are known to inhabit the Bay. Other wading birds such as herons, egrets and ibises use the interior wetland areas. Disposal Site CMDA-3D provides nesting for Caspian

terns, laughing gulls, American oystercatchers, black skimmers, and royal, least and sandwich terns (Paul, 1991). Nesting by these species is protected by the Migratory Bird Treaty Act.

3.2.3. Seagrass Beds: Five species of seagrasses are found in the Bay; turtlegrass, shoalgrass, manateegrass, widgeon grass, and six-leaved dwarf seagrass (Lewis, 1984). The City of Tampa also has conducted seagrass surveys in Hillsborough Bay area (1996). The return of seagrasses also indicates an improvement in water quality in the Bay.

3.2.4. Wetlands. Tampa Bay has mangrove and emergent wetlands along the fringe of the bay where development has not occurred. These wetland areas provide cover and spawning areas for fish and shrimp. The mature mangroves provide nesting areas for birds such as the pelican. These wetlands improve water quality of the Bay by trapping sediments and nutrient uptake.

3.2.5. Threatened and Endangered Species. The work may affect the following species listed as threatened or endangered by U.S. Fish & Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) pursuant to the Endangered Species Act (USFWS, 1987):

green sea turtle ..... *Chelonia mydas*
hawksbill sea turtle ..... *Eretmochelys imbricata*
Kemp's Ridley sea turtle ..... *Lepidochelys kempii*
leatherback sea turtle ..... *Dermochelys doriacea*
loggerhead sea turtle ..... *Caretta caretta*
West Indian manatee ..... *Trichechus manatus*

Species considered threatened or endangered by the State of Florida, exclusive of the above, include osprey, magnificent frigate-bird, roseate tern, and least tern.

3.2.6. Water Quality. Tampa Bay receives storm runoff from agricultural and residential areas of Pinellas, Hillsborough and Manatee Counties as well as discharges from sewage treatment plants and other facilities. As a result bay waters are high in nitrogen and phosphorous and turbidity has reduced light penetration to 8 feet or less in many areas. The water quality tends to improve as the entrance to the bay is approached. West of the Skyway bridge water quality improves markedly as the bay meets the Gulf of Mexico.

3.3. RELEVANT ISSUES.

3.3.1. Physical.

a. Water quality. Tampa Bay, is classified as a class III Florida water, suitable for recreation, propagation and maintenance of a healthy and well-balanced population of fish and wildlife. The Bay has suffered impacts from wetland and seagrass destruction and coastline alteration; severe stormwater pollution from residential and commercial sources; dredging and harbor activities; litter; fertilizer, food processing, and other industrial discharges; and a heavy load of domestic wastewater from power and sewage treatment utilities. The bay has extremely high phosphorus levels and is nitrogen limited. Recent trends in water quality show improving conditions in the bay and the overall water quality is fair in the areas north of the Little Manatee River to good in the lower bay.

b. Navigation. The commercial cargo fleet currently calling at Big Bend is diverse. Tug/barge combinations exported an average of 4,663,000 short tons of phosphate rock and 197,000 short tons of phosphate products (Granulated Triple Super Phosphate) to Louisiana during 1988 and 1989. The same tug/barge fleet imported an average of 4,343,000 short tons of coal from Louisiana during the same period. During 1988 and 1989, ocean going bulk carriers and general cargo vessels exported an annual average of 297,000 short tons of phosphate chemical. Ocean going tankers exported an average of 321,000 short tons of phosphoric acid during the same period. Local interest dredged the current channel in 1994 to a depth of 34 feet mean low water. The annual shoaling rate for the project is approximately 45,000 cubic yards per year. The shoaling rate is based on a dredging history for the channel since initial construction in 1962. Assuming a uniform shoal over the entire project, the loss in depth is approximately 4 inches per year. The shoaling rate equates to one foot every three years.

c. Aesthetics. Visual aesthetic resources in the Tampa Bay Harbor can be classified as low to medium in scenic value. As the seventh largest port in the country (based on tonnage), Tampa Harbor is very busy with shipping traffic to many of the commercial industries located at the harbor. The Tampa area's three coal-fired power plants are located on the east side of the bay. The surrounding land is very flat and sparsely vegetated with much of the lands being developed for residential, commercial, or agricultural purposes. The panoramic view is through air quality diminished by the pollution from the industries associated with the harbor area. The odor of the air is better some days than others.

3.3.2. Biological.

a. Manatees. Manatees are found in the vicinity of the Big Bend Channel. During periods of cold weather, they congregate at the outfall of the Big Bend Power Plant

which is located 3/4 mile south of the eastern end of the channel. It is estimated that up to sixty (60) manatees have been observed congregating at the site (FWCAR).

b. Seagrasses. No seagrasses are located immediately adjacent to the work areas. Seagrass beds are located along the shoreline on shoals north of the dredging site. Shoalgrass has been located in the areas north of the project area and along the spoil islands south of the channel (City of Tampa, 1996). A small band has been identified as being just west of the inner channel and north of the spoil island located north of the TECO discharge channel. There are also areas of shoalgrass along the southeast side of Sunken Island. Shoalgrass has also been found in the shallows around Whiskey Stump Key area outside the former borrow pit areas known as the "kitchen".

c. Migratory birds. In 1991, it was estimated that there were between 10,000 and 20,000 laughing gull nests on CMDA-3D. In addition, the American oystercatcher (10 nests), Caspian tern (65), Royal tern (20) and the Black skimmer (110) were also observed nesting on CMDA-3D.

3.3.3. **Social.**

a. Recreation. Recreation resources consist of water-borne activities, birdwatching, and sunbathing within the Tampa Harbor area. Pleasure boating and some fishing take place within Tampa Harbor also. Sunbathing on CMDA-3D island and swimming near its shore has been noted in the past.

b. Historic, Archeological, and Cultural Resources. An archival and literature search has been conducted for the proposed navigation improvements at Big Bend Channel, Tampa Bay, Hillsborough County, Florida. No significant cultural resources are recorded for the vicinity of Big Bend Channel, existing disposal island CMDA-3D, or for any of the dredge holes which may be considered as disposal areas for material dredged from the navigation channel.

3.3.4. **Economic Issues.**

a. Two private phosphate product terminals and a coal fueled power generating plant, owned by Tampa Electric Company (TECO), are located at the Big Bend Channel project. Total usable wharf length in the harbor is approximately 3,600 feet at 34 foot depths. Storage facilities in the harbor include six phosphoric acid tanks with a total capacity of 60,000 short tons and a phosphate chemical storage (Granulated Triple Super Phosphate) area with 32,000 short tons of capacity. Phosphate rock is stored in an uncovered area with a capacity of 2,200,000 short tons.

b. The two primary commodities to be considered in the benefit analysis are phosphate products and coal. The phosphate is an export commodity and the coal is

an import commodity. The wet phosphate rock is exported by barge to Donaldsonville and Uncle Sam, Louisiana. Phosphate chemical (Granulated Triple Super Phosphate) is exported by barge to Davant, Louisiana and by ocean going vessel to ports world wide. Phosphoric acid is exported to ports primarily in the Far East, Central America, and South America by ocean going vessels. The coal, being an import from a distribution point at Davant Louisiana, would be distributed throughout the Bureau of Economic Analysis (BEA) regional area (Tampa-St. Petersburg) which includes Hillsborough, Pinellas, Polk, Pasco, and 10 other adjoining counties in the form of electricity by TECO. The phosphate ore is mined primarily from reserves in Polk County.

c. Direct service is available to Big Bend terminal via pipeline, rail, and highway. The major import is coal. Major exports include phosphate rock and chemicals.

4.0. ENVIRONMENTAL CONSEQUENCES.

4.1. INTRODUCTION. This section describes the probable consequences of implementing each alternative on selected environmental resources. These resources are directly linked to the relevant issues listed in Section 1.4 that have driven and focus the environmental analysis. The following includes anticipated changes to the existing environment including direct and indirect impacts, irreversible and irretrievable commitment of resources, unavoidable effects and cumulative impacts.

4.1.1. Cumulative Impacts. Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (40 CFR 1508.7).

4.1.2. Irreversible and Irretrievable Commitment of Resources.

a. Irreversible. An irreversible commitment of resources is one in which the ability to use and/or enjoy the resource is lost forever. One example of an irreversible commitment might be the mining of a mineral resource.

b. Irretrievable. An irretrievable commitment of resources is one in which, due to decisions to manage the resource for another purpose, opportunities to use or enjoy the resource as they presently exist are lost for a period of time. An example of an irretrievable loss might be where a type of vegetation is lost due to road construction.

4.2. NO ACTION ALTERNATIVE.

4.2.1. Physical

a. Water quality. There would be no water quality impacts from the implementation of this alternative.

b. Navigation. There would be a long-term moderate adverse impact on navigation from the continued use of the channel in its existing condition. Impacts on navigation would include decreased vessel safety and a limitation on the size of the vessel using the port and the quantity of material being transported.

c. Aesthetics. No impacts are anticipated to the project's existing aesthetic resources with the no action alternative.

4.2.2. Biological

a. Manatees. There would be no impacts from the implementation of this alternative.

b. Seagrasses. There would be no impact on seagrasses from implementation of

this alternative.

c. Migratory birds. There would be no impact on migratory birds from the implementation of this alternative.

4.2.3. **Social**

a. Recreation. No impacts are anticipated to the project's existing recreation resources with the no action alternative.

b. Historic, Archeological, and Cultural Resources. This alternative will not affect cultural resources included in or eligible for inclusion in the National Register of Historic Places.

4.2.4. **Economic impacts.** There would be a long-term minor impact on the port and Tampa area from the navigable limitations of this channel for use by certain size vessels or the quantity of materials being able to be transported through the channel.

4.2.5. **Cumulative effects.** There would be no cumulative effects from the selection of this alternative.

4.2.6. **Unavoidable effects.** There would be no unavoidable effects from the selection of this alternative.

4.2.7. **Irreversible and Irretrievable Resource Commitments.** There would be no irreversible or irretrievable commitment of resources from the selection of this alternative.

4.3. **ALTERNATIVE Plan C1 - CMDA-3D Disposal.**

4.3.1. **Physical**

a. Water quality. There would be a short-term minor increase in turbidity levels at the dredging site from the suspension of material in the water column. However, these turbidity levels would be within State standards.

b. Navigation. There would be a moderate short-term adverse impact on navigation of vessels entering and leaving the port during construction. There would be a long-term moderate benefit to vessels entering this port area from safer operations and from increased vessel size handling capabilities.

c. Aesthetics. Aesthetic resources of Tampa Harbor could be minimally impacted with the deposit of the project's dredged material on CMDA-3D. The dikes on the island would be raised to accommodate the dredging of the Big Bend Channel. Air pollution, water turbidity, and noise pollution increases can be expected during project construction. Temporary construction impacts will not adversely affect the existing aesthetics found in the Tampa Harbor area.

4.3.2. **Biological**

a. Manatees. There would be no impact on manatees anticipated provided the Federal and State manatee protection conditions are adhered to.

b. Seagrasses. There would be no impact on seagrasses from the dredging and the subsequent turbidity if State water quality standards are met.

c. Migratory birds. There would be a short-term moderate impact on migratory nesting should the construction occur during the 1 April through the 31 August timeframe. However, this impact will be minimized by implementing the District's Migratory Bird Protection Policy. If the work occurs outside this timeframe, there would be no adverse impact on these birds. There would be a long-term moderate benefit to nesting by providing additional suitable habitat for nesting.

4.3.3. **Social**

a. Recreation. Recreation resources could be minimally impacted by the deposit of dredged material from the proposed Big Bend Channel Navigation project onto CMDA-3D. The proposed project widening and deepening would require CMDA-3D dikes to be raised. The steep sides of the dikes would further adversely impact recreation activities using the shoreline of the disposal area.

b. Historic, Archeological, and Cultural Resources. As previously described in this document, no significant cultural resources are recorded in the area of impact for this study. Based on coordination for the reconnaissance report, the SHPO concurred with the Jacksonville District's determination that significant cultural resources are not likely to be affected by the proposed channel improvements. Formal coordination with the SHPO for the feasibility phase of this study has been completed.

4.3.4. **Economic Impacts**. There would be a minor short-term stimulus to the local economy from the sale of goods and services in support of the construction. There would be a long-term minor impact on the regional economy from the increased safe passage of all types of commercial vessels into this port area.

4.3.5. **Cumulative effects**. There would be no cumulative effects from the selection of this alternative.

4.3.6. **Unavoidable effects**. There would be local temporary increases in turbidity levels around the dredging operations and a minor impact on navigation from the presence and operation of the dredging equipment.

4.3.7. **Irreversible and Irretrievable Resource Commitments**. There would be no irreversible or irretrievable commitment of resources except for the expenditure of fuels for the dredging equipment.

4.4. **ALTERNATIVE Plan C4 - Sunken Island Disposal.**

4.4.1. **Physical**

a. Water quality. There would be a short-term minor increase in turbidity levels at the dredging site from the suspension of material in the water column. However, these turbidity levels would be within State standards.

b. Navigation. There would be a moderate short-term adverse impact on navigation of vessels entering and leaving the port during construction. There would be a long-term moderate benefit to vessels entering this port area from safer operations and from increased vessel size handling capabilities.

c. Aesthetics. Aesthetic resources of Tampa Harbor could be minimally impacted with the deposit of the project's dredged material on CMDA-3D. The dikes on the island would be raised to accommodate the dredging of the Big Bend Channel. Air pollution, water turbidity, and noise pollution increases can be expected during project construction. Temporary construction impacts will not adversely affect the existing aesthetics found in the Tampa Harbor area.

4.4.2. **Biological**

a. Manatees. There would be no impact on manatees anticipated provided the Federal and State manatee protection conditions are adhered to.

b. Seagrasses. There would be no impact on seagrass beds located adjacent to the island from the placement of material if State water quality standards are met. This would be accomplished by the use of turbidity curtains around the area and avoiding the seagrass beds. If the beds cannot be avoided the loss would be mitigated.

c. Migratory birds. There would be a short-term moderate impact on migratory nesting should the construction occur during the 1 April through the 31 August timeframe. However, this impact will be minimized by implementing the District's Migratory Bird Protection Policy. If the work occurs outside this timeframe, there would be no adverse impact on these birds. There would be a long-term moderate benefit to nesting by providing additional suitable habitat for nesting.

4.4.3. **Social**

a. Recreation. Recreation resources could be minimally impacted by the deposit of dredged material from the proposed Big Bend Channel Navigation project onto CMDA-3D. The proposed project widening and deepening would require CMDA-3D dikes to be raised. The steep sides of the dikes would further adversely impact recreation activities using the shoreline of the disposal area.

b. **Historic, Archeological, and Cultural Resources**. As previously described in

this document, no significant cultural resources are recorded in the area of impact for this study. Based on coordination for the reconnaissance report, the SHPO concurred with the Jacksonville District's determination that significant cultural resources are not likely to be affected by the proposed channel improvements. Formal coordination with the SHPO for the feasibility phase of this study has been completed.

4.4.4. **Economic Impacts**. There would be a minor short-term stimulus to the local economy from the sale of goods and services in support of the construction. There would be a long-term minor impact on the regional economy from the increased safe passage of all types of commercial vessels into this port area.

4.4.5. **Cumulative effects**. There would be no cumulative effects from the selection of this alternative.

4.4.6. **Unavoidable effects**. There would be local temporary increases in turbidity levels around the dredging operations and a minor impact on navigation from the presence and operation of the dredging equipment.

4.4.7. **Irreversible and Irretrievable Resource Commitments**. There would be no irreversible or irretrievable commitment of resources except for the expenditure of fuels for the dredging equipment.

4.5. **ALTERNATIVE Plan C3 - Whiskey Stump Key Disposal**

4.5.1. **Physical**

a. Water quality. There would be a short-term minor increase in turbidity levels at the dredging site from the suspension of material in the water column. However, these turbidity levels would be within State standards.

b. Navigation. There would be a moderate short-term adverse impact on navigation of vessels entering and leaving the port during construction. There would be a long-term moderate benefit to vessels entering this port area from safer operations and from increased vessel size handling capabilities.

c. Aesthetics. Aesthetic resources of Tampa Harbor could be minimally impacted with the deposit of the project's dredged material on CMDA-3D. The dikes on the island would be raised to accommodate the dredging of the Big Bend Channel. Air pollution, water turbidity, and noise pollution increases can be expected during project construction. Temporary construction impacts will not adversely affect the existing aesthetics found in the Tampa Harbor area.

4.5.2. **Biological**

a. Manatees. There would be no impact on manatees anticipated provided the

Federal and State manatee protection conditions are adhered to.

b. Seagrasses. There would be no impacts on seagrasses from dredging and placing material in disposal areas if State water quality standards are met. This would be accomplished by the use of turbidity curtains around the placement area.

c. Migratory birds. There would be a short-term moderate impact on migratory nesting should the construction occur during the 1 April through the 31 August timeframe. However, this impact will be minimized by implementing the District's Migratory Bird Protection Policy. If the work occurs outside this timeframe, there would be no adverse impact on these birds. There would be a long-term moderate benefit to nesting by providing additional suitable habitat for nesting.

4.5.3. **Social**

a. Recreation. Recreation resources could be minimally impacted by the deposit of dredged material from the proposed Big Bend Channel Navigation project onto CMDA-3D. The proposed project widening and deepening would require CMDA-3D dikes to be raised. The steep sides of the dikes would further adversely impact recreation activities using the shoreline of the disposal area.

b. Historic, Archeological, and Cultural Resources. As previously described in this document, no significant cultural resources are recorded in the area of impact for this study. Based on coordination for the reconnaissance report, the SHPO concurred with the Jacksonville District's determination that significant cultural resources are not likely to be affected by the proposed channel improvements. Formal coordination with the SHPO for the feasibility phase of this study has been completed.

4.5.4. **Economic Impacts.** There would be a minor short-term stimulus to the local economy from the sale of goods and services in support of the construction. There would be a long-term minor impact on the regional economy from the increased safe passage of all types of commercial vessels into this port area.

4.5.5. **Cumulative effects.** There would be no cumulative effects from the selection of this alternative.

4.5.6. **Unavoidable effects.** There would be local temporary increases in turbidity levels around the dredging operations and a minor impact on navigation from the presence and operation of the dredging equipment.

4.5.7. **Irreversible and Irretrievable Resource Commitments.** There would be no irreversible or irretrievable commitment of resources except for the expenditure of fuels for the dredging equipment.

5.0. **LIST OF PREPARERS**. The following professionals prepared the draft Environmental Assessment for the Tampa Harbor Big Bend Navigation Study Project.

NAME	DISCIPLINE	EXPERIENCE	ROLE IN PREPARING EIS
William J. Fonferek	Biologist	18 years environmental impacts assessment	Environmental Study Manager, Biological Impact Assessment, Endangered Species Coordination
Tim Murphy	Hydraulic Engineer	6 years planning experience	Technical Manager
Paul Stevenson	Landscape Architect	14 years experience recreation design, construction and development	Recreation Resources Analysis
Janice Adams	Archeologist	16 years cultural resources assessment	Cultural Resources
Matt Miller	Environmental Engineer	5 years	HTRW and Water Quality Investigations and Impact Assessment

6.0. CONSULTATION WITH OTHERS - PUBLIC INVOLVEMENT PROCESS.

6.1. Scoping was conducted by letter dated 26 November 1990 to develop issues, concerns, and ideas about the project. The comments received expressed concerns for impacts on migratory birds and manatees (Exhibit III).

6.2. The draft EA was circulated to all interested parties for comment by cover letter dated 28 June 1996. The following comments were received (Exhibit III):

6.2.1. The Florida Division of Historical Resources responded to the request for comments by letter dated 7 August 1996, stating that no archeological or historical sites are recorded for or likely to be present in the project area and it is unlikely that such sites would be affected. Therefore, it is the opinion of this office that the proposed work would not affect historic properties listed on or eligible for the *National Register of Historic Places.*

6.2.2. The Tampa Bay Regional Planning Council responded by letter dated 1 August 1996, stated it would submit its comments following the receipt of additional information.

6.2.3. The National Marine Fisheries Service responded by letter dated 23 July 1996 stating that the proposed work is consistent with previous comments and they offer no additional comments.

6.2.4. The Clearwater Power Squadron, Inc., responded by letter dated 15 July 1996 noted no serious environmental problems and offered their assistance.

6.2.5. The US Department of Housing and Urban Development responded by letter dated 10 July 1996, stating that the review indicates no significant adverse impacts on any HUD programs.

6.2.6. The US Environmental Protection Agency responded by letter dated 12 August 1996 stating that the proposals impacts appear relatively straight forward and mitigation should compensate for significant alterations. We believe that the best management measures would be implemented during construction and any changes directed by monitoring should lessen short-term adverse effects. The environmental features proposed appear to be excellent and should establish a precedent for future development.

6.2.7. The US Department of Interior responded by letter dated 22 August 1996 based on comments received from the US Fish and Wildlife Service (Service). The Service stated that it had concerns even with the manatee protection conditions. While no dredge has ever taken a manatee, it has been documented that associated boat traffic has caused injury or death. They also stated that seagrasses, an attractant to manatees, have been located in recent year north of the project area in an area referred to as the "kitchen". The Service agrees that the bulkhead should keep manatees out of the turning basin. The Service requests that we reconsider the decision to dredge during the winter months (15 November-31 March) because the project is adjacent to a state-designated manatee sanctuary. It recommended an alternative solution would be to dredge the inner channel first and the

outer channel during the colder months. If this were not possible, then, a Service-approved biologist be used as an observer at the project and that all service boats with propellers be fitted with guards. They recommend disposal at CMDA-3D be done outside the bird nesting season and that any nourishment of Sites C-3 or C-4 avoid impacting seagrass beds.

RESPONSE: We responded by letter dated 3 September 1996 stating we plan to implement the Districts' Migratory Bird Protection Policy and avoid impacting bird nesting season. We do agree that manatees could be impacted by the dredging project and plan to implement the standard manatee conditions, add a special manatee observer to the operation, require fitting of guards on propellers and restrict boats speeds to no wake. We disagree with the use of any window because no deaths or injuries have been ever attributed to Corps dredging or auxiliary equipment, the dredging is segregated from the power plant outfall by a bulkhead, and no seagrasses are located within the project area. The window would significantly limit our ability to construct the project. If limited construction to daylight hours, the project would cost three times as much and take twice as long. Since we are trying to avoid the bird nesting season and the manatee window, there would not be enough time to construct the channel. We believe the impacts to nesting are almost certain and the impacts to manatees unlikely if we follow the precautions outlined above.

6.2.8. The Florida Department of Community Affairs acting as the State Clearing house for comments responded by letter dated 29 August 1996, requesting an extension until 17 September to provide their comments.

RESPONSE: Based on the regulations published by the Department of Commerce for Coastal Zone Consistency, we are giving the State an additional 15 days to respond.

6.2.9. We have been in constant contact with the DEP and Clearinghouse regarding a response and any problems associated with their response. A conference telephone call was conducted with Florida DEP, Tampa Port Authority, Florida Game and Freshwater Fish Commission and the Clearinghouse on 9 September 1996. On 10 September we conducted a second conference call with DEP and the Clearinghouse regarding a modification to the manatee protection conditions. By letter dated 10 September 1996, we agreed to the additional conditions recommended by DEP. Based on this resolution, DEP provided the Clearinghouse with a concurrence in our Coastal Zone Consistency Determination.

6.2.10. Mr. Roger Johansson, representing the City of Tampa, Bay Study Group, responded by letter dated 21 August 1996 stating concerns for seagrasses in the project area and provided information concerning their location.

RESPONSE: We will incorporate the seagrass information provided.

6.2.11. The Florida Department of Community Affairs, acting as the State Clearinghouse for review of federal project responded by letter dated 13 September 1996 stating that proposal had been coordinated the Environmental Assessment in accordance with Executive Order 12372 and the Coastal Zone Management Act (CZMA). They received comments

from the Department of Environmental Protection stating concerns for the large number of manatees that congregate in the area. It found that as initially proposed the project was unacceptable. However, with the modifications agreed upon with DEP and the Corps (See Section 6.2.9) the project is consistent with the CZMA. The DEP also recommended the use of a hydraulic dredge instead of a clamshell. It also recommended taking precautions from impacting submerged aquatic vegetation. The DEP also stated that an Environmental Resources Permit would be required for construction. The Southwest Florida Water Management District recommended additional analysis of filling the holes and restoration proposed for the Whiskey Stump Key area. The Florida Game and Freshwater Fish Commission indicates that several listed species occur in the area and recommends measures to protect nesting birds and seagrass beds in the area.

