30 Sept. 1991

MARSH CREATION

BARATARIA BAY WATERWAY MAINTENANCE DREDGING
JEFFERSON PARISH, LOUISIANA

Candidate Project
for the
Priority Project List
of the
Coastal Wetlands Planning, Protection, and Restoration Act

PROPOSED BY

U. S. Army Engineer District, New Orleans

August 1991

POINT OF CONTACT: David Carney
PHONE: (504) 862-2528

COASTAL WETLANDS PLANNING, PROTECTION, AND RESTORATION ACT

CANDIDATE PROJECT FACT SHEET

MARSH CREATION

BARATARIA BAY WATERWAY MAINTENANCE DREDGING JEFFERSON PARISH, LOUISIANA

PROJECT DESCRIPTION

a. Location:

The proposed project is located in Jefferson Parish Louisiana. The planned work consists of using sediments dredged for maintenance of the Barataria Bay Waterway between mile 0 at Barataria Pass, and mile 16, near Bayou St. Denis. The proposed project would consist of creating marshes at several individual sites along some 16 miles of the waterway. Maps showing the locations of the proposed marsh creation sites are attached.

b. Justification:

The reach of the Barataria Bay Waterway which traverses the open waters of Barataria Bay must be dredged for maintenance at about four-year intervals. Currently sediments taken from the waterway is placed in designated disposal areas adjacent to the waterway. With implementation of the current proposal this material would be used beneficially to create new marsh and nourish existing marsh near the waterway.

c. Objective: The project objective is to create vegetated wetland using sediments dredged for normal maintenance of the Barataria Bay Waterway.

d. Project Features:

This alternative would involve using sediments dredged for maintenance of the Barataria Bay Waterway to create marsh in shallow water areas adjacent to the channel. Eighteen marsh development areas, ranging in size from about 15 to about 133 acres, are proposed between Mile 0 (at Barataria Pass) and Mile 16 of the waterway (near Bayou St. Denis).

The channel is dredged for maintenance at about four-year intervals; consequently, over the 20 year life of the project, channel dredging would be performed about five times. On average, approximately 1,740,000 cubic yards of dredged material are excavated and placed in disposal areas within the project reach during each dredging cycle. Hydraulic cutter-head dredges and bucket dredges are currently used to excavate the material. Bucket dredges place material in designated disposal areas on both sides of the channel. The hydraulic cutter-head dredges place material in three designated confined disposal areas on the east side of the channel.

With this proposal, hydraulic cutter-head dredges would be use, exclusively, for maintenance of the waterway. Dredged material from maintenance of the waterway would be placed in shallow water areas on both sides of the channel at an elevation conducive to marsh development. The marsh development areas would be confined to avoid affecting producing oyster beds located in Barataria Bay. Typical confinement would consist of three to five-foot high soil dikes.

PROJECT DESCRIPTION (Continued)

Dredged sediments would be placed to an elevation of +4.0 feet NGVD. After consolidation a final design elevation of +2.0 feet NGVD would be obtained. Approximately six months of pumping time would be required for the dredged material placement. An additional twelve months would be required for consolidation of the dredged material to about elevation 2.0 feet NGVD.

To create marsh, dredged material must be pumped greater distances than would be the case for normal maintenance of the waterway. Consequently, additional costs over present maintenance costs would be incurred.

The proposed marsh development sites located adjacent to the Barataria Bay Waterway are shown on the attached plates.

ANTICIPATED BENEFITS

Project implementation would create approximately 450 acres of saline and brackish marsh over the 20 year life of the proposed project.

ANTICIPATED ADVERSE EFFECTS

Approximately 450 acres of open water habitat would be converted to emergent wetland. Some designated oyster lease areas, that are currently not productive, could be removed from potential production by converting shallow open water to vegetated wetland.

No other coastal wetlands or wetland habitats would be adversely affected. The proposed project would not conflict with other known wetland creation or protection projects or programs in coastal Louisiana.

