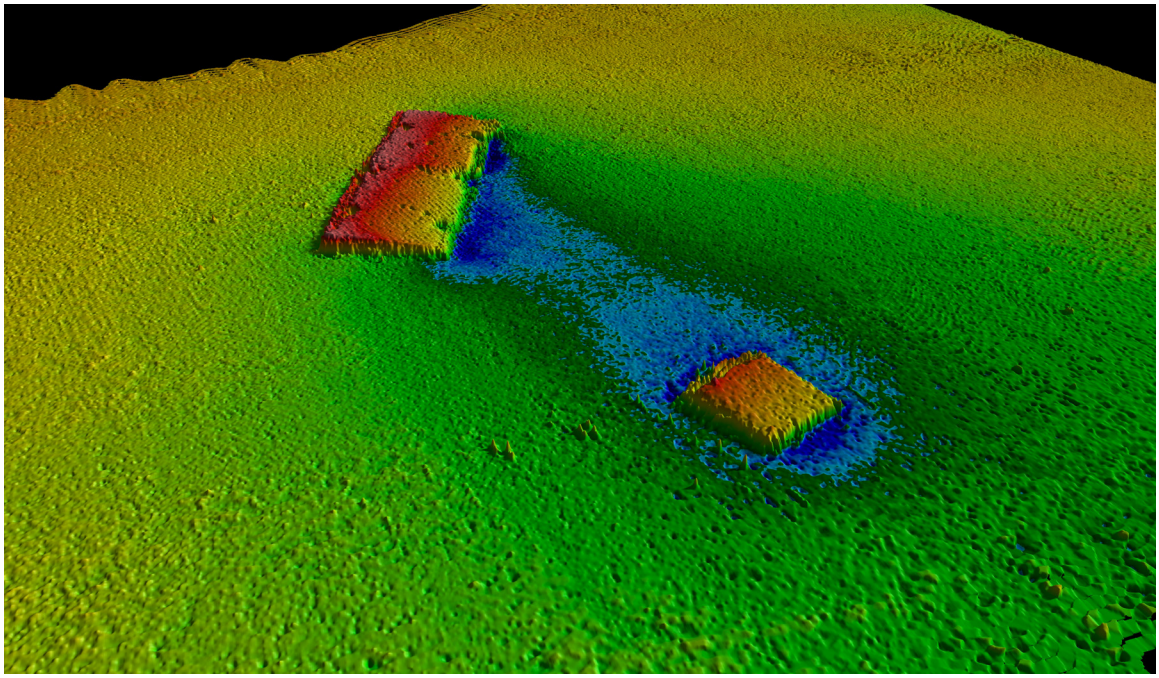
HORIZONTAL AND VERTICAL CONTROL REPORT

S-J977-KR-TE



H-11626, H-11627, H-11629

STATE: ALABAMA, LOUISIANA, MISSISSIPPI

LOCALITY: GULF OF MEXICO

YEAR: 2007

TERRASOND

A. VERTICAL CONTROL

The time meridian for this project was 000° longitude. All measurements were made in Universal Time, Coordinated (UTC). No measurements were made using local time. The local time meridian for the project was 90° west longitude and local time Central Standard Time (CST) was offset from UTC by five hours (CST = UTC - 5 hours). During the part of the year where Daylight Savings Time was observed, Central Daylight time (CDT) was offset from UTC by 6 hours (CDT = UTC - 6 hours).

Tide Correctors

Sounding data was adjusted for tidal influence using zoning provided by NOAA/CO-OPS under the project instructions and verified tides from the National Water Level Observation Network (NWLON) station at Dauphin Island, AL (873-8150/873-8151) (Figures 1-2) and a tidal gauge at Millview, Perdido Bay, FL (872-9905) (Figure 3). Dauphin Island Hydro gauge (873-8151) was used for verified tides on survey data collected prior to 10/01/2006. As of 10/01/2006, the Dauphin Island NWLON gauge (873-8150) was used in place of Dauphin Island Hydro (873-8151) because of data shifting issues. Verified data from the Dauphin Island were downloaded from the NOAA internet Hydro Hot list (http://co-ops.nos.noaa.gov/hydro.shtml).

TerraSond, Ltd. contracted with John Oswald and Associates, LLC to install one subordinate tide gauge at Millview, Perdido Bay, FL (872-9905), which provided initial and final processing for H11626 (Appendix I).

Figure 1- Station Information for the tide gauge Dauphin Island NWLON, AL (8735180). Verified tides from this station are used to process data collected after 10/01/2006. Verified tides from Dauphin Island Hydro (8735181) are used to process data collected prior to 10/01/2006.

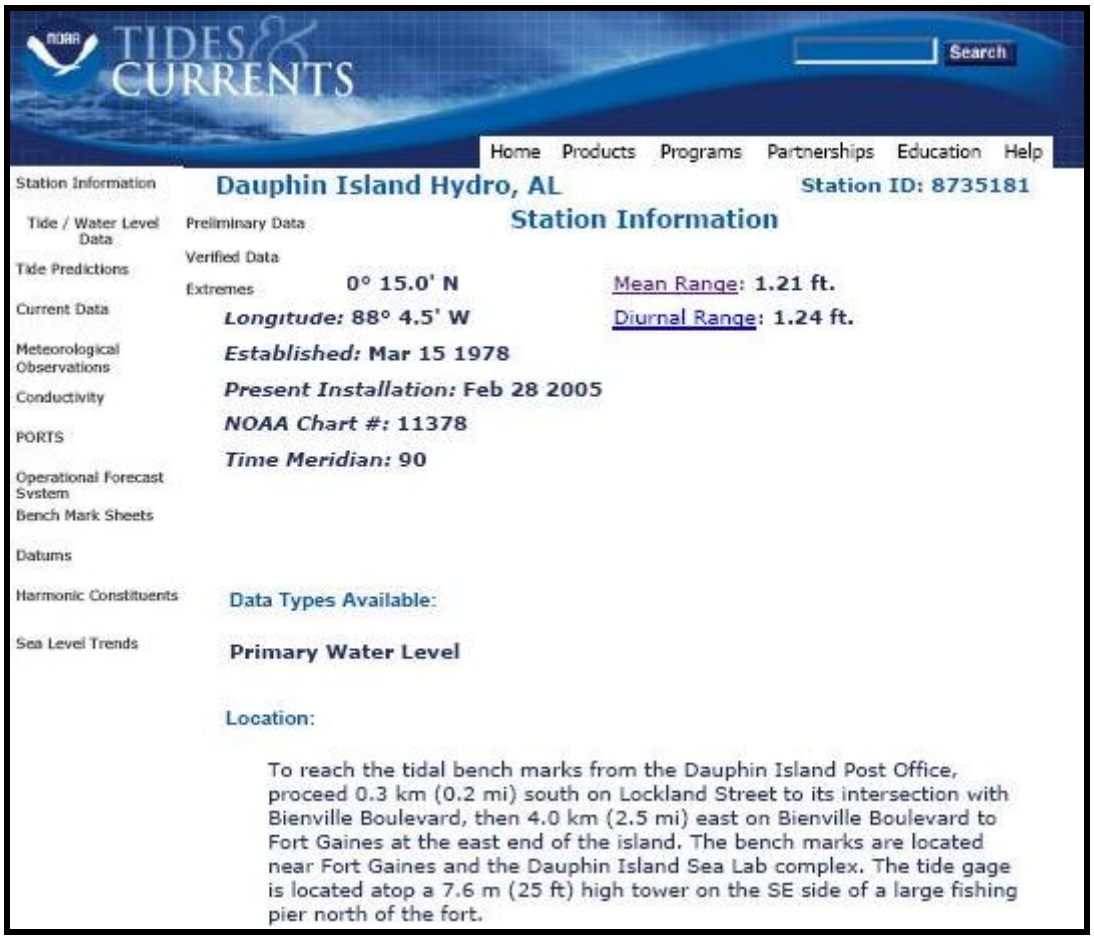


Figure 2- Station Information for the tide gauge Dauphin Island Hydro, AL (8735181). Verified tides from this station are used to process data in H-11626 and H-11627 collected prior to 10/01/2006. Verified tides from Dauphin Island NWLON (8735180) are used to process data collected on and after 10/01/2006.

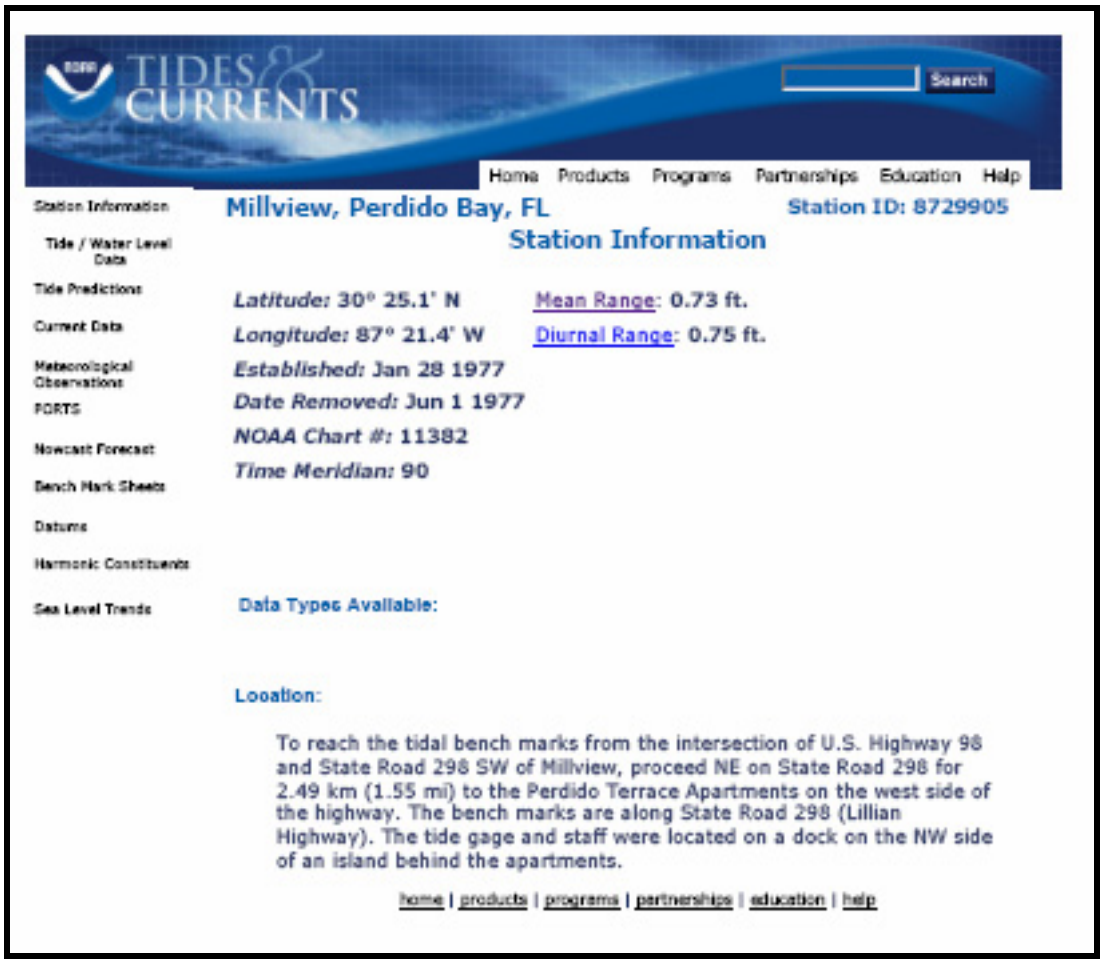


Figure 3 - Station Information for the tide gauge Millview, Perdid Bay, FL (8729905). Verified tides from this station are used to process data from H-11629.

Tidal Zoning

Final verified tides were applied to the data using tidal zones provided by NOAA. Tide zone and their correctors are shown in Figures 4-5. The zoning definition files are included as a Digital Deliverable for each sheet.

