Scofield Pass Pipeline Location, Survey, and Mapping
For BA-38 Pelican Island Restoration
Contract No. WC133F-05-CQ-1027

Prepared for:

U.S. Department of Commerce, NOAA
and
National Marine Fisheries Service
and
Louisiana Department National Resources

Prepared by:

Coastal Planning & Engineering, Inc.

August 2005

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I. Introduction

In support of the Pelican Island Restoration CWPPRA Project, CPE conducted survey and geotechnical investigations in Scofield Pass. These investigations were aimed at locating three existing pipelines that run underneath Scofield Pass in order to determine the feasibility of excavating construction access within the pass. To that end, CPE planned on using a magnetometer and jet probes in order to resolve the location and elevation of these three gas pipelines. Preliminary indications were that Scofield Pass had a water depth of approximately 3 to 4 feet and that the pipelines were buried an additional 3 to 10 feet beneath the seafloor. These conditions would allow wading access to all three Scofield Pass pipeline corridors in order to attempt boat-supported, seafloor-based jet probe investigations. Upon arrival, it was observed that these conditions were not present. In fact, an existing channel, greater than -9.8 feet North American Vertical Datum 1988 (NAVD '88), with a strong tidal current prevented CPE from attempting jet probes within the channel thalweg of Scofield Pass. Based on the conditions present, CPE attempted to locate the pipelines adjacent to the Scofield Pass channel via jet probes and terrestrial magnetometer surveys, and within the Pass via marine magnetometer surveys. In addition, CPE undertook a bathymetric survey of the Pass in order to determine the depth of the existing channel and necessity of excavation for construction access. These investigations resulted in the location of the 26" Tennessee Gas Pipeline (TGP) horizontally and vertically at two separate points, and the magnetic location of the 20" TGP and 8" Promix pipelines, with the minimum elevation of the pipes as being greater than -9.8 feet NAVD '88. In addition, an existing channel within Scofield Pass was found to be greater than -9.8 feet NAVD '88 in depth and ranged from 260 feet to 450 feet wide. These results indicate that excavation of Scofield Pass, above the existing pipelines, may not be necessary for construction access at this time and that a detailed bathymetric survey should be completed prior to construction in order to verify these findings. If, at that time, excavation is needed, it is recommended that dredging does not exceed -9.8 feet NAVD '88 and that any excavation be limited to the existing channel as defined in this survey. This report describes the investigation methods, fieldwork synopsis (Appendix 1), results, and recommendations.

II. Methods

a. Real Time Kinematics (RTK) Global Positioning System (GPS)

An initial reconnaissance of the Pelican Island region found two survey control points; the LDNR "Scofield" monument near Fontanelle Pass (Empire Jetty) at 3831442.9E, 278379.21N, and the LDNR "Shell Island" monument located on Shell Island at 3870459.93E, 266494.79N. The "Scofield" monument was visually inspected and appeared to be in place and undisturbed. An RTK GPS Base Station was then setup on the "Scofield" monument. Once the RTK GPS

system was operational, an iron rod and cap monument ("Pelican Base") was placed on Scofield Island at 276525.392E, 3845186.2N, to be used as a base station setup point for the survey. Once "Pelican Base" was established, the RTK GPS base station was moved to the point (Figure 1). At that time, the "Scofield" and "Shell Island" LDNR monuments were revisited to check the accuracy of the new Scofield Island survey point. The horizontal and vertical accuracy of this survey was found to be within an acceptable tolerance of 0.4 feet to locate the pipelines. Horizontal positioning checks were conducted at the beginning and end of each day at existing monuments located in the project area to confirm daily accuracy.

b. Bathymetric Survey

A Differential Global Positioning System (DGPS) coupled with water depth readings determined by manual survey rod was input to an onboard computer and the data integrated in real time using the Coastal Oceanographic Hydrographic Data Collection and Processing (HYPACK) program, a state-of-the-art navigation and hydrographic surveying system. These data were tide corrected using manual tide readings.