COSTS

a.	Engineering and design.	$5,000
b.	Supervision and administration of engineering and design.	(included in E&D)
c.	Project construction.	$184,000
d.	Supervision and inspection of construction contract(s).	$19,000
e.	Operation and maintenance (average annual costs and duration in years).	$55,000 (20 years)
f.	Project monitoring.	
g.	Source(s) of the cost estimates. Land Loss and Marsh Creation Feasibility Study	

STATUS OF ENVIRONMENTAL COMPLIANCE

a. NEPA.	Incomplete
b. Sections 10/404.	Incomplete
c. Louisiana Coastal Management Program.	Incomplete
d. Louisiana Water Quality Certification.	Incomplete
e. Endangered Species Act.	Incomplete

The impacts of the proposed project have been addressed in a Draft EIS that is awaiting approval for release for public review.

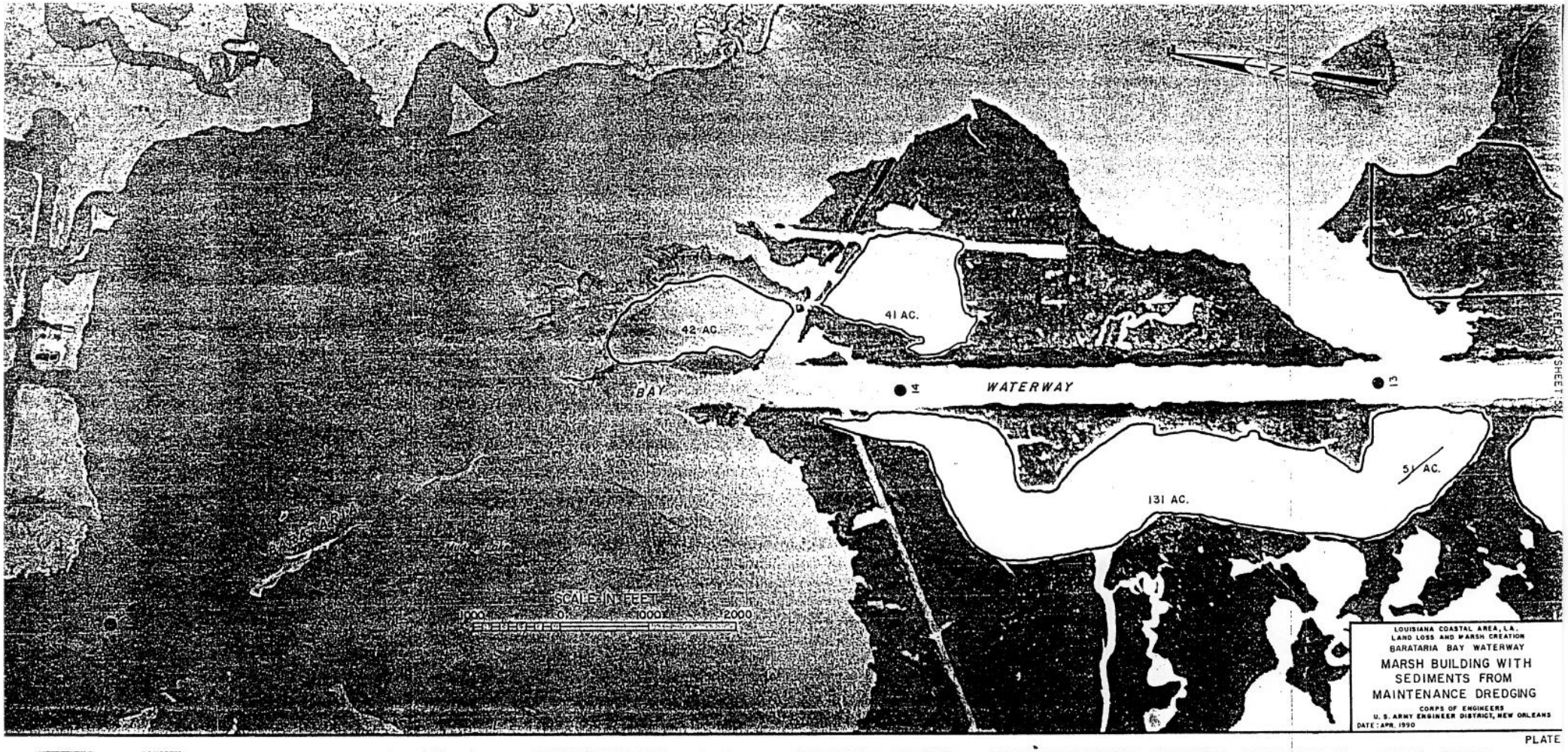
PROJECT IMPLEMENTATION SCHEDULE

a. Engineering and design start date:	November 1993
b. Engineering and design finish date:	July 1994
c. Construction start date:	August 1994
d. Construction finish date:	November 1994