RESPONSE: We have incorporated into our manatee protection conditions (Exhibit I) additional measures to insure that manatees are protected. We cannot exclude certain types of equipment from bidding on our contracts unless it is restricted through other legal means such as the Endangered Species Act or Water Quality Certifications. The hydraulic dredge has been determined to be the most economical method for this project for cost estimating purposes. We have surveyed the area and the dredging would not directly affect seagrasses. Seagrass are found adjacent to the beneficial use sites at Whiskey Stump Key area and impacts would be minimized by the use of silt curtains. A water quality permit would be sought for the work in accordance with the Memorandum of Agreement between the Corps and DEP even though dredging does not require a permit in accordance with Section 301 of the Clean Water Act. The Corps currently has results of various studies conducted by the Waterways Experiment Station (WES) concerning open-water filling and capping of silt materials. During the preparation of Plans and Specifications for the filling of these holes, we will consult with the experts at the WES. We have always recognized the impacts on migratory bird nesting in the area and because of our concerns have developed the Districts Migratory Bird Protection Policy which will be implemented for this project.

6.3. A notice of a public meeting was sent to of all interested parties by letter dated 10 July 1996. The public meeting was conducted in Tampa at the Tampa Port Authority Office on 29 July 1996. A list of attendees is attached.

6.4. A public presentation was given to the Tampa Bay Regional Planning Council, Agency on Bay Management by Mr. Tim Murphy (CESAJ-DP-I) on 12 August 1996.

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EXHIBIT I

ENDANGERED SPECIES CONSULTATION

September 20, 1993

Planning Division
Environmental Branch

Mr. David L. Ferrell
Field Supervisor
U.S. Fish and Wildlife Service
P.O. Box 2676
Vero Beach, Florida 32961-2676

Dear Mr. Ferrell:

This is in reference to the Tampa Harbor - Big Bend Navigation Feasibility Study which we are currently conducting. A Planning Aid Report was submitted to this office by letter dated December 21, 1990.

The West Indian manatee (*Trichechus manatus*) was identified as the only species in the area that could be affected by the project. The Big Bend channel connects the Hillsborough Bay Channel with the Industrial Port Complex. Manatees congregate south of this channel during the winter months at the Tampa Electric Company warmwater outfall. A retaining wall segregates this power plant outfall from the Industrial Port Complex. Several islands and shallow-water areas created by previous dredging and disposal operations are located south of the Big Bend channel. These shallow-water areas are sometimes exposed during low tide. No seagrass beds are located north of the power plant, they are in fact located along Tampa Bay, south of the power plant.

Based on this information, we do not believe manatees will be found in the project area since their food source is located in the opposite direction and a physical barrier exists between where they are located and the project area. In addition, the standard manatee protection conditions established by the state will be included in the Plans and Specifications. Therefore, pursuant to Section 7 of the Act, we have determined that there would be No Effects to the West Indian manatee and are asking for your concurrence in this matter.

If you have any questions concerning this project, please contact Mr. Bill Fonferek at 904-232-2803.

Sincerely,

A. J. Salem
Chief, Planning Division

STANDARD MANATEE PROTECTION CONDITIONS

9.4.1 Manatee Protection.

9.4.1.1 The Contractor shall instruct all personnel associated with the project of the potential presence of manatees and right whales and the need to avoid collisions with these animals.

9.4.1.2 All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing manatees and right whales which are protected under the Marine Mammal Protection Act of 1972, the Endangered Species Act of 1973, and the Florida Manatee Sanctuary Act. The Contractor shall be held responsible for any manatee or right whale harmed, harassed, or killed as a result of construction activities.

9.4.1.3 If siltation barriers are used, they shall be made of material in which manatees cannot become entangled, are properly secured, and are regularly monitored to avoid manatee entrapment. Barriers must not block manatee entry to or exit from essential habitat.

9.4.1.4 All vessels associated with the project shall operate at "no wake/idle" speeds at all times while in waters where the draft of the vessel provides less than a four foot clearance from the bottom and vessels shall follow routes of deep water whenever possible. Boats used to transport personnel shall be shallow-draft vessels, preferably of the light-displacement category where navigational safety permits.

9.4.1.5 If a manatee(s) is sighted within 100 yards of the project area, all appropriate precautions shall be implemented by the Contractor to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee. If a manatee is closer than 50 feet to moving equipment or the project area, the equipment shall be shut down and all construction activities shall cease to ensure protection of the manatee. Construction activities shall not resume until the manatee has departed the project area.

9.4.1.6 9.4.1.6 Prior to commencement of construction, each vessel involved in construction activities shall display at the vessel control station or in a prominent location, visible to all employees operating the vessel, a temporary sign at least 8 1/2" x 11" reading, "Caution: Manatee Habitat/Idle Speed is Required in Construction Area." In the absence of a vessel, a temporary 3' x 4' sign reading "Caution: Manatee Area" will be posted adjacent to the issued construction permit. A second temporary sign measuring 8½" X 11" reading "Caution: Manatee Habitat. Equipment Must Be Shutdown Immediately If A Manatee Comes Within 50 Feet Of Operation" will be posted at the dredge operator control station and at a location prominently adjacent to the displayed issued construction permit. The Contractor shall remove the placards upon completion of construction.

U.S. Fish and Wildlife Service
6620 Southpoint Drive South
Suite 310
Jacksonville, Florida 32216

Chief, Environmental Resources Branch
U.S. Army Corps of Engineers (CESAJ-PD-E)
P.O. Box 4970
Jacksonville, Florida 32232-0019

Florida Marine Patrol's District 8 Office
2510 2nd Avenue North
Jacksonville Beach, Florida 32250

Area Engineer, _____

_____

_____

_____

9.4.1.9. Manatee Observer. The contractor shall have a special manatee observer onboard to watch for manatees and advise the contractor about avoiding impacts to manatees. The observer will be approved by either Florida Department of Environmental Protection or the US Fish and Wildlife Service and be a qualified biologist knowledgeable about manatees and their behavior. The observer shall be responsible for keeping the manatee log.

9.4.1.10. Equipment. All auxiliary vessels equipped with propellers shall be fitted with propeller guards and shall operate at no wake speeds.

9.4.1.11. Work shall be halted and reconsultation with the US Fish and Wildlife Service and the Department of Environmental Protection will be initiated should, as a result of this project, any person, at any time, by any means or in any manner, intentionally or negligently, annoy, molest, harass, or disturb any manatee.

9.4.1.12. Clamshell-type dredges will be restricted to daylight hours during the winter manatee window of 15 November through 31 March.

9.4.1.7 Any collisions with a manatee or sighting of any injured or incapacitated manatee shall be reported immediately to the Corps of Engineers. The order of contact within the Corps of Engineers shall be as follows:

Order of Contact of Corps Personnel
for Dredging Contractor to Report
Manatee Death or Injury

Title	Telephone Number Work Hours	After Hours
Corps, Inspector	On site	Lodging Location
Mr. _____, Area Engineer, _____ (CESAJ-__-__)	_____	_____
Dr. Hanley K. Smith, Chief Environmental Resources Branch, Planning Division (CESAJ-PD-E)	904/232-2202	904/745-0632
Mr. C. Alex Morrison, Acting Chief, Construction Branch, Construction-Operations Division (CESAJ-CO-C)	904/232-1120	904/367-0758
Mr. Girlamo DiChiara, Chief Construction-Operations Division (CESAJ-CO)	904/232-1122	904/737-1909

The Contractor shall also immediately report any take of a manatee to the Florida Marine Patrol "Manatee Hotline" (800) 342-5367 as well as the U.S. Fish and Wildlife Service, Jacksonville Endangered Species Field Station (904) 232-2580 and the Department of Environmental Protection, Office of Protected Species at (904) 922-4330.

9.4.1.8 The Contractor shall maintain a daily log detailing sightings, collisions, or injuries to manatees occurring during the contract period. The data shall be recorded on forms provided by the Contracting Officer (sample form is appended to the end of this section). All data in original form shall be forwarded directly to Dr. Hanley K. Smith, Chief Environmental Resources Branch, P. O. Box 4970, Jacksonville, Florida, 32232-0019, within 10 days of collection and copies of the data will be supplied to the Contracting Officer. Within 15 days, following project completion, a report summarizing the above incidents and sightings, including a list and addresses of all observers utilized during the construction will be submitted to the following:

Florida Department of Natural Resources
Office of Protected Species
3900 Commonwealth Blvd. Mail Station 245
Tallahassee, Florida 32399

EXHIBIT II

FISH AND WILDLIFE COORDINATION ACT REPORT

TAMPA HARBOR - BIG BEND
NAVIGATION FEASIBILITY STUDY
HILLSBOROUGH COUNTY, FLORIDA

Fish and Wildlife Coordination Act Report

Submitted to Jacksonville District
U.S. Army Corps of Engineers
Jacksonville, Florida

Prepared by: Bruce Birnhak, Project Biologist
Approved by: David L. Ferrell, Field Supervisor

Vero Beach, Florida, Field Office
U.S. Fish and Wildlife Service
Vero Beach, Florida
February 1994

FEBRUARY, 1994

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Figure 1. Vicinity Map 130

EXECUTIVE SUMMARY

The Corps of Engineers (Corps) has requested a Fish and Wildlife Coordination Act Report from the U.S. Fish and Wildlife Service (Service) regarding the environmental impacts of widening and deepening the Big Bend Channel and recommendations on alternative spoil disposal sites that could benefit fish and wildlife resources in Tampa Bay, Hillsborough County, Florida. The Service does not anticipate adverse impacts to general fish and wildlife resources from the project; however, to protect the endangered West Indian manatee, the Conservation Recommendations listed in the enclosed Biological Opinion should become an integral component of any Federally authorized project.

It is the Service's opinion that the most beneficial use of the spoil material would be to place it on the Alafia Bank to alleviate erosion of one of the nation's premier bird nesting sites. Other acceptable spoil locations are the two dredge holes near Whiskey Key. Use of the Whiskey Key site would improve water quality, thus benefitting fish and wildlife resources. Spoil could also be placed on spoil island 3D; however, this would require implementation of our recommended management plan to protect the many nesting shorebirds on the island in accordance with the Migratory Bird Treaty Act.

The Service is opposed to your plan for open water disposal immediately south of Big Bend Channel because of adverse impacts to the shallow water benthic community, loss of estuarine seagrass beds, and disruption of water circulation patterns.

United States Department of the Interior
FISH AND WILDLIFE SERVICE
P.O. BOX 2676
VERO BEACH, FLORIDA 32961-2676

February 4, 1994

Colonel Terrence C. Salt
District Engineer
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, FL 32232-0019

Attn: Planning Division

Dear Colonel Salt:

In accordance with Section 2(b) and other provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the Fish and Wildlife Service has completed the Fish and Wildlife Coordination Act Report on the Tampa Harbor-Big Bend Navigation Channel Feasibility Study, Hillsborough County, Florida.

This report is provided in accordance with the 1993 Scope of Work for this project by providing the Fish and Wildlife's (Service) evaluation of impacts for dredging of the Big Bend channel as well as offering recommendations on alternative spoil sites as described by the Jacksonville District, Corps of Engineers.

Letters of concurrence have been received from the Florida Game and Fresh Water Fish Commission and the National Marine Fisheries Service and are included in the Attachments section of the report. This report constitutes the final report of the Secretary of the Interior as required by Section 2(b) of the Fish and Wildlife Coordination Act (16 U.S.C. 1531 et seq.) and represents the views of the Department of the Interior.

This report is forwarded to you for inclusion in the Environmental Assessment for this Federal project.

Sincerely yours,

David L. Ferrell
Field Supervisor

I. INTRODUCTION

The Tampa Harbor-Big Bend Channel Navigation Feasibility Study was authorized by Senate and House Resolutions adopted May 29, 1979, and November 14, 1979, respectively. The primary purpose of the Corps of Engineers (Corps) study is to determine the need and feasibility of widening and deepening Big Bend Channel, as well as disposing of the spoil material.

II. PROJECT DESCRIPTION

The Big Bend Channel connects a multi-owner Industrial Port Complex with the Hillsborough Bay Ship Channel. The channel is about 2.2 miles long, 35 feet deep at mean low water and 200 feet wide, with a turning basin 1,000 feet long by 700 to 1500 feet wide. The Corps will examine the feasibility of widening the channel 50 feet and deepening it about 2-3 feet. The spoil material consists of good quality sand. Various alternative locations are being considered as spoil disposal sites for the material dredged from the channel. These include four upland disposal sites, two dredge holes in the vicinity of Whiskey Key, open water disposal along the Big Bend Channel, and use of spoil island 3D.

III. DESCRIPTION OF STUDY AREA

Hillsborough County is situated on Tampa Bay in central Florida. The proposed project is located within Tampa Bay about one mile north of the town of Apollo Beach (Fig.1).

IV. FISH AND WILDLIFE RESOURCES

Taxa and Important Species

Birds

Dunstan and Lewis (1974) list 83 species of birds associated with marine habitats that occur in Tampa Bay. Spoil island 3D alone supports an estimated 20,000 nests of the laughing gull.

During Service field inspections, the following bird species in the project area were observed: brown pelican, laughing gull, ring-billed gull, cormorant, green heron, and black-necked stilt. According to the Florida Game and Fresh Water Fish Commission, the emergent spoil islands south of Big Bend Channel serve as breeding areas for the American oystercatcher. Species of migrating birds are protected under the Migratory Bird Treaty Act. The Service recommends measures to avoid impacts to migratory birds and maintains permitting authority over such actions.

Fish

Springer and Woodburn (1960) in their study of the fishes of the Tampa Bay area, reported that 253 species had been collected or observed in the region. Comp (1977) accounted for 56 species of fish at Big Bend. Ninety one percent of the fish collected consisted of the following ten species: tidewater silverside, bay anchovy, longnose killifish, spotfin mojarra, striped mullet, sheepshead minnow, silver jenny, rough silverside, scaled sardine, and pinfish.

West Indian manatee

The endangered West Indian manatee is found within the vicinity of the Big Bend Channel. During periods of cold weather, they congregate at the outfall of Big Bend Power Plant which is located immediately south 3/4 mile from the eastern end of the Big Bend Channel. During the months of November through March, up to sixty manatees have been observed using the heated discharge of the Big Bend Power Plant for their survival.

V. FISH AND WILDLIFE SERVICE OBSERVATIONS

On June 9 and July 27, 1993, Service biologists inspected the project area. One of the main goals of our study was to ascertain the impact of the proposed project on seagrassbeds. We were aware from a published seagrass study performed by the Southwest Water Management District that no seagrass was found in this section of Tampa Bay. Because of reduced light penetration in the project area, we limited our seagrass search to depths less than -7 feet mean sea level. We surveyed the area with a depth recorder and snorkeled those areas where shallow depths were found. Sand bottom was encountered on all the shallow water areas investigated.

Water depths in the area where the channel is proposed for widening is about 15 feet deep mean low water (m.l.w.) which is below the depth of seagrass growth in the area.

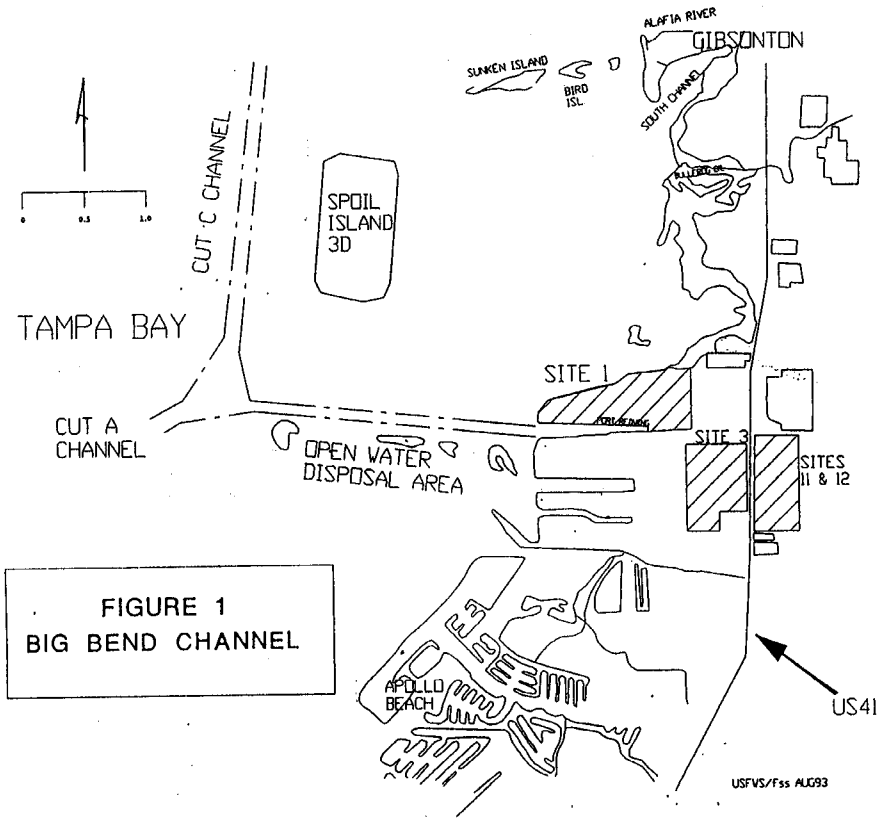

FIGURE 1
BIG BEND CHANNEL

SPOIL DISPOSAL

The location of the spoil disposal sites is shown on Figure 1.

a. OPEN WATER SPOIL SITES

Big Bend Open Water Disposal Site

This proposed spoil area was used in the past to create a series of four spoil islands. These spoil islands occur south of and parallel to the Big Bend spoil island. Two of these islands are emergent, approximately four acres in size and occur on the east and west end of the Big Bend Channel. The two middle islands are submerged about three feet below m.l.w. The only grassbeds observed were small patches of Cuban shoalgrass (Halodule wrightii) found on the western side of the eastern emergent spoil island. These grassbeds occupy an area of approximately one-half an acre.

Whiskey Key

Two borrow sites are present on the east and west side of Whiskey Key. The depths of these dredge holes are about 12 feet deep m.l.w. while the surrounding substrate consisted of shallow sand flats approximately one foot deep at the time of inspection.

b. UPLAND SPOIL SITES

Port Redwing

This site is a 284-acre man-made spoil created area vegetated by Brazilian pepper and cabbage palm.

Site 3

This potential spoil area is 183 acres in size and is used as an improved pasture.

Sites 11 & 12

These spoil sites occur adjacent to one another and are farmland presently under cultivation.

c. SPOIL ISLAND 3D

This is a man-made spoil island about 500 acres in size that is located approximately one and one half miles offshore in Hillsborough Bay. The island was constructed by the Corps and is designed as a spoil disposal area.

The island has become an important shorebird nesting area as the following data demonstrate. This information was provided by Rich Paul, National Audubon Society (personal communication), and reflects the nest counts on the island in 1991.

Species	Number of Nests
American Oystercatcher	10
Laughing Gull	10,000-20,000
Caspian Tern	65
Royal Tern	20
Black Skimmer	110

Alafia Bank

This area, comprised of two dredged material islands totalling about 49 acres, is a National Audubon Society Sanctuary. These islands are located about 2.8 miles north of the project area and occur at the mouth of the Alafia River. 10-15,000 pairs of breeding birds use the site, which makes it the largest mixed-species bird breeding colony in the State of Florida. Nesting diversity also may be unrivalled in Florida, with up to 20 species breeding annually. These two islands are presently being eroded. The following species of birds have been recorded nesting on the Alafia Bank: anhinga, brown pelican, double-crested cormorant, great blue heron, green heron, snowy egret, little blue heron, tricolored heron, reddish egret, cattle egret, black-crowned night heron, yellow-crowned night heron, white ibis, glossy ibis and roseate spoonbill.

VI. THREATENED AND ENDANGERED SPECIES

The following represents the Biological Opinion of the Fish and Wildlife Service pursuant to Section 7(a) of the Endangered Species Act of 1973, as amended (Act) concerning the Tampa Harbor-Big Bend Navigation Feasibility Study. An administrative record of this consultation is on file in the Vero Beach, Florida, Field Office.

PROPOSED PROJECT

The Corps of Engineers has determined that the proposed project would have no effect on the West Indian manatee. The Service does not concur with this determination and believes the project "may affect" the West Indian manatee.

There have been seven manatee mortalities attributed to boat/barge collisions from 1974 through December 1990. Manatees aggregate at the Tampa Electric Company warm water discharge during the cooler months. The State of Florida has designated this area as a manatee protection zone from November 15-March 31. This manatee protection zone is located 1 mile south of the proposed project. The Corps has stated that they will condition the contracts for the proposed project with the standard construction precautions to protect manatees. Therefore, it is our Biological Opinion that this project may adversely affect but is not likely to jeopardize the continued existence of the West Indian manatee.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal Agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species.

To further reduce the impact of the proposed project on the manatee, the Service recommends the following conditions, in addition to the standard construction precautions, be made part of any dredging contract issued for this project:

1. That the standard manatee conditions be included in any contract issued for the work.

2. That no dredging occur between November 15 and March 31.

INCIDENTAL TAKE

Sections 4(d) and 9 of the Act, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupts normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Under the terms of Section 7(b)(4) and 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement. The measures described and conditions of this incidental take statement. The measures described below are nondiscretionary, and must be implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in Section 7(o)(2) to apply.

The Federal agency has a continuing responsibility to regulate the activity that is covered by this incidental take statement. If the agency fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of Section 7(o)(2) may lapse.

We have reviewed the biological information and other available information relevant to this action. Based upon our review, incidental take is not anticipated for the manatee during implementation of this project. If an accident involving a manatee occurs, all work should cease, and our Vero Beach, Florida, Field Office should be notified immediately (407-562-3909) (1360 U.S. Highway 1, Suite 5, Vero Beach, Florida 32960), as well as the Manatee Hotline (1-800-DIALFMP).

This completes consultation in accordance with the Act. If there are modifications made in the project or if additional information becomes available relating to threatened or endangered species, reinitiation of formal consultation may be required under 50 CFR Section 402.16.

VII. IMPACTS

Big Bend Open Water Disposal Site

Creating emergent spoil islands south of the Big Bend Channel would inhibit tidal circulation and destroy a half acre of seagrassbeds.

Whiskey Key

Filling in the two dredge holes in the vicinity of Whiskey Key to one foot m.l.w. would be beneficial to the benthic community and would improve the dissolved oxygen level of the surrounding waters.

Upland Spoil Sites

Deposition of spoil in the four identified upland sites would not adversely impact fish and wildlife resources.

Spoil Island 3D

We would also not be opposed to spoiling on spoil island 3D if the nesting shorebirds and gulls are protected. To protect these nesting shorebirds the Service advises that material deposition shall not occur during the nesting season, which is April 1 to September 1. We also advise that vegetative encroachment on the spoil island shall be managed to provide barren nest sites. Techniques such as prescribed burning, tilling, and raking are acceptable control methods, and shall be completed outside the nesting season. It is envisioned that when vegetation becomes dense and relatively high, it will need to be controlled probably every three years.

Alafia Bank

The most beneficial use of the spoil material that will be dredged from Big Bend Channel would be to place it on Alafia Bank to inhibit erosion of the two islands. As mentioned previously, these are the most important mixed-colony bird breeding islands in Florida and their continual longevity demands a commitment to stabilize these islands. (see attached National Audubon Society letter requesting spoil material to alleviate erosion at this location).

VIII. DISCUSSION

The project area is located in Tampa Bay which has been designated a National Estuary under the Environmental Protection Agency's National Estuary Program. This means the estuary has outstanding natural resource values of national significance. In view of these outstanding values it is important that resource protection be given the highest degree of consideration when planning projects that may alter the natural systems. These outstanding values should be properly reflected in the Benefit/Cost ratio for this project. Environmental benefits should receive greater weight for this estuary.

Widening and deepening the Big Bend Channel will have a temporary adverse impact on the benthic community of marine worms, mollusks and echinoderms but would be expected to recolonize the channel over several years.

One of the spoil areas, Alafia Bank, is an important rookery area for a variety of bird species. Placing spoil on the eroding Alafia Bank would protect this bird rookery of national significance and should thus receive the highest environmental benefit.

As mentioned previously, if raising of the dikes surrounding spoil island 3D is contemplated the potential exists for harming the shorebirds and gulls that nest in high numbers on this spoil island. To prevent adverse impact to the birds (and thus avoid violation of the Migratory Bird Treaty Act) spoil should not be placed on this island during the nesting season.

Filling in the deep holes in the vicinity of Whiskey Key would also produce environmental benefits by providing shallow water habitat as well as increasing the water quality of the area.

