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United States Department of the Interior

FISH AND WILDLIFE SERVICE
P.O. Box 1306
Albuquerque, New Mexico 87103

In Reply Refer To:
R2/FA

December 11, 1997

File No Sketch File 80
Nueces County
Shamrock Island - Protection & Restoration
Filed March 2 19 98
GARRY MAURO, Com'r
By Douglas Howard

Andrew Sansom, Executive Director
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, Texas 78744

ATTN: N. Joyce Johnson, Federal Aid Coordinator

Dear Mr. Sansom:

We are pleased to advise you that the Texas proposal for funding under the National Coastal Wetlands Grant Program has been approved. The Protection and Restoration of Shamrock Island grant received the full $654,500 of federal funds requested. The required state match of $220,500 is to be provided through the General Land Office.

We congratulate the Department and the General Land Office for submitting a proposal that was nationally ranked second among 32 proposals submitted. We anticipate this cooperative partnership to be as successful in its implementation and look forward to working with both agencies.

It will be necessary for the Department to prepare a grant agreement to obligate the funds. Additional required documentation includes the necessary compliance reviews and a work plan that defines tasks and time frames for their completion. Engineering designs will also have to be submitted and approved.

Please contact Laurel Kagan Wiley at 505/248-7450 if we may be of any assistance in completing the necessary documentation.

Sincerely,

Pat A. Langley

Pat A. Langley
Assistant Regional Director
Division of Federal Aid

cc: Tom Calnan, Texas General Land Office

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NATIONAL COASTAL WETLAND CONSERVATION GRANT PROPOSAL

Protection and Restoration of Shamrock Island and Adjacent Habitats

Nueces County, Texas

Submitted by
Texas Parks and Wildlife Department
and
Texas General Land Office
Austin, Texas

CONTENTS

State: Texas
Agency: Texas General Land Office (GLO)
Title: Protection and Restoration of Shamrock Island and Adjacent Habitats
Project Leader: Tom Calnan

PROJECT NARRATIVE

A. BACKGROUND AND NEED

The proposed project is located in Nueces County, Texas, approximately 15 miles east southeast of Corpus Christi, Texas, and 10 miles southwest of Port Aransas, Texas (Figure 1). Shamrock Island is the remainder of a recurved barrier spit that once extended southwestward from Mustang Island into Corpus Christi Bay (Figures 1 and 2). Shamrock Island was separated from Mustang Island after being breached near the connection with Mustang Island by Hurricane Celia in 1970 (Morton and Paine, 1984) (Figure 2B). The Island still functions as a barrier spit that protects landward habitats on Mustang Island subject to wave, tidal and wind energies. The Shamrock Island Preserve is owned by The Nature Conservancy of Texas (TNCT). The GLO owns a conservation easement to the Island (see attached conservation easement, Appendix C). Oil and gas exploration and development has historically occurred on the Island but current activity is minimal (see attached agreement between Bristol Resources and the TNCT). Acquisition of the Island by TNCT has perpetually protected the Island from development threats (see attached description of Natural Resource Trustees involvement in purchase of the Island, Appendix C).

This project will protect and restore wetland habitats that are integral parts of the Corpus Christi estuarine ecosystem and have tremendous biologic and economic values. Texas coastal wetlands serve as nursery grounds for over 95 percent of the recreational and commercial fish species found in the Gulf of Mexico; they provide breeding, nesting, and feeding grounds for more than a third of all threatened and endangered animal species and support many endangered plant species; and they provide permanent and seasonal habitat for a great variety of wildlife, including 75 percent of North America's bird species. The average annual yield of shrimp caught in the Gulf of Mexico is highly correlated with the area of wetlands, including seagrasses, within an estuary (Turner, 1977). Some of the commercial fish species associated with wetlands in the Corpus Christi estuarine ecosystem are the brown, white, and pink shrimp, blue crab, striped mullet, Atlantic croaker, spotted seatrout, black drum, and Gulf menhaden (Nicolau and Adams, 1993). Species that are important as elements in estuarine food chains and occur in salt and brackish marshes, include grass shrimp, xanthid crabs, cyprinodontid fishes, gobiid fishes, annelid worms, insects, amphipods, mysids, and mollusks. Corpus Christi Bay wetlands also perform many chemical and physical functions. Wetlands temporarily retain pollutants such as suspended material, excess nutrients, toxic chemicals, and disease-causing microorganisms.

Seagrasses also provide nursery habitat for estuarine fish and wildlife. They are direct food sources for fish, waterfowl, and sea turtles, major contributors of organic matter to the estuarine and marine environments, and help stabilize coastal shorelines.

Coastal wetland loss is significant in Texas and is a continuing concern because of the essential roles that wetlands perform. The TPWD estimates that 35 percent of the state's coastal marshes were lost between 1950 and 1979 (TPWD, 1995). Recent estimates of loss for the entire coast show that estuarine emergent wetlands decreased by 9.5% between the mid-1950's and the early 1990's (Moulton et al., 1997). The decline in coastal wetlands and other habitats, along with overharvesting and climate change, is one of the principal reasons for the decline in a number of living marine resources. Habitat loss is the most widely cited probable cause of declining trends in certain species or groups in the Corpus Christi Bay National Estuary Program study area (Tunnell et al., 1996).

The coastal wetlands on or adjacent to Shamrock Island include estuarine emergent low, mid and high marshes (primarily halophytic species) (E2EM), and estuarine scrub-shrubs (black mangroves) (E2SS) (Fig. 2). Also, abundant seagrasses (E1AB) (Fig. 2) occur adjacent to the island in Corpus Christi Bay and in several small, brackish-water coves or lagoonal complexes on the Island. These coves or lagoons provide brackish water habitat for important commercial species, which include spotted seatrout, red drum, black drum, sheepshead, flounder, croaker, bay anchovy, menhaden, shrimp, and blue crab. The fish community using seagrass habitats is probably similar to the community in adjacent Redfish Bay, which is characterized by killifish, pinfish, gobies, pink shrimp, grass shrimp, and mud crabs (Hoese and Jones, 1963).

According to U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) information (1992), there are approximately 53 acres of estuarine emergent marshes (E2EM) on the Island, 20 acres of estuarine scrub-shrub (E2SS) and 15 acres of beaches (E2US) and adjacent uplands (U) or waterbird nesting habitat (Figure 2). In addition, there are 89 acres of seagrasses (E1AB) occurring primarily in the Island's lagoons and channels.

Shamrock Island is one of the most productive colonial waterbird nesting areas on the Texas coast. A diversity of nesting habitats occurs on the Island, including sandy and shell beaches and ridges, upland grasses, shrubs, and saltcedar (*Tamarix* sp.). These habitats are adjacent to the Island's wetlands and seagrasses function interactively as a dynamic ecosystem. Waterbirds feed on seagrasses and on the shellfish, benthic organisms, and fish found in or moving in and out of the shallow marshes. During nesting season colonial waterbirds are especially dependent upon adjacent marsh feeding habitats in order to minimize time spent foraging away from their nests (Custer and Osborn, 1978).

Shamrock Island is used by federally listed threatened and endangered species for foraging and roosting (see attached confirmation letter from Texas Parks and Wildlife Department). The threatened Piping Plover (*Charadrius melodus*) forages and rests on the north end of the island. The endangered Brown Pelican (*Pelicanus occidentalis*) frequently roosts on the southern end of the island. Shamrock Island is also adjacent to Pelican Island (Figure 1), the site only one of two prime endangered Brown Pelican colonies in Texas and the largest nesting colony of Brown Pelicans on the Texas coast. In addition, the endangered American Peregrine Falcon (*Falco peregrinus anatum*) may occasionally use the island as a stopover site during its migration. The Piping Plover is also known to feed on algal flats and roost on nearby Mustang Island. Shamrock Island is a barrier spit that provides protection from direct wave attack to important foraging habitats for Piping Plover, such as sand and algal flats and wetlands that occur on the bay side of Mustang Island (see Figure 2).

The annual Texas Colonial Waterbird Census includes information on species number and number of individuals of each species counted on Shamrock Island. The data illustrates the diversity of wading birds, gulls, and terns utilizing the island. A total of 21 species of colonial waterbirds have been counted on the Island for the period between 1973 to 1994, with total bird populations ranging from approximately 1,100 individuals to over 15,000 individuals. Included in the census are the Reddish Egret (*Egretta rufescens*) and the White-faced Ibis (*Plegadis chihi*), listed by the USFWS as migratory nongame birds of management concern (USFWS, 1995). Both the Reddish Egret and White-faced Ibis are listed by the Texas Parks and Wildlife Department (TPWD) as threatened species. The Sooty Tern (*Sterna fuscata*), another state-listed threatened species is also found on Shamrock Island. The coastal least tern (*Sterna antillarum antillarum*), listed as threatened by the Texas Organization of Endangered Species, also rests on Shamrock Island.

Comparisons of topographic and aerial photographic surveys indicate Shamrock Island is progressively eroding (Figure 2). Because of a nine-mile fetch across Corpus Christi Bay, the Island is especially vulnerable to winter northers. For the 115-year period between 1867 and 1982, net erosion rates increased from less than 1 ft/yr from 1867 to 1937 to about 10 ft/year from 1937 to 1982, resulting in average net erosion rates from 1867 to 1982 of about 4 ft/yr (Morton and Paine, 1984). Erosion has been particularly acute since 1970, when Hurricane Celia breached the Island and it was separated from Mustang Island (Figure 2).

A recent shoreline erosion study of Shamrock Island, funded by the TNCT (Williams, 1997), emphasizes that after 1956, the northwest shoreline eroded rapidly. Williams (1997) states that "by 1995, up to 156 meters (515 ft) of shoreline retreat had occurred on the northwest shoreline. The erosion now threatens to breach the island, which may result in degradation of an interior lagoon and

loss of valuable wildlife habitats." Williams (1997) concludes that if breaching of the island is to be prevented, the northwest shore should be protected and recommended a physical barrier along the shoreline or shoreline nourishment.

A comparison of 1956, 1979, and 1992 aerial photography and NWI data shows that Island uplands and flats, areas that serve both as habitats and protective buffers to estuarine wetlands and seagrasses, are disappearing (Figure 2). In 1956, there were 229 acres of uplands and estuarine flats on the island; whereas, in 1979 and 1992, there were only 34 and 15 acres, respectively, or a loss of 94% of the Island's uplands and flats between 1956 and 1992. By 1992, flats had disappeared entirely. In several areas along the northern and western shoreline, only approximately a 50 foot-wide strip of beach exists and the shoreline is in imminent danger of being breached by erosional forces, which will further jeopardize protected lagoonal wetlands and seagrasses.

Although estuarine intertidal emergent wetlands increased significantly from 13 to 74 acres between 1956 and 1979, there were only 53 acres of estuarine intertidal marshes in 1992. Marshes may have increased after 1956, because erosional and tidal forces were creating shallow, intertidal areas suitable for estuarine intertidal vegetation. As erosion continues unabated, the Island's protective shoreline is disappearing and wetland loss and degradation is occurring, with a 21 acre loss of estuarine intertidal wetlands between 1979 and 1992. Wetlands are probably being converted to open water.

Seagrasses have been relatively stable, with 93 acres in the lagoonal areas of the Island in 1979 and 89 acres in 1992, for a loss of only four acres. However, if the Island's uplands and beaches disappear, the seagrasses will be unprotected from bay currents, turbidity will increase and eventually seagrass habitat will be degraded or disappear altogether.

In summary, as erosion of Shamrock Island continues, critical wetland, seagrass, and adjacent, upland habitats are being lost or degraded. A shoreline protection structure that parallels the northwest shoreline will help protect the Island, primarily from destructive northers. Plantings of marsh vegetation between the wave barrier and shoreline will help restore estuarine emergent marsh vegetation. Protecting and restoring Shamrock Island will also provide protection to important wetlands and flats on adjacent Mustang Island.

B. OBJECTIVE

The objective of this project is to stabilize the northwestern and western Shamrock Island shorelines with approximately 2,000 feet of protective features in order to protect 53 acres of estuarine intertidal wetlands, 20 acres of estuarine scrub-shrubs, 15 acres

of adjacent waterbird nesting habitat, and 89 acres of seagrasses, and restore 5 acres of estuarine intertidal wetlands by revegetation. The objective will also provide protection to habitats on the bay side of Mustang Island.

As shown in figure 2C, this project will protect a significant portion of Shamrock Island's shoreline and uplands. By protecting the shoreline and restoring estuarine intertidal marshes, a total of 172 acres of coastal wetlands, adjacent waterbird nesting habitat, and seagrasses will be beneficially affected by this project.

Construction strategies include an emergent wave barrier approximately 100 to 150 ft offshore the northwestern and western Island shoreline. Shoreline armoring material, sand, and/or fine grained sediment suitable for wetlands will be used to construct the protective features and restore elevations necessary for wetland restoration. Five acres of wetland vegetation (smooth cordgrass) will be planted between the wave barrier and shoreline.