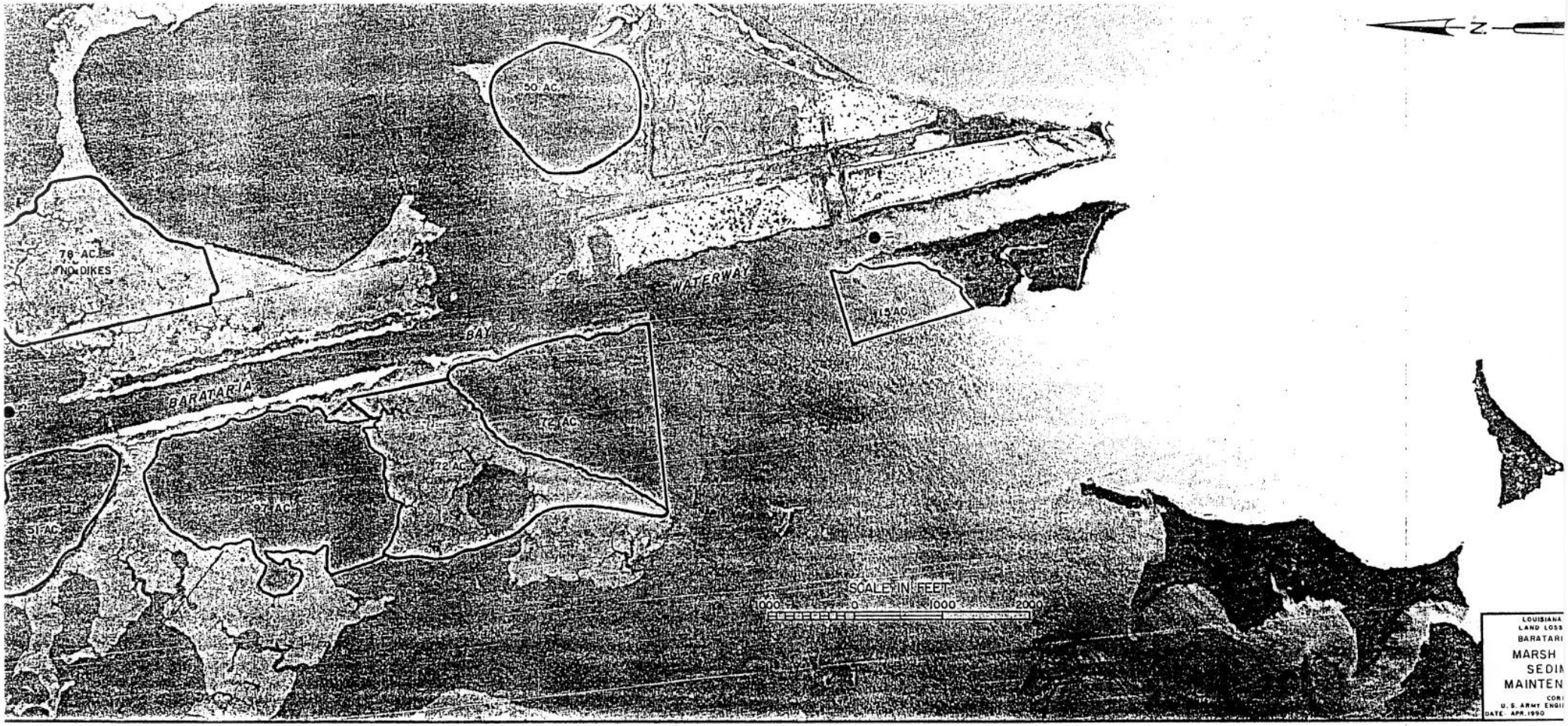
POTENTIAL FUNDING SOURCES

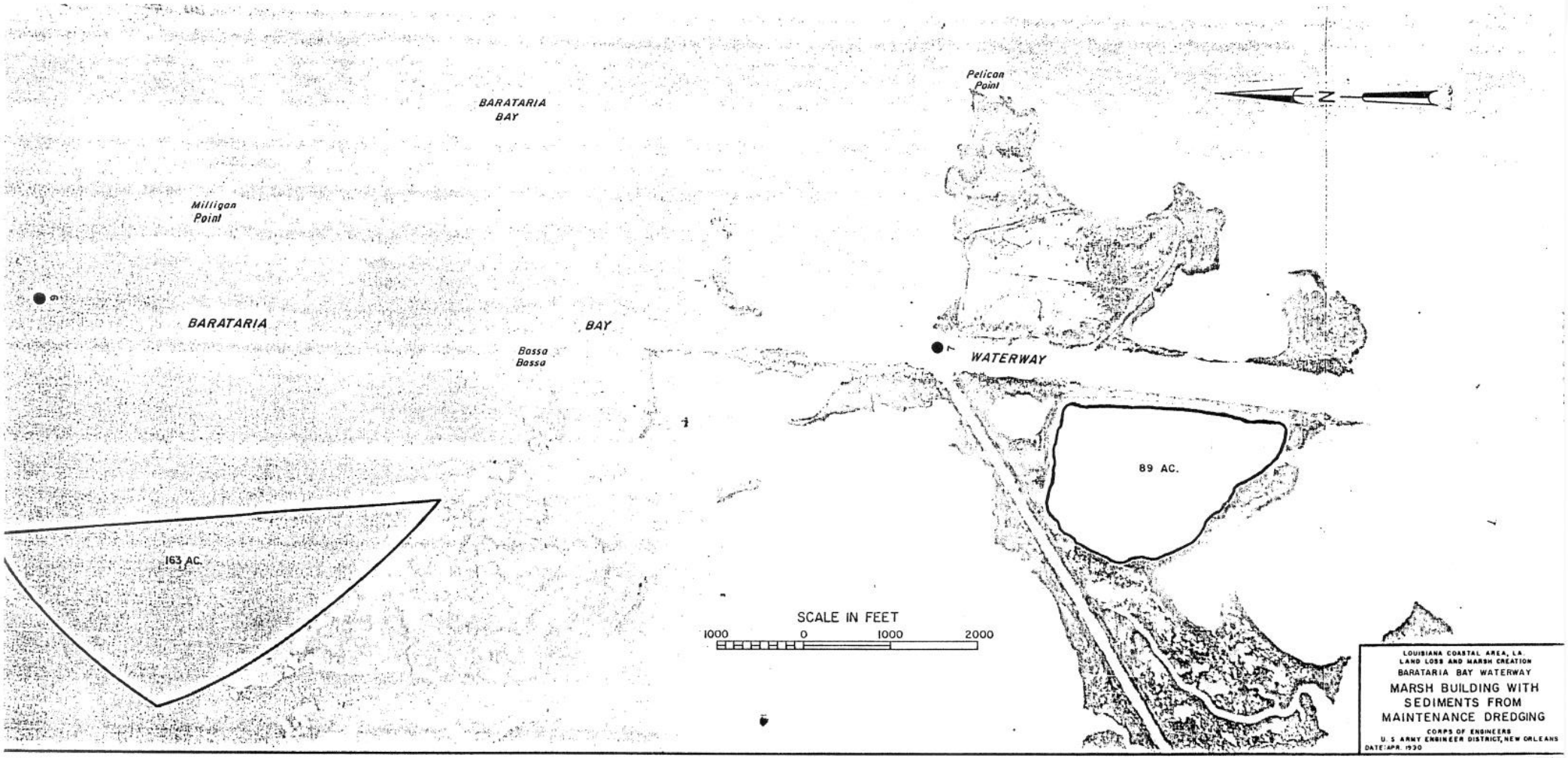
a. Federal funding source(s): Coastal Wetlands Planning, Protection, and Restoration Act.

b. Non-federal funding source(s): State of Louisiana.