Spoil placement on the upland sites would have a neutral benefit to the environment. While spoil disposal in the Big Bend open water disposal site would have negative environmental consequences as it could cover benthic habitat, fill estuarine grassbeds and disrupt circulation patterns in the area.

The endangered West Indian manatee could also be adversely impacted by the channel dredging, however implementation of our Conservation Recommendations listed in the Biological Opinion on the manatee should adequately protect this species.

Spoil Site Ranking

The following is a priority listing of the spoil sites in relation to their importance in enhancing fish and wildlife resources.

1. The most important spoil disposal area to benefit an extremely important bird breeding area would be to place spoil on the Alafia Bank to inhibit erosion. Spoil placement would have to occur during the breeding birds colony non-nesting season (September 2 to March 31).

2. Filling in the deep borrow sites in the vicinity of Whiskey Key will benefit the benthic community and raise the dissolved oxygen level of the nearby water column.

3. Spoil placement on spoil island 3D needs careful planning so as not to impact the breeding shorebirds that nest on this island. No material deposition should occur during the nesting season, which is April 1 to September 1. Also, vegetative encroachment on the island should be managed to provide barren nest sites.

4. Spoiling on any of the four upland disposal sites should have minimal adverse impact on fish and wildlife resources.

5. Creating spoil islands south of Big Bend Channel could destroy benthic habitat and create water circulation problems.

IX. FISH AND WILDLIFE SERVICE RECOMMENDATIONS

The Fish and Wildlife Service recommends the following be included in Tampa Harbor-Big Bend Navigation Feasibility Study:

1. The proposed open water disposal area located south of the Big Bend Channel be should be deleted from project plans because of adverse environmental effects.

2. The highest priority should be given to providing the spoil needs of the Alafia Bank and its irreplaceable nesting bird colonies.

    A. No spoil should be placed during the birds' breeding season which is April 1 to September 1.

3. The remaining spoil material (that material in excess of that needed for the Alafia Bank) could be placed on spoil island 3D.

    A. No spoil should be placed during the shorebird nesting season, which is April 1 to September 1.

    B. Vegetative encroachment on spoil disposal island 3D should be managed to provide barren nest sites. Techniques such as prescribed burning, tilling, and raking are acceptable control methods, and should be completed outside the nesting season. It is envisioned that when vegetation becomes dense and relatively high, it will need to be controlled probably every three years.

4. The Conservation Recommendations that were listed in our Biological Opinion for the endangered West Indian manatee should be made part of the Feasibility Study.

X. SUMMARY

The Corps has requested a Fish and Wildlife Coordination Act Report from the Service regarding the environmental impacts of widening and deepening the existing Big Bend Channel as well as explore for beneficial uses of the resultant spoil material. Channel dredging will have minimal adverse impact on fish and wildlife resources, as long as the Conservation Recommendations to protect the manatee are implemented and spoil placement is carefully planned.

The Services preferred use of the spoil material to benefit fish and wildlife resources would be to place it on the Alafia Bank to alleviate erosion. The next preferred area to place the spoil would be to fill the two deep dredge holes found at Whiskey Key. Spoil placement at spoil island 3D would serve to raise the dikes of the island allowing additional storage of dredged spoil which would temporarily alleviate the need to build additional large spoil disposal islands in Tampa Bay. Our aforementioned management plan to protect the nesting shorebirds would have to be implemented if the spoil island 3D disposal site is selected. Spoiling on any of the four upland disposal sites would have no adverse effects on fish and wildlife resources.

The Service is opposed to the open water disposal site located south of Big Bend Channel because of its adverse impact on the shallow water benthic community, including one-half acre of seagrassbeds. Placement of spoil in this area will also disrupt local water circulation patterns. Therefore, we recommend that this disposal area be deleted from consideration in the Feasibility Study.

XI. Literature Cited

Comp, G.S. 1977. An assessment of the impact of thermal discharge on fish and macroinvertebrate communities at Big Bend, Tampa (Florida). In R. D. Garrity, S. Mahadevan and W. Tiffany (eds.) Tampa Electric Company- a 316 demonstration, final report on the Big Bend thermal and ecological surveys. Prepared by Conservation Consultants, Inc. 93 pp.

Dunstan, F.M. and R.R. Lewis III. 1974. Avian utilization and plant succession on dredged material islands in Tampa Bay, Florida. Contract report of Coastal Zone Resources Corp., Wilmington, NC. 73 pp.

Ogden, J.C. 1978. Recent population trends of colonial wading birds on the Atlantic and Gulf coastal plains. Pp. 137-153 in A. Sprunt IV, J.C. Ogden and S. Winkler (eds.), Wading Birds. Nat. Audubon Soc. Res. Rept. No. 7.

Springer, V. G. and K. D. Woodburn. 1960. An ecological study of the fishes of the Tampa Bay area. Fl. State Bd. Cons. Mar. Lab. Prof. Pap. Ser.1. 104 pp.

FLORIDA GAME AND FRESH WATER FISH COMMISSION

MRS. GILBERT W. HUMPHREY, Micanopy
JOE MARLIN HILLIARD, Clewiston
J. BEN ROWE, Gainesville
JULIE K. MORRIS, Sarasota
QUINTON L. HEDGEPETH, DDS, Miami

ALLAN L. EGBERT, Ph.D., Executive Director
WILLIAM C. SUMNER, Assistant Executive Director

FARRIS BRYANT BUILDING
620 South Meridian Street
Tallahassee, FL 32399-1600
(904) 488-1960
TDD (904) 488-9542

RECEIVED
JAN 18 1994

January 11, 1994

Mr. Dave Ferrell
United States Department of the Interior
Fish and Wildlife Service
P.O. Box 2676
Vero Beach, Florida 32961-2676

RE: Hillsborough County, Draft Fish and Wildlife Coordination Act Report on Tampa Harbor-Big Bend Navigation Feasibility Study, October 1993

Dear Mr. Ferrell:

The Office of Environmental Services of the Florida Game and Fresh Water Fish Commission has reviewed the proposed revised report on the referenced project, and concurs with your findings and recommendations as specified in the report.

Please call me if we can be of further assistance.

Sincerely,

Bradley J. Hartman

Bradley J. Hartman, Director
Office of Environmental Services

BJH/JWB3/lav
ENV 1-5-2
bigbendt.fws
cc: Colonel Terrence C. Salt
District Engineer
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0012

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9450 Koger Boulevard
St. Petersburg, Florida 33702

November 4, 1993

BB
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NOV 10 1993

Mr. David L. Ferrell
United States Department of Interior
Fish and Wildlife Service
Post Office Box 2676
Vero Beach, Florida 3261-2676

Dear Mr. Ferrell:

This responds to your October 12, 1993 request for concurrence and comments regarding the October 1993 Draft Fish and Wildlife Coordination Act Report for the Tampa Harbor-Big Bend Channel Navigation Feasibility Study. The existing channel is approximately 2.2 miles long, 35 feet deep and 200 feet wide and connects a multi-owner industrial port complex with the Hillsborough Bay Ship Channel. The proposal is to widen the channel 50 feet and deepen it 2-3 feet.

The proposed project would not impact submerged aquatic vegetation (SAV) and depths in the project area depths are approximately -15 feet mean low water. In view of this, we agree that impacts, resulting from the dredging, to living marine resources (LMR) are expected to be minimal and temporary.

Placement of the dredge material could be beneficial, adverse or immaterial to LMRs. Beneficial uses of the material could include providing adequate elevation and creating emergent marsh for protection of the Alafia Bank or by filling the deep borrow pits (that historically experience low dissolved oxygen) near Whiskey Key. We strongly agree that no open water disposal should occur south of the Big Bend Channel due to the presence of SAV and shallow water habitat. However, we believe that use of Disposal Island 3D, thereby reducing its overall capacity, should not be considered if upland disposal sites are available. Upland disposal would not affect LMRs.

In view of the above, the National Marine Fisheries Service recommends the following:

1) That upland disposal have higher priority than Disposal Island 3D on disposal site ranking list in Section VII; and,

2) That filling of the borrow sites near Whiskey Key and use of upland disposal sites be recommended instead of Disposal Island 3D in Section IX.

If you have any questions regarding these comments, or if we can be of further assistance, please contact Mr. David N. Dale at 813/893-3503.

Sincerely,

Edwin J Keppner

for Andreas Mager, Jr.
Assistant Regional Director
Habitat Conservation Division

cc:
F/SEO2
F/SEO23-St PETE

National Audubon Society
TAMPA BAY SANCTUARIES
410 WARE BLVD., SUITE 500, TAMPA, FL 33619 (813) 623-6826

September 23, 1993

RECEIVED
SEP 27 1993
BL

Mr. David Ferrell, Field Supervisor
Office of Ecological Services
U. S. Fish and Wildlife Service
P. O. Box 2676
Vero Beach, FL 32961

Subject: Need for dredge material additions at Alafia Bank

Dear Mr. Ferrell:

We are the stewards of several important bird colonies in the Tampa Bay region. The most important of these occurs on a pair of dredge material islands in Hillsborough Bay known as the Alafia Bank. In 1993, an estimated 10,000 breeding pairs of 22 species nested at this site, including nine state-listed Species of Special Concern (Brown Pelican, Snowy Egret, Little Blue Heron, Tricolored Heron, Reddish Egret, White Ibis, Roseate Spoonbill, Black Skimmer, and American Oystercatcher). In addition, 75 pairs of Caspian Terns nested here, the only known breeding site for this species in Florida. None of these species is currently federally listed, although the Brown Pelican was formerly classified as Endangered and the Reddish Egret is currently a "Category 2" species.

By several measures, the Alafia Bank is one of the outstanding bird colonies in the nation. The Florida Game and Fresh Water Fish Commission recently ranked it as the most important colony in the state. In most years, it is one of the largest half-dozen or so colonies in the eastern U. S., and formerly (1940s-1950s) considered to be the largest colony in the country. With 17-22 species nesting annually since at least 1980, it is the most diverse colony in the nation.

The islands occur on the south side of the Alafia ship channel just outside the mouth of the Alafia River, and were created by

sidecasting of dredge spoils during channel construction in the late 1920s. The western end of the island chain has always been subject to chronic erosion. One of the islands, "Sunken Island", eroded away by the 1950s and was rebuilt during channel deepening in 1960. To counter continuing erosion, clean sand dredged during the Tampa Harbor Deepening Project was placed at the western end of Sunken Island in a fishhook configuration in November 1977. A planting project inside the new cove resulted in the rapid development of a solid mangrove stand, and within 7 years of planting, herons and ibis had begun nesting in the new habitat.

The cove continues to provide mangrove nesting habitat for up to 2000 pairs of nesting birds, while the barren uplands behind are used by nesting gulls, terns, and skimmers. The cove also features a diversity of habitats not fully anticipated at the time the project was planned. Mussel bars have formed under the mangroves. Two small creeks and a shifting salt barren testify to the dynamic forces still at work, and provide important fishery values. Fringing Spartina patches offer marsh habitats for small mullet and killifish, and are heavily used by marsh snails (Littorina sp.). A sand bar at the southeastern margin of the cove is an important roost site for a wide variety of resident, migrant and wintering bird species. Large numbers of diamond-backed terrapins use the cove, and its shorelines provide excellent redfishing for a few local guides. We consider this an excellent example of a coastal habitat creation project, with outstanding ecological benefits.

Erosion continues at Alafia Bank, along the major east-west shorelines and especially at the northwest and southwest corners of the Extension. Accretion does occur at some sites, but it does not equal the losses due to erosion. Since I have been here (13 years), shoreline recession has resulted in the loss of significant amounts of nesting habitat. Both routine annual forces and major storm events cause the damage. In the severe March 13 storm, for example, up to 40 feet of shoreline recession was measured at permanent transects. Continuing erosion threatens the long-term suitability of Alafia Bank as a colony site.

We believe that the only feasible way to counter these habitat losses is to periodically add material to the island. Construction-grade material is not often available, so opportunities are few. Two such opportunities appear to exist now: the proposed deepening of the Alafia channel, and the deepening/widening of the Big Bend

channel. I believe that these may be the last opportunities to obtain construction-grade material for the next 40-50 years, since it is unlikely that new channels will be dredged in Hillsborough Bay nor that existing channels will again be deepened.

As the manager of the sanctuary, I must look to the future security of the site. Without construction-grade material available in the future, and with erosion a continuing force, I believe it is very important to obtain material now to ensure the long-term availability of nesting habitat. I have discussed our needs with Bill Fonferek of the Corps of Engineers, Gray Gordon and Dean Kleinschmidt of Cargill Fertilizer, and Bruce Birnhak of your office, and look forward to continuing those discussions to ensure that any proposed project design offers the maximum ecological benefit possible, and a future for this outstanding colony.

I invite your support of the beneficial use of dredge material at Alafia Bank.

Sincerely,

Richard T. Paul

Richard T. Paul
Manager

cc: Bruce Birnhak
Frank Dunstan, NAS
Bill Fonferek, COE
Gray Gordon, Cargill Fertilizer

EXHIBIT III

AGENCY COORDINATION

Planning Division
Environmental Resources Branch

TO ADDRESSES LISTED

The Jacksonville District, U.S. Army Corps of Engineers, is beginning to gather information to help define issues and concerns that will be addressed in a Study of Navigation Improvements to the Big Bend Channel in Tampa Bay, Hillsborough County, Florida.

The Big Bend Channel connects a multiowner Industrial Port Complex with the Hillsborough Bay ship channel. It is about 2.2 miles long, 35 feet deep at mean low water and 200 feet wide with a turning basin 1,000 feet long by 700 to 1500 feet wide. The Corps of Engineers will examine the feasibility of maintenance dredging the existing channel with placement of the dredged material on disposal island 3D. The feasibility of widening and deepening Big Bend Channel, with dredged material disposal on uplands and/or disposal islands, will also be examined.

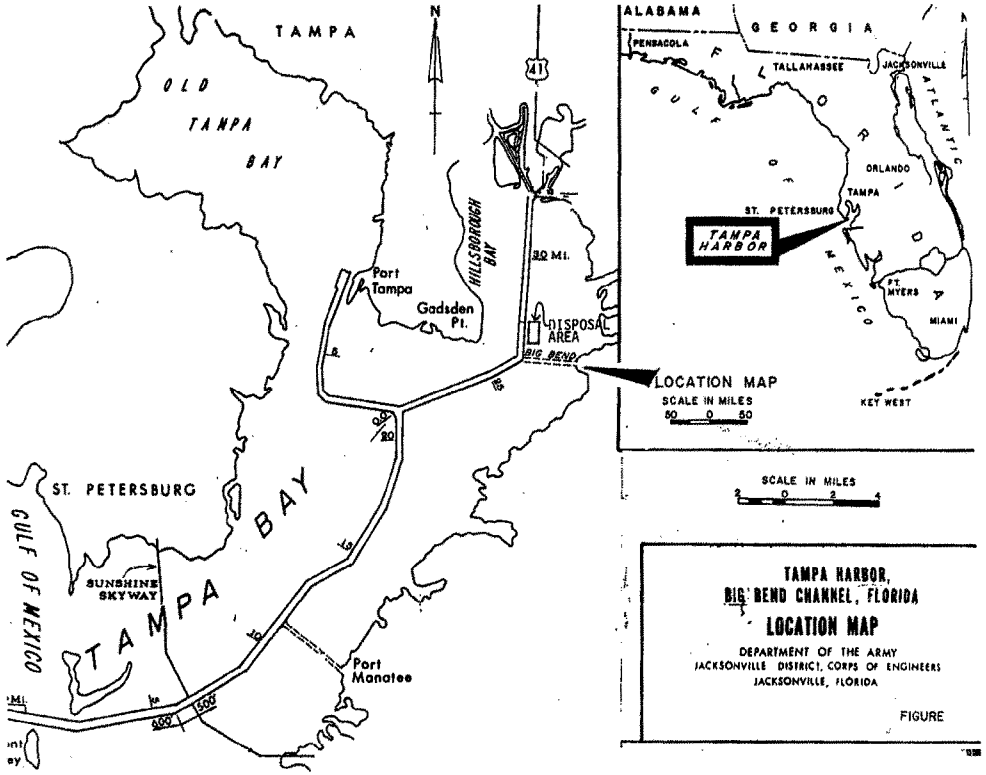
We welcome your views, comments and information about resources, study objectives and important features within the described study area, as well as any suggested improvements. Letters of comments or inquiry should be addressed to the attention of Planning Division, Environmental Studies Section and received in this office by December 20, 1990.

Sincerely,

Mann G. Davis III
Acting Chief, Planning Division

Enclosure

LANG/CESAJ-PD-ES/3691
WL/10/15/90/RKD
ATMAR/CESAJ-PD-ES
MAZER/CESAJ-PD-ER
SMITH/CESAJ-PD-E
BAILEY/CESAJ-PD-N
STRAIN/CESAJ-PD-P
DAVIS/CESAJ-PD-A
SALEM/CESAJ-PD


TAMPA
OLD
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BAY
N
41
HILLSBOROUGH BAY
Port Tampa
Gadsden Pt.
DISPOSAL AREA
BIG BEND
ST. PETERSBURG
TAMPA BAY
GULF OF MEXICO
SUNSHINE SKYWAY
Port Manatee
ALABAMA
GEORGIA
PENSACOLA
TALLAHASSEE
JACKSONVILLE
ATLANTIC
GULF OF MEXICO
ORLANDO
TAMPA
ST. PETERSBURG
TAMPA HARBOR
FT. MYERS
MIAMI
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LOCATION MAP
SCALE IN MILES
SCALE IN MILES
TAMPA HARBOR,
BIG BEND CHANNEL, FLORIDA
LOCATION MAP
DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA
FIGURE

NATIONAL

Director
Office of Federal Activities
Environmental Protection Agency
401 M Street, SW (A-104)
Washington, DC 20460 (5 cys)

Director
Department of Commerce
NOAA/CS/EC/Room 6222
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Director
Office of Environmental Compliance
Department of Energy, RM 4G064
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Mr. Gregg Chappell
Federal Emergency Mgt. Admin.
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Mr. Bruce Blanchard, Director
Office of Envir. Project Review
Dept. of the Interior, RM 4241
18th and C Street
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South Atlantic Fishery
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Florida

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Tallahassee, FL 32314-6870

Mr. George W. Percy, Director
Division of HIstorical Resources
State Historic Preservation Officer
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Dr. Elaine Harrington
Florida Chapter
Sierra Club
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Florida Defenders of the Environment
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Commander (OAN)
Seventh Coast Guard District
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Bricknell Plaza Federal Bldg.
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Mr. Heinz Mueller
Environmental Policy Section
EPA, Region IV
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Regional Director
Insurance & Mitigation Division
FEMA
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State Topographic Bureau, DOT
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Professor John Gifford
Department of Anthropology
University of Miami
Coral Gables, FL 33124

State Director
ASCS
US Dept. of Agriculture
PO Drawer 670
Gainesville, FL 32602-0670

Southern Region Forester
US Forest Service
Dept. of Agriculture
1720 Peachtree Rd. NW
Atlanta, GA 30309-2405

National Marine Fisheries Service
Environmental Assessment Branch
3500 Delwood Beach Rd
Panama City, FL 32407-7499

National Marine Fisheries Service
Chief, Protected Species
Management Branch
9450 Koger Boulevard
St. Petersburg, FL 33702-2496

National Marine Fisheries Service
Office of the Regional Director
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Regional Director
U.S. Fish and Wildlife Service
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Mr. Justin Gillis
Miami Herald
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Boulevard
Hollywood, FL 33021-6496

Wilderness Society
4055 Ponce de Leon Boulevard
Coral Gables, FL 33146

Miccosukee Tribe of Indians
of Florida
PO Box 440021
Tamiami Station
Miami, FL 33144

SAI: FL9011270620
PROJECT: STUDY OF NAVIGATION IMPROVEMENTS TO THE BIG BEND C
HANNEL IN TAMPA BAY, HILLSBOROUGH COUNTY, FLORIDA

RECEIVED: 11/27/90

...respondence requesting review under its intergovernmental coordination and review process. This correspondence has been assigned a **State Application Identifier (SAI) Number**, shown above, which should be used in all communications with this office concerning the application or project.

The State Clearinghouse will coordinate a review of the application or project pursuant to Presidential Executive Order 12372; Gubernatorial Executive Order Number 83-150; section 216.212, Florida Statutes; the National Environmental Policy Act; the Florida approved coastal management program; the Outer Continental Shelf Lands Act; and other federal or informational review requirements.

The review begins on the date the correspondence is received by the State Clearinghouse and normally is completed in 30 days, although longer review periods of 45 and 60 days are permitted by federal law for specific types of applications or projects. Completion of the review may be delayed if additional information is needed by reviewing agencies, in which case you will be notified. Please send three (3) copies of your application or project to the appropriate Regional Planning Council (RPC), if applicable.

FLORIDA STATE CLEARINGHOUSE
Executive Office of the Governor/OPB
Growth Management and Planning Policy Unit
The Capitol, Tallahassee, Florida 32399-0001
(904) 488-8114; (SunCom) 278-8114

STATE OF FLORIDA
Office of the Governor
THE CAPITOL
TALLAHASSEE, FLORIDA 32399-0001

LAWTON CHILES
GOVERNOR

January 28, 1991

Mr. Eddie Salem
Acting Chief, Planning Division
Department of the Army
Jacksonville District,
Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

RE: Study of Navigation Improvements to the Big Bend Channel in Tampa Bay, Hillsborough County, Florida

SAI: FL9011270620C

Dear Mr. Salem:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 83-150, the Coastal Zone Management Act and the National Environmental Policy Act, has coordinated a review of the above referenced project.

Pursuant to Presidential Executive Order 12372, the project will be in accord with State plans, programs, procedures and objectives when consideration is given to and action taken on the enclosed comments and requirements of our reviewing agencies.

Please review the enclosed letters from the Department of Community Affairs (DCA), Department of Environmental Regulation (DER), Department of Natural Resources (DNR) and Game and Fresh Water Fish Commission (GFWFC). Subsequent reviews of this project will focus on the issues identified by state agencies.

The federal agency did not provide a federal consistency determination for this project in accordance with 15 CFR 930, subpart C. However, the State has completed a review of the project information available at this time. Based on this information, the project at this stage is consistent with the Florida Coastal Management Program. Although the State does not object to the proposed work, we have identified several issues which must be resolved as the project progresses through later stages of planning, design and funding. As required by 15 CFR 930.34 and .37, at each major point of decision-making the federal agency is required to submit a consistency determination

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for the State's review. The format and content of the determination are described in 15 CFR 930.34 - .39. The State's continued agreement with this project will be based, in part, on adequate reconciliation of previously identified concerns.

This letter reflects your compliance with Presidential Executive Order 12372.

Sincerely,

Estus Whitfield

Estus D. Whitfield, Deputy Director
State Clearinghouse

EDW/rt

Enclosure(s)

cc: Department of Community Affairs
Department of Environmental Regulation
Department of Natural Resources
Department of State
Game and Fresh Water Fish Commission
Ted Hoehn - Department of Environmental Regulation

STATE OF FLORIDA
DEPARTMENT OF COMMUNITY AFFAIRS

2740 CENTERVIEW DRIVE • TALLAHASSEE, FLORIDA 32399

BOB MARTINEZ
Governor

THOMAS G. PELHAM
Secretary

RECEIVED
JAN 7 1991
STATE CLEARINGHOUSE

MEMORANDUM

TO: Director, State Clearinghouse

FROM: Thomas G. Pelham, Secretary

SUBJECT: Proposed Study of Navigation Improvements to the Big Bend Channel in Tampa Bay, SAI #FL9011270620C

DATE: January 2, 1991

The following comments are provided in response to the U. S. Army Corps of Engineers (COE) request for input on the proposed Study of Navigation Improvements to the Big Bend Channel in Tampa Bay, Hillsborough County, Florida.

The proposed study, which will evaluate the feasibility of the COE accepting maintenance responsibility for the existing Big Bend Channel and expanding the channel beyond its current design dimensions, should consider the relevant deepwater port master plan and local government comprehensive plans prepared according to the statewide planning requirements of Chapter 163, Part II, Florida Statutes (F.S.). As one of Florida's 12 designated deep-water ports, the Port of Tampa is required to prepare a master plan in accordance with the provisions of Section 163.3178(2)(c), F.S. The port master plan includes plans for future in-water maintenance and expansion and goals, objectives, and policies covering a variety of coastal management issues. The port plan must be incorporated into the Coastal Management Element of the appropriate local government comprehensive plan, which, in this case, is Hillsborough County. The Hillsborough County Plan also includes various goals, objectives, and policies covering coastal issues. Consideration should be given to the relevent provisions of these approved plans to avoid conflicts with study recommendations.

