

COUNTY OF GALVESTON §
STATE OF TEXAS §

GALVESTON COUNTY
DUNE PROTECTION AND BEACH ACCESS PLAN



- Adopted by Order of Commissioners' Court of Galveston County, Texas on October 25, 2004; and
 - Amended by Order of Commissioners' Court of Galveston County, Texas on January 18, 2006; and
 - Certified as fully consistent with State law by the Texas General Land Office; and
 - Effective on and from September 13, 2006
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GALVESTON COUNTY DUNE PROTECTION AND BEACH ACCESS PLAN

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**AN ORDER OF COMMISSIONERS' COURT OF GALVESTON COUNTY, TEXAS
ADOPTING AMENDMENTS TO THE GALVESTON COUNTY DUNE PROTECTION
AND BEACH ACCESS PLAN**

The Commissioners' Court of Galveston County, on this the 18th day of January, 2006 by Order hereby adopts amendments to the Galveston County Dune Protection and Beach Access Plan that was adopted on October 25, 2004. The Galveston County Dune Protection and Beach Access Plan as amended on this 18th day of January, 2006 shall be effective immediately upon certification by the General Land Office of the State of Texas through its rules promulgated under the Texas Natural Resources Code Section 61.011:

I. STATEMENT OF OBJECTIVES AND AUTHORITIES

A. General Authority

This Order is adopted pursuant to the authority granted to Galveston County (County) under the Dune Protection Act, Chapter 63, Texas Natural Resources Code; Open Beaches Act, Chapter 61, Texas Natural Resources Code; Texas Water Code, Chapter 16, Subchapter I; Texas Natural Resources Code, Chapter 33; Texas Natural Resources Code, Chapter 62; National Flood Insurance Act, 42 U.S.C.A. §§ 4001 et seq.; Coastal Zone Management Act of 1972 and amendments, 16 U.S.C.A. §§ 1451 et seq.; Texas Local Government Code; Texas Government Code, Chapter 418; Galveston County Orders; GLO Beach/Dune Rules, 31 Texas Administrative Code §§ 15.1-15.10, 15.12, 15.21, 15.35; and other statutes of general applicability.

This Order contains numerous citations to federal, state, and local statutes, regulations, orders and ordinances. Copies of the statutes and regulations are not included with this Order because they are subject to legislative changes. In order to provide the most accurate information, citations or references to the laws are provided. Most of these laws may be found in the Galveston County Law Library, Rosenberg Library or on the internet at state and federal government web sites. The University of Houston Law Library, the library at the South Texas College of Law, or the library at the Texas Southern University Thurgood Marshall School of Law in Houston are also sources for state and federal laws cited in this Order. County orders may be found in the official minutes of the Commissioners' Court filed with the Galveston County Clerk. City ordinances can be obtained from the city responsible for enacting them.

B. Objectives

Galveston County Commissioners' Court establishes as its policy for managing and regulating human impacts on the beach/dune system the following goals, identified by the Texas General Land Office in 31 Texas Administrative Code §15.1:

1. to assist coastal citizens and local governments in protecting public health and safety and in protecting, preserving, restoring, and enhancing coastal natural resources including barrier islands and peninsulas, mainland areas bordering the Gulf of Mexico, and the floodplains, beaches, and dunes located there;

2. to aid coastal landowners and local governments in using beachfront property in a manner compatible with preserving public and private property, protecting the public's right to benefit from the protective and recreational functions of a healthy beach/dune system, conserving the environment, conserving flora and fauna and their habitat, ensuring public safety, and minimizing loss of life and property due to inappropriate coastal development and the destruction of protective coastal natural features;
3. to foster mutual respect between public and private property owners and to assist local governments in managing the Texas coast so that the interests of both the public and private landowners are protected;
4. to promote dune protection and ensure that adverse effects on dunes and dune vegetation are avoided whenever practicable. If such adverse effects cannot be avoided and have been minimized, every effort must be made to repair, restore, and rehabilitate existing dunes and dune vegetation;
5. to prevent the destruction and erosion of public beaches and other coastal public resources, to encourage the use of environmentally sound erosion response methods, and to discourage those methods such as rigid shorefront structures which can have a harmful impact on the environment and public and private property;
6. to aid communities located on barrier islands, peninsulas, and mainland areas bordering the Gulf of Mexico which are extremely vulnerable to flooding and property damage due to violent storms by working to reduce flood losses, by minimizing any waste of public funds in the National Flood Insurance Program, and by ensuring that the insurance remains available and affordable;
7. to protect the public's right of access to, use of, and enjoyment of the public beach and associated facilities and services as established by state common law and statutes. The public has a right of use or easement to or over Texas' public beaches, and use of and access to and from the beaches are guaranteed. The Open Beaches Act requires local governments to preserve and enhance use of public beaches and access between the beaches and public roads. Whenever practicable, Galveston County will enhance public beach use and access;
8. to provide coordinated, consistent, responsive, timely, and predictable governmental decision making and permitting processes;
9. to recognize that the beach/dune system contains resources of statewide value and concern, which local governments are in the best position to manage on a daily basis. The GLO Rules are designed to provide local governments with the necessary tools for effective coastal management and are regarded as a minimum standard; local governments are encouraged to develop procedures that provide greater protection for the beach/dune system; and
10. to educate the public about coastal issues such as dune protection, beach access, erosion, and flood protection, and to provide for public participation in the protection of the beach/dune system and in the development and implementation of the Texas Coastal Management Program, of which this Order is a distinct part.

C. Jurisdictions and Authority

Permits dealing with beachfront construction and/or dune protection must be obtained from the local governments administering those responsibilities: the County of Galveston, Texas, for

unincorporated areas of Galveston County subject to this Order, and the City of Galveston, Texas, and the City of the Village of Jamaica Beach, Texas for their respective incorporated areas on Galveston Island.

D. Policy

It is the policy of the Commissioners' Court of Galveston County that this Order will continue to undergo review, modification, and amendment to meet the changing requirements of the Texas Coastal Zone, the citizens of Galveston County, and other interests.

E. Incorporation of State Law

This Order incorporates the Dune Protection Act, the Open Beaches Act, and GLO Rules, 31 Tex. Admin. Code §§ 15.1 -15.10, 15.12, 15.21, and 15.35. Any person in violation of the incorporated laws is in violation of this Order.

II. DUNE PROTECTION

A. Adoption, Compliance, and Modification

1. This Order is adopted pursuant to the authority discussed in Section I(A) of this Order.
2. All persons, county officers, employees, and contractors shall comply with this Order, subject to the penalties described herein.
3. The County may amend this Order by submitting formally approved amendments to the GLO for review, comment, and certification as to compliance with the Dune Protection Act, the Open Beaches Act, and the Beach/Dune Rules.

B. Areas Exempt

1. This Order shall not apply within a state or national park area, wildlife refuge, or other designated state or national natural area.
2. In accordance with Section II(C) below, this Order shall not apply within the incorporated jurisdiction of the City of Galveston.
3. In accordance with Section II(C) below, this Order shall not apply within the incorporated jurisdiction of the Village of Jamaica Beach.
4. Fishing piers:
 - a. At the time of the adoption of this Order, there are two existing fishing piers on Bolivar Peninsula, known as "Meacom's Pier" and "Dirty Pelican Pier."
 - b. The fishing piers are leased directly from the State of Texas and are located on submerged land.
 - c. The State of Texas, through the General Land Office, is responsible for permitting of the fishing piers.
 - d. The County is not responsible for the permitting of the fishing piers under this Order as the fishing piers are located on submerged land and leased directly from the State of Texas. As such, the fishing piers are exempt from the requirements of this Order.
 - e. Fishing piers remain subject to the County Floodplain Regulations.

C. Delegation of Authority

1. Pursuant to Section 63.011 of the Texas Natural Resources Code, the County may allow a municipality located within the County to administer the Dune Protection Act within the municipality's corporate limits and extraterritorial jurisdiction.
2. City of Galveston – Pursuant to Section 63.011 of the Texas Natural Resources Code, authority to administer the Dune Protection Act and for the establishment of a city ordinance to regulate dune protection is hereby delegated to the City of Galveston for all incorporated areas of the City of Galveston.
3. City of the Village of Jamaica Beach – Pursuant to Section 63.011 of the Texas Natural Resources Code, authority to administer the Dune Protection Act and for the establishment of a city ordinance to regulate dune protection is hereby delegated to the City of the Village of Jamaica Beach for all incorporated areas of the City of the Village of Jamaica Beach.

D. Dune Protection Line

1. Authority. Pursuant to Texas Natural Resources Code § 63.011, the Commissioners' Court establishes the dune protection line for the purpose of preserving sand dunes within Galveston County within those areas in Galveston County subject to the authority of this Order.
2. Location of dune protection line.
 - a. The dune protection line on Bolivar Peninsula.
 - 1.) The metes and bounds descriptions supporting the points herein is attached hereto as Appendix 1.
 - 2.) The coordinates are NAD 83 (1993) Texas State Plane Coordinates, South Central Zone as referenced to NGS Monument "PETER" NGS PID AW 5786, with Grid Coordinates of X=3,329,317.03 (ft) Y=13,715,086.39 (ft) as per the NGS Data Sheet which is attached hereto as part of Appendix 1.
 - 3.) The dune protection line shall be located 200 feet landward of the line of vegetation beginning from a point on the Galveston County and Chambers County line and traveling southwesterly continuously thereafter along a line continuously 200 feet landward of the line of vegetation to a point near the southwest end of Bolivar Peninsula on Magnolia Lane, said point (TXSC N 13,721,753.72, E 3,336,333.29), being N 46°27'39" E, a distance of 9678.90 feet from said NGS Monument "PETER";
 Thence, S 46°10'50" W, a distance of 427.94 feet (TXSC Coordinates N 13,721,457.42, E 3,336,024.52);
 Thence N 38°45'00" W, a distance of 88.21 feet (TXSC Coordinates N 13,721,526.21, E 3,335,969.31);
 Thence S 40°16'56" W, a distance of 3393.38 feet (TXSC Coordinates N 13,718,937.50, E 3,333,775.31);
 Thence S 35°35'03" W, a distance of 2414.76 feet (TXSC Coordinates N 13,716,973.67, E 3,332,370.16);
 Thence S 30°52'54" W, a distance of 879.31 feet (TXSC Coordinates N 13,716,219.02, E 3,331,918.84);
 Thence S 39°34'31" W, a distance of 996.97 feet (TXSC Coordinates of N 13,715,450.57, E 3,331,283.68);

Thence S 0°07'47" W, a distance of 362.46 feet (TXSC Coordinates N 13,715,088.11, E 3,331,284.50);
 Thence S 28°43'27" W, a distance of 232.67 feet (TXSC Coordinates N 13,714,884.07, E 3,331,172.68);
 Thence S 28°52'36" W, a distance of 955.24 feet (TXSC Coordinates N 13,714,047.60, E 3,330,711.39);
 Thence S 24°34'26" W, a distance of 2077.14 feet (TXSC Coordinates N 13,712,158.59, E 3,329,847.56);
 Thence S 36°59'32" W, a distance of 457.33 feet (TXSC Coordinates N 13,711,793.31, E 3,329,572.38);
 Thence S 7°15'14" W, a distance of 279.41 feet (TXSC Coordinates N 13,711,516.14, E 3,329,537.10);
 Thence S 20°48'35" W, a distance of 1208.71 feet (TXSC Coordinates N 13,710,386.28, E 3,329,107.69);
 Thence S 9°23'59" W, a distance of 1586.57 feet (TXSC Coordinates N 13,708,821.01, E 3,328,848.57);
 Thence S 40°35'37" W, a distance of 3621.67 feet (TXSC Coordinates N 13,706,070.91, E 3,326,491.99) to a turning point on the dune protection line;
 Thence N 53°00'22" W, a distance of 3823.12 feet (TXSC Coordinates N 13,708,371.39, E 3,323,438.46);
 Thence S 54°14'32" W, along the said line 200 feet landward of the Southerly extent of Vegetation in the Gulf of Mexico, a distance of 2274.65 feet to a point in the Northerly extension of the centerline of the North Jetty with (TXSC Coordinates) of N 13,707,042.17, E 3,321,592.59 and being 45°20'43" W, a distance of 129.39 feet from a brass monument in the North end of the North Jetty and S 43°56'18" W, a distance of 11,152.42 feet from said NGS Monument "PETER".

- b. The dune protection line on Galveston Island subject to this Order. The dune protection line shall be located 200 feet landward of the line of vegetation within the Pirates Beach development from the west line of Pirates Beach Section 6 and traveling east thereafter continuously to the east line of Pirates Beach Section 7, which is the unincorporated area of Galveston Island subject to this Order.
 - c. Pursuant to the Dune Protection Act, the farthest landward that the County may establish the dune protection line is 1,000 feet from mean high tide. Accordingly, the dune protection line shall not exceed 1,000 feet landward of the line of mean high tide of the Gulf of Mexico. At the time of adoption of this Order, the Commissioners' Court finds that the dune protection line described herein does not exceed 1,000 feet landward of mean high tide for the areas of Galveston County for which the dune protection line is established. All critical dune areas shall be seaward of the dune protection line.
3. The written description of the dune protection line herein is filed with the County Clerk of Galveston County, Texas by the adoption and filing of this Order.
 4. Review - The County will review the location of the dune protection line at least once every five years to determine whether the line is adequately located to achieve its stated purposes.

5. Post Storm Review.
 - a. The County will review the adequacy of the location of the line within 90 days after a tropical storm or hurricane affects the portion of the coast in its jurisdiction. Following the review of the location of the dune protection line, the County will:
 - (1) inform the GLO of the occurrence of a tropical storm or hurricane and the results of the review of the adequacy of the dune protection line; and
 - (2) propose the length of time to allow for the natural reestablishment of beach, sand dunes, and through the assistance of the Land Office the line of vegetation, prior to modification of the dune protection line.
 - b. The County may amend this Order consistent with Section 15.3(o) of the Beach/Dune Rules to adjust the dune protection line whenever necessary to achieve its stated purposes. Any amendments to the dune protection line will conform to the requirements stated herein.
6. Amendment. Prior to acting on any amendment to this Order which would modify the line, the County must hold a public hearing to consider the modifications. Not less than one week nor more than three weeks before the date of the hearing, the Commissioners' Court must publish notice of the hearing at least three times in the newspaper with the largest circulation in the County and must notify the GLO in writing. The notice to the GLO must include a written description of the line.

E. Acts Prohibited Without a Coastal Construction Permit

1. Combined permit and certificate. An activity requiring a dune protection permit may typically also require a beachfront construction certificate and vice versa. To simplify the process, the County has combined the dune protection permit and the beachfront construction certificate into a single permit called a Coastal Construction Permit. Requirements for both beachfront construction certificates and dune protection permits, as applicable, must be complied with in order to obtain the single permit. In addition, if construction is occurring, the applicant will also be required to comply with the County Floodplain Regulations and/or Galveston County Subdivision Regulations, as applicable.
2. Unless a Coastal Construction Permit is properly issued by the County authorizing the conduct, no person shall:
 - a. damage, destroy, or remove a sand dune or a portion of a sand dune seaward of the dune protection line or within a critical dune area;
 - b. kill, destroy, or remove in any manner any vegetation growing on a sand dune seaward of the dune protection line or within a critical dune area;
 - c. place fill within the critical dune area, including the construction of dunes; or
 - d. cause, engage in, or allow construction on land adjacent to and landward of public beaches and lying in the area either up to the first public road generally parallel to the public beach or to any closer public road not parallel to the beach, or to within 1,000 feet of mean high tide, whichever is greater, that affects or may affect public access to and use of public beaches unless the construction is properly certified by the County as consistent with this Plan, the GLO Rules, the Open Beaches Act, and other applicable County orders.

F. Activities Exempt from Dune Protection Requirements

The following activities are exempt from the requirement for a dune protection permit, but are subject to the requirements of the Open Beaches Act and the rules promulgated under the Open Beaches Act. The activities are:

1. exploration for and production of oil and gas and reasonable and necessary activities directly related to such exploration and production, including construction and maintenance of production and gathering facilities located in a critical dune area which serve wells located outside the critical dune area, provided that such facilities are located no farther than two miles from the well being served;
2. grazing livestock and reasonable and necessary activities directly related to grazing; and
3. recreational activities other than operation of a recreational vehicle.

G. Pre-Application Process – Threshold Determination of Need for Coastal Construction Permit

1. Submissions by potential applicants - Potential applicants may submit adequate descriptions of the proposed construction activity to the County Building Official in the office of County Engineer at 123 Rosenberg, Suite 4157, Galveston, Texas 77550 for a threshold determination of whether or not a Coastal Construction Permit is required.
 - a. Initial information provided should include:
 - (1) a clear depiction of the location of the property in question on:
 - (a) a plat of the subdivision in which the permit is being applied for, or
 - (b) an aerial photograph of no more than two years previous to the application date.
Following a major hurricane or tropical storm, aerial photographs taken following the hurricane or storm will be required.
 - (2) a clear delineation of the proposed construction either on attached plans or on the plat or aerial photograph.
 - b. Additional information: Upon determination of the Building Official that additional information is necessary to determine if the subject property is seaward of the dune protection line, the potential applicant must provide a survey of the location in relation to the dune protection line and the line of vegetation, referenced to the state plane coordinate system.
 - c. If the potential applicant seeks to establish that no permit is required, the description shall demonstrate that the proposed construction will not adversely affect dunes or public beach use and access. The description must show that the proposed construction will be landward of public beaches and lying in the area either up to the first public road generally parallel to the beach or to any closer public road not parallel to the beach, or 1,000 feet of mean high tide, whichever is greater, that affects or may affect public access to and use of public beaches.
2. Internal Review - The Building Official has five (5) working days to review the information and reply to the applicant with a determination as to whether the proposed construction will require a Coastal Construction Permit. The Building Official will send notice of any proposed determination that the construction activity does not require a permit to the GLO for review.
3. Notification of Applicant - Upon notification from the Building Official that a Coastal Construction Permit is required, the applicant shall then submit a complete application.
4. Application Submission - Persons desiring to conduct activities other than construction which alter the dunes that are within the dune protection line shall submit an application

for a Coastal Construction Permit to the Building Official in the office of the County Engineer of Galveston County.

H. Application Process

1. Review - The Building Official will review the application to determine:
 - a. if all components of the application have been received; and
 - b. if the proposed activity complies with this Order.
2. Report - The Building Official will compile a report which, at a minimum, contains the Building Official's opinion of the following items:
 - a. whether the proposed activity is a prohibited activity;
 - b. whether the proposed activity will materially weaken dunes or materially damage dune vegetation seaward of the dune protection line based on substantive findings;
 - c. whether there are practicable alternatives to the proposed activity and adverse effects can be avoided;
 - d. whether the applicant's mitigation plan will adequately minimize, mitigate, and/or compensate for any unavoidable adverse effects; and
 - e. an affirmative finding that the proposed activity is consistent with this Order or an affirmative finding that the proposed activity is inconsistent with this Order.
3. Changes in the Application
 - a. If the applicant proposes changes to the application during the review process, the applicant shall notify the Building Official at the office of the County Engineer.
 - b. Additionally, the applicant shall submit to the Building Official a modified application, consistent with the applicant's proposed changes.
 - c. The applicant shall be the sole binding proponent of amendments to any application under consideration.
4. General Land Office Review
Upon compilation of the report, the Building Official will forward the following information to the Commissioner of the GLO:
 - a. the final application, as the Building Official will consider it;
 - b. a copy of the community's most recent flood insurance rate map identifying the site of the proposed construction;
 - c. a preliminary determination as to whether the proposed construction complies with all aspects of this Order;
 - d. the activity's potential impact on the community's natural flood protection and protection from storm surge;
 - e. a description as to how the proposed beachfront construction complies with and promotes the County's beach access policies and requirements, particularly this Order's provisions relating to public beach ingress/egress, off-beach parking, and avoidance of reduction in the size of public beach due to erosion;
 - f. copies of aerial photographs of the proposed construction site with a delineation of the footprint of the proposed construction, if the County has aerial photographs of the area in which the construction is proposed; and
 - g. a request for timely comment on the application.

I. Fees

1. At the time of this Order, the County does not charge a fee for the Coastal Construction Permit; however, fees are charged for other permits which may be required in addition to a Coastal Construction Permit, such as a Building Permit.
2. Permit fees collected are credited to the general operation funds of Galveston County.

J. Classification of Permit. Application requirements are determined by permit classification:

1. Class 1 permit needed for any construction in an area from the dune protection line to and through 1000 feet landward of mean high tide that affects or may affect beach access.
2. Class 2 permit needed for any construction in an area from the dune protection line to the vegetation line and for dune walkovers whose seaward terminus may be seaward of the line of vegetation. Dune walkovers are also subject to the requirements of Sections III(G) and/or III(I) of this Order, as applicable.

K. Application Contents. The County requires that all applicants fully disclose in the application all items and information necessary for the County to make a determination regarding a permit. The County requires that applicants for Coastal Construction Permits provide, at a minimum, three copies of the following items and information for each class of permit:

1. Large and Small-Scale Construction Class 1:
 - a. the name, address, phone number, and, if applicable, fax number of the applicant;
 - b. the name, address, phone number, and if applicable, fax number of the owner and of the contractor, if different than the applicant;
 - c. a complete legal description of the tract and a statement of its size in acres or square feet;
 - d. plot plan, showing the existing and proposed structure(s) on the property;
 - e. plans must include the floor plan, front and side view of the structure to be constructed or expanded;
 - f. the physical address of the structure;
 - g. a copy of the community's most recent flood insurance rate map identifying the site of the proposed construction;
 - h. any permit fees required by section II(I) of this Order;
 - i. a statement by the applicant, owner, or contractor that the applicant, contractor, or owner, as applicable, will be responsible for the safe and proper removal of waste generated by the construction.
2. Large and Small-scale Construction Class 2:
 - a. the name, address, phone number, and, if applicable, fax number of the applicant;
 - b. the name, address, phone number, and if applicable, fax number of the owner and of the contractor, if different than the applicant;
 - c. a complete legal description of the tract and a statement of its size in acres or square feet;
 - d. plot plan, showing the existing and new structure on the property;
 - e. plans must include the floor plan, front and side view of the structure to be constructed or expanded;
 - f. the physical address of the structure;
 - g. a copy of the community's most recent flood insurance rate map identifying the site of the proposed construction;

- h. any permit fees required by section II(I) of this Order;
 - i. a statement by the applicant, owner, or contractor that the applicant, contractor, or owner, as applicable, will be responsible for the safe and proper removal of waste generated by the construction;
 - j. photographs of the site which clearly show the current location of the vegetation line and the existing dunes on the tract which are seaward of the dune protection line and the photographs should be dated to show when they were taken;
 - k. copies of aerial photographs of the proposed construction site;
 - l. the number of proposed structures and whether the structures are amenities or habitable structures;
 - m. the number of parking spaces;
 - n. the approximate percentage of existing and finished open spaces (those areas completely free of structures);
 - o. the approximate duration of the construction;
 - p. a description (including location) of any existing or proposed structures;
 - q. an accurate map, site plan, or plat of the site identifying:
 - (1) the site by its legal description, including, where applicable, the subdivision, block, and lot;
 - (2) the location of the property lines and a notation of the legal description of adjoining tracts;
 - (3) the location of the dune protection line, the line of vegetation, proposed and existing structures, and the size of the project area (in acres or square feet) of the proposed construction (building footprint) on the tract;
 - (4) proposed roadways and driveways and proposed landscaping activities on the tract;
 - (5) the location of any seawalls or erosion response structures on the tract and on the properties immediately adjacent to the tract and within 100 feet of the common property line;
 - (6) if known, the location and extent of any man-made vegetated mounds, restored dunes, fill activities, or any other pre-existing human modifications on the tract;
 - (7) proposed landscaping activities within 200 feet of the line of vegetation;
 - (8) the distance between the proposed construction and mean high tide, the vegetation line, the dune protection line, and the landward limit of the beachfront construction area.
3. Large Scale Construction. All applicants for large scale construction, in addition to applicable Class permit requirements specified in this Section K, submit the following:
- a. if the tract is located in a subdivision and the applicant is the owner or developer of the subdivision, a certified copy of the recorded plat of the subdivision, or, if not a recorded subdivision, a plat of the subdivision certified by a licensed surveyor (if the area is located within an un-platted tract, a survey will suffice) and a statement of the total area of the subdivision in acres or square feet;
 - b. in the case of multiple-unit dwellings, the number of units proposed;
 - c. alternatives to the proposed location of construction on the tract or to the proposed methods of construction which would cause fewer or no adverse effects on dunes and dune vegetation or less impairment of beach access; and

- d. the proposed activity's impact on the natural drainage pattern of the site and the adjacent lots.

L. Special Standards for Eroding Areas

1. Authority: 31 TAC § 15.6 requires the County to comply with the standards for eroding areas when issuing, denying, or conditioning a Coastal Construction Permit.
2. The special standards are as follows:
 - a. Structures located on property adjacent to the public beach must be designed for feasible relocation (i.e., on piers).
 - b. Paving or altering the grade below the lowest habitable floor is prohibited in the area between the line of vegetation and 25 feet from the landward toe of the back dune.
 - c. Paving used under the habitable structure and for a driveway connecting the habitable structure and the street is limited to the use of unreinforced fibercrete in maximum of 4 foot x 4 foot sections, which shall be a maximum of four inches thick with sections separated by expansion joists or pervious materials approved by the County Building Official, in that area 25 feet from the landward toe of the back dune to 200-feet landward of the line of vegetation.
 - d. The County shall assess a "Fibercrete Maintenance fee" of \$200.00 to be used to pay for the clean-up of fibercrete from the public beaches should the need arise;
 - e. Reinforced concrete may be used in that area landward of 200-feet from the line of vegetation to alter or pave only the ground within the footprint of the habitable structure.
 - f. Financial assurance is required to fund eventual relocation or demolition and removal of the proposed structure and financial assurance may be provided in the form of an irrevocable letter of credit, performance bond, or other instrument acceptable to the County.
 - g. Structures built in eroding areas must be elevated in accordance with FEMA minimum standards or above the natural elevation (whichever is greater).
3. Please see Section III(A)(2)(i) of this Order for further requirements on the use of slabs.

M. Master Planned Developments

1. The County may adopt separate County Commissioners' Court orders authorizing master planned developments located within the geographic scope of the GLO Rules. These orders must be consistent with and address the dune protection and beach access requirements of the GLO Rules, Dune Protection Act and Open Beaches Act. The orders will be submitted to the GLO for review and approval to ensure consistency with the GLO Rules at least thirty (30) days prior to acting on a request for approval. When considering approval of a master planned development or construction plans and setting conditions for operations under such plans, the County will consider:
 - a. the development's potential effects on dunes, dune vegetation, public beach use and access, and the applicant's proposal to mitigate for such effects throughout the construction;
 - b. the contents of the master planned development; and

- c. whether any component of the development, such as installation of roads or utilities, or construction of structures in critical dune areas or seaward of a dune protection line, will subsequently require a Coastal Construction Permit;
 - d. if a Coastal Construction Permit will be necessary, the County will require the developer to apply for the permit as part of the master planned development approval process; and
 - e. the allocation of responsibilities for complying with the terms of the master plan. This includes, but is not limited to construction and maintenance of mitigation, and liability for violations of the terms of the master plan order.
2. If the County Building Official determines that all development contemplated by the master plan complies with all requirements of this Order, a permit for the development may be issued after receiving approval from the GLO; provided however that approval may be issued without receiving approval from the GLO if at least thirty (30) days have expired since the GLO's receipt of the application and the GLO has not submitted comments on the application or request for extension of time.
 3. If the County Building Official determines that any development contemplated by the plan does not comply with the requirements of this Order and for that reason cannot be approved without an amendment to this Order, the County Building Official will not issue a permit, but may submit the plan to the GLO for consideration as an amendment to this Order pursuant to Section 15.3(o) of the Beach/Dune Rules.

N. Variances from Federal Requirements

The Building Official will inform the GLO and FEMA Region 6 before the County issues any variance from FEMA's regulations found in Volume 44 of the Code of Federal Regulations, Parts 59-77.

III. REQUIREMENTS FOR ISSUANCE OF COASTAL CONSTRUCTION PERMITS

A. Issuance or Denial of Permit

1. Data Considered - To determine whether to issue or deny a permit, the County will review and consider:
 - a. the information in the permit application;
 - b. the recommendations and findings of the Building Official;
 - c. the proposed activity's consistency with the GLO Rules and this Order, including the dune protection and beachfront construction standards contained in both;
 - d. any other law relevant to dune protection and public beach use and access which affects the activity under review;
 - e. the comments of the GLO. The County shall not act on a permit application if the GLO have not received the application at least ten working days before the County is first scheduled to act on the permit. However, the County may act on the permit if the GLO received the application at least ten working days before the County is scheduled to act and the state agencies have not submitted comments. Thereafter, the permit may be issued or denied regardless of whether the state agencies submit comment on the application. If the state agency comments on the application, the receiving County authority must forward copies of the comments to the Building Official;

- f. cumulative and indirect effects of the proposed construction on all dunes and dune vegetation within critical dune areas or seaward of a dune protection line;
 - g. cumulative and indirect effects of other activities on dunes and dune vegetation located on the proposed construction site;
 - h. the pre-construction type, height, width, slope, volume, and continuity of the dunes, the pre-construction condition of the dunes, the type of dune vegetation, and percent of vegetative cover on the site;
 - i. the local historical erosion rate as determined by the University of Texas at Austin, Bureau of Economic Geology, and whether the proposed construction may alter dunes and dune vegetation in a manner that may aggravate erosion;
 - j. all practicable alternatives to the proposed activity, proposed site, or proposed methods of construction;
 - k. the applicant's mitigation plan for any unavoidable adverse effects on dunes and dune vegetation and the effectiveness, feasibility, and desirability of any proposed dune reconstruction and re-vegetation;
 - l. the impacts on the natural drainage patterns of the site and adjacent property;
 - m. any significant environmental features of the potentially affected dunes and dune vegetation such as their value and function as floral or faunal habitat or any other benefits the dunes and dune vegetation provide to other natural resources;
 - n. wind and storm patterns including a history of washover patterns;
 - o. location of the site on the flood insurance rate map;
 - p. success rates of dune stabilization projects in the area; and
 - q. any other information the Building Official considers useful, including resource information made available to it by federal and state natural resource entities.
2. Permits Prohibited - The Building Official will not issue a permit that involves:
- a. inconsistency with this Order or is inconsistent with any other state, local and federal laws related to the requirements of the Dune Protection Act and the Open Beaches Act.
 - b. activities that are likely to result in the temporary or permanent removal of sand from the portion of the beach/dune system located on or adjacent to the construction site, including:
 - (1) moving sand to a location landward of the critical dune area or dune protection line; and
 - (2) temporarily or permanently moving sand off the site, except for purposes of permitted mitigation, compensation, or an approved dune restoration or beach nourishment project, and then only from areas where the historical accretion rate is greater than two feet per year, and the project does not cause any adverse effects on the sediment budget;
 - c. depositing sand, soil, sediment, or dredged spoil which contains the hazardous substances listed in Volume 40 of the Code of Federal Regulations, Part 302.4, in concentrations which are harmful to people, flora, and fauna as determined by applicable, relevant, and appropriate requirements for toxicity standards established by the local, state, and federal governments;
 - d. depositing sand, soil, sediment, or dredged spoil which is of an unacceptable mineralogy or grain size when compared to the sediments found on the site (this

- prohibition does not apply to materials related to the installation or maintenance of public beach access roads running generally perpendicular to the public beach);
- e. creating dredged spoil disposal sites, such as levees and weirs, without the appropriate local, state, and federal permits;
 - f. constructing or operating industrial facilities not in full compliance with all relevant laws and permitting requirements prior to the effective date of the GLO Rules;
 - g. operating recreational vehicles;
 - h. mining dunes;
 - i. inconsistency with the concrete slab or fibercrete slab requirements. Slabs are restricted to the following requirements:
 - (1) In eroding areas within 200 feet of the line of vegetation:
 - (a) Slabs must be constructed of unreinforced fibercrete.
 - (b) They shall be a maximum of four feet by four feet with a maximum thickness of four inches.
 - (c) Slabs are restricted to the footprint of the living area of the structure and the area between the footprint of the structure and the street adjacent to the structure to provide a driveway and must not be structurally attached to the building's foundation.
 - (d) Slabs outside the perimeter of the footprint of the habitable structure are only allowed for one driveway. The length of the driveway is limited to directly connecting the footprint of the perimeter of the habitable structure to the street, and the width of the driveway is limited to no more than the width necessary to service two vehicles.
 - (e) Slabs may not be elevated more than one foot above natural grade.
 - (f) Any fibercrete or concrete that now or in the future impacts the natural accretion of sand and vegetation growth within the dune complex will be in violation of the County Floodplain Regulations and this Order. This fibercrete or concrete must be removed by the owner at the owner's expense. If the owner fails to remove this fibercrete or concrete, the County will remove it at the owner's expense plus penalties.
 - (2) In eroding areas greater than 200 feet from the line of vegetation:
 - (a) Slabs may be constructed of fibercrete or concrete.
 - (b) All slabs may not be elevated more than one foot above natural grade.
 - (c) any concrete or fibercrete that now or in the future impacts the natural accretion of sand and vegetation growth within the dune complex will be in violation of the County Floodplain Regulations and this Order. This concrete or fibercrete must be removed by the owner at the owner's expense. If the owner fails to remove this concrete or fibercrete, the County will remove it at the owner's expense plus penalties.
 - (3) The requirements in Special Standards for Eroding Areas, section II(L) of this Order.
 - (4) In non-eroding areas within 200 feet of the line of vegetation:
 - (a) Paving or altering the grade below the lowest habitable floor is prohibited in the area between the line of vegetation and 25 feet from the landward toe of the back dune.

- (b) Slabs outside the perimeter of the footprint of a habitable structure are only allowed for one driveway. The length of the driveway is limited to directly connecting the footprint of the perimeter of the habitable structure to the street, and the width of the driveway is not to exceed to the designated parking areas servicing the structure.
- (c) Concrete slabs may not be elevated more than one foot above natural grade.
- (d) Any concrete that now or in the future impacts the natural accretion of sand and vegetation growth within the dune complex will be in violation of County Floodplain Regulations and this Order. This concrete must be removed by the owner at the owner's expense. If the owner fails to remove this concrete, the County will remove it at the owner's expense plus penalties.
- (5) In non-eroding areas greater than 200 feet from the line of vegetation:
 - (a) Concrete slabs may not be elevated more than one foot above natural grade.
 - (b) Any concrete that now or in the future impacts the natural accretion of sand and vegetation growth within the dune complex will be in violation of County Floodplain Regulations and this Order. This concrete shall be removed by the owner at the owner's expense. If the owner fails to remove this concrete, then the County will remove it at the owner's expense plus penalties.
- (6) Violations of any of these rules are subject to the provisions of the Violations and Penalties section of the Galveston County Flood Damage Prevention Order.
- (7) The use of permeable materials such as brick pavers, limestone, or gravel is recommended for drives or parking areas;
- j. depositing trash, waste, or debris including inert materials such as concrete, stone, and bricks that are not part of the permitted on-site construction;
- k. constructing cisterns, septic tanks, and septic fields seaward of any structure serviced by the cisterns, septic tanks, and septic fields, except that:
 - (1) Previously existing: cisterns, septic tanks, and septic fields seaward of any structure serviced by the cisterns, septic tanks, and septic fields which are in existence prior to the effective date of this Order may be repaired or replaced, provided they do not encroach upon the public beach;
 - (2) Previously permitted: cisterns, septic tanks, and septic fields seaward of any structure serviced by the cisterns, septic tanks, and septic fields that are located in subdivisions platted before the effective date of this Order and which have been permitted before the effective date of this Order may be constructed in accordance with the permit and may be repaired or replaced in the future (as applicable) provided they do not encroach upon the public beach;
 - (3) Previously platted: cisterns, septic tanks, and septic fields may be constructed (and repaired or replaced in the future as applicable) seaward of the structure they are to serve in subdivisions platted before the effective date of this Order provided that they do not encroach upon the public beach and provided that the applicant show that it is not practicable to locate the cisterns, septic tanks, and septic fields landward of the structure they are to serve.
 - (a) Showing that it is not practicable to locate the cisterns, septic tanks, and septic fields landward of the structure they are to serve for the purposes of this subsection III(A)(2)(k)(3) includes a showing of factors that may include, but are

not limited to, that: the structure could be constructed but for this requirement; the structure and/or septic system cannot comply with Texas Commission on Environmental Quality rules due to this requirement; the structure and/or septic system cannot comply with Galveston County Health District requirements due to this requirement; the structure and/or septic system cannot comply with Bolivar Special Utility District requirements due to this requirement; and/or the structure and/or septic system cannot comply with Harris-Galveston Coastal Subsidence District requirements due to this requirement. As well, factors such as the distance of the cisterns, septic tanks, and septic fields from a drainage ditch(s), distance from other water source, distance from other structures, whether an aerobic system is required due to soil quality, financial cost to the applicant, and distance from roadway, slabs, neighboring septic systems, neighboring water wells, and/or neighboring properties may be considered in determining whether it is not practicable to comply with the requirement that the septic system be located landward of the structure it is to serve.

- (b) An applicant who proposes to construct a cistern, septic tank, or septic field seaward of the structure it is to serve must include real property records from the Galveston County Clerk Office to show that the lot was platted before the effective date of this Order.
 - (c) The Building Official shall make the finding on whether it is not practicable to construct the cisterns, septic tanks, or fields landward of the structure they are to serve when an applicant proposes to construct a cistern, septic tank, or septic field seaward of the structure it is to serve in lots platted before the effective date of this Order. The Building Official's finding may be appealed to the County Engineer. If both the Building Official and the County Engineer find that the applicant has not demonstrated that it is not practicable to comply with the requirement that the cistern, septic tank, or septic field be located landward of the structure that it is to serve, then the applicant may appeal to the Commissioners' Court. All appeals must be filed within two (2) weeks of the applicant's receipt of the finding from the Building Official or the County Engineer, as applicable, by filing a written request for appeal in the County Engineer's office. The finding of the Commissioners' Court is final. The finding of whether it is not practicable to comply with the requirement that the cisterns, septic tanks, and septic fields be located landward of the structure they are to serve shall be made by the County.
- (4) construction of cisterns, septic tanks, and septic fields, including repair and/or replacement, must be in compliance with the Galveston County Health District Construction Standards for On-Site Sewerage Facilities and as the standards may hereinafter be amended or replaced, Chapter 366 of the Texas Health and Safety Code, Chapters 30 and 285 of Title 30 of the Texas Administrative Code, other County orders, and state or federal laws or regulations; and
 - (5) this Order does not authorize and shall not be construed to authorize the construction of cisterns, septic tanks, and septic fields, including repair and/or replacement, where such is prohibited by Galveston County Health District Construction Standards for On-site Sewerage Facilities and as the standards may

hereinafter be amended or replaced, Chapter 366 of the Texas Health and Safety Code, Chapters 30 and 285 of Title 30 of the Texas Administrative Code, other County orders, and state or federal laws or regulations.

- l. detonating bombs or explosives;
 - m. reducing the size of the public beach in any manner; and
 - n. closing or otherwise impairing any existing public beach access points unless the County simultaneously provides or requires the permittee to provide equivalent public access.
3. Required Findings - The Building Official may issue a permit only if the Building Official finds as a fact, after a full investigation, that:
- a. the particular conduct proposed will not materially weaken any dune or materially damage dune vegetation or reduce the effectiveness of any dune as a means of protection against erosion and high wind and water. In making the finding as to whether such material weakening or material damage will occur, the County will use the following technical standards. If any of these standards are not met, the activity will result in material weakening or material damage and a permit will not be issued. The standards are:
 - (1) the activity shall not result in the potential for increased flood damage to the proposed construction site or adjacent property;
 - (2) the activity shall not result in runoff or drainage patterns that aggravate erosion on or off the site;
 - (3) the activity shall not result in significant changes to dune hydrology;
 - (4) the activity shall not disturb unique flora or fauna or result in adverse effects on dune complexes or dune vegetation; and
 - (5) the activity shall not significantly increase the potential for washovers or blowouts to occur.
 - b. the proposed activity is not a prohibited activity as defined in Subsection III(A)(2) of this Order (Permits Prohibited);
 - c. there are no practicable alternatives to the proposed activity that would result in less adverse effects to critical dune areas and impacts cannot be avoided;
 - d. the applicant's mitigation plan will adequately minimize, mitigate, and/or compensate for any unavoidable adverse effects; and
 - e. the proposed activity complies with any applicable requirements of this Order.
 - f. The Building Official shall make an affirmative finding that the proposed activity is consistent with the beach access requirements in this Order or an affirmative finding that the proposed activity is inconsistent with the beach access requirements in this Order.
4. Mitigation Sequence - The mitigation sequence will be used by the County in determining whether to issue a permit, after the determination that no material weakening of dunes or material damage to dunes or dune vegetation will occur within critical dune areas or seaward of the dune protection line. The mitigation sequence consists of avoidance, minimization, mitigation (repairing, rehabilitating, or restoring), and compensation as follows:

- a. Avoidance - avoiding the impact altogether by not taking a certain action or parts of an action; Permittees undertaking construction in critical dune areas or seaward of a dune protection line must use the following avoidance techniques:
- (1) Routing of non-exempt pipelines: Non-exempt pipelines are any pipelines other than those subject to the exemption in this Order. Permittees may not construct non-exempt pipelines within critical dune areas or seaward of a dune protection line unless there is no practicable alternative.
 - (2) Location of construction and beach access: Permittees proposing construction seaward of dune protection lines and within critical dune areas must locate all such construction as far landward of dunes as practicable. The County will not restrict construction which provides access to and from the public beach pursuant to this provision.
 - (3) Location of roads: Permittees constructing roads parallel to beaches in historically eroding areas must locate the roads as far landward of the critical dune areas as practicable and must not locate such parallel roads within 200 feet landward of the natural vegetation line. This subsection III(A)(4)(a)(3) on the location of roads will not apply on subdivisions platted prior to the adoption of this Order; however, construction on previously platted subdivisions is subject to this Order. The County will review platted subdivision plans when application is made for a road to be built less than 200 feet from the vegetation line and parallel to the beach to determine if there exists a practical means of realigning the proposed road to meet the requirements of this subsection. Roads perpendicular to the beach culminating in cul-de-sacs serving more than one lot may be built less than 200 feet from the vegetation line.
 - (4) Artificial runoff channels: Construction of new artificial channels, including stormwater runoff channels will not be permitted unless there is no practicable alternative.
- b. Minimization - minimizing effects on dunes and dune vegetation by limiting the degree or magnitude of the action and its implementation. If an applicant for a permit demonstrates that the adverse effects on dunes or dune vegetation cannot be avoided and the activity will not materially weaken dunes and dune vegetation, the County may issue a permit allowing the proposed alteration, provided that the permit contains a condition requiring the permittee to minimize adverse effects on dunes or dune vegetation to the greatest extent practicable.
- (1) Routing of non-exempt pipelines: Non-exempt pipelines are any pipelines other than those subject to the exemption in this Order. If a permittee demonstrates that there is no practicable alternative to crossing critical dune areas, the County may allow a permittee to construct a pipeline across previously disturbed areas, such as blowout areas. Where use of previously disturbed areas is not practicable, the permittee will be required to avoid adverse effects on or disturbance of dune surfaces and will be required to follow the mitigation sequence if the adverse effects are unavoidable.
 - (2) Location of construction and beach access:

- (a) Permittees must minimize construction and pedestrian traffic on or across dune areas to the greatest extent practicable, taking into account trends of dune movement and beach erosion in that area.
 - (b) Permittees may be allowed to route private and public pedestrian beach access to and from the public beach through washover areas or over elevated walkways. If the beach access is public, the County will clearly and conspicuously mark all pedestrian access routes and walkways with permanent signs.
 - (c) The County will minimize proliferation of excessive private access by permitting only the minimum necessary private beach access points to the public beach from any proposed subdivision, multiple dwelling, or commercial facility. In some cases, the minimum beach access points may be only one access point. In determining the appropriate grouping of access points, the County will consider the size and scope of the development.
 - (d) The County and the owners and operators of commercial facilities, subdivisions, and multiple dwellings will post signs in areas where pedestrian traffic is high, explaining the functions of dunes and the importance of vegetation in preserving dunes.
- (3) Location of roads: The County, in its ongoing responsibility for road and drainage maintenance, will, where practicable, achieve the road construction standards for existing and new roads as required for permittees and set out further in this subsection. Following major damage to or destruction of existing roads following storms or hurricanes, the County will evaluate the condition of the road and determine whether the existing road will be permanently closed or repaired or relocated by the County or a future permittee or whether alternate beach access roads will be encouraged as provided for in this section. Criteria to be used in determining the feasibility of repair, relocation or permanent closing will include the extent of damages, the existing road right-of-way, beach access available from other roadways and cost and practicality of repair, restoration or relocation.
- (a) Existing roads: Unless otherwise noted, it is assumed that roads that provide vehicular access from the beach to points landward of the critical dune area are located in the dunes by virtue of their presence in the critical dune area. It is further assumed that the roads are located on dune vegetation, either because some amounts of vegetation are present on the road surface itself or because the roads were constructed over dune vegetation at the time of their construction. Wherever practicable, permittees may be required to improve existing access roads by:
 - (1) elevating to 10 foot current NGVD elevation.
 - (2) creating elevated berms at the dune line that prevent channelization of floodwaters with a goal of a 40 foot width across the top of the berm when measured perpendicular to the beach. Elevated berms may also approximate the elevation of existing dunes where appropriate if vehicles are not prohibited from entering the beach.
 - (3) achieving the standards for new road construction found in this section.