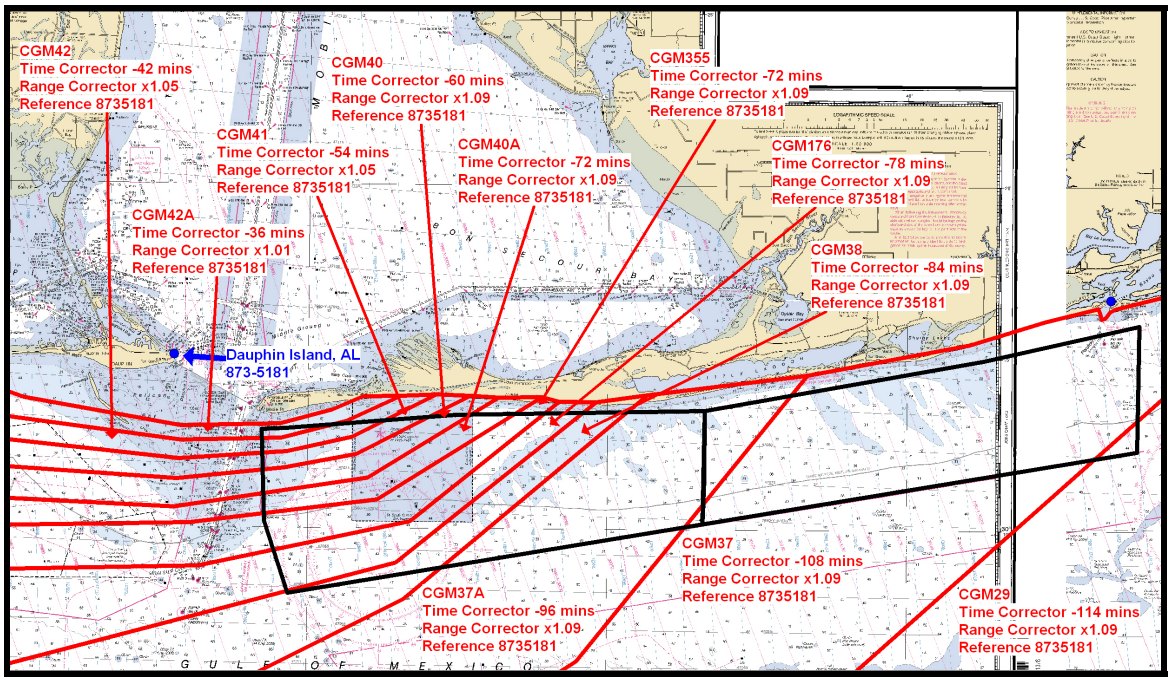


Figure 4 - Tidal zones provided by NOAA for Dauphin Island, AL (8735181/8735180).

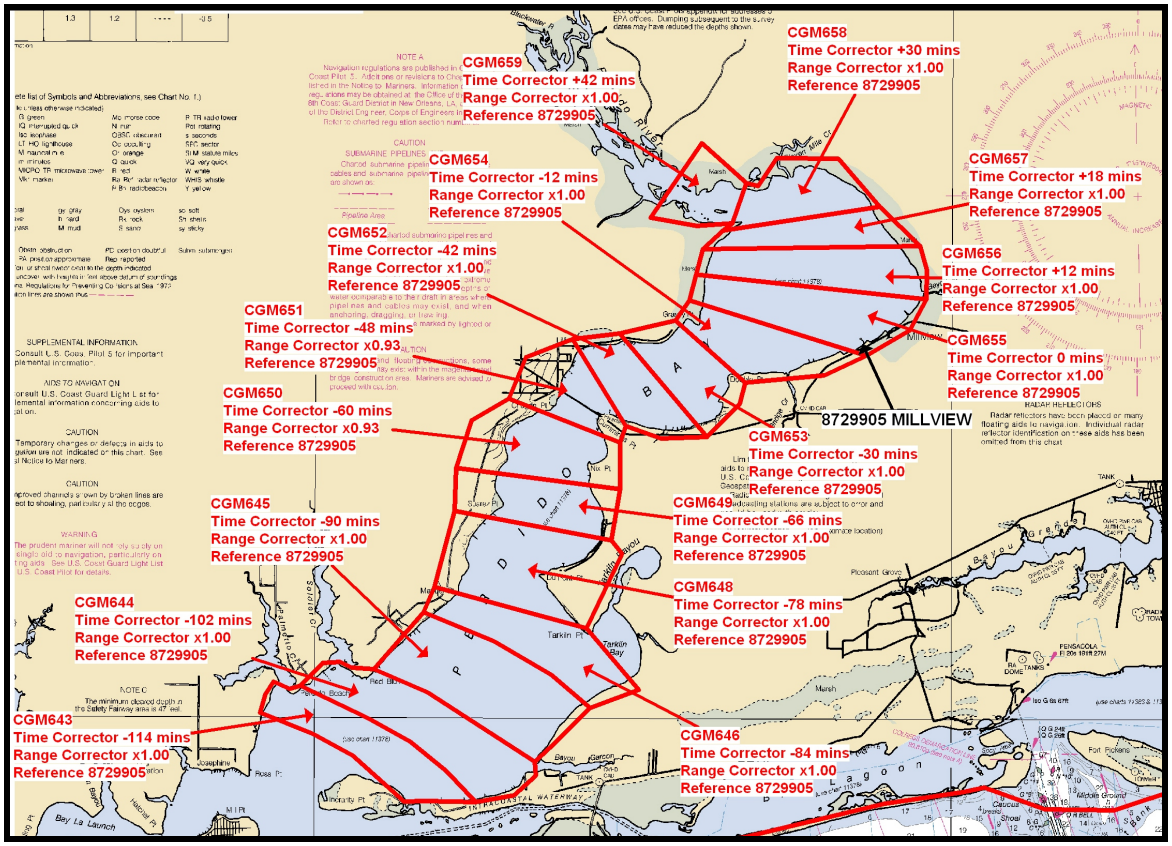


Figure 5- Tidal zones provided by NOAA for Millview, Perdido Bay, FL (8729905). The correctors are provided by John Oswald and Associates LLC.

B. HORIZONTAL CONTROL

The horizontal control datum used for this survey is the North American Datum of 1983 (NAD 83). The projection used was UTM, Zone 16 North.

Sounding position control was determined using the Global Positioning System (GPS). The United States Coast Guard differential GPS (DGPS) stations *Mobile Point, AL, StaID 26* (Figure 5, Table 1) and *English Turn, LA, StaID 28* (Figure 6, Table 2) were used to provide navigation correctors. The summaries of daily DGPS confidence checks are provided for each sheet, respectively, in Separates I: ACQUISITION AND PROCESSING LOGS.

Figure 6 – Continuously Operating Reference Station (CORS) Mobile Point, AL.

Table 1 – DGPS Site Status and Operating Parameters, Mobile Point, AL.

Description	Value
Site Name	MOBILE POINT, AL
Status	Operational
RBn Antenna Location	30-13.7N, 88-1.4W
REFSTA Antenna Location (A)	30-13.65077N, 88-1.44588W
REFSTA Antenna Location (B)	30-13.65101N, 88-1.45433W
REFSTA RTCM SC-104 ID (A)	26
REFSTA RTCM SC-104 ID (B)	27
REFSTA Firmware Version	RD00-1C19
Broadcast Site ID	813
Transmit Frequency (KHz)	300
Transmit Rate (bps)	100
Signal Strength	75uV/m at 170 NM

Figure 7 - Continuously Operating Reference Station (CORS) English Turn, LA

Table 2 - DGPS Site Status and Operating Parameters, English Turn, LA.

Description	Value
Site Name	ENGLISH TURN, LA
Status	Operational
RBn Antenna Location	29-52.7N, 89-56.5W
REFSTA Antenna Location (A)	29-52.73743N, 89-56.50329W
REFSTA Antenna Location (B)	29-52.75074N, 89-56.52474W
REFSTA RTCM SC-104 ID (A)	28
REFSTA RTCM SC-104 ID (B)	29
REFSTA Firmware Version	RD00-1C19
Broadcast Site ID	814
Transmit Frequency (KHz)	293
Transmit Rate (bps)	200
Signal Strength	100uV/m at 170 NM

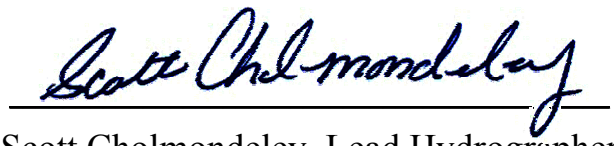
Project Wide

Vertical and Horizontal Control Report

S-J977-KR-TE

H-11626, H-11627 & H-11629

All information contained in this Vertical and Horizontal Report for S-J977-KR-TE has been reviewed and approved by me and is hereby respectfully submitted.



Scott Cholmondeley, Lead Hydrographer
TerraSond Ltd.

Date 06/06/2007

TERRASOND

Appendix I

Tide Station Report
Millview, Florida (872-9905)

Tide Station Report
Millview, Florida (872-9905)

NOAA/NOS Project: S-J977-KR 2007 (Debris Field Mapping)
JOA Project: 96
TerraSond Project: 06-042

Boy catches fish on Millview, Florida dock, October, 2006.

Owner:

NOAA/NOS/OCS
1315 E-W Highway SSMC3
Silver Spring, MD 20910-3282
(301) 713-2777 phone
(301) 713-4533 fax

Prepared by:

John Oswald & Associates, LLC
2000 E. Dowling, Suite 10
Anchorage, AK 99507
(907) 561-0136 phone
ATTN: John Oswald, PLS, CHS

Prepared for:

TerraSond, Ltd.
1617 South Industrial Way, #3
Palmer, Alaska 99645
(907) 745-7215 phone
ATTN: Anne Dollard, PLS