C. RESULTS AND BENEFITS

A total of 167 acres of coastal wetlands, adjacent waterbird nesting habitat, and seagrasses will be protected and 5 acres of estuarine intertidal marsh vegetation will be restored by the proposed action. These areas are currently vulnerable to erosion and high turbidity along the northwestern and western shorelines of Shamrock Island. The placement of approximately 2,000 linear feet of island shoreline protection will immediately protect 53 acres of estuarine intertidal wetlands, 20 acres of estuarine scrub-shrubs, 15 acres of waterbird nesting habitat, and 89 acres of seagrasses, and will protect the 5 acres of estuarine intertidal wetlands that are being restored. Acres of wetlands, adjacent waterbird nesting habitat, and seagrasses protected are those existing habitats which are in immediate threat of loss from erosion. This includes the lagoonal habitats which have been shown to support adult and juvenile finfish on the order of two to three times greater than unprotected open-bay environments (Rozas et al., 1995). Acres restored consist of coastal wetlands previously eroded which will be replanted behind the shoreline protection features. Protecting Shamrock Island will also help protect an unknown acreage of sand and algal flats and wetlands on adjacent Mustang Island.

This project will protect and restore wetland habitat for waterfowl and commercially and as well as recreationally important fish species. The project will enhance water quality in Corpus Christi Bay. Some oil and gas operations on Shamrock Island have contaminated sediments on the island near the northwest shoreline. A Remediation Program conducted by the oil companies is occurring on the Island, including removal of hydrocarbon storage facilities and soil removal from some old pits on the Island; however, some residual seepage of hydrocarbons into the intertidal sediments and

water column continues to occur. A secondary benefit of the wetland restoration project will be the trapping of suspended sediments and pollutants by the vegetation and converting the potentially toxic hydrocarbons by biochemical processes to less harmful forms (Webb and Alexander, 1991).

Finally, but just as significantly, the project will directly and indirectly benefit recreational and educational use of the Shamrock and Mustang Island area. These benefits will occur when productivity of game and non-game species is maintained or enhanced and when educational opportunities related to wetland, seagrass, and waterbird habitat protection are increased. Benefits include both an improved sport fishery that is currently valued at $83 million annually, and more birdwatching, that is valued at approximately $4.6 million annually to the local economy (Wellman and Noble, 1997). In addition, this project will serve as a model for other wetland protection and restoration efforts by the USFWS, TPWD, GLO, Corpus Christi Bay National Estuary Program, and other public and private groups in the Corpus Christi Bay area, especially those requiring shoreline protection in a highly erosional environment.

D. APPROACH

To accomplish the project objective, a shoreline protection structure will be designed and constructed and estuarine intertidal emergent wetlands will be restored by planting smooth cordgrass between the wave barrier and the Island shoreline. Specific design of the protection structure will depend on detailed engineering analysis of substrate and bathymetry; however, preliminary plans are for a limestone rip-rap barrier. Limestone rip-rap was used successfully to protect a shoreline at Palacios, Texas and has been used as a model for this project. Limestone armoring is structurally more stable and durable under strong erosive forces than most armoring methods. It is also valuable because habitat for invertebrates using hard substrates and is foraging areas for fish that graze on the attached fauna and algae.*

Natural stands of smooth cordgrass (*Spartina alterniflora*) are available on state-owned land as "borrow sites." Depending on the detailed engineering analysis, some elevations may need to be restored for vegetation planting. The actual construction phase should take approximately two to three months.

The project will require at least two years of monitoring by the GLO and the TNCT, one year of which is included as grant cost. Based on monitoring results of the vegetation, further estuarine intertidal marsh plantings could occur within the area between the wave barrier and the Island shoreline. Monitoring will be

* Cost estimates are based on actual costs at Palacios, with some adjustment based on transport differences.

conducted within 60 days following initial planting. If 50% survival of transplant material is not achieved, a second planting effort will be made within the next 30 days. If a least 70% canopy coverage is not achieved within one year following planting, a second attempt will be made, and those areas will be replanted to original specifications.

E. ESTIMATED COST

Contribution	**Local**	**State**	**Federal**	**Total**
Engineering design & permitting (contracted)			$40,000	$40,000
Construct breakwater @2,000 ft @$405/ft		215,000	591,000	806,000
Wetland restoration	11,000		23,500	35,500
Monitoring (in-kind funding)	12,000	5,500		17,500
Outreach (in-kind funding)	5,000			5,000
Total $ Contribution	**28,000**	**220,500**	**654,500**	**903,000**
% Contribution	**3**	**25**	**72**	**100**
ESTIMATED TOTAL COST				**$903,000**

Cash Funds contributing to state match: $215,000 from the GLO Surface Damage Account, $1,000 from the Coastal Bend Bays Foundation, $5,000 from the TNCT, and $5,000 from The Texas Audubon Society (see attached letters of support). The GLO administers a special account that is used for conservation or reclamation projects, which are defined as projects that preserve or increase the quality of land or natural resources by affecting natural conditions on state-owned lands. This project qualifies for funding from the account because the breakwater and wetlands to be restored or protected lie on state-owned submerged lands. Account revenue is generated by a special assessment paid by lessees of state-owned lands and other amounts the state receives for damage to its land that is minor or impractical to repair. A lessee's assessment is calculated using a formula essentially based on the amount of surface area affected by the lessee's project.

In-kind funding: $12,000 from TNCT for monitoring, including 10% FTE for a Coastal Land Steward, 5% FTE for a Coastal Regional Preserves Manager, and 5% FTE for a Coastal Education Coordinator. The GLO will also contribute $5,500 or 5% FTE for a Biologist for marsh monitoring. Monitoring of construction and marsh vegetation will be conducted at least monthly. The Texas Audubon Society will

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contribute $5,000 in-kind funding for outreach, including volunteer labor, boats, staff time, equipment, and overhead.

Timeline: Engineering design will take approximately four to six months. Construction of the shoreline protection structure and marsh plantings will require approximately three to four months. The entire project will be completed by December 1998.

GLO/TPWD partnership: The GLO and Texas Parks and Wildlife Department (TPWD) are cooperating in the planning and implementation phases of this project to assure project success. Partnership will be in the form of an Interagency Contract (IAC) similar to the interagency contract through which TPWD passed through funds to GLO under the USFWS Clean Vessel Act grant program.

F. RELATIONSHIP TO OTHER PROJECTS

Corpus Christi Bay has been the focus of state and federal agencies, public and private groups and individuals concerned about the health and productivity of the estuary. As a result of this interdisciplinary effort, loss of wetlands and estuarine habitats was identified as one of seven priority problems in the Coastal Bend Bays Plan (Corpus Christi Bay National Estuary Program (CCBNEP), 1997). To address this problem, the Plan identified habitat restoration and protection as a management priority for the Corpus Christi Bay system. A CCBNEP report on potential sites for wetland restoration, enhancement, and creation identified Shamrock Island as an important site for wetland protection and restoration (Smith et al., 1997). The report describes the need for both a shoreline protection structure and for marsh restoration. Potential functions and values described as being protected and restored by the project include shoreline erosion control, sediment trapping, food chain support/nutrient export, fisheries and wildlife habitats, and recreation/education/culture (Smith et al., 1997). In addition, the USFWS Region II Wetlands Regional Concept Plan (1991) identified the "backside of Mustang Island" in Nueces County as a Texas Candidate Wetland for acquisition.

Shamrock Island and adjacent Mustang Island are also listed by the TNCT as Conservation Priorities. A Site Conservation Plan for the islands is in the draft stage and scheduled for completion in November 1997.

G. PUBLIC INVOLVEMENT

Implementation of this coastal wetland protection and restoration project on The Shamrock Island Preserve will provide many substantive opportunities for public involvement and education. News releases, signage, newsletters, displays, field trips, and guided birding tours will be incorporated into project implementation and continued through public outreach activities of

the GLO, TPWD, USFWS, and TNCT. Credit will be given for funding under the National Coastal Wetlands Conservation Grant Program. News releases will occur both during the construction phase and implementation. Signage along the Island's margins will be posted after construction and will include information on the project, the wetlands protected and restored, and on colonial waterbird activity. Field trips and birding tours will be conducted by the TNCT, the Texas Audubon Society, and others, such as fishing guides, who have been trained to conduct tours. These trips will emphasize the critical link between wetland restoration and protection and bay productivity, and the successful partnership between the USFWS, TPWD, GLO, TNCT, and Audubon to protect and restore this resource. Information on the project will be posted on the GLO WetNet (Wetland Network) Internet site with key links to other Texas and national wetland restoration/protection efforts. An exhibit will be made of the project for display at local malls, fairs, Bay Day's, Mustang Island State Park, and scientific workshops. Information on the project can be included in the proposed Coastal Bend Environmental Citizen's Guide, a primer on estuarine issues designed to promote public stewardship. In addition, this "success story" will be shared through the CCBNEP public contact system and recognition given to this partnership.

The TNCT has already initiated a proactive outreach and education program involving Shamrock Island. Local, Port Aransas high school and grade school science classes have conducted projects on the Island. Elderhostel service projects and teacher workshops have also used the Island Preserve as a "living laboratory."

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APPENDIX A
EVALUATION CRITERIA

1. The proposed project will provide protection of submergent and emergent wetlands and for restoration of emergent wetlands on Shamrock Island, a barrier spit (White et al., 1978; Morton and Paine, 1984) that prior to 1970 was connected to Mustang Island, a Texas coastal barrier island (Morton and Paine, 1984) (see Figure 2A). The barrier spit protects landward aquatic habitats of Mustang Island from direct wave attack, especially during winter northers, and includes all associated aquatic habitats, including the adjacent wetlands, seagrasses, uplands, and nearshore waters. The project site is not within nor adjacent to a unit of the Coastal Barrier Resources System. A letter from Dr. Robert Morton, a coastal geologist, confirms the status of Shamrock Island as a barrier spit. **0 points**

2. The proposed project addresses the no-net-loss concept by reversing coastal wetland loss of estuarine intertidal emergent marsh (73%), which is identified as a declining wetland type in the National Wetlands Priority Conservation Plan and a recent status and trends report on Texas coastal wetlands (Moulton et al., 1997). Seagrass beds, a stable habitat in the project area, will also be protected. **10 points**

3. The proposed project will provide for the protection and restoration of important foraging and roosting habitats for Federally listed threatened and endangered bird species (see attached supporting letter from Texas Parks and Wildlife Department). The threatened Piping Plover (*Charadrius melodus*) forages and rests on the north end of the island. The endangered Brown Pelican (*Pelicanus occidentalis*) frequently roosts on the southern end of the island. Shamrock Island is also adjacent to Pelican Island (Figure 1), only one of two prime sites for the endangered Brown Pelican in Texas and the largest nesting colony of Brown Pelicans on the Texas coast. In addition, the endangered American Peregrine Falcon (*Falco peregrinus anatum*) may occasionally use the island as a stopover site during its migration. Shamrock Island also provides protection from erosion to sand and algal flats on adjacent Mustang, important habitats used by Piping Plovers for foraging. **7 points**

4. This proposal furthers natural resource goals and objectives of several formal coastal management efforts. Each of these plans identify wetland and seagrass preservation and restoration as habitat goals. The Coastal Bend Bays Plan of the CCBNEP identified habitat restoration and protection as a management priority in the Corpus Christi Bay system. The Natural Resource Management

Priorities of the USFWS along the Gulf Coast, the Texas Wetlands Conservation Plan, the Seagrass Conservation Plan for Texas, the State-owned Coastal Wetlands Conservation Plan, and the Texas Coastal Management Program (CMP) also support these goals.

7 points

5. Numerous interjurisdictional coastal fish species will benefit from this project's restoration and protection of marsh and seagrass habitats. Brown, white, and pink shrimp, mullet, croaker, and spotted seatrout are examples of interjurisdictional species that will benefit from project implementation. Marsh and seagrass habitats are critical for larval, post-larval, and juvenile stages of many species. For example, brown shrimp, *Penaeus aztecus*, are dependent on marsh-surface habitat during their post-larval and early juvenile stages (Minello and Zimmerman, 1991). All life stages of the spotted sea trout are dependent on marshes and seagrasses.

7 points

6. The project will protect and enhance water quality in Corpus Christi Bay. Some oil and gas operations on Shamrock Island have contaminated sediments on the island near the northwest shoreline. A Remediation Program conducted by the oil companies is occurring on the Island, including removal of hydrocarbon storage facilities and soil removal from some old pits on the Island; however, some residual seepage of hydrocarbons into the intertidal sediments and water column continues to occur. A secondary benefit of the wetland restoration project will be the trapping of suspended sediments and pollutants by the vegetation and converting the potentially toxic hydrocarbons by biochemical processes to less harmful forms (Webb and Alexander, 1991).

7 points

7. The proposal will receive financial support from the Coastal Bend Bays Foundation, the TNCT, and the Texas Audubon Society. In addition, The Texas Audubon Society and TNCT will provide in-kind services.