- (b) Wherever practicable, permittees may be required to locate beach access roads in washover areas, blowout areas, or other areas where dune vegetation has already been disturbed. Permittees must build such roads along the natural land contours, to minimize the width of such roads, and where possible, to improve existing access roads with elevated berms near the beach that prevent channelization of flood waters. Wherever practicable, permittees will be required to locate roads at an oblique angle to the prevailing wind direction, and to meet or exceed the following criteria:
 - (1) All future roadways crossing the dunes must be built to 10 foot current NGVD elevation with elevated berms at the dune line to prevent channelization of floodwaters.
 - (2) All future roadways crossing the dunes must be built with 40 foot width across the top surface of the berm as measured perpendicular to the beach.
 - (3) New roadways must be delineated with 8 foot posts or bollards, spaced 4 feet on center, 5 feet in the ground, identifying each side of a maximum 24 foot wide roadway from a point within or landward of the vegetation line, to a point not less than 150 feet landward of the most seaward post or bollard.
 - (4) Roadways must be constructed to current Galveston County requirements.
 - (5) No vehicle parking will be permitted in the dune area where the roadway crosses the dune.
- (c) Wherever practicable, the County will provide vehicular access to and from beaches by using existing roads or from roads constructed in accordance with this section. The County will not apply this provision in a manner which restricts public beach access.
- (d) The County will include in any permit authorizing the construction of roads, a permit condition prohibiting persons from using or parking any motor vehicle on, through, or across dunes in critical dune areas except for the use of vehicles on designated access ways.
- (4) Artificial runoff channels: The County will only authorize construction of artificial runoff channels (that direct stormwater flow) if the channels are located in a manner which avoids erosion and unnecessary construction of additional channels. Permittees will be required to make maximum use of natural or existing drainage patterns, whenever practicable, when locating new channels and stormwater retention basins. However, if new channels are necessary, permittees will be required to direct all runoff inland and not to the Gulf of Mexico through critical dune areas, where practicable.
- c. Mitigating - repairing, rehabilitating, or restoring affected dunes and dune vegetation. Permittees will be required to mitigate damage to dunes and dune vegetation so as to provide, when compared to the pre-existing dunes and dune vegetation, an equal or greater area of vegetative cover and dune volume, an equal or greater degree of protection against damage to natural resources, and an equal or greater degree of protection against flood and erosion damage and other nuisance conditions to adjacent properties.

- (1) A permittee may be allowed to mitigate adverse effects on dunes using vegetative or mechanical means. Permittees proposing to restore dunes must use the following techniques:
 - (a) restore dunes to approximate the naturally formed dune position or location, contour, volume, elevation, vegetative cover, and sediment content in the area;
 - (b) allow for the natural dynamics and migration of dunes;
 - (c) use discontinuous or continuous temporary sand fences or an approved method of dune restoration, where appropriate, considering the characteristics of the site; and
 - (d) restore or repair dunes using indigenous vegetation that will achieve the same protective capability or greater capability as the surrounding natural dunes.
 - (2) Stabilization of critical dune areas - Priority for stabilization will be given to blowouts and breaches when permitting restoration of dunes. Before permitting stabilization of washover areas, the County will:
 - (a) assess the overall impact of the project on the beach/dune system;
 - (b) consider any adverse effects on hydrology and drainage which will result from the project; and
 - (c) require that equal or better public beach access be provided to compensate for impairment of any public beach access previously provided by the washover area.
- d. Compensating - compensating for effects on dunes and dune vegetation by replacing or providing substitute dunes and dune vegetation. Compensation may be undertaken both on-site and off-site; however, off-site compensation may only be allowed as provided below.
- (1) On-site compensation consists of replacement of the affected dunes or dune vegetation on the property where the damage to dunes and dune vegetation occurred and seaward of the local dune protection line. Permittees will be required to undertake compensation on the construction site, where practicable. Permittees must follow the requirements provided in this Order when replacing dunes or dune vegetation.
 - (2) Off-site compensation consists of replacement of the affected dunes or dune vegetation in a location outside the boundary of the property where the damage to dunes and dune vegetation occurred. The landward limit of allowable off-site mitigation is the local dune protection line. A permittee's compensation efforts must take place on the construction site unless the permittee demonstrates the following facts to the County:
 - (a) on-site compensation is not practicable;
 - (b) the off-site compensation will be located as close to the construction site as practicable;
 - (c) the proffered off-site compensation has achieved a 1:1 ratio of proposed adverse effects on successful, completed, and stabilized restoration prior to beginning construction; and
 - (d) the permittee has notified FEMA, Region 6, of the proposed off-site compensation.

- (3) Permittees must provide the following information when proposing off-site compensation:
- (a) the name, address, phone number, and fax number, if applicable, of the owner of the property where the off-site compensation will be located;
 - (b) a legal description of property intended to be used for the proposed off-site compensation;
 - (c) the source of sand and dune vegetation;
 - (d) all information regarding permits and certificates issued for the restoration of dunes on the compensation site;
 - (e) all relevant information regarding the success, current status, and stabilization of the dune restoration efforts on the compensation site;
 - (f) any increase in potential flood damage to the site where the adverse effects on dunes and dune vegetation will occur and to the public and private property adjacent to that site; and
 - (g) the proposed date of initiation of the compensation. The County will include a condition in each permit authorizing off-site compensation requiring permittees to notify the County in writing of the actual date of initiation within ten (10) working days after compensation is initiated. If the permittee fails to begin compensation on the date proposed in the application, the permittee must provide the County with the reason for the delay. The County will take this reason into account when determining whether a permittee has violated the compensation deadline.
- (4) Compensation for adverse effects on dune vegetation: Permittees will be required to compensate for adverse effects on dune vegetation by planting indigenous vegetation on the affected dunes and the County will consider the recommendations of the GLO, federal and state natural resource agencies, and dune vegetation experts. Permittees may be allowed to use temporary sand fencing or another approved method of dune restoration. A permittee will be prohibited from compensating for adverse effects on dune vegetation by removing existing vegetation from private or state-owned property unless the permittee has received prior written permission from the property owner or the state. In addition to the requirement that permission be obtained from the property owner, all persons are prohibited from removing vegetation from a critical dune area or seaward of a dune protection line unless specifically authorized to do so in a coastal construction permit. The County will include conditions in such permits requiring the permittee to provide a copy of the written permission for vegetation removal and to identify the source of any sand and vegetation which will be used to compensate for adverse effects on dunes and dune vegetation in the mitigation plan contained in the permit application.
- (5) If for any reason, an applicant cannot demonstrate the ability to mitigate adverse effects on dunes and dune vegetation, the County is not authorized to issue the permit. Permittees will be required to use the mitigation sequence as a permit condition if the County finds that an activity will result in any adverse effects on dunes or dune vegetation seaward of a dune protection line or on critical dune areas.

When the County requires mitigation as a permit condition, permittees will be required to follow the order of the mitigation sequence as provided above.

- (6) Permittees will be required to begin compensation for any adverse effect(s) to dunes and dune vegetation prior to or concurrent with the commencement of construction. If compensation is not completed prior to commencement of construction, permittees shall be required to provide the County with proof of financial responsibility in an amount equal to that necessary to complete the mitigation. This can be done in the form of an irrevocable letter of credit, performance bond, or any other instrument acceptable to the County.
- (7) Permittees will be required to conduct compensation efforts continuously until the repaired, rehabilitated, and restored dunes and dune vegetation are equal or superior to the pre-existing dunes and dune vegetation. These efforts will include preservation and maintenance pending completion of compensation.
- (8) A compensation project shall be determined complete when the dune restoration project's position, contour, volume, elevation, and vegetative cover matches or exceeds the surrounding naturally formed dunes.
- (9) The County will provide written notification to the GLO after determining that the compensation is complete. The GLO may conduct a field inspection to verify compliance with the GLO Rules. If the County does not receive an objection from the GLO regarding the completion of compensation within 30 working days after the GLO is notified in writing, the County may certify that the compensation is complete.
- (10) The GLO recognizes that the time necessary to restore dunes and dune vegetation varies with factors such as climate, time of year, soil moisture, plant stability, and storm activity. The permittee shall be deemed to have failed to achieve compensation if a 1:1 ratio has not been achieved within 3 years after beginning compensation efforts.

B. Administrative Record

1. The Building Official will compile and maintain an administrative record which demonstrates the basis for each final decision made regarding issuance of a permit. The administrative record will include copies of the following:
 - a. all materials received from the applicant as part of or regarding the permit application;
 - b. the transcripts, if any, or the minutes and/or tape of the County's meeting during which a final decision regarding the permit was made; and
 - c. all comments received by the County regarding the permit.
2. The Building Official will keep the administrative record for a minimum of three years from the date of a final decision on a permit. This record will be made part of the permanent records of the Office of the County Engineer of Galveston County. The Building Official will send to the GLO, upon its request, a copy of those portions of the administrative record that were not originally sent to the GLO for permit application review and comment. The record must be received by the GLO no later than ten (10) working days after the County receives the request. The GLO will notify the appropriate permittee of the request for a copy of the administrative record from the County. Upon request of the permittee, the Building Official will provide to the permittee copies of any

materials in the administrative record regarding the permit which were not submitted to the Building Official by the permittee or given to the permittee by the County.

C. Term and Renewal of Permits

1. Permits will be valid for no more than three (3) years from the date of issuance.
2. The Building Official may renew a permit for a period not exceeding ninety (90) days if the activity as proposed in the application for renewal complies with this Order and the permittee supplements the original application materials with additional information indicating any changes to the original information. The Building Official may issue only two (2) renewals for each permit. Thereafter, the permittee must apply for a new permit.
3. If the proposed construction is changed in any manner which causes or increases adverse effects on dunes, dune vegetation, or public beach use and access, the permittee will not be eligible for a renewal but must apply for a new permit.
4. If the County authorizes master planned developments, it may adopt a different term limit for permits only if the master planned development is authorized under a separate, state-approved Commissioners' Court order. Each master planned development will be deemed to be a new Commissioners' Court order subject to state approval regarding effects on dunes, dune vegetation, and public beach use and access.

D. Termination of Permits

1. The Building Official may void a permit if:
 - a. the Building Official finds the permit is inconsistent with the GLO Rules or this Order at the time the permit was issued;
 - b. a material change occurs after the permit is issued; or
 - c. a permittee fails to disclose any material fact in the application.
2. Permittees must apply for a new permit or certificate in the event of any material changes, as defined in this Order. Applicants must modify their application disclosing all information relevant to the material changes, if such changes occur before the permit is issued.
3. A permit automatically terminates in the event the certified construction comes to lie within the boundaries of the public beach by artificial means or by action of storm, wind, water, or other naturally influenced causes.
4. Nothing in the permit should be construed to authorize the construction, repair, or maintenance of any construction within the boundaries of the public beach at any time except as prescribed in Sections III(G) and III(I) of this Order.

E. Monitoring

1. The County or the State may require a permittee to conduct or pay for a monitoring program to study the effects of the permittee's coastal and shore protection project on the public beach. Permittees are required to notify the GLO and the County of any discernible change in the erosion rate on their property.

F. Beach Nourishment Standards

Beach nourishment projects will not be authorized by the County unless it finds and the applicant demonstrates that the following requirements are met:

1. the project is consistent with all applicable requirements of this Order;
2. the sediment to be used is of effective grain size, mineralogy, and quality or is the same as the existing beach material;
3. the proposed nourishment material does not contain any of the hazardous substances listed in the Code of Federal Regulations, Volume 40, Part 300, in concentrations which are harmful to human health or the environment as determined by applicable, relevant, and appropriate requirements established by the local, state, and federal governments;
4. there will be no adverse environmental effects on the property surrounding the area from which the sediment will be taken or on the site of the proposed nourishment;
5. the removal of sediment will not have any adverse impacts on flora and fauna; and
6. there will be no adverse effects caused from transporting the nourishment material.

G. Dune Walkover Standards. Construction of dune walkovers or other beach access mechanisms will not be authorized unless the applicant demonstrates that the following requirements are met:

1. The walkover is restricted, to the greatest extent possible, to the most landward point of the public beach.
2. The walkover is constructed and located in a manner that will not interfere with or otherwise restrict public use of the beach at normal high tides.
3. The walkover is constructed with its deck or floor at a height above the dune of not less than the width of the walkway portion of the walkover.
4. Dune walkovers must be constructed and maintained to allow rain and sand to pass through the decking.
5. Permittees must relocate walkovers to follow any landward migration of the public beach or seaward migration of dunes using the following procedures and standards:
 - a. After a major storm or any other event causing significant landward migration of the landward boundary of the public beach, permittees will be required to shorten any dune walkovers encroaching on the public beach to the appropriate length for removal of the encroachment. This requirement is a condition of any permit issued authorizing construction of walkovers. This assessment must be coordinated with the County.
 - b. In cases where the migration of the landward boundary of the public beach occurs slowly over a period of time or where a dune walkover needs to be lengthened because of the seaward migration of dunes, the permittee must apply for a permit authorizing modification of the structure.
6. Walkover permitting is subject to Class 2 permit requirements, please see Section II(K) of this Order.
7. Walkovers over sandsocks/geotube® containment systems must comply with Section III(I)(2) of this Order.

H. General Erosion and Flood Protection Requirements

1. Permittee shall:
 - a. locate all construction as far landward as is practicable;
 - b. not engage in any construction which may aggravate erosion;
 - c. not construct any new erosion response structure unless authorized pursuant to Section III(I) of this Order;

- d. not maintain or repair an existing erosion response structure located on the public beach, unless authorized pursuant to Section III(I) of this Order;
 - e. not enlarge or improve an existing erosion response structure located less than 200 feet landward of the line of vegetation;
 - f. not maintain or repair an existing erosion response structure located less than 200 feet landward of the line of vegetation that is more than 50% damaged, except:
 - (1) when failure to repair the damaged structure will cause unreasonable hazard to a public building, public road, public water supply, public sewer system, or other public facility immediately landward of the structure; or
 - (2) when failure to repair the damaged structure will cause unreasonable flood hazard to habitable structures because adjacent erosion response structures will channel floodwater to the habitable structure;
 - g. not engage in construction that does not comply with FEMA regulations governing construction in flood hazard areas; and
 - h. design construction so as to minimize impacts on natural hydrology. Construction shall not cause erosion to adjacent properties, critical dune areas, or the public beach.
2. However, the County may issue a permit authorizing the construction of a retaining wall, as defined in this Order, in the area more than 200 feet landward of the line of vegetation.

I. Special Projects

1. Hard or engineered shore protection projects
 - a. Shore protection projects must be approved by the Commissioners' Court.
 - b. The local sponsor of the project must be a governmental entity specified in Texas Natural Resources Code Section 61.022.
 - c. The shore protection project must be accompanied by a current Coastal Boundary Survey completed by a Licensed State Land Surveyor and submitted to the GLO as required by section 33.136 of the Texas Natural Resource Code.
 - d. The shore protection project must be contingent upon the basis that if the project causes damage to adjoining properties it will be removed.
 - e. The Local Sponsor will be responsible for removing the project if the project impedes public access to and use of the public beach.
 - f. The local sponsor must provide a site plan outlining the placement of the shore protection project.
 - g. The project notice and all applicable documents must be submitted to the GLO for comments at least ten (10) working days prior to approval by the Commissioners' Court for the project.
 - h. If comments are received from the GLO, the Commissioners' Court must review the comments to determine whether or not to authorize the project.
 - i. Activities affecting shore protection projects are subject to the requirements listed below in order to construct and maintain public and pedestrian walkovers over a shore protection project.
2. Public Project Walkover Permitting Requirements. Walkovers may be permitted to provide equal or better access to the beach by the public than existed prior to the construction of the shore protection public project. Public and Private pedestrian walkovers over public projects such as the sandsock and future public projects may be

permitted provided the walkovers do not adversely affect public access and use of the beach and the following criteria is met:

- a. The applicant completes an application to construct the walkover through the County Engineers Office, together with all required documentation for standard walkover permit applications.
 - b. The walkover is restricted, to the greatest extent possible to the landward point of the public beach not to extend more than 3 feet from the front section of the scour anchor tube to ensure the public project is not damaged during construction of the walkover.
 - c. The construction of the walkover does not damage the public project by placing any portion of the support beams used for the support of the walkover in the sandsock or anchor tube system.
 - d. The walkover is constructed and located in a manner that will not interfere with or otherwise restrict public use of the beach at normal high tides.
 - e. The applicant will not be allowed to relocate the walkover further seaward if seaward migration occurs without re-evaluation and approval of the Building Official after consultation with the GLO.
 - f. If the walkover impedes public access due to erosion or other factors, the applicant may be required to shorten any walkovers that interfere with the ability of the public to access/use the beach at normal high tides.
 - g. The applicant will be responsible for maintaining, repairing, and removing the walkover if the walkover disrupts public access to and use of the beach after notice from the County Building Official.
 - h. An example of a recommended walkover design is attached in Appendix 2 of this Order, and should be designed on the seaward side at an angle to the prevailing wind direction. See Figure 24 in the Dune Protection and Improvement Manual dated December, 2001 published by the GLO for spacing and height recommendations, which is part of Appendix 2.
 - i. Applicants will be required to place the seaward side of wood walkovers at an angle in order to reduce encroachment onto the public beach.
 - j. Articulated open block mats may be used provided the installation is completed in a manner that will allow for the growth of vegetation.
 - k. Other walkover designs may be permitted provided the applicants design proposal will not damage the project or impede public access and use of the beach.
 - l. ADA walkover designs may be permitted on a case by case basis provided the walkover design does not impede public access and use of the beach at normal high tide.
3. Vehicle Access Points in the Shore Protection Project Area on Bolivar Peninsula. Vehicle Access points in the Shore Protection Project area on the Bolivar Peninsula will be placed in the following areas:
- a. Cade Road approximately 2 ¾ miles west of Rollover Pass;
 - b. West entrance to Rollover Pass (Bauer Lane);
 - c. East Entrance to Rollover Pass (Bauer Street);
 - d. Kirkpatrick (which replaces Daigle, which replaced a prior vehicle access point at Legers) approximately 4,500 feet east of Rollover Pass; and
 - e. Other areas identified at a later date if required.

4. Research Projects. As conditions warrant Galveston County may try on a temporary basis research projects to enhance pedestrian and vehicle access technologies in order to assess new methods and techniques on a limited trial bases. Proposals to implement research projects will be coordinated with the Building Official and forwarded to the GLO for comments.
5. Consistency Determinations. Any future request for Federal Funding for new projects that will be constructed in the Beach Dune System will be coordinated with the Coastal Coordination Council to ensure consistency requirements for federal funding are addressed.
6. Beachfront Construction Permits. In the areas of Galveston County where shore protection projects such as sandsock projects have been completed a Coastal Construction Permit will not be issued to an individual for new construction of a habitable structure seaward of the sandsock complex.
7. Monitoring Program. In accordance with the Agreement between Coastal Coordination Council and Galveston County dated March 15, 2001 and fully executed on March 26, 2001 (Agreement) regarding completed geotube® containment system/shore protection projects a monitoring program has been developed and submitted to the Coastal Coordination Council (CCC). Galveston County is responsible for implementing the monitoring program. A copy of the Agreement is attached to this Order as Appendix 3 and is incorporated herein by reference.
8. Nourishment Plan. In accordance with the Agreement a beach nourishment program has been developed and submitted to the CCC. Galveston County is responsible for implementing the beach nourishment plan.
9. Future Shore Protection Projects. Future sandsock/shore protection projects sponsored by Galveston County that are constructed in the beach dune system subject to this Order will complete the application process for a Coastal Construction Permit.
10. Existing Shore Protection Projects. The requirements for geotube® containment systems constructed prior to the adoption of this Order are pursuant to the Agreement. This Order shall not be used, construed, or deemed to prohibit the terms of the Agreement, including but not limited to, beach nourishment, access, monitoring, removal, and maintenance/repair of the geotube® containment systems subject to the Agreement.
11. Location of Existing Shore Protection Projects. A map showing the location of sandsocks/geotube® containment systems constructed prior to the adoption of this Order is attached hereto as Appendix 4; this map includes sandsocks/geotube® containment systems constructed in areas on Galveston Island not subject to this Order and/or for which the County did not participate in their construction.
12. Trademark. The word "geotube" is a registered trademark owned by Ten Cat Nicolon, Miratech Division. "Geotube" is correctly used herein, as the containment systems installed in areas subject to this Order include the geotube, the product to which the trademark refers.

IV. DUNE RECONSTRUCTION

A. Guidelines for Improving, Rebuilding, or Repairing Dunes

1. Generally
 - a. Sand dunes being rebuilt or replaced must not be weaker than original dunes;

- b. Nothing contained herein will serve to alter the location of the line of vegetation, as defined herein, by non-natural, or humanly induced means; including but not limited to plantings, irrigation, fertilization, fencing, or placement of materials or vegetation designed to, or which will have the effect of creating or altering a line of vegetation, except as pursuant to the Open Beaches Act;
 - c. These guidelines are intended to provide a structure for the improvement or rebuilding of existing dune fields;
 - d. This process does not authorize the removal, destruction, material weakening, alteration of existing vegetation, or other actions on existing dunes;
 - e. Nothing contained herein authorizes or permits activities or actions which in any manner damage dunes or dune vegetation; and
 - f. Any authorization contained herein is subject to the rules, orders, ordinances, or policies adopted by other local governments within Galveston County exercising their authority under Chapters 61 and 63 of the Texas Natural Resources Code.
2. Requirements. Except as otherwise expressly provided in this Order, the County will not authorize restoration of dunes on a public beach unless it finds and the applicant demonstrates that the following requirements are met.
- a. Restored dunes:
 - (1) will extend no more than 20 feet seaward of the landward boundary of the public beach and will follow the natural migration of the line of vegetation; and
 - (2) will not restrict or interfere with public use of the beach at normal high tide.
 - b. Restored dunes may be located farther seaward than 20 feet of the landward boundary of the public beach only upon:
 - (1) an affirmative demonstration by the permit applicant that substantial dunes would likely form farther seaward naturally; and
 - (2) prior written approval of the GLO.
 - c. All restored dunes will be continuous with any surrounding naturally formed dunes; will approximate the natural position, contour, volume, elevation, vegetative cover, and sediment content of any naturally formed dunes in the proposed dune restoration area; and will be planted with indigenous vegetation that will achieve the same protective capability as the surrounding natural dunes.
 - d. The following methods or materials may be used to restore dunes if built in accordance with §15.7 of the GLO Rules and the requirements of this Order:
 - (1) piles of sand having similar grain size and mineralogy as the surrounding beach;
 - (2) temporary sand fences conforming to GLO guidelines, provided that no person shall be allowed to install a sand fence that extends more than twenty (20) feet seaward of the line of vegetation or that restrains or interferes with the public's right of access to and use of a public beach;
 - (3) organic bushy materials such as seaweed and other naturally occurring and biodegradable debris that is left upon the beach;
 - (4) sand obtained by scraping accreting beaches only if the scraping is approved by the County and the project is monitored to determine any changes that may increase erosion of the public beach;
 - (5) scientific research projects conducted by an academic institution or state, federal, or local government only if and only when permitted by the GLO following the

requirements for scientific research and only then if all other GLO criteria are also met;

- (6) hay-bale dunes; and
 - (7) engineered structures for Shore Protection Projects only as pursuant to Section III(I) of this Order.
- e. The following methods or materials must not be used to restore dunes:
- (1) hard or engineered structures, unless approved by Commissioners' Court under Subsection III(I)(1) above.
 - (2) materials such as bulkheads, rip-rap, concrete, or asphalt rubble, building construction materials, and any non-biodegradable items;
 - (3) fine, clayey, or silty sediments;
 - (4) sediments containing the toxic materials listed in Volume 40 of the Code of Federal Regulations, Part 302.4 in concentrations which are harmful to people, flora, and fauna as determined by applicable, relevant, and appropriate requirements for toxicity standards established by the local, state, and federal governments; and
 - (5) sand obtained by scraping or grading dunes or the beach.
- f. Activities affecting restored dunes are subject to the same restrictions and requirements as natural dunes. Permittee must not construct or maintain private structures on restored dunes, within critical dune areas or seaward of a dune protection line, except for specifically permitted dune walkovers or similar access ways meeting the requirements of this Order.
3. Application Process. All applications or proposals for reconstructing dunes on the public beach must be received by the GLO at least ten (10) working days prior to the decision on the application.

B. Permit for Improving, Rebuilding, or Repairing Dunes

1. When Required

- a. When a person seeks to construct, alter, or otherwise take actions designed specifically to increase the heights, width, or volume of a dune, or seeks to take actions designed to place or increase the amount of vegetation on a dune within Galveston County seaward of the dune protection line the proponent must comply with this Order.
- b. The placement of seaweed at the toe of existing dunes by the County will not require a permit.

2. Permit Process

- a. The County Building Official will issue a Coastal Construction Permit under the authority of this Plan to expedite the improvement, rebuilding, or repair of sand dunes within the County.
- b. The permit authorizes conduct upon the finding by the County Building Official that the proposed activity is consistent with this Order.
- c. The Commissioner may review and comment upon the permit before its issuance as provided for in this Order.
- d. An application for a Coastal Construction Permit must be addressed to:
The Galveston County Building Official
Office of the County Engineer
123 Rosenberg, Room 4157

Galveston, Texas 77550

- e. Application must be made in the form of a letter describing the proposed project. The letter of application must contain a vicinity and location map with subdivision, block, and lot numbers indicated thereon. Drawings showing the dimensions of the proposed dune-building project and a brief description of the materials and methods to be used must be included. The application must clearly indicate the location of the existing vegetation line and the proposed activity in relation to the existing vegetation line.
- f. At least ten (10) working days prior to making his or her decision on the permit, the County Building Official will forward a copy of the entire application for the permit to the Commissioner of the GLO for comment and review. The County Building Official shall consider the comments of the Commissioner in the issuance of the permit. If the Commissioner does not provide written exception to application within ten (10) business days of the receipt of the application by the Commissioner, the County Building Official may proceed as authorized under this Order.
- g. Conditions of Permit
 - (1) All activities identified and authorized under this permit will be consistent with the terms and conditions of the permit, the Texas Natural Resources Code, and all other applicable laws and regulations. The undertaking of any activities not specifically identified and authorized by the permit will constitute a violation of the terms and conditions of the permit and may result in the modification, suspension, or revocation of the permit in part or in whole, or may result in prosecution as authorized elsewhere herein.
 - (2) This permit is subject to the provisions of the chapter of this Order known as Specific Guidelines for Improving, Rebuilding, or Repairing Dunes.
 - (3) No work may be undertaken until the applicant receives written authorization from the County Building Official in the form of the permit.
 - (4) Each permit must have plans and drawings, provided by the applicant, attached thereto which will specify the approved work. The work performed must conform to the plans and drawings. The failure to conform work performed will constitute work performed without a permit and may result in prosecution as authorized elsewhere herein.
 - (5) All work approved under this permit must be completed within one year from the date on which the permit is issued.
 - (6) The area of the proposed work must be staked so that an on-site inspection may be made by the County Building Official, a representative of the GLO, or other interested parties.
 - (7) The holder of a permit must notify the County Building Official of project completion, in writing, within ten (10) days after project completion. The County Building Official will then notify the Commissioner.
 - (8) No attempt may be made by the holder of a permit to prevent the full and free use of the public beach as guaranteed by the Texas Open Beaches Act.
 - (9) The holder of a permit who fails to complete the authorized work before the expiration of the letter must, without expense to Galveston County or the State of Texas and in such time and manner as the County Building Official may direct, restore the area to its former conditions. If the holder of a permit fails to comply

with the directive of the County Building Official, the County may restore the dune area to its former condition, by contract or otherwise, and recover the cost of the restoration from the holder of the permit or the owner of the land affected.

C. Specific Guidelines for Improving, Rebuilding, or Repairing Dunes

1. Mechanical

a. Materials:

- (1) Standard wood-slat or plastic sand fencing, not to exceed 4 feet in height measured from the ground surface after installation, may be used to construct new sand dunes or to reconstruct damaged sand dunes provided that a sand fence shall not extend more than twenty feet seaward of the line of vegetation or restrain or interfere with the public's right of access to and use of a public beach.
- (2) Seaweed, not to exceed 6 feet in height measured from the ground surface, is considered suitable material for sand dune building.
- (3) Inorganic debris, such as vehicle bodies, concrete wire, tires, etc., is not acceptable material for sand dune building.
- (4) Sand may be imported to reduce dune building time. Importing of sand must be done in accordance with Subchapter F of Chapter 61 of the Texas Natural Resources Code and other applicable federal, state, and local laws.

b. Placement of dune-building materials:

- (1) In breach, embayment, or blowout areas:
 - (a) Dune-building structures must be placed parallel to the gulf shoreline.
 - (b) If the width of the breach, embayment, or blowout is less than 100 feet, the length of the dune-building structure must not exceed two-thirds of the width of the area.
 - (c) Dune-building structures must be placed first at the landward point of the breach, embayment, or blowout that is farthest from the Gulf shoreline.
 - (d) Multiple tiers of dune-building structures may be used in these areas to increase sand entrapment and raise ground elevations. Breaks in the multiple tiers must be offset to facilitate sand entrapment.
 - (e) No dune-building structure may extend gulfward of existing dune line on either side of breach, embayment, or blowout.
- (2) For repairing damaged sand dune frontal areas:
 - (a) Dune-building structures for repairing damaged sand dune frontal areas must be placed parallel to the gulf shoreline. The length of these structures must conform to guidelines described above.
 - (b) Dune-building structures may be placed no more than 20 feet seaward of the landward boundary of the public beach.
 - (c) The second tier of dune-building structures should be placed on the back slope of the dune created by the first tier to increase dune height and fill any trough which may be present between the existing dune and the newly created dune.
- (3) In washover areas:
 - (a) Dune-building structures may not be erected in washover areas except adjacent to the toe of existing dunes.

(b) Erection of dune-building structures adjacent to the toe of existing dunes in washover areas must follow the guidelines for repairing damaged sand dune frontal areas described in the sections above. The dune building structures should be placed parallel to existing dunes bordering the washover area instead of parallel to the gulf shoreline.

2. Vegetative

- a. The placement and extent of planted areas must conform to the guidelines established for mechanical means of improving, rebuilding, or repairing sand dunes in sections above.
- b. Appropriate native vegetation must be used for dune restoration and repair. The vegetation must derive from a nursery or from an approved native vegetation area with high density vegetation.
- c. Success of vegetative means of improving, rebuilding, or repairing sand dunes may be promoted by mulching, watering, using biodegradable netting, or fertilizing with organic fertilizers.
- d. Sand dunes may be mechanically built and then vegetated with appropriate native vegetation to reduce dune building time.

V. MANAGEMENT OF THE PUBLIC BEACH

A. General Access Standards

1. The County will regulate pedestrian or vehicular beach access, traffic, and parking on the beach only in a manner that preserves or enhances existing public right to use and have access to and from the beach. The County will not impair or close an existing access point or close a public beach to pedestrian or vehicular traffic without prior approval from the GLO. The County's goal is to respond to the needs and wishes of the residents and property owners as those relate to continuing vehicular access onto the beaches or the future restriction of such access and to preserve or enhance public access to and use of the beach. This Order currently allows vehicles to drive or park along all or a portion of the public beach as a significant means of beach use and access. It is acknowledged that allowing beachfront construction to proceed without provision for alternative public access - such as off-beach parking areas - effectively requires continued driving and parking on the beach, at least until such time as alternative access is provided, as through dedication by owners or purchase by the County. Decisions concerning closing of beach access will come about through methods described in this Order. This goal is consistent with the State's beach access goal.
2. The County establishes the following criteria for beach access:
 - a. Parking on or adjacent to the beach will accommodate one car for each 15 linear feet of beach.
 - b. Where vehicles are prohibited from driving on and along the beach, ingress/egress access ways will be no farther apart than ½ mile.
 - c. Signs are and will be conspicuously posted which explain the nature and extent of: access points, vehicular controls, beach parking fees, and parking areas.

B. Designation of Access Ways, Parking Areas, and Beaches Closed to Motor Vehicles

1. Following are the existing beach access points for Galveston County. By this Order these points shall become the designated beach access points for Galveston County until amended by order of Commissioners' Court. This access system includes those pedestrian and vehicular access points on Bolivar Peninsula and in the County jurisdictional areas on Galveston Island.
 - a. Bolivar Peninsula: Beginning at the west end of Bolivar Peninsula and proceeding eastward thereafter, the following streets provide vehicular beach access on Bolivar Peninsula:

<u>Name of roadway</u>	<u>Road Surface</u>
1. 15 th St.	Improved, all weather
2. 16 th St.	Improved, all weather
3. Rettilon	Improved, all weather
4. Magnolia	Improved, all weather
5. Johnson Crawford Circle (also known as 4 th Street)	Improved, all weather
6. Boyt	Improved, all weather
7. Helen Blvd.	Improved, all weather
8. Melody Ln.	Improved, all weather
9. Honeysuckle Dr.	Improved, all weather
10. Alma	Improved, all weather
11. Tinkle	Improved, all weather
12. Jacks	Improved, all weather
13. O'Neil	Improved, all weather
14. East Rd.	Improved, all weather
15. Buell	Improved, all weather
16. Lazy Ln.	Improved, all weather
17. Townsend	Improved, all weather
18. Gulfview	Improved, all weather
19. Surfview	Improved, all weather
20. Holiday Dr.	Improved, all weather
21. Palmetto Dr.	Improved, all weather
22. Wommack	Improved, all weather
23. West	Improved, all weather
24. Mr. G	Improved, all weather
25. Monkhouse Dr.	Improved, all weather
26. Crystal Beach Dr.	Improved, all weather
27. Kahla	Improved, all weather
28. Gulf Shores Dr.	Improved, all weather
29. Westview	Improved, all weather
30. Gulfway	Improved, all weather
31. Eastview	Improved, all weather
32. Alberdie	Improved, all weather
33. Noisy Waves	Improved, all weather

34. Clara	Improved, all weather
35. Center	Improved, all weather
36. Kenlyn	Improved, all weather
37. Driftwood Dr.	Improved, all weather
38. Seadrift Dr.	Improved, all weather
39. Ramada Blvd.	Improved, all weather
40. Nassau Ln.	Improved, all weather
41. Redfish	Improved, all weather
42. Stingaree St.	Improved, all weather
43. Cove	Improved, all weather
44. Cade	Improved, all weather (asphalt, with interlocking concrete blocks over the geotube®)
45. Bauer Lane (west side of Rollover Pass)	Sand/shell
46. Bauer Street (east side of Rollover Pass)	Sand/shell
47. Kirkpatrick*	Improved, all weather (asphalt, with interlocking concrete blocks over the geotube®)
48. Dirty Pelican Pier	Sand/shell
49. Unnamed road (2.3 miles west of State Highway 124)	Sand/shell
50. Unnamed road (1.7 miles west of State Highway 124)	Sand/shell
51. Unnamed road (just west of State Highway 124)	Sand/shell

* At the adoption date of this Order, access is provided via Daigle. However, as Kirkpatrick provides equal or better access, Kirkpatrick is added as a designated beach access point and Daigle is withdrawn.

- b. Pedestrians may also gain access through the above streets. In addition, pedestrian access is available at 17th Street.
- c. A map of the above listed beach access points is attached hereto as Appendix 5 and is broken up into Interval Maps A through N.
- d. County-owned beach access points and beach-related facilities on Galveston Island: The designated beach access points on County-owned beaches on Galveston Island are at 4 existing beach pocket parks located as follows:
 - (1) Beach Pocket Park #1 at 7 ½ Mile Road and FM 3005. No fee is currently charged for off-beach improved parking. Approximately 350 spaces are available for an area of beach not accessible to vehicles that would require approximately 20 on-beach parking spaces according to the GLO Rules and this Order.
 - (2) Frank Carmona Pocket Park #2 at 9 ½ Mile Road and FM 3005. Fees are charged for off-beach improved parking. Approximately 343 spaces shall be available for an area of beach not accessible to vehicles that would require approximately 50 on-beach parking spaces according to GLO Rules and this Order. At the time of the

adoption of this Order, construction is underway on the public parking area at Frank Carmona Pocket Park #2 and the public parking shall be available upon completion of construction.

- (3) Beach Pocket Park #3 at 11 Mile Road and FM 3005. Fees are charged for off-beach improved parking. Approximately 250 spaces are available for an area of beach not accessible to vehicles that would require approximately 20 on-beach parking spaces according to the GLO Rules and this Order.
- (4) Beach Pocket Park #4 at 22 Mile Road and FM 3005. No fee is currently charged for off-beach parking on a grassy lot behind the dunes. An area for approximately 100 spaces is available in an area of beach not accessible to vehicles that would require approximately 60 on-beach parking spaces according to the GLO Rules and this Order.
- e. Please refer to Section VI(A) of this Order on beach user fees regarding parking.
- f. Unincorporated areas of Galveston Island -Within the Pirates Beach East subdivision subject to this Order, several access points exist. Each access point is reached via pedestrian access. Access points are named from west to east utilizing the name of the street, lane or road. For the 9/10th of one mile of beach within the Pirates Beach subdivision, a total of 317 on-beach spaces are not available because vehicular access is prohibited. Greater than 494 off-beach parking spaces are provided via on street parking within the subdivision. Signs shall be conspicuously posted to indicate the nature and extent of vehicular controls, parking areas, and access points. The following is a list of the beach access points:

<u>Name of roadway</u>	<u>Road Surface</u>
1. Sandpiper Lane	Improved, all weather
2. Pelican Lane	Improved, all weather
3. Spoonbill Lane	Improved, all weather
4. Pirates Drive	Improved, all weather
5. Maison Rouge Court	Improved, all weather
6. Barataria Court	Improved, all weather
7. Campeche Drive	Improved, all weather
8. Buccaneer Drive	Improved, all weather
9. Long Tom Court	Improved, all weather
10. San Domingo Drive	Improved, all weather
11. Ragner Boulevard	Improved, all weather
12. Fiddler Crab Lane	Improved, all weather
13. Ghost Crab Lane	Improved, all weather
14. Sand Crab Lane	Improved, all weather

- g. A listing of the above locations on Galveston Island is found on the map attached hereto as Appendix 6.
- 2. All other beaches on Galveston Island are controlled under the City of Galveston Ordinance 94-26, as amended and/or City of Galveston Ordinance 04-026, as amended, or by the City of the Village of Jamaica Beach Ordinance 93-1, as amended.

3. The following areas of the public beach are closed to vehicles: On Bolivar Peninsula an area of the Mud Flats known as the Bird Sanctuary is closed to vehicular traffic but accessible to pedestrians during most times of the year. A temporary prohibition of pedestrian access is imposed during certain time(s) of the year to allow for safe bird nesting. Because avian instinct generally entails nesting in particular locations each year, the County is on notice that it may receive a request each year to prohibit pedestrians from that portion of the beach used by the birds. The southern portion of Bolivar Peninsula was designated as a bird sanctuary by Commissioners' Court order on December 29, 1986. A row of bollards exists at the line dividing the established bird sanctuary, where vehicular traffic is prohibited, from the open portion of the beach. Immediately adjacent to the closed portion of the beach is an area designated by this Order as on-beach parking. An adequate parking area exists to meet the criteria established in this Order.

C. Abandonments of Public Access or Parking Areas Prohibited

The County hereby adopts and commits to enforce the prohibition of the County's abandonment, relinquishment, or conveyance of any right, title, easement, right-of-way, street, path, or other interest that provides existing or potential beach access, unless an alternative equivalent or better beach access is first provided consistent with this Order.

D. Interfering with Access Prohibited

1. No person may create, erect, construct or maintain any obstruction, barrier, or restraint on or within a public beach or public access way to and from the beach that will interfere with the free and unrestricted right of the public to use any public beach.
2. No person may display or cause to be displayed on or adjacent to any public beach any sign, marker, or warning, or make or allow to be made any written or oral communication which states that the public beach is private property or represent in any other manner that the public does not have the right of access to and from the public beach or the right to use the public beach as guaranteed by the GLO Rules, the Open Beaches Act, and the common law right of the public. This provision does not prohibit signs or other written or oral communications that areas landward of the line of vegetation and access ways thereon, other than public access ways, are private property.

E. Beach Closures

The County may use its existing authority to close individual beach access points for emergencies related to public safety. The standards and procedures for such emergency closures are as follow:

1. Standards - emergency closure of beach access points is permitted if closure activity is necessary:
 - a. to prevent hurricane or other storm surges from damaging roadways or private property by blocking roadways at the point they intersect the public beach;
 - b. to protect the safety of beach users from sudden, unforeseen circumstances; or
 - c. to protect private or public property from vandalism, destruction or looting following natural disasters such as fire, storms, tornadoes and hurricanes.
2. Procedures - emergency closure of beach access points will conform to the following steps:

- a. Commissioners' Court, the Emergency Management Coordinator, or any officer of the law with jurisdiction within Galveston County shall be permitted to declare an emergency situation following the occurrence of any of the situations discussed in #1 directly above, and thus close one or more access points.
- b. Within 24 hours of such a declaration, the GLO shall be notified of the beach closure and shall be informed of the estimated time the access point will be closed.
- c. If access point(s) are to be closed for longer than 72 hours, a special meeting of the Commissioners' Court must be called to continue the closure and again the GLO must be notified.

F. Prohibition Against Littering

1. Authority - The County has the authority to define and prohibit littering on the beach as provided for in Subchapter D of Section 61 of the Texas Natural Resources Code.
2. Offense - Littering on the beach is prohibited. It shall be an offense for any person to litter, or cause to be littered, any beach in Galveston County, Texas.
3. This section shall not apply to persons acting under the authority of a Coastal Construction Permit with the requirements of dune reconstruction, as issued under the authority of this Order.
4. It shall be an offense for any person to violate any portion of this Section. Such offense is punishable as set forth in Section VIII, Criminal Penalties, of this Order.