EMERGENCY MANAGEMENT • HOUSING AND COMMUNITY DEVELOPMENT • RESOURCE PLANNING AND MANAGEMENT

The Department also recommends the study contain a thorough evaluation of project costs to local sponsors. Assuming maintenance responsibility for this existing private channel suggests there may be additional financial obligations for local sponsors (i.e., the port authority or local government). These costs must be accurately projected so local sponsors can determine if the project is financially feasible.

There are also a number of potential environmental impacts related to dredging and spoil disposal in the Big Bend area of Tampa Bay including temporary and long term impacts to water quality, submerged and terrestrial habitats, and endangered species. In addition to the Port of Tampa master plan and the Hillsborough County comprehensive plan there are other resource protection plans for Tampa Bay being prepared under the state's Surface Water Improvement and Management Program and the federal National Estuary Program. While the approach taken under these various planning efforts may vary, they do share similar goals for protecting marine resources and natural systems in Tampa Bay. Conventional approaches used elsewhere or in the past, may no longer be appropriate if they conflict with these adopted plans. Innovative alternatives may be needed to achieve compatibility and further the integrated planning strategy Florida has instituted and we encourage exploring such considerations as part of the proposed study.

If you have any questions about these comments, please contact Keith McCarron at (904) 922-5438.

TGP/kmw

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

RECEIVED
JAN 17 1991
STATE CLEARINGHOUSE
January 17, 1991

Mr. Don Henningsen, Senior Government Analyst
Intergovernmental Coordination
Office of the Governor
413 Carlton Building
Tallahassee, Florida 32399-0001

Dear Mr. Henningsen:

RE: U.S. Army Corps of Engineers, Preliminary Study of Navigation Improvements to Big Bend Channel in Tampa Bay
SAI No: FL9011270620C

The Department of Environmental Regulation has reviewed the referenced study and has the following suggestions and comments. We have no objections to the maintenance dredging of the channel or placement of dredged materials on disposal islands such as Island 3D. To allow continued use of the disposal island sites in the area the Corps of Engineers should continue to work closely with the Tampa Port Authority to ensure the site's longevity through proper handling of sediments during their deposition and reuse of dewatered material.

Mapping of seagrass and seagrass regeneration in the affected area should be accomplished to aid in the protection of these valuable resource. Precautions and various dredging methodologies should be considered to protect any seagrass beds in the project area. When dredging is complete, consideration should be given to revegetating the island's shorelines to decrease erosion and improve wildlife habitat. Many of these disposal island sites have become bird rookeries and reestablishment of similar habitats should be attempted.

Data should be collected documenting existing conditions in the project site. Sediments should be tested for the presence of metals such as Al, Cd, Hg, Cu, Zn, P, Cr and any other harmful metals suspected to be present. Sediments should also be tested for levels of nutrient and pesticides. Boring logs should be presented showing all layers to be penetrated along with their grain size distribution.

Recycled Paper

Early consideration of these issues will improve the quality of this project and minimize its impacts on the bay system. Preapplication coordination with our Bureau of Wetlands Resource Management is recommended. Pursuant to 15 CFR 930, subpart C, the Corps is required to evaluate the consistency of this project with the Florida Coastal Management Program and submit its determination to the state. A consistency determination should be provided at each decision point and accompany each planning and environmental document prepared for this project. If you should have any questions please call Stephen Brooker at 904/ 488-0130.

Sincerely,

Steven K. Hall
Agency Assistance Coordinator
Division of Water Management

SKH/tsb
cc: Rick Garrity

Tom Gardner, Executive Director

FLORIDA DEPARTMENT OF NATURAL RESOURCES

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399

Lawton Chiles
Governor
Jim Smith
Secretary of State
Bob Butterworth
Attorney General
Gerald Lewis
State Comptroller
Tom Gallagher
State Treasurer
Bob Crawford
Commissioner of Agriculture
Betty Castor
Commissioner of Education

January 28, 1991

Mr. Estus Whitfield
Office of Planning and Budgeting
Executive Office of the Governor
The Capitol
Tallahassee, Florida 32399-0001

Dear Mr. Whitfield:

SAI No. FL9001127062C, USACE-Jacksonville District
Study of Navigation Improvements, Big Bend Channel
Tampa Bay, Hillsborough County

The Department has reviewed the above referenced document. The only comments we have were related to the protection of manatees. We have supplied those comments directly to the Corps of Engineers and have enclosed a copy for your reference. Thank you for the opportunity to comment on this study.

Sincerely,

David W. Arnold

David W. Arnold
Senior Management Analyst

Enclosure

RECEIVED
JAN 29 1991
STATE CLEARINGHOUSE

STATE OF FLORIDA

Office of the Governor

THE CAPITOL
TALLAHASSEE, FLORIDA 32399-0001

BOB MARTINEZ
GOVERNOR

RECEIVED
DEC 4 1990
Div. of Resource Mgmt.
Dept. of Natural Resources

Date: DEC 0 3 1990

Comment Due Date: DEC 1 7 1990

SAI#: FL9011 27 0620 C

RECEIVED
JAN 29 1991
STATE CLEARINGHOUSE

TO: Department of Natural Resources

FROM: State Clearinghouse

SUBJECT: Intergovernmental Coordination (formerly A-95) Federal Consistency Project Review Process

The attached Notification of Intent to Apply for Federal Assistance (Standard Form 424 Application) or other federally required document (e.g., Environmental Impact Statement, Fishery Management Plan, Consistency Determination, etc.) is forwarded to your agency for review and comment in accordance with:

- [x] Intergovernmental Coordination and Review Process (IC&RP), pursuant to Presidential Executive Order 12372 and Governor's Executive Order 83-150.
- [x] Coastal Zone Management Act (CZMA) of 1972 and Federal Regulations (15 CFR 930) requiring an evaluation of the document for consistency with the Florida Coastal Management Program (FCMP).
- [ ] Other

If the document requires a CZMA/FCMP consistency evaluation, it is categorized as one of the following:

- [ ] Federal Assistance to State or Local Governments (15 CFR 930, Subpart F). State agencies are required to evaluate the consistency of the activity.
- [x] Direct Federal Activity (15 CFR 930, Subpart C). Federal agencies are required to furnish a consistency determination for the State's concurrence or objection.
- [ ] Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.
- [ ] Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Your review and comments for State Clearinghouse projects should address themselves to the extent to which the project is in accord with or contributes to the fulfillment of your agency's plans or the achievement of your projects, programs and objectives.

FLORIDA DEPARTMENT OF NATURAL RESOURCES

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399

Tom Gardner, Executive Director

Lawton Chiles
Governor
Jim Smith
Secretary of State
Bob Butterworth
Attorney General
Gerald Lewis
State Comptroller
Tom Gallagher
State Treasurer
Bob Crawford
Commissioner of Agriculture
Betty Castor
Commissioner of Education

January 11, 1991

RECEIVED
JAN 11 1991
DEPUTY ASSISTANT
EXECUTIVE ... FOR

Mann G. Davis III
Acting Chief, Planning Division
United States Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

RE: Feasibility Study of Big Bend Channel, Tampa Bay
SAI No. F190011270620C

Dear Mr. Davis:

The intent of this letter is to address the Corps' request for information to help define issues and concerns that will be addressed in their Study of Navigation Improvements to the Big Bend Channel in Tampa Bay, Hillsborough County, Florida.

The Division of Marine Resources has concerns about the proposed project with respect to its possible effects on the endangered West Indian Manatee, Trichechus manatus latirostris. Aerial surveys, sighting reports and mortality data all show that the endangered West Indian Manatee regularly occurs throughout Tampa Bay.

Manatee distribution in Tampa Bay during the year is variable. They congregate during the months of November through March near the Tampa Electric Company's (TECO) Big Bend generating plant at Apollo Beach on the east side of the bay and the Florida Power Corporations's Bartow power plant at Weedon Island on the west side of the bay. During cold periods more than 100 manatees, a significant percentage of the west coast manatee population, have been observed at the warm water discharges of the power plants. During the fall and warmer periods of the winter, manatees travel between the power plants and utilize the extensive feeding habitats nearby. From TECO Big Bend plant manatees move north to the Alafia River and south to the Manatee River. From Bartow power plant, the manatees utilize the extensive grassbeds in Old Tampa Bay. During cold snaps, the animals move back into the warm water refugia of the power plants. Manatees will disperse throughout Tampa Bay during the warmer periods of the year.

To reduce possible impacts to manatees, we recommend that standard manatee protection construction conditions be used. Further, the dredging of the Big Bend Channel should not be done from November 15 through March 31 and we strongly suggest the dredging take place between June 1 and August 31.

Sincerely,

DIVISION OF MARINE RESOURCES

Patrick M. Rose

Patrick M. Rose
Environmental Administrator

PMR/wbb
cc: Pam McVety
Charles Futch
David Arnold
Bob Turner, USFWS
29BIGBEND.DR

For projects circulated for evaluation of consistency with the FCMP, the process is slightly different. An additional review is not necessary as your plans, policies and objectives are, inlarge part, mandated by appropriate Florida statutory authority. However, for consistency review purposes, it is suggested that your comments in response to the attached document be expressed as follows.

Based on an analysis of the mandatory enforceable provisions and recommended policies of the core FCMP statutes and implementing rules which your agency administers, the proposed activity is:

- Consistent
- Not Consistent. Objections to an activity must describe how the proposed project is inconsistent with the specific provisions included in the FCMP and alternatives if any, which if adopted, would allow the activity to be consistent.
- Not consistent due to failure to provide sufficient information to assess the consistency of the activity. Objections or findings of inconsistency based on insufficient information must describe the nature of information is necessary to determine consistency.

Should you need additional information from the applicant for IC&RP purposes or to evaluate the consistency of the project with the FCMP, please contact the applicant for the required information and notify this office by the due date. The State Clearinghouse will promptly inform the applicant that a project review cannot be completed until such information is provided to reviewers. Should a conference be necessary, please contact this office as soon as possible. Timely response is essential in order to preserve the state's rights in both IC&RP and CZMA Consistency proceedings.

Please check the appropriate box below, provide any comments on your agency's stationary and return to the State Clearinghouse by the due date. In both telephone conversation and written correspondence, please refer to the State Application Identifier (SAI) number.

Enclosure

****

	E.O. 12372	FEDERAL CONSISTENCY
TO: Director State Clearinghouse Office of Planning and Budgeting Executive Office of the Governor The Capitol Tallahassee, Florida 32399-0001 (904) 488-8114	☐ NO COMMENT ☒ COMMENTS ATTACHED	☒ CONSISTENT (COMMENTS ATTACHED) ☐ NOT CONSISTENT (COMMENTS ATTACHED)

FROM: DNR

SAI#: FL9011270620C

DIVISION/BUREAU: Exec office

REVIEWER: David W. Arnold

DATE: 1-28-91

RECEIVED
JAN 29 1991
STATE CLEARINGHOUSE

FLORIDA DEPARTMENT OF STATE
Jim Smith
Secretary of State
DIVISION OF HISTORICAL RESOURCES
R.A. Gray Building
Tallahassee, Florida 32399-0250
(904) 488-1480

RECEIVED
DEC 18 1990
STATE CLEARINGHOUSE

December 12, 1990

Ms. Karen K. MacFarland, Director
State Planning and Development
Clearinghouse
Office of Planning and Budgeting
The Capitol
Tallahassee, Florida 32399-0001

In Reply Refer To:
Laura A. Kammerer
Historic Sites
Specialist
(904) 487-2333
Project File No. 903536

RE: Cultural Resource Assessment Request
SAI# FL9011270620C
Department of the Army - Corps of Engineers
Study of Navigation Improvements
Big Bend Channel in Tampa Bay
Hillsborough County, Florida

Dear Ms. MacFarland:

In accordance with the procedures contained in 36 C.F.R., Part 800 ("Protection of Historic Properties"), we have reviewed the above referenced project for possible impact to archaeological and historical sites or properties listed, or eligible for listing, in the National Register of Historic Places. The authority for this procedure is the National Historic Preservation Act of 1966 (Public Law 89-665), as amended.

A review of the Florida Master Site File indicates that no significant archaeological or historical sites are recorded for or considered likely to be present within the project area. Furthermore, it is the opinion of this agency that because of the project location and/or nature it is considered unlikely that any such sites will be affected. Therefore, it is the opinion of this office that the proposed project will have no effect on any sites listed, or eligible for listing in the National Register. project may proceed without further involvement with this agency.

If you have any questions concerning our comments, please do not hesitate to contact us. Your interest in protecting Florida's archaeological and historic resources is appreciated.

Sincerely,

Suzanne P. Walker

for George W. Percy, Director
Division of Historical Resources
and
State Historic Preservation Officer

FLORIDA GAME AND FRESH WATER FISH COMMISSION

WILLIAM G. BOSTICK, JR. Winter Haven | DON WRIGHT Orlando | THOMAS L. HIRES, SR. Lake Wales | MRS. GILBERT W. HUMPHREY Micanopy | JOE MARLIN HILLIARD Clewiston

ROBERT M. BRANTLY, Executive Director
ALLAN L. EGBERT, Ph.D., Assistant Executive Director

FARRIS BRYANT BUILDING
620 South Meridian Street
Tallahassee, Florida 32399-1600
(904) 488-1960

December 20, 1990

RECEIVED
JAN 2 1991
STATE CLEARINGHOUSE

Ms. Karen MacFarland, Director
Florida State Clearinghouse
Executive Office of the Governor
Office of Planning and Budgeting
The Capitol
Tallahassee, Florida 32399-0001

RE: SAI #FL9011270620C,
Hillsborough County, Big Bend
Channel Dredging, USACOE

Dear Ms. MacFarland:

The Office of Environmental Services of the Florida Game and Fresh Water Fish Commission has reviewed the referenced document, and offers the following comments.

The U.S. Army Corps of Engineers (COE) is proposing to maintenance dredge an existing private channel, known as the Big Bend Channel. Currently, the channel is 2.2 miles long, 35 feet deep at mean low water, and 200 feet wide, with a turning basin 1,000 feet long by 700 to 1,500 feet wide. The spoil material would be placed on disposal island 3D. The COE is also examining widening and deepening the Big Bend Channel to an unspecified extent.

Our biologist reviewed the project and spoil sites on December 17, 1990. There are several environmental concerns associated with the proposed project. Spoil island 3D is a nationally significant colonial nesting bird rookery for least terns (threatened), black skimmers, American oystercatchers (species of special concern - SSC), 20,000 to 40,000 pairs of laughing gulls, royal terns, sandwich terns, and the only Florida colony of Caspian terns. The island is also a documented feeding area for reddish egret (SSC), snowy egret (SSC), little blue heron (SSC), black-necked stilt, and American oystercatcher (SSC).

The existing channel is flanked by extensive shoals, some of which were created by past dredge spoil disposal. Seagrass beds are present in the areas surrounding the existing turning basin and the channel near the turning basin.

Small islands south of the channel entrance are the site of historic mitigation studies, and are utilized for nesting by American oystercatchers and as foraging sites for wading birds. The West Indian manatee (endangered) is documented to utilize the turning basin area and adjacent seagrass beds for temperature refuge and feeding.

We recommend that project impacts to natural habitats and the bird rookery islands be eliminated wherever possible. Existing dike failures on island 3D should be repaired. No loss of existing seagrass beds should be permitted. The small islands and associated shoals adjacent to the channel should also be preserved. Any proposed spoil deposition to island 3D should occur only between the months of September to March, outside the normal shorebird nesting season.

The proposed expansion of the federal maintenance dredging responsibility should be carefully examined, particularly with regard to future environmental impacts incurred when spoil island 3D reaches capacity prior to its design lifetime. A careful examination should also be made of the conflicting goals of deepening and widening channels which impact water quality and habitat resources that the Tampa Bay Surface Water Improvement and Management (SWIM) program is attempting to protect, enhance, and restore.

Sincerely,

Bradley J. Hartman

Bradley J. Hartman, Director
Office of Environmental Services

BJH/JWB3/rs
ENV 1-3-2
cc: Mr. Mann G. Davis III
Planning Division
USA Corps of Engineers
P. O. Box 4970
Jacksonville, FL 32232-0019

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

April 8, 1991

Colonel Bruce A. Malson
District Engineer, Jacksonville
P.O. Box 4970
Jacksonville, FL 32232

ATTN: Mr. A.J. Salem, Planning Division

Subject: Reconnaissance Phase Study on Tampa Harbor-Big Bend Channel and Alafia River

Colonel Malson:

Pursuant to Section 309 of the Clean Air Act, EPA, Region IV has reviewed the subject document which examines a number of options related to upgrading the navigation capacities/capabilities at the Big Bend port facility. Certain of the assumptions used to determine the economic basis of a federal interest in this project are perplexing. For example, it was assumed that after the January 1992 maintenance operation no further excavation would be performed. Moreover, it was posited that the work at Big Bend could not be coupled with any other dredging in Tampa Bay. We acknowledge that this is a point of view, but it appears flawed from a common sense perspective. Technical staff have discussed these issues with the study manager and, we feel sure that they will be explained in greater detail in the forthcoming documentation.

We would like to suggest that these studies also examine the possibility of using this project as a means of performing some environmental mitigation for all the previous navigation work in Tampa Bay. There are any number of possibilities to compensate for the significant alterations/adverse environmental consequences attendant to these actions.

Thank you for the opportunity to comment on this action. If we can be of further assistance in this matter, Dr. Gerald Miller (404-347-3776) will serve as initial point of contact.

Sincerely,

For Gerald T. Miller

Heinz J. Mueller, Chief
Environmental Policy Section
Federal Activities Branch

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

March 9, 1991

Colonel Bruce A. Malson
District Engineer, Jacksonville
P.O. Box 4970
Jacksonville, FL 32232

ATTN: Mr. A.J. Salem, Planning Division

Subject: Reconnaissance Phase Study on Tampa Harbor-Big Bend Channel and Alafia River

Colonel Malson:

Pursuant to Section 309 of the Clean Air Act, EPA, Region IV has reviewed the subject document which examines a number of options related to upgrading the navigation capacities/capabilities at the Big Bend port facility. In general, the proposed structural measures and the environmental consequences thereof are relatively straight forward. However, certain of the assumptions used to determine the economic basis of a federal interest in this project are perplexing. For example, it was assumed that after the January 1992 maintenance operation no further excavation would be performed. Moreover, it was posited that the work at Big Bend could not be coupled with any other dredging in Tampa Bay. We acknowledge that this is a point of view, but it appears flawed from a common sense perspective. Technical staff have discussed these issues with the study manager and, we feel sure that they will be explained in greater detail in the forthcoming documentation.

We would like to suggest that these studies also examine the possibility of using this project as a means of performing some environmental mitigation for all the previous navigation work in Tampa Bay. There are any number of possibilities to compensate for the significant alterations/adverse environmental consequences attendant to these actions. We believe that these measures could be structured into the engineering plans such that both the environment and the net economic costs of the project would benefit.

Thank you for the opportunity to comment on this action. If we can be of further assistance in this matter, Dr. Gerald Miller (404-347-3776) will serve as initial point of contact.

Sincerely,

for Gerald T. Miller

Heinz J. Mueller, Chief
Environmental Policy Section

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

REPLY TO
ATTENTION OF

Planning Division
Environmental Branch

28 JUN 1996

TO WHOM IT MAY CONCERN:

The Jacksonville District, U.S. Army Corps of Engineers is completing a study on the feasibility of providing a navigation improvement for the Tampa Harbor - Big Bend Navigation Channel as a Federal project. Enclosed are the draft Finding of No Significant Impact, the Draft Feasibility Report, Draft Environmental Assessment, and preliminary evaluation pursuant to Section 404(b)(1) of the Clean Water Act for the proposed action.

In compliance with requirements of the National Environmental Policy Act, Section 404 of the Clean Water Act, and U.S. Army Corps of Engineers regulations (ER 1105-2-100 and ER 200-2-2); we are asking for your comments concerning the proposed action. In addition, any person who has an interest may request a public hearing. The request must be submitted in writing within 30 days of the date of this notice and must clearly set forth the interest which may be affected and the manner in which the interest may be affected by this activity. A public meeting is planned concerning this action. The time and location of the public meeting will be announced.

The final decision on the proposed action will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against it reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and, in general, the needs and welfare of the people.

Provide your response to me at the letterhead address within 30 days of the date of this letter. If you have any questions concerning this public notice or the public meeting, contact Mr. Bill Fonferek at 904-232-2803 or fax to 904-232-3442.

Sincerely,

A. J. Salem

A. J. Salem
Chief, Planning Division

Enclosure

HONORABLE JOHN A GRANT
SENATE DISTRICT 13
610 W WATERS AVE STE A
TAMPA FL 33604

HONORABLE RICK DANTZLER
SENATE DISTRICT 17
P O BOX 9225
WINTER HAVEN FL 33883

HONORABLE CHARLIE CRIST
SENATE DISTRICT 20
360 CENTRAL AVE STE 1210
ST PETERSBURG FL 33701

HONORABLE JAMES HARGRETT
SENATE DISTRICT 21
P O BOX 11025
TAMPA FL 33680

HONORABLE MALCOLM E BEARD
PRESIDENT PRO TEM
SENATE DISTRICT 23
P O BOX 3565
PLANT CITY FL 33564-3565

HONORABLE ROB WALLACE
HOUSE DISTRICT 47
P O BOX 274207
TAMPA FL 33688-4207

HONORABLE R Z SAFLEY
HOUSE DISTRICT 48
28051 U S 19 NORTH STE B
CLEARWATER FL 34621-2647

HONORABLE JIM DAVIS
HOUSE DISTRICT 56
P O BOX 1851
TAMPA FL 33601-1851

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TAMPA FL 33629

HONORABLE ELVIN L MARTINEZ
HOUSE DISTRICT 58
2058 TAMPA BAY BLVD STE B
TAMPA FL 33607

HONORABLE LESLEY MILLER JR
HOUSE DISTRICT 59
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TAMPA FL 33605

HONORABLE VICTOR CRIST
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35111 U S HWY 19 N STE 203
PALM HARBOR FL 34684

HONORABLE DONALD C SULLIVAN
SENATE DISTRICT 22
8050 SEMINOLE OFFICE CTR #330
SEMINOLE FL 34642

HONORABLE LARRY CROW
HOUSE DISTRICT 49
1096 PINEHURST ROAD
DUNEDIN FL 34698

HONORABLE JOHN MORRONI
HOUSE DISTRICT 50
2331 BELLEAIR RD STE C
CLEARWATER FL 34624-1729

HONORABLE MARY BRENNAN
HOUSE DISTRICT 51
6251 44TH ST N STE 7
PINELLAS PARK FL 34665

HONORABLE PETER RUDY WALLACE
SPEAKER OF THE HOUSE OF
REPRESENTATIVES OF THE STATE OF
FLORIDA, HOUSE DISTRICT 52
360 CENTRAL AVE STE 740
ST.PETERSBURG FL 33731

HONORABLE LARS A HAFNER
HOUSE DISTRICT 53
1301 66TH ST N
ST PETERSBURG FL 33710

HONORABLE DENNIS L JONES
HOUSE DISTRICT 54
8940 SEMINOLE BLVD
SEMINOLE FL 34642-3850

HONORABLE RUDOLPH BRADLEY
HOUSE DISTRICT 55
THE TOWER
424 CENTRAL AVE STE 904
ST PETERSBURG FL 33701

HONORABLE MICHAEL BILIRAKIS
9TH CONGRESSIONAL DISTRICT
1100 CLEVELAND STREET STE 1600
CLEARWATER FL 34615

HONORABLE C W (BILL) YOUNG
10TH CONGRESSIONAL DISTRICT
144 1ST AVENUE S STE 627
ST PETERSBURG FL 33701

HONORABLE SAM M GIBBONS
11TH CONGRESSIONAL DISTRICT
2002 N LOIS AVE STE 260
TAMPA FL 33607

HONORABLE CHARLES T CANADY
12TH CONGRESSIONAL DISTRICT
FEDERAL BLDG
124 S TENNESSEE AVE
LAKELAND FL 33801

HONORABLE DAN MILLER
13TH CONGRESSIONAL DISTRICT
1751 MOUNT ST STE A-2
SARASOTA FL 34236

HONORABLE BOB GRAHAM
P O BOX 3050
TALLAHASSEE FL 32315

HONORABLE CONNIE MACK
150 S MONROE ST STE 305
TALLAHASSEE FL 32301-1561

FL DEPT OF ENVIRON PROTECTION
FLORIDA MARINE RESEARCH INST
DIV OF MARINE RESOURCES
100 EIGTH AVENUE S E
ST PETERSBURG FL 33701-5095

DIRECTOR
ORGANIZED FISHERMEN OF FLORIDA
CORTEZ CHAPTER
P O BOX 118
CORTEZ FL 34215

CHAIRPERSON
GULF OF MEXICO FISHERY
MANAGEMENT COUNCIL
LINCOLN CENTER SUITE 881
5401 WEST KENNEDY BLVD
TAMPA FL 33609-2486

MR KIRBY GREEN
DIRECTOR DIV OF BEACHES AND SHORES
FL DEPT OF ENVIRONMENTAL PROTECTION
3900 COMMONWEALTH BLVD
TALLAHASSEE FL 32399

CHIEF
BUREAU OF WETLAND RESOURCES MGMT
FL DEPT OF ENVIRONMENTAL PROTECTION
2600 BLAIR STONE RD
TALLAHASSEE FL 32399-2400

CHAIRMAN CLEARINGHOUSE REVIEW
TAMPA BAY REGIONAL PLANNING COUNCIL
9455 KOGER BOULEVARD
ST PETERSBURG FL 33702

SOUTHWEST FL REG PLANNING COUNCIL
4980 BAYLINE DRIVE, PO BOX 3455
N FT MYERS FL 33918-3455

MOTE MARINE LABORATORY
1600 KEN THOMPSON PARKWAY
SARASOTA FL 34236

DIRECTOR
OFFICE OF FEDERAL ACTIVITIES
(A-104)
ENVIRONMENTAL PROTECTION AGENCY
401 M STREET SW
WASHINGTON D C 20024-2610 (5 CYS)

REGIONAL ENVIRONMENTAL OFFICER
HOUSING AND URBAN DEVELOPMENT
ROOM 600-C
75 SPRING STREET SW
ATLANTA GA 30303-3309 (2 CYS)

COMMANDER (OAN)
SEVENTH COAST GUARD DISTRICT
909 SOUTHEAST 1ST AVENUE
BRICKNELL PLAZA FEDERAL BUILDING
MIAMI FL 33131-3050

ENVIRONMENTAL REVIEW SECTION
U S ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET NE
ATLANTA GA 30365-2401 (5 CYS)

REGIONAL DIRECTOR
INSURANCE AND MITIGATION DIVISION
FEDERAL EMERGENCY MANAGEMENT AGENCY
1371 PEACHTREE STREET NE
ATLANTA GA 30303-3309

NATIONAL MARINE FISHERIES SERVICE
ENVIRONMENTAL ASSESSMENT BRANCH
3500 DELWOOD BEACH ROAD
PANAMA CITY FL 32407-7499

NATIONAL MARINE FISHERIES SERVICE
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JUL 10 1996

Planning Division
Plan Formulation Branch
Navigation Section

TO ADDRESSEES ON ENCLOSED LIST

The notice with a Draft Feasibility Report and Environmental Assessment (EA) on the U.S. Army Corps of Engineers' navigation study for the Tampa Harbor - Big Bend Channel indicated a planned public meeting without a time and date. Arrangements are now in place for an informal meeting to take place on July 29, 1996, at 7:00 p.m. The meeting will be in the Board Room of the Tampa Port Authority, located at 811 Wynkoop Road in Building Number 24 on the 2nd floor.