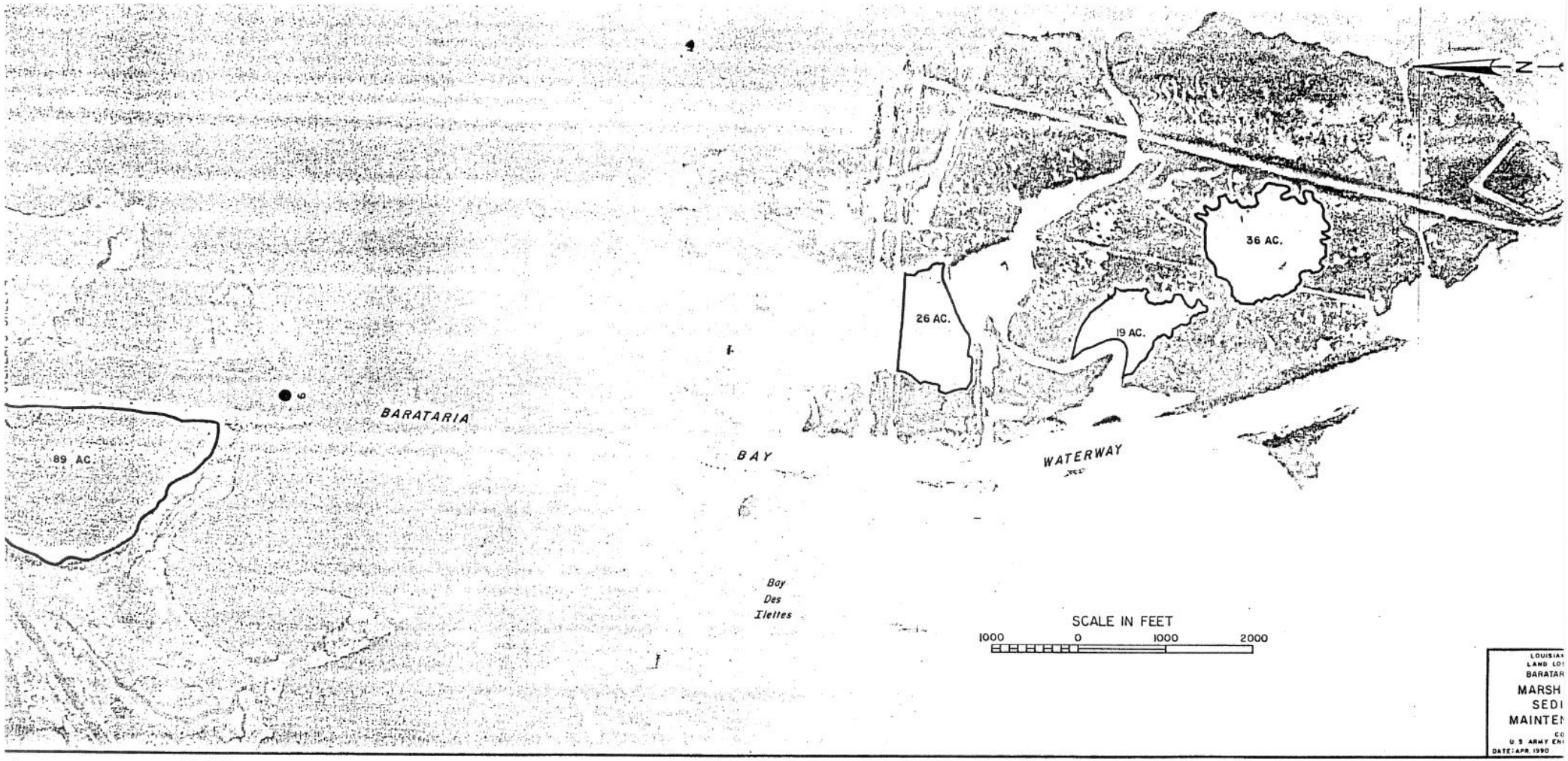

41 AC.
42 AC.
BAY
WATERWAY
51 AC.
131 AC.
SCALE IN FEET
1000
0
1000
2000
LOUISIANA COASTAL AREA, LA.
LAND LOSS AND MARSH CREATION
BARATARIA BAY WATERWAY
MARSH BUILDING WITH
SEDIMENTS FROM
MAINTENANCE DREDGING
CORPS OF ENGINEERS
U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
DATE: APR. 1990

PLATE


N
50 AC.
70 AC.
NO DIKES
WATERWAY
BAY
BARATARIA
115 AC.
72 AC.
72 AC.
97 AC.
51 AC.
SCALE IN FEET
1000
0
1000
2000
LOUISIANA
LAND LOSS
BARATARI
MARSH
SEDIM
MAINTEN
CORI
U. S. ARMY ENGI
DATE APR. 1990


BARATARIA BAY
Pelican Point
N
Milligan Point
BARATARIA
BAY
Bassa Bassa
WATERWAY
89 AC.
163 AC.
SCALE IN FEET
1000 0 1000 2000
LOUISIANA COASTAL AREA, LA.
LAND LOSS AND MARSH CREATION
BARATARIA BAY WATERWAY
MARSH BUILDING WITH SEDIMENTS FROM MAINTENANCE DREDGING
CORPS OF ENGINEERS
U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
DATE: APR. 1930

PLAT


N
36 AC.
26 AC.
19 AC.
89 AC.
BARATARIA
BAY
WATERWAY
Bay
Des
Ilettes
SCALE IN FEET
1000
0
1000
2000
LOUISIA
LAND LO
BARATAR
MARSH
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U S ARMY EN
DATE: APR. 1990

COASTAL WETLANDS PLANNING, PROTECTION, AND RESTORATION ACT

Project Information Sheet

Project Name: **Barataria Bay Waterway Maintenance Dredging**

Project Area Size (acres): 510 acres

Submitted By: **U. S. Army Engineer District, New Orleans**

Marsh Type: Saline Acres: 510 open water

Present Conditions

1. Acres of vegetated marsh and listing of most common plant species present.