G. Prohibition on Use and Possession of Glass

1. Authority - The County has the authority to prohibit the use and possession of all glass containers and products on the beach pursuant to § 61.122(d) of the Texas Natural Resources Code.
2. Prohibition - The Commissioners' Court by order on March 18, 2002 adopted an order prohibiting the use and possession of all glass containers and products on all beaches, which such order is on file in the Official Minutes of the Galveston County Commissioners' Court on file in the Office of the Galveston County Clerk having Microfilm Identification Number 300-31-2063. This Order does not does not rescind, repeal, and/or replace such order. The order adopted on March 18, 2002 remains effective, and pursuant to such order, the use and possession of all glass containers and products on the beach is prohibited.
3. Offense - In accordance with the order of March 18, 2002, it shall be an offense for any person to use or possess any glass container(s) or product(s) on the beach and such offense is punishable as set forth in the March 18, 2002 order.
4. This section shall not apply to persons acting under the authority of a Coastal Construction Permit with the requirements of dune reconstruction, as issued under the authority of this Order.

H. Beach Traffic Orders

1. Authority - The Commissioners' Court is authorized under Section 61.122(a) of the Texas Natural Resources Code to regulate traffic on any beach within the boundaries of the County.
2. General Operation of Motor Vehicles

- a. Pedestrians have the right of way and vehicles must stop and allow pedestrians to cross to and from the beach.
 - b. No person shall operate or cause to be operated any vehicle on any beach designated in this Order as closed to vehicular traffic.
 - c. No person shall enter or exit the beach in any vehicle by any other area than the designated entry and exit access ways.
 - d. It shall be an offense for any person to violate any portion of this Section. Such offense is punishable as set forth in Section VIII, Criminal Penalties, of this Order.
3. Speed Limits
- a. From and after the effective date of this Order no person shall operate or cause to be operated any motor vehicle at a speed in excess of 15 miles per hour upon the beach of Galveston County within the area subject to this Order.
 - b. It shall be an offense for any person to violate any portion of this Section. Such offense is punishable as set forth in Section VIII, Criminal Penalties, of this Order.
4. Obstruction of Main Traveled Roadway
- a. It shall be an offense for a person to drive or operate a motor vehicle on any portion of the beach other than on the main traveled roadway of such beach. This section does not apply to the driver of any vehicle while proceeding to any other area of beach for the purpose of parking such vehicle, or returning therefrom, so long as the route taken is the most direct route.
 - b. It shall be an offense for any person to stop, park, or leave standing any vehicle, whether attended or unattended, upon the main traveled roadway of the beach. This section does not apply to the driver of any vehicle which is disabled while on the main traveled roadway of the beach in such manner and to such extent that it is impossible to avoid stopping and temporarily leaving such disabled vehicle in such position.
 - c. Whenever any peace officer finds a vehicle, trailer, house-trailer, tent, umbrella, surfboard or other object placed, parked or standing upon the main traveled roadway of the beach in violation of this section, such officer is hereby authorized to move such vehicle, or items, or require the driver or other person in charge to move the same, to a position off the main traveled roadway of the beach.
 - d. It shall be an offense for any person to violate any portion of this Section. Such offense is punishable as set forth in Section VIII, Criminal Penalties, of this Order.
5. Vehicular Operation
- a. It shall be an offense for a person to drive or operate a motor vehicle on the beach in willful or wanton disregard for the safety of persons or property.
 - b. It shall be an offense for a person to drive or operate a motor vehicle with persons seated or standing on the exterior of the motor vehicle. This shall not apply to a vehicle operated with persons fully seated on the floor of the bed of a pickup truck.
 - c. It shall be an offense for a person to operate a motor vehicle towing any person, object, material, or item other than a registered vehicle.
 - d. It shall be an offense for a person to operate a recreational vehicle on a sand dune seaward of the dune protection line.
 - e. It shall be an offense for a person to operate a motor vehicle on a sand dune seaward of the dune protection line.

- f. It shall be an offense for any person to violate any portion of this Section. Such offense is punishable as set forth in Section VIII, Criminal Penalties, of this Order.
- 6. Parking
 - a. Authority - The Commissioners' Court regulates traffic pursuant to Subchapter D of Chapter 61 of the Texas Natural Resources Code and is authorized to impose parking fees by Subchapter C of Chapter 63 of the Texas Natural Resources Code.
 - b. Offenses
 - (1) It shall be an offense to park a vehicle within 30 feet of a manned lifeguard station.
 - (2) It shall be an offense for any person to violate any portion of this Section. Such offense is punishable as set forth in Section VIII, Criminal Penalties, of this Order.
 - c. Nothing in this Plan shall serve to limit the authority of a peace officer to alter pedestrian or vehicular access due to special situations that may, from time to time, exist on the beach. These special situations may include, but are not limited to:
 - (1) large crowds;
 - (2) environmental emergencies;
 - (3) public safety emergencies; or
 - (4) traffic control emergencies.
- 7. Pedestrian Crossings
 - a. Galveston County, by and through its Beach and Parks Department, may place signs stating, "Stop for Pedestrians" facing the direction from which traffic is authorized to flow as herein authorized.
 - b. Such signs shall be placed in a manner as to regulate the flow of traffic and to allow the safe passage of pedestrian traffic across the main traveled roadway.
 - c. It shall be an offense for an operator of any motor vehicle to fail to come to a complete stop when a pedestrian is within the immediate area of said sign stating, "Stop for Pedestrians," and attempting to cross the traveled portion of said beach.
 - d. It shall be an offense for any person to violate any portion of this Section. Such offense is punishable as set forth in Section VIII, Criminal Penalties, of this Order.
- 8. Emergency/Maintenance Vehicles - the prohibitions in (V)(J) of this Order do not apply to an authorized emergency vehicle, beach patrol, police, safety, or maintenance vehicle operating within the scope of official duties.
- 9. Offense - Any person who commits an offense, as defined in this Section, upon conviction shall be punished as set forth in Section VIII, Criminal Penalties of this Order.

I. Standards for Beach Maintenance and Other Activities

- 1. Protection of Resources - Beach maintenance activities are prohibited unless maintenance activities will not materially weaken dunes or dune vegetation or reduce the protective functions of the dunes. Beach maintenance activities are prohibited which will result in the significant redistribution of sand or which will significantly alter the beach profile or the line of vegetation. All sand moved or redistributed due to beach maintenance activities must be returned to the area between the line of vegetation and mean high tide.
- 2. Authorized Practices - The Commissioners' Court authorizes the following beach maintenance and management measures:
 - a. Analysis of need for beach clean-up during off-peak beach visitation periods;

- b. Creative practices and education of the public with the goal of decreased machine removal of naturally occurring beach debris;
- c. Education of all County personnel employed in removal of debris from the beach according to the practices outlined in this section.
- d. Raking of any or all beach areas at any or all times of the year, as proven necessary by thorough analysis, with tractor drawn rakes with rake height adjusted so as to allow rake teeth to draw manmade and naturally occurring debris into piles or windrows, while at the same time minimizing the amount of sand moved from the beach into the stockpiles. Piles or windrows may then be relocated using a tractor-mounted front-end loader or other loader type heavy equipment. Stockpiles or windrows of raked debris may be placed at the seaward toe of the primary dune, seaward of the vegetation line and within 20 feet of the vegetation line. Stockpiles may be located seaward of undeveloped housing areas to minimize objectionable odors accompanying the decaying of collected organic material. All sand collected with debris as a part of this maintenance process shall remain in the stockpile or windrow.
- e. Hand-picking and removal of all man-made or non-naturally occurring or non-biodegradable materials or all three if time and finances permit, to allow the continuation of the natural tidal processes, including the covering of decaying seaweed and fish with windblown and waterborne sand; and
- f. Emergency procedures: Within the peak beach visitation season, upon the occurrence of uncommonly heavy or frequent influxes of seaweed or heavy or frequent fish kills, after analysis, evaluation, and consideration of public requests for removal of seaweed and fish, and upon consultation with the GLO and the Galveston County Health District, and approval from the GLO, one of the following methods of disposal may be used:
 - (1) Hand-picking and removal of all man-made or non-naturally occurring or non-biodegradable materials or all three if time and finances permit, to allow the continuation of the natural tidal processes, including the covering of decaying seaweed and fish with windblown and waterborne sand;
 - (2) maintainers, bull-dozers, box blades, loaders, dumptrucks and other equipment designed for moving large quantities of material may be employed on a short-term basis to remove seaweed and other debris collected with the seaweed from the tide line into stockpiles or windrows as described elsewhere in this section. Blade height for all equipment shall be set only low enough to remove the majority of the seaweed and other debris and to minimize the movement of sand from the debris-laden portion of the beach to the windrows or stockpiles. All sand collected with seaweed and other debris as a part of this maintenance process is to remain in the stockpile or windrow.
 - (3) on the beach, seaward of the line of vegetation, and landward of the high water mark, a check-mark shaped trench, 18 inches at the deepest point may be opened up by a maintainer or bulldozer and seaweed and any other debris accumulated with the seaweed windrow or stockpile, may be pushed into the trench and covered with beach sand from the trench cut. The trench method may only be used during emergency situations, where it will not remain open unsupervised or at any time after dusk, where no vehicular or pedestrian traffic will be endangered and where

access to the beach will not be prohibited by this action. Should the use of such heavy machinery as bulldozers and boxblades to remove seaweed and other debris collected with the seaweed, exacerbate erosion of the public beach, sand moved in connection with the emergency procedures will be replaced on the eroded areas by the County to reestablish the altered beach profile and to redistribute sand following the decrease in the natural occurrence initiating the emergency response.

- g. Solid waste containers may be mounted on posts at necessary intervals to encourage beach users to deposit waste and debris in the containers provided. Solid waste so collected will be removed by County workers or by contract workers following a schedule adequate to remove the solid waste from the beach before it can be blown into the water or onto the beach or into the dunes. Containers will be located at least 20 feet seaward of the line of vegetation.
- h. Control signage may be placed at necessary intervals in an effort to decrease motorized vehicle speeds on the beach or to designate parking and other traffic controls for the protection of the dunes and the beach. Signage will be located at least 20 feet seaward of the line of vegetation.
- i. Use of bollards or posts
 - (1) Bollards or posts may be placed at necessary intervals in an effort to decrease motorized vehicle speeds on the beach.
 - (2) Bollards or posts may be placed at necessary locations to protect swimmers from danger of death or injury from motorized vehicles.
 - (3) Bollards or posts may be placed at necessary locations to protect dunes from automobile traffic or to designate parking areas near the water's edge.
 - (4) Bollards or posts may be placed to delineate roadways to the beach.
 - (5) In no case will bollards or posts be placed to prohibit vehicular or pedestrian access onto the beach without the procedure described in this section.
 - (6) The County will be responsible for removing bollards if and when they become located seaward of mean low water (i.e., on state-owned land).
- j. Debris removal following an emergency/disaster situation:
 - (1) Debris generated that pose an immediate threat to health and safety immediately following an emergency/disaster situation will be addressed by the County through the emergency powers authorized under Chapter 418 of the Texas Government Code (the Texas Disaster Act of 1975).
 - (2) If the emergency/disaster situation results in a Presidential declaration, the Galveston County Office of Emergency Management will coordinate debris removal reimbursement activities through the Federal Emergency Management Act. If the emergency/disaster situation does not result in a Presidential declaration of a state of disaster and reimbursement and assistance with debris removal is needed, the County will declare a state of local disaster and will request assistance from the Texas Division of Emergency Management through the Disaster District. The Galveston County Office of Emergency Management will coordinate debris removal activities.
 - (3) Collapsed structures will be removed as soon as practical following an emergency/disaster situation.

- (4) Structures that are substantially damaged and/or pose an immediate threat to health and safety will be addressed through authorized emergency powers or the nuisance abatement program.
- k. Damage assessment following an emergency/disaster situation. Immediately following an emergency/disaster situation, the Galveston County Office of Emergency Management will complete damage assessment in the unincorporated areas of Galveston County.

VI. BEACH USER FEE PLAN

A. Beach User Fee Plan

1. Bolivar Peninsula: Prior to this Plan, the County has not charged a beach user fee for access to and use of the beaches of Bolivar Peninsula. The County, with the approval of this Plan, intends to institute an annual parking sticker program for parking on the beaches of Bolivar Peninsula. Accordingly, effective on the date of certification of this Plan by the General Land Office, fees shall be charged for parking on the beach of Bolivar Peninsula and the parking sticker program shall be implemented as follows:
 - a. The charge for an annual parking sticker shall be \$10.00 per calendar year if the parking sticker is purchased from and after March 1st of the given calendar year.
 - b. Parking stickers purchased during January and February shall cost \$5.00 per parking sticker for that given calendar year.
 - c. Each parking sticker shall expire on December 31 of the same calendar year in which it is issued.
 - d. Parking stickers are to be affixed onto the lower right side of the front windshield.
 - e. Parking stickers may be purchased directly from the Parks Department at 4102 Main, LaMarque, Texas 77568.
 - f. Parking stickers may be purchased by mail, by submitting a written request and mailing the request, along with payment, to the Galveston County Parks Department, 4102 Main Street, LaMarque, Texas 77568. To purchase at the discounted price of \$5.00, requests by mail must be postmarked by and through the end of February; requests postmarked from and after March 1 are not eligible to purchase at the discounted price and accordingly the cost is \$10.00.
 - g. Checks for payment for parking stickers purchased from the Parks Department shall be made payable to the Galveston County Parks Department.
 - h. Parking stickers also may be purchased from authorized providers on Bolivar Peninsula. The authorized providers shall purchase parking stickers in bulk increments from the Parks Department for subsequent sales to the public. The Director of the Parks Department shall establish rules, fees, or other procedures to be used in the bulk sales of parking stickers to authorized providers, subject to adoption by the Commissioners' Court.
 - i. A parking sticker shall be required to park on the beach on Bolivar Peninsula. Notwithstanding this requirement, no parking sticker shall be required to park on the beach from and after Dirty Pelican Pier and travelling northeasterly thereafter to the end of the County line, and no parking sticker shall be required to park on the beach from Rettilon Road and travelling northeasterly thereafter on the beach for approximately

one-half mile to that area of the beach that is washed out; these two areas shall be designated as free parking areas.

- j. If a person fails to comply with the parking sticker requirement, the person shall be subject to the imposition of a civil penalty (see sections VII(A) and XI(A)(3) of this Order).
2. Galveston Island: In order to establish and maintain beach related services and facilities for the preservation and enhancement of access to and from and safe and healthy use of public beaches by the public and if costs of beach operations and maintenance can provide such justification, the County may charge a fee of \$5.00 per car, \$10.00 per 15-passenger van and \$20.00 per van greater than 15 passengers or for a bus for off-beach improved parking at Frank Carmona Pocket Park #2 at 9 ½ Mile Road and FM 3005 and/or Beach Pocket Park #3 at 11 Mile Road and FM 3005. Season passes are available for \$30.00. The season runs on and from the first weekend in March through September 30th of a given calendar year; at other times, parking is available for free and no attendants are on the premises at Frank Carmona Pocket Park #2 and Beach Pocket Park #3.
3. Beach Vending Program. In order to exercise control over the number and types of businesses that are allowed to sell goods and services on the public beaches, the County, through its Beach and Parks Department, operates and manages a Beach Vending Program on the Bolivar Peninsula beaches under the rules adopted by the Commissioners' Court on November 17, 1997. Application fees and monthly operating fees paid by the vendors to the County are deposited into a dedicated revenue account. The present filing fee for each permit application is \$100.00. Fees may be increased in the future upon approval of such increase by Commissioners' Court. If any such increase occurs, notification will be provided to the GLO within 30 days of such approval by the Commissioners' Court. If an application for a permit is not granted, the filing fee is returned to the applicant. Present monthly operating fees are \$100.00 for Crystal Beach zone permits, \$50.00 for North Beach and South Beach zone permits, \$100.00 for surfboard sale or rental permits, and \$50.00 for portable toilets permits.
4. Any future beach user fee plans will be prepared in accordance with the GLO Rules, §15.8(d).
5. The County will mark both fee and non-fee beach areas with signs conspicuously posted that clearly indicate, at a minimum, the location of both the fee and non-fee areas and the identity of the County as the entity collecting the fee. Maps identifying fee and non-fee areas are attached as Appendices 7 and 8.
6. Reciprocity. Galveston County shall work towards establishing a state-approved system for reciprocity of beach user fees and fee privileges among the County and the City of Galveston and the Park Board of Trustees of the City of Galveston.

B. Mass Gathering Permits

1. Pursuant to its authority under Subchapter G of Chapter 61 of the Texas Natural Resources Code, the County may regulate mass gatherings of individuals on any beach by requiring a person to obtain a permit and pay a permit fee set by the Commissioners' Court before the person may hold a mass gathering.
2. The Commissioners' Court by order on May 6, 2002 adopted an order under Subchapter G of Chapter 61 of the Texas Natural Resources Code regulating mass gatherings under the

Facility Permitting Policy for the Beach and Parks Department, which such order is on file in the Official Minutes of the Galveston County Commissioners' Court on file in the Office of the Galveston County Clerk having Microfilm Identification Numbers 300-32-0217 through 300-32-0230. This Order does not rescind, repeal, and/or replace such order. The order adopted on May 6, 2002 regulating mass gatherings remains effective and pursuant to such order mass gatherings on the beach are regulated.

3. In accordance with Section 61.254 of the Texas Natural Resources Code, and the order of May 6, 2002 regulating mass gatherings, a person commits an offense if the person violates the order adopted under Subchapter G of Chapter 61 of the Texas Natural Resources Code and an offense under this section is a Class B misdemeanor, as set forth in the May 6, 2002 order.
4. Permit fees for mass gatherings on the beach shall be used for beach-related services.

C. Use of Fee Revenue

1. Revenues from beach user fees may be used only for beach-related services.
2. Beach-related services and facilities may serve only those areas on or immediately adjacent to the public beach.
3. All funds derived by Galveston County from the fee requirement of this chapter shall be used exclusively for beach-related services such as:
 - a. the provision, construction, maintenance, replacement and repair of:
 - (1) sanitary facilities on the beach provided for the use and convenience of the public,
 - (2) on and off beach parking facilities,
 - (3) Traffic control or road signs, devices or structures on the beach, and
 - (4) sand dunes.
 - b. the cleaning and maintenance of the public beach,
 - c. public safety on the beach, and
 - d. all costs directly related to the management of the beach; provided however, that the County shall not spend more than 10% of beach user fee revenues on administrative costs that are directly related to beach-related services.

D. Free Beach Access and Access for Disabled Persons

1. The County provides free beach access on Bolivar Peninsula. The County, pursuant to section VI(A) of this Order, shall charge for parking on the beaches of Bolivar Peninsula.
2. All beaches on Bolivar Peninsula are accessible to vehicles, and ramps accessible to the disabled are provided at Galveston Island Beach Pocket Parks #2 and #3.

E. Cooperation with Other Counties and Municipalities

1. Galveston County may, by Interlocal Agreement, Chapter 791 of the Texas Government Code agree with cities located within Galveston County to accept permits issued by such cities as valid County permits for the purposes of this section, as authorized by § 63.011(b) and (c) of the Texas Natural Resources Code.
2. Galveston County may, by Interlocal Agreement, agree with neighboring counties to accept permits issued by such counties, or to administer such counties' permit programs.

VII. CIVIL PENALTIES

- A. Assessment. In addition to any penalties assessed by the County, any person (as defined in the GLO Rules) who violates either the Dune Protection Act, the Open Beaches Act, this Order, or a permit condition is liable to the GLO for a civil penalty of not less than \$50 nor more than \$1,000 per violation per day. Each day the violation occurs or continues constitutes a separate violation. Violations of the Dune Protection Act, the Open Beaches Act, and the rules adopted pursuant to those statutes are separate violations and the GLO may assess separate penalties. The assessment of penalties under one Act does not preclude another assessment of penalties under the other Act for the same act or omission. Conversely, compliance with one statute and the rules adopted thereunder does not preclude the GLO from assessing penalties under the other statute and the rules adopted pursuant to that statute.
- B. Informing GLO. If the County has knowledge of a violation or a threatened violation of a permit, this Order, the Dune Protection Act, the Open Beaches Act, or the GLO Rules, it must inform the GLO of the violation(s) within 24 hours.
- C. Mitigating Circumstances. The County will consider the following mitigating circumstances when referring violations for assessment of penalties and the GLO will consider the following mitigating circumstances in determining whether the assessment of penalties is appropriate: acts of God, war, public riot, terrorist acts, or strike; unforeseeable, sudden, and natural occurrences of a violent nature; and willful misconduct by a third party not related to the permittee by employment or contract.

VIII. CRIMINAL PENALTIES

- A. Misdemeanor. Any person violating an offense portion of this Order shall be guilty of a misdemeanor.
- B. Punishment. Upon conviction of violating an offense portion of this Order, the person shall be punished as follows:
 - 1. for a first conviction, a fine of not less than \$50.00 nor more than \$100.00;
 - 2. for a second conviction, a fine of not less than \$100.00 nor more than \$200.00;
 - 3. for any subsequent convictions after the second conviction, a fine of not less than \$200.00 nor more than \$1,000.00 or confinement in the County jail for not more than 60 days, or both.

IX. GENERAL PROVISIONS

- A. Construction
 - 1. This Order and all orders, resolutions, or other enactments related or pursuant to this Order shall be read in harmony with County orders of general applicability. If there is any conflict between them which cannot be reconciled by ordinary rules of legal interpretation, this Order controls.
 - 2. This Order and all orders, resolutions, or other enactments related or pursuant to this Order shall be read in harmony with the Open Beaches Act, the Dune Protection Act, and GLO Rules implementing them. If there is any conflict between them which cannot be reconciled by ordinary rules of legal interpretation, state law provisions control.

B. Boundary Determinations

The AG will make determinations on issues related to the location of the boundary of the public beach and encroachments on the public beach pursuant to the requirements of the Open Beaches Act, §61.016 and §61.017, and §15.3(b) of the GLO Rules. The GLO and the County shall consult with the AG whenever questions of encroachment and boundaries arise with respect to the public beach.

C. Beaches Presumed to be Public

The County will presume that any beach fronting the Gulf of Mexico within its jurisdiction is a public beach unless the owner of the adjacent land obtains a declaratory judgment otherwise under the Open Beaches Act, § 61.019 of the Texas Natural Resources Code. That section provides that any person owning property fronting the Gulf of Mexico whose rights are determined or affected by this Order may bring suit for a declaratory judgment against the State to try the issue or issues.

D. General Prohibition

No person shall violate any provision of the GLO Rules, this Order or any permit or the conditions contained therein.

E. Appeals

Texas Natural Resources Code §§ 61.019, 63.151 contain the provisions for appeals by littoral owners related to this Order and the GLO Rules.

F. County Authority Retained. The County expressly preserves and retains the authority granted to it under the constitution or laws of the State of Texas and/or the United States. This Order shall not be construed or deemed to waive, diminish, or in any way relinquish such authority and shall not be construed or deemed to impliedly waive, diminish, or in any way relinquish such authority and certification of this Order by the GLO may not be construed or deemed to expand or detract from such authority; such authority includes but is not limited to the following:

1. Section 61.022 of the Texas Natural Resources Code (the County's authority to erect or maintain any groin, seawall, barrier, pass, channel, jetty, or other structure as an aid to navigation, protection of the shore, fishing, safety, or other lawful purpose as authorized by the constitution or laws of the State of Texas or the United States);
2. Section 421.002 and related sections of the Texas Local Government Code (the County's authority to establish, construct, extend, maintain, or improve a seawall, breakwater, levee, floodway, or drainway and to improve, maintain, or beautify a boulevard erected in connection with the seawall, breakwater, levee, floodway, or drainway as authorized by the constitution or laws of the State of Texas or the United States).

G. Severability/Validity

1. Severability. If a provision in this Order is held invalid by a court of competent jurisdiction, the invalidity does not affect the other provisions of the Order that can be given effect without the invalid provision, and to this end the provisions of this Order are severable.

2. **Validity and Enforceability.** If any current or future legal limitations affect the validity or enforceability of a provision of this Order, then the legal limitations are made a part of this Order and shall operate to amend this Order to the minimum extent necessary to bring this Order into conformity with the requirements of the limitations, and as so modified, this Order shall continue in full force and effect.

H. **Headings.** The headings at the beginning of the various provisions of this Order have been included only in order to make it easier to locate the subject covered by each provision and are not to be used in construing this Order.

I. **Receipt by Land Office.** Various provisions in this Plan refer to receipt by or of the General Land Office or Commissioner. Receipt by the General Land Office or Commissioner means the actual date of receipt by the General Land Office or the second business day after the date of deposit into a United States postal receptacle of the mailing, properly addressed to the General Land Office with proper postage affixed, whichever is earlier.

X. SIGNS INDICATING REGULATIONS

A. **Authorization to County Engineer and Road and Bridge.** As soon as reasonably possible after the passage of this Order, the County Engineer is authorized to design traffic regulation and speed limit signs indicating the regulations prescribed in this Order. The Road and Bridge Department is authorized to construct and install the traffic regulation and speed limit signs. Such signs must be in compliance with the current provisions of the Texas Manual on Traffic Control Devices for Streets and Highways, stating the applicable speed limits and motor vehicle traffic regulations or prohibitions.

B. **Uniform bilingual beach access sign.** The GLO will, in conjunction with the State Department of Highways and Public Transportation, design and produce a uniform bilingual beach access sign to be used by Galveston County to designate access ways to and from public beaches.

C. **Placement.** Upon the receipt of such signs, the Road and Bridge Department shall place sufficient signs at each public beach access point within the jurisdiction of Galveston County to insure adequate public notice of such access point.

D. **Request for placement.** Galveston County may provide, at the request of littoral landowners, appropriate signing allowing for the protection of the ecological function of barrier island features. These signs include, but are not limited to, dune reconstruction areas.

XI. ENFORCEMENT

A. Generally

1. Any county attorney, district attorney, criminal district attorney, other attorney at the request of the Commissioners Court, or the attorney general at the request of the Commissioner, shall file in a district court of Travis County, or in the county in which the property is located, a suit to obtain either a temporary or permanent court order or

injunction, either prohibitory or mandatory, to remove or prevent any improvement, maintenance, obstruction, barrier, or other encroachment on a public beach, or to prohibit any unlawful restraint on the public's right of access to and use of a public beach or other activity that violates this Order.

2. In the same suit, the county attorney, district attorney, criminal district attorney, other attorney acting at the request of the Commissioners' Court, attorney general, or the Commissioner may recover penalties and the costs of removing any improvement, obstruction, barrier, or other encroachment if it is removed by public authorities pursuant to an order of the court.
3. A person who violates this Order, unless other penalties are herein specified, is liable for a civil penalty of not less than \$50.00 nor more than \$1,000.00. Each day the violation occurs or continues is a separate violation. Please also see Section VII, Civil Penalties, of this Order.
4. Any county attorney, criminal district attorney, other attorney at the request of the Commissioners Court, or the attorney general at the request of the Commissioner, may bring a suit for a declaratory judgment to try any issue affecting the public's right of access to or use of the public beach.

B. Authority of Peace Officer. The portions of this Plan designated as an offense are enforceable by any authorized peace officer within Galveston County, Texas.

XII. REPEAL OF CONFLICTING ORDERS

All orders and resolutions of the Commissioners' Court heretofore enacted that are in conflict herewith are repealed. The Commissioners' Court order adopting the prior dune protection and beach access plan entered August 16, 1993 recorded in volume 300-14, pages 1156-1234 is repealed.

XIII. DEFINITIONS

The following words and terms, when used in this Order, shall have the following meanings, unless the context clearly indicates otherwise.

Affect - As used in this Order regarding dunes, dune vegetation, and the public beach, "affect" means to produce an effect upon dunes, dune vegetation, or public beach use and access.

Amenities - Any nonhabitable major structure including swimming pools, bathhouses, detached garages, cabanas, pipelines, piers, canals, lakes, ditches, artificial runoff channels and other water retention structures, roads, streets, highways, parking areas and other paved areas (exceeding 144 square feet in area), underground storage tanks, and similar structures.

Applicant - Any person applying to Galveston County for a permit and/or certificate for any construction or development plan.

Attorney General (AG) or Office of the Attorney General (OAG) - Attorney General of the State of Texas.

Backdunes - The dunes located landward of the foredune ridge which are usually well vegetated but may also be unvegetated and migratory. These dunes supply sediment to the beach after the

foredunes and the foredune ridge have been destroyed by natural or human activities. In this Order, backdunes shall be understood to be the most landward dunes within the beach/dune system and the most landward feature of the critical dune area.

Beach - See public beach.

Beach access - The right to use and enjoy the public beach, including the right of free and unrestricted ingress and egress to and from the public beach.

Beach and Parks Department - See Parks Department.

Beach/Dune Rules (GLO Rules, GLO Beach/Dune Rules) - Subchapter A of Chapter 15 of Title 31 of the Texas Administrative Code, as amended, affecting Galveston County; at the adoption of this Order the rules are 31 Texas Administrative Code §§ 15.1-15.10, 15.12, 15.21, and 15.35.

Beach/dune system - The land from the line of mean low tide of the Gulf of Mexico to the landward limit of dune formation.

Beach maintenance - The cleaning or removal of debris from the beach by handpicking, raking, or mechanical means.

Beach profile - The shape and elevation of the beach as determined by surveying a cross section of the beach.

Beach-related services - Reasonable and necessary services and facilities directly related to the public beach which are provided to the public to ensure safe use of and access to and from the public beach, such as vehicular controls, management, and parking (including acquisition and maintenance of off-beach parking and access ways); sanitation and litter control; lifeguarding and lifesaving; beach maintenance; law enforcement; beach nourishment projects; beach/dune system education; beach/dune protection and restoration projects; providing public facilities such as restrooms, showers, lockers, equipment rentals, and picnic areas; recreational and refreshment facilities; liability insurance; and staff and personnel necessary to provide beach-related services. Beach-related services and facilities shall serve only those areas on or immediately adjacent to the public beach.

Beach user fee - A fee collected by Galveston County in order to establish and maintain beach-related services and facilities for the preservation and enhancement of access to and from and safe and healthy use of public beaches by the public.

Blowout - A breach in the dunes caused by wind erosion.

Breach - A break or gap in the continuity of a dune caused by wind or water.

Building Official - the county employee within the County Engineer's office, or authorized representative responsible for issuance of Building Permits, Coastal Construction Permits, and subsequent inspections of authorized work.

Building perimeter or footprint - The area of a lot covered by a structure used or usable for habitation. The habitable structure perimeter or footprint does not include incidental projecting eaves, balconies, ground-level paving, landscaping, open recreational facilities (for example, pools and tennis courts), or other similar features.

Building Permit - A permit issued and defined pursuant to the County Floodplain Regulations.

Bulkhead - A structure or partition built to retain or prevent the sliding of land. A secondary purpose is to protect the upland against damage from wave action.

Coastal and shore protection project - A project designed to slow shoreline erosion or enhance shoreline stabilization, including, but not limited to, erosion response structures, beach

nourishment, sediment bypassing, construction of man-made vegetated mounds, and dune revegetation.

Coastal Construction Permit - The document issued by Galveston County to authorize construction or other regulated activities in a specified location seaward of a dune protection line or landward of public beaches lying in the area either up to the first public road parallel to the beach or to any closer public road not parallel to the beach, or to within 1,000 feet of mean high tide, whichever is greater, that affects or may affect public access to and use of public beaches. It also certifies that the proposed construction either is consistent with the Galveston County Dune Protection and Beach Access Plan or is inconsistent with that Plan. In the latter case, Galveston County must specify how the construction is inconsistent with the Plan, as required by the Open Beaches Act, § 61.015 of the Texas Natural Resources Code.

Coastal Management Plan - the plan as developed by the Commissioner of the Texas General Land Office under Texas Natural Resources Code §33.052, Development of Coastal Management Program.

Commercial facility - Any structure used for providing, distributing, and selling goods or services in commerce including, but not limited to, hotels, restaurants, bars, rental operations, and rental properties.

Commissioner - "Commissioner" means the Commissioner of the General Land Office.

Commissioners' Court - The County Commissioners' Court of Galveston County, Texas.

Construction - Causing or carrying out any building, bulkheading, filling, clearing, excavation, or substantial improvement to land or the size of any structure. "Building" includes, but is not limited to, all related site work and placement of construction materials on the site. "Filling" includes, but is not limited to, disposal of dredged materials. "Excavation" includes, but is not limited to, removal or alteration of dunes and dune vegetation and scraping, grading, or dredging a site. "Substantial improvements to land or the size of any structure" include, but are not limited to, creation of vehicular or pedestrian trails, landscape work (that adversely affects dunes or dune vegetation), and increasing the size of any structure.

Coppice mounds - The initial stages of dune growth formed as sand accumulates on the downwind side of plants and other obstructions on or immediately adjacent to the beach seaward of the foredunes. Coppice mounds may be unvegetated.

Council - The Coastal Coordination Council, as established by the Coastal Coordination Act, Texas Natural Resources Code §33.203(20).

County - As used in this Order, means Galveston County, Texas, Galveston County Commissioners' Court, or its authorized representative.

County Engineer - Engineer for the County of Galveston, Texas or the Engineer's authorized representative.

County Floodplain Regulations - Means the Regulations of Galveston County, Texas for Flood Plain Management adopted by order of the Commissioners' Court of Galveston County, Texas on October 28, 2002 to be effective December 6, 2002 and thereafter, and as such order may be amended.

Critical dune areas - Those portions of the beach/dune system as designated by the General Land Office that are located within 1,000 feet of mean high tide of the Gulf of Mexico that contain dunes and dune complexes that are essential to the protection of public beaches, submerged land, and state-owned land, such as public roads and coastal public lands, from nuisance, erosion, storm

surge, and high wind and waves. Critical dune areas include, but are not limited to, the dunes that store sand in the beach/dune system to replenish eroding public beaches.

Cumulative impact - The effect on beach use and access, on a critical dune area, or an area seaward of the dune protection line which results from the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

Dedication - Includes, but is not limited to, a restrictive covenant, permanent easement, and fee simple donation.

Dune - An emergent mound, hill, or ridge of sand, either bare or vegetated, located on land bordering the waters of the Gulf of Mexico. Dunes are naturally formed by the windward transport of sediment, but can also be created via man-made vegetated mounds. Natural dunes are usually found adjacent to the uppermost limit of wave action and are usually marked by an abrupt change in slope landward of the dry beach. The term includes coppice mounds, foredunes, dunes comprising the foredune ridge, backdunes, and man-made vegetated mounds.

Dune complex or dune area - Any emergent area adjacent to the waters of the Gulf of Mexico in which several types of dunes are found or in which dunes have been established by proper management of the area. In some portions of the Texas coast, dune complexes may contain depressions known as swales.

Dune Protection Act - Texas Natural Resources Code, Chapter 63.

Dune Protection and Beach Access Plan or Plan - Galveston County's legally enforceable program, policies, and procedures for protecting dunes and dune vegetation and for preserving and enhancing use of and access to and from public beaches, as required by the Dune Protection Act and the Open Beaches Act.

Dune protection line - A line established by the County Commissioners' Court for the purpose of preserving sand dunes within Galveston County and within those areas within Galveston County subject to the authority of the Commissioners' Court. No municipality within Galveston County is authorized to establish a dune protection line unless the authority to do so has been specifically delegated to the municipality by the Galveston County Commissioners' Court. The line established by the Commissioners' Court for Galveston County is specifically described in Section II(D)(2) of this Order and coordinate references are provided in Appendix 1 of this Order. All critical dune areas shall be seaward of the dune protection line.

Dune vegetation - Flora indigenous to natural dune complexes, and growing on naturally-formed dunes or man-made vegetated mounds on the Texas coast and can include coastal grasses and herbaceous and woody plants.

Effect or effects - "Effects" include: direct effects - those impacts on public beach use and access, on critical dune areas, or on dunes and dune vegetation seaward of a dune protection line which are caused by an action and occur at the same time and place; and indirect effects - those impacts on beach use and access, on critical dune areas, or on dunes and dune vegetation seaward of a dune protection line which are caused by an action and are later in time or farther removed in distance than a direct effect, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems. "Effects" and "impacts" as used in this Order are synonymous. "Effects" may be ecological (such as the effects on natural resources and on the components, structures, and

functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative.

Eroding area - A portion of the shoreline which is experiencing an historical erosion rate of greater than two feet per year based on published data of the University of Texas at Austin, Bureau of Economic Geology.

Erosion - The wearing away of land or the removal of beach and/or dune sediments by wave action, tidal currents, wave currents, drainage, or wind. Erosion includes, but is not limited to, horizontal recession and scour and can be induced or aggravated by human activities.

Erosion response structure - A hard or rigid structure built for shoreline stabilization which includes, but is not limited to, a jetty, retaining wall, groin, breakwater, bulkhead, seawall, riprap, rubble mound, revetment, or the foundation of a structure which is the functional equivalent of these specified structures.

FEMA - The United States Federal Emergency Management Agency. This agency administers the National Flood Insurance Program and publishes the official flood insurance rate maps.

FEMA Rules - county-adopted requirements for construction required of all construction in areas covered by FEMA insurance.

Foredunes - The first clearly distinguishable, usually vegetated, stabilized large dunes encountered landward of the Gulf of Mexico. On some portions of the Texas Gulf Coast, foredunes may also be large, unvegetated, and unstabilized. Although they may be large and continuous, foredunes are typically hummocky and discontinuous and may be interrupted by breaches and washover areas. Foredunes offer the first significant means of dissipating storm-generated wave and current energy issuing from the Gulf of Mexico. Because various heights and configurations of dunes may perform this function, no standardized physical description applies. Foredunes are distinguishable from surrounding dune types by their relative location and physical appearance.

Foredune ridge - The high continuous line of dunes which are usually well vegetated and rise sharply landward of the foredune area but may also rise directly from a flat, wave-cut beach immediately after a storm.

General Land Office (GLO, Land Office) - The agency of the Texas state government charged with coordinating and overseeing the development and implementation of dune protection and beach access plans by counties and cities on the Gulf of Mexico Coast of the State of Texas.

Geotube® - Geotube is a registered trademark owned by Ten Cate Nicolon, Miratech Division and refers to its' geotube containment system.

GLO Rules – See Beach/Dune Rules.

Habitable structures - Structures suitable for human habitation including, but not limited to, single or multi-family residences, hotels, condominium buildings, and buildings for commercial purposes. Each building of a condominium regime is considered a separate habitable structure, but if a building is divided into apartments, then the entire building, not the individual apartments, is considered a single habitable structure. Additionally, a habitable structure includes porches, gazebos, and other attached improvements.

Industrial facilities - Includes, but are not limited to, those establishments listed in Part 1, Division D, Major Groups 20-39 and Part 1, Division E, Major Group 49 of the Standard Industrial Classification Manual as adopted by the Executive Office of the President, Office of Management and Budget (1987 ed.). However, for the purposes of this Order, the establishments

listed in Part 1, Division D, Major Group 20, Industry Group Number 209, Industry Numbers 2091 and 2092 are not considered "industrial facilities."

Large-scale construction - Construction activity greater than 5,000 square feet in area and structures greater than two stories in height. Multiple-family habitable structures are typical of this type of construction.

Line of vegetation (also vegetation line) - The extreme seaward boundary of natural vegetation which spreads continuously inland. The line of vegetation is typically used to determine the landward extent of the public beach. On the portions of Texas coast where there is no marked vegetation line or the line is discontinuous or modified, the line of vegetation shall be determined consistent with §15.10(b) of the Texas Administrative Code and the Open Beaches Act, Texas Natural Resources Code §§61.016 and 61.017.

Litter - As authorized by Texas Natural Resources Code §61.122, the Commissioners' Court of a County bordering the Gulf of Mexico or its tidewater limits, by order, may define the term littering. Litter includes any act of placing on the ground, scattering, or leaving unattended upon any beach in Galveston County other than in a proper disposal receptacle, any trash, garbage or debris of any character, including but not limited to food, used containers or packaging, rubber, glass, paper, plastic, wood, metal, non-biodegradable cast-off appliances, or medical waste from land-based activities such as housekeeping, medical treatment or research, recreation, camping, fishing, or picnicking or water-based activities such as shipping, off-shore oil and gas production, and commercial or recreational fishing. Paper and other trash resulting from fireworks exploded on the public beach or within the critical dune area is also considered litter. The County shall regulate litter and criminal penalties will apply where regulations are established.

Littering - See litter.

Littoral owner - means the owner of land adjacent to the shore and includes a lessee, licensee, or anyone acting under the littoral owner's authority.

Local government - A municipality, any special purpose district, any unit of government, or any other political subdivision of the state. Unless otherwise explained in this Order, local government shall refer to Galveston County, Texas.

Man-made vegetated mound - A mound, hill, or ridge of sand created by the deliberate placement of sand or sand trapping devices including sand fences, trees, or brush and planted with dune vegetation.

Master plan (Master planned development)- A plan developed by the applicant in consultation with the GLO, the applicant or applicants, and the County, for the development of an area subject to the Beach/Dune Rules, as identified in 31 Texas Administrative Code §15.3. The master plan shall fully describe in narrative form the proposed development and all proposed land and water uses, and shall include maps, drawings, tables, and other information, as needed. The master plan must, at a minimum, fully describe the general geology and geography of the site, land and water use intensities, size and location of all buildings, structures, and improvements, all vehicular and pedestrian access ways, and parking or storage facilities, location and design of utility systems, location and design of any erosion response structures, retaining walls, or stormwater treatment management systems, and the schedule for all construction activities described in the master plan. The master plan shall comply with the Open Beaches Act and the Dune Protection Act. The master plan shall provide for overall compliance with the Beach/Dune Rules and, when approved as an amendment to this Order, may vary from the specific standards, means and methods provided in the Beach/Dune Rules if the degree of dune protection and the public's right to safe

and healthy use of and access to and from the public beach are preserved. If all impacts to dunes, dune vegetation and public beach use and access are accurately identified, the County shall not require permits for construction on the individual lots within the master plan area. Master plans are intended to provide a comprehensive option for planning along the Texas coast.

Material changes - Changes in project design, construction materials, or construction methods or in the condition of the construction site which occur after an application is submitted to the County or after the County issues a Coastal Construction Permit. Material changes are those additional or unanticipated changes which have caused or will cause adverse effects on dunes, dune vegetation, or beach access and use, or exacerbation of erosion on or adjacent to the construction site.

Mitigation sequence - The series of steps which must be taken if dunes and dune vegetation will be adversely affected. First, such adverse effects shall be avoided. Second, adverse effects shall be minimized. Third, the dunes and dune vegetation adversely affected shall be repaired, restored, or replaced. Fourth, the dunes and dune vegetation adversely affected shall be replaced or substituted to compensate for the adverse effects.

National Flood Insurance Act - 42 United States Code, §§ 4001, et seq.

Natural resources - Land, fish, wildlife, insects, biota, air, surface water, groundwater, plants, trees, habitat of flora and fauna, and other such resources.

Open Beaches Act - Texas Natural Resources Code, Chapter 61.

Order "order" means an order of the Commissioners' Court; "Order" means this Order of Commissioners' Court of Galveston County, Texas Adopting the Galveston County Dune Protection and Beach Access Plan.

Owner or operator - Any person owning, operating, or responsible for operating commercial or industrial facilities.

Parks Department - The Galveston County Parks Department.

Permit condition - A requirement or restriction in a permit necessary to assure protection of life, natural resources, property, and adequate beach use and access rights (consistent with the Dune Protection Act and/or the Open Beaches Act) which a permittee must satisfy in order to be in compliance with the permit.

Permit - see Coastal Construction Permit.

Permittee - Any person authorized to act under a permit issued by the County.

Person - An individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, United States Government, state, municipality, commission, political subdivision, or any international or interstate body or any other governmental entity.

Pipeline - A tube or system of tubes used for the transportation of oil, gas, chemicals, fuels, water, sewerage, or other liquid, semi-liquid, or gaseous substances.

Plan - Galveston County Dune Protection and Beach Access Plan.

Practicable - In determining what is practicable, the County will consider the effectiveness, scientific feasibility, and commercial availability of the technology or technique. The County will also consider the cost of the technology or technique.

Production and gathering facilities - The equipment used to recover and move oil or gas from a well to a main pipeline, or other point of delivery such as a tank battery, and to place such oil or gas into marketable condition. Included are pipelines used as gathering lines, pumps, tanks, separators, compressors, and associated equipment and roads.

Project area - The portion of a site or sites which will be affected by proposed construction.