Date: June 8, 2007

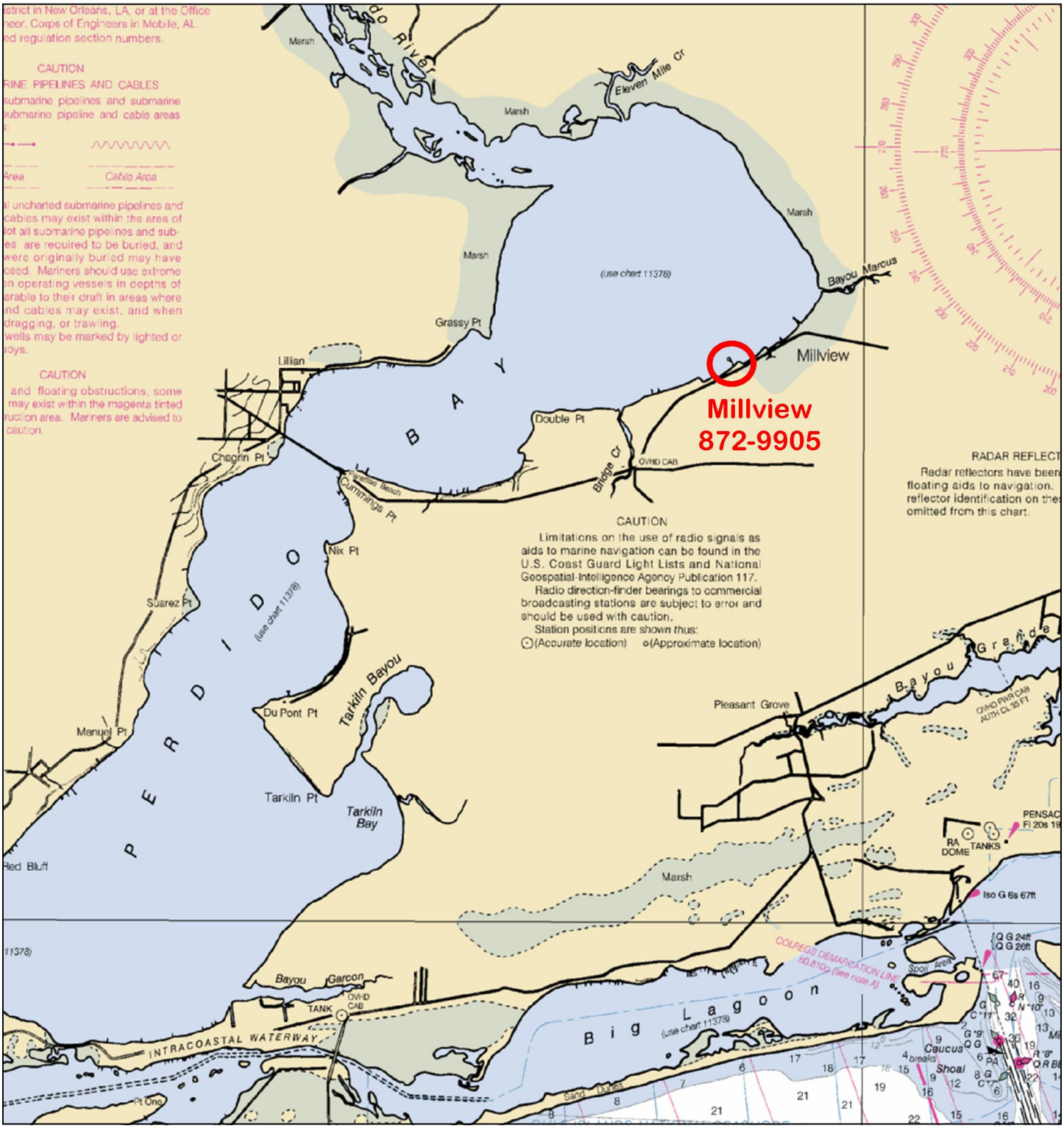
Millview, Florida 872-9905

Report Checklist June 8, 2007

Number of Pages	**Tide Station Report (posted to TerraSond ftp)**	format(s)	What NOAA needs
1	Tide Station Report Cover	pdf	pdf
1	Transmittal Letter	pdf	pdf
1	Report Checklist	pdf, xls	pdf
1	Chartlet	pdf	pdf
1	Bench Mark Sketch	pdf	pdf
1	Tide Station Report	pdf, xls	pdf
9	Millview Tide Station Photographs, 42 photographs	pdf, jpg's	pdf, jpg's
8	Benchmark descriptions and recovery notes	pdf, xls, ascii	pdf, ascii
1	To reach statement	pdf, xls, ascii	xls, ascii
1	Abstract of Leveling on Station Datum	pdf, xls	pdf
2	Water Density and Slope Computation	pdf	pdf
4	Staff Shot Summary	pdf	pdf
0	Tide Gauge Acceptance Tests (September 2006 by TerraSond)	??	pdf
0	Tide Gauge Acceptance Test (May 2007 by TerraSond)	??	pdf
21	TerraSond Fieldbooks 1,2,3 (Millview Pages) and Index	pdf	pdf
1	Zoning factors adjusted to Millview	pdf, doc	pdf
52	**Total Number of Pages**		

Number of Files	**Digital Data, All are ASCII data (posted to TerraSond ftp)**		**NOAA needs all these files**
	Directory	***File Name***	***Comment***
1	Water Level Data/Final Digital Tide Data/Log Files	87299051.bwl	6 Minute Data on Historic Station Datum, bwl format
1	Water Level Data/Final Digital Tide Data/Log Files	8729905 High Lows.txt	Highs/Lows on Historic Station Datum
1	Water Level Data/Final Digital Tide Data/Log Files	8729905 Monthly Mean Data.txt	Monthly Mean Data on Historic Station Datum
1	Water Level Data/Final Digital Tide Data/MLLW	8729905 Millview smoothed mllw.txt	6 Minute Data on MLLW Datum, smoothed, for hydro ops
4	**Total Number of Files**		

Millview, Florida (872-9905)



Station Number: 872-9905

Station Name: Millview, Florida

Latitude: 30-25-12 N

Longitude: 87-21-20 W

NOAA Chart: 11378, 34th Ed., Feb./04

Display Scale: 1:95,000 (approx)

Chart Scale = 1:80,000

USGS Quad: Pensacola

Tide Station Site Report

Millview, Florida 872-0995

Position (NAD83):	30° 25' 11.7"	87° 21' 20.4"	Time Meridian = 0° (UTC)
Owner:	Gene and Johanna Austin (850) 458-0193		10024 Lillian Highway (Rt 298) Pensacola, FL 32506
Established:	October 12, 2006		Removed: February 2, 2007
Type of station:	Tertiary		Density Observations: yes
Prime Contractor:	TerraSond Limited, Palmer , AK		Anne Dollard, PLS, project mgr
Tides Consultant:	John Oswald & Assoc, Anchorage, AK		John Oswald, PLS, project mgr
Project Numbers:	NOAA: S-J977-KR-2007	JOA: 96	TerraSond: 06-042
Location:	To reach the tide station by car from the intersection of Route 59-S and Route 98 in Foley, Alabama, go easterly on Route98 for 24.3 km (15.1mi), through the small towns of Elberta, and Lillian, to the bridge over Perdido Bay. Proceed across the bridge southeasterly then easterly on Route 98 for 6.4 km (4.0 mi) to the intersection of Route 98 and Route 298. Turn left on Route 298 (Lillian Highway) and proceed northeasterly 2.68 km (1.67 mi) to the Austin house on the left (10024 Lillian Hwy). Turn left and proceed about 115 m (375 ft) NNW through the property, past the house, garage and shop to the small wooden dock and the tide gauge site.		
Tide House:	Established two digital bubbler tide gauges in 4' by 4' by 2' wood shed just above the rock, rip rap, shoreline, near the south end of the wooden dock on the Austin property. The orifice line for each gauge runs under the wooden dock, about 45.7 m (150 ft) and is attached to an orifice secured on the bottom of a galvanized pipe, banded to the wooden dock pilings. The orifices are about 0.06 m (0.2 ft) above the mud bottom.		
Tide Gauge(s):	Two digital bubblers: Design Analysis H350XL, with H355 pumps, and H222 (Signal Engineering) GOES radios, with Yagi antennas Both gauges are 0 >30 PSI range. Gauge #1 H350XL S/N: 1051, H355 S/N 1899, H222 S/N 1002. Gauge #2 H350XL S/N 1048, H355 S/N 1898, H222 S/N 1003. Two Optima 12vdc batteries run each system, charged with an AC battery charger. GPS modules provide time syncing. Gauges measure every 6 minutes, for 181 seconds, and transmit 10 seconds each hour, using GOES channel 143.		
Tide Staff	A one meter metal, vitrified scale, tide staff with stilling well was lag screwed to a 2 by 4 and dock piling. The staff stop is a lag bolt in the top of the 2 by 4 staff board and is 1.266 m above the staff "0". Staff was graduated every 0.01 m from 0.00 to 1.00 m. Direct leveling was observed to the staff stop and both orifice "0" points from the primary bench mark.		
GPS Tie:	Performed by TerraSond personnel at 872-9905 G 2006 in February 2007.		
Tidal Bench Marks:	2 recovered B and C	4 established F, G, H, DOT	Primary Bench Mark: B 1977 BM's A, D not found
Third Order Leveling:	Initial: Oct 12, 2006		Closeout: February 2, 2007

Millview, Perdido Bay, Florida
872-9905
To Reach Statement

To reach the tide station by car from the intersection of Route 59-S and Route 98 in Foley, Alabama, go easterly on Route 98 for 24.3 km (15.1mi), through the small towns of Elberta, and Lillian, to the bridge over Perdido Bay. Proceed across the bridge southeasterly then easterly on Route 98 for 6.4 km (4.0 mi) to the intersection of Route 98 and Route 298. Turn left on Route 298 (Lillian Highway) and proceed northeasterly 2.68 km (1.67 mi) to the Austin house on the left (10024 Lillian Hwy). Turn left and proceed about 115 m (375 ft) NNW through the property, past the house, garage and shop to the small wooden dock and the tide gauge site.

TIDAL BENCH MARKS

BENCH MARK: 872 9905 B Millview, Perdido Bay, Florida

PRIMARY BENCH MARK STAMPING: 9905 B 1977
DESIGNATION: 8729905 B Tidal
MONUMENTATION: Survey Disk
AGENCY: NOS (National Ocean Service)
SETTING CLASSIFICATION: Copper-clad steel rod

The primary bench mark is a standard 3-1/2 inch diameter National Ocean Survey bench mark disk crimped to the top of a copper clad steel rod, and encased in a 6 inch diameter white PVC pipe (with no cover), in an empty grassy lot approximately 300 m (984 ft) SW of the lands owned by Gene and Johanna Austin, at 10024 Lillian Highway (Rt 298), Pensacola, Florida 32506. It is 76.2 m (250.0 ft) south of Perdido Bay mean high water mark, 21.0 m (68.9 ft) east of the centerline of the driveway that accesses the empty lot, 9.25 m (30.35 ft) north of the centerline of Lillian Highway, and 2.40 m (7.87 ft) west of a power pole with a light. The top of the PVC pipe is flush with the ground and the bench mark disk is 0.10 m (0.33 ft) below ground level.

Latitude: 30° 25' 06.3"
Longitude: 87° 21' 19.9"

_____METERS ABOVE NGVD _____METERS ABOVE NAVD

	Date			Above Datum of Tabulation	Above PBM: _____	Remarks
Established by	Year	Month	Day	Meters	Meters	
NOS	72					Established
Recovered by						
SC	06	10	12			Mark recovered in good condition

TIDAL BENCH MARKS

BENCH MARK: 872 9905 H Millview, Perdido Bay, Florida

BENCH MARK STAMPING: 9905 H 2006
DESIGNATION: 8729905 H
MONUMENTATION: Survey disk
AGENCY: NOS (National Ocean Service)
SETTING CLASSIFICATION: concrete slab

The bench mark is a standard 3-1/2 inch diameter National Ocean Service bench mark disk set in the center of the "S" turn of a concrete walkway of the Gene and Johanna Austin residence backyard at 10024 Lillian Highway (Rt 298), Pensacola, Florida 32506. It is 21.9 m (71.8 ft) south of the Perdido Bay mean high water line, 18.9 m (62.0 ft) SE of the north end of the concrete walkway, 10.3 m (33.8 ft) NNE of the NE corner of the northern most garage type building, and 0.55 m (1.80 ft) NE of the SW edge of the concrete walkway. The bench mark set flush with the concrete walkway.

Latitude: 30° 25' 10.1"
Longitude: 87° 21' 19.2"

_____METERS ABOVE NGVD _____METERS ABOVE NAVD

	Date			Above Datum of Tabulation	Above PBM: _____	Remarks
Established by	Year	Month	Day	Meters	Meters	
SC	06	10	12			Established
Recovered by						

TIDAL BENCH MARKS

BENCH MARK: 872 9905 C Millview, Perdido Bay, Florida

BENCH MARK STAMPING: 9905 C 1977
DESIGNATION: 8729905 C Tidal
MONUMENTATION: Survey Disk
AGENCY: NOS (National Ocean Service)
SETTING CLASSIFICATION: Copper-clad steel rod

The bench mark is a standard 3-1/2 inch diameter National Ocean Survey bench mark disk crimped to the top of a copper clad steel rod, encased in a 6 inch diameter white PVC pipe (with no cover) that is broken off. It is directly across the street and south of the property owned by Gene and Johanna Austin at 10024 Lillian Highway, Pensacola, Florida 32506. and is 11.3 m (37.1 ft) north of the NW corner of a 9 by 6 m (29.5 by 19.7 ft) house with street number 10015, 9.5 m (31.2 ft) south of the centerline of Lillian Highway, 9.2 m (30.2 ft) W of the east side of a drainage culvert, and 1.05m (3.44 ft) east of power pole number P076676. The PVC pipe is flush with the ground and the bench mark disk is 0.10 m (0.33 ft) below ground.

Latitude: 30° 25' 07.4"
Longitude: 87° 21' 16.0"

_____METERS ABOVE NGVD _____METERS ABOVE NAVD

	Date			Above Datum of Tabulation	Above PBM: _____	Remarks
Established by	Year	Month	Day	Meters	Meters	
NOS	77					Established
Recovered by						
SC	06	10	12			Mark recovered in good condition

TIDAL BENCH MARKS

BENCH MARK: 872 9905 F Millview, Perdido Bay, Florida

BENCH MARK STAMPING: 9905 F 2006
DESIGNATION: 8729905 F
MONUMENTATION: Survey disk
AGENCY: NOS (National Ocean Service)
SETTING CLASSIFICATION: concrete post

The bench mark is a standard 3-1/2 inch diameter National Ocean Service survey disk set in the top of a 8 inch diameter, 1.52 m (5.0 ft) long, concrete post. It is approximately 168 m (550 ft) WSW of Millview Bayou Bridge # 48002, 21.3 m (69.88 ft) ENE of fire hydrant number 2803, 7.6 m (24.9) NNW of the centerline of Lillian Highway, 6.1 m (21.0 ft) south of the Perdido Bay mean high water line, and 1.1 m (3.6 ft) south of the east end of a metal guard rail. The bench mark disk is flush with the ground.