There is no marsh present in the marsh development site. Adjacent marsh is S. alterniflora, S. patens, Distichlis, and Baccharis.

2. Acres of open water.

There are about 510 acres of open water at the proposed project site.

3. Percent open water area listed in Item 2 dominated (greater than 50% canopy coverage) by aquatic plants.

None.

4. Historical information on marsh loss trends (provide references, if available, or methods used to derive information given).

Marsh loss is primarily due to erosion.

5. Brief summary of significant historical hydrologic changes.

The Barataria Bay Waterway completed in 1963.

6. Shoreline erosion rate (provide reference if available).

Varies depending on specific area.

7. Percent of open water area in the following depth categories:

Saline Marsh

less than 1.0 foot:	10%	(51 acres)
between 1.0 and 1.5 feet:	20%	(102 acres)
between 1.5 and 4.0 feet:	55%	(208 acres)
greater than 4.0 feet:	15%	(77 acres)

Project Name: **Barataria Bay Waterway Maintenance Dredging**

Project Area Size (acres): 510 acres

Submitted By: **U. S. Army Engineer District, New Orleans**

8. Available historical salinity data, including period of record, sampling location(s) in relation to project area.

Average annual salinity at Barataria Pass is 22 parts per thousand (ppt), 15.1 ppt at St. Mary's Point, and 10.5 ppt at Mud Lake.

9. Location, type and operation schedule (if applicable) of existing permitted and not permitted structures.

None.

10. If there is an existing management plan for the area, is it permitted? Provide copy of operational scheme and permit number.

No.