Public beach or beach - As used in this Order, "public beach" is defined in the Texas Natural Resources Code, §61.013(c). Any beach bordering on the Gulf of Mexico that extends inland from the line of mean low tide to the natural line of vegetation bordering on the seaward shore of the Gulf of Mexico, or such larger contiguous area to which the public has acquired a right of use or easement to or over by prescription, dedication, or estoppel, or has retained a right by virtue of continuous right in the public since time immemorial as recognized by law or custom. This definition does not include a beach that is not accessible by a public road or ferry as provided in §61.021 of the Texas Natural Resources Code.

Recreational activity - Includes, but is not limited to, hiking, sunbathing, and camping. As used in Section 15.3(s)(2)(C) of the Beach/Dune Rules and Section II(F)(3) of this Order, recreational activities are limited to the private activities of the person owning the land and the social guests of the owner. Operation of recreational vehicles is not considered a recreational activity, whether private or public.

Recreational vehicle - A dune buggy, marsh buggy, minibike, trail bike, jeep, or any other mechanized vehicle that is being used for recreational purposes.

Restoration - The process of constructing man-made vegetated mounds, repairing damaged dunes, or vegetating existing dunes.

Retaining wall - A structure designed primarily to contain material and to prevent the sliding of land. Retaining walls may collapse under the forces of normal wave activity.

Sand budget - The amount of all sources of sediment, sediment traps, and transport of sediment within a defined area. From the sand budget, it is possible to determine whether sediment gains and losses are in balance.

Sandsock - A generic term for a containment system. An example of a sandsock is the geotube® containment system, which is a geotextile sand-filled containment system product.

Seawall - An erosion response structure specifically designed to or which will withstand wave forces.

Seaward of a dune protection line - The area between a dune protection line and the line of mean high tide.

Shore protection project - See "Coastal and shore protection project."

Small-scale construction - Construction activity less than or equal to 5,000 square feet and habitable structures less than or equal to two stories in height. Single-family habitable structures are typical of this type of construction.

Structure - Includes, without limitation, any building or combination of related components constructed in an ordered scheme that constitutes a work or improvement constructed on or affixed to land.

Swales - Low areas within a dune complex located in some portions of the Texas coast which function as natural rainwater collection areas and are an integral part of the dune complex.

Unique flora and fauna - Endangered or threatened plant or animal species listed at 16 United States Code Annotated, §1531, the Endangered Species Act of 1973, and/or the Parks and Wildlife Code, Chapter 68, or any plant or animal species that the County has determined in this Plan are rare or uncommon.

Vegetation line - See line of vegetation.

Washover areas - Low areas that are adjacent to beaches and are inundated by waves and storm tides from the Gulf of Mexico. Washovers may be found in abandoned tidal channels or where foredunes are poorly developed or breached by storm tides and wind erosion.

XIV. APPENDICES

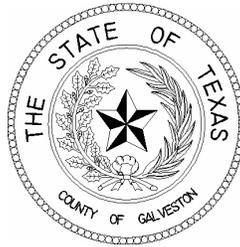
- Appendix 1: Metes and Bounds Descriptions supporting description of dune protection line on Bolivar Peninsula
- Appendix 2: Example of recommended walkover design and excerpts from Dune Protection and Improvement Manual
- Appendix 3: Agreement Between Coastal Coordination Council and Galveston County Dated March 15, 2001
- Appendix 4: Map showing location of sandsocks/geotubes® constructed prior to adoption of this Order
- Appendix 5: Map of beach access points on Bolivar Peninsula
- Appendix 6: Map of beach access points on Galveston Island
- Appendix 7: Map identifying fee and non-fee areas on Galveston Island
- Appendix 8: Map identifying fee and non-fee areas on Bolivar Peninsula

APPENDIX 1

**METES AND BOUNDS DESCRIPTIONS SUPPORTING
DESCRIPTION OF DUNE PROTECTION LINE
ON BOLIVAR PENINSULA**

GALVESTON COUNTY

DUNE PROTECTION AND BEACH ACCESS PLAN



**METES AND BOUNDS DESCRIPTION
OF DUNE PROTECTION LINE
BOLIVAR PENINSULA
GALVESTON COUNTY, TEXAS**

Being the dune protection line near the southwest end of Bolivar Peninsula extending from Magnolia Lane southwesterly and said dune protection line being more particularly described by metes and bounds as follows:

Beginning at the northeast end of the herein described dune, protection line, said beginning point having a State Plane Coordinate of N 13,721,753.72, E 3,336,333.29, NAD'83, Texas South Central Zone in U.S. feet, and said beginning point being on Magnolia Lane and labeled point #1 on the attached drawing;

Thence, S 46° 10' 50" W, 427.94 feet, to a corner of this dune protection line being point #2 and having a coordinate of N 13,721,457.42, E 3,336,024.52;

Thence, N 38° 45' 00" W, 88.21 feet, to a corner of this dune protection line being point #3 and having a coordinate of N 13,721,526.21, E 3,335,969.31;

Thence, S 40° 16' 56" W, 3393.38 feet, to a corner of this dune protection line being point #4 and having a coordinate of N 13,718,937.50, E 3,333,775.31;

Thence, S 35° 35' 03" W, 2414.76 feet, to a corner of this dune protection line being point #5 and having a coordinate of N 13,716,973.67, E 3,332,370.16;

Thence, S 30° 52' 54" W, 879.31 feet, to a turning point on this dune protection line being point #6 and having a coordinate of N 13,716,219.02, E 3,331,918.84;

Thence, S 39° 34' 31" W, 996.97 feet, to a turning point on this dune protection line being point #7 and having a coordinate of N 13,715,450.57, E 3,331,283.68;

Thence, S 0° 07' 47" E, 362.46 feet, to a turning point on this dune protection line being point #8 and having a coordinate of N 13,715,088.11, E 3,331,284.50;

Thence, S 28° 43' 27" W, 232.67 feet, to a turning point on this dune protection line being point #9 and having a coordinate of N 13,714,884.07, E 3,331,172.68;

Thence, S 28° 52' 36" W, 955.24 feet, to a turning point on this dune protection line being point #10 and having a coordinate of N 13,714,047.60, E 3,330,711.39;

Thence, S 24° 34' 26" W, 2077.14 feet, to a turning point on this dune protection line being point #11 and having a coordinate of N 13,712,158.59, E 3,329,847.56;

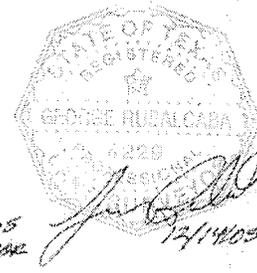
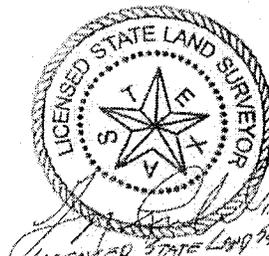
Thence, S 36° 59' 32" W, 457.33 feet, to a turning point on this dune protection line being point #12 and having a coordinate of N 13,711,793.31, E 3,329,572.38;

Thence, S 7° 15' 14" W, 279.41 feet, to a turning point on this dune protection line being point #13 and having a coordinate of N 13,711,516.14, E 3,329,537.10;

Thence, S 20° 48' 35" W, 1208.71 feet, to a turning point on this dune protection line being point #14 and having a coordinate of N 13,710,386.28, E 3,329,107.69;

Thence, S 9° 23' 59" W, 1586.57 feet, to the southwest end point of this dune protection line being point #15, said end point having a State Plane Coordinate of N 13,708,821.01, E 3,328,848.57 and the herein described dune protection line measuring 15,360.10 linear feet.

Note: Bearings are Grid Bearings.



REV	DATE	DESCRIPTION
1	12/14/05	REVISED DUNE PROTECTION LINE AND ADJUSTED WITH OLD AND ADJACENT COUNTY OFFICIALS
2	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
3	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
4	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
5	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
6	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
7	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
8	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
9	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
10	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
11	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
12	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
13	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
14	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
15	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
16	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
17	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
18	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
19	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE
20	12/14/05	ADDED SO BOUND TO DUNE PROTECTION LINE

GENERAL ENGINEERS AND ARCHITECTS, INC.
 505 Texas Commerce Street, Suite 1600
 Dallas, Texas 75202
 PROJECT NO. 00-00-01
 SHEET NO. C1

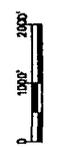
COUNTY OF CAVESTON
 BOLIVAR PENINSULA
 CAVESTON COUNTY
 TEXAS
 DUNE PROTECTION LINE

SHEET
C1
 OF 1 REV B

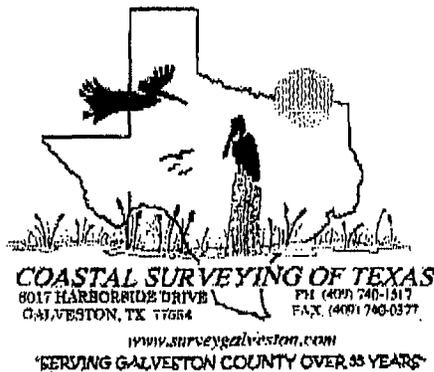
LEGEND
 DUNE PROTECTION LINE
 ADJACENT COUNTY OFFICIALS

NOTES
 1. CIRCLED NUMBERS CORRELATE WITH ADJACENT COUNTY OFFICIALS' DUNE PROTECTION LINE OF SO BOUND, L.S.L.S.
 2. BOXED NUMBERS SUBMITTED BY SO BOUND, L.S.L.S.

PRELIMINARY
 THIS DRAWING IS SUBMITTED FOR THE PURPOSE OF OBTAINING PERMITS FOR CONSTRUCTION. IT IS NOT TO BE USED FOR CONSTRUCTION. ENGINE: GEORGE J. BURMAN, INC.
 REGISTRATION NO. 49891
 DATE: 12/14/05



1
 DUNE PROTECTION LINE
 SCALE: GRAPHIC



Being part of the dune protection line near the southwest end of Bolivar Peninsula, Galveston County, Texas, and being more particularly described by metes and bounds as follows:

BEGINNING at Pt. #15 of the previously described dune protection line as described by George Rubalcaba, RPLS LSLs of Shiner Moseley and Associates, File No. J200.50034, said beginning point having State Plane Coordinates of N 13,708,821.01, E 3,328,848.57, NAD'83, Texas South Central Zone in U.S. feet;

THENCE S 40°35'37" W, a distance of 3621.67 feet to the end of the sand covered beach without vegetation, and a set ½" I. Rod with (TXSC Coordinates) of N 13,706,070.91, E 3,326,491.99;

THENCE N 53°00'22" W, a distance of 3823.12 feet to a set ½" I. Rod 200 feet landward of the Southerly extent of Vegetation in the Gulf of Mexico with (TXSC Coordinates) of N 13,708,371.39, E 3,323,438.46;

THENCE S 54°14' 32" W, along the said line 200 feet landward of the Southerly extent of Vegetation in the Gulf of Mexico, a distance of 2274.65 feet to a point in the Northerly extension of the centerline of the North Jetty with (TXSC Coordinates) of N 13,707,042.17, E 3,321,592.59 and being N 45°20'43" W, a distance of 129.39 feet from a brass monument in the North end of the North Jetty and S 43°56'18" W, a distance of 11,152.42 feet from NGS Monument "Peter".

Sidney Bouse, RPLS 5287 LSLs

GALVESTON COUNTY DUNE PROTECTION LINE.dwg

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 6.82

1 National Geodetic Survey, Retrieval Date = SEPTEMBER 5, 2003

AW5786 *****

AW5786 DESIGNATION - PETER
 AW5786 PID - AW5786
 AW5786 STATE/COUNTY- TX/GALVESTON
 AW5786 USGS QUAD - FLAKE (1994)

AW5786
 AW5786 *CURRENT SURVEY CONTROL
 AW5786

AW5786*	NAD 83(1993)-	29 23 32.64072(N)	094 43 31.54213(W)	ADJUSTED
AW5786*	NAVD 88	- 2.2 (meters)	7. (feet)	VERTCON
AW5786	LAPLACE CORR-	0.42 (seconds)		DEFLEC99
AW5786	GEOID HEIGHT-	-26.60 (meters)		GEOID99

AW5786
 AW5786 HORZ ORDER - SECOND
 AW5786

AW5786.The horizontal coordinates were established by classical geodetic methods
 AW5786.and adjusted by the National Geodetic Survey in February 1996.

AW5786
 AW5786.The NAVD 88 height was computed by applying the VERTCON shift value to
 AW5786.the NGVD 29 height (displayed under SUPERSEDED SURVEY CONTROL.)

AW5786
 AW5786.The Laplace correction was computed from DEFLEC99 derived deflections.
 AW5786

AW5786.The geoid height was determined by GEOID99.

AW5786;	North	East	Units	Scale	Converg.
AW5786;SPC TXSC	- 4,180,366.692	1,014,777.861	MT	0.99986375	+2 05 39.0
AW5786;UTM 15	- 3,252,699.006	332,568.834	MT	0.99994591	-0 50 49.3

AW5786:	Primary Azimuth Mark	Grid Az
AW5786:SPC TXSC	- TRAVIS 1933 1974	224 13 03.7
AW5786:UTM 15	- TRAVIS 1933 1974	227 09 32.0

AW5786	PID	Reference Object	Distance	Geod. Az
AW5786				dddmmss.s
AW5786	CV9269	PETER RM 1	22.150 METERS	09328
AW5786	AW5766	SOUTH JETTY LIGHT	APPROX. 7.8 KM	1560211.8
AW5786	AW5787	P USE 1933	23.418 METERS	15944
AW5786	AW5777	GALVESTON BAY ENT CHAN FR LT	APPROX. 4.3 KM	1672924.6
AW5786	AW5770	GALVESTON BAY ENT CHAN RG R LT	APPROX. 3.6 KM	1812341.5
AW5786	AW5769	BOLIVAR ROADS OUTER RNG F LT	APPROX. 3.8 KM	1880735.5
AW5786	AW5893	GALVESTON MUNICIPAL TANK	APPROX. 9.9 KM	2081115.1
AW5786	AW5768	GALVESTON ENT N SIDE RNG R BCN	APPROX. 3.3 KM	2244326.8
AW5786	AW1339	TRAVIS 1933 1974	APPROX. 4.2 KM	2261842.7
AW5786	AW5901	BOLIVAR POINT LIGHTHOUSE USE	APPROX. 4.9 KM	2345043.7

AW5786
 AW5786
 AW5786 SUPERSEDED SURVEY CONTROL
 AW5786

DATASHEETS

AW5786 NAD 83(1986)- 29 23 32.65645(N) 094 43 31.52272(W) AD() 2
 AW5786 NAD 27 - 29 23 31.81076(N) 094 43 30.82353(W) AD() 2
 AW5786 NGVD 29 - 2.2 (m) 7. (f) VERT ANG
 AW5786

AW5786.Superseded values are not recommended for survey control.
 AW5786.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 AW5786.See file dsdata.txt to determine how the superseded data were derived.
 AW5786

AW5786 U.S. NATIONAL GRID SPATIAL ADDRESS: 15RUN3256952699(NAD 83)

AW5786_MARKER: DS = TRIANGULATION STATION DISK

AW5786_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

AW5786

AW5786	HISTORY	- Date	Condition	Report By
AW5786	HISTORY	- 1963	MONUMENTED	CGS
AW5786	HISTORY	- 1964	GOOD	CGS
AW5786	HISTORY	- 1966	GOOD	LOCENG
AW5786	HISTORY	- 1976	GOOD	NGS
AW5786	HISTORY	- 1979	GOOD	NGS
AW5786	HISTORY	- 20010430	GOOD	USPSQD
AW5786	HISTORY	- 20020708	GOOD	USPSQD

AW5786

AW5786

STATION DESCRIPTION

AW5786

AW5786'DESCRIBED BY COAST AND GEODETIC SURVEY 1963 (RWT)

AW5786'THE STATION IS LOCATED ON BOLIVAR PENINSULA, ABOUT 3-1/2
 AW5786'MILES NORTHEAST OF THE BOLIVAR POINT FERRY SLIP, ABOUT 0.2
 AW5786'MILE SOUTH OF STATE HIGHWAY 87 AND APPROXIMATELY 0.2 MILE
 AW5786'NORTH OF THE GULF OF MEXICO, AT A HYDRO TOWER CONSTRUCTED
 AW5786'OVER P (USE) 1900.

AW5786'

AW5786'TO REACH THE STATION FROM THE FERRY SLIP AT PORT BOLIVAR,
 AW5786'GO NORTHEAST ON STATE HIGHWAY 87 FOR 3.5 MILES TO A CROSSROAD
 AW5786'(AT BOLIVAR GARBAGE DUMP), TURN RIGHT AND GO SOUTH FOR 0.2
 AW5786'MILE TO A LOW RIDGE ON THE LEFT WHICH RUNS NORTHEAST THROUGH
 AW5786'A PASTURE TO A STEEL HYDRO TOWER, TURN LEFT ACROSS A SHALLOW
 AW5786'DITCH AND GO ABOUT 0.2 MILE TO THE STATION AND HYDRO TOWER
 AW5786'AS DESCRIBED.

AW5786'

AW5786'THE STATION IS ON PROPERTY OWNED BY MR. JOHNSON WHO LIVES
 AW5786'NORTHEAST ALONG STATE HIGHWAY 87, IN THE FIRST HOUSE ON THE
 AW5786'SOUTH SIDE OF THE ROAD.

AW5786'

AW5786'THE STATION MARK IS A STANDARD DISK SET IN A 12X12 INCH SQUARE
 AW5786'CONCRETE MONUMENT WHICH PROJECTS ABOUT 1 INCH AND STAMPED
 AW5786'PETER 1963. THE MARK IS 5.7 FEET NORTHEAST OF THE WITNESS
 AW5786'POST. 76 FEET NORTH OF THE HYDRO TOWER.

AW5786'

AW5786'REFERENCE MARK 1 IS A STANDARD DISK SET IN A 12X12 INCH SQUARE
 AW5786'CONCRETE MONUMENT WHICH IS FLUSH WITH THE GROUND AND STAMPED
 AW5786'PETER NO 1 1963. THE MARK IS 75 FEET SOUTHEAST OF THE WITNESS
 AW5786'POST. 68.6 FEET EAST OF THE EAST LEG OF THE HYDRO TOWER.

AW5786'

AW5786'P (USE) 1900 (REFERENCE MARK 2) IS A SECTION OF RAILROAD
 AW5786'TRACK IMBEDDED IN THE GROUND WHICH HAS A CROSS CHISELED IN
 AW5786'THE TOP. PROJECTS ABOUT 12 INCHES ABOVE THE GROUND AND HAS
 AW5786'A 35 FOOT STEEL TRIPOD IN PLACE OVER THE STATION

AW5786'

AW5786'DISTANCE BETWEEN REFERENCE MARKS 1 AND 2 IS 81.82 FEET. 24.940
 AW5786'METERS. STATION TRAVIS 1933 CAN BE USED AS AN AZIMUTH.

AW5786'

DATASHEETS

AW5786'HEIGHT OF LIGHT ABOVE STATION MARK 1 METERS.
 AW5786
 AW5786. STATION RECOVERY (1964)
 AW5786
 AW5786'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1964 (EKM)
 AW5786'STATION RECOVERED IN GOOD CONDITION. STATION FITS DESCRIPTION
 AW5786'OF P (USE), 1900 EXCEPT MARK IS LOCATED APPROXIMATELY EIGHTY
 AW5786'FEET (80 FT 0) NORTHEAST OF THIRTY FIVE (35 FT) FOOT HIGH
 AW5786'TRIPOD. SLATTED SIGNAL NO LONGER ON TRIPOD.
 AW5786
 AW5786 STATION RECOVERY (1966)
 AW5786
 AW5786'RECOVERY NOTE BY LOCAL ENGINEER (INDIVIDUAL OR FIRM) 1966
 AW5786'RECOVERED BY J.E. CHANCE AND ASSOC.
 AW5786'
 AW5786'STATION RECOVERED.
 AW5786
 AW5786 STATION RECOVERY (1976)
 AW5786
 AW5786'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1976 (WOM)
 AW5786'STATION AND BOTH REFERENCE MARKS RECOVERED IN GOOD CONDITION. THE
 AW5786'STEEL TOWER MENTIONED IS NOW LYING DOWN.
 AW5786'
 AW5786'TO REACH THE STATION FROM THE FERRY SLIP AT POINT BOLIVAR, GO
 AW5786'NORTHEAST ON STATE HIGHWAY 87 FOR 3.5 MILES TO A CROSSROAD. TURN
 AW5786'RIGHT AND GO SOUTH FOR 0.2 MILE TO A WIRE GATE AND DIM TRACK ROAD
 AW5786'ON THE LEFT. TURN LEFT THROUGH GATE AND FOLLOW DIM TRACK ROAD NE
 AW5786'ALONG SLIGHT RIDGE FOR 0.2 MILE TO THE OLD TOWER AND STATION.
 AW5786'
 AW5786'STATION MARK IS FLUSH WITH THE GROUND.
 AW5786'
 AW5786'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--8 MILES NE OF
 AW5786'DOWNTOWN GALVESTON.
 AW5786
 AW5786 STATION RECOVERY (1979)
 AW5786
 AW5786'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1979 (PBW)
 AW5786'STATION MARK, REFERENCE MARK 1 AND REFERENCE MARK 2 (P (USE) 1900)
 AW5786'WERE RECOVERED IN GOOD CONDITION.
 AW5786'
 AW5786'DESCRPTION BY RWT IN 1963 IS ADEQUATE.
 AW5786'
 AW5786'DESCRIBED--RAH
 AW5786'
 AW5786'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--8 MILES NE OF
 AW5786'GALVESTON.
 AW5786
 AW5786 STATION RECOVERY (2001)
 AW5786
 AW5786'RECOVERY NOTE BY US POWER SQUADRON 2001 (DM)
 AW5786'RECOVERED IN GOOD CONDITION.
 AW5786
 AW5786 STATION RECOVERY (2002)
 AW5786
 AW5786'RECOVERY NOTE BY US POWER SQUADRON 2002 (DM)
 AW5786'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
 Elapsed Time = 00:00:02

APPENDIX 1

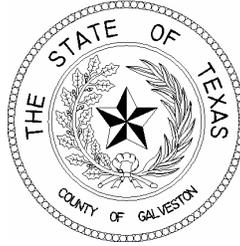
APPENDIX 2

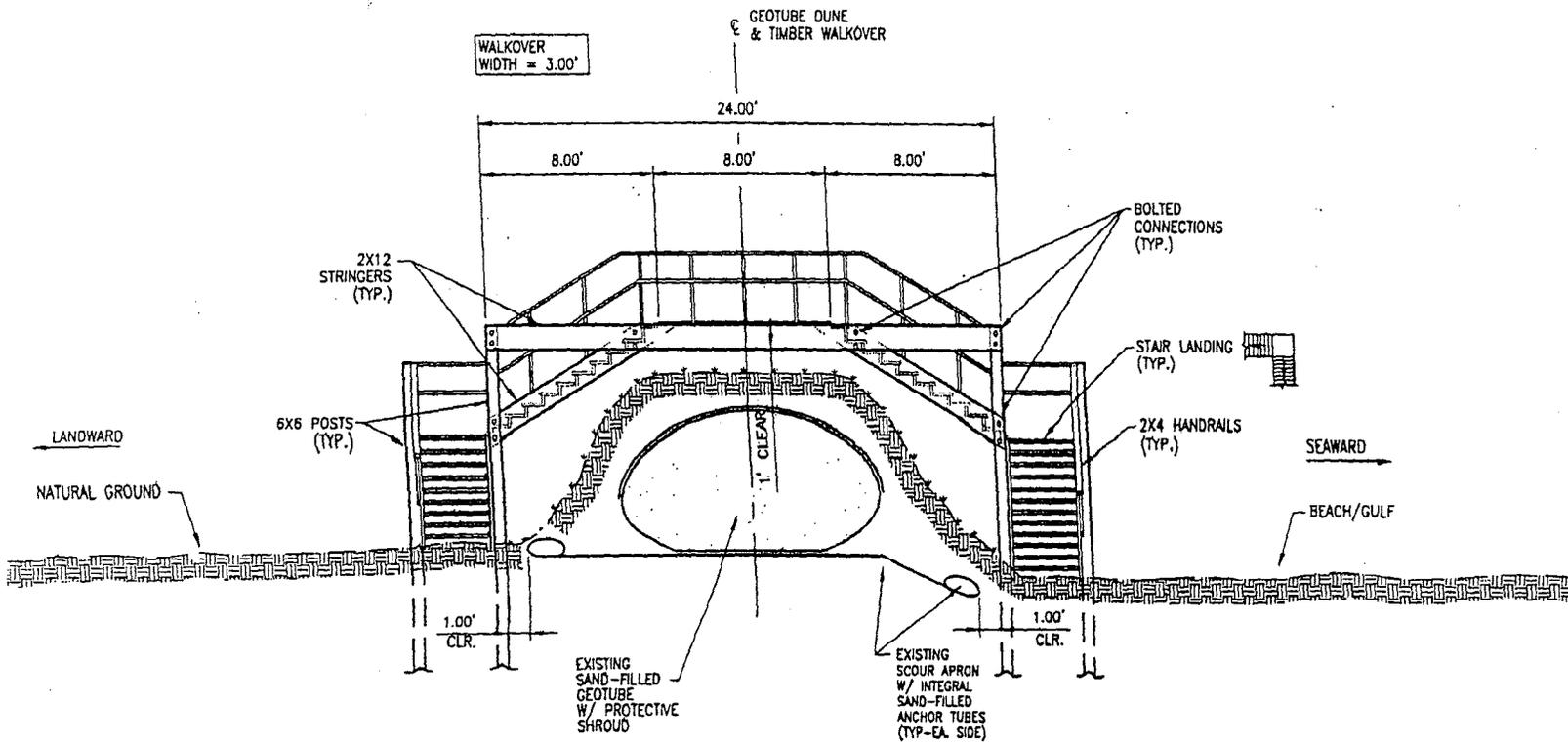
**EXAMPLE
RECOMMENDED WALKOVER DESIGN &
EXCERPTS FROM GLO'S DUNE PROTECTION AND
IMPROVEMENT MANUAL**

(Clear Span with steps, ramps may be substituted)

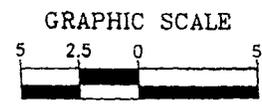
GALVESTON COUNTY

DUNE PROTECTION AND BEACH ACCESS PLAN





TYPICAL ELEVATION - TIMBER WALKOVER



DUNE WALKOVERS

Damage to dunes from pedestrian traffic can be avoided by the use of elevated walkovers for access to the beach. If walkovers are conveniently placed near access roads, parking areas, beachfront subdivisions, and public facilities, pedestrians will be less likely to cut footpaths through the dunes. Also, providing walkovers may increase public awareness of the importance of dunes and promote an appreciation of the sensitivity of the dune environment (fig. 23).

A walkover should begin landward of the foredune and extend no farther seaward than the most landward point of the public beach where it will not interfere with public use of the beach at normal high tide. The structure should be oriented at an angle to the prevailing wind direction. Otherwise, wind blowing directly up the path of the walkover may impede the growth of vegetation beneath it, erode sand from the seaward end, and increase the possibility of washout or blowout occurrences.

Construction Standards

Wood is the preferred construction material for walkovers because it is less expensive than metal, does not collect and retain heat as metal does, and is readily adapted to a number of designs. Although there are a few walkovers made from polyvinyl plastic, treated lumber and galvanized nuts and bolts may be used. Basic structural guidelines for walkovers are detailed in figure 24.

The width of a walkover should be based on the expected volume of pedestrian traffic. If a walkover will be infrequently used, a width of two feet should be sufficient. Walkovers intended for two-way passage should be wider, perhaps three or four feet. A width of six feet may be appropriate for a walkover subject to heavy use.



Figure 23. Dune walkover.

The structure's height should be at least one to one and a half times its width (three feet minimum) to allow sunlight to reach vegetation underneath. In any case, the deck of the walkover must be of sufficient elevation to accommodate the expected increase in dune height.

Space the slats forming the deck of the walkover 1/2 inch apart so that sunlight and rainfall can penetrate to plants below and so that sand will not accumulate on the deck.

Place the supporting piers as far apart as possible along the length of the structure. A distance of at least six feet between pairs of piers is recommended. Implant the piers at least three feet in the ground to ensure stability. A depth of five feet or more is advisable to allow for erosion around the piers during storms. Install the piers with a hand auger or posthole digger rather than with a tractor. Walkover piers should not be set with cement. Repair damage to the dune area as soon as possible.

Providing handrails on both sides of the walkover is recommended as a safety measure and to discourage people from jumping off into the dunes. Railings are particularly advisable on public walkovers and those that are high above the ground. Railings should be at least three feet high.

To enable wheelchair use on a walkover, inclined ramps with a 20 percent slope (a one-foot rise for every five feet in length) may be built at each end of the structure. Ramps are recommended for any large public walkover.

Walkovers should be inspected on a regular basis and promptly repaired as needed. To avoid damage, workers should enter the dune area on foot rather than by vehicle.

Common walkover structures are preferred for subdivisions to minimize damage to dunes by the proliferation of walkovers.

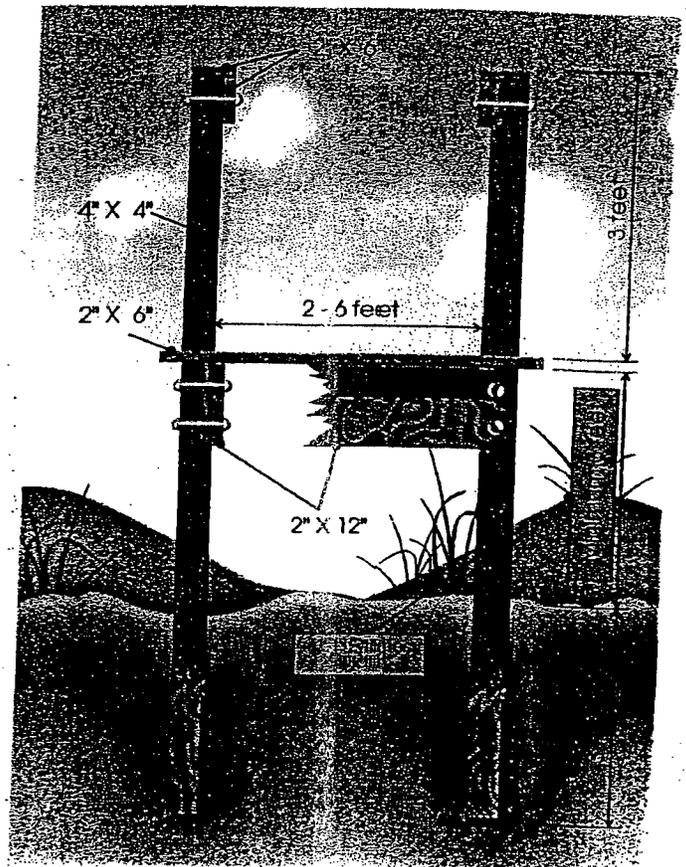


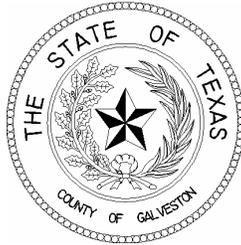
Figure 24. Construction details for a dune walkover.

APPENDIX 3

**AGREEMENT BETWEEN COASTAL COORDINATION COUNCIL
AND GALVESTON COUNTY
DATED MARCH 15, 2001**

GALVESTON COUNTY

DUNE PROTECTION AND BEACH ACCESS PLAN



TERMS:

1. **Beach Nourishment:** Galveston County will establish and maintain a fund for nourishing the public beaches adjacent to the geotube projects. Within 4 months of execution of this agreement, the County will develop a nourishment plan for the public beach adjacent to the geotube projects, and within 7 months of execution of this agreement (or the actual construction of the pending geotubes approved by HUD as of December 7, 2000 for funding, whichever is later) implement the nourishment plan.
2. **Access:** Galveston County will preserve and enhance public beach access and use by providing equal or better public beach access (compared to the pre-project status) and a beach width seaward of the project equivalent to or greater than the beach width prior to construction of the project.
3. **Monitoring:** Galveston County will develop and submit to the Council Secretary for Council approval a monitoring protocol for each of the projects in their entirety to determine: (a) the impact on the beach users and the beach/dune system; and (b) the effectiveness and survivability of the project. The monitoring protocol will be developed cooperatively by the County's engineers and Council Staff and will include articulable scientifically based criteria to determine the effectiveness and survivability of the project. The County will submit to the Council Secretary a quarterly report of the monitoring results in sufficient time to be included in the Council's quarterly meeting agenda packets. Information should be sent to the Council Secretary at the following address.

**Ms. Diane Garcia, Secretary
Coastal Coordination Council
Post Office Box 12873
Austin, TX 78711-2873
diane.garcia@glo.state.tx.us
512.463.5233 (fax)
512.463.5385 (phone)**
4. **Removal:** Galveston County or its authorized agents will remove the projects if the monitoring demonstrates that the projects exacerbate erosion or otherwise negatively impact the public beach or public use of the beach. After notice by the CCC, subject to the monitoring criteria developed in paragraph 3 above and a hearing if requested by the County, the County will remove the geotubes within 120 days if the County does not nourish the beaches or properly maintain the projects.
5. **Maintenance/Repair:** Galveston County will be responsible for maintaining the project and ensuring the project remains covered and nourished to maintain the appearance of a natural dune system and that public access is maintained throughout the project area.

Agreement between Coastal Coordination Council and Galveston County
March 15, 2001

BACKGROUND: In 1999, Galveston County ("County") applied for and received a Presidential Disaster Declaration (DR-TX 1245) following Tropical Storm Frances in September 1998. Galveston County applied for Disaster Relief funds under the Robert T. Stafford act to restore and enhance the destroyed dune systems on West Galveston Island and the Bolivar Peninsula under the Public Assistance Program. In addition, Galveston County applied for an additional grant from the Texas Department of Housing and Community Affairs ("TDHCA") under a one time Disaster Recovery Initiative to further restore the shoreline on the Bolivar Peninsula in the area adjacent to Rollover Pass. Both proposals were approved for federal funding for the construction of certain geo-textile shore protection projects ("geotube projects" or "project"). The County serves as the applicant's agent (sub-grantee) on disaster relief projects with the Governor's Division of Emergency Management ("DEM") and TDHCA serving as the Grantees. The sub-grantee is responsible for completing the projects and submitting all required documentation for reimbursement to the DEM and the TDHCA for reimbursement through an audit process. Not all of the federally approved projects have been constructed, but this agreement applies to existing and pending geotubes constructed under the two above described projects. As of this date the following projects have been completed:

- 9,100ft of the FEMA project on Bolivar Peninsula. (West side of Rollover Pass: Beginning 500ft east of Martha's Vineyard to South Caplen Street. East of Rollover Pass: Beginning at Rollover Pass to Legers Street.)
- 5,280ft of the FEMA project in the Area of Pirates Beach East on West Galveston Island from Sandpiper Lane to Sea Eagle Lane.
- 440ft of the FEMA project located at Galveston County Beach Pocket Park #2 on West Galveston Island.
- Approximately 8,500ft of the TDHCA project on the West Side of Rollover Pass. (Extending from South Caplen Street to Rollover Pass and from 500ft east of Martha's Vineyard to 1000ft west of Martha's Vineyard.)

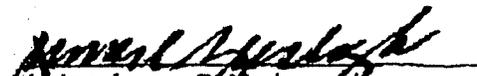
PURPOSE: State and local applications for federal assistance are subject to the Texas Coastal Management Program ("CMP") [506.12(a)(3)] and must be submitted to the Coastal Coordination Council ("Council") Secretary for distribution to and review by Council member agencies. For the portions of the Galveston County geotube projects that have been installed, the Council and the County enter into this agreement after the fact to maximize the probability that the projects will be maintained in a manner that is consistent with the CMP.

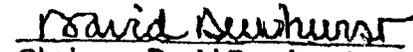
6. **Project Duration:** The Geotubes were constructed as pilot projects and are a temporary measure to slow the landward migration of the public beach. No later than one year after this agreement is executed the County will provide and present to the Council at a regularly scheduled Council meeting a report which includes an identification of the projects' strengths and weaknesses and the specific ongoing need for the projects.

7. **Galveston County Beach/Dune Plan:** The County's beach/dune plan is currently being revised to identify all public access points. During the revision process the County will include a provision that specifies that beachfront construction permits will not be issued to allow any private beachfront construction on or seaward of the geotube project. This will ensure that, as nourishment projects are conducted and the beach area expands, private structures will not be constructed in an area that will cause future removal issues for the federal, state and local government. The above restriction does not apply to permits for dune walkovers.

8. Any amendment to this agreement must be approved by the Council.

Entered into and agreed to by:


Judge James D. Farbrough
Galveston County
Date: 3-26-2001


Chairman David Dewhurst
Coastal Coordination Council
Date: 3-21-2001

ATTEST 
Patricia Ritchie, County Clerk

APPENDIX 4

MAP SHOWING LOCATION OF SANDSOCKS/GEOTUBE® CONTAINMENT SYSTEMS CONSTRUCTED PRIOR TO THE ADOPTION OF THIS ORDER

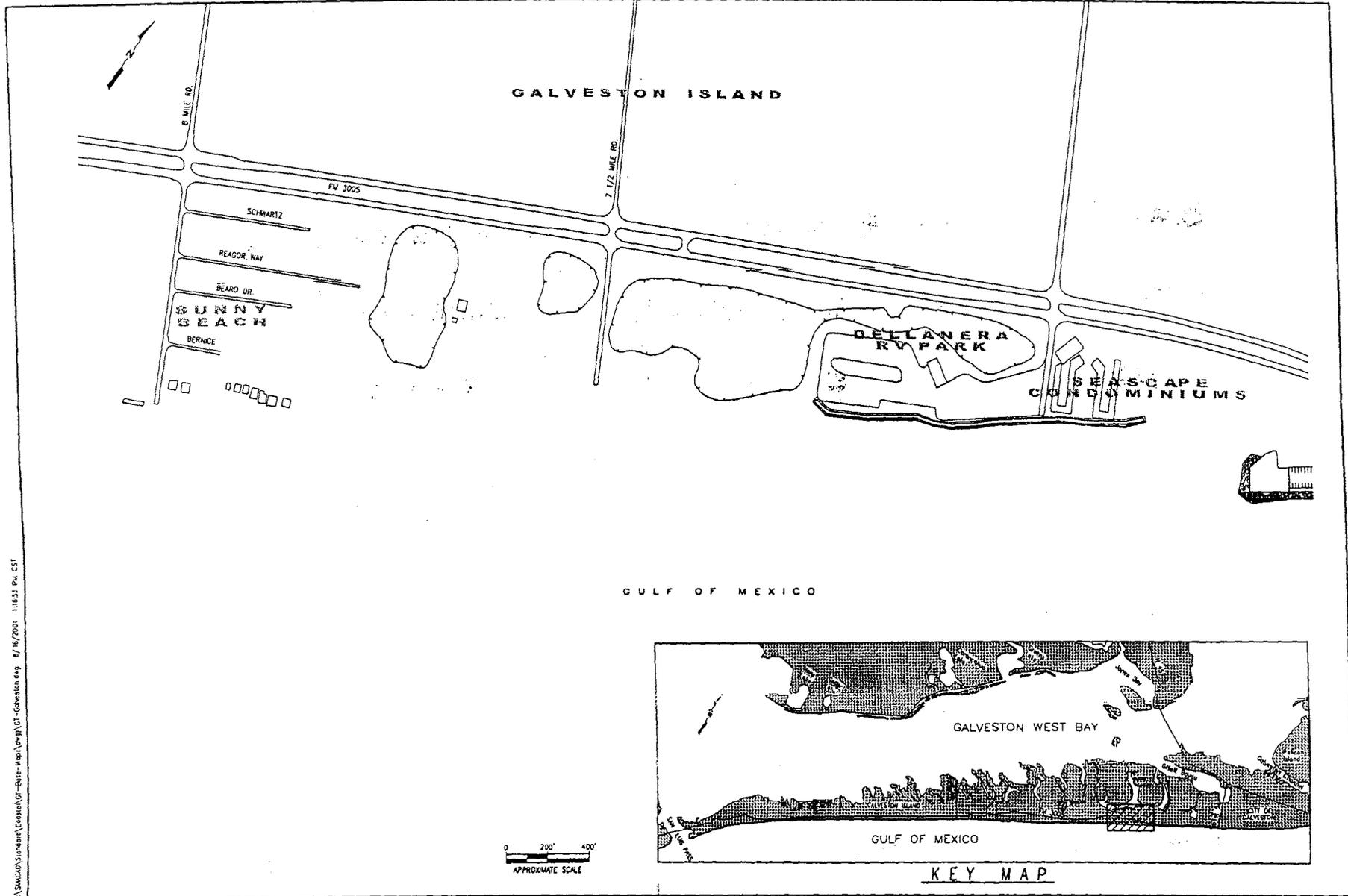
GALVESTON COUNTY

DUNE PROTECTION AND BEACH ACCESS PLAN

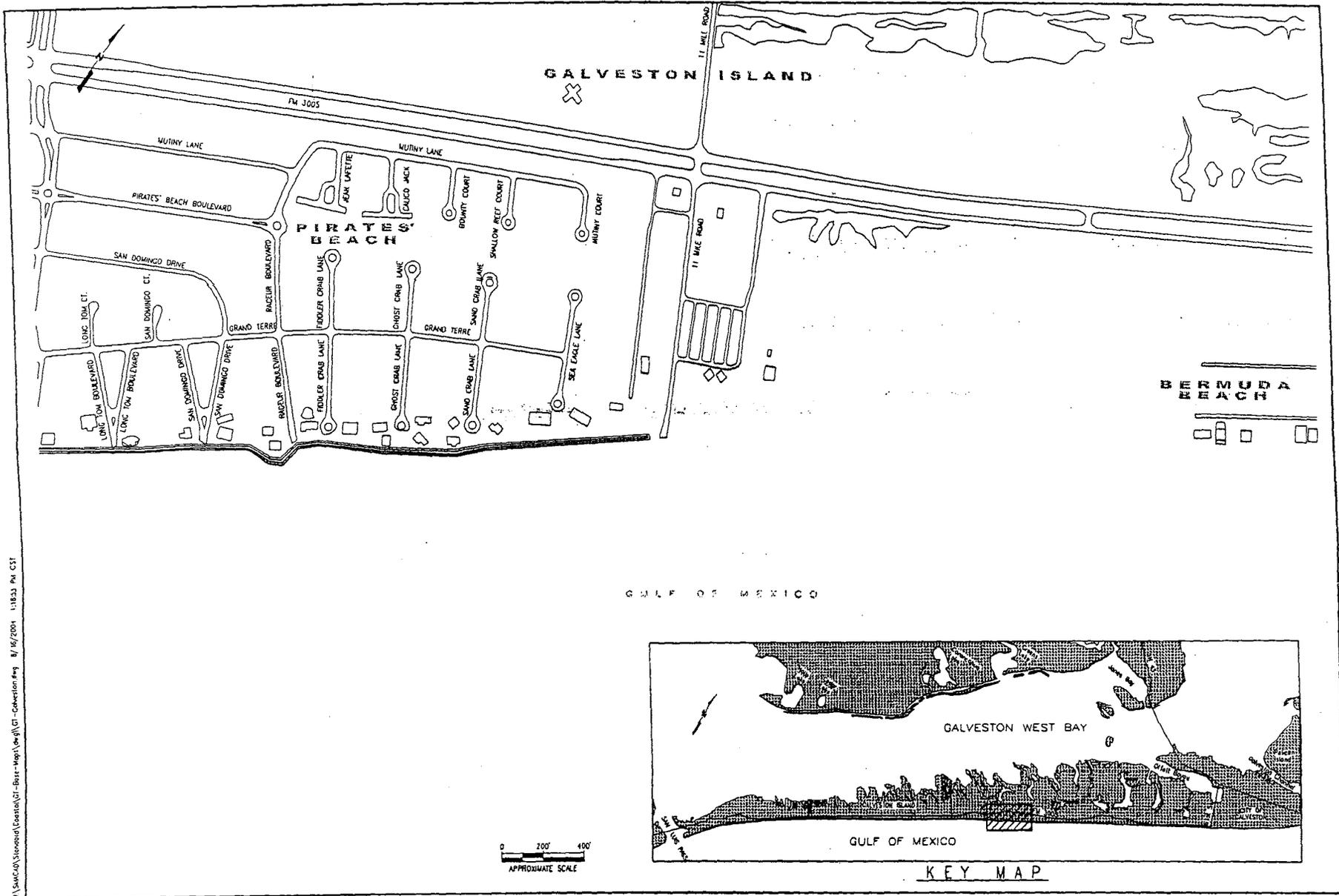


Note: Ten pages total in Appendix 4:
four (4) pages on Galveston Island, and six (6) pages on Bolivar Peninsula.
Pages on Galveston Island show FM 3005, travelling in a generally western
direction (i.e., travelling away from the Seawall). Pages on Bolivar
Peninsula show State Highway 87, travelling also in a generally western
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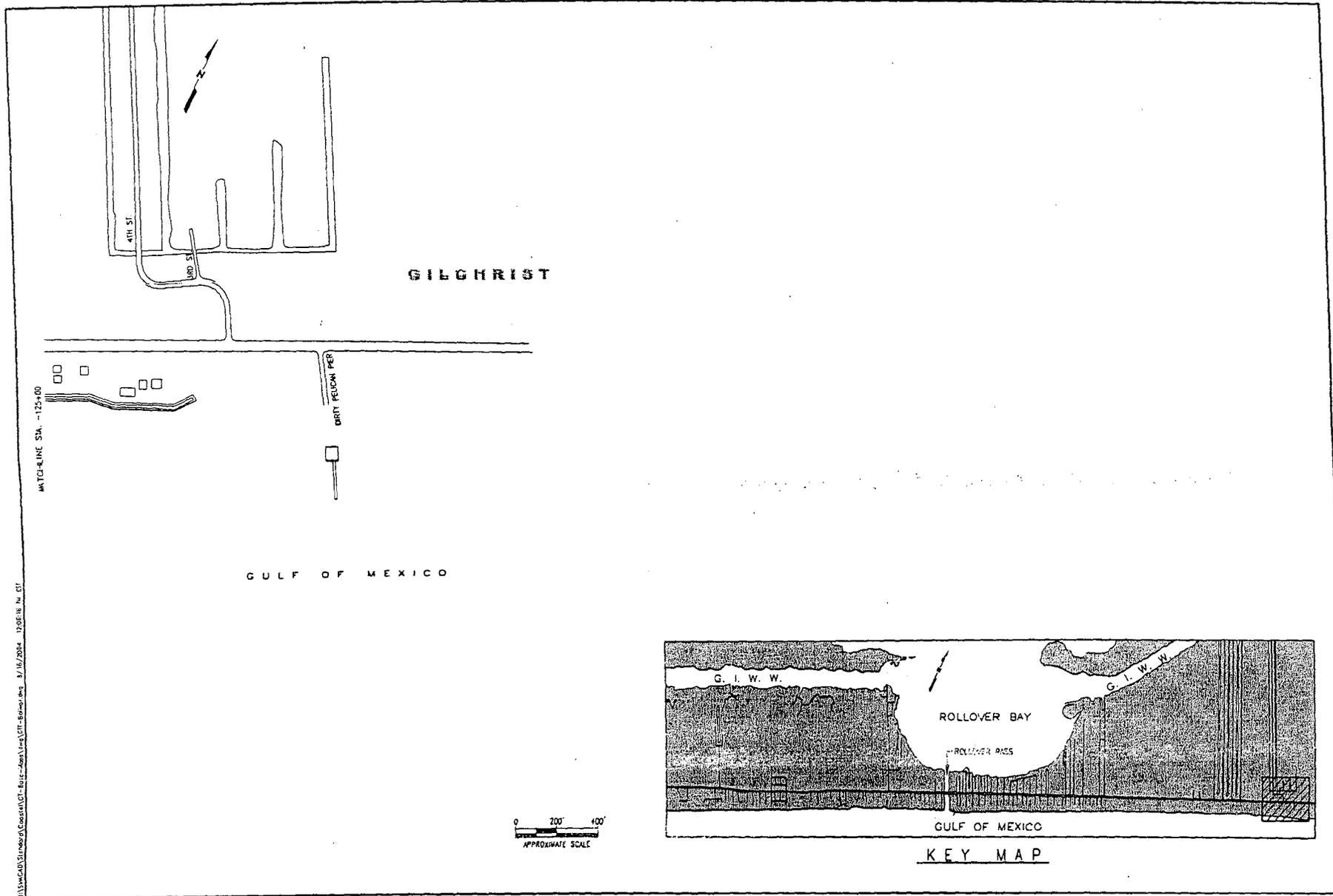
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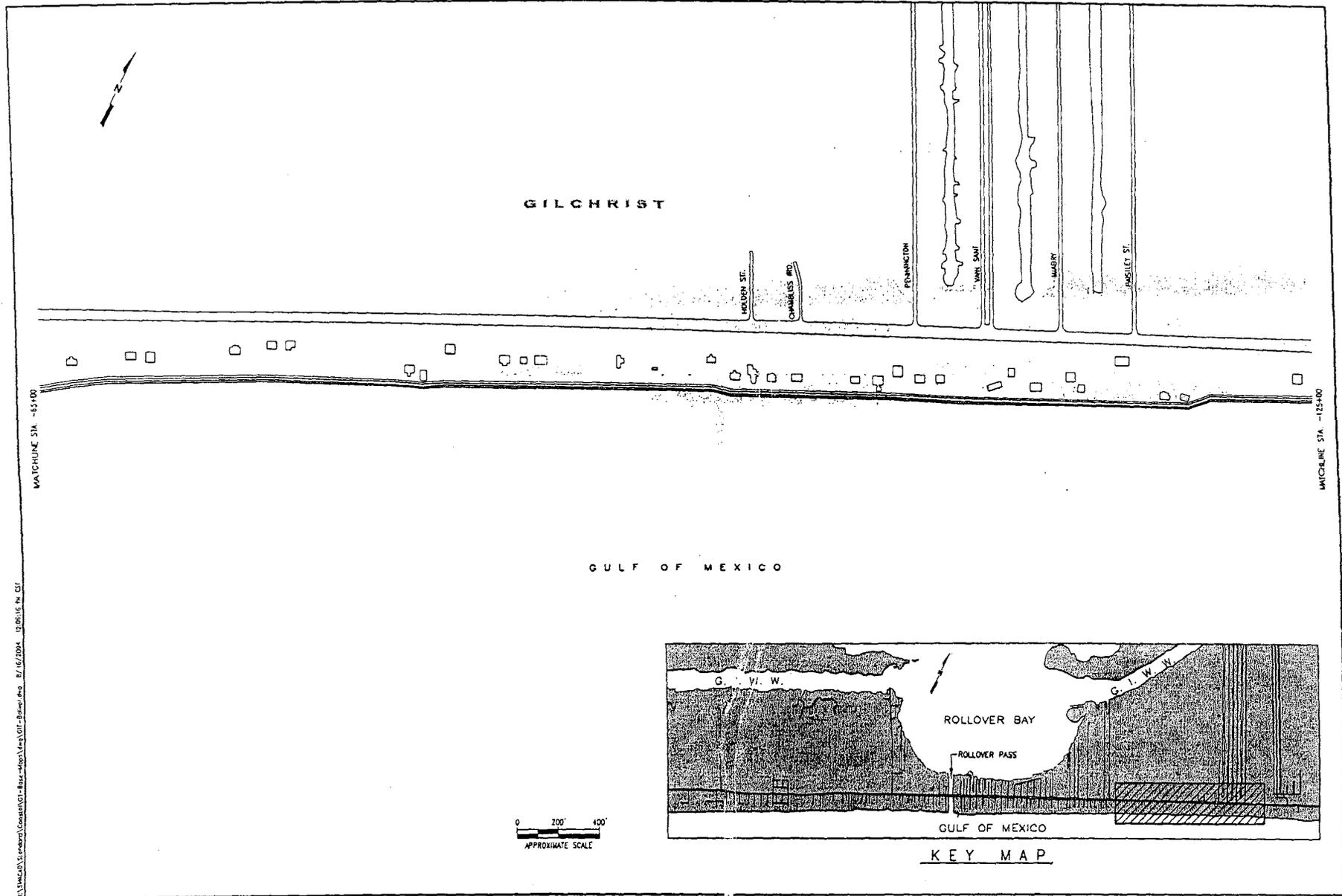


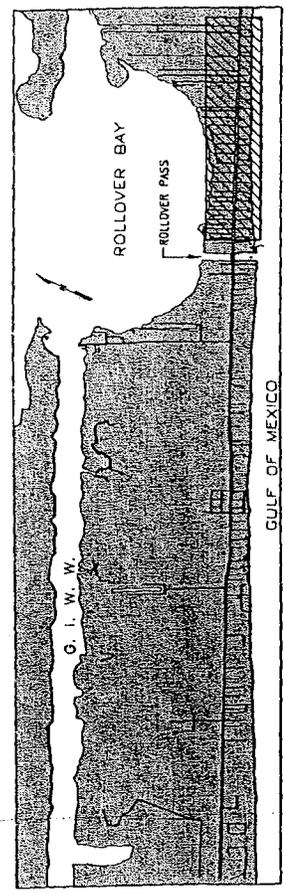
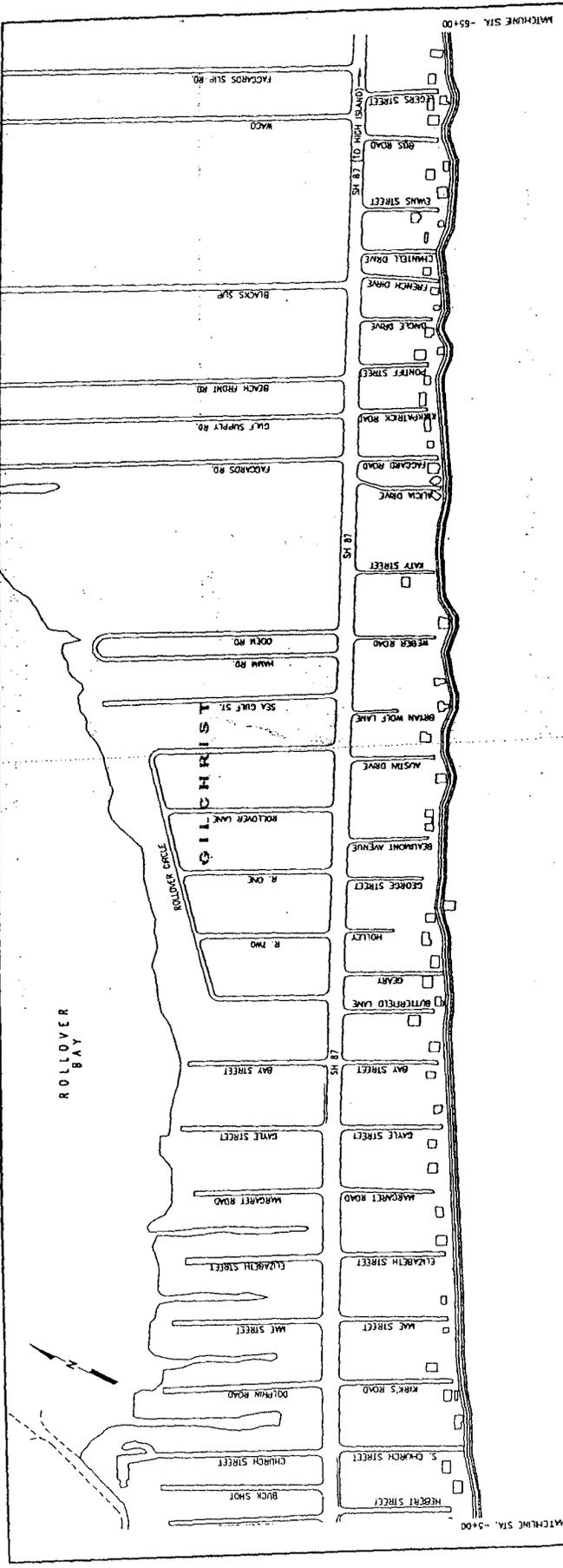
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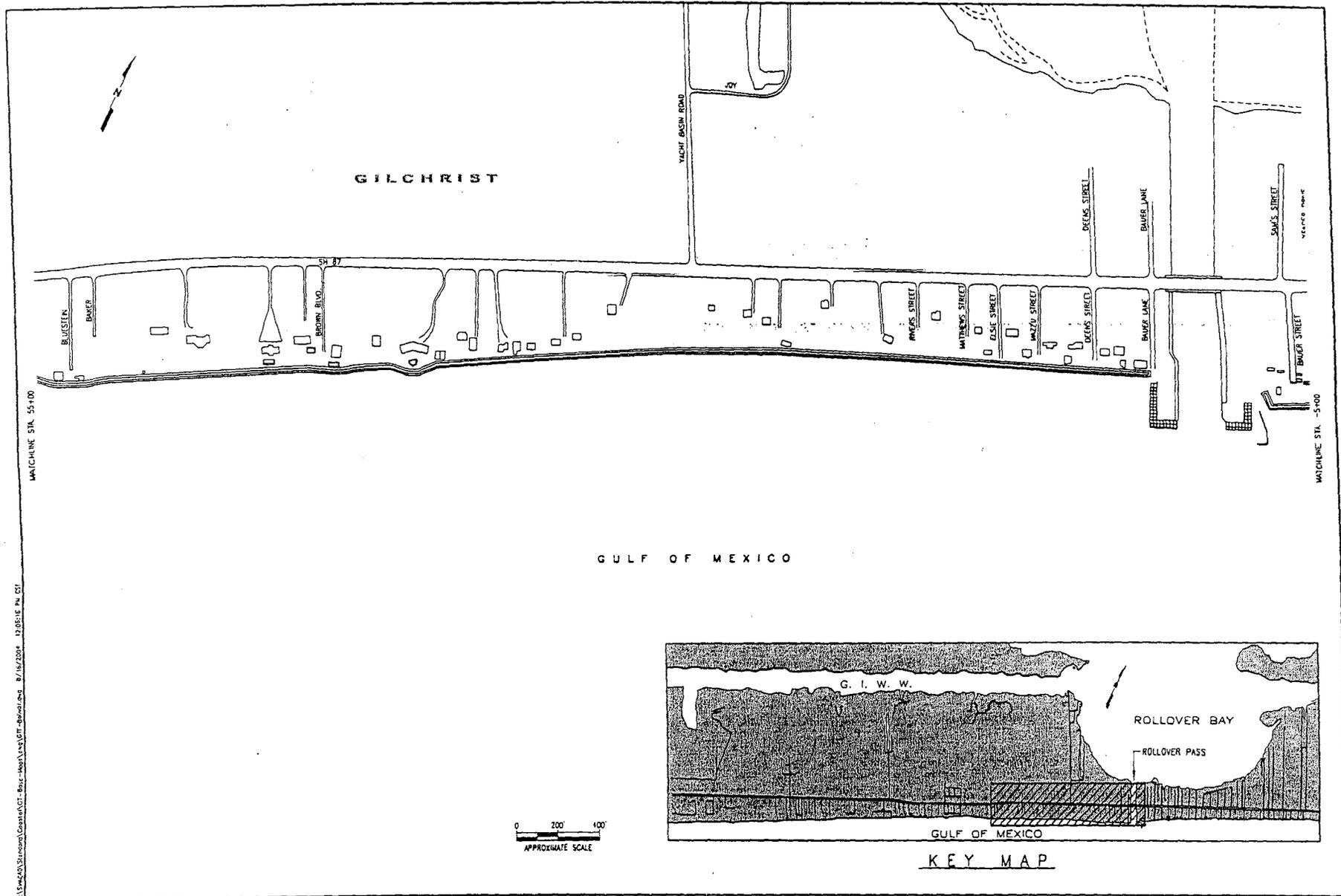


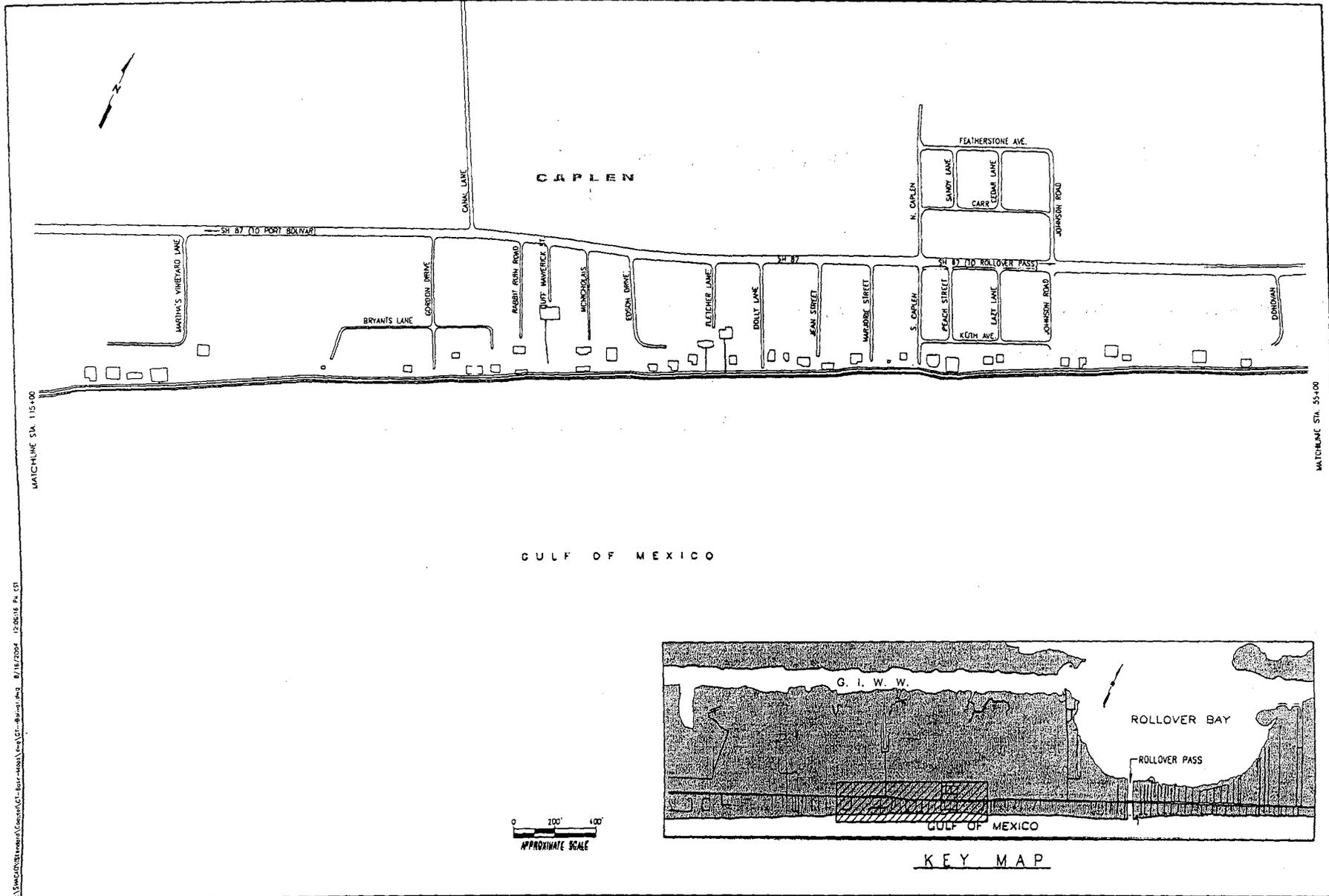
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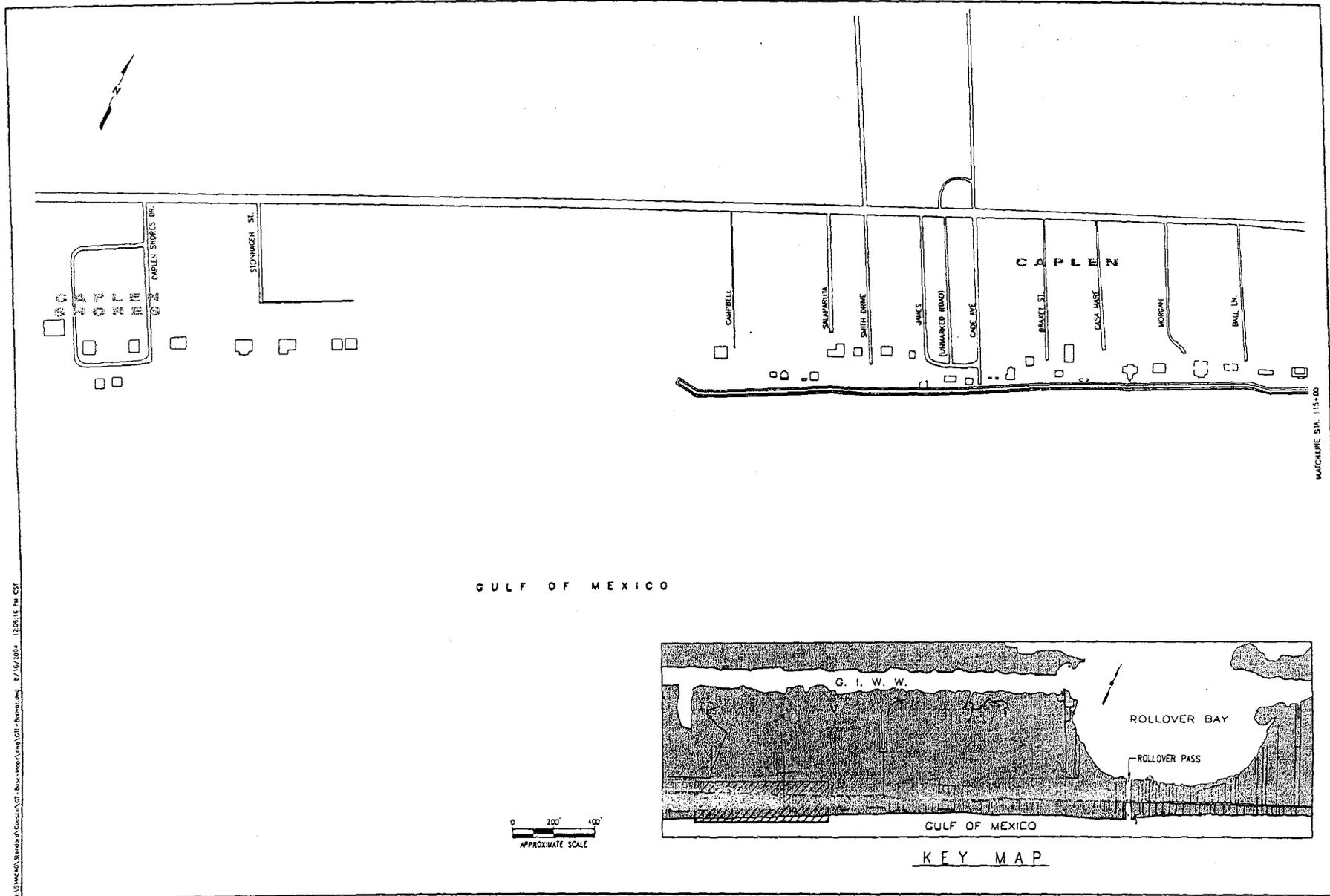
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APPENDIX 5