5 points

8. This project has additional financial support that exceeds the State maximum matching requirement by more than 10% of the required state match. The local contribution to the project from both cash and in-kind sources is $23,000 or 11% of the state match.

5 points

9. Design and implementation of the project will provide coastal wetland benefits for more than 25 years, including the protection and restoration of habitats from catastrophic loss. The Texas Nature Conservancy owns Shamrock Island and will protect and maintain the Island and its coastal natural resources. In addition, the GLO holds a conservation easement on the island and manages the state-owned lands surrounding the island. Erosion control features will be designed for long-term stability and integrity. The goal of the project is the long-term protection of the wetlands of Shamrock Island.

7 points

10. This proposal will increase environmental awareness and foster a more informed and involved public through a substantive education program. News releases, signage, newsletters, displays, field trips, and guided birding tours will be incorporated into project implementation and continued through public outreach activities of the GLO, TPWD, USFWS, the TNCT, Texas Audubon Society, and others. Credit will be given for funding under the National Coastal Wetlands Conservation Grant Program. News releases will occur both during the construction phase and implementation. Signage along the Island's margins will be posted after construction and will include information on the project, the wetlands protected and restored, and on colonial waterbird activity. Also, signage about the project will be placed at local public boat ramps.

Field trips and birding tours will be conducted by the TNCT. These trips will emphasize the critical link between wetland restoration and protection and bay productivity, and the successful partnership between the USFWS, TPWD, GLO, TNCT, the Coastal Bend Bays Foundation, and Audubon to protect and restore this resource. Wetland and seagrass conservation efforts will be included in Elderhostel and other retiree programs. The Shamrock Island project will encourage other conservation plantings for public service projects.

Information on the project will be posted on the GLO WetNet (Wetland Network) Internet site with key links to other Texas and national wetland restoration/protection efforts. An exhibit will be made of the project for display at local malls, fairs, Bay Day's, Mustang Island State Park, and scientific workshops. Information on the project can be included in the proposed Coastal Bend Environmental Citizen's Guide, a primer on estuarine issues designed to promote public stewardship. In addition, this "success story" will be shared through the CCBNEP public contact system and recognition given to this partnership. **2 points**

11. Restoring estuarine intertidal wetlands will also assist in an ongoing Remediation Program to protect and restore Shamrock Island from oil and gas activities that once occurred on the island. Some hydrocarbon contamination continues to occur in the offshore sediments and water column. The restored wetlands will further enhance the remediation efforts by trapping suspended sediments and residual hydrocarbons and converting the potentially toxic chemicals by microbial (biochemical) processes into less toxic forms.

In addition, protection and restoration of Shamrock Island wetlands and seagrasses is an essential component of a comprehensive plan of the TNCT for both Shamrock and Mustang Islands. The comprehensive plan includes acquisition of areas on Mustang Island adjacent to Shamrock Island, areas that need protection as they are used for feeding and loafing by colonial waterbirds that nest on Shamrock Island. The Shamrock Island project will provide impetus for

additional restoration on Mustang Island. It is also essential to the CCBNEP program. Implementation of the Shamrock Island project will serve as a model for other important wetland restoration projects listed for the Corpus Christi/Nueces Bay area in the CCBNEP report (Smith et al., 1997).

Mustang Island is also the site of the Mollie Beattie Adopt-a-Habitat Community. The Adopt-a-Habitat program is an ongoing, joint effort of the USFWS and GLO to protect and restore endangered and threatened species habitat, including coastal wetlands and seagrasses on state-owned lands. The Shamrock Island project will serve as a model for efforts at the Mollie Beattie site. **5 points**

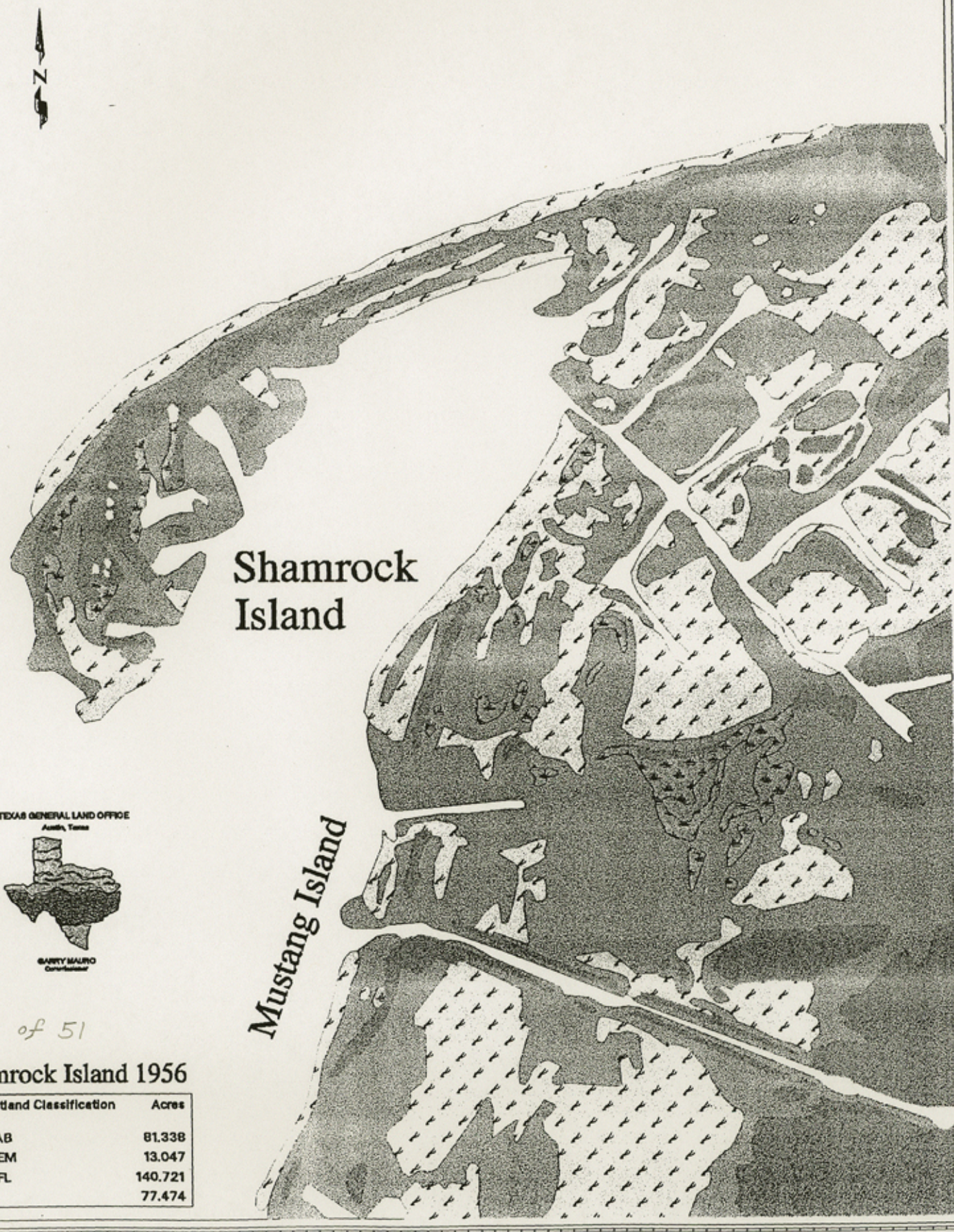
12. Texas Parks and Wildlife Department has a dedicated fund from a portion of the state sales tax on specific sporting goods which is available for acquiring coastal wetlands, other natural areas, and open spaces. **2 points**

13. Shamrock Island is unique in that it is one of the most important bird rookeries on the Texas coast. In addition, Shamrock Island is a natural spit or island, in contract to most rookery islands along the Texas Coast that were formed by dredged materials. This allows for applied research and interesting questions related to waterbird rookery ecology. Ownership by The Nature Conservancy of Texas with a conservation easement from the GLO ensures that the Island and its wetland habitats will be protected in perpetuity. However, erosion threatens the Island and its habitats, and without the long-term protection gained from this project, the Island's value as a rookery will be diminished or lost. Finally, this project would be the first phase of an ongoing effort by the GLO and TNCT to focus resources on additional conservation opportunities to preserve, protect, and restore critical habitats on the bay side of Mustang Island (see letter of support from TNCT). These efforts will include acquisition, wetlands restoration and enhancement, and erosion protection (using breakwaters, shoreline nourishment, and other environmentally preferable techniques) for critical habitats. These efforts will build on those already begun at Mustang Island State Park, the Mollie Beattie Habitat Community, and Shamrock Island. **5 points**

TOTAL 69 points

Counter 33121

Figure 2a. Shamrock Island and adjacent part of Mustang Island - 1956.
Acreage based on USFWS NWI data.



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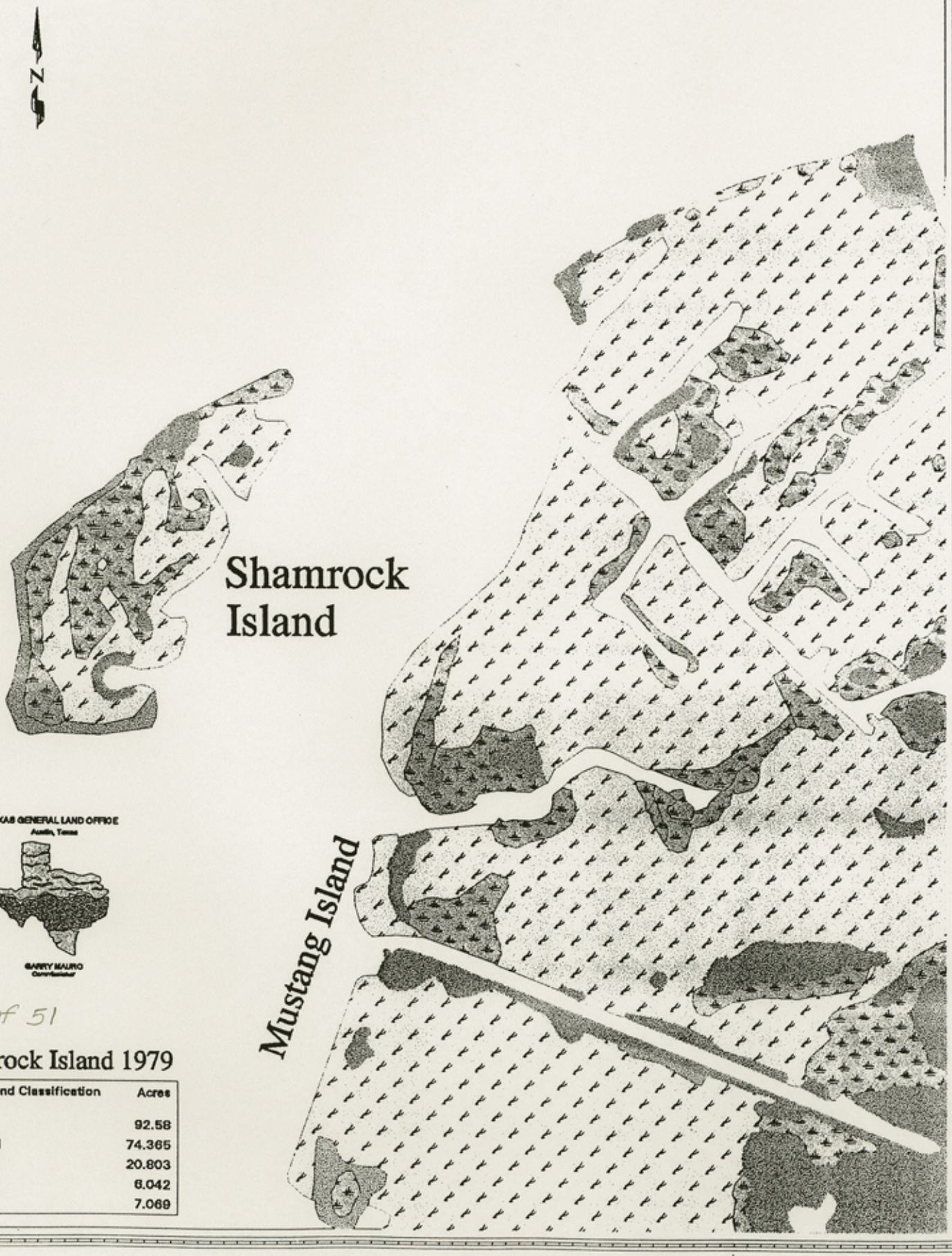
Shamrock Island 1956

Wetland Classification	Acres
E1AB	81.338
E2EM	13.047
E2FL	140.721
U	77.474

Counter 33122

Figure 2b. Shamrock Island and adjacent part of Mustang Island - 1979.
Acreage based on USFWS NWI data.