Latitude: 30° 25' 12.7"
Longitude: 87° 21' 07.3"

_____METERS ABOVE NGVD _____METERS ABOVE NAVD

	Date			Above Datum of Tabulation	Above PBM: _____	Remarks
Established by	Year	Month	Day	Meters	Meters	
SC	06	10	12			Established
Recovered by						

TIDAL BENCH MARKS

BENCH MARK: DOT Millview, Perdido Bay, Florida

BENCH MARK STAMPING: none
DESIGNATION: DOT
MONUMENTATION: Survey disk
AGENCY: NOS (National Ocean Service)
SETTING CLASSIFICATION: concrete guard rail of bridge

The bench mark is a Florida Department of Transportation unstamped 3-1/2 inch diameter, survey disk set in the top of a concrete guard rail on the SW end of Millview Bayou Bridge # 480022. The disk is labeled “Florida DOT Survey Marker” and has no stamping. It is 31 m (101.7 ft) NE of a power pole, 6.95 m (22.80) north of the centerline of Lillian Highway, 0.32 m (1.05 ft) east of the west end of the concrete guard rail, 0.25 m (0.82 ft) above the “1972” inset marking on the concrete, on the south side of the west end of the guard rail. The bench mark is about 1.0 m (3.28 ft) above the level of the paved road.

Latitude: 30° 25' 15.6"
Longitude: 87° 21' 01.6"

_____METERS ABOVE NGVD _____METERS ABOVE NAVD

	Date			Above Datum of Tabulation	Above PBM: _____	Remarks
Established by	Year	Month	Day	Meters	Meters	
Florida DOT						Established by DOT
Recovered by						
SC	06	10	15			recovered, new description

TIDAL BENCH MARKS

BENCH MARK: 872 9905 G Millview, Perdido Bay, Florida

BENCH MARK STAMPING: 9905 G 2006
DESIGNATION: 8729905 G
MONUMENTATION: Survey disk
AGENCY: NOS (National Ocean Service)
SETTING CLASSIFICATION: Concrete abutment

The bench mark is a standard 3-1/2 inch diameter National Ocean Service survey disk set in the top of the NE concrete abutment of the Millview Bayou Bridge # 480022. It is 73.6 m (241.7 ft) ENE of bench mark DOT, 19.8 m (65.0 ft) south of Perdido Bay mean high water line, 7.07 m (23.2 ft) north of the centerline of Lillian Highway, and 0.09 m (.30 ft) east of the east edge of the northern most concrete guard rail of the bridge. The bench mark disk is flush in the abutment.

Latitude: 30° 25' 16.5"
Longitude: 87° 20' 58.9"

Note: Static GPS observations were made on this mark in Feb 2007.

_____METERS ABOVE NGVD _____METERS ABOVE NAVD

	Date			Above Datum of Tabulation	Above PBM: _____	Remarks
Established by	Year	Month	Day	Meters	Meters	
SC	06	10	12			Established
Recovered by						

TIDAL BENCH MARKS

BENCH MARK: 872 9905 A Millview, Perdido Bay, Florida

BENCH MARK STAMPING:
DESIGNATION: 8729905 A Tidal
MONUMENTATION: Survey Disk
AGENCY: NOS (National Ocean Survey)
SETTING CLASSIFICATION: Concrete wall

The bench mark was not searched for and not recovered. The survey crew could not get permission from the land owner of this small island to search for the monument.

_____METERS ABOVE NGVD _____METERS ABOVE NAVD

	Date			Above Datum of Tabulation	Above PBM: _____	Remarks
Established by	Year	Month	Day	Meters	Meters	
NOS	77					Established
Recovered by						
SC	06	10	12			Mark not searched for

TIDAL BENCH MARKS

BENCH MARK: 872 9905 D Millview, Perdido Bay, Florida

BENCH MARK STAMPING:
DESIGNATION: 8729905 D Tidal
MONUMENTATION: Survey Disk
AGENCY: NOS (National Ocean Survey)
SETTING CLASSIFICATION: Concrete Railing

The bench mark was searched for but not found. It appears the concrete railing may have been rebuilt since the mark was set.

_____METERS ABOVE NGVD _____METERS ABOVE NAVD

	Date			Above Datum of Tabulation	Above PBM: _____	Remarks
Established by	Year	Month	Day	Meters	Meters	
NOS	77					Established
Recovered by						
SC	06	10	15			Not recovered

NOAA Form 76-199 (8-83)	US Department of Commerce National Oceanic and Atmospheric Administration National Ocean Service	FIELD UNIT	DRAWN BY: KL	DATE: June 6, 2007
BENCHMARK SKETCH		**JOA**	REVISED BY:	DATE:
STATION NAME		STATION NO.	REVISED BY:	DATE:
Millview, Florida		**872-9905**	REVISED BY:	DATE:

Abstract of Leveling on Historic Station Datum

Millview, Florida 872-9905

Recovered tidal bench marks:	2	9905 B 1977, 9905 C 1977
Established tidal bench marks:	4	9905 F 2006, 9905 G 2006, 9905 H 2006, DOT (existing Florida DOT mon)
Primary bench mark:	1	9905 B 1977

	Initial leveling	Closeout leveling
Date	10/12/2006	2/1-2/2007
Level/SN	Wild NA2/460539	Wild NA2/5046382
Observer	John Oswald	Z. Mildon
Rod person	Madge Oswald	C. Russoniello
C Factor (mm/m)	0.00000	0.00000
Terra Field Book, Job 06-042	No 1	No 2
Page(s)	9-12	28-47

Installation Levels

(all values in meters)

BM Name			Diff. of Elevation (DE)				Station Datum	
From	To	Distance	Forward	Reverse	Closure	Mean DE	Elevation	Benchmark
							2.0860	**9905 B**
9905 B	9905 H	140	0.203	-0.203	0.000	0.2030	2.2890	9905 H
9905 H	Staff Stop	48	-0.738	0.739	0.001	-0.7385	1.5505	Staff Stop
Staff Stop	Top Pipe #2	11	0.467	-0.468	-0.001	0.4675	2.0180	Top Pipe #2
Top Pipe #2	Top Pipe #1	20	0.005	-0.006	-0.001	0.0055	2.0235	Top Pipe #1
9905 B	9905 C	105	0.332	-0.332	0.000	0.3320	2.4180	9905 C
9905 C	9905 F	294	0.211	-0.210	0.001	0.2105	2.6285	9905 F
9905 F	DOT	168	1.254	-1.255	-0.001	1.2545	3.8830	DOT
DOT	9905 G	78	-0.812	0.813	0.001	-0.8125	3.0705	9905 G
Staff Stop	Staff "0"	0	-1.266	Note 2			0.2845	Staff "0"
Top Pipe #2	Orifice #2 "0"	0	-1.952	Note 2			0.0660	Orifice #2 "0"
Top Pipe #1	Orifice #1 "0"	0	-1.952	Note 2			0.0715	Orifice #1 "0"

Closeout Levels

(all values in meters)

BM Name			Diff. of Elevation (DE)				Station Datum	
From	To	Distance	Forward	Reverse	Closure	Mean DE	Elevation	Benchmark
							2.0860	**9905 B**
9905 B	9905 H	140	0.207	-0.204	0.003	0.2055	2.2915	9905 H
9905 H	Staff Stop	48	-0.740	0.740	0.000	-0.7400	1.5515	Staff Stop
Staff Stop	Top Pipe #2	11	0.467	-0.469	-0.002	0.4680	2.0195	Top Pipe #2
Top Pipe #2	Top Pipe #1	20	0.007	-0.005	0.002	0.0060	2.0255	Top Pipe #1
9905 B	9905 C	105	0.330	-0.331	-0.001	0.3305	2.4165	9905 C
9905 C	9905 F	294	0.212	-0.213	-0.001	0.2125	2.6290	9905 F
9905 F	DOT	168	1.256	-1.258	-0.002	1.2570	3.8860	DOT
DOT	9905 G	78	-0.811	0.812	0.001	-0.8115	3.0745	9905 G
Staff Stop	Staff "0"	0	-1.266	Note 2			0.2855	Staff "0"
Top Pipe #2	Orifice #2 "0"	0	-1.952	Note 2			0.0675	Orifice #2 "0"
Top Pipe #1	Orifice #1 "0"	0	-1.952	Note 2			0.0735	Orifice #1 "0"

Comparison of Install and Closeout Levels

(all values in meters)

BM Name			Diff. of Elevation (DE)				STND Datum	
From	To	Distance	Install	Closeout	Closure	Mean DE	Elevation	Benchmark
							2.0860	**9905 B**
9905 B	9905 H	140	0.203	0.206	-0.002	0.2042	2.2902	9905 H
9905 H	Staff Stop	48	-0.739	-0.740	0.002	-0.7392	1.5510	Staff Stop
Staff Stop	Top Pipe #2	11	0.468	0.468	0.000	0.4678	2.0188	Top Pipe #2
Top Pipe #2	Top Pipe #1	20	0.006	0.006	-0.001	0.0058	2.0246	Top Pipe #1
9905 B	9905 C	105	0.332	0.331	0.002	0.3312	2.4172	9905 C
9905 C	9905 F	294	0.211	0.213	-0.002	0.2115	2.6287	9905 F
9905 F	DOT	168	1.255	1.257	-0.003	1.2558	3.8845	DOT
DOT	9905 G	78	-0.813	-0.812	-0.001	-0.8120	3.0725	9905 G
Staff Stop	Staff "0"	0	-1.266	Note 2			0.2850	Staff "0"
Top Pipe #2	Orifice #2 "0"	0	-1.952	Note 2			0.0668	Orifice #2 "0"
Top Pipe #1	Orifice #1 "0"	0	-1.952	Note 2			0.0726	Orifice #1 "0"

Notes: 1. Millview: Tidal Bench Mark published data sheet in the 1983-2001 epoch dated 6/16/2004
2. Direct steel tape measurements made on the tide staff, and orifice pipes, to respective "0"
3. Station datum: PBM MLLW elevation of 1.473 plus MLLW = 0.613 STND. STND of PBM = 2.086. CO-OPS website

Compiled by: **Scott Cholmondely** **3/30/2007**
Compiled by: **#REF!** **#REF!** Verified by: **Erik Oppegard** **5/19/2007**
date *date*

Water Density Observations and Slope Constant

Millview, Florida

872-9905

Date	Time	Density
10/12/06	15:52	1.0110
10/12/06	17:10	1.0110
10/12/06	17:30	1.0110
10/28/06	21:54	1.0080
10/28/06	21:57	1.0085
10/28/06	21:58	1.0080
10/30/06	15:46	1.0090
10/30/06	15:47	1.0095
10/30/06	15:48	1.0090
11/09/06	16:20	1.0080
11/09/06	16:22	1.0080
11/09/06	16:23	1.0080
11/19/06	n/a	n/a
12/11/06	19:50	1.0147
12/17/06	22:54	1.0165
01/08/07	22:12	1.0100
01/25/07	21:07	1.0100

Average Density =	**1.0100**

Final slope constant =	**0.69665**

Density of surface water measured by calibrated hydrometer. Samples obtained during staff (water leveling) checks by JOA personnel. All times are GMT. Density units = gm/cm3.

The tide gauge pressure readings (PSI) are multiplied by the final slope constant to determine the corrected stage depth readings (meters).