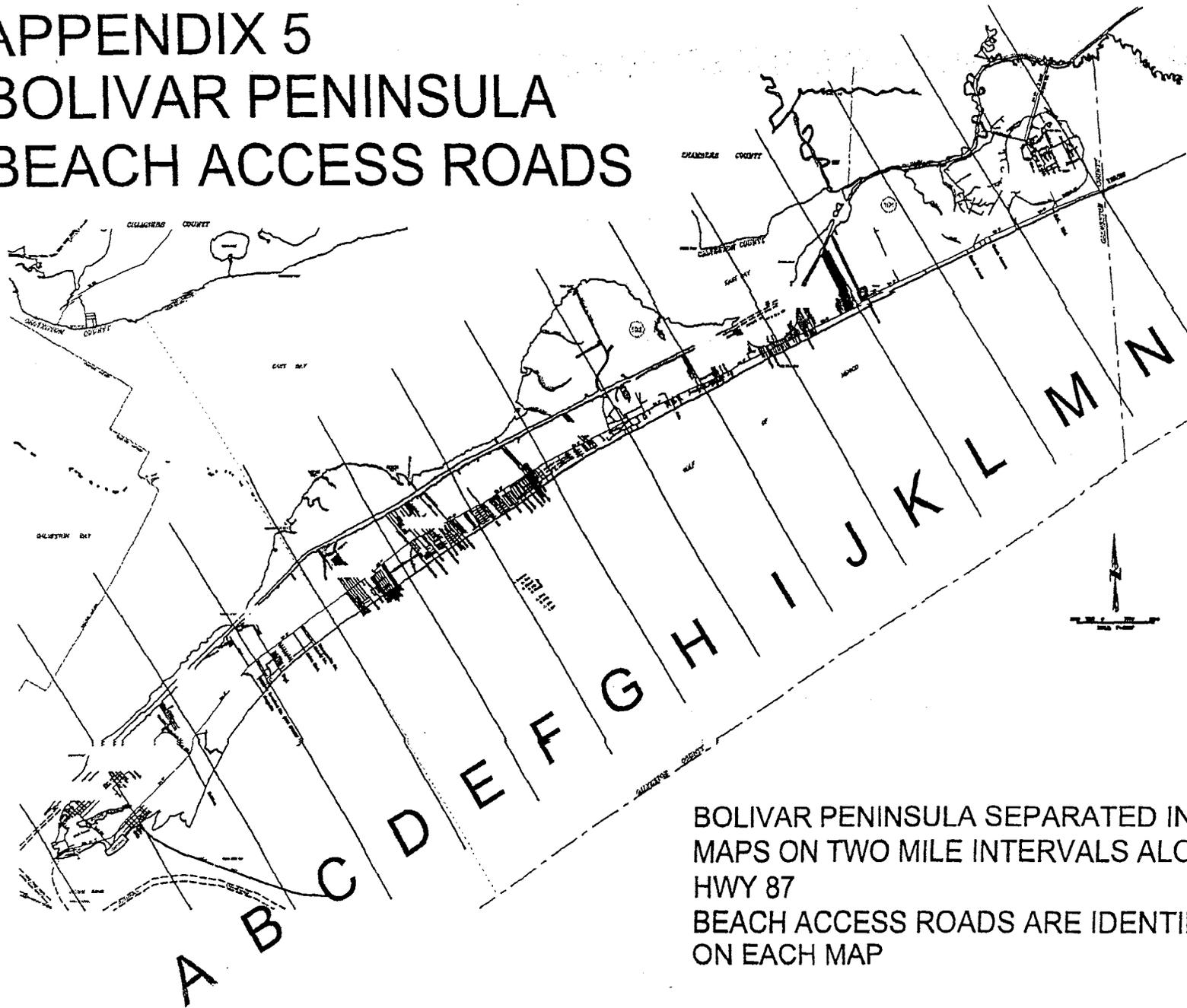
**MAP OF BEACH ACCESS POINTS ON
BOLIVAR PENINSULA**

GALVESTON COUNTY

DUNE PROTECTION AND BEACH ACCESS PLAN

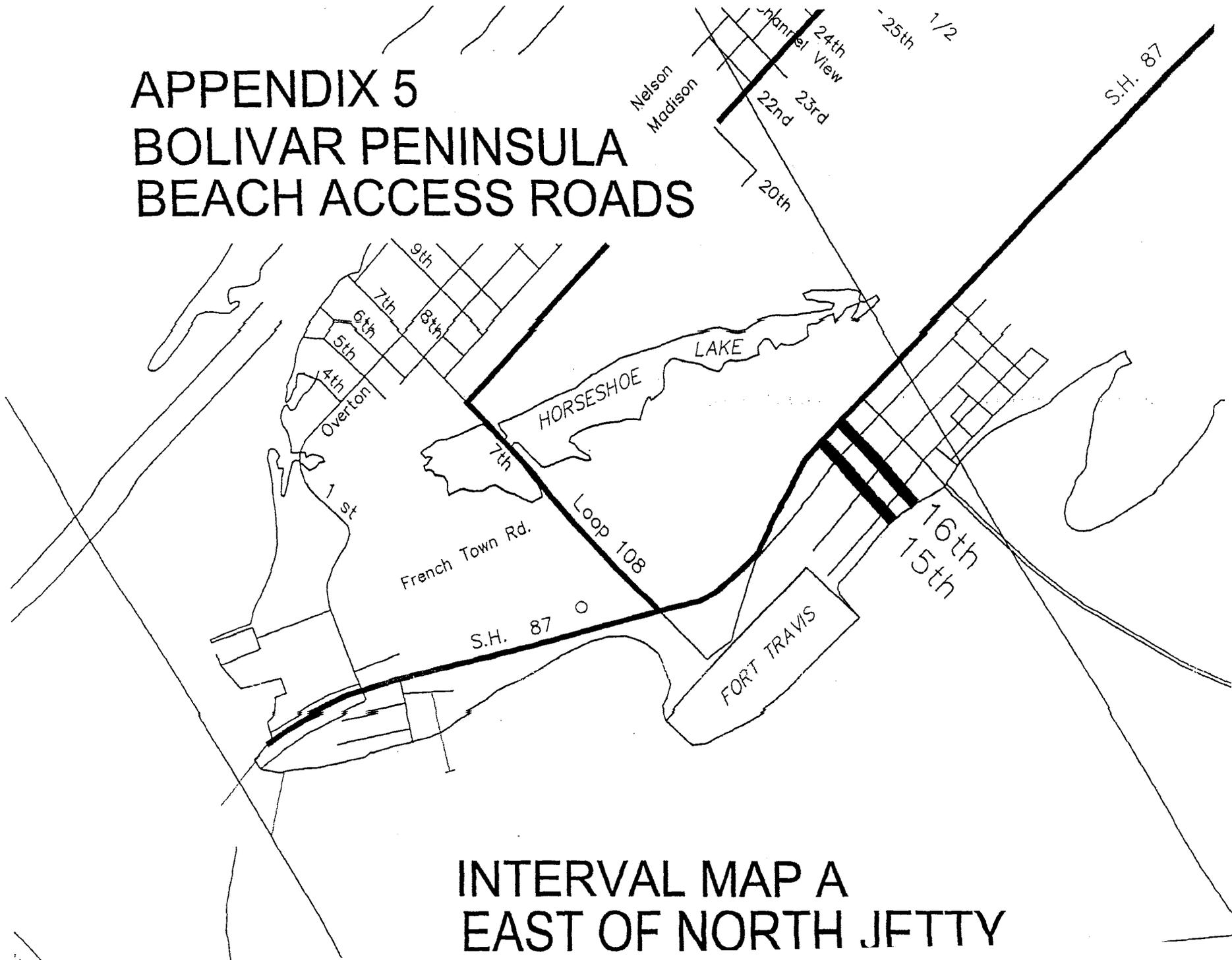


APPENDIX 5 BOLIVAR PENINSULA BEACH ACCESS ROADS



BOLIVAR PENINSULA SEPARATED INTO
MAPS ON TWO MILE INTERVALS ALONG
HWY 87
BEACH ACCESS ROADS ARE IDENTIFIED
ON EACH MAP

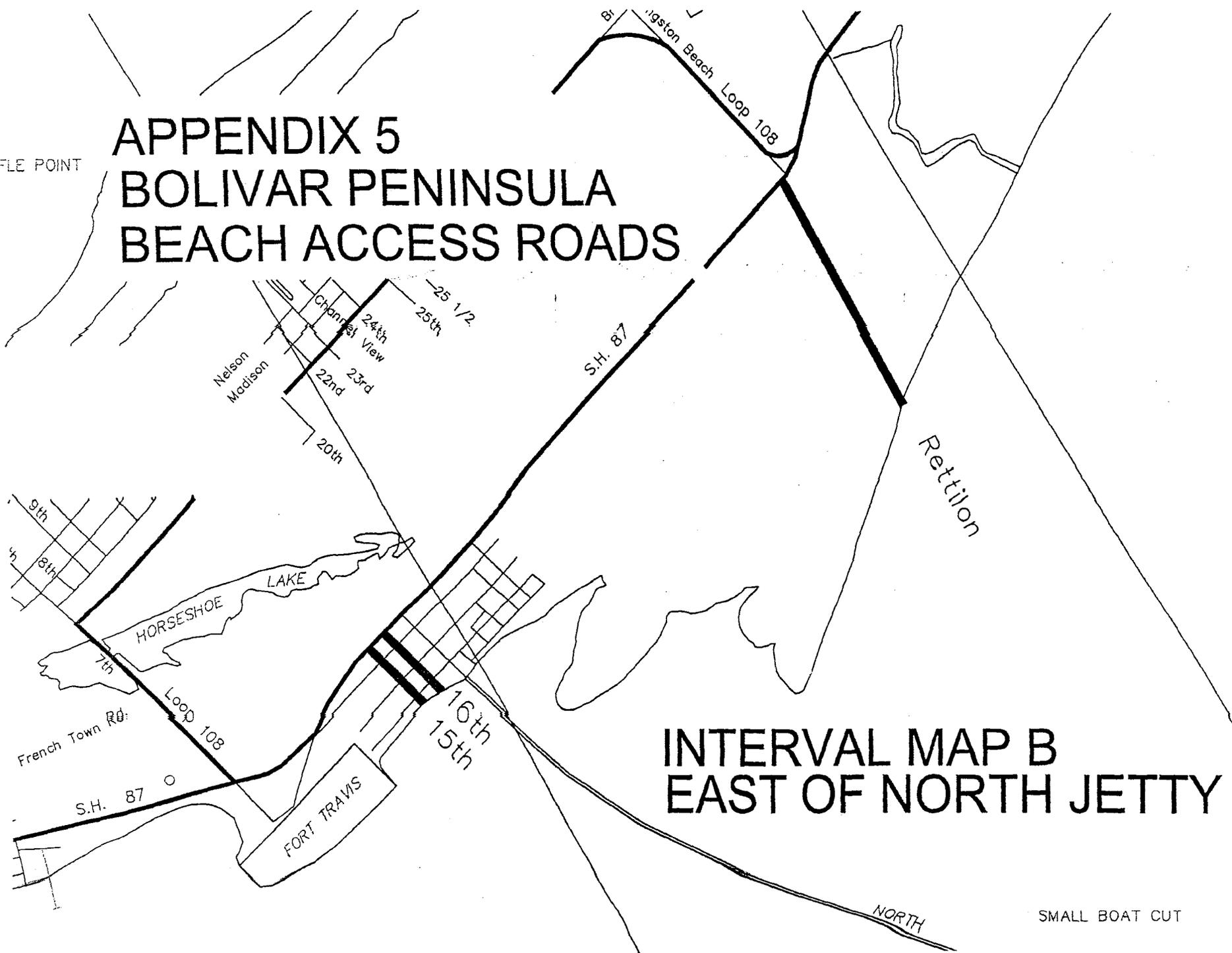
APPENDIX 5 BOLIVAR PENINSULA BEACH ACCESS ROADS



INTERVAL MAP A EAST OF NORTH JETTY

FILE POINT

APPENDIX 5 BOLIVAR PENINSULA BEACH ACCESS ROADS

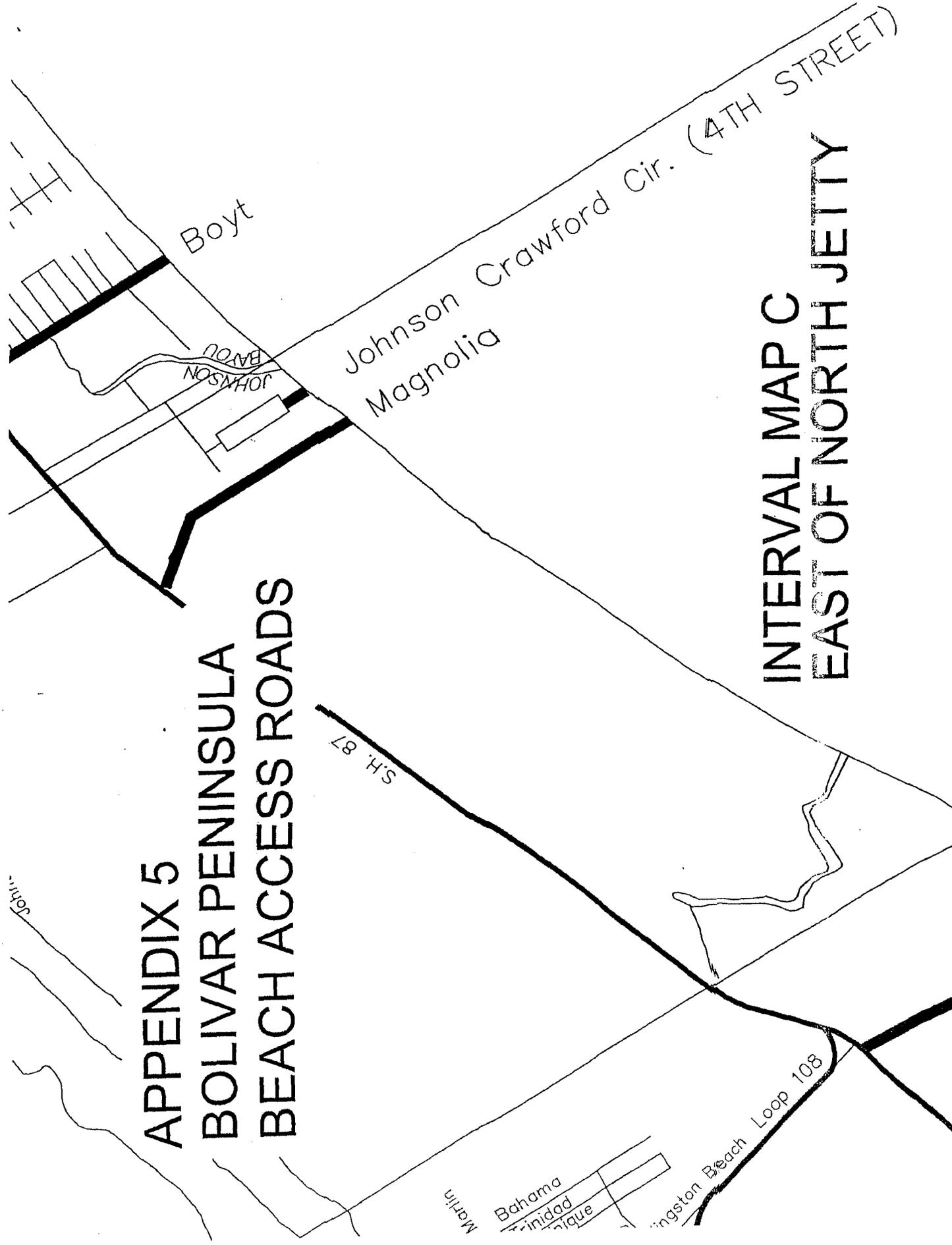


INTERVAL MAP B EAST OF NORTH JETTY

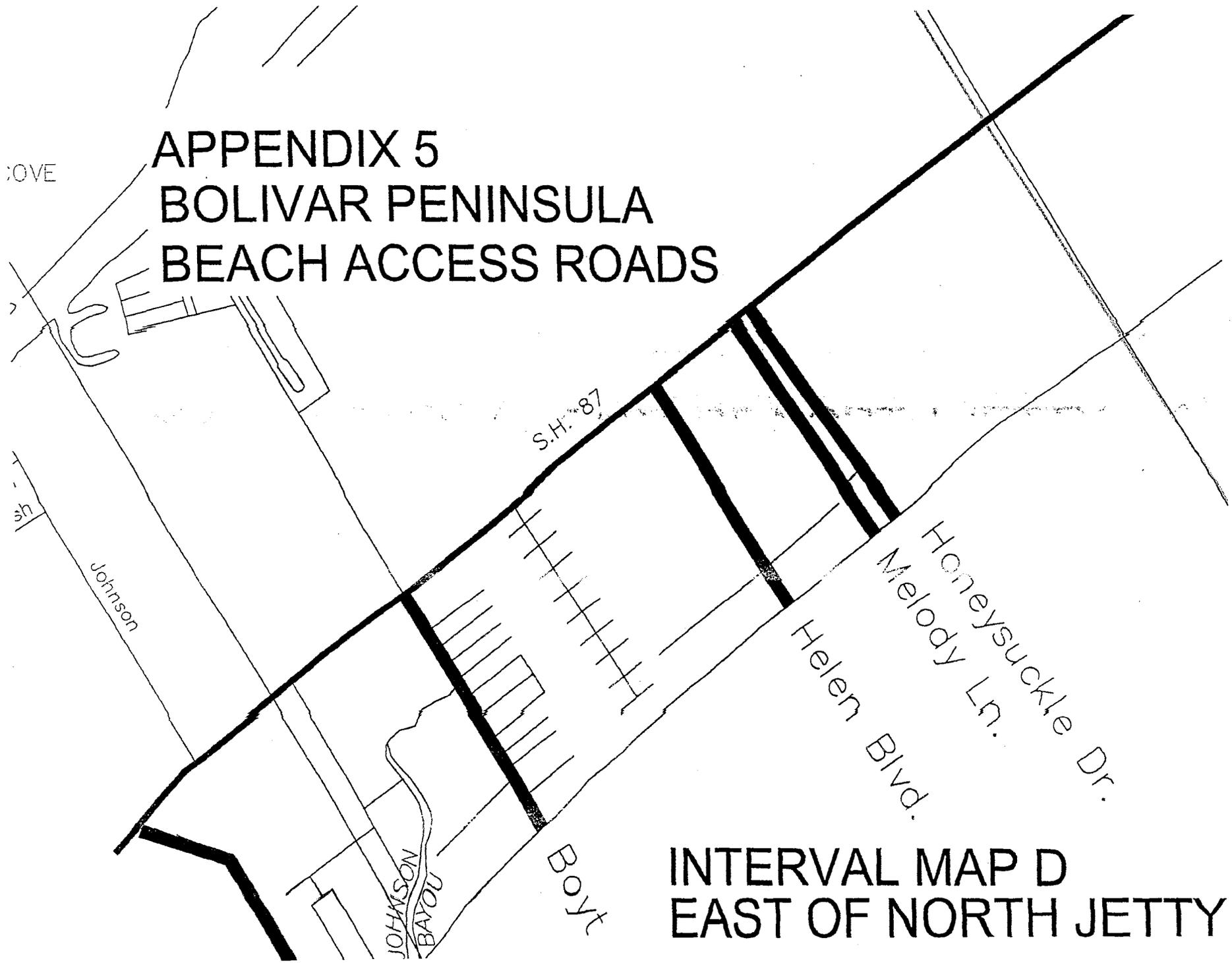
SMALL BOAT CUT

**APPENDIX 5
BOLIVAR PENINSULA
BEACH ACCESS ROADS**

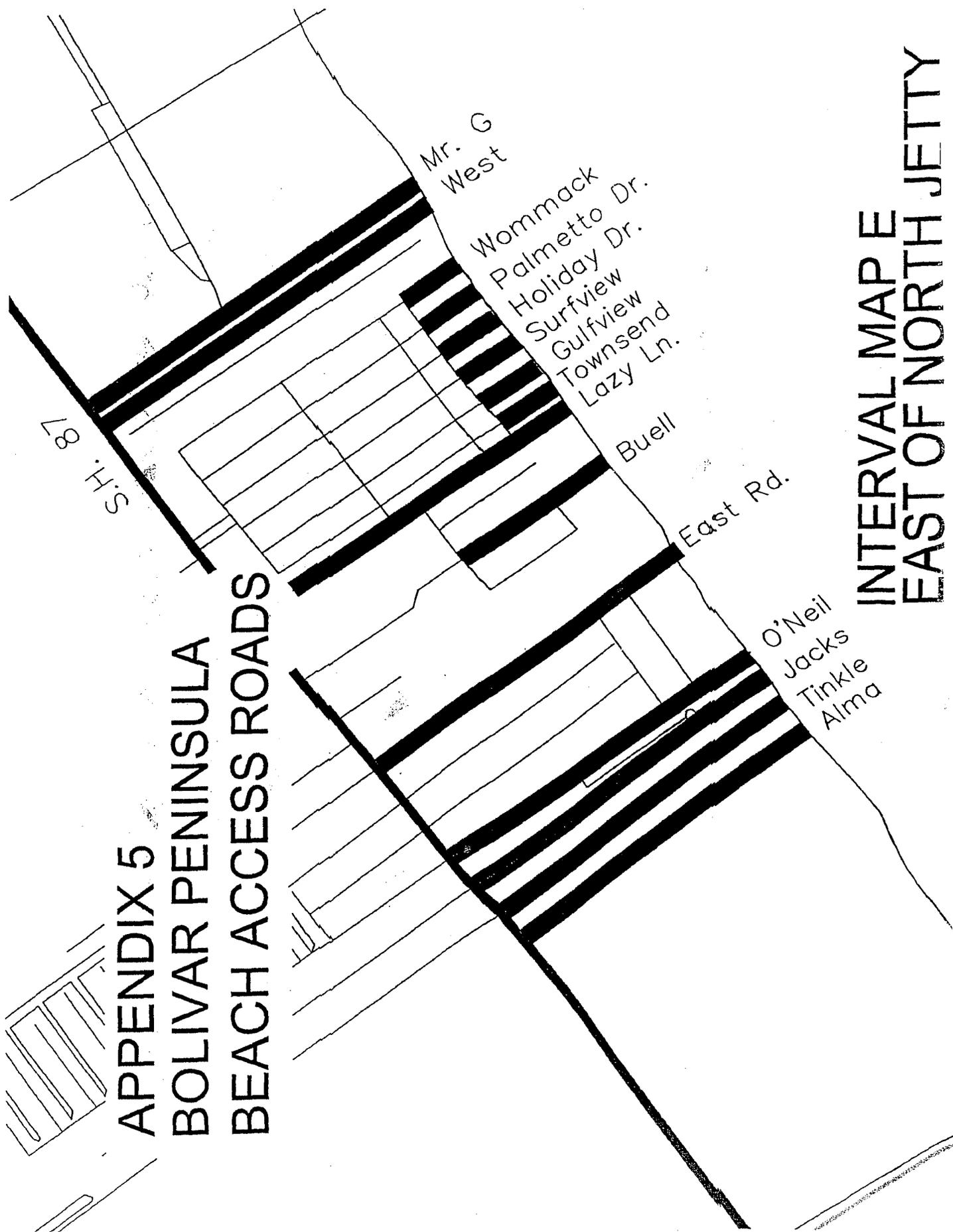
**INTERVAL MAP C
EAST OF NORTH JETTY**



APPENDIX 5
BOLIVAR PENINSULA
BEACH ACCESS ROADS



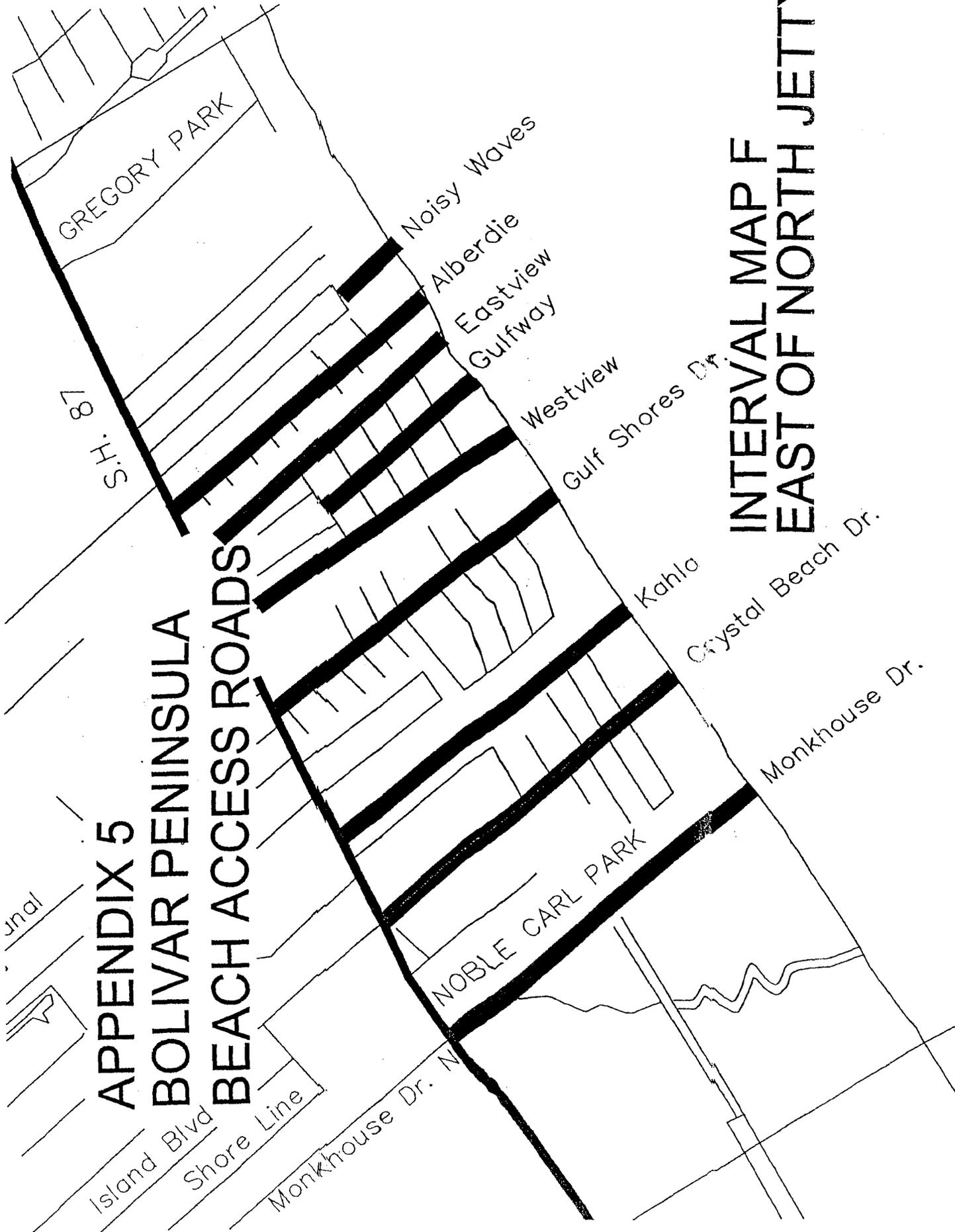
INTERVAL MAP D
EAST OF NORTH JETTY



**APPENDIX 5
BOLIVAR PENINSULA
BEACH ACCESS ROADS**

**INTERVAL MAP E
EAST OF NORTH JETTY**

**APPENDIX 5
BOLIVAR PENINSULA
BEACH ACCESS ROADS**

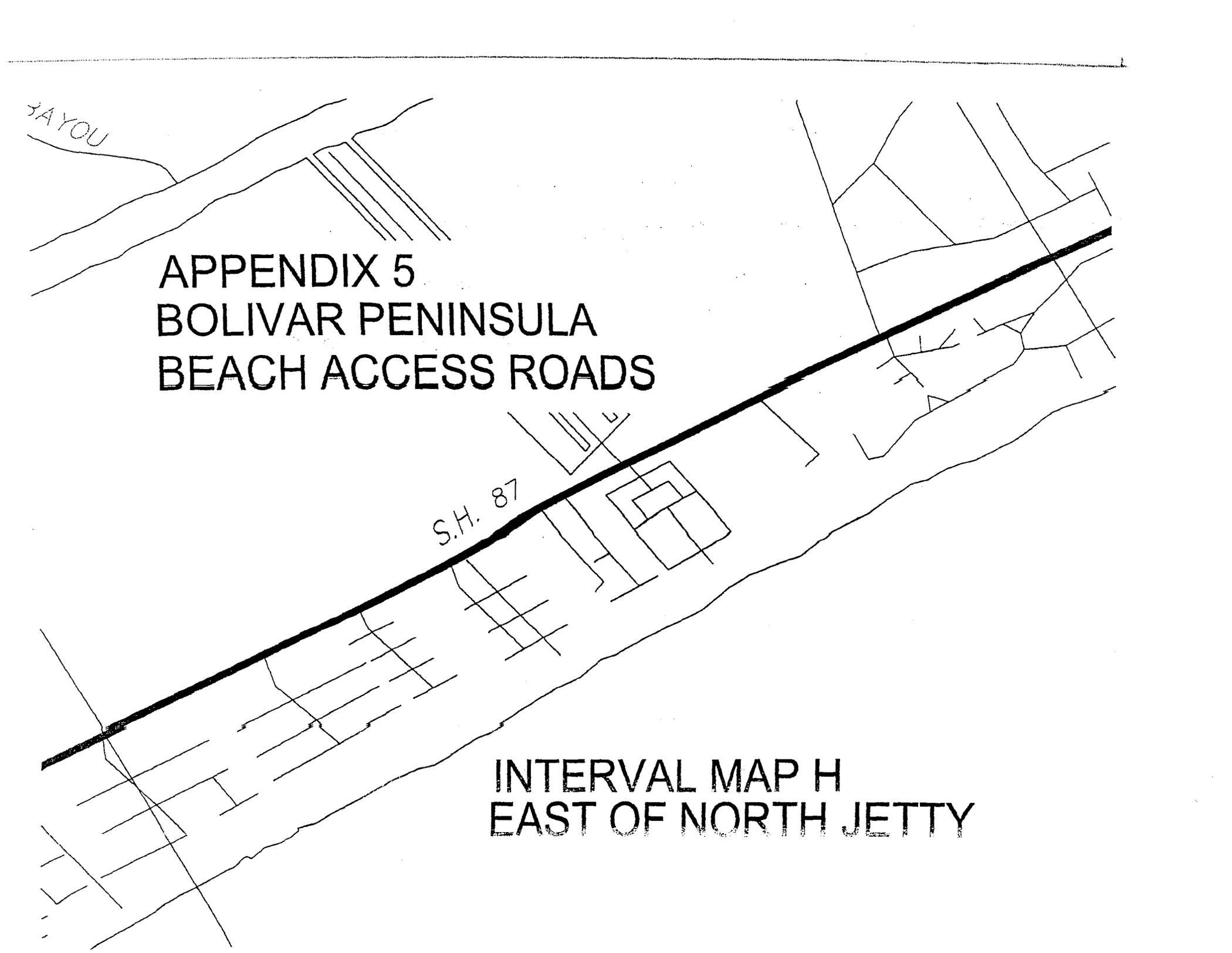


**INTERVAL MAP F
EAST OF NORTH JETTY**

**APPENDIX 5
BOLIVAR PENINSULA
BEACH ACCESS ROADS**



**INTERVAL MAP G
EAST OF NORTH JETTY**

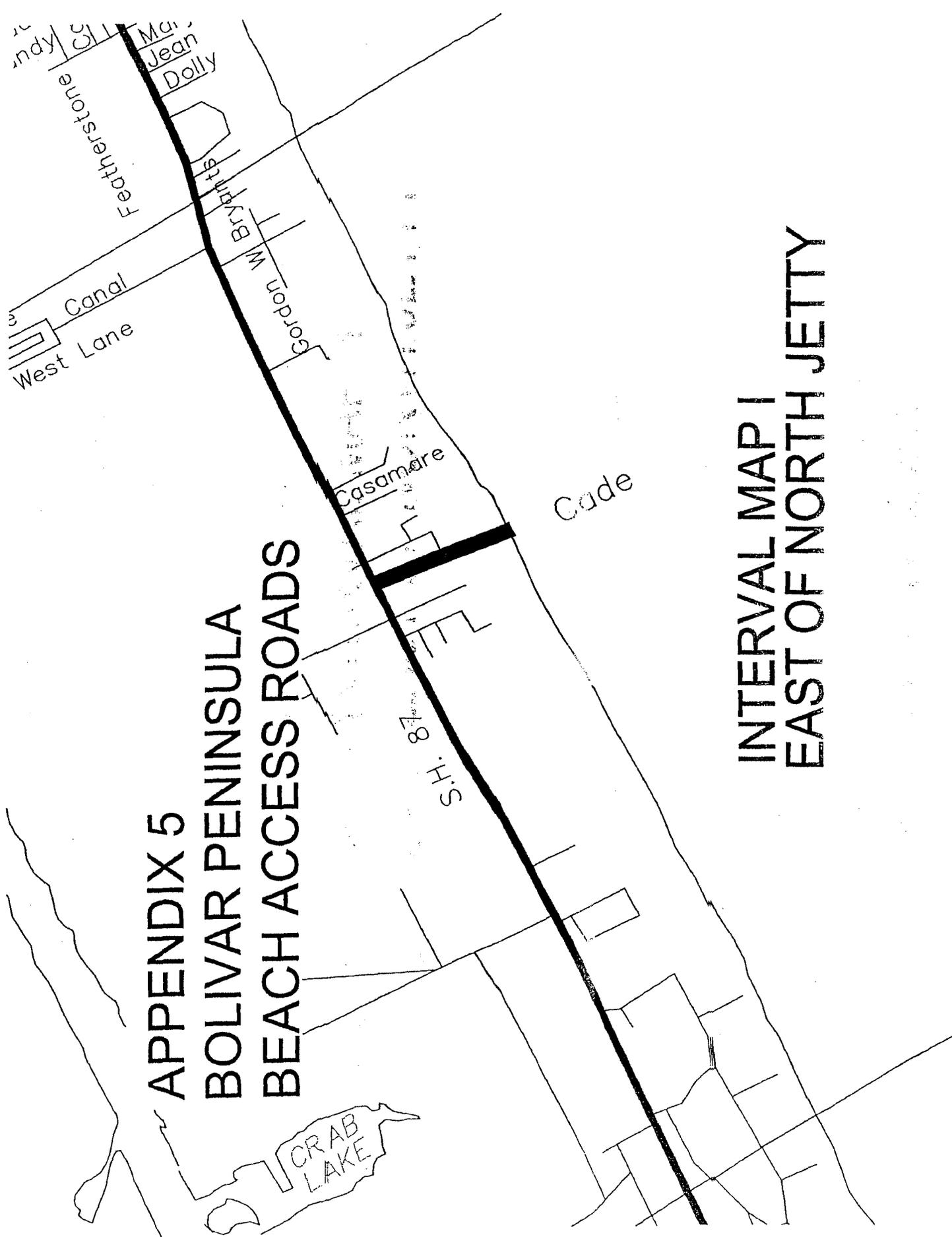


APPENDIX 5
BOLIVAR PENINSULA
BEACH ACCESS ROADS

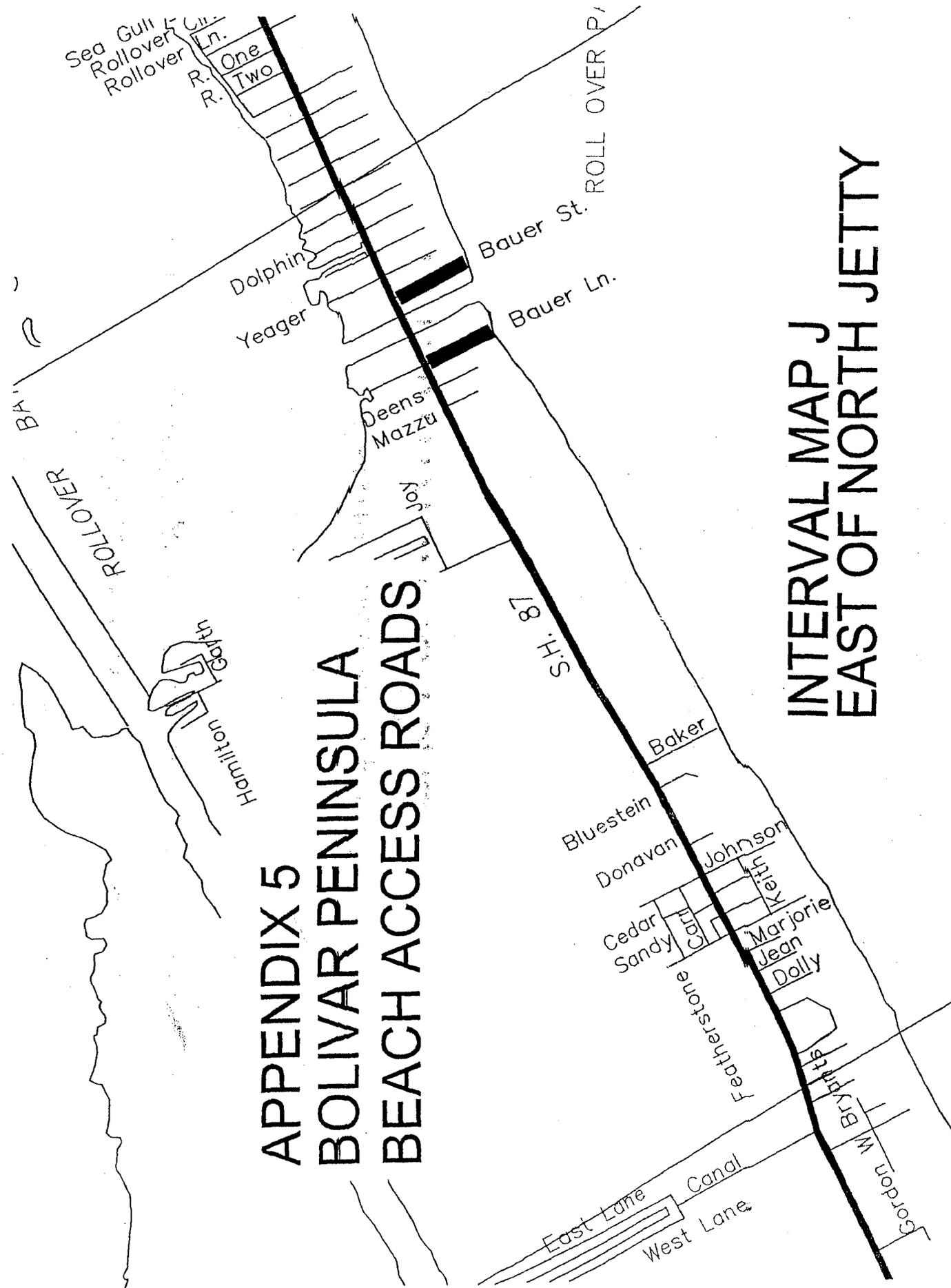
S.H. 87

INTERVAL MAP H
EAST OF NORTH JETTY

**APPENDIX 5
BOLIVAR PENINSULA
BEACH ACCESS ROADS**



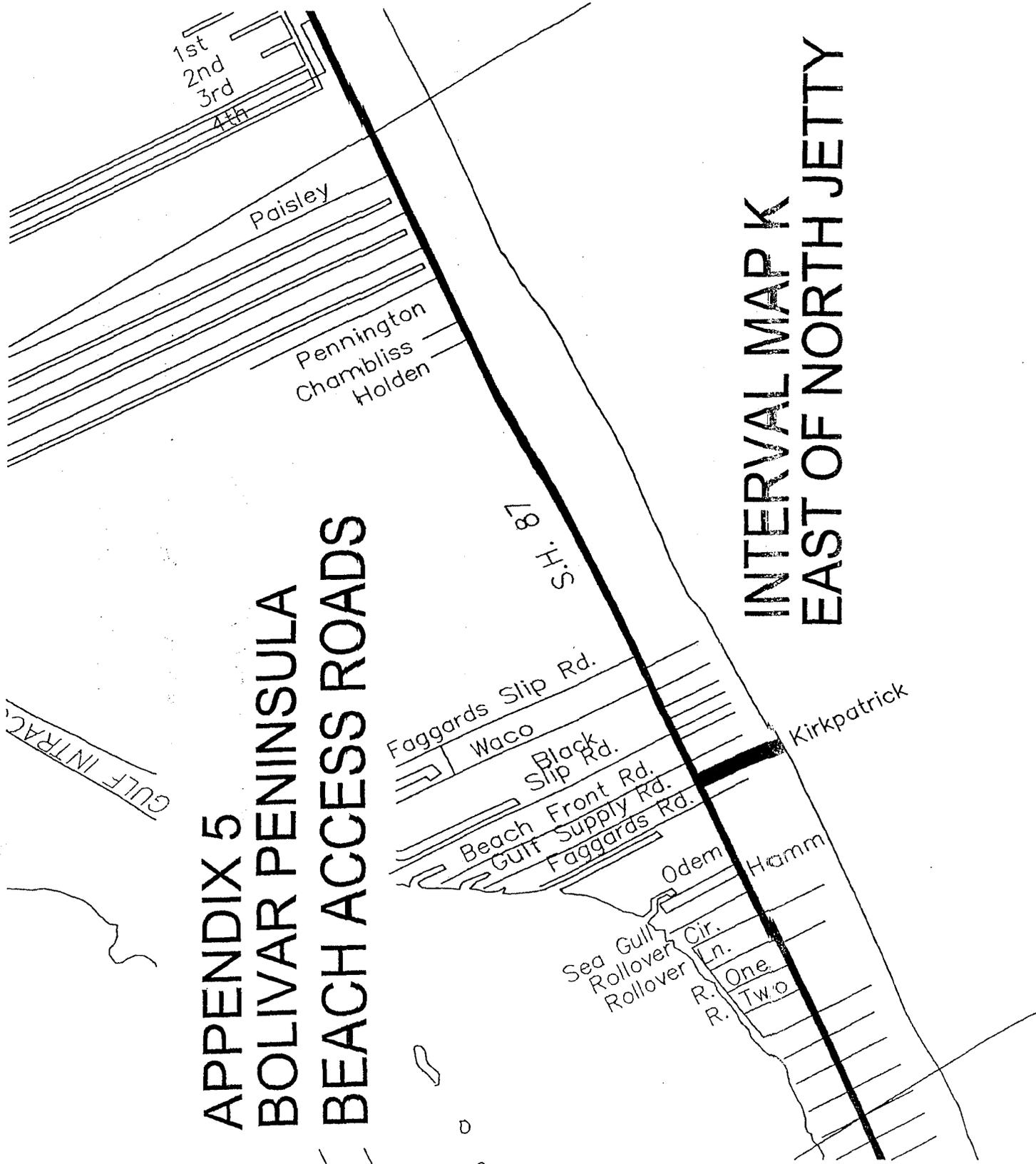
**INTERVAL MAP I
EAST OF NORTH JETTY**



**APPENDIX 5
BOLIVAR PENINSULA
BEACH ACCESS ROADS**

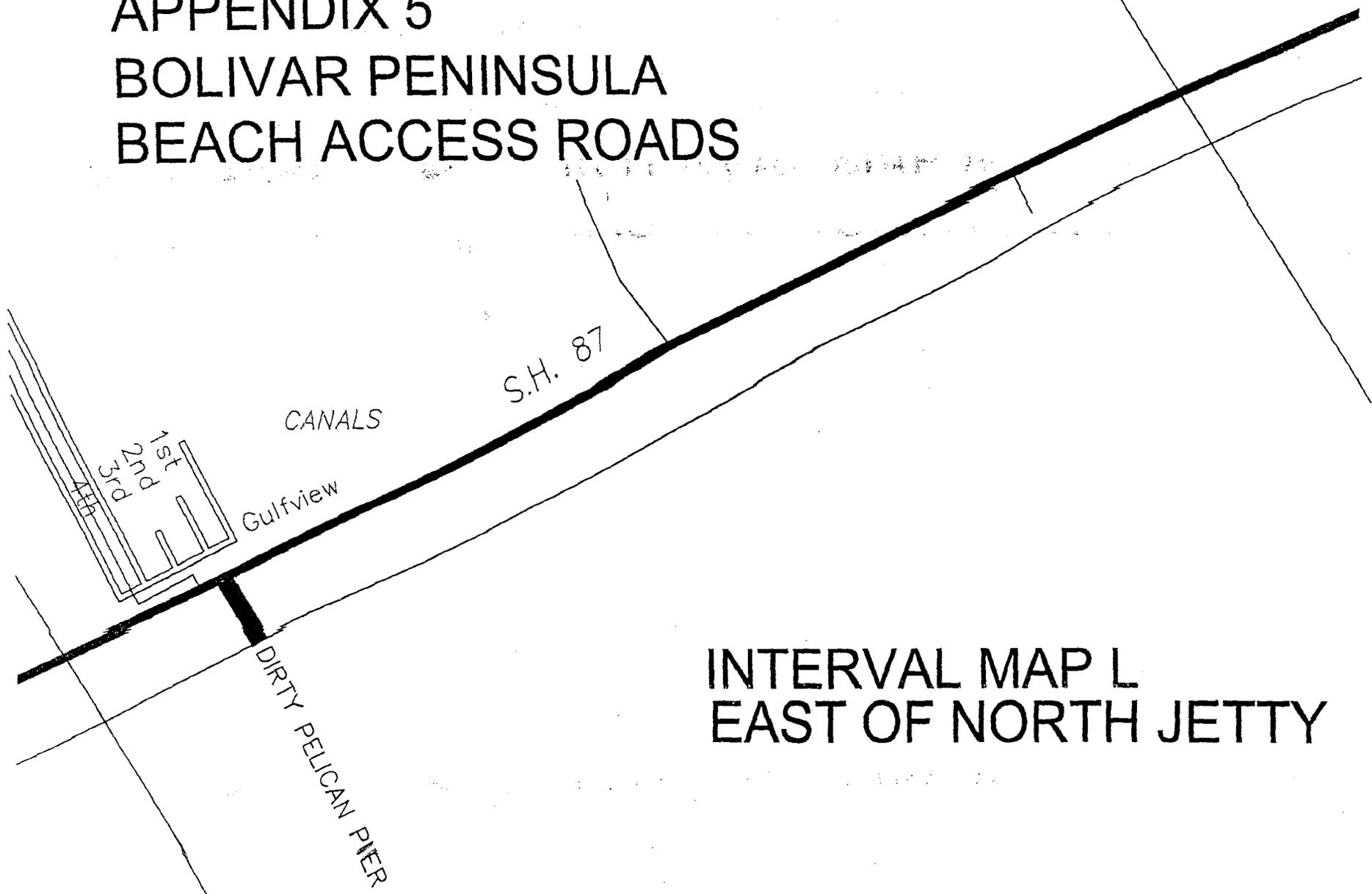
**INTERVAL MAP J
EAST OF NORTH JETTY**

**APPENDIX 5
BOLIVAR PENINSULA
BEACH ACCESS ROADS**



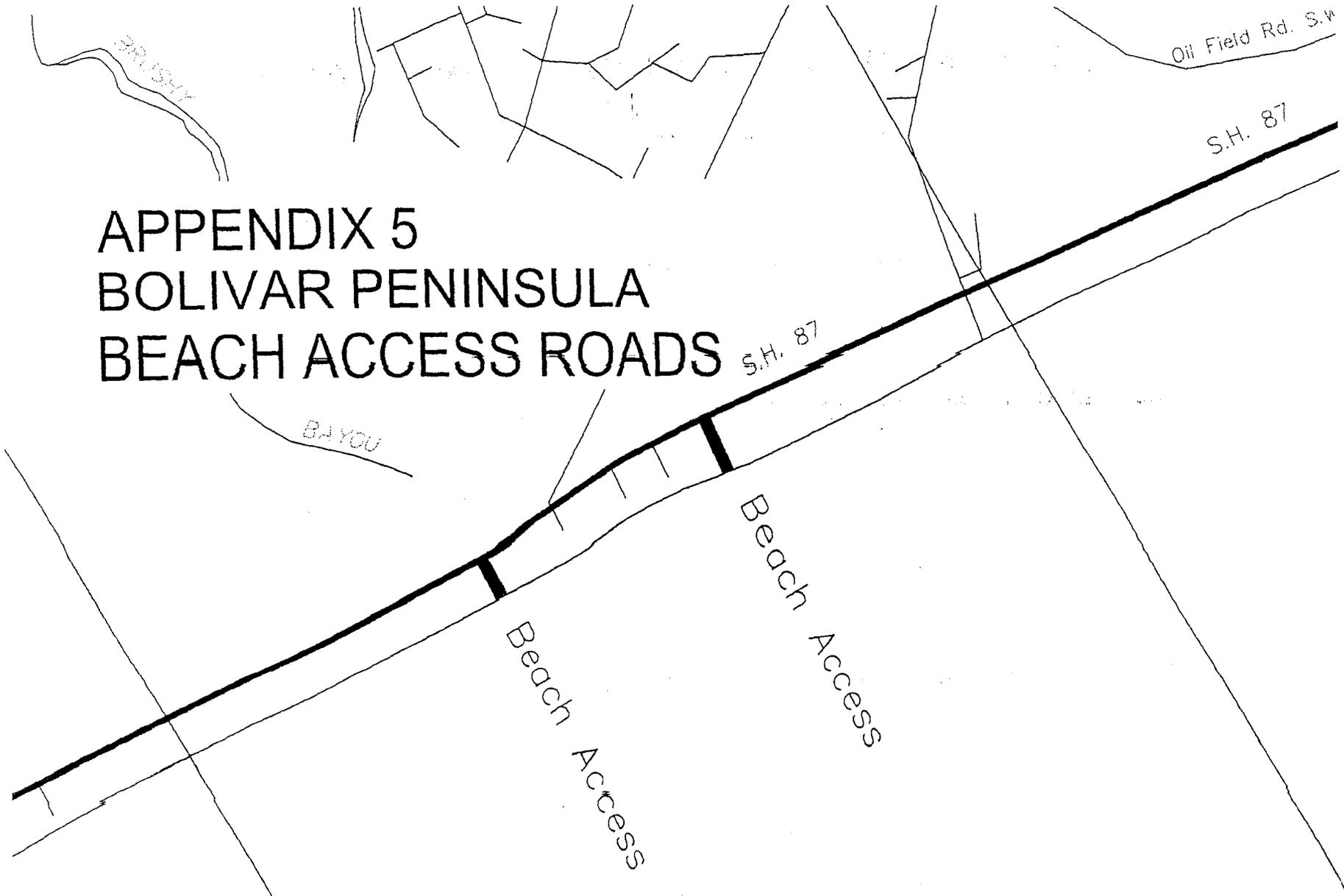
**INTERVAL MAP K
EAST OF NORTH JETTY**

APPENDIX 5 BOLIVAR PENINSULA BEACH ACCESS ROADS



INTERVAL MAP L
EAST OF NORTH JETTY

APPENDIX 5
BOLIVAR PENINSULA
BEACH ACCESS ROADS



INTERVAL MAP M
EAST OF NORTH JETTY

GALVESTON COUNTY

TO PORT ARTHUR
& SABINE PAS

Spring
St. Mexico
Revid Jonnette

Payton

Willow S. High School
Walter
Barrow
Goodman
Dunman

9th
8th
7th
6th
5th
4th
Hatcher
Kane

APPENDIX 5 BOLIVAR PENINSULA BEACH ACCESS ROADS

Oil Field Rd. S.E.

Oil Field Rd. S.W.

S.H.

124

18 S.H.S

18 S.H.S

INTERVAL MAP N EAST OF NORTH JETTY

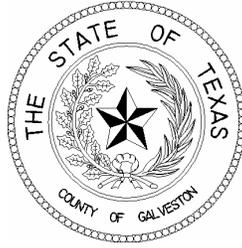
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APPENDIX 6

**MAP OF BEACH ACCESS POINTS ON
GALVESTON ISLAND**

GALVESTON COUNTY

DUNE PROTECTION AND BEACH ACCESS PLAN

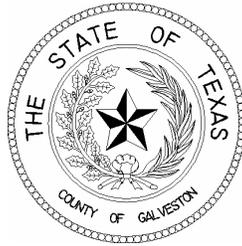


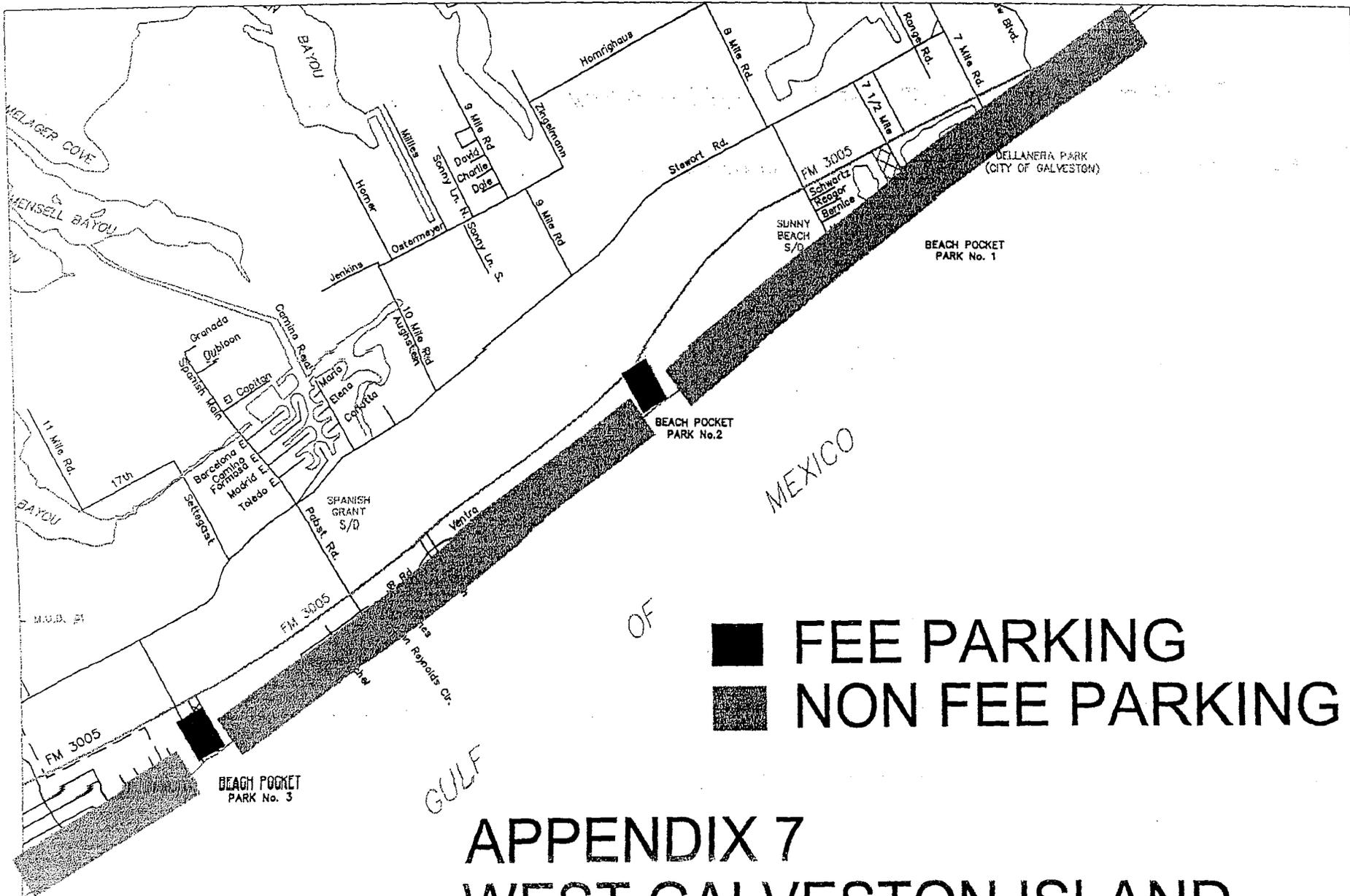
APPENDIX 7

**MAP IDENTIFYING FEE AND NON-FEE AREAS ON
GALVESTON ISLAND**

GALVESTON COUNTY

DUNE PROTECTION AND BEACH ACCESS PLAN





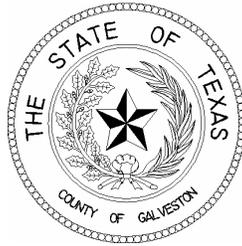
APPENDIX 7 WEST GALVESTON ISLAND FEE / NON FEE PARKING

APPENDIX 8

**MAP IDENTIFYING FEE AND NON-FEE AREAS ON
BOLIVAR PENINSULA**

GALVESTON COUNTY

DUNE PROTECTION AND BEACH ACCESS PLAN



**CERTIFIED COPY
GALVESTON COUNTY COMMISSIONERS' COURT**

RE: AGENDA ITEM NO. 19c

Consideration of a draft Erosion Response Plan (ERP).

Motion to Approve by Commissioner Doyle, seconded by Commissioner Holmes that the above action be taken by the Court.

Passed: 3-0

Aye: Commissioner Doyle, Commissioner Holmes, Acting County Judge Clark

Nay: (None)

Absent: County Judge Henry, Commissioner O'Brien

STATE OF TEXAS §

COUNTY OF GALVESTON §

I, Dwight D. Sullivan, Clerk County Court and Ex-Officio Clerk of the Commissioners' Court of Galveston County, Texas, do hereby certify that the attached is a true and correct copy of that certain:

RE: AGENDA ITEM NO. 19c

as passed by the Commissioners' Court on the 26th day of June, 2012, REGULAR Term of Commissioners' Court and as the same appear(s) in the Commissioners' Court Records of Galveston County, Texas.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 26th DAY OF JUNE, A. D., 2012.

DWIGHT D. SULLIVAN, Clerk County Court
and Ex-Officio Member of the Commissioners'
Court of Galveston County, Texas

By: 
Brandy Chapman, Deputy

**CERTIFIED COPY
GALVESTON COUNTY COMMISSIONERS' COURT**

RE: AGENDA ITEM NO. 23a

Consideration of approving and adopting the Galveston County Erosion Response Plan as Appendix 9; an amendment to the Galveston County Dune Protection and Beach Access Plan and authorize it's submission to the Texas General Land Office for certification.

Motion to Approve by County Judge Henry, seconded by Commissioner O'Brien that the above action be taken by the Court.

Passed: 5-0

Aye: County Judge Henry, Commissioner Doyle, Commissioner O'Brien, Commissioner Holmes, Commissioner Clark

Nay: (None)

Abstain: (None)

Absent: (None)

STATE OF TEXAS §

COUNTY OF GALVESTON §

I, Dwight D. Sullivan, Clerk County Court and Ex-Officio Clerk of the Commissioners' Court of Galveston County, Texas, do hereby certify that the attached is a true and correct copy of that certain:

RE: AGENDA ITEM NO. 23a

as passed by the Commissioners' Court on the 7th day of August, 2012, REGULAR Term of Commissioners' Court and as the same appear(s) in the Commissioners' Court Records of Galveston County, Texas.

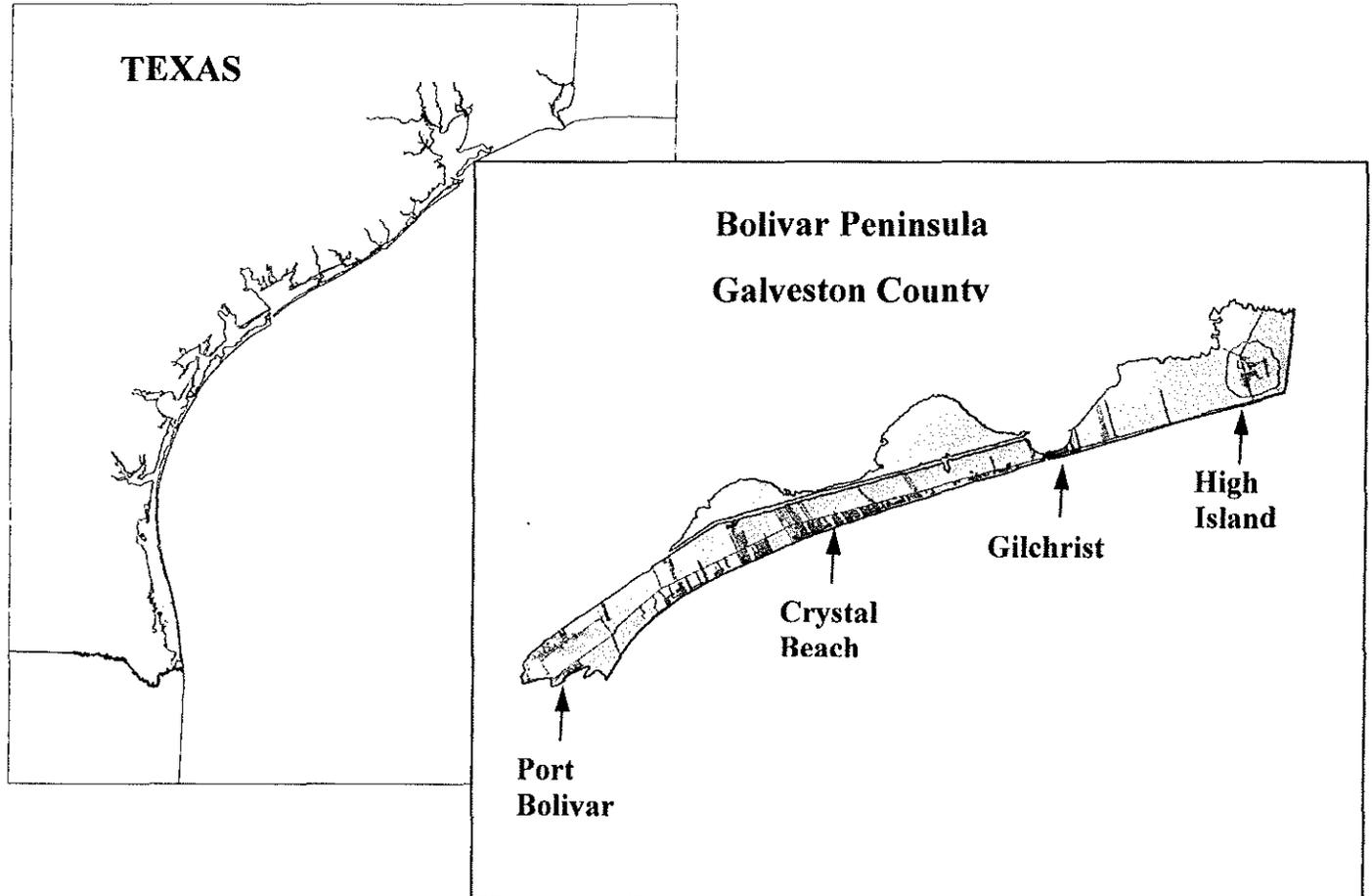
GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 7th DAY OF AUGUST, A. D., 2012.

DWIGHT D. SULLIVAN, Clerk County Court
and Ex-Officio Member of the Commissioners'
Court of Galveston County, Texas

By: Brandy Chapman
Brandy Chapman, Deputy



GALVESTON COUNTY EROSION RESPONSE PLAN



APPENDIX #9 to the Galveston County Dune Protection and Beach Access Plan

July 2012

Prepared by:

CASTAL
Strategies Group, LLC

P.O. Box 404
High Island, Texas 77623
Phone: 409.354.1107

Submitted to:

Texas General Land Office

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1. Executive Summary

The development of an Erosion Response Plan is required pursuant amendments in the Texas Natural Resource Code that provided authority to the Texas General Land Office to promulgate rules for local jurisdictions with gulf facing coastlines requiring them to create and implement Erosion Response Plans (ERP's) and address seven (7) specific areas intended to reduce public expenditures resulting from storm damage, and were developed to accommodate a shoreline retreat.

Additionally, the General Land Office will use the new ERP's as a qualification criteria for local governments to remain eligible for consideration in the various grant programs administered by the GLO; and conversely, Galveston County will use the final certified product as a basis to submit grant applications to the Coastal Erosion Planning Response Act program, the Coastal Management Program, and the Coastal Impact Assistance Program. Galveston County; and jurisdictions within the County have been very fortunate to receive the largest number of CEPRA grant awards throughout the state totaling over \$19.87 million dollars, resulting in 51 projects since the beginning of the CEPRA program.