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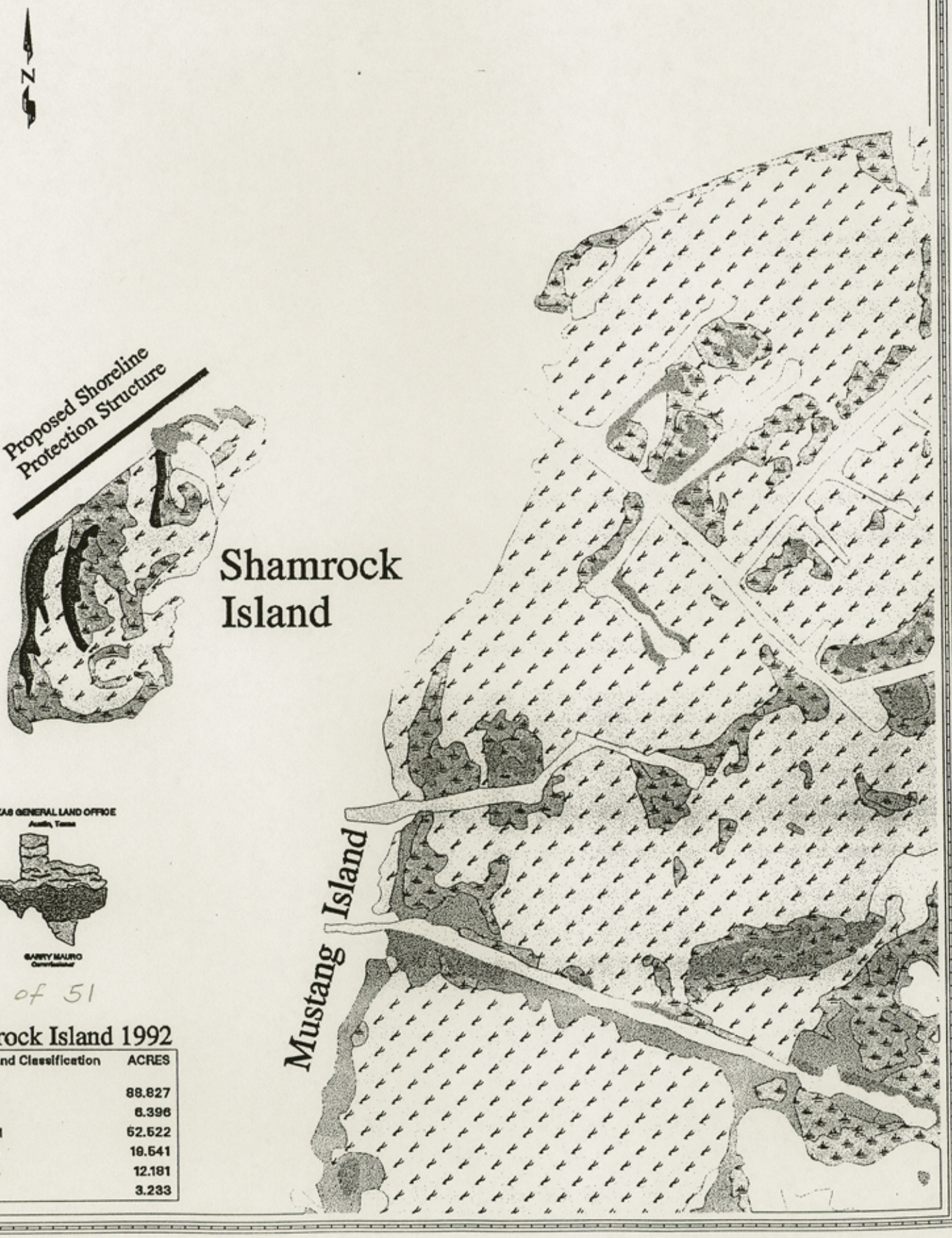
Shamrock Island 1979

Wetland Classification	Acres
E1AB	92.58
E2EM	74.365
E2FL	20.803
UA	6.042
UUO	7.069

Counter 33123

Figure 2c. Shamrock Island and adjacent part of Mustang Island - 1992.
Acreage based on USFWS NWI data.



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Shamrock Island 1992

Wetland Classification	ACRES
E1AB	88.827
E1UB	6.396
E2EM	62.622
E2SS	19.541
E2US	12.181
U	3.233

counter 33124

The Nature Conservancy of Texas®

P.O. Box 1440
San Antonio, Texas 78295-1440

711 Navarro, Suite 410
San Antonio, Texas 78205-1721
TEL 210 224-8774
FAX 210 228-9805

August 25, 1997

Mr. Tom Calnan
Texas General Land Office
Coastal Division
Stephen F. Austin Bldg.
1700 North Congress Ave.
Austin, TX 78701-1495

Dear Tom,

The Nature Conservancy of Texas (TNCT) has long recognized the tremendous conservation value of Shamrock Island and adjacent habitats on Mustang Island. Prior to acquisition of what we now call Shamrock Island Preserve, our staff was very concerned over the rapidly eroding shoreline on the west and northwest portions of the island and how this may affect nesting birds utilizing the island proper as well as other adjacent areas of Mustang Island. Much of our work related to this preserve has emphasized this issue. In fact, the initial step we made was to spend nearly $5,000 for a research project to assess the erosion dynamics of the island in order to better direct our course of action. Results of this project confirmed that erosion is a serious problem. I applaud the GLO's concern regarding this problem. As the conservation easement holder on the island, GLO's proactive approach to seeking support from the Coastal Wetland Planning, Protection and Restoration Program (i.e. Breaux Bill) to address erosion on Shamrock Island is very commendable and most appreciated by TNCT.

Please accept this letter as complete confirmation of support by TNCT regarding the proposal entitled, "Protection and Restoration of Shamrock Island and Adjacent Habitat." In addition, TNCT pledges financial support of $5,000 and in-kind service support of $7,500 (Shamrock Island monitoring for 12 months), $4,500 (Elderhostel Service Program - Erosion monitoring and vegetation surveys), and assistance of our Conservation Science staff regarding Geographic Information Systems (GIS) assistance regarding site conservation planning efforts related to Shamrock Island and the Mustang Island area in general. In summary, we are willing to commit a total of $17,000 towards this phase of the project. In the future, we are very interested in focusing upon additional conservation opportunities that would allow us to protect other critical habitats on the bay side of Mustang Island.

If you have any questions, please do not hesitate to contact me. Again, I greatly appreciate the efforts of you and the rest of the Coastal Division staff at the GLO. I am very optimistic that this project will be successful and the conservation value of Shamrock Island and adjacent habitats will be secured for the long-term.

Sincerely,

Robert J. Potts
State Director

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cc: James King Jeff Weigel
Jim Bergan Terry Cook

counter 33125

National Audubon Society

Texas Coastal Sanctuaries
101 N. Shoreline, #325
Corpus Christi, TX 78401
(512) 884-2634
Fax: (512) 884-2635
shedges@audubon.org

Mr. Tom Nuckols
Director, Coastal Division
General Land Office
1700 N. Congress Ave.
Austin, TX 78701 – 1495

August 25, 1997

Dear Tom:

Shamrock Island is among the most valuable nesting colonies in Corpus Christi Bay. It is representative of the many sites that Audubon works with GLO and others to protect here in Texas. For some species, like the Royal, Sandwich and Caspian Terns, Shamrock is the primary nesting site in the bay system.

Erosion loss to the island's north and west site is cause for concern over the long term existence of this site. I am very supportive the effort to address this problem and am writing to offer the following as the National Audubon Society's, Coastal Sanctuary Program, contribution as a partner in this project:

- Post and patrol Shamrock Island with the goal of eliminating human disturbance to the nesting birds during the nesting season March 15th to August 15th.
- Annually trap and remove raccoons and coyotes from the island.
- Lead educational trips for area schools and youth groups.
- Set up and lead media visits that will generate press for the project and educate the community about the partnership through both TV and news media.
- Conduct an annual nesting bird census.
- Conduct 3 work days annually before the nesting season and remove hazards (fishing line, crab traps etc... which can cause direct mortality) during the nesting season, as needed.

I estimate that these activities comprise in kind support, including staff time, volunteer labor, boats, equipment and overhead in the amount of approximately $5000.00 / yr.

Lastly, after award of this grant by State and Federal agencies, Audubon will make a matching cash grant in the amount of $5000.00, which is to qualify as local matching sponsorship for this project.

Audubon has an 80 year history of protecting Texas' Colonial Waterbirds, and a strong partnership with the state and other NGO's here, this project falls squarely within our mission. We are pleased to support it, applaud your leadership and look forward to its favorable review for funding.

Sincerely,

Scott Hedges

Scott Hedges
Director of Coastal Sanctuaries

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"Stewards of Texas' Coastal Birdlife"

counter 33126

COASTAL BEND BAYS FOUNDATION

Ray Allen
Chairman
(512) 881-5388
Fax: 881-5837

CBBF
P.O. Box 23025
Corpus Christi, TX
78403-3025

phone and fax
(512) 882-4363

August 22, 1997

97 AUG 22 AM 8:58
GENERAL LAND OFFICE
LEGAL SERVICES

Mr. Tom Nuckols
Director, Coastal Division
Texas General Land Office
1700 North Congress Avenue
Austin, Texas 78701-1495

Dear Tom:

Thank you for inviting the Coastal Bend Bays Foundation to be a partner in the habitat creation/erosion protection project at Shamrock Island in Corpus Christi Bay.. We are very pleased to accept that invitation and look forward to a successful project.

As a partner with the Texas General Land Office, Texas Parks & Wildlife Department, and others in this project, we are pleased to pledge financial support in the amount of $1,000 plus additional support from our staff and volunteers.

Shamrock Island is a key component of our ecosystem providing preferred nesting habitat for a variety of waterbirds. The continuing erosion of this island and resulting loss of habitat has us very concerned about the future viability of the site as a rookery island. The habitat creation/erosion protection project will go a long way towards protecting this valuable ecological resource.

We are optimistic the USFWS will recognize the importance of this project and provide CWPPRA funding. Please let me know if there is anything we can do to encourage the service to look favorably on your grant application.

Sincerely,

Ray Allen

Dedicated to protecting our bays and estuaries

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counter 33127

APPENDIX C

GLO NO. ME 960010

DOC# 1996001962

STATE OF TEXAS §

COUNTY OF NUECES §

CONSERVATION EASEMENT

This CONSERVATION EASEMENT made this 13 day of December, 1995,

RECITALS:

A. The Nature Conservancy of Texas, Inc., a non-profit corporation incorporated under the laws of the State of Texas with an address at 711 Navarro, Suite 410, San Antonio, TX 78205-1721, (the "Grantor") is the owner in fee simple of certain real property, (the "Protected Property") that has ecological, scientific, educational and aesthetic value in its present state as a natural area. The Protected Property known as Shamrock Island is located in Nueces County, Texas and is more particularly described in Exhibit A attached. The Texas General Land Office is an agency of the State of Texas, with an address of Stephen F. Austin Building, 1700 North Congress Avenue, Austin, Texas 78701-1495 (the "Grantee").

B. The Protected Property is a natural island of approximately 110 acres located in Corpus Christi Bay. Island vegetation is dominated by Salt Cedar, some Mesquite and arid grassland. The upland vegetation provides habitat for many migratory songbirds. The island also has breeding populations of the Laughing Gull, Sandwich Tern, Caspian Tern, Sooty Tern, Black Skimmer, the State threatened Reddish Egret and the State threatened White-faced Ibis.

C. The Protected Property was acquired by the Grantor pursuant to an agreement dated July 10, 1995 with the Grantee, the Texas Natural Resource Conservation Commission, Texas Parks and Wildlife Department, and the United States Department

STATE OF TEXAS
COUNTY OF NUECES

The above and foregoing is a true and correct copy as the same appears on file and/or recorded in the appropriate records of Nueces County, Texas.

Thereby certified on 3-15, 1996

County Clerk
Nueces County, Texas

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counter 33129

of the Interior ("Trustees") acting in their capacities of Natural Resources Trustees under the laws of the State of Texas and the United States of America, which required the Grantor to donate a conservation easement to the Grantee over the Protected Property. A copy of the agreement is attached as Exhibit B.

D. The Grantor and Grantee have the common purpose of conserving the above-described conservation values of the Protected Property in perpetuity. The Grantor and the Grantee execute this conservation easement pursuant to the authority provided in the National Resource Code, Chapter 183, the Texas Conservation Easement Act.

NOW, THEREFORE, the Grantor, for and in consideration of the facts recited above and of the mutual covenants, terms, conditions and restrictions contained herein and as an absolute and unconditional gift, hereby gives, grants and conveys unto the Grantee a Conservation Easement in perpetuity over the Protected Property of the nature and character as follows:

1. Purpose. The purpose of this Conservation Easement is to ensure that the Protected Property will be retained forever predominantly in its natural condition; to protect any rare plants, animals, or plant or animal communities on the Protected Property; and to prevent any use of the Protected Property that will significantly impair or interfere with the conservation values or interests of the Protected Property described above. The Grantor intends that this Conservation Easement will restrict the use of the Protected Property to only such activities as are consistent with the purpose of this Conservation Easement. All management and research activities reserved throughout this document shall be conducted in a manner consistent with the terms of this conservation easement. Management and research activities shall not degrade the habitat value of the Island. However, the parties acknowledge that the Protected Property is subject to the rights of third parties whose interests predate Grantor's ownership.