The slope constant is computed by the following equation:

$$\frac{\text{PSI to Pa Conversion Factor}}{\text{Gravity} * \text{Water Density} * 1000}$$

For N 30° 25' 06" and W 030° 25' 06" this equation is equivalent to:

$$\frac{6894.757}{0 * 1.01 * 1000}$$

Gravity is calculated using the online NGS predicted gravity model for location and height:

http://www.ngs.noaa.gov/cgi-bin/grav_pdx.prl

DENSITY COMPUTATIONS - Millview Florida

Pressure formula: Pressure= density x gravity x depth
depth = **(Pressure)/(density x gravity)**
depth = tide gauge measurement

Pressure	Pounds/inch^2	measured directly by H350 system
Density	gm/cm^3	measured by hydrometer
Gravity	meters/sec^2	use DMA formula below

To convert PSI to Pa (Pascals) multiply by 6894.757
One Pascal = newtons/m^2 0.416667
One Newton = (1 kg - m)/sec^2 0.001667
0.418333

Latitude: 30.41833 30° 25' 06" Published Tidal BM sheet

Use DMA ellipsoidal gravity formula (numerical form):
DMA technical Report; Supplement to DOD WGS 1984, Tech Report, Part I,
Methods, Techniques and Data Used in the WGS 84 Development, Table 4.2, page 4-17.

gravity = $9.7803267714(1+0.00193185138639\sin^2 lat)/(1-0.00669437999013\sin^2 lat)^{1/2}$
gravity = 9.793626 m/sec^2 DMA
gravity = 9.799 NGS from website: http://www.ngs.noaa.gov/cgi-bin/grav_pdx.prl
Delta -0.005374 m/sec^2

Use NGS derived slope constant when predicted gravity available

Density gm/cm^3	DMA Slope Constant	NGS Slope Constant	Delta	@20 PSI mm
1.030	0.68350	0.68312	0.00037	0.007496
1.029	0.68416	0.68379	0.00038	0.007504
1.028	0.68483	0.68445	0.00038	0.007511
1.027	0.68550	0.68512	0.00038	0.007518
1.026	0.68616	0.68579	0.00038	0.007526
1.025	0.68683	0.68646	0.00038	0.007533
1.024	0.68750	0.68713	0.00038	0.00754
1.023	0.68818	0.68780	0.00038	0.007548
1.022	0.68885	0.68847	0.00038	0.007555
1.021	0.68952	0.68915	0.00038	0.007562
1.020	0.69020	0.68982	0.00038	0.00757
1.019	0.69088	0.69050	0.00038	0.007577
1.018	0.69156	0.69118	0.00038	0.007585
1.017	0.69224	0.69186	0.00038	0.007592
1.016	0.69292	0.69254	0.00038	0.0076
1.015	0.69360	0.69322	0.00038	0.007607
1.014	0.69428	0.69390	0.00038	0.007615
1.013	0.69497	0.69459	0.00038	0.007622
1.012	0.69566	0.69528	0.00038	0.00763
1.011	0.69634	0.69596	0.00038	0.007637
1.010	0.69703	0.69665	0.00038	0.007645
1.009	0.69772	0.69734	0.00038	0.007652
1.008	0.69842	0.69803	0.00038	0.00766
1.007	0.69911	0.69873	0.00038	0.007668
1.006	0.69981	0.69942	0.00038	0.007675
1.005	0.70050	0.70012	0.00038	0.007683
1.004	0.70120	0.70082	0.00038	0.00769
1.003	0.70190	0.70151	0.00038	0.007698
1.002	0.70260	0.70221	0.00039	0.007706
1.001	0.70330	0.70292	0.00039	0.007714
1.000	0.70400	0.70362	0.00039	0.007721

use these

8729905 Monthly Mean Data.txt

8729905 2006 11   0.849   0.825   0.711   0.713   0.701   0.601   0.574   0.274
0.223   0.024   0.027   1.289 20061115 19:24 1   0.244 20061121 18:00 1
8729905 2006 12   0.781   0.781   0.632   0.632   0.626   0.483   0.483   0.298
0.298   0.000   0.000   1.074 20061225 11:30 2   0.242 20061208 21:36 1
8729905 2007 01   0.771   0.678   0.617   0.599   0.606   0.520   0.462   0.309
0.158   0.093   0.057   1.015 20070101 04:18 1   0.196 20070110 16:18 1

8729905 High Lows.doc

8729905	20061012	23:12	0.617	LL
8729905	20061013	11:54	0.985	HH
8729905	20061014	01:00	0.619	LL
8729905	20061014	12:30	0.947	H
8729905	20061015	01:18	0.635	LL
8729905	20061015	13:54	0.938	H
8729905	20061015	23:42	0.765	L
8729905	20061017	16:06	1.552	HH
8729905	20061018	08:42	1.088	LL
8729905	20061018	14:54	1.142	HH
8729905	20061019	11:30	0.886	LL
8729905	20061019	18:30	1.020	HH
8729905	20061020	16:00	0.718	LL
8729905	20061021	03:42	0.858	HH
8729905	20061021	14:18	0.689	LL
8729905	20061022	05:18	0.975	HH
8729905	20061022	18:00	0.652	LL
8729905	20061023	03:42	0.817	HH
8729905	20061023	16:36	0.483	LL
8729905	20061024	07:24	0.770	HH
8729905	20061024	20:30	0.452	LL
8729905	20061025	07:24	0.697	HH
8729905	20061025	20:42	0.411	LL
8729905	20061026	09:36	0.773	HH
8729905	20061026	20:42	0.505	LL
8729905	20061027	11:12	1.057	HH
8729905	20061027	21:06	0.894	LL
8729905	20061028	07:48	1.064	HH
8729905	20061029	00:06	0.617	LL
8729905	20061029	10:48	0.870	HH
8729905	20061030	01:00	0.508	LL
8729905	20061030	12:42	0.812	HH
8729905	20061031	00:12	0.559	LL
8729905	20061031	13:54	0.891	HH
8729905	20061101	00:00	0.704	LL
8729905	20061101	14:18	0.917	HH
8729905	20061102	00:18	0.744	LL
8729905	20061102	05:06	0.809	H
8729905	20061102	22:00	0.659	L
8729905	20061103	00:48	0.724	HH
8729905	20061103	14:36	0.459	LL
8729905	20061104	05:36	0.738	HH
8729905	20061104	14:54	0.477	LL
8729905	20061105	05:54	0.849	HH
8729905	20061105	16:30	0.549	LL
8729905	20061106	06:54	0.958	HH
8729905	20061106	17:18	0.678	LL
8729905	20061107	07:12	1.252	HH
8729905	20061107	19:48	0.808	LL
8729905	20061108	07:54	1.174	HH
8729905	20061108	21:48	0.719	LL
8729905	20061109	08:48	1.065	HH
8729905	20061109	23:24	0.617	LL
8729905	20061110	09:54	0.926	HH
8729905	20061110	22:24	0.584	LL

8729905 20061111 10:42   0.945 HH
8729905 20061112 02:06   0.543 LL
8729905 20061112 12:18   0.768 HH
8729905 20061113 00:36   0.598 L
8729905 20061113 11:48   0.807 HH
8729905 20061113 21:24   0.644 LL
8729905 20061114 10:42   0.792 H
8729905 20061114 21:12   0.669 LL
8729905 20061115 19:18   1.244 HH
8729905 20061115 22:24   1.036 LL
8729905 20061116 04:30   1.118 HH
8729905 20061116 19:36   0.724 LL
8729905 20061117 03:54   0.748 HH
8729905 20061117 16:00   0.526 LL
8729905 20061118 04:18   0.763 HH
8729905 20061118 16:42   0.549 LL
8729905 20061119 03:54   0.795 HH
8729905 20061119 18:36   0.421 LL
8729905 20061120 04:00   0.717 HH
8729905 20061120 19:24   0.346 LL
8729905 20061121 06:30   0.562 HH
8729905 20061121 18:06   0.258 LL
8729905 20061122 07:48   0.594 HH
8729905 20061122 21:18   0.281 LL
8729905 20061123 08:06   0.597 HH
8729905 20061123 19:42   0.327 LL
8729905 20061124 09:00   0.710 HH
8729905 20061124 21:18   0.404 LL
8729905 20061125 09:42   0.779 HH
8729905 20061125 21:30   0.470 LL
8729905 20061126 10:30   0.800 HH
8729905 20061126 22:18   0.521 LL
8729905 20061127 10:12   0.792 HH

8729905 20061127 22:18   0.517 LL
8729905 20061128 11:54   0.824 HH
8729905 20061128 22:42   0.593 LL
8729905 20061129 12:24   0.800 HH
8729905 20061129 18:54   0.716 LL
8729905 20061130 04:30   0.796 HH
8729905 20061130 07:42   0.769 LL
8729905 20061201 04:24   0.986 HH
8729905 20061201 19:36   0.620 LL
8729905 20061202 03:54   0.778 HH
8729905 20061202 15:36   0.448 LL
8729905 20061203 04:36   0.821 HH
8729905 20061203 16:36   0.454 LL
8729905 20061204 05:54   0.755 HH
8729905 20061204 19:12   0.299 LL
8729905 20061205 06:48   0.613 HH
8729905 20061205 18:42   0.276 LL
8729905 20061206 08:00   0.705 HH
8729905 20061206 20:12   0.360 LL
8729905 20061207 08:24   0.807 HH
8729905 20061207 22:06   0.359 LL
8729905 20061208 08:30   0.648 HH
8729905 20061208 22:12   0.247 LL

8729905 20061209 09:30   0.530 HH
8729905 20061209 20:54   0.291 LL
8729905 20061210 09:18   0.573 HH
8729905 20061210 21:00   0.408 LL
8729905 20061211 11:48   0.711 HH
8729905 20061211 20:30   0.593 LL
8729905 20061212 08:06   0.780 HH
8729905 20061212 17:24   0.638 LL
8729905 20061213 04:36   0.840 HH
8729905 20061213 17:06   0.636 LL
8729905 20061214 03:00   0.767 HH
8729905 20061214 14:42   0.608 LL
8729905 20061215 02:54   0.806 HH
8729905 20061215 15:06   0.544 LL
8729905 20061216 03:24   0.808 HH
8729905 20061216 16:12   0.481 LL
8729905 20061217 04:30   0.801 HH
8729905 20061217 16:06   0.484 LL
8729905 20061218 04:36   0.808 HH
8729905 20061218 16:54   0.462 LL
8729905 20061219 05:24   0.837 HH
8729905 20061219 19:12   0.419 LL
8729905 20061220 07:12   0.770 HH
8729905 20061220 18:24   0.441 LL
8729905 20061221 07:12   0.853 HH
8729905 20061221 20:00   0.497 LL
8729905 20061222 08:36   0.969 HH
8729905 20061222 19:48   0.634 LL
8729905 20061223 08:00   1.006 HH
8729905 20061223 22:06   0.540 LL
8729905 20061224 09:18   0.834 HH
8729905 20061224 22:06   0.512 LL
8729905 20061225 11:48   1.066 HH
8729905 20061226 22:36   0.455 LL
8729905 20061227 07:48   0.524 HH
8729905 20061227 16:24   0.431 LL
8729905 20061228 02:18   0.548 HH
8729905 20061228 12:48   0.408 LL
8729905 20061229 03:30   0.718 HH
8729905 20061229 14:00   0.493 LL
8729905 20061230 03:24   0.778 HH
8729905 20061230 13:36   0.518 LL
8729905 20061231 04:30   0.963 HH
8729905 20061231 13:24   0.709 LL
8729905 20061231 15:00   0.823 HH
8729905 20061231 17:18   0.722 LL
8729905 20070101 04:12   1.014 HH
8729905 20070101 18:54   0.569 LL
8729905 20070102 03:54   0.811 HH
8729905 20070102 17:18   0.405 LL
8729905 20070103 06:24   0.791 HH
8729905 20070103 19:54   0.432 LL
8729905 20070104 07:30   0.784 HH
8729905 20070104 19:00   0.487 LL
8729905 20070105 08:42   0.969 HH
8729905 20070105 21:42   0.642 LL
8729905 20070106 08:54   0.943 HH

8729905 20070106 22:42   0.601 LL
8729905 20070107 09:06   0.860 HH
8729905 20070107 20:12   0.645 LL
8729905 20070108 06:18   0.891 HH
8729905 20070108 23:12   0.509 LL
8729905 20070109 06:06   0.584 HH
8729905 20070110 16:12   0.198 LL
8729905 20070111 02:48   0.487 HH
8729905 20070111 12:48   0.404 LL
8729905 20070112 03:48   0.677 HH
8729905 20070112 13:30   0.562 LL
8729905 20070113 02:42   0.827 HH
8729905 20070113 14:18   0.540 LL
8729905 20070114 03:18   0.855 HH
8729905 20070114 15:00   0.558 LL
8729905 20070115 03:54   0.897 HH
8729905 20070115 15:30   0.571 LL
8729905 20070116 04:30   0.952 HH
8729905 20070116 18:42   0.454 LL
8729905 20070117 06:00   0.653 HH
8729905 20070117 17:00   0.305 LL
8729905 20070118 06:36   0.737 HH
8729905 20070118 18:24   0.414 LL
8729905 20070119 06:54   0.804 HH
8729905 20070119 20:42   0.393 LL
8729905 20070120 08:24   0.670 HH
8729905 20070120 17:18   0.410 LL
8729905 20070121 09:12   0.829 HH
8729905 20070121 22:24   0.601 LL
8729905 20070122 09:36   0.865 HH
8729905 20070123 01:48   0.582 L
8729905 20070123 07:06   0.681 HH
8729905 20070123 19:54   0.525 LL
8729905 20070124 01:36   0.560 H
8729905 20070124 03:42   0.528 LL
8729905 20070124 11:48   0.591 HH
8729905 20070124 14:54   0.572 L
8729905 20070124 21:42   0.610 H
8729905 20070125 11:48   0.457 LL
8729905 20070126 00:12   0.663 HH
8729905 20070126 14:00   0.348 LL
8729905 20070127 01:24   0.634 HH
8729905 20070127 14:42   0.324 LL
8729905 20070128 06:12   0.747 HH
8729905 20070128 16:48   0.504 LL
8729905 20070129 02:00   0.759 HH
8729905 20070129 16:24   0.311 LL
8729905 20070130 05:36   0.642 HH
8729905 20070130 17:06   0.347 LL
8729905 20070131 05:54   0.748 HH
8729905 20070131 17:12   0.364 LL
8729905 20070201 10:36   0.914 HH
8729905 20070201 19:54   0.661 LL
8729905 20070202 07:36   1.030 HH
8729905 20070202 22:12   0.638 LL
8729905 20070203 05:48   0.879 HH
8729905 20070203 21:36   0.440 LL

```
8729905 20070204 07:06   0.632 HH
8729905 20070204 20:54   0.412 LL
8729905 20070205 08:30   0.607 HH
8729905 20070205 17:12   0.402 LL
8729905 20070206 06:00   0.462 HH
8729905 20070206 15:30   0.357 LL
8729905 20070207 05:42   0.495 HH
8729905 20070207 14:12   0.447 LL
8729905 20070207 23:36   0.617 HH
8729905 20070208 08:24   0.506 LL
```