Figure 1. "Pelican Base" survey point and RTK GPS base station located on Scofield Island (left). Terrestrial based magnetometer survey and magnetic anomalies (right).

c. Magnetometer Survey

To determine the location of the pipeline crossings, a magnetometer was used to find magnetic anomalies within and around Scofield Pass. For the marine magnetometer surveys, a Geometrics 881 Digital Cesium Magnetometer was interfaced to the HYPACK navigation computer and DGPS and towed by the Louisiana Universities Marine Consortium (LUMCON) vessel *Whiskey Pass*. The terrestrial magnetometer surveys utilized the same Geometrics 881 Digital

Cesium Magnetometer being carried on land, with a computer operator marking the magnetic anomalies with survey witness posts (Figure 1).

d. Jet Probing

The jet probing procedure involves water-jetting a 20-foot long PVC pipe into the seafloor using a water pump mounted either on the deck of the *Whiskey Pass* or on the shore (Figure 2). As the probe penetrates sediment on the seafloor, a CPE geologist observes the depth of the probe and the characteristics of the sub-surface sediment. The geologist estimates characteristics of sub-surface sediments from resistance of the probe to penetration, the "feel" of the probe as it penetrates the sediments, and from observation of sediments flushed out of the hole. For this project, the purpose of jet probing was to encounter "refusal" of the PVC jet probe pipe caused by contact with the upper surface of a pipeline. Anticipated refusal of the probe on a pipeline is easily determined when the probe encounters a solid object that curtails penetration.

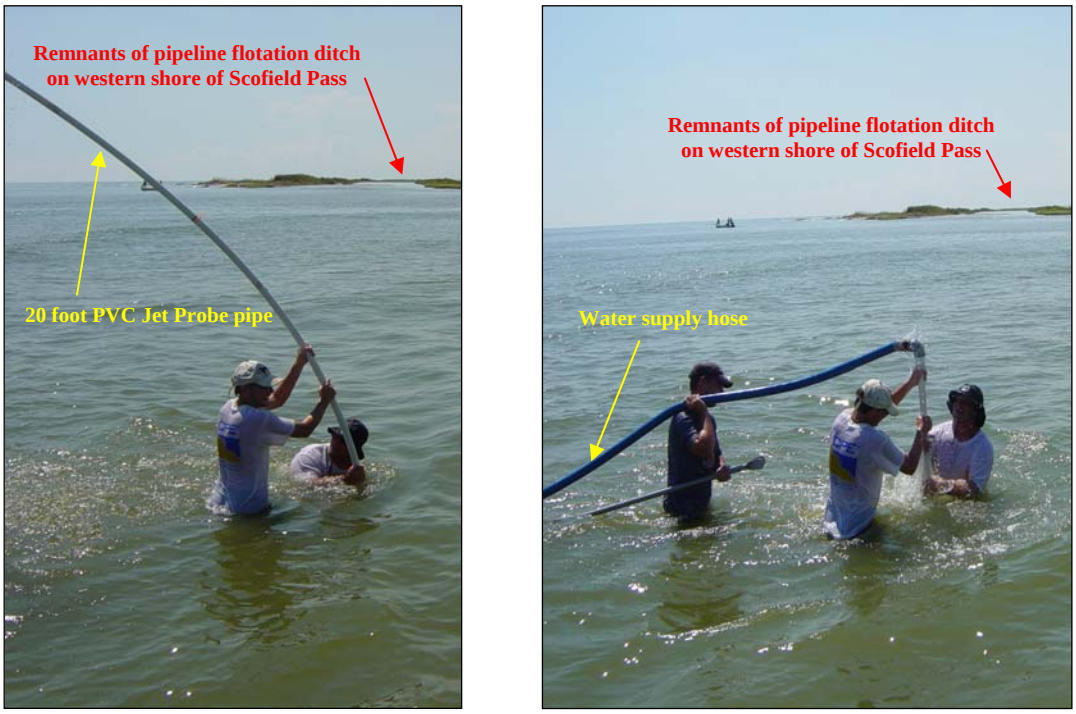


Figure 2. 20-foot PVC Jet Probe Pipe being water-jetted into the ground above the TGP 20" pipeline.

e. Weighted Line Survey

Two individual lines attached to weights were dragged along the channel thalweg by hand from either side of the *Whiskey Pass* at idle speed. The purpose of this survey was to "feel" the channel bottom with the weighted lines in order to determine if the pipelines were exposed or suspended within the water column.

f. Pipeline Company Consultation

The owners of the pipelines were contacted for consultation. In each case, the company representatives were forthcoming and helpful. Mr. Kurt Chermaie (985-223-6417) of Tennessee Gas and Pipeline Co. (TGP) was contacted regarding the existing TGP 20" and 26" pipelines. Mr. Chermaie answered all of the pertinent questions and provided us with Completion Drawings TO-F2-527A-100-5, TO-F2-527A-100-5A, and TO-F2-526A-100-3 (Appendix 2).