11. Location of structures, culverts, breaks in spoil banks, etc., that serve as hydrologic connections and are not identified above or are <u>not</u> easily seen by examination of aerial photography.

N/A.

12. Estimated subsidence rate (provide references if available).

The estimated rate that created marsh will be loss is 1.1 acres per year.

<u>Future Conditions</u>

1. Location, type, and operation of <u>proposed</u> structures and water control systems, including plugs.

Low-level earthen dikes would be constructed along the perimeter of the marsh creation sites facing open water. These dikes would be breached once the sediments consolidate.

2. Proposed hydrologic changes (water introductions, circulation routes, etc.) due to the project

Low-level earthen dikes would be used to contain dredged material to prevent damage to adjacent oyster leases.

3. Benefits of the project:

a. Acres of emergent marsh predicted to be gained/lost without project.

None.

Project Name: **Barataria Bay Waterway Maintenance Dredging**

Project Area Size (acres): 510 acres

Submitted By: **U. S. Army Engineer District, New Orleans**

b. Acres of emergent marsh predicted to be gained/lost with project.

Approximately 445 acres of wetland would be created with project implementation (net acres at the end of the project life).

c. Acres of open water aquatic vegetation predicted to be gained/lost without project.

None.

d. Acres of open water aquatic vegetation predicted to be gained/lost with project.

None.

4. Predicted plant species composition of marsh, for future-with and future-without project (general, in terms of dominant species).

Same as present.

5. Estimate of open water area in depth categories, future-with and future without project (use appropriate depth categories as shown under Item 7, Present Conditions).

Saline Marsh	Future Without Project		Future With Project	
less than 1.0 foot:	0%	(0 acres)	100%	(64 acres)
between 1.0 and 1.5 feet:	20%	(102 acres)	0%	(0 acres)
between 1.5 and 4.0 feet:	55%	(280.5 acres)	0%	(0 acres)
greater than 4.0 feet:	15%	(76.5 acres)	0%	(0 acres)

6. Predicted salinities, future-with and future-without project.

Same as present.

9-28-91 REVISED 9-28-91
BARATARIA BAY WATERWAY

0.0875	0.1076	WITH PROJECT YEAR	ACRES	HSI	HU'S	PV HU'S	WITHOUT PROJECT YEAR	ACRES	HSI	HU'S	PV HU'S		NET HU'S	PV NET HU'S	NET ACRES	PV NET ACRES
		0	510	0.38049	194.05	194.05	0	510	0.38049	194.05	194.05	0	0	0	0	0
-0.5	0.95893	1	510	0.36841	187.89	180.17	1	510	0.38049	194.05	186.08	1	(6)	(6)	0	0
-1.5	0.88177	2	510	0.42181	215.13	189.69	2	510	0.38049	194.05	171.11	2	21	19	24	21
-2.5	0.81082	3	510	0.47522	242.36	196.51	3	510	0.38049	194.05	157.34	3	48	39	48	39
-3.5	0.74559	4	510	0.52862	269.60	201.01	4	510	0.38049	194.05	144.68	4	76	56	72	53
-4.5	0.68560	5	510	0.58202	296.83	203.51	5	510	0.38049	194.05	133.04	5	103	70	95	65
-5.5	0.63043	6	510	0.61057	311.39	196.31	6	510	0.38049	194.05	122.34	6	117	74	119	75
-6.5	0.57971	7	510	0.63913	325.96	188.96	7	510	0.38049	194.05	112.49	7	132	76	142	82
-7.5	0.53307	8	510	0.66768	340.52	181.52	8	510	0.38049	194.05	103.44	8	146	78	165	88
-8.5	0.49018	9	510	0.69624	355.08	174.05	9	510	0.38049	194.05	95.12	9	161	79	189	92
-9.5	0.45074	10	510	0.71402	364.15	164.14	10	510	0.37935	193.47	87.20	10	171	77	211	95
-10.5	0.41447	11	510	0.73181	373.22	154.69	11	510	0.37822	192.89	79.95	11	180	75	232	96
-11.5	0.38112	12	510	0.74960	382.30	145.70	..	510	0.37708	192.31	73.29	12	190	72	254	97
-12.5	0.35046	13	510	0.76739	391.37	137.16	13	510	0.37594	191.73	67.19	13	200	70	276	97
-13.5	0.32226	14	510	0.77981	397.70	128.16	14	510	0.37594	191.73	61.79	14	206	66	297	96
-14.5	0.29633	15	510	0.79223	404.03	119.73	15	510	0.37594	191.73	56.82	15	212	63	318	94
-15.5	0.27249	16	510	0.80464	410.37	111.82	16	510	0.37594	191.73	52.24	16	219	60	339	92
-16.5	0.25056	17	510	0.81706	416.70	104.41	17	510	0.37594	191.73	48.04	17	225	56	360	90
-17.5	0.23040	18	510	0.80417	410.13	94.49	18	510	0.37594	191.73	44.18	18	218	50	385	89
-18.5	0.21186	19	510	0.79129	403.56	85.50	19	510	0.37594	191.73	40.62	19	212	45	410	87
-19.5	0.19482	20	510	0.72780	371.18	72.31	20	510	0.37594	191.73	37.35	20	179	35	445	87
		TOTAL YEARS 1-20			6,869.46	3,029.84	TOTAL YEARS 1-20			3,858.96	1,874.31		3,010.50	1,155.53	4,380.79	1,535.96
					0.05	0.1076 I&A,20,8-3/4%				0.05	0.1076 I&A,20,8-3/4%		0.05	0.1076	0.05	0.1076
					343.47	326.01 AAHU WITH PROJ				192.95	201.68 AAHU W/O PROJ		150.53	124.34	219	165