Original NOAA Zoning from SOW

Zone	Time Corrector(mins)	Range Ratio	Predicted Reference Station
CGM29	-114	x1.09	8735181
CGM37	-108	x1.09	8735181
CGM37A	-96	x1.09	8735181
CGM38	-84	x1.09	8735181
CGM40	-60	x1.09	8735181
CGM40A	-72	x1.09	8735181
CGM41	-54	x1.05	8735181
CGM42	-42	x1.05	8735181
CGM42A	-36	x1.01	8735181
CGM176	-78	x1.09	8735181
CGM355	-72	x1.09	8735181
CGM643	+84	x0.60	8729840
CGM644	+96	x0.60	8729840
CGM645	+108	x0.60	8729840
CGM646	+114	x0.60	8729840
CGM648	+120	x0.60	8729840
CGM649	+132	x0.60	8729840
CGM650	+138	x0.56	8729840
CGM651	+150	x0.56	8729840
CGM652	+156	x0.60	8729840
CGM653	+168	x0.60	8729840
CGM654	+186	x0.60	8729840
CGM655	+198	x0.60	8729840
CGM656	+210	x0.60	8729840
CGM657	+216	x0.60	8729840
CGM658	+228	x0.60	8729840
CGM659	+240	x0.60	8729840

Above Zoning but from Millview, FL 872-9905 (Only cells which were originally based on Pensacola – CGM643 -> CGM659)

Zone	Time Corrector(mins)	Range Ratio	Predicted Reference Station
CGM643	- 114	x1.00	8729905
CGM644	- 102	x1.00	8729905
CGM645	- 90	x1.00	8729905
CGM646	- 84	x1.00	8729905
CGM648	- 78	x1.00	8729905
CGM649	- 66	x1.00	8729905
CGM650	- 60	x0.93	8729905
CGM651	- 48	x0.93	8729905
CGM652	- 42	x1.00	8729905
CGM653	- 30	x1.00	8729905
CGM654	- 12	x1.00	8729905
CGM655	+ 0	x1.00	8729905
CGM656	+ 12	x1.00	8729905
CGM657	+ 18	x1.00	8729905
CGM658	+ 30	x1.00	8729905
CGM659	+ 42	x1.00	8729905

John Oswald & Associates LLC
SURVEYING GPS TIDES HYDROGRAPHY

2000 E. Dowling Road, Suite 10
Anchorage, AK 99507
(907) 561-0136 Phone
(907) 561-0143 Fax
www.joasurveys.com

June 8, 2007

Anne Dollard, LS
TerraSond LLC
1617 S. Industrial Way, #3
Palmer, Alaska 99645

Re Transmittal of Final Report – Millview, Florida
TerraSond project: 06-042
JOA project: 96
NOAA/NOS/OCS Project: S-J977-KR2007 (Debris Field Mapping)

Ann:

I have posted all the final reports and digital data to the JOA ftp site for Millview, Florida (872-9905) for your Gulf of Mexico, NOAA Debris Field Mapping project. The transmittal checklist denotes which files are being posted and the various formats. A recommendation is made which files NOAA needs.

For some time now we have been giving NOAA a single (large) pdf of the files that are normally printed and no paper copies. I believe this is what you do with descriptive reports now. After your review, I would recommend you do this and transmit the large pdf, individual annotated photographs, and the digital (ASCII) files as noted to the appropriate NOAA contact(s).

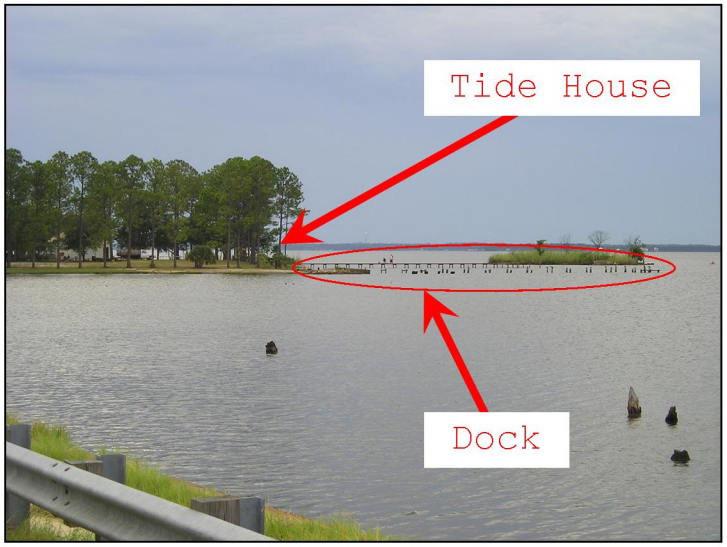
I have never seen the tide gauge acceptance tests that TerraSond has done. These should be added to your deliveries to NOAA (in pdf format) for the pre and post field tests on the two bubbler gauges used.