As stated in the previous notice, the draft report and EA findings are for your review and comment before preparation of a final report. If you wish to make your comments known at the meeting, an opportunity will be provided for you to speak. Anyone desiring to provide written comments at that time may also do so.

Sincerely

A. J. Salem
Chief, Planning Division

U.S. Army Corps of Engineers - Jacksonville
Draft Feasibility Report and Environmental Assessment
Tampa Harbor - Big Bend Channel
July 29, 1996 7:00 PM
Tampa Port Authority Board Room
811 Wynkoop Road Tampa, Florida 33605

Meeting Attendance Roster:

Name (Print)	Company, Address, Phone Number
Gene Nichols	GC Service Co. 702 N. Franklin St. Plaza 9 (813) 209-4242
Bill Fehring	Greiner 813-286-1711
Steven Fidler	Tampa Port Authority PO Box 2192 Tampa FL 33605 813 272-0535
Dick Eckenrod	Tampa Bay NEP, 111 7th Ave. S., St. Pete 33701 813-893-276
Pete & Jeanie Johnson	671-3693 Concerned Citizens of Gibsonton Area In PO Box 1304 Gibsonton 335
Danny Alberdi	EPC Hillsborough County
Rich Paul	National Audubon 410 Ware Blvd., Tampa 33619 813-623-6 3360
Stu Marvin	The Planning Commission, 601 E Kennedy, 18th Fl
Bill Simpson	IMC-Agrico P.O. Box 2000 Mulberry, Fl. 941-428-265
Ron Kobosky	IMC-AGRICO " " " 813 677-84
Rod Burkhardt	TECO P.O. Box 111 Tampa 33601 228-1615
Zeil	TPA
Jan Vorhees	Consultant 4856-F Smoketree SE St. Pete 33705 (813) 827-1871
Lee Fox	Pinellas Seabird Rehab 840 3rd Ave S. FL 33715 813 867 036

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Sandra B. Mortham
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R.A. Gray Building
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Director's Office (904) 488-1480
Telecopier Number (FAX) (904) 488-3353

August 7, 1996

Mr. A. J. Salem, Chief
Planning Division, Environmental Resources Brance
Jacksonville District Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

In Reply Refer To:
Frank J. Keel
Historic Preservation Planner
(904) 487-2333
Project File No. 962728

RE: Draft Feasibility Report and Environmental Assessment
Navigation Study for Tampa Harbor - Big Bend Channel - 10128
Hillsborough County, Florida

Dear Mr. Salem:

In accordance with the procedures contained in 36 C.F.R., Part 800 ("Protection of Historic Properties"), we have reviewed the referenced project(s) for possible impact to archaeological and historical sites or properties listed, or eligible for listing, in the *National Register of Historic Places*. The authority for this procedure is the National Historic Preservation Act of 1966 (Public Law 89-665), as amended.

A review of the Florida Site File indicates that no significant archaeological or historical sites are recorded for or likely to be present within the project area. Furthermore, because of the project location and/or nature it is unlikely that any such sites will be affected. Therefore, it is the opinion of this office that the proposed project will have no effect on historic properties listed, or eligible for listing, in the *National Register of Historic Places*.

If you have any questions concerning our comments, please do not hesitate to contact us. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

Laura A. Kammerer

for George W. Percy, Director
Division of Historical Resources
and
State Historic Preservation Officer

Tampa Bay Regional Planning Council

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Executive Director
Julia E. Greene

August 1, 1996

A.J. Salem, Chief
Planning Division
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, FL 32232-0019

Dear Mr. Salem:

Re: Draft Feasibility Report and Environmental Assessment on the Navigation Study for the Tampa Harbor-Big Bend Channel

The above-referenced document has been received by the staff of the Tampa Bay Regional Planning Council and its Agency on Bay Management. Please be advised that the Council will submit its comments and recommendations following the receipt of additional information which is currently scheduled to occur on September 12, 1996. Mr Tim Murphy of the Jacksonville District staff is scheduled to make a presentation to the Council's Agency on Bay Management on that date.

Draft comments from TBRPC staff will be sent as soon as possible after that informational meeting.

Thank you for inviting the Tampa Bay Regional Planning Council to review the draft document. The maintenance of our shipping facilities is vital to the economy of the Tampa Bay region, just as protection of our estuarine resources is crucial to the environmental health of Tampa Bay.

Please call Ms. Sheila Bonz, or Mr. John Meyer, TBRPC staff, if you have any questions or need further assistance.

Sincerely,

Julia E. Greene
Executive Director

cc: Commissioner Steve Seibert

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702

July 23, 1996

Colonel Terry Rice
District Engineer, Jacksonville District
Department of the Army, Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Dear Colonel Rice:

The National Marine Fisheries Service (NMFS) has reviewed the Draft Feasibility Report and Environmental Assessment (EA), dated June 28, 1996, for the proposed widening and deepening of the Tampa Harbor Big Bend Channel in Hillsborough County, Florida. The selected plan calls for widening the channel from 200 to 250 feet and deepening the channel from 34 to 41 feet. The dredged material would initially be placed into disposal island 3D then, after fine sediments have been separated, the material will be removed from island 3D and placed in deep borrow holes off Whiskey Stump Key. The restoration of bottom elevations surrounding Whiskey Stump Key is anticipated to increase habitat value and improve water quality of the area that currently exhibits low dissolved oxygen levels.

Potential effects, of the selected plan, on living marine resources are adequately addressed in the EA and the Fish and Wildlife Coordination Act Report (FWCAR). Additionally, the selected plan is consistent with comments and recommendations made by the NMFS during our review of the FWCAR. Therefore, we have no other comments to offer at this time.

Please direct related comments or questions to Mr. David N. Dale of our St. Petersburg Area Office. He may be contacted at 813/570-5317.

Sincerely,

Edwin J. Kapsner

for Andreas Mager, Jr.
Assistant Regional Director
Habitat Conservation Division

Clearwater Power Squadron, Inc.
A UNIT OF UNITED STATES POWER SQUADRONS
SAIL AND POWER BOATING
1000 Cleveland St. • Clearwater, FL 34615 - 4514
(813) 441 - 8775

15 July 1996

Department of the Army
Jacksonville District Corps of Engineers
P. O. Box 4970
Jacksonville, FL 32232-0019

Attn: A. J. Salem, Chief
Planning Division
Environmental Branch

Dear Sir,

We are in receipt of your proposal for the improvement of Big Bend Navigation Channel. We are unable to note any serious environmental problems resulting from this small amount of dredging in Tampa Bay.

The Clearwater Power Squadron is very active in the Co-operative Charting program of the N.O.A., and can be much more of a help to you in the waterways of the West Coast from Ancelote Kay to Egemont Key.

Sincerely,

William H. Ryan, AP
Past Commander

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
SOUTHEAST/CARIBBEAN
Richard B. Russell Federal Building
75 Spring Street, S.W.
Atlanta, Georgia 30303-3388

July 10, 1996

Mr. A. J. Salem, Chief, Planning Division
US Army Corps of Engineers
P.O. Box 4970
Jacksonville, Fl 32232-0019

Dear Mr. Salem:

This refers to your memorandum dated June 28,1996, transmitting the Draft Feasibility Report and Draft Environmental Impact Statement [DEIS] for the Tampa Harbor Navigation Study - Big Bend Channel - 10128 in Florida.

Our review indicates there will be no significant adverse impact on any HUD programs as a result of this project.

Thank you for the opportunity to review and comment on your proposed project.

Sincerely,

Thomas A. Ficht

Thomas A. Ficht
Supervisory Environmental Officer

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

AUG 12 1996

Colonel Terry B. Rice
District Engineer, Jacksonville
P.O. Box 4970
Jacksonville, FL 32232

ATTN: Mr. A.J. Salem, Planning Division

Subject: Environmental Assessment (EA) on the Tampa Harbor-Big Bend Channel Navigation Study, Hillsborough County, FL

Colonel Rice:

Pursuant to Section 309 of the Clean Air Act, EPA, Region 4 has reviewed the subject document which examines the consequences of upgrading the navigation capacities/capabilities at the Big Bend Port facility, viz., deepening the access channel/turning basin to 41 feet plus 2 feet of advance maintenance. The proposed measures would generate 2.7 million cubic yards of new work material which will be placed at the existing disposal area (CMDA-3D) and/or to expand Sunken Island or fill some dredged areas near Whiskey Stump Key.

The proposal's environmental ramifications appear relatively straight forward and the mitigation should compensate, at least in part, for the significant alterations/adverse environmental consequences attendant to historic actions associated with overall port development. Further, we believe that the noted best management measures which will be implemented during construction and any necessary changes directed by subsequent monitoring should lessen short-term adverse effects to acceptable levels. The environmental features of this proposal appear excellent and should establish a precedent for any future development actions in Tampa Bay.

Thank you for the opportunity to comment on this action. If we can be of further assistance in this matter, Dr. Gerald Miller (404-347-3555 VM 6853) will serve as initial point of contact.

Sincerely,

Heinz Mueller

Heinz J. Mueller, Chief
Environmental Policy Section

United States Department of the Interior

OFFICE OF THE SECRETARY
OFFICE OF ENVIRONMENTAL POLICY AND COMPLIANCE
Richard B. Russell Federal Building
75 Spring Street, S.W.
Atlanta, Georgia 30303

August 22, 1996

ER-96/448

District Engineer
Jacksonville District
US Army Corps of Engineers
P.O. Box 4970
Jacksonville, FL 32232-0019

Dear Sir:

The Department of the Interior has reviewed the draft Feasibility Report, FONSI, and Environmental Assessment for the Tampa Harbor-Big Bend Channel expansion project Hillsborough County, Florida. It was prepared to describe a proposed dredge expansion of the shipping and berthing areas of the Big Bend area, and accompanying dredge disposal areas.

The Fish and Wildlife Service (Service) submitted a Coordination Act Report for this project in February 1994, addressing the environmental conditions of the work area and proposed disposal sites. The report made recommendations regarding each spoil site, as well as construction time frames to avoid impact to nesting shorebirds and manatees.

The Corps determined this project would have "no effect" on the West Indian manatee (*Trichechus manatus*). The Service disagreed, and determined the project would "adversely affect" the manatee. A biological opinion was prepared. Conservation recommendations were provided to reduce the potential impact to manatees. Those recommendations consisted of implementation of the standard manatee construction conditions, and a request that no dredging occur during the winter period (November 15 through March 31).

In the Draft Feasibility Report and Environmental Assessment, an analysis and description of dredge alternatives and accompanying disposal sites were included for review.

The Corps stated in the FONSI that the standard manatee construction precautions will be followed, but it will not be possible to restrict dredging during the winter months for the following reasons:

1. No manatee mortality has ever been recorded for dredging (Manatee Recovery Plan).

2. The standard manatee protection conditions will be implemented during construction.

3. There is no food source or warm water outfall to attract manatees to the construction areas.

4. A bulkhead separates Big Bend Port from the power plant (TECO) where manatees congregate.

The Service is concerned the project, even with the manatee safeguards, may have an adverse affect on the manatee. While no manatee mortality has occurred as a direct result from a dredge, it has been documented that associated crew boat traffic has caused injury or death.

Regarding the lack of "attractants" to the immediate area, the Service has recent information which indicates sea grass beds exist in the immediate vicinity of the proposed dredge site. The "Kitchen" area, which lies to the immediate north of the inner channel, Adamsville peninsula, Fishook Island, and the spoil island across from the Big Bend power plant all have documented sea grass beds. Manatees have been observed in the turning basin, and three percent of all winter sightings in the area document manatee travel northward to the Alafia River, Port Sutton, and the Hillsborough River. The latter three locations are directly in the project work area. We believe these areas serve as attractants to manatees, and the animals travel either north towards the Kitchen, or southward into the inner channel.

The bulkhead discussed in the FONSI forms the western boundary of the individual berthing area and is known as the inner channel. A Service biologist visited the site, and agrees this should prevent manatees from gaining entrance from outside areas during construction. Congregating manatees at the TECO outfall should not be affected. However, the possibility remains that manatees may venture inside the entrance to the berthing channels on the north side. There have been documented sightings at the mouth of the northern most channel, and northwest of the TECO channel, meandering 200 yards from an operational dredge.

Other areas proposed for dredging include the entrance channel and the main shipping channel. Manatee safety concerns are also important in these areas due to a lack of confinement structures, and a documented history of use as a travel corridor. Florida Marine Research Institute has provided aerial survey information which indicates that manatees frequent both the TECO outfall area as well as the Bartow Power Plant located on the north side of Weedon Island in St. Petersburg. Data suggests the animals travel from the TECO outfall, west along the spoil islands (adjacent to the proposed dredge site), along Gadsden Point, and across Old Tampa Bay to Weedon Island. Apparently, this is a frequent

occurrence. The project, as proposed, requires dredging in this area.

The Service believes the manatee may be adversely affected, and we request that the Corps reconsider their decision to dredge in the winter months (November 15-March 31). The project site is adjacent to a state-designated winter manatee sanctuary, and serves as a travel corridor to one hundred plus manatees at any one time during cold weather.

An alternative is to time the project so that the inner channel is dredged outside of the manatee season, and then move into the open water areas at the beginning of the winter period. This would reduce the potential impact to manatees. If this is not possible, we request a trained biologist, to be approved by the Service, be available to observe for manatees during the winter months. The Service also requests that all service boats used in the work area be fitted with propeller guards.

The Service agrees with the use of Disposal Island 3-D, Alternative Plan C-4 (Sunken Island Disposal) or Plan C-3 (Whiskey Stump Key) for disposal of dredge materials. We suggest that the dikes at 3-D be rebuilt, and that any remaining spoil be put to beneficial uses, such as those at C-3 and C-4. We recommend that disposal occur outside of the shorebird nesting season (April 1 - September 1), and that the management plan as described in the CAR be followed. We also recommend that any nourishment done at sites C-3 or C-4 avoid impacting sea grass beds. If impacts are unavoidable, the Corps should develop a mitigation plan. The standard manatee construction precautions also apply for the disposal sites.

The Department appreciates this opportunity to provide comments on these documents and hopes these comments are useful in your deliberations.

Sincerely yours,

James H. Lee

James H. Lee
Regional Environmental Officer

SEP 3 1996

Planning Division
Environmental Branch

Mr. James Lee
Regional Environmental Officer
U.S. Department of Interior
75 Spring Street, SW.
Atlanta, Georgia 30303

Dear Mr. Lee:

We have reviewed your comments on the Feasibility Report for the Tampa Harbor - Big Bend Navigation Channel dated August 22, 1996.

Regarding the U.S. Army Corps of Engineers' (Corps) determination that there would be "no effects" on manatees, there has been an informal agreement with the U.S. Fish and Wildlife Service (FWS) offices in Florida that if we incorporate standard conditions adopted by the State of Florida and the FWS, then the FWS would concur with the "no effects" determination. This was done so the FWS would not have to prepare a Biological Opinion on all the maintenance dredging actions that occur in this District which would essentially have the same Terms and Conditions as the adopted standard conditions. If this approach is no longer appropriate, please let us know.

The Big Bend project is located adjacent to a migratory bird rookery managed by the National Audubon Society. The dredged material management area CMDA-3D which will also be used for the project is also used by migratory birds for nesting. The District has developed and implemented a Migratory Bird Protection Policy in conjunction with the FWS and the Florida Game and Freshwater Fish Commission. The potential impacts on migratory birds from the dredging and placement are almost certain. Therefore, we plan to avoid construction during this valuable nesting period (1 April - 31 August).

Since the inception of this project, the FWS has been involved in the identification and development of alternatives. During the preparation of the Coordination Act Report, the FWS also included the Biological Opinion in response to our "no effects" determination. Included in that were the Conservation Recommendations, listed by your office. No special conditions were included in the Terms and Conditions of the Incidental Take statement.

We have considered the two recommendations presented in your letter of August 22, 1996, and have adopted the standard Manatee protection conditions. However, we disagree with the second recommendation for a construction window for Manatees for the following reasons:

a. No mortalities have ever been recorded from maintenance dredging in general (Manatee Recovery Plan). According to Corps' records, we have never taken, injured, or harmed a manatee either by the dredging equipment or by auxiliary vessels. This is due to the Corps totally embracing the standard manatee conditions which includes making the contractors aware of the legal and contractual requirements. We have inspectors at each of our sites to insure compliance with these conditions. We do not see how mortalities could occur from the dredging operation if the equipment is shut down in the presence of manatees. The auxiliary vessels operate less frequently than recreational vessels in the area and under more constraints, therefore, even if the dredging is occurring in a populated area we believe that based on our proven record and current operating conditions that mortalities would not occur.

b. The project area is segregated from the TECO power plant's warm water outfall. During our most recent visit to the project area on August 9, 1996, with FWS Biologist Ms. Debra Manz, Florida Department of Environmental Protection Biologist, Mr. Allen Burdett, and Tampa Bay Audubon Society Area Manager, Mr. Rich Paul, we examined the TECO outfall and project turning basin. We observed a pile bulkhead segregating the warm water outfall area from the turning basin. This bulkhead is connected to an island that lies adjacent to the project navigation channel.

c. We also entered the turning basin area and looked for seagrass beds. None were found. No seagrass beds are located within the project area. We do agree that other seagrass beds are located north of the project area but during the winter months, manatees would likely stay congregated at the outfall. If they do wander, the incident of contact is minimized by the island and bulkhead barrier. The alternative you present us appears to increase impacts to manatees based on the information rather than reduce them. If we dredge the inner channel (that area which is most segregated from the manatees during the winter months), then, when we would be conducting dredging in the outer channel during the warmer times of the year, manatees would be more likely to be wondering into our area.

d. The manatee window would significantly limit our ability to construct the project. If we tried to implement both dredging windows, there would not be enough construction time. We have weighed the impacts to migratory

bird nesting versus impacts to manatees. We believe that impacts of working during the migratory bird nesting season (April 1 through August 31) are almost certain and are of more concern than the undocumented and unlikely impacts on Manatees even during the "winter period" (November 15 through March 31).

Your comments stated that if these recommendations were not possible, that additional conditions be implemented during construction to protect manatees which included a FWS-approved observer be onboard during the November-March 31 timeframe and that all service boats be fitted with propeller guards. We have agreed to implement these conditions.

Thank you for your comments and assisting the Corps in the evaluation of this project. If you have any questions, Mr. Bill Fonferek is the technical manager for this action. His telephone number is 904 232-2803.

Sincerely,

George M. Strain
Acting Chief, Planning Division

Copy furnished:

David Hankla, Field Supervisor, U.S. Fish and Wildlife Service, 6620 Southpoint Boulevard, Jacksonville Florida 32216

Ms. Debra Manz, US Fish and Wildlife Service, McDill AFB, PO Box 19247, Tampa, Florida 33686-9247

Fonferek/CESAJ-PD-ER/2803/ljd
Dugger/CESAJ-PD-E
Smith/CESAJ-PD_E
Bailey/CESAJ-PF-PN
Murphy/CESAJ-DP-I
DiChiara/CESAJ-CO
Strain/CESAJ-PD

word:group/pde/usfws.ltr

STATE OF FLORIDA
DEPARTMENT OF COMMUNITY AFFAIRS
EMERGENCY MANAGEMENT • HOUSING AND COMMUNITY DEVELOPMENT • RESOURCE PLANNING AND MANAGEMENT

LAWTON CHILES
Governor

August 29, 1996

JAMES F. MURLEY
Secretary

Mr. Bill Fonferek
Department of the Army
Jacksonville District Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

RE: U.S. Department of Defense - Navigation Projects - Draft Navigation Study for Tampa Harbor - Big Bend Channel - Feasibility Report and Environmental Assessment
SAI: FL9607180575C

Dear Mr. Fonferek:

The Florida State Clearinghouse has received your notification of the above-described project, and has forwarded it to the appropriate state agencies for review. In order to receive comments from all agencies, an additional fifteen days is requested for completion of the review. Therefore, the clearance letter due date for this project will be extended from September 2, 1996, to September 17, 1996. If all comments are received prior to the extended date, every effort will be made to forward the clearance letter to you at an earlier date.

Thank you for your understanding. If you have any questions regarding this matter, please contact Ms. Keri Akers, Clearinghouse Coordinator, at (904) 922-5438.

Sincerely,

Chris McCoy

for Ralph Cantral, Executive Director
Florida Coastal Management Program

CITY OF TAMPA

Department of Sanitary Sewers

Howard F. Curren
Advanced Wastewater Treatment Plant

August 21, 1996

Department of the Army
Jacksonville District Corps of Engineers
Planning Division
Environmental Branch
Attention: A.J. Salem, Chief, Planning Division

Dear A.J. Salem:

After reviewing *Navigation Study For Tampa Harbor- Big Bend Channel-10128 Feasibility Report and Environmental Assessment* draft, several issues in the draft which are of concern are presented.

1. Please note that Whiskey Stump Key is between the existing barrow pits (dredged holes) and not to the east as indicated in Figure 10 (p. 53).

2. Regarding Beneficial Use Plans of dredge material disposal in the barrow pits around Whiskey Stump Key (p.54, paragraph 2), the possible supplementation of fines for suitable material and then capping with a minimum of one foot (or up to 3 to 6 feet) of suitable material is of concern. It should be demonstrated the suitable material would not displace the already accumulated or supplemented fines over the short and/or long term period.