FUTURE WITH		FUTURE WITHOUT		BENEFIT
343.47	MINUS	192.95	EQUALS	150.53 AAHU BENEFIT UNDISCOUNTED
326.01	MINUS	201.68	EQUALS	124.34 AAHU BENEFIT DISCOUNTED

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Wetland Value Assessment Worksheet

Project: Barataria Bay Waterway (Inland) **Date:** 13 Sept 91

Condition: FWOP

Saline

TY	V_1	V_2	V_3	V_4	V_5	V_6	V_7
0	0% SI=.1	0% SI=.6	Class 4 SI=.2	Class 1 SI=1.0	10% 51 20% 102 55% 280.5 15% 76.5 SI= .53	Av. Ann. Sal. = 16.25‰ SI= 1.0	Open Access SI=1.0
1	↓	↓	↓	↓	↓	↓	↓
5	↓	↓	↓	↓	5% 25.5 25% 127.5 50% 255 20% 102 SI= .53	↓	↓
9	↓	↓	↓	↓	↓	↓	↓
13	↓	↓	↓	↓	0% 20% 55% 25% SI= .47	↓	↓
17	↓	↓	↓	↓	↓	↓	↓
20							

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Wetland Value Assessment Worksheet

Project: Barataria Bay Waterway (Inland) **Date:** 13 Sept 91

Condition: FWP

Saline

TY	V_1	V_2	V_3	V_4	V_5	V_6	V_7
0	0% SI=.1	0% SI=.6	Class 4 SI=.2	Class 1 SI=1.0	10% (51) 20% (102) 55% (280.5) 15% (76.5)	Avg. Ann. Sal.= 16.25‰ SI=1.0	Open Access SI=1.0
1	0%		Ø Ø Ø 510 4	490 15 5	42 82 224 61		459 acres at 1.0 51 acres at 0.0
5	95.4/510 18.7%		Ø Ø 102 408 SI = 0.26	469 31 10	22 77 153 61		
9	188.6/510 37.0%		Ø Ø 204 306 SI = 0.32	449 46 15	26 51 102 41		
13	276.3/510 54.2%		Ø 102 306 204 204 SI = 0.44	428 61 21	30 20 56 26		
17	359.6/510 70.5%		102 204 102 102 SI = 0.66	408 77 25	48 Ø Ø Ø		
20	445.1/510 87.3%		102 204 204 Ø SI = 0.72	408 77 25	64.9 Ø Ø Ø		