STATE OF TEXAS
COUNTY OF NUECES

The above and foregoing is a true and correct copy as the same appears on file and/or recorded in the appropriate records of Nueces County, Texas.

Thereby certified, on 3-15, 1996

County Clerk
Nueces County, Texas

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2. Prohibited Uses. Any activity on or use of the Protected Property inconsistent with the purpose of this Conservation Easement is prohibited. Without limiting the generality of the foregoing, the following activities and uses are expressly prohibited, except as provided in paragraph 3 below:

2.1 No Pollution. There shall be no pollution, alteration, depletion or extraction of surface water, natural water courses, lakes, ponds, marshes, subsurface water or any other water bodies.

2.2 No Vehicles. There shall be no horseback riding, and no operation of mountain or other bicycles, dune buggies, motorcycles, all-terrain or off-road vehicles, hang gliders, aircraft, or any other types of mechanized vehicles, other than required by Grantor for appropriate management and research activities.

2.3 No Subdivision. The Protected Property may not be divided, partitioned, or subdivided, nor conveyed except in its current configuration as an entity.

2.4 No Hunting or Fishing. There shall be no hunting, trapping or fishing on the Protected Property, except as determined appropriate by Grantor for management and research purposes.

2.5 No Dumping. There shall be no storage or dumping of ashes, trash, garbage, or other unsightly or offensive material, hazardous substance, or toxic waste, nor any placement of underground storage tanks in, on, or under the Protected Property; there shall be no changing of the topography through the placing of soil or other substance or material such as land fill or dredging spoils.

2.6 Biocides. Herbicides, pesticides, and other chemicals may be applied only as necessary for appropriate management and research activities.

2.7 Use of Funds. All funds derived from activities related to the Island shall be used only for projects consistent with the mission of The Nature Conservancy of Texas, Inc. and not for commercial purposes.

3. Grantor's Reserved Rights. The Grantor hereby reserves the following rights:

counter 33131

3.1 Existing Uses. The right to undertake or continue any activity or use of the Protected Property not prohibited by nor inconsistent with this Conservation Easement. Prior to making any change in use of the Protected Property, the Grantor shall notify the Grantee in writing to allow the Grantee a reasonable opportunity to determine whether such change would violate the terms of this Conservation Easement.

3.2 Transfer. The right to give or lease, or otherwise convey the Protected Property to a conservation entity or Texas State agency, provided such conveyance is subject to the approval of Grantee, who shall consult with the other Trustees.

3.3 Exotics. The right to remove and manage exotic plants and animals which interfere with the Grantor's management of the Protected Property.

4. Grantee's Rights. To accomplish the purpose of this Conservation Easement, the following rights are conveyed to the Grantee by this Conservation Easement:

4.1 Right to Protect. The right to preserve and protect the conservation values of the Protected Property.

4.2 Right of Entry. The right to enter the Protected Property at all reasonable times and with prior written notice to Grantor for the purposes of: (a) inspecting the Protected Property to determine if the Grantor is complying with the covenants and purposes of this Conservation Easement; (b) enforcing the terms of this Conservation Easement; and (c) taking any and all actions with respect to the Protected Property as may be necessary or appropriate, with or without order of court, to remedy or abate violations hereof.

4.3 Enforcement. If a breach of these restrictions by the Grantor or a third party comes to the attention of the Grantee, the Grantee shall notify the Grantor in writing of the breach. The Grantor shall have thirty (30) days after receipt of such notice to take actions that are reasonably calculated to correct the conditions constituting such a breach. If the Grantor fails to take such corrective actions, the Grantee may undertake such actions in its discretion,

STATE OF TEXAS
COUNTY OF NUECES

The above and foregoing is a true and correct copy as the same appears on file and/or recorded in the appropriate records of Nueces County, Texas.

Thereby certified on 3-15 1996

County Clerk
Nueces County, Texas

counter 33132

including appropriate legal or equitable proceedings, as are reasonably necessary to require and compel the Grantor to correct such conditions.

5. Amendment. This easement may not be amended, modified or rescinded except upon written consent of the parties to this easement.

6. Assignment. This easement may not be assigned or transferred in any manner by Grantee without the written consent of Grantor, which consent shall not be unreasonably withheld.

7. Access. Nothing contained in this Conservation Easement shall give or grant to the public at large a right to enter upon or to use the Protected Property.

8. Title. This grant is subject to all matters of public record, including, but not limited to, outstanding mineral rights, easements, leases and rights-of-way.

9. Ownership of Conservation Easement. This conservation easement is the property of the Texas General Land Office and is not a part of the corpus of the permanent school fund of Texas.

10. Recordation of Grant. Pursuant to the Texas Conservation Easement Act, §183.002(e) valid execution of this conservation easement requires that it be created in writing, acknowledged and recorded in the deed of records in Nueces County, and such record must include a legal description of the real property which constitutes Shamrock Island, the servient estate.

11. Termination of Conservation Easement and Reservation of New Conservation Easement. This conservation easement shall terminate upon transfer of fee title to the Protected Property to the Texas Parks and Wildlife Department. Upon such transfer of fee title, Grantor shall reserve a conservation easement over the Protected Property, the terms of which shall be agreed on by Grantor and the Texas Parks and Wildlife Department prior to transfer.

TO HAVE AND TO HOLD the said Conservation Easement unto the said Grantee forever.

IN WITNESS WHEREOF, the Grantor has executed and sealed this document the day and year first above written.

STATE OF TEXAS
COUNTY OF NUECES

The above and foregoing is a true and correct copy as the same appears on file and/or recorded in the appropriate records of Nueces County, Texas.

Thereby certified on 3-15, 1996

County Clerk
Nueces County, Texas

counter 33133

THE NATURE CONSERVANCY OF TEXAS, INC.
Grantor

By: _____
Robert Potts
Acting State Director

ACCEPTED
TEXAS GENERAL LAND OFFICE

By: _____ (Name)
_____ (Title)

STATE OF TEXAS §
COUNTY OF BEXAR §

On this 20th day of November, 1995, before me personally appeared Robert Potts, to me personally known, who, being by me duly sworn did say that he is the Acting State Director of The Nature Conservancy of Texas, Inc., the corporation named in the foregoing instrument; that the seal affixed to said instrument is the corporation seal of said corporation; and acknowledged said instrument to be the free act and deed of said corporation.

IRENE BOSQUEZ
Notary Public, State of Texas
My Commission Expires
OCTOBER 3, 1998

_____
Notary Public
My Commission Expires: 10/3/98

APPROVED:
Contents: _____
Deputy Comm _____
Sr. Deputy _____
Executive _____

STATE OF TEXAS
COUNTY OF NUECES

The above and foregoing is a true and correct copy as the same appears on file and/or recorded in the appropriate records of Nueces County, Texas.

Thereby certified on 3-15, 1996

County Clerk
Nueces County, Texas

Counter 33134

STATE OF TEXAS §
COUNTY OF §

On this 13th day of December, 1995, before me personally appeared Gary Mauro, to me personally known, who, being by me duly sworn did say that he is the Commissioner of the Texas General Land Office; that the seal affixed to said instrument is the corporate seal of said Texas General Land Office; and acknowledged said instrument to be the free act and deed of said entity.

Sherilyn K. Kisamore
Notary Public
My Commission Expires: 11/09/98

SHERILYN K. KISAMORE
NOTARY PUBLIC
State of Texas
Comm. Exp. 11-09-98

[SHAMESMT.TX]

STATE OF TEXAS
COUNTY OF NUECES

The above and foregoing is a true and correct copy as the same appears on file and/or recorded in the appropriate records of Nueces County, Texas.

Thereby certified, on 3-15, 1996.

County Clerk
Nueces County, Texas

Counter 33135

EXHIBIT "A"

THE SURFACE ESTATE ONLY in and to a tract of land known as Shamrock Island or Shamrock Point, known as Abstract No. 215, patented to William Little by Patent No. 415, Volume 17, on July 15, 1867, by virtue of Bryan Scrip No. 20, said tract of land being more specifically described by metes and bounds as follows:

In Nueces County on Shamrock Point of Mustang island, 9 miles from Aransas Pass and about 18 miles N. 81 deg. E. of Corpus Chisti, by virtue of Bryan Land Scrip No. 20 issued by the President of the Republic of Texas December 10, 1836;

Beginning at a post mark XX on the shore of Corpus Christi Bay from which a post marked II, Edwards N. Corner, Brs. North 78-3/4 deg. E. 2322 vrs. a blazed palmetto on said shore brs. N. 77 deg. E. 591 varas;

Thence with high water on said shore, S. 76 deg. W. 1785-1/4 vrs. S. 67-1/2 deg. W. 1099 3/4 vrs. S. 50 deg. W. 761-1/2 vrs. S. 26 deg. W. 648 vrs. S. 10-3/4 deg. E. 414-3/4 vrs. N. 70 deg. E. 237-1/2 vrs. N. 14-1/2 deg. W. 319-1/2 vrs. N. 31-1/2 deg. E. 415-3/4 vrs. S. 19 deg. E. 136-1/2 vrs. N. 82-1/2 deg. E. 137-3/4 vrs. N. 86-3/4 vrs. N. 44-1/2 deg. W. 200-3/4 vrs. N. 174-1/2 vrs. N. 74 deg. E. 142-1/2 vrs. N. 41-1/4 deg. E. 202 vrs. N. 61-1/4 deg. E. 1030-3/4 vrs. N. 71-1/2 deg. E. 883-1/2 vrs. N. 87 deg. E. 448-1/4 vrs. a stake,

Thence leaving the Bay south 57-12 deg. E. 389-1/2 vrs. the S. corner;

Thence North 32-1/2 deg. E. 609 varas to the beginning.

Any provision herein which restricts the Sale, Rental or use of the described REAL PROPERTY because of Race, Color, Religion, Sex, Handicap, Familial Status or National Origin, is invalid and unenforceable under FEDERAL LAW, 3/12/88.

STATE OF TEXAS
COUNTY OF NUECES
I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me, and was duly RECORDED, in the Official Public Records of Nueces County, Texas on

JAN 17 1996

COUNTY CLERK
NUECES COUNTY, TEXAS

Doc# 1996001962
Pages: 8
Date : 01-17-1996
Time : 10:56:19 A.M.
Filed & Recorded in
Official Records
of NUECES County, TX.
ERNEST M. BRIONES
COUNTY CLERK
Rec. $ 23.00

Patricia M. Rivers
17/6 General Land Office
1700 N. Congress, Room 1125
Austin, Texas 78701-1495

STATE OF TEXAS
COUNTY OF NUECES
I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me, and was duly RECORDED, in the Official Public Records of Nueces County, Texas on

JAN 17 1996

COUNTY CLERK
NUECES COUNTY, TEXAS

STATE OF TEXAS
COUNTY OF NUECES

I, ERNEST M. BRIONES, COUNTY CLERK OF NUECES COUNTY, TEXAS, do hereby certify that the foregoing is a true and correct copy of the original record now on file and/or recorded by me in the Official Public records.

WITNESS MY OFFICIAL HAND AND SEAL OF OFFICE, this 15 day of March 1996.

ERNEST M. BRIONES, COUNTY CLERK
NUECES COUNTY, TEXAS
By: Juanita Ramirez Deputy
JUANITA RAMIREZ

2822v
5/14/1998 ch

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Counter 33136

BRISTOL
RESOURCES
Corporation

JOHN M. CHERRY
President

6655 South Lewis
Suite 200
Tulsa, Oklahoma 74136
(918) 492-7900
FAX (918) 492-7944

August 28, 1996

The Nature Conservancy of Texas, Inc.
P. O. Box 1440
San Antonio, TX 78295-1440

Re: Shamrock Island and Facilities
Nueces County, Texas

Gentlemen:

This letter will confirm and memorialize the agreement which we have reached with respect to remediation and use of the surface of Shamrock Island ("Shamrock Island") located in Nueces County, Texas. The Nature Conservancy of Texas, Inc. ("NCT") is the owner of the surface of Shamrock Island, which is more particularly described on Exhibit "A" attached hereto, and Bristol Resources Corporation ("Bristol") is the operator of certain oil and gas properties (the "Oil and Gas Properties") which have production facilities located on Shamrock Island.

Based on our discussions, NCT and Bristol agree as follows:

1. Repairs and Cleanup Work:

For convenience, a plat identifying certain areas located on Shamrock Island is attached hereto as Exhibit "B."

a. Bristol, for itself and other owners of the Oil and Gas Properties, agrees to perform the following work at the expense of such owners:

(1) Area 1, Tank Battery. At the Tank Battery and Separator facility located in Area 1 on the attached Plat, Bristol shall remove the existing nine (9) tanks, the associated tank walkways and associated lines and vessels on the surface of the elevated ring area. Bristol shall not be obligated to remove or alter the elevated surface or ring confinement structure.