3. Section 3.3.2, paragraph b on page EA-10 of the Environmental Assessment draft states that no seagrasses are located near the Big Bend Channel. In 1995, the City of Tampa, Bay Study Group documented *Halodule wrightii* (shoalgrass) on the northern and western shore of Adamsville peninsula (the peninsula north of East Channel and east of the turning basin). In addition, the eastern emergent spoil island now contains shoalgrass on the northern and eastern flats as well as the coverage described on page 4 (Open Water Spoil Sites) of the Fish and Wildlife Coordination Act Report. Also, sparse shoalgrass is present in a narrow channel between the shoal area just west of the Inner Channel and the spoil island located on the north side of the discharge channel for Tampa Electric's Big Bend power generating station.

4. Section 4.3.2, paragraph b on page EA-14. Refer to item 3 of this correspondence.

5. Section 4.4.2, paragraph b on page EA-15. Refer to item 3 of this correspondence. Also, there are numerous patches of shoalgrass located on the south side of Sunken Island, beginning midway along the island and extending east to near the tip of the island.

6. Section 4.5.2, paragraph b on page EA-17. Refer to item 3 of this correspondence. Also, there is considerable shoalgrass coverage on the east side of Whiskey Stump Key and in the embayment known as The Kitchen. Patchy shoalgrass exists on the northern and western flats of Whiskey Stump Key.

7. Section V. (Fish and Wildlife Observations) on page 3 of the Fish and Wildlife Coordination Act Report (Exhibit II) states that a seagrass study performed by the Southwest Florida Water Management District reported no seagrass in this section of Tampa Bay. Please cite this reference.

8. Page 404-5 of the Section 404(b)(1) Evaluations in Exhibit VI, line (d) states that no vegetated shallows would be affected on Sunken Island. Figure 10 (p.53) indicates that shoalgrass on the southern flats, midway along the island, may be impacted.

9. Page 404-5 of the Section 404(b)(1) Evaluations in Exhibit VI, line (d) states that no vegetated shallows would be affected on Whiskey Stump Key. Please see item 5 of this correspondence.

Enclosed with this letter is a copy of our 1996 annual report to the Florida Department of Environmental Protection. Upon review of this document, you will see that the southeastern portion of Hillsborough Bay is recovering from years of environmental pressure and presently contains nearly two thirds of the 30 hectares of shoalgrass found Hillsborough Bay. If you proceed with your project, please consider the concerns discussed here. If your department requires any additional information or assistance, feel free to call me at (813) 247-3451.

Sincerely,

Roger Johansson
Chief Biologist
City of Tampa, Bay Study Group

cc. Rich Paul
Enclosure

September 10, 1996

Planning Division
Environmental Branch

Ms. Keri Akers
Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Dear Ms. Akers:

This is to confirm our agreement with the Department of Environmental Protection (DEP) regarding the special condition we will implement on the Tampa Harbor - Big Bend project (FL9607180575C) in order to protect manatees.

On September 9, 1996, we had a telephone conversation with representatives of DEP and your office to discuss conditions proposed by DEP (Encl 1). After review of these conditions, we requested a modification to Condition No. 5 (encl 2). On September 10, 1996, we had a second conversation with representatives of both State offices to discuss this modification (encl 3). As a result of this conversation, we have reached a determination that the modification to Condition No. 5 as well as the other conditions will be incorporated into the project.

If you have any questions, please feel free to contact me at the above address. If there is anything we can do to expedite your comments, let us know as completion of our report and submittal to a higher authority is one of the Districts top priorities.

Sincerely,

George M. Strain
Acting Chief,
Planning Division

Enclosures
Copy Furnished (w/enclosures):
Ms. Mary Duncan, Office of Protected Species, Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station 245, Tallahassee, Florida 32399
bcc:
CESAJ-PD-PN
CESAJ-DP-I

Fonferek/CESAJ-PD-ER/2803/ljd
Dugger/CESAJ-PD-ER
Smith/CESAJ-PD-E
Strain/CESAJ-PD

DATE: September 9, 1996

TO: Lindy Broz
Office of Intergovernmental Programs

FROM: Mary Duncan Environmental Specialist
Protected Species Management
Division of Marine Resources

SUBJECT: Manatee Impact Review; SAI #96-0575C;
Tampa Harbor-Big Bend Channel deepening and widening project

This correspondence is a revision of my August 28, 1996 comments by electronic mail, and the subsequent response to those comments by the Army Corps of Engineers. As per our conference telephone call today, there is an outstanding issue with the recommendation to prohibit dredging at night during "manatee season" near the Port. Due to a conflict between bird nesting season and the amount of time needed to perform the activity, the Corps requested that we reevaluate the need for this prohibition. The recommendation of no work during the winter season is unacceptable to the Corps.

It appears that the use of a hydraulic, pipeline dredge with a cutterhead is the method of choice for cost estimating purposes, according to page EA-4 of the submittal. Due to the depth of the dredge (34 - 41 feet), the fact that is does not continually move through the water column, and does not require frequent barge/tugboat trips, it is our opinion that this is the method of choice for offsetting potential impacts to manatees. With this type of dredge, the remaining potential impacts are from ancillary vessels associated with work crews and equipment. There is, however, a requirement for the Corps to bid out the project to all types of equipment, including clamshell dredges. Because this type of dredge moves up and down through the water column to remove material, the potential for encountering a manatee increases. It is probable that manatee observers would be able to offset this potential impact by halting work in the event a manatee travels in the immediate vicinity of a clamshell dredge operation. The limitation with manatee observers, however, is the inability to spot manatees at night. Even under the best circumstances during the daytime it is possible to miss animals that are present since they only surface for a few seconds to breathe.

The potential to adversely impact manatees varies widely depending on the type of equipment used. Accordingly, we would like to revise our comments to request the following recommendations.

We do not object to this project if the following conservation measures are incorporated into any authorization:

1) The standard manatee protection construction conditions are followed for all in-water construction, including transfer of spoil by barge/tugboat; and

2) All vessels associated with the project install and maintain propeller guards;

3) All vessels associated with the project travel at idle speed while traversing to, in and from the project site;

4) If clamshell-type dredges are used for the project between November 15 and March 31, no in-water work shall occur after sunset. Experienced, dedicated manatee observers shall be used during all daytime in-water work. Manatee observers must also be pre-approved by the Bureau of Protected Species Management;

5) Work may be halted immediately upon the request of a representative of the Department should, as a result of this project, any person, at any time, by any means or in any manner, intentionally or negligently, annoy, molest, harass, or disturb any manatee.

The project preference for the hydraulic dredge is a result of the project location's proximity to an important warm water aggregation area. The additional measures for a clamshell-type dredge for this project should not be misconstrued as requirements for potential dredging activities in other locations of Tampa Bay.

These measures are considered necessary in order for this project to not significantly affect the conservation of wildlife. The conclusion of this opinion is based on information available during review. If new information reveals impacts to protected species and/or their habitat that is not considered in this opinion, this biological opinion may be revised. Please do not hesitate to call me at (904) 922-4330 if you have any questions.

Lindy and Mary,

Letter looks great. Reviewed by Bill Fonferek, Ken Dugger, Bo Smith, and George Strain. Request one modification.

> Please change the language in measure number 5 to read "Work shall be halted and reconsultation with the U.S. Fish and Wildlife Service will be initiated should, as a result of this project, any person, at any time, by any means or in any manner, intentionally or negligently, annoy, molest, harass, or disturb any manatee."

No incidental take is allowed for the manatee so the Biological Opinion from the F&WS states that we will stop work and reconsult if we "take" a manatee. Standard manatee protection criteria will be followed and include contacting the Florida Marine Patrol "Manatee Hotline" and the U.S. Fish and Wildlife Service. We will add the contact of your choice to our standard criteria for this project. Just let me know who to add and the phone number.

My phone number is 904-232-3847. Do not hesitate to call with any questions concerning this or any other matter. Thanks for the timely response.

Thanks again,
Tim

CONVERSATION RECORD

TIME	DATE
0900	10 September 1996

TYPE
☐ VISIT ☐ CONFERENCE ☐ TELEPHONE ☐ INCOMING ☐ OUTGOING

Location of Visit/Conference:

ROUTING
NAME/SYMBOL INITIALS

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO.
Mike Sole Susan Goggin	DEP and State Clearinghouse	(904) 921-6433

SUBJECT
Comments on Tampa Harbor - Big Bend Feasibility Report

SUMMARY
DEP and Clearinghouse requested a phone conference on their comments on the report. We received a faxed copy of their draft comments on 9-9-96. Mr. Tim Murphy requested a modification to Condition No. 5. Based on that request, the State asked to discuss this condition by conference call. We discussed the condition and agreed to the following: "Work shall be halted and reconsultation with the U.S. Fish and Wildlife Service and the Department of Environmental Protection will be initiated should.....manatee.". We will also add Mary Duncan to the list of people to contact should a taking occur. The Clearinghouse requested this office confirm our agreement to the conditions that were discussed in our telephone conversations and faxed to us.

ACTION REQUIRED
Prepare letter to State.

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
William J. Fonferek	W J Fonferek	9-10-96

ACTION TAKEN
Prepared

SIGNATURE	TITLE	DATE
W J Fonferek	Biologist	9-10-96

50271-101 ☆U.S. GPO: 1989-241-175/90074 CONVERSATION RECORD OPTIONAL FORM 271 (12-76) DEPARTMENT OF DEFENSE

STATE OF FLORIDA
DEPARTMENT OF COMMUNITY AFFAIRS
EMERGENCY MANAGEMENT • HOUSING AND COMMUNITY DEVELOPMENT • RESOURCE PLANNING AND MANAGEMENT

LAWTON CHILES
Governor

JAMES F. MURLEY
Secretary

September 13, 1996

Mr. A. J. Salem
Jacksonville District
Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

RE: Navigation Study for Tampa Harbor - Big Bend Channel - Draft Feasibility Report and Environmental Assessment - Hillsborough County, Florida
SAI: FL9607180575C

Dear Mr. Salem:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended, has coordinated a review of the above-referenced project.

The Department of Environmental Protection (DEP) indicates large numbers of endangered manatees are present in the project area. The DEP notes that the project, as initially proposed in the above-referenced document, is unacceptable because of the likelihood of adverse impacts to manatees. However, the Corps of Engineers (Corps) has agreed to modify the proposed project to incorporate the measures recommended by the DEP, as outlined in the enclosed comments. In addition, the use of a hydraulic dredge instead of a clamshell type dredge is recommended in order to minimize the risk of injury to protected wildlife. All precautions should be taken to avoid impacts to shallow bottoms and areas with submerged aquatic vegetation and to minimize turbidity levels around the dredge site.

The project will require an Environmental Resource Permit prior to the start of construction. Because the proposed widening of the channel may result in impacts to water quality within waters of the state, a variance to the permit may be required. In addition, details

of the dredging methodology, disposal operations, sediment analysis and assessment of potential beneficial uses of the dredged material should be provided to the DEP. Early coordination with the DEP may help to eliminate problems in the permitting process.

The DEP indicates that the project, as modified by the conditions stated in the Corps' enclosed letter of September 10, 1996, is consistent with its Florida Coastal Management Program (FCMP) authorities. All future changes to the proposed project will be reviewed by the DEP for potential impacts to protected species and their habitat. Please refer to the enclosed DEP comments.

The Southwest Florida Water Management District (SWFWMD) recommends additional analysis of the filling of holes and restoration proposed for the Whiskey Stump Key area. The Corps is advised to contact the City of Tampa regarding the most current seagrass information. Please refer to the enclosed SWFWMD comments.

The Game and Fresh Water Fish Commission (GFWFC) indicates that several listed species occur in the project area. Therefore, measures are recommended for protection of shorebirds, colonial nesting birds, seagrass beds and other significant resources. Please refer to the enclosed GFWFC comments for the specific recommendations.

Based on the information contained in the Draft Feasibility Report and Environmental Assessment and the Corps' satisfactory compliance with all conditions included in the Corps' September 10, 1996 letter, the state has determined that, at this stage, the above-referenced project is consistent with the Florida Coastal Management Program (FCMP). All subsequent environmental documents prepared for this project must be reviewed to determine the project's continued consistency with the FCMP. The state's continued concurrence with the project will be based, in part, on the adequate resolution of issues identified during this and subsequent reviews.

Sincerely,

James F. Murley
Secretary

JFM/rk
Enclosures
cc: Lynn Griffin, Department of Environmental Protection
Trisha Neasman, Southwest Florida Water Management District
Bradley Hartman, Game and Fresh Water Fish Commission

FLORIDA GAME AND FRESH WATER FISH COMMISSION

JULIE K. MORRIS Sarasota | QUINTON L. HEDGEPETH, DDS Miami | MRS. GILBERT W. HUMPHREY Microsukee | THOMAS B. KIBLER Lakeland | JOE BRUNER Destin

ALLAN L. EGBERT, Ph.D., Executive Director
VICTOR J. HELLER, Assistant Executive Director

OFFICE OF ENVIRONMENTAL SERVICES
BRADLEY J. HARTMAN, Director
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620 South Meridian Street
Tallahassee, FL 32399-1600
(904) 488-6661
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TDD (904) 488-9542

August 1, 1996

RECEIVED
AUG 12 1996
State of Florida Clearinghouse

Ms. Keri Akers, Coordinator
Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

RE: SAI# FL9607180575C, Hillsborough County, Tampa Harbor-Big Bend Channel Feasibility Report and Environmental Assessment

Dear Ms. Akers:

The Office of Environmental Services of the Florida Game and Fresh Water Fish Commission has reviewed the referenced document, and offers the following comments and recommendations.

The Tampa Harbor-Big Bend Channel Feasibility Report and Environmental Assessment is a feasibility study of proposals to widen the existing entrance to the Big Bend Channel from 200 to 250 feet, widen the channel bottom to 200 feet, and increase channel depth to 41 feet. Economic analyses of project benefits and costs, including potential beneficial uses of dredged materials, were performed in the evaluation.

Based on our review of projects within the proposed study area and surveys associated with our regional wildlife habitat planning, the following state-listed species are documented in the study area: West Indian manatee (endangered), least tern (threatened-T), snowy plover (T), loggerhead sea turtle (T), reddish egret (species of special concern-SSC), little blue heron (SSC), tricolored heron (SSC), snowy egret (SSC), white ibis (SSC), black skimmer (SSC), American oystercatcher (SSC), and brown pelican (SSC). The threatened piping plover may overwinter in the project area.

In order to protect regionally significant wildlife resources, our December 20, 1990, recommendations (attached), concerning protection of shorebird and colonial bird nesting areas, protection of shoals utilized by listed bird species as resting areas, and protection of seagrass bed resources, should be addressed.

If you have any questions concerning our comments or recommendations, please contact me or Mr. Jim Beever at (941) 639-3515.

Sincerely,

Bradley J. Hartman, Director
Office of Environmental Services

BJH/JWB
ENV 1-3-2
Enclosure
bigbend2.sai
cc: Colonel Terry L. Rice
District Engineer
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0012

Ms. Debra Manz, U.S. Fish and Wildlife Service
c/o U.S. Army Corps of Engineers
P.O. Box 19247
Tampa, Florida 33686-9247

Mr. Joe Bacheler
Chief, Tampa Regulatory Field Office
U.S. Army Corps of Engineers
P.O. Box 19247
Tampa, Florida 33686-9247

Mr. Jeremy Craft, Director
Division of Environmental Permitting
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Tampa Port Authority
P.O. Box 2192
811 Wyncoop Road
Tampa, Florida 33601

Southwest Florida Water Management District

2379 Broad Street • Brooksville, Florida 34609-6899 • 1-800-423-1476 (Florida Only) or (352) 796-7211 • SUNCOM 628-4150 • T.D.D. Number Only (Florida Only): 1-800-231-6103

7601 Highway 301 North, Tampa, Florida 33637-6759, 1-800-836-0797 or (813) 985-7481, SUNCOM 578-2070
170 Century Boulevard, Bartow, Florida 33830-7700, 1-800-492-7862 or (941) 534-1448, SUNCOM 572-6200
115 Corporation Way, Venice, Florida 34292-3524, 1-800-320-3503 or (941) 486-1212, SUNCOM 526-6900
2303 Highway 44 West, Inverness, Florida 34453-3809, (352) 637-1360

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James L. Allen
Bushnell
Ramon F. Campo
Brandon
James L. Cox
Lakeland
Rebecca M. Egar
Sarasota
John P. Hartless, IV
Bradenton
James E. Martin
St. Petersburg
Virginia S. Roe
Tampa

Peter G. Hubbell
Executive Director
Mark D. Farrell
Assistant Executive Director
Edward B. Helvenston
General Counsel

August 23, 1996

Ms. Keri Akers
Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

RECEIVED
AUG 29 1996
State of Florida Clearinghouse

Subject: Department of the Army-Draft Navigation Study for Tampa Harbor-Big Bend Channel-10128 Feasibility Report and Environmental Assessment

SAI#: FL9607180575C

Dear Ms. Akers:

The Southwest Florida Water Management District has conducted a consistency evaluation for the referenced project and determined that it is generally consistent with our authorities in the Florida Coastal Management Program. However, the following comments and recommendations are offered.

1) The use of dredged material to fill-in holes in the Whiskey Stump Key area is mentioned throughout the report. Our position on this matter is that consideration should be given to filling the holes to various depths to promote the formation of diverse and complex habitats. Opportunities for variety in marine species a... greatly increased with diversified habitats.

2) Page 57. Regarding the cost (i.e., $5.2 million) of the restoration in the Whiskey Key area, we are uncertain whether the environmental benefits of the proposed initiative are worth the "price tag." We believe that costs/benefits analyses should be carefully examined for the restoration project to determine whether it is worthy of such a cost. We also encourage the applicant to include an examination of the cost/benefit of filling the holes at various depths (see comment #1) as one of the alternatives in the decision-making for the project.

3) The report mentions in page EA-10 and several other pages in the document that there are no seagrasses near the Big Bend Channel. Additionally, there is the statement "We were aware from a published seagrass study performed by the Southwest Florida Water Management District that no seagrass was found in this section of Tampa Bay" in the portion of the report prepared by the U.S. Fish and Wildlife Service (see page 3). Apparently, the District study relied on is not the latest

Excellence Through Quality Service

Information on this issue because our sources indicate that there are seagrasses near the Big Bend Channel. We recommend that the applicant contact City of Tampa's Roger Johansson (813-247-3451) for the most current information on Big Bend Channel's seagrass situation.

The District appreciates the opportunity to participate in the review of this project. If you have any questions or if I can be of further assistance, please contact me in the District's Planning Department.

Sincerely,

Trisha Neasman

Trisha Neasman, AICP
Government Planning Coordinator

TN
cc: Rand Baldwin, SWFWMD
Brandt Henningsen, SWFWMD-SWIM

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P. O. BOX 4970
JACKSONVILLE, FLORIDA 32232-3010

September 10, 1996

REPLY TO
ATTENTION OF
Planning Division
Environmental Branch

OPTIONAL FORM 99 (7-90)
FAX TRANSMITTAL | # of pages ▶ 5
To Cindy Bron | From Bill Forpeck
Dept. Agency | Phone #
Fax # 904-922-5380 | Fax #
NSN 7540-01-317-7368 | 5099-101 | GENERAL SERVICES ADMINISTRATION

Ms. Keri Akers
Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Dear Ms. Akers:

This is to confirm our agreement with the Department of Environmental Protection (DEP) regarding the special condition we will implement on the Tampa Harbor - Big Bend project (FL960718057SC) in order to protect manatees.

On September 9, 1996, we had a telephone conversation with representatives of DEP and your office to discuss conditions proposed by DEP (Encl 1). After review of these conditions, we requested a modification to Condition No. 5 (encl 2). On September 10, 1996, we had a second conversation with representatives of both State offices to discuss this modification (encl 3). As a result of this conversation, we have reached a determination that the modification to Condition No. 5 as well as the other conditions will be incorporated into the project.

If you have any questions, please feel free to contact me at the above address. If there is anything we can do to expedite your comments, let us know as completion of our report and submittal to a higher authority is one of the Districts top priorities.

Sincerely,

George M. Strain
Acting Chief,
Planning Division

Enclosures

Copy Furnished (w/enclosures):

Ms. Mary Duncan, Office of Protected Species, Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station 245, Tallahassee, Florida 32399

DATE: September 9, 1996

TO: Lindy Brox
Office of Intergovernmental Programs

FROM: Mary Duncan Environmental Specialist
Protected Species Management
Division of Marine Resources

SUBJECT: Manatee Impact Review; SAJ #96-0575C;
Tampa Harbor-Big Bend Channel deepening and widening project

This correspondence is a revision of my August 28, 1996 comments by electronic mail, and the subsequent response to those comments by the Army Corps of Engineers. As per our conference telephone call today, there is an outstanding issue with the recommendation to prohibit dredging at night during "manatee season" near the Port. Due to a conflict between bird nesting season and the amount of time needed to perform the activity, the Corps requested that we reevaluate the need for this prohibition. The recommendation of no work during the winter season is unacceptable to the Corps.

It appears that the use of a hydraulic, pipeline dredge with a cutterhead is the method of choice for cost estimating purposes, according to page EA-4 of the submittal. Due to the depth of the dredge (34 - 41 feet), the fact that it does not continually move through the water column, and does not require frequent barge/tugboat trips, it is our opinion that this is the method of choice for offsetting potential impacts to manatees. With this type of dredge, the remaining potential impacts are from ancillary vessels associated with work crews and equipment. There is, however, a requirement for the Corps to bid out the project to all types of equipment, including clamshell dredges. Because this type of dredge moves up and down through the water column to remove material, the potential for encountering a manatee increases. It is probable that manatee observers would be able to offset this potential impact by halting work in the event a manatee travels in the immediate vicinity of a clamshell dredge operation. The limitation with manatee observers, however, is the inability to spot manatees at night. Even under the best circumstances during the daytime it is possible to miss animals that are present since they only surface for a few seconds to breathe.

The potential to adversely impact manatees varies widely depending on the type of equipment used. Accordingly, we would like to revise our comments to request the following recommendations.

We do not object to this project if the following conservation measures are incorporated into any authorization:

1) The standard manatee protection construction conditions are followed for all in-water construction, including transfer of spoil by barge/tugboat; and

2) All vessels associated with the project install and maintain propeller guards;

3) All vessels associated with the project travel at idle speed while traversing to, in and from the project site;

4) If clamshell-type dredges are used for the project between November 15 and March 31, no in-water work shall occur after sunset. Experienced, dedicated manatee observers shall be used during all daytime in-water work. Manatee observers must also be pre-approved by the Bureau of Protected Species Management;

5) Work may be halted immediately upon the request of a representative of the Department should, as a result of this project, any person, at any time, by any means or in any manner, intentionally or negligently, annoy, molest, harass, or disturb any manatee.

The project preference for the hydraulic dredge is a result of the project location's proximity to an important warm water aggregation area. The additional measures for a clamshell-type dredge for this project should not be misconstrued as requirements for potential dredging activities in other locations of Tampa Bay.

These measures are considered necessary in order for this project to not significantly effect the conservation of wildlife. The conclusion of this opinion is based on information available during review. If new information reveals impacts to protected species and/or their habitat that is not considered in this opinion, this biological opinion may be revised. Please do not hesitate to call me at (904) 922-4330 if you have any questions.

Lindy and Mary,

Letter looks great. Reviewed by Bill Fohferek, Ken Dugger, Bo Smith, and George Strain. Request one modification.

> Please change the language in measure number 5 to read "Work shall be halted and reconsultation with the U.S. Fish and Wildlife Service will be initiated should, as a result of this project, any person, at any time, by any means or in any manner, intentionally or negligently, annoy, molest, harass, or disturb any manatee."

No incidental take is allowed for the manatee so the Biological Opinion from the F&WS states that we will stop work and reconsult if we "take" a manatee. Standard manatee protection criteria will be followed and include contacting the Florida Marine Patrol "Manatee Hotline" and the U.S. Fish and Wildlife Service. We will add the contact of your choice to our standard criteria for this project. Just let me know who to add and the phone number.

My phone number is 904-222-3847. Do not hesitate to call with any questions concerning this or any other matter. Thanks for the timely response.

Thanks again,
Tim

CONVERSATION RECORD

TIME: 0900 | DATE: 10 September 1996

TYPE: ☐ VISIT ☐ CONFERENCE ☐ TELEPHONE ☐ INCOMING ☐ OUTGOING

Location of Visit/Conference:

ROUTING

NAME/SYMBOL INITIALS

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU	ORGANIZATION (Office, dept., bureau, etc.)	TELEPHONE NO.
Mike Sole Susan Goggin	DEP and State Clearinghouse	(904) 921-6433

SUBJECT
Comments on Tampa Harbor - Big Bend Feasibility Report

SUMMARY
DEP and Clearinghouse requested a phone conference on their comments on the report. We received a faxed copy of their draft comments on 9-9-96. Mr. Tim Murphy requested a modification to Condition No. 5. Based on that request, the State asked to discuss this condition by conference call. We discussed the condition and agreed to the following: "Work shall be halted and reconsultation with the U.S. Fish and Wildlife Service and the Department of Environmental Protection will be initiated should.....manatee.". We will also add Mary Duncan to the list of people to contact should a taking occur. The Clearinghouse requested this office confirm our agreement to the conditions that were discussed in our telephone conversations and faxed to us.

