

PLOT DATE: JANUARY 18, 2006



March 20, 2006

Mr. C. B. Thomson, RPLS, LSLS Surveying Division Texas General Land Office 1700 N. Congress Avenue Austin, Texas 78701

Re: Galveston Bay adjacent to M. Muldoon Two League Grant, Kemah, Galveston County, Texas.

Dear Ben,

Enclosed please find the mylar original and Surveyors Report of a survey of the above referenced site to be filed in the records of the General Land Office in accordance with the requirements of Section 33.136 of the Natural resource Code "Property Rights: Preservation of Littoral Rights".

If you have any questions or need further information, please do not hesitate to give me a call. Thank you.

Sincerely,

William E. Merten, RPLS, LSLS

Vice President

Cc: Michael Hoover, RPLS

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SURVEYORS REPORT SURVEY OF THE LINE OF MEAN HIGHER HIGH WATER ON GALVESTON BAY ALONG A PORTION OF THE M. MULDOON TWO LEAGUE GRANT GALVESTON COUNTY, TEXAS

At the request of the Benchmark Engineering Corporation and in my capacity as a Licensed State Land Surveyor in Texas, I have determined the line of Mean Higher High Water for a portion of Galveston Bay adjacent to the M. Muldoon Two League Grant, Abstract Number 18, Galveston County, Texas. This survey was performed as per the requirements outlined in the Coastal Public Lands Management Act of 1973, as amended, Chapter 33, Natural Resources Code, and specifically per Section 33.136, Natural Resources Code, "Property Rights: Preservation of Littoral Rights".

The purpose of this survey was to evidence "...the location of the shoreline in the area depicted in this survey as that shoreline existed before commencement of erosion response activity..." (Section 33.136(b), Natural Resources Code).

Title to the M. Muldoon Two League Grant was received from the Mexican Government on December 15, 1831 and Galveston Bay lies to the east of this grant. Galveston Bay, having a direct connection to the Gulf of Mexico, is tidally influenced.

In the case of Humble Oil & Refining Co. vs. Sun Oil Co. (190 F 2d 191), the court held that "grants issued by the King of Spain and the Mexican State before the adoption of common law in Texas, the boundary between sea and upland must be determined in accordance with principals announced in Las Siete Partidas, the basic law of Spain and Mexico which defines "shore" as all ground covered with water at high tide during the whole year, whether in winter or summer."

In a decision by the Texas Supreme Court in the case of Luttes vs. State (324 SW 2nd 167, on remand 328 SW 2nd 920) it was found that the littoral boundaries for civil law grants differs from the boundaries of common law grants. The court states that for civil law grants (grants by Spain and Mexico) the boundary is the line of Mean Higher High Water (MHHW) and for common law grants (grants made by the Republic and State of Texas) the boundary is the line of Mean High Water (MHW). Therefore, the littoral boundary within the M. Muldoon Two League Grant, a Mexican Grant, will be the line of Mean Higher High Water.

The Luttes case defined Mean Higher High Water as a tidal datum that is the average of the higher of the two daily tides observed over a specific 19 year period (epoch) and Mean High Water as a tidal datum that is the average of all high tides over a specific 19 year period (epoch). Tides being defined as the regular and predictable rise and fall in sea level due to the gravitational pull of the sun and moon. Also, sea levels are influenced by weather conditions,

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Art. 33.136, Natural Resources Code	
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Surveyors Report Galveston Bay at Kemah Page 2 of 3

geographical location and topography of the coastline. The combination of these conditions can result in a wide variation in the elevation of the tidal datum from location to location.

Tide gauges along the Texas coastline are installed, operated and maintained by a joint effort involving the National Oceanic and Atmospheric Administration (NOAA), the Conrad Blucher Institute (CBI) and Lamar University. Tidal datum's, benchmarks and gauge readings are published and available from NOAA and CBI.

The project site is located in the general vicinity of the Eagle Point Tide Gauge, a secondary gauge referenced to the Galveston Pier 21 Tide Gauge, a primary gauge in use since 1908. Recently, NOAA has adopted new procedures to compute accepted tidal datum's in the Galveston area based on more recent observations. This procedural change is due to the rise in sea level in the Galveston area, being over 0.02 feet per year, which far exceeds the U.S. average rise of 0.005 feet per year. Currently the published tidal datum for the two gauges is based on the 19-year epoch from 1983 to 2001. Due to this relatively rapid change in sea level I felt it was necessary to compute data on a more current epoch in lieu of using the published datum's. A new tidal datum for the Galveston Pier 21 Tide Gauge was calculated for the 19-year epoch ending in November, 2005 and using the standard method, the Eagle Point Tide Gauge was adjusted to this same epoch.

During the month of March, 2005, a site staff gauge was installed and observed simultaneously with the Eagle Point Tide Gauge for nine high tide cycles. These reading were compared to the adjusted Eagle Point Tide Gauge using the amplitude ratio method resulting in a calculated elevation for mean higher high water, mean high water, mean low water and mean lower low water at the site staff gauge. These reading were updated to current elevation using readings from the Eagle Point Tide Gauge through November, 2005.

The project site is along approximately 405 varas of the westerly shore of Galveston Bay and is located generally south of Gordy Street, north of Maudlin Lane and east of State Highway 146 in the City of Kemah. This area of Galveston Bay is an area of erosion banks having rip-rap protection over a portion of the banks, and several wooden bulkheads have been constructed.

On December 13, 2005, points were located on the line of Mean Higher High Water along the shore of Galveston Bay for the entire project length. These points were incorporated into surveyed meanders delineating the littoral boundary between the seabed of Galveston Bay and the privately owned uplands.

Surveyors Report Galveston Bay at Kemah Page 3 of 3

The surveyed meander line was tied to the Texas Coordinate System of 1983, South Central Zone using NGS Monument "HGCSD 53" for reference. The scale factor used for this project is 0.99987303036.

To the best of my knowledge no artificial fill or development, other than previously stated, that would cause alteration to the line of mean higher high water, has occurred within the area surveyed.

A plat showing the results of this survey was prepared and accompanies this report.

Respectfully submitted,

William E. Merten

Licensed State Land Surveyor

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