Bristol will not remove, and will continue to use, the header, one separator and one 100-BBL fiberglass tank. In addition, Bristol may install a compressor and/or other equipment which it deems necessary to maintain its oil and gas operations. A four (4) strand barb wire fence with a personnel gate will be installed around the remaining piping, valves and production equipment pertaining the Oil and Gas Properties to isolate and protect such equipment from unauthorized personnel.

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Counter 33137

Other than the area on the ring which will continue to be utilized by Bristol, NCT will assume the existing elevated ring area and improvements and may construct a wildlife observation platform, access steps and walkways on the confinement structure.

(2) Area 2, Abandoned Ring . At the abandoned ring located at Area 2 on the attached plat, Bristol will (a) remove the fallen boards and pipe from the water; (b) shore up the existing partial ring by placing a piling at each end and installing cables around the outside of the ring to be secured to the pilings to help support the remaining structure and reduce further deterioration; and (c) will cut the old lines and remove rusted debris from the ring area. Bristol shall not be obligated to remove or alter the elevated surface or ring confinement structure and the cement structures within the ring shall remain to help protect the shoreline from further erosion.

(3) Area 3, Abandoned Ring. At the abandoned ring located at Area 3 on the attached plat, Bristol will remove the several pipes and the stairway, but will otherwise leave the ring, surface and plant life undisturbed. Bristol shall not be obligated to remove or alter the elevated surface or ring confinement structure and the cement structures at this location will remain.

(4) General Clean-Up. Bristol shall remove from the above-described surface areas the above ground abandoned lines and inactive hookups. Except as expressly required above or permitted in paragraph 2.b. below or reasonably necessary for its continued oil and gas operations, Bristol will not disturb the surface of this portion of Shamrock Island.

(5) Regulatory Approvals. If any approvals of the U.S. Coast Guard or other governing body are required to effectuate the transactions contemplated herein, such approvals will be obtained by Bristol, with NCT's full support and cooperation.

b. Bristol agrees to perform the following work for itself and on behalf of NCT:

(1) Area 4, Boat Dock Repairs. In Area 4 on the attached plat, Bristol shall remove the existing boat docks and clear all of the surface lines and related hookups of Bristol, if any. The portable building base will remain for use by NCT. A new metal dock will be installed by a contractor under Bristol's supervision.

(2) Costs. The cost of the dock and installation has been bid at $10,780, which will be born in equal shares, one-half ($5,390) by Bristol and one-half ($5,390) by NCT. Upon payment of the contractor, Bristol shall bill NCT for its share and such invoice shall be paid by NCT immediately upon receipt.

(3) Use of Boat Dock. The dock will be used by NCT and Bristol, and upon cessation of Bristol's operation of facilities on Shamrock Island, the dock shall remain and become the sole property of NCT.

2. Transfer of Assets and Assumption of Liabilities:

a. Conveyance of Assets. For and in consideration of the covenants herein contained, Bristol hereby conveys to NCT the ring confinement structures, the walkways and any other improvements located on or around the above described Area 1, Area 2, Area 3 and Area 4, subject to the right of Bristol and the other working interest owners to continue to utilize portions of the ring confinement structure of Area 1, the boat dock and associated access for the equipment and purposes set forth in Paragraph 1.a.(1) above, until such time as such operations cease and such equipment is removed.

b. Exclusion of Representations and/or Warranties. The conveyance of Assets made in paragraph 2.a. above is made without representations or warranties of any kind whatsoever, including any representations or warranties as to title. NCT ACKNOWLEDGES THAT BRISTOL HAS NOT MADE, AND BRISTOL HEREBY EXPRESSLY DISCLAIMS, ANY REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, RELATING TO THE CONDITION OF ANY PART OF THE ASSETS (INCLUDING, WITHOUT LIMITATION, (i) ANY IMPLIED OR EXPRESS WARRANTY OF MERCHANTABILITY, (ii) ANY IMPLIED OR EXPRESS WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND (iii) ANY IMPLIED OR EXPRESS WARRANTY OF CONFORMITY TO MODELS OR SAMPLES, IT BEING HE EXPRESS INTENTION OF NCT AND BRISTOL THAT THE ASSETS SHALL BE ACCEPTED BY NCT "AS IS" AND IN THEIR PRESENT CONDITION AND STATE OF REPAIR.

3. Release and Indemnity:

a. Release of Bristol. With exception of Bristol's remediation/repair obligations under paragraph 1., NCT hereby releases Bristol and the other working interest owners in the Oil and Gas Properties (all such parties being listed on Exhibit "C" attached hereto and hereinafter sometimes all together referred to as the "Working Interest Owners"), their officers, directors, agents, employees, affiliates, successors or assigns, from any and all claims, costs, losses and causes of action arising prior to the date hereof in any way relating to Shamrock Island which NCT, its officers, directors, agents, employees, successors or assigns may have against the Working Interest Owners, their officers, directors, agents, employees, affiliates, successors or assigns.

b. Indemnity by NCT. NCT hereby agrees to indemnify and hold the Working Interest Owners, including Bristol, harmless from any and all claims, losses and causes of action (including claims resulting from the Working Interest Owners' negligence or other misconduct) which may be asserted against the Working Interest Owners, their officers, directors, agents, employees, affiliates or their successors or

assigns with respect to any of the assets being transferred to NCT hereunder, or in connection with its possession or use of the assumed area, facilities and improvements, including construction and use of the wildlife observation platform, steps and walkways to be constructed in Area 1 and any other improvements made by NCT. The indemnity provided in this paragraph shall not apply in circumstances resulting from the gross negligence or willful misconduct of any of the Working interest Owners, their agents or employees.

c. Insurance to be Maintained by NCT.

(1) NCT shall carry and maintain general liability insurance for property damage and personnel injury with general aggregate coverage of $1,000,000.00 for its benefit, to protect NCT and the Working Interest Owners, their officers, agents or employees with respect to liability arising from NCT's activities on Shamrock Island. Bristol and the other Working Interest Owners shall be named as an additional insured with respect to such insurance policy. So long as the Working Interest Owners, their successors or assigns, maintain any facilities on Shamrock Island, the policy shall contain a provision that such policy shall not be cancelled or terminated without thirty (30) days prior written notice to Bristol or the successor operator of the facilities.

(2) NCT hereby waives its right of recovery from the Working Interest Owners for losses of NCT incurred as a result of the negligence of the Working Interest Owners, their agents, servants or employees in connection with the use of Shamrock Island or operation of the Oil and Gas Properties; provided, however, NCT may recover from a Working Interest Owner for such losses to the extent arising from such Working Interest Owner's gross negligence or willful misconduct. It is intended that NCT's right of recovery with respect to a Working Interest Owners' negligence shall be limited to any insurance policies which NCT is required to maintain pursuant to paragraph 3.c.(1) above. NCT hereby waives any rights of subrogation which its insurance carrier may have under the policy of insurance described herein and, if required by NCT's insurance carrier, will obtain an endorsement to the policy waiving any and all such rights of subrogation.

4. Miscellaneous:

a. Modification. This agreement and the terms hereof may be changed or modified only by execution of such change or modification in writing by the parties hereto.

b. Governing Law. This agreement shall be construed in accordance with, and the rights and duties of the parties hereto shall be governed by, the internal laws of the State of Texas.

c. Binding Effect. All of the covenants, agreements, conditions and restrictions set forth in this Agreement are intended to be and shall be construed as covenants running with the land, binding upon, inuring to the benefit of and enforceable by the parties hereto and their successors and assigns.

d. Construction. Every covenant, term and provision of this Agreement shall be construed simply according to its fair meaning and not strictly for or against either of the parties hereto.

If the above property sets forth your understanding of our agreement, please sign and return one copy of this letter agreement to the Mr. Dwayne Allen, Land Manager in this office.

BRISTOL RESOURCES CORPORATION

By: _____
John M. Cherry, President

AGREED TO AND ACCEPTED this 10th day of September, 1996.

THE NATURE CONSERVANCY OF TEXAS, INC

By: _____
Robert Potts, ~~Vice President and~~
State Director

EXHIBIT "A"

THE SURFACE ESTATE ONLY in and to a tract of land known as Shamrock Island or Shamrock Point, known as Abstract No. 215, patented to William Little by Patent No. 415, Volume 17, on July 15, 1867, by virtue of Bryan Scrip No. 20, said tract of land being more specifically described by metes and bounds as follows:

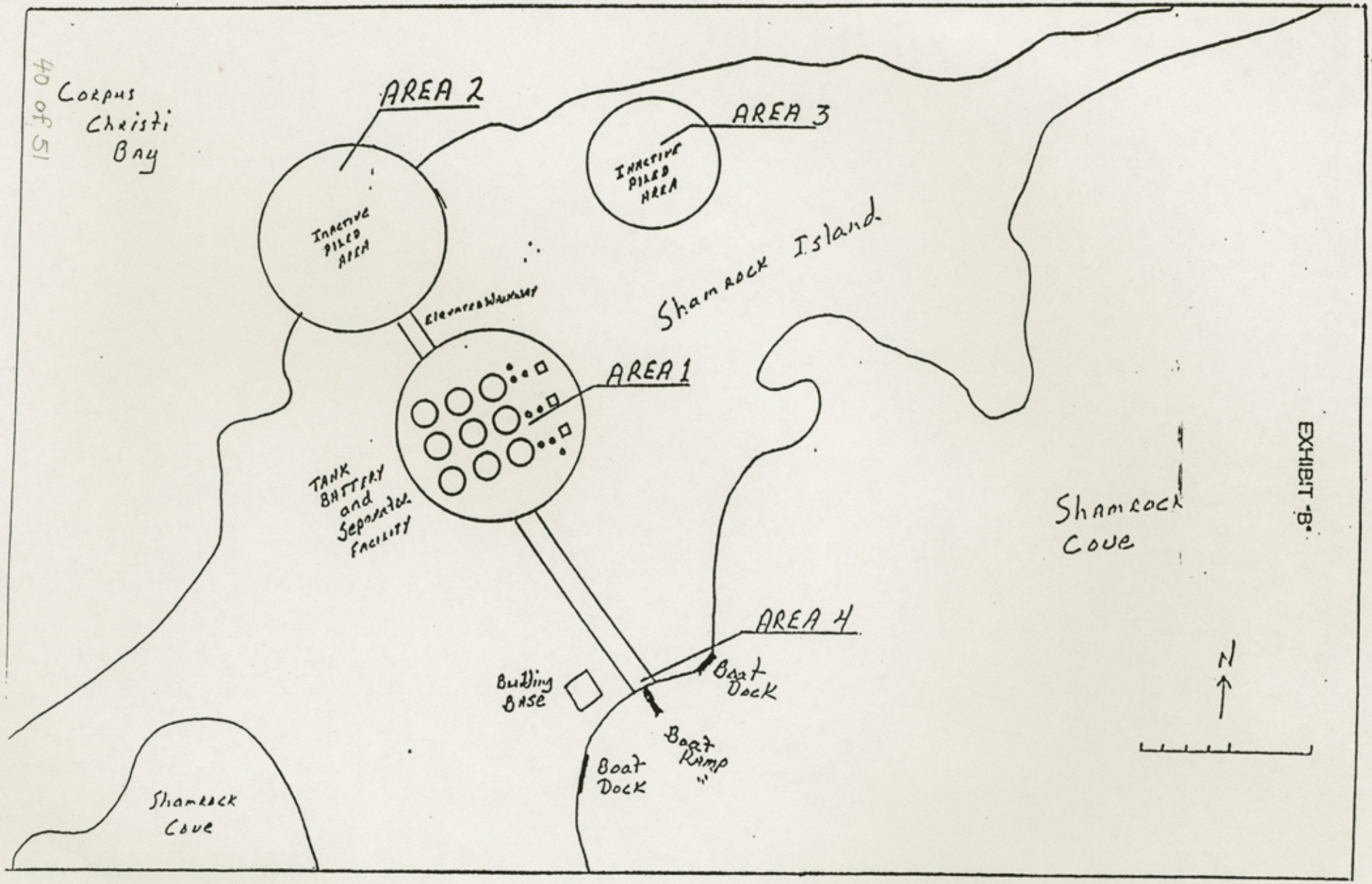
In Nueces County, State of Texas, on Shamrock Point of Mustang Island, 9 miles from Aransas Pass and about 18 miles N. 81 deg. E. of Corpus Christi, by virtue of Bryan Land Scrip No. 20 issued by the President of the Republic of Texas December 10, 1836;

Beginning at a post mark XX on the shore of Corpus Christi Bay from which a post Marked II S. wards N. Corner Brs. North 78-3/4 deg. E. 2322 vrs. a blazed palmentto on said shore brs. N. 77 deg. E. 591 varas; 2822 vrs.