Sincerely,

John Oswald

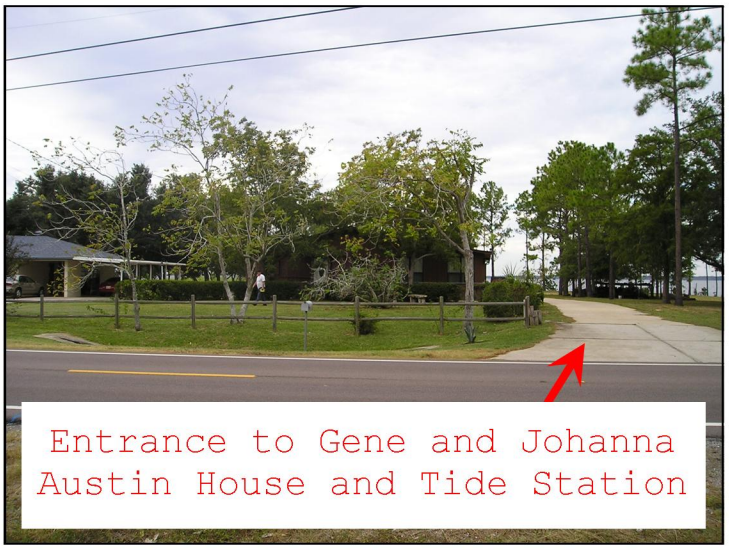
John Oswald

Attachments: as noted posted to JOA ftp



872-9905 Millview dock W.jpg

872-9905 Fish on dock.jpg



872-9905 Entrance driveway to tide station.jpg

872-9905 Orifice Pipe 2.jpg

872-9905 Orifice 2 leveling NW.jpg

872-9905 Orifice 1 GPS .jpg

872-9905 Staff stop leveling.jpg

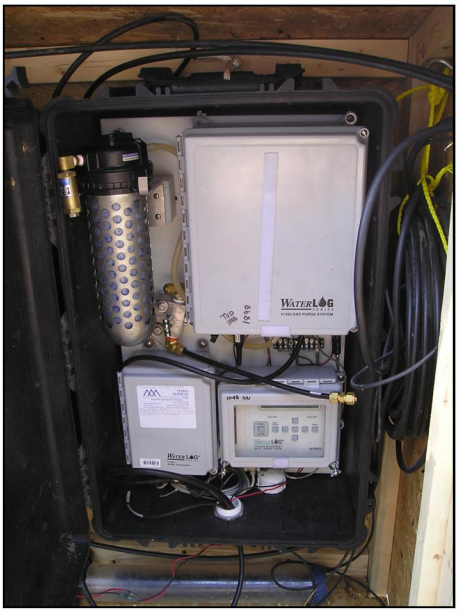
872-9905 Tide Staff.jpg

872-9905 Orifice assembly .jpg

872-9905 Orifice ends.jpg

872-9905 Gauge 1.jpg

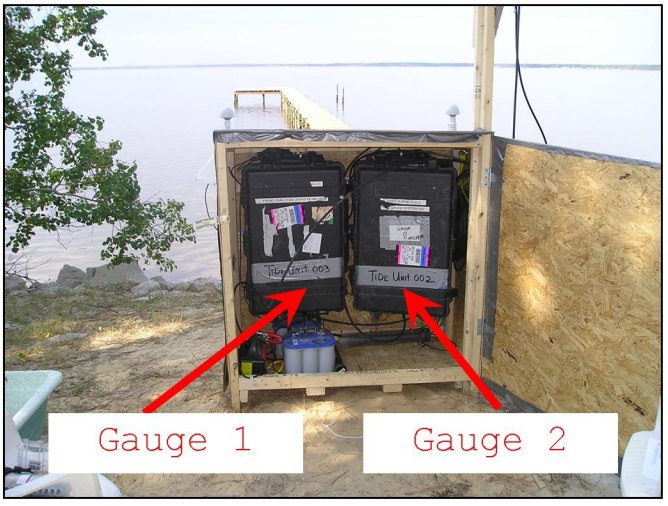
872-9905 Tide House ENE.jpg



872-9905 Gauge 2.jpg

872-9905 Tide House WNW.jpg

872-9905 Tide House NE.jpg



872-9905 Tide House NNE.jpg

872-9905 BM B face.jpg

872-9905 BM B face GPS.jpg

872-9905 BM B ENE.jpg

872-9905 BM B N.jpg

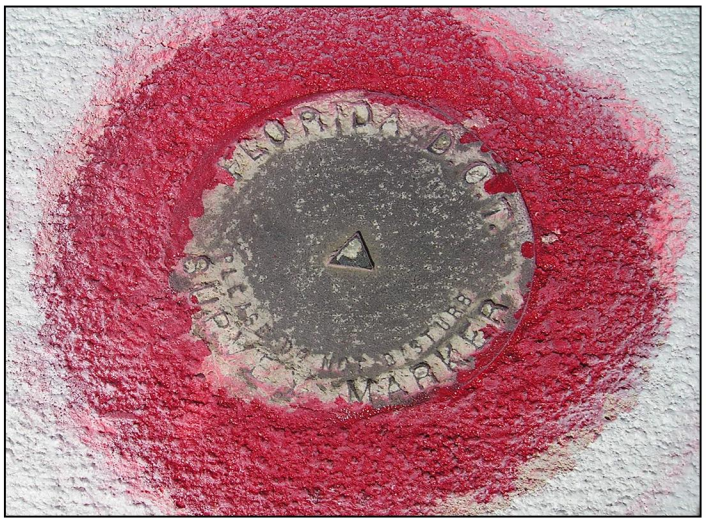
872-9905 BM B WSWjpg

872-9905 BM C face GPS.jpg

872-9905 BM C ESE.jpg

872-9905 BM C SSE.jpg

872-9905 BM C WSW.jpg



872-9905 BM DOT Face.jpg

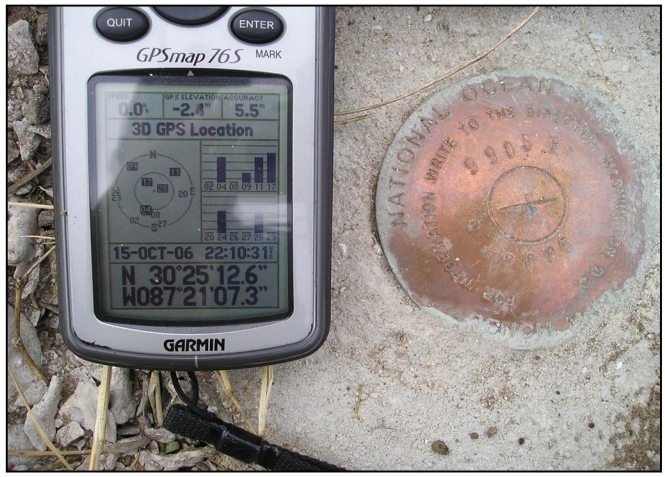
872-9905 BM DOT W.jpg

872-9905 BM DOT WSW.jpg

872-9905 BM DOT NE.jpg

872-9905BM F NE2.jpg

872-9905 BM F ENE.jpg



872-9905 BM F face GPS.jpg

872-9905 BM F NE.jpg

872-9905 BM F WSW.jpg

872-9905 BM G face GPS.jpg

872-9905 BM G face.jpg

872-9905 BM G NNW.jpg

872-9905 BM G ENE.jpg

872-9905 BM G WSW.jpg

872-9905 BM H face GPS.jpg

872-9905 Orifice 2 leveling SSE.jpg

872-9905 Orifice 2 leveling SSE Zoom.jpg

Millview, Florida 872-9905

Fieldbook Index

CONTENTS

Scale: 1 square = _____

.266

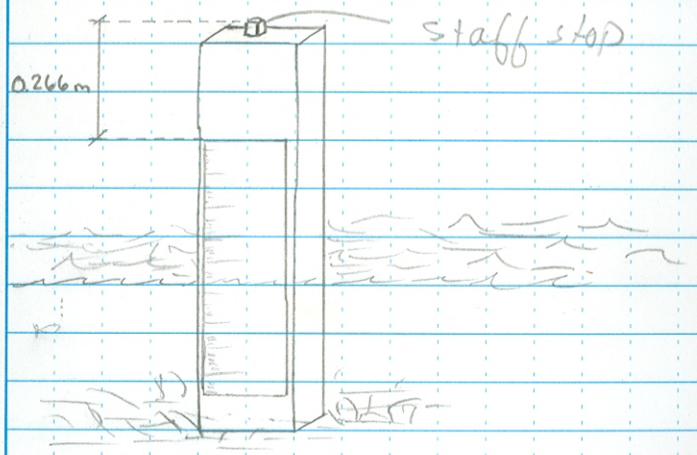
06-042

Tide gauge Installation

millview, Station # 872-0995

Staff Bar

Staff Bar is a 1m steel watermark Bar Bolted to a 2x6 peice of lumber.



The Staff Stop is a 5/8 Lag bolt mounted on top of the 2x6, the Bolt is 0.266m above the top of the staff bar (1m mark). staff stop is used for leveling.

ϕ = 30° 25' 10.9" Garmin

λ = 87° 7' 20.0" NAD 83

Scale: 1 square = 1/8

10-11-06

S. Chalmondeley

J Oswald

75° ptly cloudy

Scale: 1 square = 1/4

06-042

Tide Gauge Installations

Millview
Station # 872-9905

Gauge #1

Equipment:

H-350XL S/N 1051 0-30psi
H-355 Gas purge system S/N: 1899
H-222 GOES Radio S/N: 1002

Site ID: 1051

GOES:
address: E8200728
channel: 143
ST rate: 01:00:00
" offset 00:25:30

Scale: 1 square = psi

10-11-06

S. Chalmondeley
J. Oswald
75° partly cloudy

Gauge #2

Equipment

H-350XL S/N 1048 0-30psi
H-355 1898
H-222 1003

Site ID: 1048

GOES:
address E8201458
channel 143
ST rate 01:00:00
" offset 00:25:40

Scale: 1 square = 6

06-042

9905-G

Set this Survey

Scale: 1 square = 7

Scale: 1 square = 8

MILLVIEW, FLORIDA 872-9905

INSTALLATION LEVELING

T & M: J.OSWALD WILD N2 S/N 460439

Ø M.OSWALD F/G METRIC

WX: SUNNY, Smph, NE wind 70°F

C-TEST

BS FS — BALANCED 10:11 CDT

1.635 BM 1H

1.265 TP#1 - lag bolt

BS FS — UN-BALANCED

1.598 TP#1 (near)

1.968 BM 1H (far)

BALANCED D.E. = 0.370 ✓ S.C

UN " " = 0.370 ✓ S.C

D = 0.000 ✓ S.C

distance H>TP1 = 62 m

C = 0.0000 mm/m ✓ S.C

Scale: 1 square = 9

FB 10/12/06

ABSTRACT of LEVELING

FROM	TO	d*	F	R	A	min.	
#1 orig.	#2 orig	20m	-0.006	+0.005	0.001		S.C
#2	Sta/Sta.	11m	-0.468	+0.467	0.001		S.C
Sta/Sta	H	48m	+0.739	-0.738	0.001		S.C
H	B	140m	-0.203	+0.203	0.000		S.C
B	C	105m	+0.332	-0.332	0.000		S.C
C	F	294m	+0.211	-0.210	0.001		S.C
F	DOT	168m	+1.254 (1.263)		0.001		✓SO
DOT	G	78m	-0.812	+0.813	0.001		S.C

RERUNS

F DOT +1.255 S.C

* distance in meters, leveling route, paced by J.O.

Scale: 1 square = 10

MILLVIEW - INSTALL LEVELING

BS	FS	- FORWARD
1.217		Top orifice #1
1.193	1.223	Top orifice #2
1.847	1.661	Staff stop (bolt)
	1.108	BM H
	REVERSE	RUN
1.130		BM H
1.677	1.868	Staff Stop
1.250	1.210	Top #2 > orifice
	1.245	Top #1 > pipes
BS	FS	- FORWARD
1.288		BM H
1.469	1.370	TP#2 bolt
2.044	1.596	BM B (PBM)
1.453	1.606	TP#3 bolt
1.622	1.559	BM C
1.655	1.482	TP#4 bolt
1.453	1.534	TP#5
1.547	1.504	TP#6
1.762	1.542	BM F (disk in post)
1.295	1.058	TP#7
0.813	0.745	DOT (disk in bridge)
	1.625	BM G

12:25 CST

Scale: 1 square = 1'

FB

10/12/06

T S. OSWALD ϕ M. OSWALD

REVERSE RUN

BS	FS	
		12:30 CDT
1.605		BM G
0.841	0.792	DOT MON
1.189	1.390	TP#7
1.563	1.903	BM F
1.462	1.562	TP#6
1.521	1.410	TP#5
1.371	1.642	TP#4
1.568	1.513	BM C
1.546	1.463	TP#3
	RERUNS	
1.622	1.983	BM B
1.326	1.501	TP#2
	1.244	BM H

13:30 CDT

RELEVEL READING & ORIFICE (4)

Scale: 1 square = 1'

MILLVIEW 10-12-06

RERUNS

BS	FS		12:45 CDT
1.872		BM F	
1.349	1.166	TP # 7	
	0.800	DOT	

Scale: 1 square = 1.3

10-15-06

J. OSWALD / A. DOLLARD

	Φ	λ
BM H	30° 25' 10.1	87° 21' 19.0
B	30° 25' 06.3	87° 21' 19.9
C	30° 25' 07.5	87° 21' 16.0
F	30° 25' 12.7	87° 21' 07.2
DOT	30° 25' 15.5	87° 21' 01.6
G	30° 25' 16.5	87° 20' 59.1

BM F - Stamped 9905 F 2006
Std. NOS disk in 8" drain.
5' long conc. post, flush w/
grnd @ end of quadrant, N
side Rd.

BM G - Stamped 9905 G 2006
Std NOS disk NE abutment, bridge

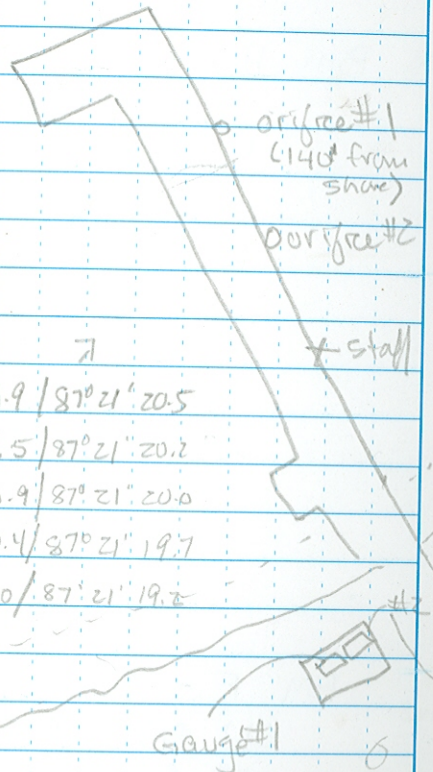
BM H - Stamped 9905 H 2006
Std. NOS disk in sidewalk at
tide station.

Scale: 1 square = 1.4

MILLVIEW

872-9905

sketch by J. Oswald

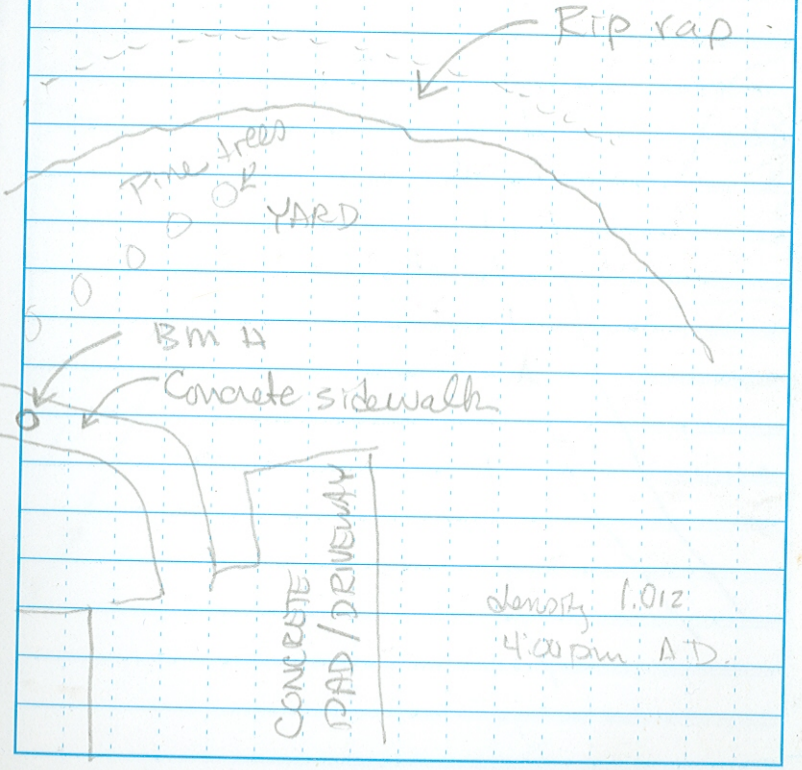


	ϕ	↗
orifice #1	30°25' 11.9	87°21' 20.5
" 2	30°25' 11.5	87°21' 20.2
staff	30°25' 10.9	87°21' 20.0
TWL house	30°25' 10.4	87°21' 19.7
BM 1	30°25' 10.0	87°21' 19.2

Scale: 1 square = 15

10-15-06

ON PROPERTY OWNED BY:
GENE & JOHANNA AUSTIN
10024 LILLIAN HIGHWAY (RT 292)
PENSACOLA, FL 32506



density: 1.012
4:00 pm A.D.

Scale: 1 square = 10

10/22/08

Millview Check Orifice Elev.

STA	+ BS	HI	− FS	Elev.
BM H	1.024	1.024		.000
STAFF			1.762	-.738
	1.805	1.067		
#2			1.339	-.272
	1.305	1.033		
#1			1.300	-.267
	1.267	1.000		
#2		~~1.272~~	1.272	-.272
	1.309	1.037		
STAFF			1.775	-.738
	1.809	1.071		
BM H			1.070	.001

Δ Elevs
Orifice 1-2 = .005
Orifice 1- Staff = .471
Orifice 2 - Staff = .466

↑ ASD
KE
LT

Scale: 1 square = 31

Scale: 1 square = 32

Millview Check Orifice Elevations

STA	BS	HI	FS	Δ Elev
#2	1.344			
#1			1.335	.009
#1	1.329			
#2			1.336	.007

NOTE: Original abstract sez Δ elev to be .006. Observation of scribe on pipes to mark on dock pilings does not show movement.