A draft Galveston County ERP was presented to Commissioners Court on June 26, 2011. The Commissioners Court approved the draft plan for submission to the GLO ahead of the July 1, 2011 deadline. The GLO reviewed the submitted draft plan and provided comments back to Galveston County on August 8, 2011.

The Erosion Response Plan is composed according to the seven specific sections of the Texas Administrative Code regarding the development of a local government ERP with the first six sections providing an explanation of the necessary background information and the unique issues faced on the peninsula. The ERP identifies the beach and dune system as the first line of defense to storm surge.

The Plan identifies the Building Setback area as extending to the Dune Protection Line to reduce any potential confusion regarding the permitting process, and in so doing, alleviates the issues resulting from the varying array of erosion rates on the peninsula. Existing structures that were properly permitted by Galveston County are exempt from the building setback prohibition, provided there are no practicable alternatives, the footprint of the building is not increased, and the new structure meets Galveston County's adopted building code.

The Plan addresses short and long term plans for dune restoration, beach front public amenities, provides an inventory of beach access roads, denotes their condition, and identifies potential long term plans to help reduce the impacts of surge. The Plan provides criteria for the ranking and acquisition of property and structures seaward of the building setback line.

2. Introduction and Background

2-A. Erosion Response Plan Guidelines

As detailed in the Texas Administrative Code (TAC), Title 31; Part 1; Chapter 15; Subchapter A; Rule 15.17 entitled, "Local Government Erosion Response Plans", "local governments must develop plans for reducing public expenditures for erosion and storm damage losses to public and private property, including public beaches. The Erosion Response Plan (ERP) should be prepared in consultation with the General Land Office and may include the following seven (7) elements:

- 1) A building set-back line that will accommodate a shoreline retreat
- 2) A prohibition on new construction seaward of the building set-back line, (with criteria)
- 3) Consideration of exemptions. Local governments may consider exemptions from the prohibition of residential and commercial construction seaward of the building set-back line.
- 4) Construction requirements for exempt properties. Where the local government allows an exemption from the prohibition for building seaward of the building set-back line, it should require improved construction standards.
- 5) Procedures for preserving and enhancing the public's right of access to and use of the public beach from losses due to erosion and storm damage. Additionally the ERP should include (A) an evaluation of all areas of public access to determine those that require improved protection from erosion and storm surge; (B) evaluation of construction methods and design improvements for areas of beach access to reduce costs associated with repair, rebuild, or replacement due to storm damage and erosion; (C) list of goals and implementation schedules for areas of public access design improvements that prioritize short term (two years or less) and long term goals; (D) inventory all publicly funded existing amenities and access ways as a basis for qualifying for FEMA post-storm funding sources; (E) establishment of procedures based on subparagraphs (A) and (B) of this paragraph for conducting post-storm assessment and identifying requirements for rehabilitation.
- 6) Procedures for preserving, restoring, and enhancing critical sand dunes for natural storm protection and conservation purposes (with criteria).
- 7) Criteria for voluntary acquisition of property seaward of the building setback line. The local government may develop criteria for identifying properties with structures located entirely seaward of the building set-back line, providing for voluntary acquisition of fee simple title or a lesser interest in such properties, and procedures for prioritizing properties to be acquired, (with suggested criteria).

2-B. Location and Permitting

This Erosion Response Plan is limited to the Bolivar Peninsula, which includes the only gulf facing beach area in the unincorporated area in Galveston County. The City of Galveston and the City of Jamaica Beach encompass the gulf facing shoreline on Galveston Island. The plan area on Bolivar Peninsula is approximately 27 miles in length and is populated by the small communities of (from west to east), Port Bolivar, Crystal Beach, Caplan / Gilchrist and High Island. The permitting for coastal construction in the unincorporated areas of Galveston County is administered through the County Engineers Office in coordination with the GLO.

2-C. Grant Considerations

The basis for developing an Erosion Response Plan (ERP) is to reduce future public expenditures resulting from severe weather impacts; to continue to provide public access to future generations of Texans and visitors, and as detailed in the Texas Administrative Code local jurisdictions, "In order to be fully considered by the General Land Office for an expenditure from the coastal erosion response account (Account) pursuant to Texas Natural Resources Code, §33.605(b)(6)(B), a local government must adopt and submit the ERP or any amendments to the General Land Office for certification no later than December 31 immediately preceding the state fiscal biennium in which funding is sought. Provided, however, for consideration by the General Land Office for an expenditure from the Account in the state fiscal biennium beginning September 1, 2011, a local government must submit a draft ERP to the General Land Office no later than July 1, 2011."

Galveston County has been very fortunate to receive funding from the State of Texas through the CEPRA program since its inception in 1999. In fact, over 60 projects have either been funded directly to Galveston County, to cities within the county, to State agencies or non-profit organizations conducting projects within the County meeting a wide range needs; totaling almost over \$20,000,000.00. This number of projects and total dollar allocation is more than any other county in the State.

2-D. References and Sources

The development of this ERP required Galveston County staff to review information from a variety of sources including: the erosion rate information published by the University of Texas, Bureau of Economic Geology (BEG); information developed through the federal Sabine Pass to Galveston Bay Shoreline Erosion Feasibility Study; and to seek the assistance of coastal engineers / geologists, attorneys, scientists, GLO staff, and Licensed State Land Surveyors (LSLS). As well as the "Texas Coastwide Erosion Response Plan (2009 Update).

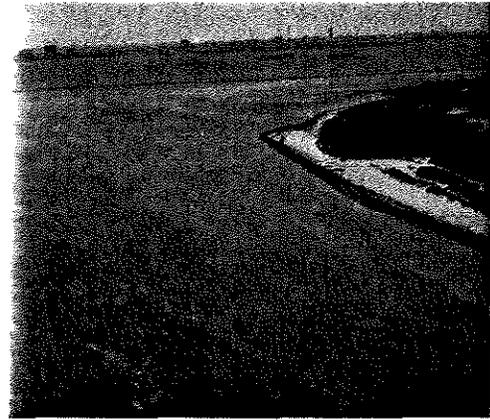
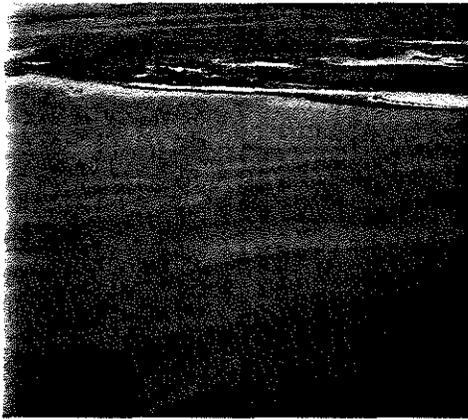
Around the nation, America's coasts are shrinking. This loss of valuable coastal resources is due to a combination of many factors including subsidence, sediment loss, sea level rise, impacts from storms and unsustainable development (human factor). Specifically Texas has 367 miles of gulf facing shoreline and studies have found that "64% of the total Texas coast is eroding at an average rate of -5.9 feet/year with some discrete areas experiencing greater than -30 feet/year*". Within Galveston County, the Bolivar Peninsula is located in far eastern Galveston County to the border with neighboring Chambers County. The peninsula ranges in width from as narrow as ¼ mile at Rollover Pass in the Gilchrist area to 3.5 miles wide at Crystal Beach. Adjacent beaches to the east of the county line consist primarily of exposed areas of clay, covered with a thin veneer of fine grained (silt) sand. This lack of sediment from the east has caused the peninsula to be sand starved and contributes to the erosion rate of peninsula beaches. Man-made structures have also impacted the natural littoral flow of sand along the peninsula coastline, in some locations compounding the existing erosion rates and in others mitigating them completely, causing adjacent areas to accrete at an accelerated rate. The net result of this littoral drift from east to west is at the rate of approximately 100,000 cu/yds per year as found through studies performed during the Sabine Pass to Galveston Bay Shoreline Erosion Feasibility Study. Two of the largest structures, having the greatest effect are the North Jetty located on the western end of the peninsula and Rollover Pass located in the small community of Gilchrist.

*Texas Coastwide Erosion Response Plan – 2009 Update- December 2009, McKenna

2-E. Structure Impacts

2-E-1. North Jetty-

Constructed to serve as a twin for the South Jetty located on eastern Galveston Island, the North Jetty is located on the western end of the Bolivar Peninsula and serves to provide protection to the Houston-Galveston ship channel. These now twin granite structures were originally constructed in 1874 with a great amount of the work not being completed until 1898 following Congressional appropriation of funding in 1890. The north jetty is the longer of the two jetties extending approximately 35,899.9 feet in length; while the south jetty is 25,907.2 feet long. Together these two jetties help maintain the ship channel depth by limiting the amount of sediment transport from the Bolivar peninsula (by the north jetty) into the ship channel. This is evidenced by the build up of material on the eastern side of the north jetty and the lack of erosion immediately adjacent and to the east of the jetty



Photo's 1 & 2 Oblique aerial photo's of the "build-up" of sediment and material on the northeast side of the North Jetty on the western end of the Bolivar Peninsula

2-E-2. Rollover Pass-

Located in Gilchrist is a man-made connection between the Gulf of Mexico and "East Bay". Originally created in 1954 by the Texas Fish and Game Commission through a natural wash-over area to improve recreational fishing, the original plan called for the channel to have an approximate 80ft wide bottom at a depth of 8ft. with sloping earthen sides all around with the exception of a steel sheet-pile bulkhead on the southwestern side. However, during construction the currents through the newly excavated channel caused extensive erosion, widening the channel to approximately 500ft. and washing out the channel to a depth of 30ft. under the highway 87 bridge. High tides caused additional damage and in 1955 a temporary steel sheet-pile wall was constructed south of the bridge to interrupt the flow. After temporary corrective measures the "Cut" was partially opened and it was not until 1958-1959 when corrective measures were implemented based on information from the U.S. Army Corp of Engineers (USACE) that the Pass could be fully stabilized. But, these stabilization efforts provide evidence of the velocity and sediment transport through the Pass and into Rollover Bay. The natural flow of sediment along the eastern Bolivar coastline is interrupted by the Pass, providing an "escape hatch" for sediment to leave the gulf facing shoreline and detour into Rollover Bay where it will settle out over the oyster reefs and other marine habitat. It also causes siltation of the Gulf Intra-coastal Waterway (GIWW). This siltation has two primary negative impacts; 1) It increases public expenditures to maintain the depth of the channel for the USACE; and, 2) Reduces the amount of sediment available to maintain beach width and thereby increases the rate of erosion experienced by down drift beaches. This

erosion has been mitigated in the past with beneficial use of dredged material (BUDM) projects and other beach nourishment projects co-funded by a variety of sources including Galveston County and the Texas General Land Office.* (Note the sediment accumulation in Photo 3 in Rollover Bay.)



Photo 3- Oblique pre-Ike aerial view of Rollover Pass

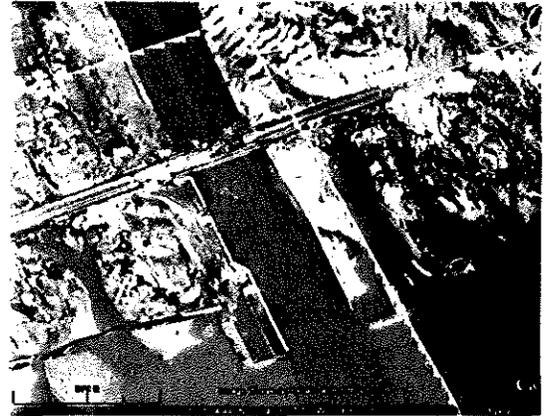


Photo 4- Post-Ike view of Rollover Pass area

2-F. Tropical Weather System Impacts / Response Actions

Galveston County has a long history of experiencing weather impacts from tropical depressions / storms to the 1900 Storm and Hurricane Ike in 2008. In response to the 1900 Storm Galveston residents constructed the seawall. But even the smaller events like Tropical Depressions and Storms can have significant impacts along the coast. In 1996 Tropical Storm Josephine never made landfall in Texas, but its path through the gulf toward south Florida elevated water levels and caused extensive damage and served as the catalyst for Galveston County and the GLO to partner on a haybale dune project in the Gilchrist area. In 1998 Tropical Storm Frances impacted the upper Texas coast, and destroyed the haybale dunes. In response to TS Francis, Galveston County again partnered with various agencies to construct a mitigation project, the geotextile tube core dunes. Although impacted by TS Allison in 2001, TS's Faye and Isidore and Hurricane Lili in 2002, Hurricane Claudette in 2003, and Hurricane Rita in 2005 the geotextile tube core dune remained in place with annual repairs and maintenance until Hurricane Ike in 2008.

Hurricane Ike exceeded the intended design protection levels of the geotextile tube core dunes causing a complete failure and as a result the remains were removed from the public beach by the GLO.

2-F-1 Hurricane Ike-

No plan for Bolivar Peninsula could be complete without examination of the impacts resulting from Hurricane Ike. Bolivar Peninsula was the most impacted part of the County by Hurricane Ike, approximately 2.2 million cubic yards of debris was removed from Bolivar Peninsula alone, as compared to approximately 750,000 cu/yd for the remainder of the unincorporated areas of the County.

*GLO USACE permit application <http://www.glo.texas.gov/what-we-do/caring-for-the-coast/documents/coastal-erosion/rollover-pass/rollover-pass-permit-application.pdf> Report- Analysis of Rollover Pass Impacts to Adjacent Beaches and the Littoral System January 12, 2010 pg.2)

Approximately 3,660 structures were either washed away or sustained major damage, with over 97% of all structures on the peninsula receiving damage.



Photo 5 The community of Gilchrist facing east from Rollover Pass following Ike



Photo 6 Community of High Island surrounded by storm surge from Hurricane Ike 24 hours after landfall

2-G Coastal Barrier Resource Act Zones (CBRA Zones)

Created by the Coastal Barrier Resources Act enacted in 1982; Public Law 97-348 designates various undeveloped coastal barrier islands, as designated by map, that are now ineligible for direct or indirect federal financial assistance that might support development, including the issuance of flood insurance, except for emergency life-saving activities. The following Coastal Barrier Resource Zone Units are located on the Bolivar Peninsula:

- T02A
- T03A
- T03AP

3. Survey Monument

All survey measurements used in the development of this Erosion Response Plan including dune elevations, dune widths and representative contours lines are referenced from the following monument.

Monument Name	Elevation	Location
HGCSD 64	5.10ft. NAVD 88	N: 13,744,577.76 E: 3,366,638.51

4. Definitions

The following words and terms, when used in this Erosion Response Plan, shall have the following meanings, unless the context clearly indicates otherwise.

Affect - As used in this Plan regarding dunes, dune vegetation, and the public beach, "affect" means to produce an effect upon dunes, dune vegetation, or public beach use and access.

Amenities - Any non-habitable major structure including swimming pools, bathhouses, detached garages, cabanas, pipelines, piers, canals, lakes, ditches, artificial runoff channels and other water retention structures, roads, streets, highways, parking areas and other paved areas (exceeding 144 square feet in area), underground storage tanks, and similar structures.

Applicant - Any person applying to Galveston County for a permit and/or certificate for any construction or development plan.

Attorney General (AG) or Office of the Attorney General (OAG) - Attorney General of the State of Texas.

Backdunes - The dunes located landward of the foredune ridge which are usually well vegetated but may also be unvegetated and migratory. These dunes supply sediment to the beach after the foredunes and the foredune ridge have been destroyed by natural or human activities. In this Plan, backdunes shall be understood to be the most landward dunes within the beach/dune system and the most landward feature of the critical dune area.

Beach - See public beach.

Beach access - The right to use and enjoy the public beach, including the right of free and unrestricted ingress and egress to and from the public beach.

Beach and Parks Department - See Parks Department.

Beach/Dune Rules (GLO Rules, GLO Beach/Dune Rules) - Subchapter A of Chapter 15 of Title 31 of the Texas Administrative Code, as amended, affecting Galveston County; at the adoption of this Plan the rules are 31 Texas Administrative Code §§ 15.1-15.10, 15.12, 15.21, and 15.35.

Beach/dune system - The land from the line of mean low tide of the Gulf of Mexico to the landward limit of dune formation.

Beach maintenance - The cleaning or removal of debris from the beach by handpicking, raking, or mechanical means.

Beach nourishment project area - The beach nourishment project area is that area seaward of naturally occurring continuous vegetation and north of the mean low tide line of the Gulf of

Mexico where local, state or federal funds have been used to enhance, preserve or improve the beach and dune system.

Beach profile - The shape and elevation of the beach as determined by surveying a cross section of the beach.

Beach-related services - Reasonable and necessary services and facilities directly related to the public beach which are provided to the public to ensure safe use of and access to and from the public beach, such as vehicular controls, management, and parking (including acquisition and maintenance of off-beach parking and access ways); sanitation and litter control; lifeguarding and lifesaving; beach maintenance; law enforcement; beach nourishment projects; beach/dune system education; beach/dune protection and restoration projects; providing public facilities such as restrooms, showers, lockers, equipment rentals, and picnic areas; recreational and refreshment facilities; liability insurance; and staff and personnel necessary to provide beach-related services. Beach-related services and facilities shall serve only those areas on or immediately adjacent to the public beach.

Beach user fee - A fee collected by Galveston County in order to establish and maintain beach-related services and facilities for the preservation and enhancement of access to and from and safe and healthy use of public beaches by the public.

Blowout - A breach in the dunes caused by wind erosion.

Breach - A break or gap in the continuity of a dune caused by wind or water.

Building Official - the county employee within the County Engineer's office, or authorized representative responsible for issuance of Building Permits, Coastal Construction Permits, and subsequent inspections of authorized work.

Building perimeter or footprint - The area of a lot covered by a structure used or usable for habitation. The habitable structure perimeter or footprint does not include incidental projecting eaves, balconies, ground-level paving, landscaping, open recreational facilities (for example, pools and tennis courts), or other similar features.

Building Permit - A permit issued and defined pursuant to the County Floodplain Regulations.

Bulkhead - A structure or partition built to retain or prevent the sliding of land. A secondary purpose is to protect the upland against damage from wave action.

Coastal and shore protection project - A project designed to slow shoreline erosion or enhance shoreline stabilization, including, but not limited to, erosion response structures, beach nourishment, sediment bypassing, construction of man-made vegetated mounds, and dune re-vegetation.

Coastal Construction Permit - The document issued by Galveston County to authorize construction or other regulated activities in a specified location seaward of a dune protection line or landward of public beaches lying in the area either up to the first public road parallel to the beach or to any closer public road not parallel to the beach, or to within 1,000 feet of mean high tide, whichever is greater, that affects or may affect public access to and use of public beaches. It also certifies that the proposed construction either is consistent with the Galveston County Dune Protection and Beach Access Plan or is inconsistent with that Plan. In the latter case, Galveston County must specify how the construction is inconsistent with the Plan, as required by the Open Beaches Act, § 61.015 of the Texas Natural Resources Code.

Coastal Management Plan - the plan as developed by the Commissioner of the Texas General Land Office under Texas Natural Resources Code §33.052, Development of Coastal Management Program.

Commercial facility - Any structure used for providing, distributing, and selling goods or services in commerce including, but not limited to, hotels, restaurants, bars, rental operations, and rental properties.

Commissioner - "Commissioner" means the Commissioner of the General Land Office.

Commissioners' Court - The County Commissioners' Court of Galveston County, Texas.

Construction - Causing or carrying out any building, bulk-heading, filling, clearing, excavation, or substantial improvement to land or the size of any structure. "Building" includes, but is not limited to, all related site work and placement of construction materials on the site. "Filling" includes, but is not limited to, disposal of dredged materials. "Excavation" includes, but is not limited to, removal or alteration of dunes and dune vegetation and scraping, grading, or dredging a site. "Substantial improvements to land or the size of any structure" include, but are not limited to, creation of vehicular or pedestrian trails, landscape work (that adversely affects dunes or dune vegetation), and increasing the size of any structure.

Coppice mounds - The initial stages of dune growth formed as sand accumulates on the downwind side of plants and other obstructions on or immediately adjacent to the beach seaward of the foredunes. Coppice mounds may be unvegetated.

Council - The Coastal Coordination Council, as established by the Coastal Coordination Act, Texas Natural Resources Code §33.203(20).

County - As used in this Plan, means Galveston County, Texas, Galveston County Commissioners' Court, or its authorized representative.

County Engineer - Engineer for the County of Galveston, Texas or the Engineer's authorized representative.

County Floodplain Regulations - Means the Regulations of Galveston County, Texas for Flood Plain Management adopted by order of the Commissioners' Court of Galveston County, Texas on October 28, 2002 to be effective December 6, 2002 and thereafter, and as such order may be amended.

Critical dune areas - Those portions of the beach/dune system as designated by the General Land Office that are located within 1,000 feet of mean high tide of the Gulf of Mexico that contain dunes and dune complexes that are essential to the protection of public beaches, submerged land, and state-owned land, such as public roads and coastal public lands, from nuisance, erosion, storm surge, and high wind and waves. Critical dune areas include, but are not limited to, the dunes that store sand in the beach/dune system to replenish eroding public beaches.

Cumulative impact - The effect on beach use and access, on a critical dune area, or an area seaward of the dune protection line which results from the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

Dedication - Includes, but is not limited to, a restrictive covenant, permanent easement, and fee simple donation.

Dune - An emergent mound, hill, or ridge of sand, either bare or vegetated, located on land bordering the waters of the Gulf of Mexico. Dunes are naturally formed by the windward transport of sediment, but can also be created via man-made vegetated mounds. Natural dunes are usually found adjacent to the uppermost limit of wave action and are usually marked by an abrupt change in slope landward of the dry beach. The term includes coppice mounds, foredunes, dunes comprising the foredune ridge, backdunes, and man-made vegetated mounds.

Dune complex or dune area - Any emergent area adjacent to the waters of the Gulf of Mexico in which several types of dunes are found or in which dunes have been established by proper management of the area. In some portions of the Texas coast, dune complexes may contain depressions known as swales.

Dune Conservation Area (DCA) – The area, beginning at the line of vegetation (LOV) and moving landward for a distance of 50ft. There is an absolute prohibition of construction activities within the Dune Conservation Area, excepting properly permitted structures providing access.

Dune Protection Act - Texas Natural Resources Code, Chapter 63.

Dune Protection and Beach Access Plan or Plan - Galveston County's legally enforceable program, policies, and procedures for protecting dunes and dune vegetation and for preserving and enhancing use of and access to and from public beaches, as required by the Dune Protection Act and the Open Beaches Act.

Dune protection line - A line established by the County Commissioners' Court for the purpose of preserving sand dunes within Galveston County and within those areas within Galveston County subject to the authority of the Commissioners' Court. No municipality within Galveston County is authorized to establish a dune protection line unless the authority to do so has been specifically delegated to the municipality by the Galveston County Commissioners' Court. All critical dune areas shall be seaward of the dune protection line.

Dune vegetation - Flora indigenous to natural dune complexes, and growing on naturally-formed dunes or man-made vegetated mounds on the Texas coast and can include coastal grasses and herbaceous and woody plants.

Effect or effects - "Effects" include: direct effects - those impacts on public beach use and access, on critical dune areas, or on dunes and dune vegetation seaward of a dune protection line which are caused by an action and occur at the same time and place; and indirect effects - those impacts on beach use and access, on critical dune areas, or on dunes and dune vegetation seaward of a dune protection line which are caused by an action and are later in time or farther removed in distance than a direct effect, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems. "Effects" and "impacts" as used in this Order are synonymous. "Effects" may be ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative.

Enclosure - An area below BFE of a structure. The enclosure shall meet the requirements of NFIP regulations for V-zone construction as codified in Title 44, Section 60.3(a)(3) of the Code of Federal Regulations. As defined by FEMA a breakaway wall is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

Eroding area - A portion of the shoreline which is experiencing an historical erosion rate of greater than two feet per year based on published data of the University of Texas at Austin, Bureau of Economic Geology.

Erosion - The wearing away of land or the removal of beach and/or dune sediments by wave action, tidal currents, wave currents, drainage, or wind. Erosion includes, but is not

limited to, horizontal recession and scour and can be induced or aggravated by human activities.

Erosion response structure - A hard or rigid structure built for shoreline stabilization which includes, but is not limited to, a jetty, retaining wall, groin, breakwater, bulkhead, seawall, riprap, rubble mound, revetment, or the foundation of a structure which is the functional equivalent of these specified structures.

FEMA - The United States Federal Emergency Management Agency. This agency administers the National Flood Insurance Program and publishes the official flood insurance rate maps.

FEMA Rules - County-adopted requirements for construction required of all construction in areas covered by FEMA insurance.

Foredunes - The first clearly distinguishable, usually vegetated, stabilized large dunes encountered landward of the Gulf of Mexico. On some portions of the Texas Gulf Coast, foredunes may also be large, unvegetated, and unstabilized. Although they may be large and continuous, foredunes are typically hummocky and discontinuous and may be interrupted by breaches and washover areas. Foredunes offer the first significant means of dissipating storm-generated wave and current energy issuing from the Gulf of Mexico. Because various heights and configurations of dunes may perform this function, no standardized physical description applies. Foredunes are distinguishable from surrounding dune types by their relative location and physical appearance.

Foredune ridge - The high continuous line of dunes which are usually well vegetated and rise sharply landward of the foredune area but may also rise directly from a flat, wave-cut beach immediately after a storm.

General Land Office (GLO, Land Office) - The agency of the Texas state government charged with coordinating and overseeing the development and implementation of dune protection and beach access plans by counties and cities on the Gulf of Mexico Coast of the State of Texas.

Geotube® - Geotube is a registered trademark owned by Ten Cate Nicolon, Miratech Division and refers to its' geotube containment system.

GLO Rules – See Beach/Dune Rules.

Habitable structures - Structures suitable for human habitation including, but not limited to, single or multi-family residences, hotels, condominium buildings, and buildings for commercial purposes. Each building of a condominium regime is considered a separate habitable structure, but if a building is divided into apartments, then the entire building, not the individual apartments, is considered a single habitable structure. Additionally, a habitable structure includes porches, gazebos, and other attached improvements.

Industrial facilities - Includes, but are not limited to, those establishments listed in Part 1, Division D, Major Groups 20-39 and Part 1, Division E, Major Group 49 of the Standard Industrial Classification Manual as adopted by the Executive Office of the President, Office of Management and Budget (1987 ed.). However, for the purposes of this Plan, the establishments listed in Part 1, Division D, Major Group 20, Industry Group Number 209, Industry Numbers 2091 and 2092 are not considered "industrial facilities."

Large-scale construction - Construction activity greater than 5,000 square feet or habitable structures greater than two stories in height. Both the area beneath the lowest habitable level of an elevated structure and a cupola (i.e. "widow's walk") with an area of 400 square feet or less on the top of the second habitable story are not considered stories for the purpose of this section. Multiple-family habitable structures are typical of this type of construction.

Line of vegetation (also vegetation line, {LOV}) - The extreme seaward boundary of natural vegetation which spreads continuously inland. The line of vegetation is typically used to determine the landward extent of the public beach. On the portions of Texas coast where there is no marked vegetation line or the line is discontinuous or modified, the line of vegetation shall be determined consistent with §15.10(b) of the Texas Administrative Code and the Open Beaches Act, Texas Natural Resources Code §§61.016 and 61.017.

Litter - As authorized by Texas Natural Resources Code §61.122, the Commissioners' Court of a County bordering the Gulf of Mexico or its tidewater limits, by order, may define the term littering. Litter includes any act of placing on the ground, scattering, or leaving unattended upon any beach in Galveston County other than in a proper disposal receptacle, any trash, garbage or debris of any character, including but not limited to food, used containers or packaging, rubber, glass, paper, plastic, wood, metal, non-biodegradable cast-off appliances, or medical waste from land-based activities such as housekeeping, medical treatment or research, recreation, camping, fishing, or picnicking or water-based activities such as shipping, off-shore oil and gas production, and commercial or recreational fishing. Paper and other trash resulting from fireworks exploded on the public beach or within the critical dune area is also considered litter. The County shall regulate litter and criminal penalties will apply where regulations are established.

Littering - See litter.

Littoral owner - means the owner of land adjacent to the shore and includes a lessee, licensee, or anyone acting under the littoral owner's authority.

Local government - A municipality; any special purpose district, any unit of government, or any other political subdivision of the state. Unless otherwise explained in this Plan, local government shall refer to Galveston County, Texas.

Man-made vegetated mound - A mound, hill, or ridge of sand created by the deliberate placement of sand or sand trapping devices including sand fences, trees, or brush and planted with dune vegetation.

Master plan (Master planned development)- A plan developed by the applicant in consultation with the GLO, the applicant or applicants, and the County, for the development of an area subject to the Beach/Dune Rules, as identified in 31 Texas Administrative Code §15.3. The master plan shall fully describe in narrative form the proposed development and all proposed land and water uses, and shall include maps, drawings, tables, and other information, as needed. The master plan must, at a minimum, fully describe the general geology and geography of the site, land and water use intensities, size and location of all buildings, structures, and improvements, all vehicular and pedestrian access ways, and parking or storage facilities, location and design of utility systems, location and design of any erosion response structures, retaining walls, or stormwater treatment management systems, and the schedule for all construction activities described in the master plan. The master plan shall comply with the Open Beaches Act and the Dune Protection Act. The master plan shall provide for overall compliance with the Beach/Dune Rules and, when approved as an amendment to the Galveston County Dune Protection and Beach Access Plan, may vary from the specific standards, means and methods provided in the Beach/Dune Rules if the degree of dune protection and the public's right to safe and healthy use of and access to and from the public beach are preserved. If all impacts to dunes, dune vegetation and public beach use and access are accurately identified, the County shall not require permits for construction on the individual lots within the master plan area. Master plans are intended to provide a comprehensive option for planning along the Texas coast.

Material changes - Changes in project design, construction materials, or construction methods or in the condition of the construction site which occur after an application is submitted to the County or after the County issues a Coastal Construction Permit. Material changes are those additional or unanticipated changes which have caused or will cause adverse effects on dunes, dune vegetation, or beach access and use, or exacerbation of erosion on or adjacent to the construction site.

Mitigation sequence - The series of steps which must be taken if dunes and dune vegetation will be adversely affected. First, such adverse effects shall be avoided. Second, adverse effects shall be minimized. Third, the dunes and dune vegetation adversely affected shall be repaired, restored, or replaced. Fourth, the dunes and dune vegetation adversely affected shall be replaced or substituted to compensate for the adverse effects.

National Flood Insurance Act - 42 United States Code, §§ 4001, et seq. National Flood Insurance Program also known as NFIP

Natural resources - Land, fish, wildlife, insects, biota, air, surface water, groundwater, plants, trees, habitat of flora and fauna, and other such resources.

Open Beaches Act - Texas Natural Resources Code, Chapter 61.

Order "order" means an order of the Commissioners' Court; "Order" means this Order of Commissioners' Court of Galveston County, Texas Adopting the Galveston County Dune Protection and Beach Access Plan.

Owner or operator - Any person owning, operating, or responsible for operating commercial or industrial facilities.

Parks Department - The Galveston County Parks Department.

Permit condition - A requirement or restriction in a permit necessary to assure protection of life, natural resources, property, and adequate beach use and access rights (consistent with the Dune Protection Act and/or the Open Beaches Act) which a permittee must satisfy in order to be in compliance with the permit.

Permit - See Coastal Construction Permit.

Permittee - Any person authorized to act under a permit issued by the County.

Person - An individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, United States Government, state, municipality, commission, political subdivision, or any international or interstate body or any other governmental entity.

Pipeline - A tube or system of tubes used for the transportation of oil, gas, chemicals, fuels, water, sewerage, or other liquid, semi-liquid, or gaseous substances.

Plan - Galveston County Dune Protection and Beach Access Plan.

Practicable - Available and capable of being done after taking into consideration existing building practices, costs, siting alternatives, and the footprint of the structure in relation to the area of the buildable portion of the lot, and considering the overall development scheme for the property.

Production and gathering facilities - The equipment used to recover and move oil or gas from a well to a main pipeline, or other point of delivery such as a tank battery, and to place such oil or gas into marketable condition. Included are pipelines used as gathering lines, pumps, tanks, separators, compressors, and associated equipment and roads.

Project area - The portion of a site or sites which will be affected by proposed construction.

Public beach or beach - As used in this Plan, "public beach" is defined in the Texas Natural Resources Code, §61.013(c). Any beach bordering on the Gulf of Mexico that extends inland from the line of mean low tide to the natural line of vegetation bordering on the

seaward shore of the Gulf of Mexico, or such larger contiguous area to which the public has acquired a right of use or easement to or over by prescription, dedication, or estoppel, or has retained a right by virtue of continuous right in the public since time immemorial as recognized by law or custom. This definition does not include a beach that is not accessible by a public road or ferry as provided in §61.021 of the Texas Natural Resources Code.

Recreational activity - Includes, but is not limited to, hiking, sunbathing, and camping. As used in Section 15.3(s)(2)(C) of the Beach/Dune Rules and Section II(F)(3) of this Plan, recreational activities are limited to the private activities of the person owning the land and the social guests of the owner. Operation of recreational vehicles is not considered a recreational activity, whether private or public.

Recreational vehicle - A dune buggy, marsh buggy, minibike, trail bike, jeep, or any other mechanized vehicle that is being used for recreational purposes.

Restoration - The process of constructing man-made vegetated mounds, repairing damaged dunes, or vegetating existing dunes.

Restored (man-made) dune - For the purposes of determining construction setbacks and the location of the Dune Protection Line, a restored dune shall be defined as having more than 50% vegetative cover, a minimum 3:1 slope on the seaward face, an average height of 75% of the peninsula's mean base flood elevation as measured from mean sea level, a naturally established connection to the dune contour and elevation of the adjacent property, and shall not extend further seaward than 4.1' elevation from mean sea level or seaward of the 20 ft. recognized dune corridor.

Retaining wall - A structure designed primarily to contain material and to prevent the sliding of land. Retaining walls may collapse under the forces of normal wave activity.

Sand budget - The amount of all sources of sediment, sediment traps, and transport of sediment within a defined area. From the sand budget, it is possible to determine whether sediment gains and losses are in balance.

Sandsock - A generic term for a containment system. An example of a sandsock is the geotube® containment system, which is a geotextile sand-filled containment system product. For the purposes of this Plan, it is recognized that all existing sandsock structures were destroyed by Hurricane Ike and removed as debris from the beach by the General Land Office

Seawall - An erosion response structure specifically designed to or which will withstand wave forces.

Seaward of a dune protection line - The area between a dune protection line and the line of mean high tide.

Shore protection project - See "Coastal and shore protection project."

Small-scale construction - Construction activity less than or equal to two stories in height that is also less than or equal to 5,000 square feet. Both the area beneath the lowest habitable level of an elevated structure and a cupola (i.e. "widow's walk") with an area of 400 square feet or less on the top of the second habitable story are not considered stories for the purpose of this section. Single-family habitable structures are typical of this type of construction.

Structure - Includes, without limitation, any building or combination of related components constructed in an ordered scheme that constitutes a work or improvement constructed on or affixed to land.

Swales - Low areas within a dune complex located in some portions of the Texas coast which function as natural rainwater collection areas and are an integral part of the dune complex.

Unique flora and fauna - Endangered or threatened plant or animal species listed at 16 United States Code Annotated, §1531, the Endangered Species Act of 1973, and/or the Parks and Wildlife Code, Chapter 68, or any plant or animal species that the County has determined in this Plan are rare or uncommon.

Vegetation line - See line of vegetation.

Washover areas - Low areas that are adjacent to beaches and are inundated by waves and storm tides from the Gulf of Mexico. Washovers may be found in abandoned tidal channels or where foredunes are poorly developed or breached by storm tides and wind erosion.

5-A. Setback Line Considerations

Prior to the implementation of this Plan the setback line on the Bolivar Peninsula, post Hurricane Ike, in the absence of a natural line of vegetation line, is 200ft. landward of mean low tide plus an additional 50ft. dune conservation area setback for a total distance of 250ft from mean low tide. This post-Ike line was implemented with General Land Office concurrence, as a result of the complete loss and scouring of the dune system along the length of the Bolivar Peninsula. Galveston County through the County Engineers Office has implemented in practice a setback line 50ft. landward of the line of vegetation. As detailed previously the implementation of a building set back line is a major part of the development of this erosion response plan, taking into account the following criteria:

- a) Historical erosion rates as determined by the University of Texas at Austin, Bureau of Economic Geology, or other source approved by the General Land Office;

The ERP should also include the establishment of a stable and verifiable reference point that could be used toward the development of a smooth and consistent relatively straight line which could include any of the reference points listed below:

- b) The line of vegetation (LOV);
- c) Mean Low Tide;
- d) Mean High Tide; or
- e) The line depicted in a coastal boundary survey approved and filed as provided in Texas Natural Resources Code, §33.136;
- f) The dune protection line (DPL). The building set-back line may not be located further landward than the DPL, which is established by a local government under the Dune Protection Act and updated as specified in §15.3(k) of this title (relating to Local Government Review of Dune Protection Line Location). The building set-back line must protect as much of the critical dune area as practicable.

5-B. Objectives to be Accomplished by Implementing a Setback Line

- Mitigate against future losses due to storm and tidal surge and to reduce public expenditures.
- Protect critical dune width allowing sufficient area for existing and future dunes while also preserving public access.
- Determine criteria, issues and allowable facilities when no practicable alternative exists for construction seaward of the setback line.

6. Bolivar Peninsula Erosion Rates

Graph 1 on the following page, provides a summary of shoreline change rates between Sabine Pass and the Galveston Entrance Channel from the USACE's "Sabine Pass to Galveston Bay, Texas – Shoreline Erosion Feasibility Study" (King 2007). This figure includes the study area of Bolivar Peninsula. The 1974-2000 average was developed by Dr. Jim Gibeaut at the University of Texas Bureau of Economic Geology (BEG) specifically for the Feasibility Study. As seen below, shoreline changes vary significantly along the entire study area. In particular Bolivar Peninsula has an area of erosion occurring in the vicinity of Rollover Pass with an average rate of 5 ft/yr (see Figure 2; page 23), which then transitions into a relatively stable area and then an area of significant accretion at the west end of the peninsula. An item of note is that the shoreline near High Island and to the west within McFaddin National Wildlife Refuge area has experienced significant long-term erosion with average rates between 5 and 10 ft/yr. Site visits show that the shoreface has lost much of its sand and the shoreline consists

mostly of exposed clay (see Photos 7 and 8). As a result, there is limited sand available for transport to Galveston County and Bolivar Peninsula beaches, which could increase erosion rates along the eastern portion of the peninsula.



Photo 7-Typical Chambers County shoreline (Facing West)

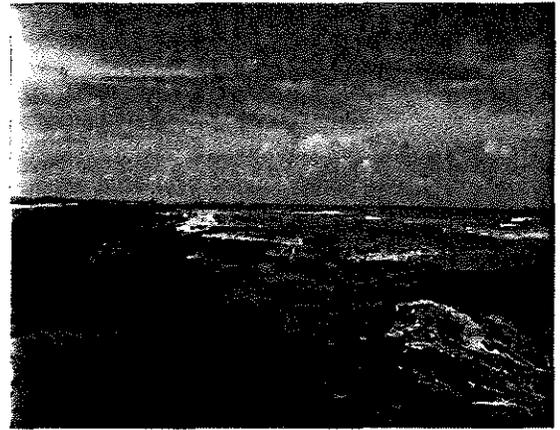
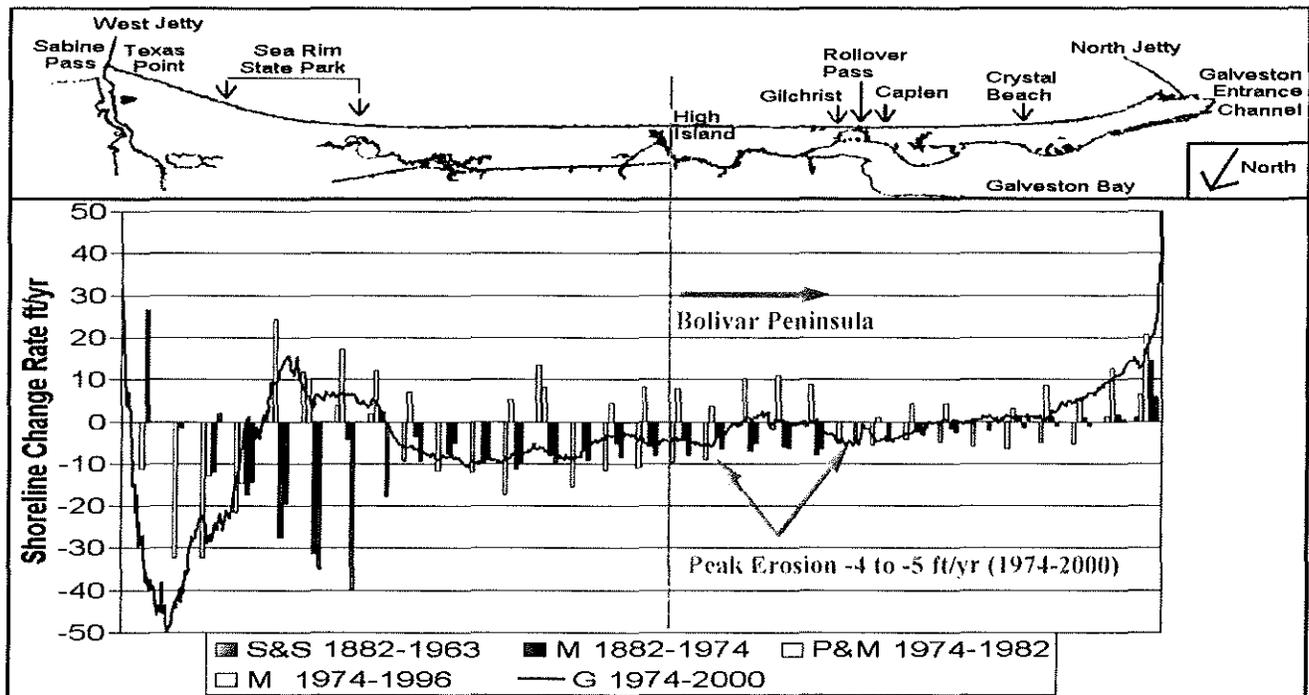
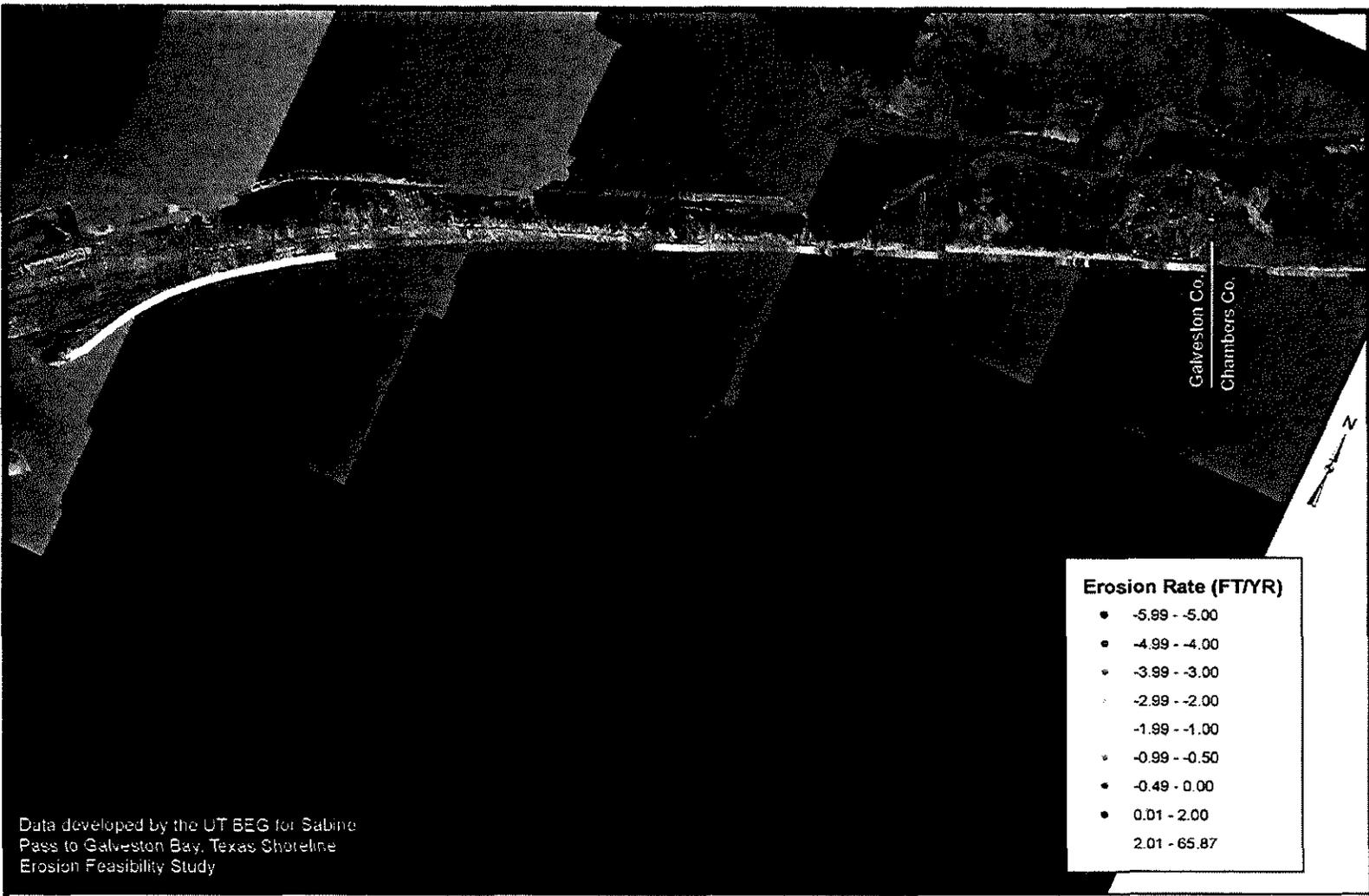


Photo 8 McFaddin NWR (Note exposed clay)

Recently the BEG updated long-term erosion rates for Galveston County with partial data from 1838 to 1882 and full data from 1930 through 2007. It should be noted that significant changes to the shoreline, inlets, and the construction of Rollover Pass (1955) occurred during this long time period. As a result, these longer-term erosion rates may not be indicative of the recent shoreline change trends on Bolivar Peninsula. Therefore, application of the erosion rates developed for the Feasibility Study is recommended for use in of Galveston County's set-back



Graph 1. Historical Shoreline Change between Sabine Pass and the Galveston Entrance Channel (modified after King 2007)



Project No. 164492



HDR Engineering, Inc.
TEXAS FIRM REGISTRATION NUMBER 704

Galveston County

Bolivar Peninsula ERP

Average Erosion Rates Along Bolivar Peninsula (1974-2000)

Figure 2

6-A Duration for Setback Projection

The set-back line should be far enough landward to accommodate future erosion over a specific timeframe. Gibeaut *et al.* (2004) recommended a minimum of 20 years. Another option; although more difficult to justify, is to consider an initial timeframe of five (5) years as the setback duration. This option is a potential consideration because the erosion response plan is required to be updated every five (5) years and if corresponding changes are required they could be incorporated into the plan at the time of the five (5) year revision. However, justification of such a limited timeframe and it's overall benefits are very difficult to quantify on such a short time frame. Other counties on the Texas coast have developed a more lengthy time frame- for example Nueces County requires structures located within sixty times (60) the erosion rate to be designed so that they can be relocated (Nueces County 2010). In Florida, regulations for coastal construction include a 30-year erosion projection line (McKenna 2009).