Thence with high water on said shore, S. 76 deg. W. 1785-1/4 vrs, S. 67-1/2 deg. W. 1099-3/4 vrs, S. 50 deg. W. 761-1/2 vrs, S. 26 deg. W. 648 vrs, S. 10-3/4 deg. E. 414-3/4 vrs, N. 70 deg. E. 237-1/2 vrs, N. 14-1/2 deg. W. 319-1/2 vrs, N. 31-1/2 deg. E. 415-3/4 vrs, S. 19 deg. E. 136-1/2 vrs, N. 82-1/2 deg. E. 137-3/4 vrs, N. 86-3/4 vrs, N. 44-1/2 deg. W. 200-3/4 vrs, N. 174-1/2 vrs, N. 74 deg. E. 142-1/2 vrs, N. 41-1/4 deg. E. 202 vrs, N. 61-1/4 deg. E. 1030-3/4 vrs, N. 71-1/2 deg. E. 883-1/2 vrs, N. 87 deg. E. 448-1/4 vrs, to a stake.

Thence leaving the Bay S. 57-1/2 deg. E. 389-1/2 vrs, the S. corner;

Thence N. 32-1/2 deg. E. 609 vrs to the beginning.



Shamrock Island
Nueces County, Texas

EXHIBIT "C"

Bristol Resources Corporation
6655 South Lewis, Suite 200
Tulsa, OK 74136

Bristol Resources Holdings, Inc.
6655 South Lewis, Suite 200
Tulsa, OK 74136

Bristol Production Company
6655 South Lewis, Suite 200
Tulsa, OK 74136

Fina Oil & Chemical Company
A/C TOC-Gulf Coast, Inc.-JIB
South Texas Division
P.O. Box 62102
Houston, TX 77205-2102

NIPSCO Fuel Company, Inc.
801 East 86th Avenue
Merrillville, IN 46410

Whittington Operating Company
P.O. Box 681127
Houston, TX 77268

Comstock Offshore Energy, Inc.
5005 LBJ Freeway, Suite 1000
Dallas, TX 75244

Alpo Energy, Inc.
8700 Louisiana, Suite 4650
Houston, TX 77002

S.C.C.M. Corp.
P.O. Box 7787
Amarillo, TX 79109

CPI Capital Partners, Inc.
1310 Muskrat
Las Cruces, NM 88001

American Central Oil Corporation
6655 South Lewis, Suite 222
Tulsa, OK 74136

Robert W. Key
6655 South Lewis, Suite 200
Tulsa, OK 74136

Dan R. Abney
4116 SE Meadowridge
Claremore, OK 74017

Stephen J. Heyman
2530 East 30th Street
Tulsa, OK 74114

Stephens Investment Company
6655 South Lewis, Suite 222
Tulsa, OK 74136

Sharon A. Allen
3707 East 47th Street
Tulsa, OK 74135-1917

Hydrocarbon Analyst, Inc.
5147 So. Harvard, Suite 130
Tulsa, OK 74135

TEXAS
PARKS AND WILDLIFE DEPARTMENT
4200 SMITH SCHOOL ROAD • AUSTIN, TEXAS 78744 • 512-389-4800

August 25, 1997

Tom Calnan
Texas General Land Office
1700 N. Congress Ave.
Austin, TX 78701

Dear Mr. Calnan:

I am writing to provide information concerning the occurrence of federally listed species on Shamrock Island. This information is provided in support of a proposal to implement management actions on the island through funding from the Coastal Wetlands Conservation Grant Program.

Two species definitely occur on the island and have been observed there by myself and others. I have observed the threatened Piping Plover foraging and resting on the north end of the island. As you know, this species migrates through and winters in coastal Texas.

I have also observed the endangered Brown Pelican roosting on the southern end of the island on many occasions. This species nests approximately 4 miles north of Shamrock Island and frequently uses Shamrock Island as a roosting site and forages in nearby waters.

Although I have not distinguished the subspecies in the field, I suspect that the endangered American Peregrine Falcon (*Falco peregrinus anatum*) may occasionally use the island as a stopover site during its migration.

Sincerely,

Lee F. Elliott

Lee F. Elliott
Regional Endangered Species Biologist

Counter 33145

NATURAL RESOURCE TRUSTEES AND PURCHASE OF SHAMROCK ISLAND

On January 7, 1992, a pipeline owned by Exxon Pipeline Company, ruptured and spilled 123,900 gallons of crude oil into wetlands adjacent to Chiltipin Creek, Aransas County, Texas. As a result of this spill the State Natural Resource Trustees, GLO, TPWD, Texas Natural Resource Conservation Commission, and the U.S. Department of the Interior (the Trustees) assessed and received a natural resource damage award of $130,000. The Trustees are required to spend these funds on a restoration project.

In June 1995, the Trustees determined that the most effective use of the damages recovered as the result of a negotiated natural resource damage assessment was the acquisition and preservation of Shamrock Island. The Trustees restoration plan transferred $130,000 in recovered damages to the TNCT for the specific purchase and enhancement of Shamrock Island. The Trustees chose this option out of five potential and reasonable options because it acquires, preserves, and restores equivalent natural resources as those injured by the Exxon spill incident. Also, Shamrock Island was in imminent threat of erosion and development. These factors contributed significantly to the Trustees deliberations and final decision.

To ensure the preservation of Shamrock Island, the Trustees received a Conservation Easement which protects the natural resources of the island in perpetuity. The Trustees agreed to have the GLO hold the easement. The GLO's role is to coordinate with the TNCT on protection of Shamrock Island.

TEXAS
PARKS AND WILDLIFE DEPARTMENT
4200 SMITH SCHOOL ROAD • AUSTIN, TEXAS 78744 • 512-389-4800

August 25, 1997

ANDREW SANSOM
EXECUTIVE DIRECTOR

Tom Calnan
Texas General Land Office
1700 N. Congress Ave.
Austin, TX 78701

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Sincerely,

Lee F. Elliott

Lee F. Elliott
Regional Endangered Species Biologist

The Nature Conservancy of Texas

P.O. Box 1440
San Antonio, Texas 78295-1440

711 Navarro, Suite 410
San Antonio, Texas 78205-1721
TEL 210 224-8774
FAX 210 228 9805

August 25, 1997

Mr. Tom Calnan
Texas General Land Office
Coastal Division
Stephen F. Austin Bldg.
1700 North Congress Ave.
Austin, TX 78701-1495

Dear Tom,

The Nature Conservancy of Texas (TNCT) has long recognized the tremendous conservation value of Shamrock Island and adjacent habitats on Mustang Island. Prior to acquisition of what we now call Shamrock Island Preserve, our staff was very concerned over the rapidly eroding shoreline on the west and northwest portions of the island and how this may affect nesting birds utilizing the island proper as well as other adjacent areas of Mustang Island. Much of our work related to this preserve has emphasized this issue. In fact, the initial step we made was to spend nearly $5,000 for a research project to assess the erosion dynamics of the island in order to better direct our course of action. Results of this project confirmed that erosion is a serious problem. I applaud the GLO's concern regarding this problem. As the conservation easement holder on the island, GLO's proactive approach to seeking support from the Coastal Wetland Planning, Protection and Restoration Program (i.e. Breaux Bill) to address erosion on Shamrock Island is very commendable and most appreciated by TNCT.

Please accept this letter as complete confirmation of support by TNCT regarding the proposal entitled, "Protection and Restoration of Shamrock Island and Adjacent Habitat." In addition, TNCT pledges financial support of $5,000 and in-kind service support of $7,500 (Shamrock Island monitoring for 12 months), $4,500 (Elderhostel Service Program - Erosion monitoring and vegetation surveys), and assistance of our Conservation Science staff regarding Geographic Information Systems (GIS) assistance regarding site conservation planning efforts related to Shamrock Island and the Mustang Island area in general. In summary, we are willing to commit a total of $17,000 towards this phase of the project. In the future, we are very interested in focusing upon additional conservation opportunities that would allow us to protect other critical habitats on the bay side of Mustang Island.

If you have any questions, please do not hesitate to contact me. Again, I greatly appreciate the efforts of you and the rest of the Coastal Division staff at the GLO. I am very optimistic that this project will be successful and the conservation value of Shamrock Island and adjacent habitats will be secured for the long-term.

Sincerely,

Robert J. Potts
State Director

cc: James King Jeff Weigel
Jim Bergan Terry Cook

counter 33148

The Nature Conservancy of Texas

P.O. Box 1440
San Antonio, Texas 78295-1440

711 Navarro, Suite 410
San Antonio, Texas 78205-1721
TEL 210 224-8774
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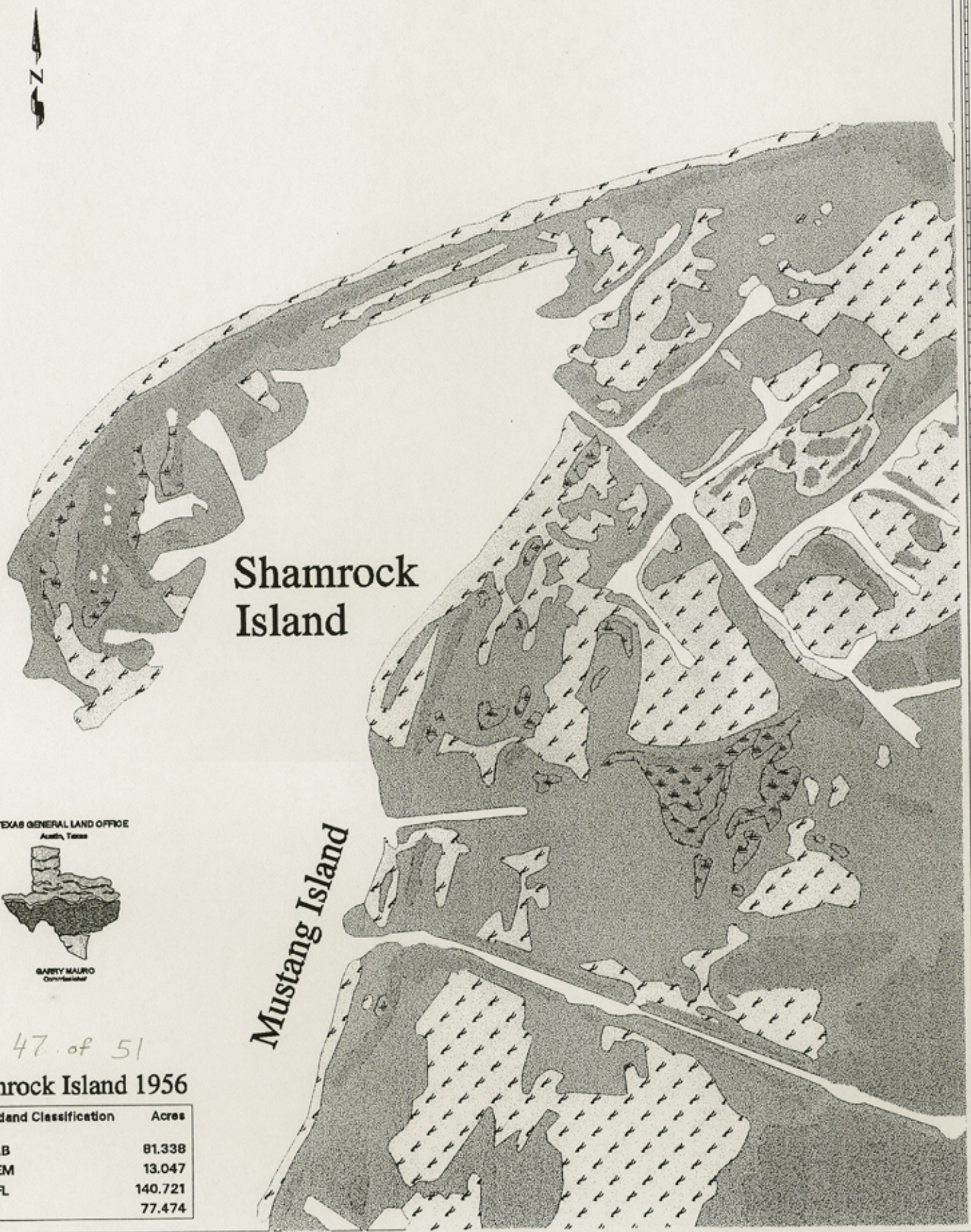
Sincerely,

Robert J. Potts
State Director

cc: James King Jeff Weigel
Jim Bergan Terry Cook

counter 33149

Figure 2a. Shamrock Island and adjacent part of Mustang Island - 1956.
Acreage based on USFWS NWI data.