ACTION REQUIRED
Prepare letter to State.

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
William J. Fonferek	W. Fonferek	9-10-96

ACTION TAKEN
Prepared

SIGNATURE	TITLE	DATE
W. Fonferek	Biologist	9-10-96

30171-101 U.S. GPO: 1989-241-175/00074 CONVERSATION RECORD OPTIONAL FORM 271 (12-76) DEPARTMENT OF DEFENSE

Department of Environmental Protection

Lawton Chiles
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Virginia B. Wetherell
Secretary

September 11, 1998

Ms. Kerri Akers
State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Blvd.
Tallahassee, Florida 32399-2100

RE: COE/Navigation Study, Tampa Harbor-Big Bend Channel/Feasibility Report and Environmental Assessment, Hillsborough County
SAI: FL96071805750

Dear Ms. Akers:

The Department has reviewed the Draft Feasibility Report and Environmental Assessment (EA) on the U.S. Army Corps of Engineers' navigation study for the Tampa Harbor-Big Bend Channel. The project involves deepening and widening the existing Big Bend Channel, including the entrance channel, turning basin, inner channel and berthing areas. Section 2.3.2 of the Draft Environmental Assessment and Finding Of No Significant Impact (FONSI), outlines the Dredging Plan and the Alternative Disposal Plan D1/D2 (DMDA-3D). It states that Disposal Island 3D will be the primary disposal area for all excavated material and work would be scheduled to avoid the migratory bird nesting season, 1 April to 31 August.

The Department determined that dredging in the vicinity of this warm water refuge during the proposed dredging time window of 1 September to 31 March is unacceptable due to the following reasons:

1. There have been at least three known manatee deaths associated with dredging activities, and at least one other death suspected;

2. The standard manatee construction conditions alone are not sufficient to adequately protect large numbers of manatees in a specific area (see Attachments);

3. While the construction site is not located directly in seagrass beds and near a warm water outfall site, it is located immediately adjacent to areas where large numbers of manatees will be traversing. Manatees, while aggregating in warm water during colder weather, frequently disperse into surrounding areas including the construction area and the barge/tugboat travel corridor;

4. The existence of the bulkhead at the power plant may assist in concentrating the manatees while they are in the canal, but it does not prohibit them from dispersing out during the warmer portions of the day;

5. The presence of large numbers of manatees in the immediate vicinity of the project site (i.e., 120 animals on January 24, 1994) increases the probability that work will constantly need to cease according to the standard protection conditions. Creating a situation in which work will be constantly interrupted increases the potential for noncompliance with permit conditions; and,

6. The barge/tugboat and/or crew boat traffic, as well as some of the types of dredges that may be used, create disturbances in the immediate vicinity of a warm water refuge location for large numbers of manatees. The effects of these disturbances can be difficult to measure and are, therefore, hard to mitigate and/or offset. It is important that manatees not be scared away or harassed into leaving warm water for quieter, colder waters.

It appears that the use of a hydraulic, pipeline dredge with a cutterhead is the method of choice for cost estimating purposes, according to page EA-4 of the proposal. Due to the depth of the cut (34-41 feet), the fact that the dredge does not continually move through the water column, and because frequent barge/tugboat trips are not required, it is our opinion that this is the preferred dredging method for offsetting potential impacts to manatees. With this type of dredge, the remaining potential impacts would be from ancillary vessels associated with work crews and equipment. There is, however, a requirement for the Corps to consider all types of equipment in the bidding process, including clamshell dredges. Because a clamshell dredge moves up and down throughout the water column as it removes material, the potential for encountering a manatee increases. It is probable that manatee observers would be able to offset this potential impact by halting work in the event a manatee travels in the immediate vicinity of a clamshell dredge operation. Manatee observers, however, are unable to spot manatees at night. Even under the best circumstances during the daytime, it is possible to miss animals that are present since they only surface for a few seconds to breathe.

The potential for adverse impacts to manatees varies widely depending on the type of equipment used, as well as the time of year that dredging activities occur. Based on these concerns, this project was determined to be potentially inconsistent with the Department's authorities in the Florida Coastal Management Program, specifically Chapter 370.12(2), F.S., the "Florida Manatee Sanctuary Act." However, following a meeting with state agencies on these issues, the Corps agreed to modify its Draft Environmental Assessment to include the following manatee protection measures:

1. The standard manatee protection construction conditions are to be followed for all in-water construction, including transfer of spoil by barge/tugboat;

2. All vessels associated with the project will install and maintain propeller guards;

3. All vessels associated with the project will travel at idle speed while traversing to, in, and from the project site;

4. If clamshell-type dredges are used for the project between 15 November and 31 March, no in-water work shall occur after sunset. Experienced, dedicated manatee observers shall be used during all daytime, in-water work. Manatee observers must also be preapproved by the Bureau of Protected Species Management; and

5. Work shall be halted and reconsultation with the U.S. Fish and Wildlife Service and the Department of Environmental Protection will be initiated should, as a result of this project, any person, at any time, by any means or in any manner, intentionally or negligently, annoy, molest, or disturb any manatee.

Use of a hydraulic dredge is preferred because of the project's proximity to an important warm water manatee aggregation area. The additional measures for a clamshell-type dredge for this project should not be misconstrued as a requirement which may be applied to all dredging activities in Tampa Bay. These measures are considered necessary in order to ensure that this project does not significantly affect the conservation of wildlife. Incorporating these measures as

special conditions to the permit or other authorization is required to make the project consistent with the department's authorities in the Florida Coastal Management Program. This conclusion is based on information available during the review. If new information reveals impacts to protected species and/or their habitat that was not considered in this review, this biological opinion may be revised.

Other Environmental Resource Concerns

The proposed Big Bend Channel Improvements will require an Environmental Resource Permit, pursuant to Ch. 373, F.S. The model simulation studies in the Big Bend Channel Study indicate that widening the existing entrance channel from 200 to 250 feet is necessary; however, the Feasibility Study recommends that the channel be widened from 200' to 300'. The applicant must demonstrate that proposed impacts have been minimized. The project would result in the creation of additional waters of the state which may not be expected to meet state water quality standards (ie: dissolved oxygen). In this case, a variance to the permit may be required.

In addition, the report indicates that the dredged material will contain a high percentage of fines (40%-50%). Boring logs indicated that fines (exceeding the #200 sieve) ranged from approximately 5% to over 80%. The applicant must provide the Department with details relating to dredging methodology and disposal to address water quality concerns. The Department may require information relating to the potential release of contaminants such as metals and nutrients into the water column during dredging or disposal operations. This may be in the form of bulk sediment analysis and elutriate tests of the material to be dredged. Also, the resulting dredged material should be analyzed for potential beneficial uses. Questions concerning the permitting process should be directed to Ms. Lauren Milligan at (904) 488-0130. Currently, the DEP Southwest District staff are working with the Tampa Port Authority on specifics for modifications to Permit #281284589/Tampa Port Authority, Phase II 25-Year Permit. Applicable conditions in the permit for the Big Bend Channel Improvements should conform with methodologies and monitoring requirements specified in the 25-year permit.

Lastly, the Department has concerns regarding the dredging of any productive shallow bottoms or areas with submerged aquatic vegetation due to the cumulative loss of these habitats in the past. Also, precautions should be taken to minimize turbidity levels in waters in and around the dredge site.

We appreciate the opportunity to review the Tampa Harbor-Big Bend Channel Feasibility Report and draft EA, and, based on the modifications to the project, find it consistent with our authorities in the Florida Coastal Management Program. Questions regarding our response should be directed to Lindy Broz at (904)487-2231.

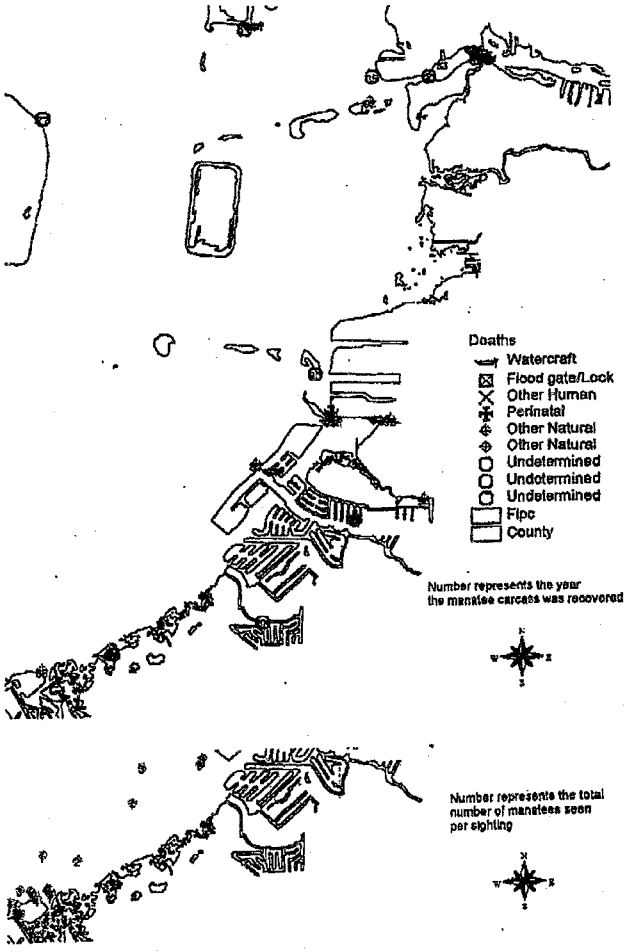
Cordially,

Lynn Griffin

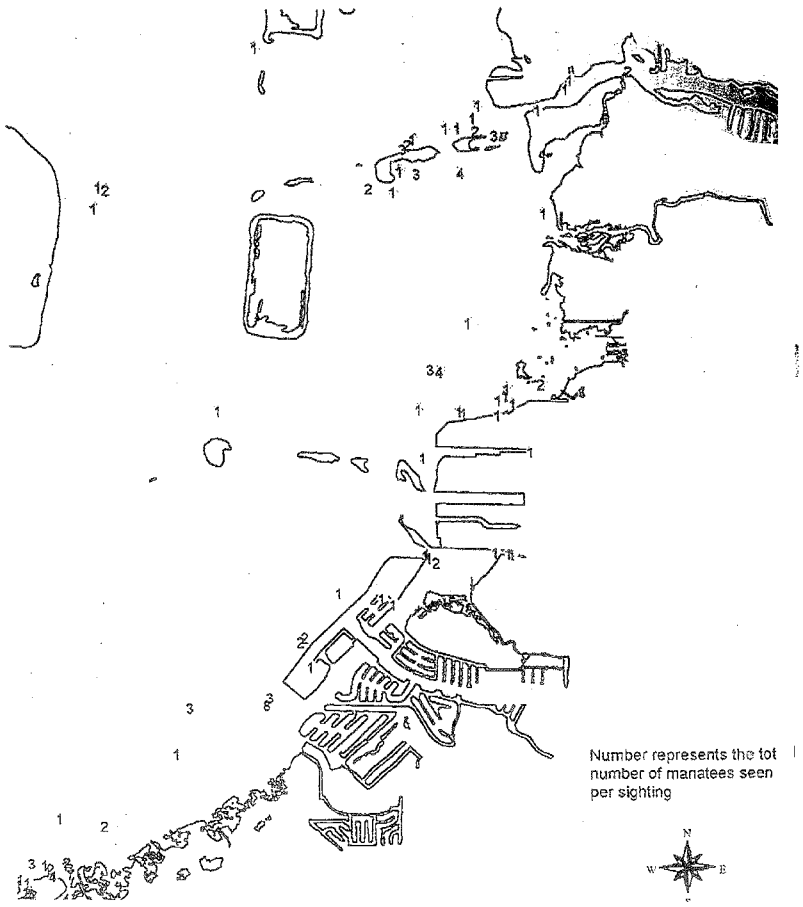
Lynn Griffin
Environmental Administrator
Office of Intergovernmental Programs

LG/lmb
cc: Ed Conklin, Marine Resources
Deborah Parrish, Office of Intergovernmental Programs
Lauren Milligan, Environmental Resource Permitting

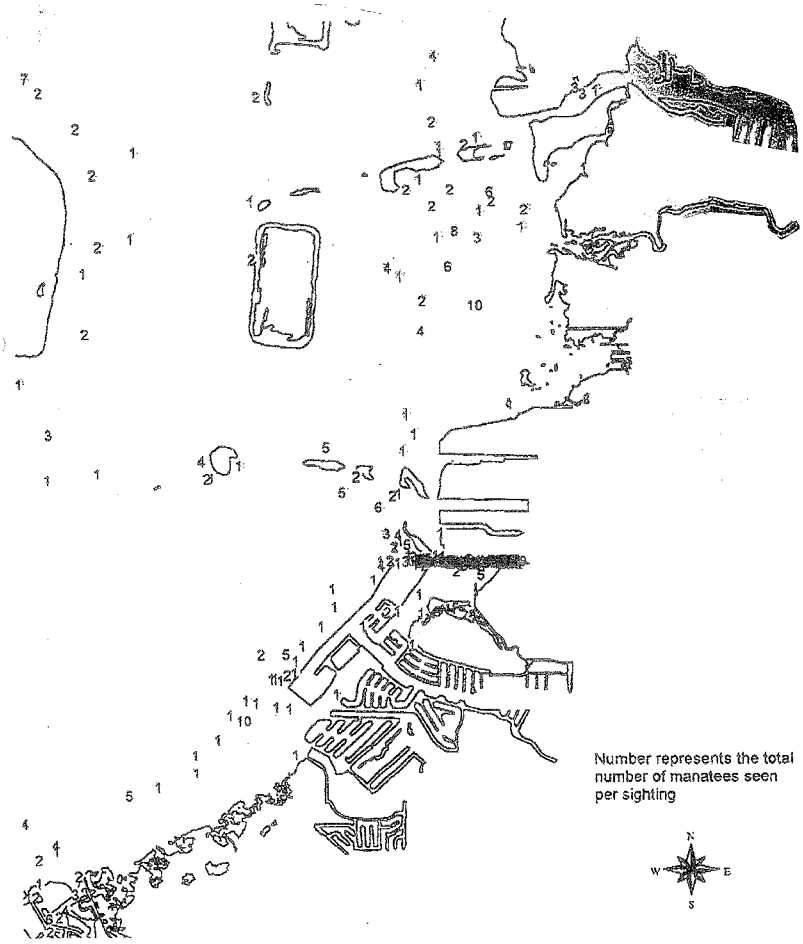
Tampa Harbor-Big Bend Channel Project
Manatee Mortality
January 1974 through January 1996



Tampa Harbor-Big Bend Channel Project
Manatee Aerial Survey Data ASTBFV
11/13/87 - 5/27/94 88 Overflights
April through October Months



Tampa Harbor-Big Bend Channel Project
Manatee Aerial Survey Data ASTBFV
11/13/87 - 5/27/94 88 Overflights
November through March Months



[illegible] DATE:	07/18/96
COMMENTS [illegible]-2 WKS:	08/01/96
CLEARANCE DUE DATE:	09/02/96
SAI#:	FL960718057[illegible]

Message:

STATE AGENCIES	WATER MANAGEMENT DISTRICTS	OPB POLICY UNITS
Community Affairs Environmental Protection Game and Fresh Water Fish Comm Marine Fisheries Commission State Transportation	Southwest Florida WMD RECEIVED SEP 10 1996 State of Florida Clearinghouse	X Environmental Policy/C & ED RECEIVED JUL 19 1996 OFFICE OF PLANNING & BUDGETING ENVIRONMENTAL POLICY UNIT

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evalutation and is categorized as one of the following:

___ Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.

_X_ Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.

___ Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.

___ Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:

Department of the Army - Draft - Navigation Study for Tampa Harbor - Big Bend Channel - 10128 - Feasibility Report and Environmental Assessment.

To: Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
(904) 922-5438 (SC 292-5438)
(904) 487-2899 (FAX)

EO. 12372/NEPA	Federal Consistency
(X) No Comment	☐ No Comment/Consistent
☐ Comments Attached	☐ Consistent/Comments Attached
☐ Not Applicable	☐ Inconsistent/Comments Attached
	☐ Not Applicable

From:
Division/Bureau: OPB/ENV
Reviewer: [signature]
Date: 9-9-96

Message:

DATE: 07/18/96
COMMENTS DUE-2 WKS: 08/01/96
CLEARANCE DUE DATE: 09/02/96
SAI#: FL9607180575C

STATE AGENCIES	WATER MANAGEMENT DISTRICTS	OPB POLICY UNITS
X Community Affairs Environmental Protection Game and Fresh Water Fish Comm Marine Fisheries Commission State Transportation	Southwest Florida WMD RECEIVED JUL 18 1996 Florida Coastal Management Program	Environmental Policy/C & ED RECEIVED SEP 10 1996 State of Florida Clearinghouse

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___ Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:

Department of the Army - Draft - Navigation Study for Tampa Harbor - Big Bend Channel - 10128 - Feasibility Report and Environmental Assessment.

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2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
(904) 922-5438 (SC 292-5438)
(904) 487-2899 (FAX)

EO. 12372/NEPA

- [x] No Comment
- [ ] Comments Attached
- [ ] Not Applicable

Federal Consistency

- [x] No Comment/Consistent
- [ ] Consistent/Comments Attached
- [ ] Inconsistent/Comments Attached
- [ ] Not Applicable

From: DCA
Division/Bureau: FCT, RAM, CMP
Reviewer: _____
Date: 9 SEP 96 AB

COMMENTS DUE-2 WKS: 08/01/96
CLEARANCE DUE DATE: 09/02/96
SAI#: FL9607180575

Message:

STATE AGENCIES	WATER MANAGEMENT DISTRICTS	OPB POLICY UNITS
Community Affairs Environmental Protection Game and Fresh Water Fish Comm Marine Fisheries Commission X State Transportation	Southwest Florida WMD RECEIVED AUG 8 1996 State of Florida Clearinghouse	Environmental Policy/C & ED ALLFLA SAI-EA-CORPS 962676 Xref: 903536

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

— Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.

_X_ Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.

— Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.

— Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:

Department of the Army - Draft - Navigation Study for Tampa Harbor - Big Bend Channel - 10126 - Feasibility Report and Environmental Assessment.

To: Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
(904) 922-5438 (SC 292-5438)
(904) 487-2899 (FAX)

EO. 12372/NEPA	Federal Consistency
☑ No Comment	☑ No Comment/Consistent
☐ Comments Attached	☐ Consistent/Comments Attached
☐ Not Applicable	☐ Inconsistent/Comments Attached
	☐ Not Applicable

RECEIVED
JUL 22 1996
COMPLIANCE & REVIEW SECTION

From:
Division/Bureau: Division of Historical Resources
Reviewer: [signature]
Date: 8/6/96

DATE: 07/18/96
COMMENTS DUE-2 WKS: 08/01/96
CLEARANCE DUE DATE: 09/02/96
SAI#: FL9607180575C

Message:

STATE AGENCIES	WATER MANAGEMENT DISTRICTS	OPB POLICY UNITS
Community Affairs Environmental Protection Game and Fresh Water Fish Comm X Marine Fisheries Commission State Transportation RECEIVED JUL 23 1996 MARINE FISHERIES COMMISSION	Southwest Florida WMD	Environmental Policy/C & ED RECEIVED JUL 30 1996 State of Florida Clearinghouse

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

___ Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.

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___ Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.

___ Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:

Department of the Army - Draft - Navigation Study for Tampa Harbor - Big Bend Channel - 10126 - Feasibility Report and Environmental Assessment.

To: Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
(904) 922-5438 (SC 292-5438)
(904) 487-2899 (FAX)

EO. 12372/NEPA

- ☐ No Comment
- ☐ Comments Attached
- ☐ Not Applicable

Federal Consistency

- ☐ No Comment/Consistent
- ☐ Consistent/Comments Attached
- ☐ Inconsistent/Comments Attached
- ☒ Not Applicable

From: MARINE FISHERIES COMMISSION
2540 EXECUTIVE CENTER CIRCLE WEST
SUITE 106
TALLAHASSEE, FLORIDA 32301

Division/Bureau: _____
Reviewer: _____
Date: 7-26-96

DATE: 07/18/96
COMMENTS DUE-2 WKS: 08/01/96
CLEARANCE DUE DATE: 09/02/96
SAI#: FL9607180575C

Message:

STATE AGENCIES	WATER MANAGEMENT DISTRICTS	OPB POLICY UNITS
Community Affairs Environmental Protection Game and Fresh Water Fish Comm Marine Fisheries Commission State X Transportation	Southwest Florida WMD	Environmental Policy/C & ED

RECEIVED
JUL 22 1996
CENTRAL OFFICE FDOT
ICAR COORDINATOR

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evalutation and is categorized as one of the following:

___ Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.

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Project Description:

Department of the Army - Draft - Navigation Study for Tampa Harbor - Big Bend Channel - 10128 - Feasibility Report and Environmental Assessment.

RECEIVED
AUG 5 1996
State of Florida Clearinghouse

To: Florida State Clearinghouse
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100
(904) 922-5438 (SC 292-5438)
(904) 487-2899 (FAX)

EO. 12372/NEPA

- [x] No Comment
- [ ] Comments Attached
- [ ] Not Applicable

Federal Consistency

- [x] No Comment/Consistent
- [ ] Consistent/Comments Attached
- [ ] Inconsistent/Comments Attached
- [ ] Not Applicable

From:
Division/Bureau: FDOT Rail Office
Reviewer: [illegible] Administrative - Ports/Intermodal
Date: 8/1/96

EXHIBIT IV

COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

TABLE 1-7. RELATIONSHIP OF SELECTED PLANS TO FEDERAL ENVIRONMENTAL PROTECTION STATUTES AND OTHER ENVIRONMENTAL REQUIREMENTS
TAMPA HARBOR - BIG BEND NAVIGATION STUDY, TAMPA, FLORIDA

	Plan 1
Federal Statutes	
Archaeological and Historic Preservation Act, as amended, 16 U.S.C. et seq	Full
Clean Air Act, as amended, 42 U.S.C. 7401 et seq	Full
Clean Water Act, as amended, 33 U.S.C. 1251 et seq	Full
Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq	Full
Federal Water Project Recreation Act, as amended, 16 U.S.C. 4601-12 et seq	Full
Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661 et seq	Full
National Environmental Policy Act of 1969, as amended, 42 U.S.C. 4321 et seq	Full
National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq	Full
Coastal Zone Management Act	Full
Executive Order	
Floodplain Management (E.O. 11988)	Full
Protection of Wetlands (E.O. 11990)	Full

NOTES: For each item listed enter one of the following:

a. Full Compliance. Having met all requirements of the statute, E.O., or other environmental requirements for the current stage of planning (either pre-authorization of post-authorization).
b. Partial Compliance. Not having met some of the requirements that normally are met in the current stage of planning. Partial compliance entries should be explained in appropriate places in the report and/or EA and referenced in the table.

1.0 National Environmental Policy Act of 1969, as amended. This document has been prepared in accordance with CEQ regulation CFR 1500 and Department of the Army Regulation ER 200-2-2. Scoping was conducted notifying the State of Florida, Federal agencies and members of the public of our intentions to study navigation problems within the Tampa Harbor - Big Bend Navigation Channel. The Draft Finding of No Significant Impact and EA was circulated for a period of 30 days starting on 26 June 1996. The study is in full compliance at this time.

2.0. Endangered Species Act of 1973, as amended. Consultation with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) for the purpose of determining if there is any potential impact on threatened or endangered species or critical habitat was conducted, and Exhibit I contains the Section 7 consultation correspondence. Of these species only the manatee was known to inhabit the area. A No Effect determination was reached by the Jacksonville District Office and concurred with by the USFWS. The Biological Opinion is contained within the FWCAR (Exhibit II).

3.0. Fish and Wildlife Coordination Act of 1958, as amended. The project has been thoroughly coordinated with the US Fish and Wildlife Service. A Fish and Wildlife Coordination Act Report was transmitted to this office by letter dated 4 February 1994 (Exhibit II). Their comments were considered in the formulation of the project.

4.0. National Historic Preservation Act of 1966, as amended (PL 89-655). Cultural resource study and coordination with the SHPO is in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, the Archeological and Historic Preservation Act, and Executive Order 11593.