Scale: 1 square = 35

10/25/06

π ASD

9 LT, SL

Scale: 1 square = 36

Millview

Raise Orifice # 2

Pre Change Level Loop Local 10:45

Sta	BS	HI	FS	ELEV.
H	1.190			
	~~1.15~~ 1.105			
	1.020			
Staff			1.970	
	~~1.6~~		1.842	
			1.715	
Staff	1.637			
	1.611			
	1.587			
Orifice 2			1.169	
			1.145	
			1.120	
Orifice 2	1.085			
	1.060			
	1.035			

Scale: 1 square = 3'

Scale: 1 square = 40

Sta	BS	HI	FS	Elev
Staff			1.590	
			1.526	
			1.505	
Staff	1.975			
	1.846			
	1.720			
H	~~1.200~~		1.200	
	~~1.111~~		1.111	
	~~1.020~~		1.020	
Orifice #2	1.175			
	1.135			
	1.110			
Orifice #1			1.175	
			1.130	
			1.085	

Scale: 1 square = 41

Scale: 1 square = 42

orifice #1 1.120
1.075
1.030

Orifice #2 1.081 1.120
1.081
1.041

01-18-07 S. Cholmondeley

Millview: ~~259~~ 20:59 UTC
Turn Scanning OFF Both gauges
Manual purge X6

Scanning on Both Gauges.
21:27 UTC

Confirm Problem with Flash Memory
Millview #2

Will Return to REINSTALL FIRMWARE

02-08-07

06-042 GOM Debris Mapping

Static GPS observation

Tide Station ID: Millview
Monument observed: 9905 G 2006
Equipment:
Trimble 4000 SSE S/N: 3447A08911
Trimble Compact L1/L2 Antenna S/N: 0220005132
Trimble ground plane S/N: TID 7
Tribrach S/N: TID#330
Puck S/N:
Tripod S/N: TID 579

Static Session start Logging 17:58 UTC
Pdop Mask 3.0
Sync time 15 sec
Elevation Mask 10°

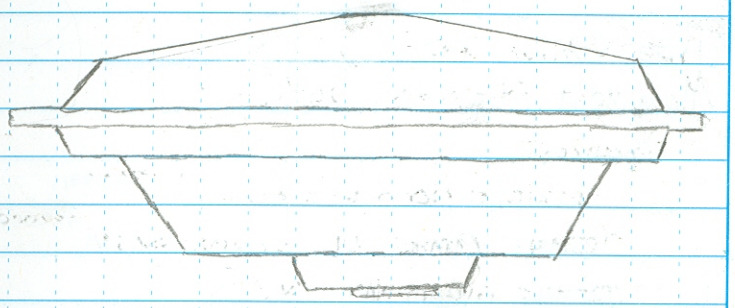
HA: Bottom of Notch in ground plane : 1.546m
measured with Trimble Measure Rod.
with Ground plane installed.
HA: CHECK At End of Survey : 1.545m

Scale: 1 square = 47

S. Cholmondeley
Sunny 67°
Calm

02-08-07

Compact L1/L2 Antenna phase center



Scale: 1 square = 48

2-17-07 E.M. GONZALES

06-042 GOM DEBRIS MAPPING
STATIC GPS SESSION

JD048
UTC START 19:38
UTC FINISH 01:00 (JD049)

STATION ID: MILLVIEW
DESC: BRASS DISC @ NE BRIDGE H/W
ON HWY 297 STAMPED:
9905 G 2006

EQUIPMENT:
TRIMBLE 4000SSE S/N 3447A08911
TRIMBLE COMPACT ANT w/ GROUND
PLANE S/N 02200005132
GP ANT: TI07
TRIBRACH S/N: TID # 330
TRIPOD S/N: TID # 579

SESSION PARAMETERS:
SYNC TIME 15 SEC
PDOP MASK 2.0
ELEV MASK 10°
HA: 1.327 M, 4.345 ft ✓AT EOS

Scale: 1 square = 53

Scale: 1 square = 54

06-042

9905-H

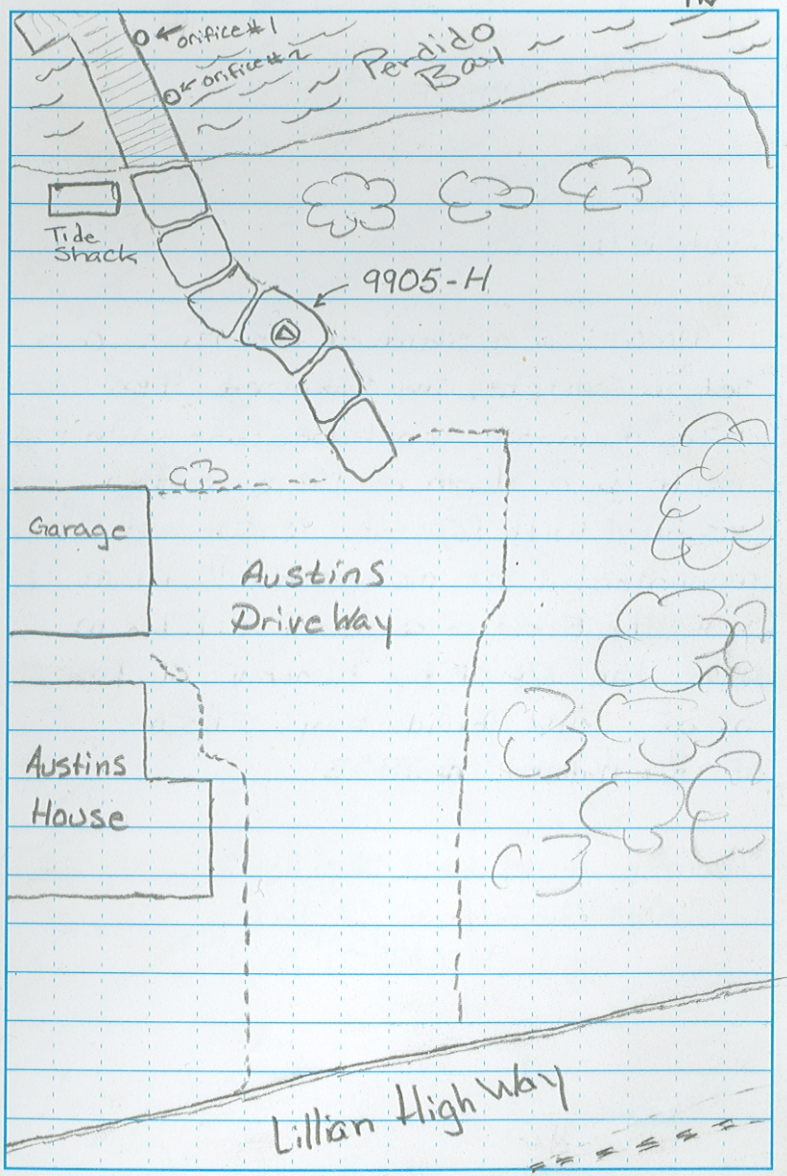
Set this Survey
Not Suitable for GPS

9905-H is a Standard NOS Brass Cap set in a Concrete Walk Way. Stamped "9905-H 2006". The Monument is set on a parcel of land owned by Gene Austin. The Monument is 21.9 m South of Perdido Bay MHW Mark. 18.9 m SE of the N. end of the Concret Walk Way 10.3 m NNE of the NE Corner of the Northern most building in the area. "The Austins Garage". 0.549m NE of the West edge of the Concrete Walk Way

Scale: 1 square = 5?

S. Cholmondeley

03-27-07



Scale: 1 square = 58

06-042

9905-F

Set this Survey
Suitable for GPS

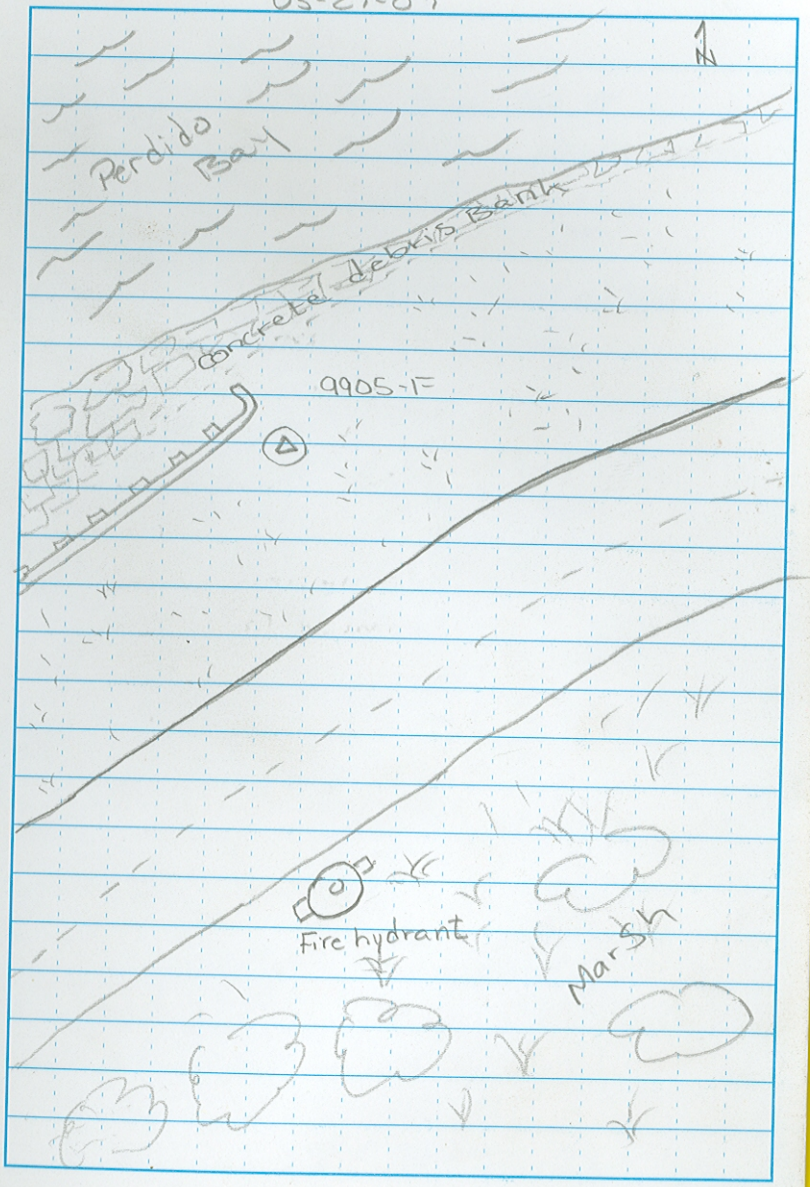
"9905-F" is a standard NOS Brass Cap set in Concrete, and Stamped "9905-F 2006" 02m diameter Sonitube flush with the earth to a depth of 1.52 m below ground was filled with Concrete to support the monument. the monument is 1.1 m S of the E end of a gaurd rail. 7.6 m N of the C/L of the highway ~~16.1~~ m S of MHW Perdido bay. 21.3 m NE of fire hydrant #2803

Garmin hand held positions
NAD83 N 30° 25' 12.7"
W 087° 21' 07.2"

Scale: 1 square = 5m

Scholmandeley
M.S. sunny
5 knots

03-27-07



Scale: 1 square = 6m

Scale: 1 square = .01

Peg Notes

orifice 2: 1.952 m From Top of pipe to orifice phase center
6.401 feet (measured) steel tape

orifice 1½: orifice Center 1-2/10 (Foot) above harbour bottom

orifice 1: 1.952 m
6.401 Feet
measured Steel tape
Top of pipe to orifice
Phase center

1253
1227 606.1859
10 00 A - B = 70 + 70
8 MD B - C = 70 + 55
5 SC C - F = 80 + 90 + 84 + 40
F - Dix 94 + 76

Scale: 1 square = .02

1-hour TeraScan GOES accesses

AD	Ch	First Xmit	Rate	Window	GAUGE	
E820072A	143	002530	010000	010	1051	millview #1
E820145C	143	002540	010000	010	1048	millview #2
E82021C6	143	002550	010000	010		Al. Pk. #1
E82032B0	143	002600	010000	010	Radar	Al. Pk. #2 (radar)
E8204420	143	02610	010000	010		

4/1 06 1

Scale: 1 square = 63