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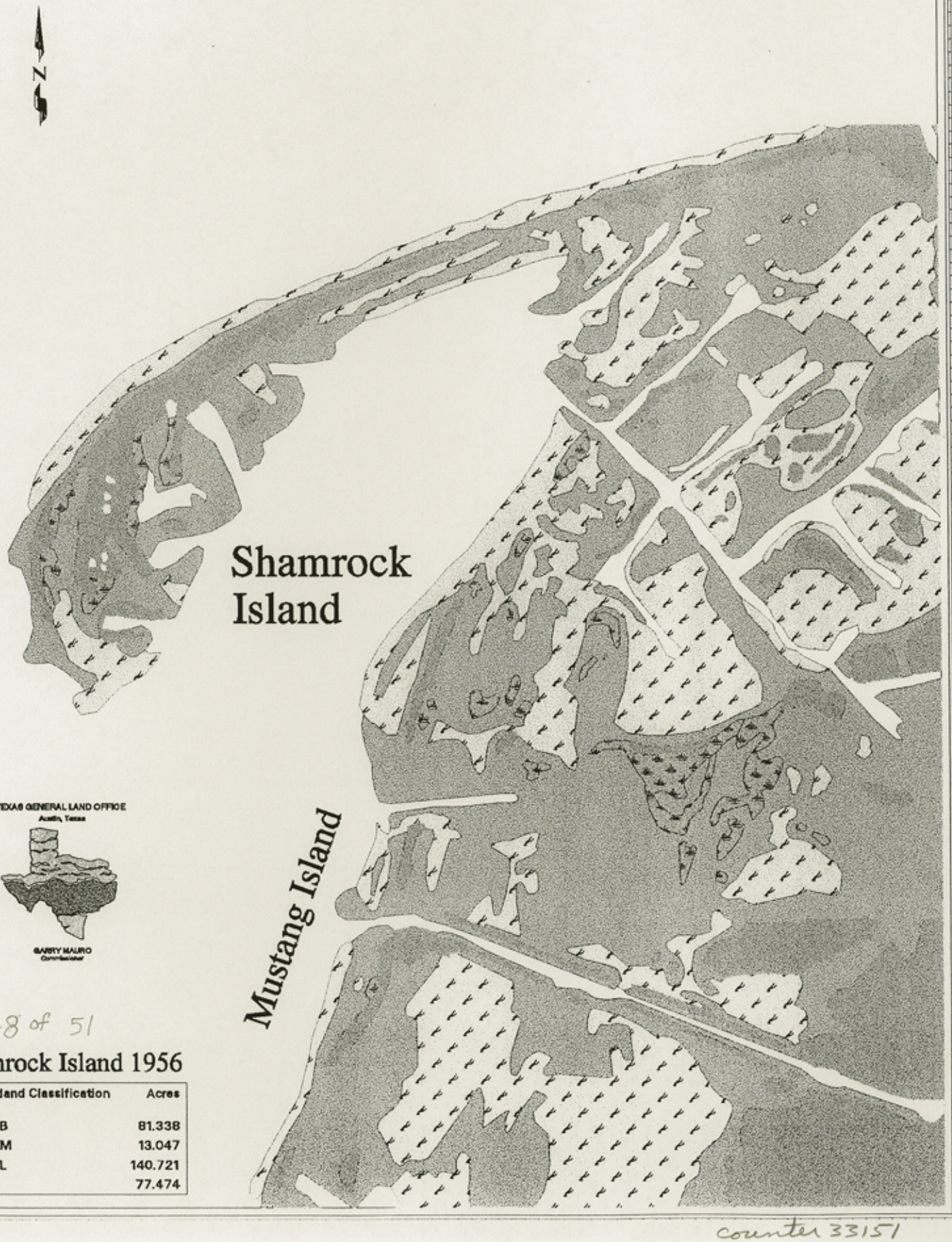
Shamrock Island 1956

Wetland Classification	Acres
E1AB	81.338
E2EM	13.047
E2FL	140.721
U	77.474

counter 33150

Figure 2a. Shamrock Island and adjacent part of Mustang Island - 1956.
Acreage based on USFWS NWI data.



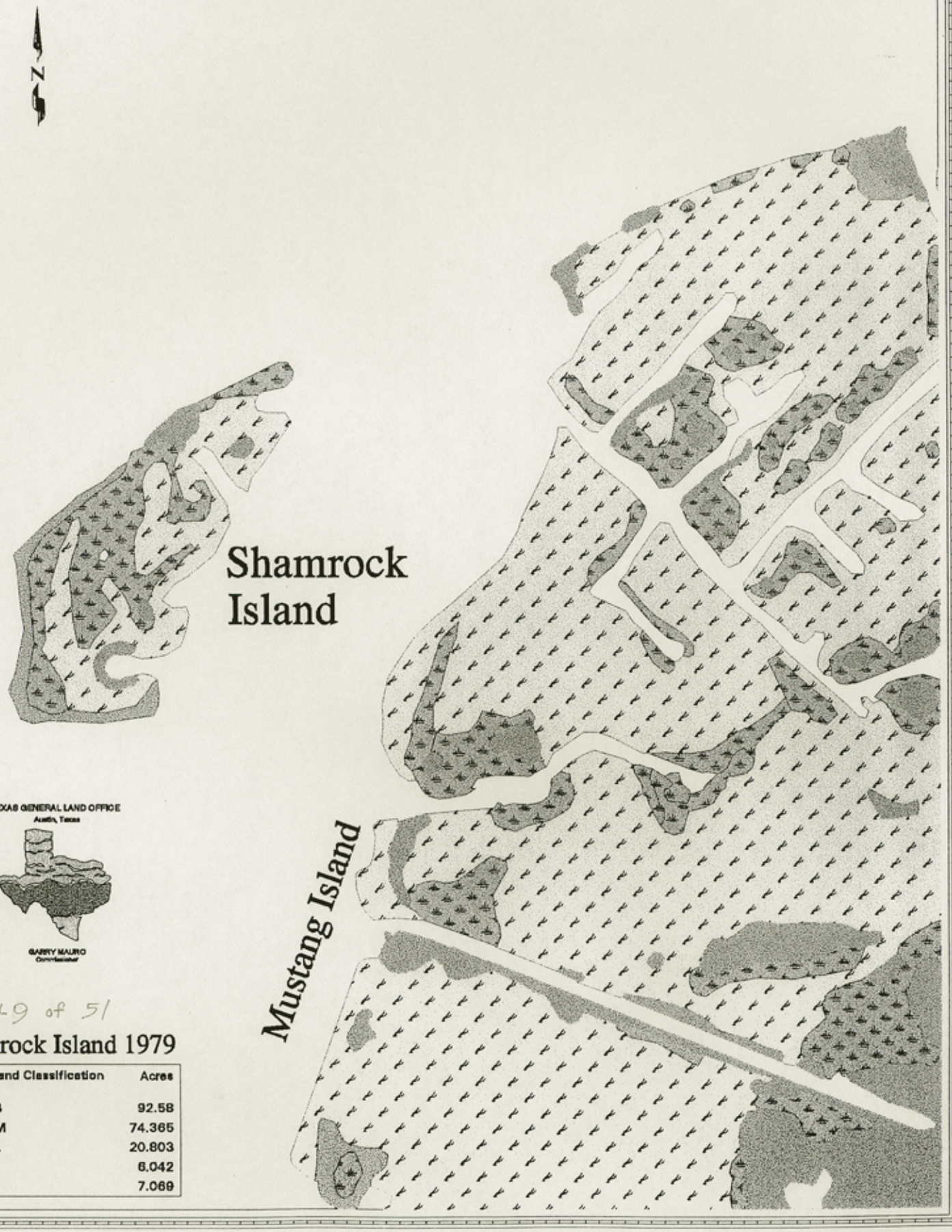
48 of 51

Shamrock Island 1956

Wetland Classification	Acres
E1AB	81.338
E2EM	13.047
E2FL	140.721
U	77.474

counter 33151

Figure 2b. Shamrock Island and adjacent part of Mustang Island - 1979.
Acreage based on USFWS NWI data.



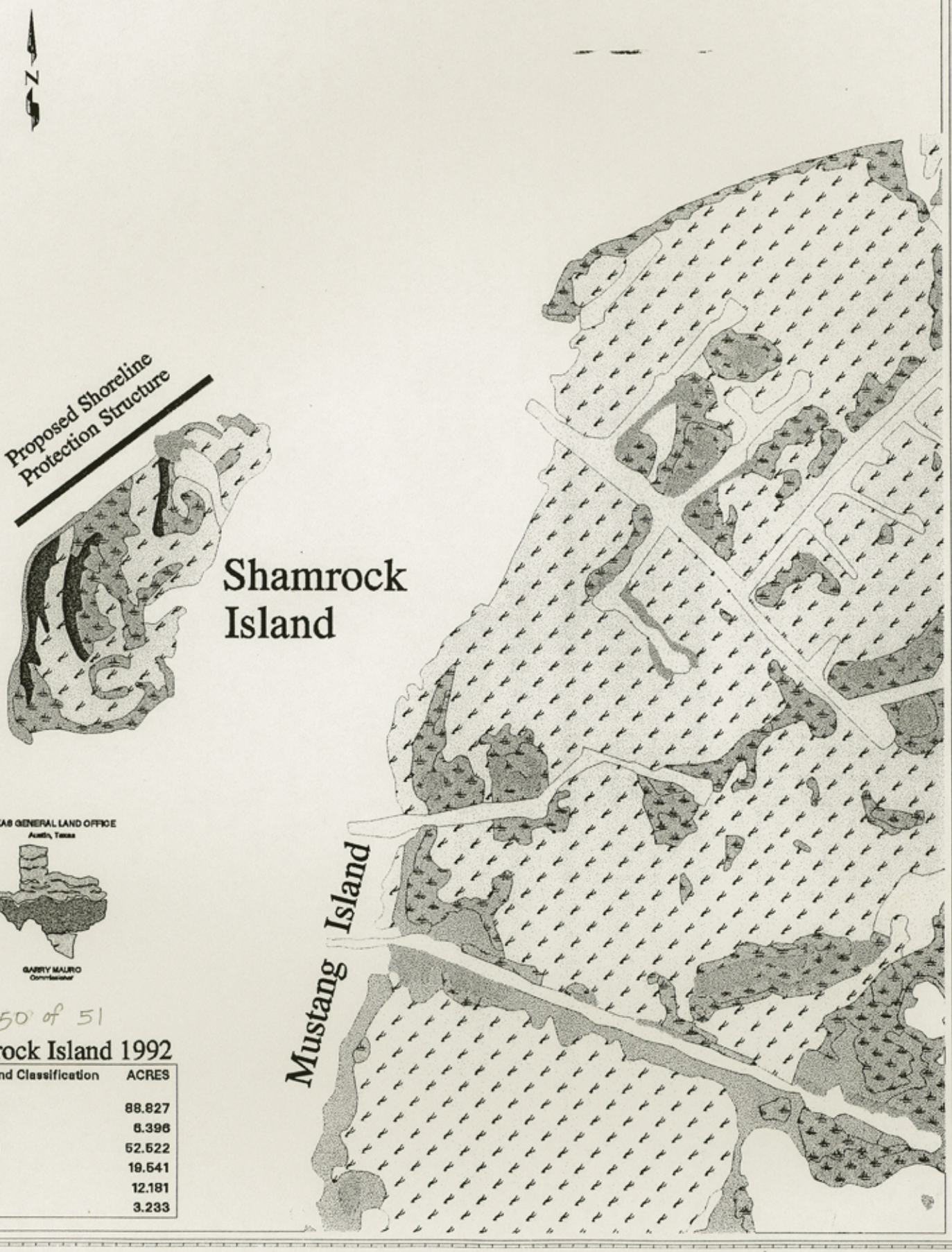
49 of 51

Shamrock Island 1979

Wetland Classification	Acres
E1AB	92.58
E2EM	74.365
E2FL	20.803
UA	6.042
UUO	7.069

counter 33152

Figure 2c. Shamrock Island and adjacent part of Mustang Island - 1992.
Acreage based on USFWS NWI data.



50 of 51

Shamrock Island 1992

Wetland Classification	ACRES
E1AB	88.827
E1UB	6.396
E2EM	52.522
E2SS	19.541
E2US	12.181
U	3.233

Protection and Restoration of Shamrock Island and Adjacent Habitats:
Planning, Construction, and Implementation Tasks and Schedule

Task 1. Form technical and administrative workgroup and conduct meetings. Workgroup will consist of representatives and staff from the following agencies and groups: the TPWD, GLO, USFWS, COE, NMFS, Texas Nature Conservancy (TNCT), Audubon Society, Coastal Bend Bays Foundation, and the Corpus Christi Bay National Estuary Program. Representatives may be from both Austin and field staff in the Corpus Christi area. Workgroup will meet as necessary, but at least every 2 to 3 months, to discuss all phases of the project.

Task 2. Develop interagency contract (IAC) with the TPWD. The IAC may be similar to the interagency contract through which the TPWD passed through funds to GLO under the USFWS Clean Vessel Act grant program.

Task 3. Select contractor.

Task 4. Obtain Section 10/404 permits, 401 certification, archaeological review, and Section 7 consultation. Contractor will be responsible for obtaining necessary permits and certifications.

Task 5. Engineering design. Contractor is responsible.

Task 6. Construction and planting. Contractor is responsible.

Task 7. Outreach/education. This task will be ongoing throughout all phases of project and after project has been completed. Public outreach activities will be conducted by the TNCT, TPWD, Audubon Society, GLO, and USFWS.

Task 8. Monitoring. The project will require at least two years of monitoring by the GLO and the TNCT.

1998 Schedule