5.0. Clean Water Act of 1972, as amended. Section 401. State Water Quality Certification (WQC) will be sought from the Florida Department of Environmental Protection for the dredging in accordance with the Memorandum of Agreement between the US army Corps of Engineers and the State of Florida during the Detailed Engineering Phase.

6.0. Clean Air Act of 1972, as amended. The Tampa Bay area is an attainment area for the criteria pollutants under the Act and is not governed by a State Implementation Plan (SIP). Since the project area is within an attainment area, the EPA rules for conformity determination do not apply. No air quality permits will be required for this project. The Draft EA will be coordinated with the Hillsborough County, Environmental Protection Commission. Therefore, this project is in compliance with the Act.

7.0. Coastal Zone Management Act of 1972, as amended. The project has been evaluated in accordance with Section 307 of the Coastal Zone Management Act (Appendix V). It has been determined that the project would have no unacceptable impacts and would be consistent with the Florida Coastal Zone Consistency Act. The State was requested to concur in that determination through coordination of EA with the State Clearinghouse. The

State concurred in that determination by letter dated 10 September 1996.

8.0. Wild and Scenic River Act of 1968, as amended. No designated Wild and Scenic river reaches will be affected by project related activities. This act is not applicable.

9.0. Marine Mammal Protection Act of 1972, as amended. The work was coordinated with the US Fish and Wildlife Service during the scoping period and during Section 7 Consultation pursuant to the Endangered Species Act. The West Indian manatee could be located in the project area, but would not be affected. The standard State manatee protection conditions as well as additional special conditions which include a manatee observer and proppelar guards will be implemented during construction.

10.0. Estuary Protection Act of 1968. Tampa Bay is part of the National Estuary Program. The proposed work would not adversely affect this estuary. The Draft Finding of No Significant Impactand EA will be coordinated with the Department of the Interior and the Tampa Bay National Estuary Program.

11.0. Federal Water Project Recreation Act, as amended. Recreation development is authorized and permitted at local flood control projects under Section 4 of the 1944 Flood Control Act, as amended and is further regulated by the Land and Water Conservation Fund Act, the Federal Water Project Recreation Act (P.L. 89-65) and the Water Resources Development Act of 1986. This Act does not apply.

12.0. Resource Conservation and Recovery Act (RCRA) of 1976, (PL 94-580; 7 U.S.C. 100, et seq). The objective of this law is to track hazardous toxic and radiological waste (HTRW) from the time of generation to disposal. The law requires safe and secure procedures to be used in treating, transporting, storing and disposing of hazardous wastes. RCRA is designed to prevent new uncontrolled HTRW sites. It also covers storage and transportation of all identified wastes for disposal during construction of this project. No HTRW are anticipated at the site. Should HTRW be found during construction of this project, it would be disposed of in accordance with all Federal, state and local regulations.

13.0. Toxic Substances Control Act of 1976, (PL 94-469; U.S.C. 2601, et seq. An initial map reconnaissance of the project area, a review of available literature, and a site visit showed no indications of HTRW contaminants within the project corridor. Should HTRW be found during construction of this project, it would be disposed of in accordance with all Federal, state and local regulations. Therefore, the project is in compliance with the Act.

14.0. Archeology and Historic Preservation Act (PL 93-291). The project area has been investigated and no cultural resources have been identified that could be affected by the proposed work. This project has been coordinated with the State Historic Preservation Officer.

15.0. E.O. 11990, Protection of Wetlands. The objective of the Executive Order is to avoid

to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. The selected plan has been evaluated in light of Executive Order 11990 on Protection of Wetlands. No wetlands would be affected by the proposed work. Therefore, the project would be consistent with the goals and intent of the Executive Order.

16.0. E.O. 11988, Floodplain Management. The objective of this Executive Order is to avoid to the extent possible the long and short term adverse impacts associated with occupancy and modification of the floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. No development of the floodplain would occur. Therefore, the Selected Plan is consistent with the objectives of Executive Order 11988 on Flood Plain Management.

EXHIBIT V

COASTAL ZONE CONSISTENCY DETERMINATION

Florida Coastal Zone Management Program
Federal Consistency Evaluation Procedures

1. Chapter 161, Beach and Shore Preservation.

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

> Response: The proposed work project is not located along a beach and dune environment nor would the proposed channel widening effect beach processes. Therefore, this chapter does not apply.

2. Chapters 186 and 187, State and Regional Planning.

These chapters establish the State Comprehensive Plan which sets goals that articulate a strategic vision of the State's future. It's purpose is to define in a broad sense, goals, and policies that provide decision-makers directions for the future and provide long-range guidance for an orderly social, economic and physical growth.

> Response: The proposed work will be coordinated with the State and Regional Planning Office during the NEPA process.

3. Chapter 252, Disaster Preparation, Response and Mitigation.

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

> Response: The dredging of the Big Bend Channel and disposal of material on either Sunken Island, the holes near Whiskey Stump Key, or CMDA-3D would protect the navigation channel which could be used in emergency situations for transportation purposes. Therefore, this work would be consistent with the efforts of Division of Emergency Management.

4. Chapter 253, State Lands.

This chapter governs the management of submerged state lands and resources within state lands. This includes archeological and historical resources; water resources; fish and wildlife resources; beaches and dunes; submerged grass beds and other benthic communities; swamps, marshes and other wetlands;

mineral resources; unique natural features; submerged lands; spoil islands; and artificial reefs.

Response: The use of these State lands has been approved by the State. There are no archeological resources at this site, no seagrass beds, or special aquatic communities. There are manatees located near the project during cooler months at the adjacent power plant, but they should not be affected by the work. In addition the State manatee protection conditions will be implemented to insure that manatees will not be harmed. The dredged material will be placed in disposal areas owned by the Tampa Port Authority. The proposed work would comply with the intent of this chapter.

5. Chapters 253, 259, 260, and 375, Land Acquisition.

This chapter authorizes the state to acquire land to protect environmentally sensitive areas.

Response: Since the affected property already is in public ownership, this chapter would not apply.

6. Chapter 258, State Parks and Aquatic Preserves.

This chapter authorizes the state to manage state parks and preserves. Consistency with this statute would include consideration of projects that would directly or indirectly adversely impact park property, natural resources, park programs, management or operations.

Response: The proposed work would not affect any state parks or preserves, and would, therefore, be consistent with this chapter.

7. Chapter 267, Historic Preservation.

This chapter establishes the procedures for implementing the Florida Historic Resources Act responsibilities.

Response: The dredging has been coordinated with the State Historic Preservation Officer and according to their records no sites listed by the SHPO would be affected by the proposed work. However, should new resources be found the work will cease and the SHPO will be contacted to determine the steps necessary to comply with the Historic Preservation Act. Therefore, the work will be consistent with the goals of this chapter.

8. Chapter 288, Economic Development and Tourism

This chapter directs the state to provide guidance and promotion of beneficial development through encouraging economic diversification and promoting tourism.

Response: The proposed channel widening of the navigation channel encourages the development the Port of Tampa and economic growth of the area. Therefore, the work would be consistent with the goals of this chapter.

9. Chapters 334 and 339, Public Transportation.

This chapter authorizes the planning and development of a safe balanced and efficient transportation system.

Response: The widening of the navigation channel promotes safe commercial navigation within the Big Bend Channel.

10. Chapter 370, Saltwater Living Resources.

This chapter directs the state to preserve, manage and protect the marine, crustacean, shell and anadromous fishery resources in state waters; to protect and enhance the marine and estuarine environment; to regulate fishermen and vessels of the state engaged in the taking of such resources within or without state waters; to issue licenses for the taking and processing products of fisheries; to secure and maintain statistical records of the catch of each such species; and, to conduct scientific, economic, and other studies and research.

Response: The maintenance dredging of this area would not adversely affect saltwater living resources. Based on the overall impacts of the work, the work is consistent with the goals of this chapter.

12. Chapter 372, Living Land and Freshwater Resources.

This chapter establishes the Game and Freshwater Fish Commission and directs it to manage freshwater aquatic life and wild animal life and their habitat to perpetuate a diversity of species with densities and distributions which provide sustained ecological, recreational, scientific, educational, aesthetic, and economic benefits.

Response: No living land or freshwater resources would be impacted by the dredging. Therefore, the work would comply with the goals of this chapter.

13. Chapter 373, Water Resources.

This chapter provides the authority to regulate the withdrawal, diversion,

storage, and consumption of water.

Response: This work does not involve water resources as described by this chapter.

14. Chapter 376, Pollutant Spill Prevention and Control.

This chapter regulates the transfer, storage, and transportation of pollutants and the cleanup of pollutant discharges.

Response: This work does not involve the transportation or discharging of pollutants. Conditions will be placed in the contract to handle any inadvertent spill of pollutants. Therefore, the project would comply with this Act.

15. Chapter 377, Oil and Gas Exploration and Production.

This chapter authorizes the regulation of all phases of exploration, drilling, and production of oil, gas, and other petroleum products.

Response: This work does not involve the exploration, drilling or production of gas, oil or petroleum product and therefore does not apply.

16. Chapter 380, Environmental Land and Water Management.

This chapter establishes criteria and procedures to assure that local land development decisions consider the regional impact nature of proposed large-scale development.

Response: The proposed widening of the navigation channel will be coordinated with the local regional planning commission. Therefore, the work would be consistent with the goals of this chapter.

17. Chapter 388, Arthropod Control.

This chapter provides for a comprehensive approach for abatement or suppression of mosquitoes and other pest arthropods within the state.

Response: The work would not further the propagation of mosquitoes or other pest arthropods.

18. Chapter 403, Environmental Control.

This chapter authorizes the regulation of pollution of the air and waters of the state by the DEP.

Response: A water quality certification will be requested from the DEP in accordance with the Memorandum of Agreement between the State of Florida and the US Army Corps of Engineers for the dredging. No air pollution permits are necessary for the project. Effects of the operation of construction equipment on air quality would be minor. Therefore, the work is complying with the intent of this chapter.

19. Chapter 582, Soil and Water Conservation.

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

Response: The proposed work is not located near or on agricultural lands. Conditions will be placed in the contract to control erosion of upland disposal areas. Therefore, the project would comply with this chapter.

EXHIBIT VI

SECTION 404(b)(1) EVALUATIONS

SECTION 404(b)(1) EVALUATION
DREDGED MATERIAL

I. Project Description

a. Location. Tampa Harbor, Big Bend Navigation Project, Hillsborough County, Florida.

b. General Description. Sunken Island Disposal. This alternative is a one time only proposal. It is considered a beneficial use of dredged material as defined by Section 204 of the Water Resources Development Act of 1992. The materials could come from either the construction of the new channel or periodic maintenance of the channel. Approximately 95,000 CY of material is needed for the west and northwest banks of the island to mitigate erosion. Placement would be along roughly 3200 feet of shoreline to extend the shoreline outward an average of 100 feet at an elevation of 3 feet above mlw. The land would then be graded from a land surface elevation of +3 feet above mlw to a bay bottom elevation of about 5 feet below mlw. Figure F-4, Appendix F, provides a cross section of the shoreline extension. Material placed in that area is still susceptible to continued erosion. *Spartina alternaflora* would be used to provide vegetative stabilization to the shoreline. The south side of the island would be extended with one or two sawtooth-shaped land areas. Development of those land areas would require an estimated 310,000 CY to raise the existing bay bottom of 5 feet below mlw to land surface elevation of 5 feet above mlw. *Spartina sp.* plants would be planted along 2700 feet of shoreline on the eastern and southeastern banks of the sawtooth land area(s). The planting zone for *Spartina sp.* would extend from the shoreline to about 50 feet off shore. Mangroves stands are expected to rapidly develop in the Spartina planting areas. The elevation of the bay bottom adjacent to the sawtooth-shaped land areas would be raised to create shallow bay areas suitable for the development of mudflats and marsh habitats. That filling would require an estimated 140,000 CY to raise the bay bottom from 5 feet below mlw. The resulting bay depth would be 1 to 2 feet below mlw. Plan and cross sectional views of the sawtooth extension(s) and adjacent bay areas are in Figure F-4, Appendix F. Dredged material from Big Bend would be pumped a distance of about 3 miles to Sunken Island. Material may need to be stock-piled to facilitate the construction process. Silt curtains would be used to control the level of turbidity entering the bay. Specialized construction equipment may be required, such as hydraulic amphibious excavators. Work would be scheduled to avoid the migratory bird nesting season (1 February-31 August) for the island.

c. Authority and Purpose. The present study is authorized by Senate and House Resolutions adopted 29 May 1979 and 14 November 1979, respectively. These resolutions request review of the Chief of Engineer's report on Tampa Harbor, Florida, printed in House Document 401, 91st Congress, 2nd Session, and other

pertinent reports, with a view of determining if the authorized project should be modified in any way at this time, with particular reference to improvement and maintenance of the existing local project for Big Bend Channel.

d. General Description of Dredged or Fill Material

(1) General Characteristics of Material. The channel bottom is underlain by unconsolidated materials consisting of sand, silt, clay and shell. Tests indicate the presence of compact, hard limestone layers and lenses of variable hardness and thickness.

(2) Quantity of Material. Approximately 95,000 CY of material is needed for the west and northwest banks of the island to mitigate erosion. Development of those land areas would require an estimated 310,000 CY. And bay bottom filling would require an estimated 140,000 CY to raise the bay bottom from 5 feet below mlw.

(3) Source of Material. The dredged material would come from the Big Bend Navigation channel.

e. Description of the Proposed Discharge Site.

(1) Size and Location. A small island known as Sunken or "Bird" Island located next to the Alafia River Navigation Channel.

(2) Type of Site. A former disposal island that has been colonized by trees and shrubs.

(3) Type of Habitat. The area is an island having bird nesting colonies on it. There is sand beach and emergent wetlands around the fringe.

(4) Timing and Duration of Discharge. The work would likely take 3 months to construct. The work would be scheduled outside the bird nesting season for the island (1 February-31 August).

f. Description of Disposal Method. The material would be slurried and pumped to the site through a pipeline.

II. Factual Determinations

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The substrate ranges from -5 feet mlw to 0 feet mlw. The slope is gentle.

(2) Sediment Type. The bottom is sand that was deposited from former dredging episodes.

(3) Dredged/Fill Material Movement. The material would be subject to the erosive forces of the wind and wave action of the Bay.

(4) Physical Effects on Benthos. The material would eliminate the benthic organisms but would be easily recolonized.

(5) Other Effects. None.

(6) Actions Taken to Minimize Impacts. Double silt curtains would be used to minimize the turbidity.

b. Water Circulation, Fluctuation and Salinity Determinations

(1) Water

(a) Salinity. No impacts to salinity at disposal site.

(b) Water Chemistry. None

(c) Clarity. Temporary increase in turbidity during construction.

(d) Color. None

(e) Odor. The disposal site is located adjacent to uninhabited areas and any odors will be temporary. The effluent return to the Bay should have little or no odor and is not expected to cause either short of long-term odor problems in the Gulf.

(f) Taste. Not applicable.

(g) Dissolved Gas Levels. None.

(h) Nutrients. None.

(i) Eutrophication. None.

(2) Current Patterns and Circulation. None.

(3) Normal Water Level Fluctuations. None.

(4) Salinity Gradients. None.

(5) Actions That Will Be Taken to Minimize Impacts. The disposal site will be operated to maintain state water quality standards.

c. Suspended Particulate/Turbidity Determinations

(1) Expected Changes in Suspended Particulate and Turbidity Levels in Vicinity of Disposal Site. There will be a short-term substantial increase in the suspended particulate/turbidity in the disposal area. Levels would be controlled to meet state standard.

(2) Effects (degree and duration) on Chemical and Physical values

(a) Light penetration. Light penetration reduction will be temporarily experienced at the disposal site.

(b) Dissolved Oxygen. None.

(c) Toxic Metals and Organics. None.

(d) Pathogens. Not Applicable.

(e) Aesthetics. Since the construction areas are removed from areas of human habitation, there would be relatively no impact on aesthetics.

(f) Others as Appropriate. None.

(3) Effects on Biota (consider environmental values in sections 230.21, as appropriate)

(a) Primary Production, Photosynthesis. Photosynthesis would be substantially reduced within the disposal area.

(b) Suspension/Filter Feeders. Little or no impact is expected.

(c) Sight Feeders. Little or no impact is expected.

(4) Actions taken to Minimize Impacts. None is required.

d. Contaminant Determinations. No sources of pollution have

been identified in the project area, therefore, no contaminants are expected to be encountered.

e. Aquatic Ecosystem and Organism Determinations

(1) Effects on Plankton. No significant effects.

(2) Effects on Benthos. There would be no significant impacts on benthos in the disposal.

(3) Effects on Nekton. None.

(4) Effects on Aquatic Food Web. There would be no significant impact on the aquatic food web within the area of impact.

(5) Effects on Special Aquatic Sites.

(a) Sanctuaries and Refuges. Not applicable.

(b) Wetlands. There would be an increase in wetland habitat created.

(c) Mud Flats. None.

(d) Vegetated Shallows. None would be affected.

(e) Coral Reefs. None.

(f) Riffle and Pool Complexes. Not applicable.

(6) Threatened and Endangered Species. There would be no affects on manatees because standard state and federal conditions for dredging will be implemented to protect the manatees.

(7) Other Wildlife. There would be an increase in the amount of migratory bird nesting habitat.

(8) Actions to Minimize Impacts. Work schedules would try to avoid migratory bird nesting periods. However, should the dredging be delayed precautions will be taken to avoid impacting nesting until the project is complete. Also precautions will also be taken to avoid impacting manatees within the work area.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination. Not applicable.

(2) Determination of Compliance with Applicable Water Quality Standards. The discharge return water must comply with State water quality standards.

(3) Potential Effects on Human Use Characteristic

(a) Municipal and Private Water Supply. Not applicable.

(b) Recreational and Commercial Fisheries. None.

(c) Water Related Recreation. None.

(d) Aesthetics. Short-term minor impact during construction period.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. None.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. None are apparent.

h. Determination of Secondary Effects on the Aquatic Ecosystem. Not applicable.

SECTION 404(b)(1) EVALUATION
DREDGED MATERIAL

I. Project Description

a. Location. Tampa Harbor, Big Bend Navigation Project, Hillsborough County, Florida.

b. General Description. Whiskey Stump Key Disposal. This alternative is a one time only proposal. It is considered a beneficial use of dredged material as defined by Section 204 of the Water Resources Development Act of 1992. The materials could come from either the construction of the new channel or periodic maintenance of the channel. Two large holes and one small hole exsit on the east and west side of Whiskey Stump Key shown on Figure F-3, Appendix F. The holes were apparently dredged for fill material and they cover an area of about 53 acres. The holes have existing depths around 12 feet below mlw. The plan is to fill the holes to a depth of 1 foot below mlw. To help reduce the level of impact, several measures would be taken in the discharge area. Double silt curtains will be required to keep unacceptable levels of turbidity from entering the surrounding bay area. The discharge pipe would be positioned near the bottom of the holes to minimize the volume of fines in suspension. Pumping rates would be reduced to provide more time for fines to settle and consolidate. A spreader head would be attached to the end of the discharge pipe to help distribute the capping material more uniformly over the fines, minimizing the heaving effect. Pumping rates would be reduced to provide more time for fines in the material to settle and consolidate. A small channel 2 to 6 feet in depth, located south of the holes, would remain to permit shallow draft vessal access.

c. Authority and Purpose. The present study is authorized by Senate and House Resolutions adopted 29 May 1979 and 14 November 1979, respectively. These resolutions request review of the Chief of Engineer's report on Tampa Harbor, Florida, printed in House Document 401, 91st Congress, 2nd Session, and other pertinent reports, with a view of determining if the authorized project should be modified in any way at this time, with particular reference to improvement and maintenance of the existing local project for Big Bend Channel.

d. General Description of Dredged or Fill Material

(1) General Characteristics of Material. The channel bottom is underlain by unconsolidated materials consisting of sand, silt, clay and shell. Tests indicate the presence of compact, hard limestone layers and lenses of variable hardness and thichness.

(2) Quantity of Material. Filling the holes will require about 950,000 CY

of material.

(3) Source of Material. The dredged material would come from the Big Bend Navigation channel.

e. Description of the Proposed Discharge Site.

(1) Size and Location. The holes cover 53 acres.

(2) Type of Site. Former dredge borrow sites.

(3) Type of Habitat. The sites are bay bottom that act like asilt and sediment trap.

(4) Timing and Duration of Discharge. The dredging and disposal will take approximately 3 months to accomplish. No time frame has been established.

f. Description of Disposal Method. The material would be slurried and pumped to the site through a pipeline. Double silt curtains would likely be required to control turbidity.

II. Factual Determinations

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The bottom is flat and has a bottom elevation of -12 feet mlw.

(2) Sediment Type. Silty bottom.

(3) Dredged/Fill Material Movement. The dredged material would be confined to the holes. There is no significant tidal currents in the area to cause shifting of the material once it is in place.

(4) Physical Effects on Benthos. It would cover the bottom benthic organisms in the bottom sediments.

(5) Other Effects. None.

(6) Actions Taken to Minimize Impacts. None.

b. Water Circulation, Fluctuation and Salinity Determinations

(1) Water

(5) Effects on Special Aquatic Sites.

(a). Sanctuaries and Refuges. None.

(b) Wetlands. None.

(c) Mud Flats. None.

(d) Vegetated Shallows. None would be affected.

(e) Coral Reefs. None.

(f) Riffle and Pool Complexes. Not applicable.

(6) Threatened and Endangered Species. There would be no affects on manatees because standard state and federal conditions for dredging will be implemented to protect the manatees.

(7) Other Wildlife. None.

(8) Actions to Minimize Impacts. Also precautions will also be taken to avoid impacting manatees within the work area.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination.

(2) Determination of Compliance with Applicable Water Quality Standards. The discharge return water must comply with State water quality standards.

(3) Potential Effects on Human Use Characteristic

(a) Municipal and Private Water Supply. None.

(b) Recreational and Commercial Fisheries.
Immediate impacts to commercial fisheries resources will be insignificant. Long-term, this could benrefit recreational fisheries.

(c) Water Related Recreation. Reduced recreational boating in the disposal area.

(d) Aesthetics. Tempoaray construction impacts.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. None.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. None are apparent.

h. Determination of Secondary Effects on the Aquatic Ecosystem. Not applicable.

(a) Salinity. No impacts to salinity at disposal site.

(b) Water Chemistry. No impacts.

(c) Clarity. Temporary increase in turbidity during construction.

(d) Color. No impacts

(e) Odor. None.

(f) Taste. Not applicable.

(g) Dissolved Gas Levels. D.O. levels may be temporarily depressed during construction.

(h) Nutrients. None.

(i) Eutrophication. None.

(2) Current Patterns and Circulation. None.

(3) Normal Water Level Fluctuations. Not applicable.

(4) Salinity Gradients. Not applicable.

(5) Actions That Will Be Taken to Minimize Impacts. The disposal site will be operated to maintain state water quality standards.

c. Suspended Particulate/Turbidity Determinations

(1) Expected Changes in Suspended Particulate and Turbidity Levels in Vicinity of Disposal Site. There will be a short-term increase in the suspended particulate/turbidity in the disposal area. Double turbidity curtains would likely be required to control levels outside the site. Levels should not exceed state standard.

(2) Effects (degree and duration) on Chemical and Physical values

(a) Light penetration. Light penetration reduction will be temporarily experienced at the disposal site.

(b) Dissolved Oxygen. D.O. levels may be temporarily lowered

construction with D.O. levels rapidly returning to normal after construction ceases.

(c) Toxic Metals and Organics. None.

(d) Pathogens. Not Applicable.

(e) Aesthetics. A turbidity plume will be generated within the disposal site but will be removed from most human observation.

(f) Others as Appropriate. None.

(3) Effects on Biota (consider environmental values in sections 230.21, as appropriate)

(a) Primary Production, Photosynthesis. None.

(b) Suspension/Filter Feeders. Little or no impact is expected outside the disposal area.

(c) Sight Feeders. Little or no impact is expected outside the disposal area.

(4) Actions taken to Minimize Impacts. Double turbidity curtains would be required.

d. Contaminant Determinations. No sources of pollution have been identified in the project area, therefore, no contaminants are expected to be encountered.

e. Aquatic Ecosystem and Organism Determinations

(1) Effects on Plankton. No significant effects.

(2) Effects on Benthos. There would be significant impacts on benthos in the disposal area.

(3) Effects on Nekton. None.

(4) Effects on Aquatic Food Web. There would be no significant impact on the aquatic food web within the area of impact. In the long-term, there would be a benefit to the food chain by providing additional increased water quality.