The setback distance would vary depending on the length of time selected and the specific erosion rates at a given area. For example, at the west end of the Bolivar Peninsula in the Rettilon Road area, the beach is accreting and is the widest beach on the peninsula due to the influences of the North Jetty (Note photo's 1 and 2; on page 8 and Graph 1 on page 22). A BSL in this area would necessarily include recognition of that accretion. In contrast, immediately west of Rollover Pass, where the average erosion rate is approximately 4ft to 5ft ft/yr; the setback distance combined with the average dune width could result in a set back area possibly back to State Highway 87.

It is recommended the timeframe used for consideration in the development of a BSL should be no less than 20 years in coordination with the average erosion rate based on the 1974-2000 averages applied to the USACE Feasibility Study by the BEG for the specific area multiplied by that factor of 20 (or whatever the duration) years and added with the average dune width for the Bolivar peninsula to determine the total setback area.

6-B Reference Line Determination

An important consideration for development of a set-back distance is the seaward reference line from which the setback is measured. This reference line should be consistent, stable, easily verifiable location point or line that is easily obtained and does not place an undue burden on those whom the line will affect. The rules for the development of a local Erosion Response Plan as published by the GLO, recommend the possible use of several reference lines:

- The Line of Vegetation (LOV)
- Mean Low Tide (or Mean Low Water)
- Mean High Tide (or Mean High Water)
- Approved State Coastal Boundary Survey (typically the Mean Higher High Water line)

Table 1 on the following page provides a summary of elevations for various tidal datum and common geomorphic features found on Galveston County beaches. Tidal datum are from NOAA Station 87715101 located on the Galveston Pleasure Pier. There is a tide station at Rollover Pass; however, it is located on the bay side of the Pass and does not provide an accurate representation of Gulf shoreline tidal variations.

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Reference/Feature	Elevation, ft (NAVD)	Comment
MLLW	-0.61	Forebeach ("Swash Zone") – extremely dynamic/variable on monthly and seasonal timescales.
MLW	-0.22	
MSL	+0.50	
MHW	+1.23	
MHHW (State "Coastal Boundary")	+1.43	
"Shoreline"	Approx. +2.5 ft	
Dry Beach	> +2.5 ft	Backbeach – less dynamic/variable on monthly and seasonal timescales.

6-C Reference Line Summaries

6-C-1 Line of Vegetation-. (LOV) is a difficult line to determine, especially along eastern Bolivar Peninsula as there was a significant loss of vegetation from Ike and it is only now slowly starting to come back. Also, the County cannot determine this line; it has to be done by GLO. The LOV determination process is found in TAC; Title 31; Part 1; Chapter 15; Subchapter A; Rule 15.3(1) – (6). The GLO has agreed to be available as needed by Galveston County to access the LOV. The LOV determination for the ERP is only for planning purposes, not for permitting purposes.

6-C-2 Mean Low Tide (MLT): Line is a contour, and due to its location on the beach profile (very low), it will move significant distances landward and seaward throughout the year. This could cause issues with building applicants submitting at different times of the year. In addition, not all upland topographic surveyors understand how to establish this line, or elevation. It should be noted that at certain times of the year (spring and fall) this elevation may be in relatively deep water, making a survey using traditional survey equipment very difficult. However, this is the reference line that has been used for permitting purposes since Hurricane Ike.

6-C-3 Mean High Tide (MHT): Similar issues to MLT in regards to seasonal variability and how to locate by non-coastal area surveyor.

6-C-4 Coastal Boundary Survey: A Coastal Boundary Survey does not currently exist for all of Bolivar Peninsula. For this line to be used as a reference point the coverage gaps would need to be filled, or a new survey for the entire peninsula performed. Obtaining this new information would be an expensive undertaking, and is subject to being located in the surf over time. A Coastal Boundary Survey, to be certified, must be published in the Texas Register and entails a significant time requirement.

Galveston County is considering approaching the issue from a different perspective- moving the landward boundary of the building setback area to the Dune Protection Line. This movement has several distinct advantages:

- The seaward reference line, mean low tide, is a familiar line to the general public and has been used since Hurricane Ike in 2008.

- It moves the landward boundary of the setback area as far landward as possible.
- The landward boundary is a stable upland contour and is easier for all topographic surveyors to locate.
- Builders, real estate agents, and others can more easily relate to measurement tool they are familiar using.

As additional information a schematic sketch of how the reference lines and building limit lines relate is provided below.

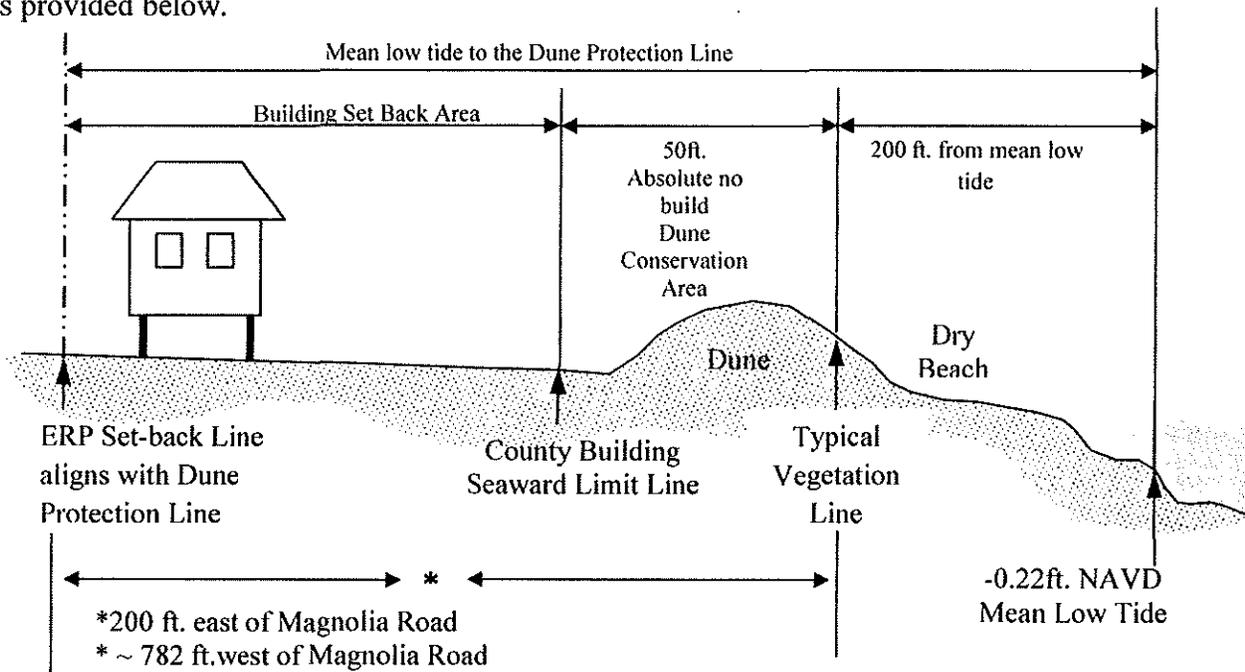


Figure 3. Definition Schematic for Construction Set-Back Line.

6-C-5 Current County Building Limit Line

The County has a Building Limit Line for construction on Gulf-front properties; historically, this limit line is located 50 ft landward of the LOV. However, after Hurricane Ike, the LOV was obliterated, rendering it impossible to be used as a reference point. The Open Beach Act uses distance markers from a tidal datum (mean low tide) for an area with no marked line of vegetation; or an area that has been obliterated; or artificially created. As a result, since Hurricane Ike Galveston County has utilized 200ft from Mean Low Tide plus a County 50 ft. setback to create the seaward Building Limit Line for a total of 250ft from mean low tide. This limit line therefore includes the public beach easement and 50 ft for creation of a dune feature. It is understood the GLO only uses this process if a natural line of vegetation cannot be determined.

6-C-6 Relationship to the Dune Protection Line

As provided beginning on page four (4) of the Galveston County Dune Protection and Beach Access Plan (Plan) and found fully described in Appendix #1, certified effective by the GLO on September 13, 2006 and pursuant to Texas Natural Resources Code § 63.011, the Commissioners' Court established the dune protection line for the purpose of preserving sand dunes within Galveston County within those areas in Galveston County subject to the authority of this Order' "The dune protection line shall be located 200 feet landward of the line of vegetation beginning from a point on the Galveston County and Chambers County line and traveling southwesterly continuously thereafter along a line

continuously 200 feet landward of the line of vegetation to a point near the southwest end of Bolivar Peninsula on Magnolia Lane said point (TXSC N 13,721,753.72, E 3,336,333.29), being N 46°27'39" E, a distance of 9678.90 feet from said NGS Monument "PETER";

Thence, S 46°10'50" W, a distance of 427.94 feet (TXSC Coordinates N 13,721,457.42, E 3,336,024.52);

Thence N 38°45'00" W, a distance of 88.21 feet (TXSC Coordinates N 13,721,526.21, E 3,335,969.31);

Thence S 40°16'56" W, a distance of 3393.38 feet (TXSC Coordinates N 13,718,937.50, E 3,333,775.31);

Thence S 35°35'03" W, a distance of 2414.76 feet (TXSC Coordinates N 13,716,973.67, E 3,332,370.16);

Thence S 30°52'54" W, a distance of 879.31 feet (TXSC Coordinates N 13,716,219.02, E 3,331,918.84);

Thence S 39°34'31" W, a distance of 996.97 feet (TXSC Coordinates of N 13,715,450.57, E 3,331,283.68);

Thence S 0°07'47" W, a distance of 362.46 feet (TXSC Coordinates N 13,715,088.11, E 3,331,284.50);

Thence S 28°43'27" W, a distance of 232.67 feet (TXSC Coordinates N 13,714,884.07, E 3,331,172.68);

Thence S 28°52'36" W, a distance of 955.24 feet (TXSC Coordinates N 13,714,047.60, E 3,330,711.39);

Thence S 24°34'26" W, a distance of 2077.14 feet (TXSC Coordinates N 13,712,158.59, E 3,329,847.56);

Thence S 36°59'32" W, a distance of 457.33 feet (TXSC Coordinates N 13,711,793.31, E 3,329,572.38);

Thence S 7°15'14" W, a distance of 279.41 feet (TXSC Coordinates N 13,711,516.14, E 3,329,537.10);

Thence S 20°48'35" W, a distance of 1208.71 feet (TXSC Coordinates N 13,710,386.28, E 3,329,107.69);

Thence S 9°23'59" W, a distance of 1586.57 feet (TXSC Coordinates N 13,708,821.01, E 3,328,848.57);

Thence S 40°35'37" W, a distance of 3621.67 feet (TXSC Coordinates N 13,706,070.91, E 3,326,491.99) to a turning point on the dune protection line;

Thence N 53°00'22" W, a distance of 3823.12 feet (TXSC Coordinates N 13,708,371.39, E 3,323,438.46);

Thence S 54°14'32" W, along the said line 200 feet landward of the Southerly extent of Vegetation in the Gulf of Mexico, a distance of 2274.65 feet to a point in the Northerly extension of the centerline of the North Jetty

with (TXSC Coordinates) of N 13,707,042.17, E 3,321,592.59 and being 45°20'43" W, a distance of 129.39 feet from a brass monument in the North end of the North Jetty and S 43°56'18" W, a distance of 11,152.42 feet from said NGS Monument "PETER".... c. Pursuant to the Dune Protection Act, the farthest landward that the

County may establish the dune protection line is 1,000 feet from mean high tide. Accordingly, the dune protection line shall not exceed 1,000 feet landward of the line of mean high tide of the Gulf of Mexico. At the time of adoption of this Order, the Commissioners' Court finds that the dune protection line described herein does not exceed 1,000 feet landward of mean high tide for the areas of Galveston County for which the dune protection line is established. All critical dune areas shall be seaward of the dune protection line.

3. The written description of the dune protection line herein is filed with the County Clerk of Galveston County, Texas by the adoption and filing of this Order.

4. Review - The County will review the location of the dune protection line at least once every five years to determine whether the line is adequately located to achieve its stated purposes...."

6-C-7 Dune Width

See section 12 for Procedures for Preserving, Restoring, and Enhancing Critical Sand Dunes for natural Storm Protection and Conservation Purposes. The setback distance should be adequate to help reduce impediments to natural dune migration and/or recovery after storms. As additional information below is a summary of previous studies / surveys that provide information on natural dune width along the Bolivar Peninsula:

Through analysis of LIDAR surveys, Gibeaut and Caudle (2009) concluded that the typical natural foredune complex along the upper Texas coast occupies an approximate 200-ft wide corridor as measured landward from the +1.2 m MSL (+4.5 ft NAVD) contour. However, through the development of this ERP a representative sampling by topographic surveys completed by Coastal Surveying of Texas has found an average pre-Ike dune width of 37' in eroding areas and 112' in accreting areas. Gibeaut *et al.* (2002) suggested that, along the upper Texas coast, washover and damage to beach-front construction from storms with surges of up to approximately 5 ft does not typically occur where the foredunes are at least 10 ft high or 100 ft wide.

6-C-8. Coastal Zones and Building Setback Line

Due to the varying conditions on the Bolivar Peninsula, the varying rates of erosion and in the interest of implementing a stable and understandable system the landward extent of the Building Set-back areas will be the Dune Protection Line as depicted above in Section 6-C-6.

7 - Prohibition on New Construction Seaward of the Setback line

Texas Administrative Code

A prohibition on new construction seaward of the building set-back line. The prohibition criteria should include at least the following minimum criteria:

(A) To the maximum extent practicable, all structures should be constructed landward of the building set-back line.

(B) Construction of structures landward of the building set-back line establishes a rebuttable presumption that the permittee has followed the mitigation sequence requirements for avoidance and minimization of effects on dunes and dune vegetation specified in §15.4(f) of this title (relating to Mitigation). However, the permittee is not exempt from compliance with compensatory mitigation requirements for unavoidable adverse effects on dunes and dune vegetation.

7-A Prohibitions-

New construction is prohibited seaward of the Building Set-back Area, except as provided in Section 9 Exemptions. Additionally, paving, grading, or altering the ground in any manner is prohibited in the area within 50ft. of the LOV. This area may not be disturbed from its natural state in any manner, including mowing, grading, landscaping, filling, or fertilizing.

Public and private dune walkovers, footpaths, beach access roads, dune restoration projects, sand fences (utilized in accordance with U.S. Fish and Wildlife Service and Texas General Land Office guidelines) and irrigation systems for the dune that are approved through a beachfront construction permit and/or dune protection permit may be allowed.

7-B Mitigation Sequence

Structures constructed landward of the Building Setback Line, establishes a rebuttable presumption that the structure/permittee has followed the mitigation sequence requirements for avoidance and minimization of effects on dunes and dune vegetation as specified in the Texas Administrative Code. Permittee's are not exempt from compliance with compensatory mitigation requirements for unavoidable adverse effects to dunes and dune vegetation and compliance with the adopted Mitigation Sequence as detailed in the Galveston County Dune Protection and Beach Access Plan.

8 - Exemptions

Texas Administrative Code

Consideration of exemptions. Local governments may consider exemptions from the prohibition of residential and commercial construction seaward of the building set-back line for:

- (A) properties for which the owner has demonstrated to the satisfaction of the local government that no practicable alternatives to construction seaward of the building set-back line exist. For purposes of this section, practicable means available and capable of being done after taking into consideration existing building practices, siting alternatives, and the footprint of the structure in relation to the area of the buildable portion of the lot, and considering the overall development scheme for the property;
- (B) properties for which construction is permitted under a dune protection and beach access plan establishing a building set-back line certified by the General Land Office prior to the effective date of this section; and
- (C) structures located seaward of the building set-back line prior to the effective date of this section for which modifications are sought that do not increase the footprint of the structure. However, structures seaward of the building set-back line that are damaged more than 50% or destroyed should be subject to this section before any repairs or reconstruction may be conducted.

The following criteria establish an exception from the prohibition of residential and commercial construction seaward of the landward extent of the Building Setback Area (BSA):

8-A-1 Demonstration of no Practicable Alternative

Practicable, for purposes of this section means "Available and capable of being done after taking into consideration existing building practices, costs, siting alternatives, and the footprint of the structure in relation to the area of the buildable portion of the lot, and considering the overall development scheme for the property." If a landowner can demonstrate that no practicable alternative to construction seaward of the landward extent of the Building Setback Area exists, an exception to the prohibition on construction shall be granted, excluding the area located within the Dune Conservation Area.

8-A-2 Procedure for Appeal of Practicable Determination

The Building Official shall make the finding on whether it is not practicable to conduct construction activities landward of the Building Set-back line when an applicant proposes construction activities seaward of the landward extent of the Building Set-back area on lots platted before the effective date of this Erosion Response Plan.

The Building Official's finding may be appealed to the County Engineer. If both the Building Official and the County Engineer find that the applicant has not demonstrated that it is not practicable to comply with the requirement that the proposed construction activities be located landward of the Building Set-back line, then the applicant may appeal to the Commissioners' Court. All appeals must be filed within two (2) weeks of the applicant's receipt of the finding from the Building Official or the County Engineer, as applicable, by filing a written request for appeal in the County Engineer's office. The finding of the Commissioners' Court is final. The finding of whether it is not practicable to comply with the requirement that the construction activity be located landward of the Building Set-back line shall be made by the County.

8-A-3 Property Permitted Under Existing Dune Protection and Beach Access Plan

An exemption may be granted to existing permits issued prior to the effective date of this Erosion Response Plan. Existing structures that were properly permitted by Galveston County are exempt from the building setback prohibition, provided there are no practicable alternatives, that the footprint of the building is not increased and that the new structure meets new construction guidelines.

Galveston County may consider exemptions from the prohibition of residential and commercial construction seaward of the building set-back line for:

- A. Properties for which the owner has demonstrated to the satisfaction of the local government that no practicable alternatives to construction seaward of the building set-back line exist. For purposes of this section, practicable means available and capable of being done after taking into consideration existing building practices, siting alternatives, and the footprint of the structure in relation to the area of the buildable portion of the lot, and considering the overall development scheme for the property;
- B. Properties for which construction is permitted under a dune protection and beach access plan establishing a building set-back line certified by the General Land Office prior to the effective date of this section; and
- C. Structures located seaward of the building set-back line prior to the effective date of this section for which modifications are sought that do not increase the footprint of the structure. However, structures seaward of the building set-back line that are damaged more than 50% or destroyed should be subject to this section before any repairs or reconstruction may be conducted.

8-A-4 Substantial Improvement to Structures

In accordance with NFIP guidelines, structures damaged more than 50% of their appraised value must be repaired in accordance with new construction guidelines. Reconstructions, rehabilitations, additions, or other improvements to existing structures seaward of the Building Setback Line, with a cost of less than 50 percent of the appraised value of the existing structure, should be exempt from the prohibition on construction.

Galveston County Commissioners Court has adopted the IRC Building code for construction standards, has developed local floodplain regulations and participates in the National Flood Insurance program. Compliance with building standards for residential construction is administered by the County Engineers Office.

9 - Construction Requirements for Exempt Properties

Texas Administrative Code

Construction requirements for exempt properties. Where the local government allows an exemption from the prohibition for building seaward of the building set-back line, it should require the following conditions of construction:

- (A) plans and certifications for the structure by a registered professional engineer licensed in the State of Texas providing evidence of the following:
 - (i) a minimum two-foot freeboard above base flood elevation (BFE);
 - (ii) no enclosures below BFE;
 - (iii) the adequacy of elevated building foundations and the proper placement, compaction, and protection of fill when used as construction for all newly constructed, substantially damaged, and substantially improved buildings elevated on pilings, posts, piers, or columns in accordance with the latest edition of specifications outlined in American Society of Civil Engineers, Structural Engineering Institute, Flood Resistant Design and Construction, ASCE 24-05;
 - (iv) feasible relocation of any habitable structure; and
 - (v) all construction is designed to minimize impacts on natural hydrology;
- (B) location of all construction should be landward of the landward toe of the foredune ridge, where practicable.

9-A Construction Requirements

Where an exception from the prohibition for new construction seaward of the landward extent of the Building Setback Area (BSA) is allowed, the following conditions should be met:

1. All construction shall be designed to minimize impacts on natural hydrology, create no erosion to adjacent properties, critical dune areas, or the public beach, and preserve to the greatest extent practicable (see definition) the natural dune line and vegetation and include certification by an engineer licensed in the State of Texas;
2. All construction is located as far landward as is practicable;
3. Construction is in accordance with IRC 2009 building codes and local floodplain regulations;
4. Increasing freeboard is encouraged on new construction above the NFIP base flood elevation (BFE);
5. All enclosures below BFE must be in compliance with NFIP guidelines, and utilize technologies to minimize impacts on natural hydrogeology.
6. Areas located within 25 feet of a habitable structure may only be disturbed if the proposed activity is located landward of the Dune Conservation Area.
7. Dune walkovers, footpaths, beach access roads, dune restoration projects, sand fences, and irrigation systems for the dune that are approved through a beachfront certificate and/or dune protection permit may be allowed according to General Land Office guidelines;
8. Structures shall be designed for feasible, above-site relocation. Proof that a structure is designed for feasible relocation shall be provided by a certified engineer, and for large-scale construction, financial assurance to fund the eventual relocation or demolition and removal of the proposed structure shall be provided, prior to construction implementation.

9-B Enclosures

Enclosures properly constructed, utilizing breakaway walls, louvered wall design, that do not provide a barrier to natural hydrology are more desirable than numerous small unsecured outbuildings. Previous experience has found that outbuildings (secured and not) are more likely to damage adjacent structures than those properly constructed. Under FEMA construction guidelines, enclosures are allowed below BFE as long as all walls for the enclosure are designed to breakaway under wind, surge, and wave impact in order to reduce impacts on water movement underneath and around the structure. Allowing breakaway wall construction is a viable alternative in that it is allowed by NFIP rules. Enclosures will reduce the footprint of outbuildings and thereby lessen the potential impact to critical dune and natural vegetation. It is recommended that every effort be made to control blowing sand through the use of sand fencing and native vegetation to reduce the volume of airborne sand lost to the beach. Additionally, heavy amounts of airborne sand is a hazard to the public by reducing visibility and placing beach goers at risk to vehicles operated on the beach.

10 - Procedures for Preserving and Enhancing the Public's Right of Access

Texas Administrative Code

Procedures for preserving and enhancing the public's right of access to and use of the public beach from losses due to erosion and storm damage. The ERP should include the following:

- (A) evaluation of all areas of public access to determine those that require improved protection from erosion and storm surge;
- (B) evaluation of construction methods and design improvements for areas of beach access to reduce costs associated with repair, rebuild, or replacement due to storm damage and erosion;
- (C) list of goals and implementation schedules for areas of public access design improvements that prioritize short term (two years or less) and long term goals;
- (D) inventory all publicly funded existing amenities and access ways as a basis for qualifying for FEMA post-storm funding sources;
- (E) establishment of procedures based on subparagraphs (A) and (B) of this paragraph for conducting post-storm assessment and identifying requirements for rehabilitation which include:
 - (i) inspection of beach access areas after meteorological events;
 - (ii) compilation of a list of access points that no longer comply with the local government's approved dune protection and beach access plan and the Beach/Dune rules with a description of specific required repairs and replacements including, but not limited to parking, pedestrian and vehicular access ways, and signage; and
 - (iii) schedules for access area repair and replacement based on available local funding and grant requests.

10-A Public Beach Access Inventory and Evaluation

Beaches on the Bolivar Peninsula are open to vehicle traffic without restriction with the exception of the Houston Audubon Society Bolivar Flats area located at the west end of the peninsula. However, this area has not been accessible by vehicle for approximately 20 years. On beach parking is available at the edge of the sanctuary area and pedestrian traffic is allowed. As detailed on page 33 (and listed below) of the County Plan certified in 2006, Galveston County has an inventory of 51 beach access roads on the Bolivar Peninsula repaired following Ike utilizing FEMA Public Assistance repairs and is considering the final placement of the ADA dune walkover formerly located within the Johnson Road right-of-way.

<u>Name of Roadway</u>	<u>Road Surface</u>	<u>Improvement</u>
1. 15th St.	Improved, all weather	None
2. 16th St.	Improved, all weather	None
3. Rettilon	Improved, all weather	None
4. Magnolia	Improved, all weather	None
5. Johnson Crawford Circle (4th Street)	Improved, all weather	None
6. Boyt	Improved, all weather	None
7. Helen Blvd.	Improved, all weather	None
8. Melody Ln.	Improved, all weather	None
9. Honeysuckle Dr.	Improved, all weather	None
10. Alma	Improved, all weather	None
11. Tinkle	Improved, all weather	None
12. Jacks	Improved, all weather	None
13. O'Neil	Improved, all weather	None

<u>Name of Roadway</u>	<u>Road Surface</u>	<u>Improvement</u>
14. East Rd.	Improved, all weather	None
15. Buell	Improved, all weather	None
16. Lazy Ln.	Improved, all weather	None
17. Townsend	Improved, all weather	None
18. Gulfview	Improved, all weather	None
19. Surfview	Improved, all weather	None
20. Holiday Dr.	Improved, all weather	None
21. Palmetto Dr.	Improved, all weather	None
22. Wommack	Improved, all weather	None
23. West	Improved, all weather	None
24. Mr. G	Improved, all weather	None
25. Monkhouse Dr.	Improved, all weather	None
26. Crystal Beach Dr.	Improved, all weather	None
27. Kahla	Improved, all weather	None
28. Gulf Shores Dr.	Improved, all weather	None
29. Westview	Improved, all weather	None
30. Gulfway	Improved, all weather	None
31. Eastview	Improved, all weather	None
32. Alberdie	Improved, all weather	None
33. Noisy Waves	Improved, all weather	None
34. Clara	Improved, all weather	None
35. Center	Improved, all weather	None
36. Kenlyn	Improved, all weather	None
37. Driftwood Dr.	Improved, all weather	None
38. Seadrift Dr.	Improved, all weather	None
39. Ramada Blvd.	Improved, all weather	None
40. Nassau Ln.	Improved, all weather	None
41. Redfish	Improved, all weather	None
42. Stingaree St.	Improved, all weather	None
43. Cove	Improved, all weather	None
44. Cade	Improved, all weather	None
45. Bauer Lane (west side of Rollover Pass)	Sand/shell	Overlay/elevate
46. Bauer Street (east side of Rollover Pass)	Sand/shell	Overlay/elevate
47. Kirkpatrick*	Improved, all weather	None
48. Dirty Pelican Pier	Sand/shell	realign/elevate
49. Unnamed road (2.3 miles west of State Highway 124)	Sand/shell	realign/elevate
50. Unnamed road (1.7 miles west of State Highway 124)	Sand/shell	realign/elevate
51. Unnamed road (just west of State Highway 124)	Sand/shell	realign/elevate

Galveston County maintains a detailed listing of 142 trash barrels mounted on posts on the Bolivar gulf shoreline beaches and provides seasonal portable toilets and roll-off containers at primary beach access roads. Galveston County has a central Road Administration office and manages and maintains each of the County owned roads. Galveston County facilitated the purchase of 21 beach wheel chairs donated to the Galveston Park Board to improve handicap access on Galveston Island.

12. -Criteria for Voluntary Acquisition of Property Seaward of the Building Setback Line.

Texas Administrative Code

Criteria for voluntary acquisition of property seaward of the building setback line. The local government may develop criteria for identifying properties with structures located entirely seaward of the building set-back line, providing for voluntary acquisition of fee simple title or a lesser interest in such properties, and procedures for prioritizing properties to be acquired.

(b) Local governments must use historical erosion data and other relevant data from the State Coastal Erosion Response Plan in the preparation of local erosion response plans. The State Coastal Erosion Response Plan may be found at:

http://www.glo.texas.gov/what-we-do/caring-for-the-coast/_documents/coastal-erosion/response-plans/coastwide-erosion-response-plan.pdf

(c) The local government must hold a public educational meeting on the ERP before implementation. The meeting may be held in conjunction with the formal hearing required for establishment of a new DPL, as outlined in §15.3(l) of this title (relating to Provisions for Public Hearings on Dune Protection Lines). If held separately from the hearing on a new DPL, the meeting must be advertised in the same manner outlined in §15.3(l) of this title.

(d) The ERP must be submitted to the General Land Office for review and approval as a dune protection and beach access plan amendment following the procedures outlined in §15.3(o) of this title (relating to Submission of Local Government Plans to the General Land Office).

12-A Criteria

Used to determine potential acquisition properties include:

- Proximity to the beach, and a structure this is entirely seaward of the building setback line.
- Is a hindrance to public beach access
- Potential use for a public purpose
- Properties bordering an existing public right of way the slough (to create a maintenance easement)
- Negatively affects hydrology as determined by a registered professional geologist/engineer licensed in the State of Texas.
- If the structure is determined to be a hazard to health and safety.
- If the structure is causing erosion or negative impacts to adjacent as determined by a registered professional geologist or engineer licensed in the State of Texas.

12-B Properties

Properties to be acquired are prioritized based on the individual situation of each structure; considering the severity and amount of the above criteria met. Galveston County may implement a removal strategy on the most critical or highest ranked structure. Strategies for acquisition will include:

- Identification of potential property or structure
- Ranking of respective property or structure
- Availability of acquisition / demolition / removal-disposal funding.
- Acquisition negotiation with property owner
- Successful execution of sales agreement
- Removal or relocation of structure (if necessary)

12-C Outreach

Development of the draft plan began in April 2011, and is continuing with the required timeline set forth by the GLO for draft and final plan submittal. Contracts with subject matter experts were approved by Commissioners Court in May 2011; specifically with HDR for coastal engineering assistance and Coastal Surveying of Texas for surveying / topographic assistance. The draft erosion response plan elements and associated timeline have been discussed at the following meetings:

- Galveston County Beach Erosion Task Force (BETF) monthly meetings beginning in February 2011 – July 2012
- Participated as a resource in the early meeting of the citizens group commenting the City of Galveston draft plan
- Informational meeting with community representatives on June 1, 2011 in Crystal Beach
- Commissioners Court Workshop June 7, 2011
- Tentative Commissioners Court agenda for authorization to submit a draft plan to the GLO prior to the July 1, 2011 date.
- May 15, 2012 Galveston County Commissioners Court
- May 29, 2012 Galveston County Commissioners Court
- June 21, 2012 Public meeting in Crystal Beach, at the Eddie Barr County Annex Building
- June 26, 2012 Galveston County Commissioners Court

In addition to the meetings, the provisions of the Texas Administrative Code regarding the Erosion Response Plan has been posted on the Galveston County website at:

www.co.galveston.tx.us/beacherosiontaskforce

The Galveston County Beach Erosion Task Force has periodically coordinated meetings with elected officials to discuss beachfront construction regulations, specifically related to construction setbacks and building practices. Galveston County expended a great deal of time and effort drafting comments in response to the 2007 legislation regarding erosion response planning (known locally as House Bill 2819) providing comments through the BETF and elected officials and hosting numerous public meetings and two public hearing (one each on Galveston and the Bolivar Peninsula) The County's comments regarding HB 2819 were submitted to the GLO on June 11, 2008 and August 13, 2008.

13. References-

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King, D.B. 2007. Wave and Beach Processes Modeling for Sabine Pass to Galveston Bay, Texas, Shoreline Erosion Feasibility Study. ERDC/CHL TR-07-6. Vicksburg, MS: U.S. Army Engineer Research and Development Center, Coastal and Hydraulics Laboratory.

McKenna, K.K. 2009. Texas Coastwide Erosion Response Plan. Final Report to the Texas General Land Office, GLO Contract No. 06-076-000, 86 p. plus appendices.

Nueces County. 2010. Nueces County Beach Management Plan. <http://www.co.nueces.tx.us/pw/pdf/beachmanagement.pdf>.

11. - Procedures for Preserving, Restoring, and Enhancing Critical Sand Dunes for Natural Storm Protection and Conservation Purposes.

Texas Administrative Code

Procedures for preserving, restoring, and enhancing critical sand dunes for natural storm protection and conservation purposes. The ERP should include the following:

- (A) specific proposals for the height (above mean sea level), width (as measured perpendicular to the shoreline), and percent of vegetative cover of critical front row dunes necessary to protect public and private property from severe meteorological events. The minimum dune height should be based on at least 75% of the BFE height from mean sea level established by the National Flood Insurance Program Flood Insurance Rate Maps for the local area;
- (B) identification and listing of specific locations where restoration is needed to fill in gaps and blowouts in the foredune ridge;
- (C) specific proposals for dune re-vegetation projects, including the identification of native plant species to be used in these projects;
- (D) identification of enhanced dune protection measures for existing residences, multi-family structures and businesses. Establish dune protection measures which protect the landward side of the foredune ridge, which may include, but are not limited to:
 - (i) use of native (indigenous) vegetation; and
 - (ii) limitations on the use of fertilizer and mowing;
- (E) identification of specific goals and implementation schedules to meet the requirements outlined in subparagraphs (A) - (D) of this paragraph; and
- (F) identification of available funding and proposed grant requests to accomplish goals and implementation schedules for dune restoration.

11-A Dune Goals

Protection of private and public infrastructure through the development of a well vegetated healthy dune system. The methods and practices used to meet this goal will be determined by County beach maintenance operations on a daily basis and depend on current situations including; but not limited to, the width and height of the existing dune system, accessibility to the area due to tides, beach width, and other on-site factors. A healthy dune system is the backbone for reducing impacts from storm events and is the measurement model used by the U.S. Army Civil Works through the Corp of Engineers Coastal program for storm damage reduction. Three factors found by Gibeaut and many others that indicate a healthy system include height, width, and vegetative cover. According to recent studies, a foredune ridge that is approximately 10 feet in height combined with a dune width of 200 feet and a high level of vegetative cover is essential to hold the dune system in place and reduce susceptibility to a “blow out” from high winds and provide protection to beachfront property. However, very limited areas on the Bolivar Peninsula prior to Hurricane Ike had a dune complex of this width; and following Hurricane Ike that limited amount was significantly reduced. The illustration below is taken from the GLO’s Fifth Edition of the Dune Protection Manual and provides visual evidence of what occurs when a dune lacks sufficient height, depth and vegetative cover.



Before Storm



Post Storm

11-B Dune Characteristics

Recognizing the importance of these three factors, along with research regarding historic dune widths on the upper Texas coast and specifically the peninsula, Galveston County has established minimum standards for creation of restored or man-made dunes as detailed in the Galveston County Dune Protection and Beach Access Plan; Section IV; Dune Reconstruction, beginning on page 28. Restored dunes should have the following characteristics:

- 50% vegetative cover;
- A minimum 3:1 slope (seaward face);
- An average height of 75% of the peninsula's base flood elevation as measured from mean sea level;
- A naturally established connection to the dune contour and elevation of the adjacent property; and
- Shall not extend further seaward than 20ft. seaward of the landward boundary of the public beach.

11-C Dune Vegetation

As general guidance for dune restoration or re-vegetation projects, the County recommends the following:

*Vegetating Location

Seaward Face of the Dune

Recommendation

Bitter Panicum (grass), Sea Oats (grass), Marsh Hay Cordgrass (grass), beach morning glory (vine, and seagrapes (vine).

Landward Side of the Dune

Low-growing plants and shrubs found on the back side of the dunes include seacoast bluestem, cucumber leaf sunflower, rose ring gallardia, partridge pea, prickly pear, and lantana. (Many of these are flowering plants, which are an attractive alternative to dune grasses though less effective as dune stabilizers.)

*Recommended Material

Native Hay.

Technique

The use of a 3- to 6-inch thick layer native hay, with seeds of the above listed vegetation, on bare sand areas to provide immediate protection from blowing sand and encourage the natural process of re-seeding. The hay must be harvested in fall when mature seeds are present.

Sand Fencing.

According to USFWS and GLO guidelines for endangered species for sand fencing to build up dunes where re-vegetation alone is unlikely to encourage sufficient dune width and height. Sand fencing can be used as a first step prior to re-vegetation. Diagonal 10ft. to 20ft. parallel sections.

As previously described, the dune system and vegetative cover on the Bolivar Peninsula were obliterated by Hurricane Ike. Very few individual dunes are present on the peninsula except a few isolated places where small-scale restorations have occurred conducted by Homeowner Associations.

**Source: GLO Dune Protection and Improvement Manual for the Texas Gulf Coast 5th Edition*

11-D Dune Priorities

Galveston County has identified priority projects for dune restoration / re-vegetation and has submitted various grant applications and public assistance claims to FEMA to help implement these projects

Priorities-

1. Protection of the lives of Galveston County residents and visitors through the development of a healthy dune system by reducing the impacts of tidal surge.
2. Protection of existing public infrastructure including State Highway 87, the only evacuation route for the Bolivar Peninsula by increasing the width of the beach and dune system on the Bolivar peninsula.
3. Protection of upland private property and ad valorem tax base from the effects of storm and tidal surge benefitting citizens, school districts and many other public service entities.

11-E Goals, Implementation, Post-Disaster and Funding Sources Issues

Galveston County will continue to seek funding for dune restoration in an effort to continue the protection of critical dune areas. A primary concern for Galveston County is the issue of Coastal Barrier Resource Act (CBRA) Units located on the peninsula. Federal laws prohibit the use of federal funds within CBRA units that could promote or lead to development and the increase of potential at-risk populations. Federal funding offers the greatest potential for development of large-scale dune restoration projects, but it also carries the greatest restrictions in their use.

As part of its continuing management process Galveston County has maintained a post-disaster emergency stand-by contract with HDR Engineering since 2007. This stand-by contract includes post-event damage assessment, mapping, surveys, ground level photographs, aerial photographs, technical assistance to FEMA, and estimates of sand loss for beach and dune areas on Bolivar. Other features reviewed would include drainpipes, dune drive-overs, the public ADA walkover and recommendations for mitigation actions in coordination with FEMA. The post-event survey transects would reoccupy previously established survey lines as a basis for comparison.

11-E-1 Short Term Goals

Include filling gaps and blow-outs in the existing dune system using naturally occurring sargassum to supplement the vegetation growth process. Gaps should be filled to match existing dune dimensions; areas that would benefit from the implementation of this short term goal include the beachfront from the eastern Galveston / Chambers County line westward to Rollover Pass. Prioritization of this area was based on the rate of erosion, previous land loss, and the close proximity of daily high tides to the highway 87 / highway 124 evacuation route connection that serves the entire peninsula. Medium priority areas include Rollover Pass west to the Caplan area. However, it is believed the closure of Rollover Pass will result in at least a 50% reduction in the rate of erosion within this area. The beach and dune system west of the Caplan area is largely stable and going west becomes rapidly accretional.

11-E-2 Long Term Goals

Include:

- The establishment of a continuous line of dunes along the length of the Bolivar peninsula that could provide a first level of storm damage protection, and increase the available evacuation window allowing more time for residents to evacuate inland.

- An ideal dune configuration would include a minimum height of 10ft and a minimum base width of 100ft. measured perpendicular to the gulf beach, having a vegetative cover of at least 75%.
- A recommendation that large scale dune restoration projects be designed to meet U.S. Army Corp of Engineer standards as defined in Chapter 4 of the Coastal Engineering Manual (USACE, 2008).
- Elevation, drainage improvements, and potential re-alignment of selected beach access roads away from the prevailing winds, similar to what was successfully accomplished in Brazoria County to reduce the impacts of storm surge.
- Potential consolidation of access roads within subdivisions that have an excess of roadways to reduce “cuts” through the dune and improve dune integrity
- Pending completion of the FEMA flood mapping project and final approval of the new maps, it is recommended that restored dune heights exceed 75% of the average height of the BFE along Bolivar peninsula.

11-E-3 Potential Funding Sources for dune restoration and re-vegetation:

- NOAA Programs and Grants, in non-CBRA areas
- GOMESA Program through BOEMR, in non-CBRA areas
- GLO Program and Grants
- Coastal Erosion Planning and Response Act (CEPRA)
- Coastal Impact Assistance Program (CIAP) in non-CBRA areas
- Coastal Management Program (CMP), in non-CBRA areas
- Beach Maintenance Reimbursement Fund (supplemental only)
- Coastal and Estuarine Land Conservation Program (CELCP), in non-CBRA areas
- Galveston County Capital Improvement Program
- Local Beach User Fees
- Private funds / Homeowner Associations (HOAs) contributions

Galveston County continues to encourage private participation in dune restoration and re-vegetation projects that are consistent with State and County guidelines.