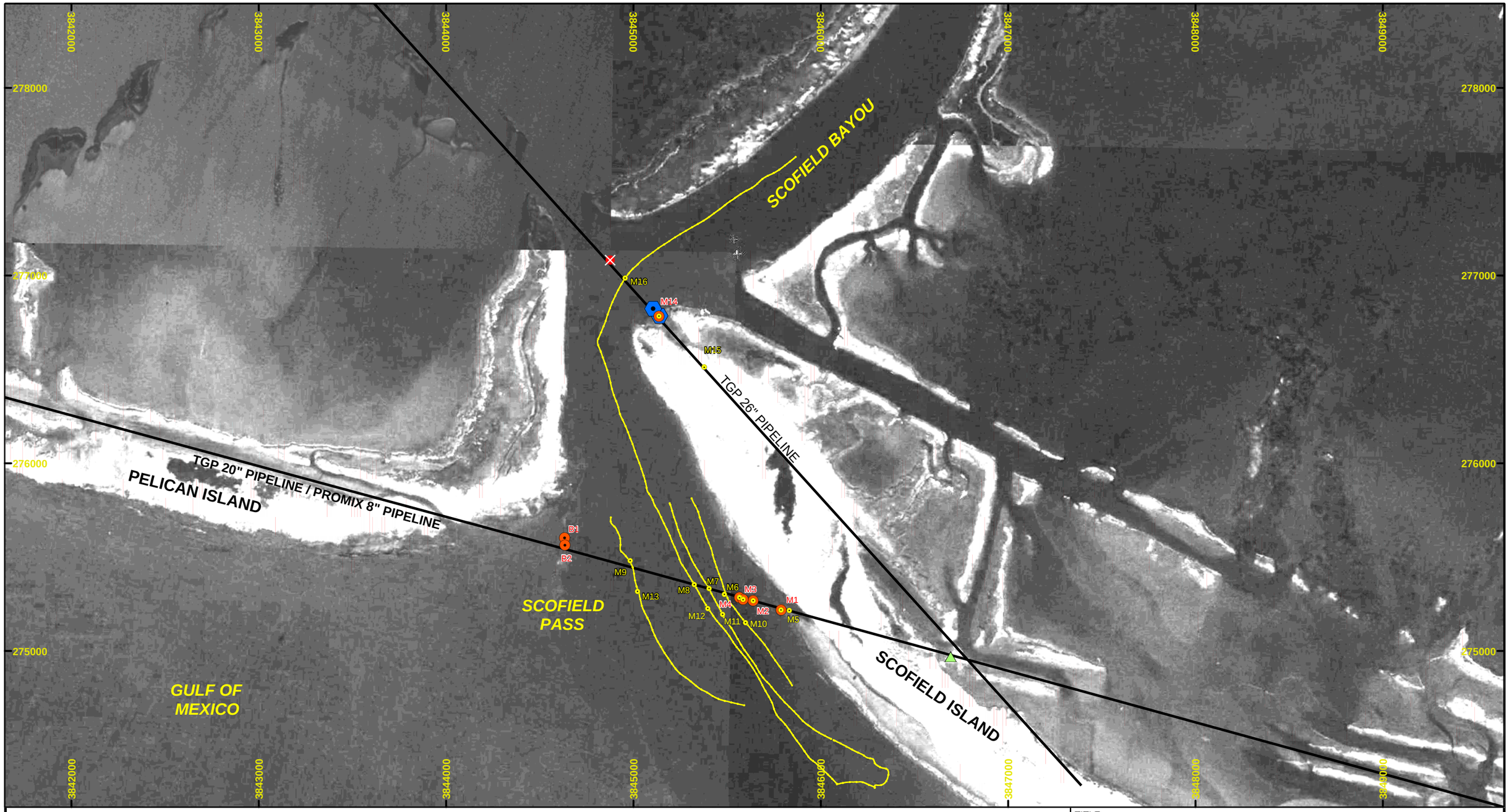
Mr. Joel Kohler (225-675-2507) of Promix was consulted regarding the Promix (Wanda) 8" pipeline. Mr. Kohler indicated that this pipeline had been inactive for many years and subsequently abandoned. Since it was abandoned, Promix had done no maintenance on this pipeline and Mr. Kohler stated that its existence may be in question due to long-term degradation and neglect. As a consequence, no engineering or construction drawings were provided to CPE for the Promix 8" pipeline.

III. Results

a. 26" Tennessee Gas Pipeline

The marine and terrestrial magnetometer surveys resulted in several magnetic anomalies (M14 – M16) along the expected pipeline (Figure 3 and Table 1). The magnetic anomalies, coupled with the expected pipeline azimuth, allowed for the successful location of the TGP 26" pipeline via jet probing. The jet probes were located on the low-lying remnants of the pipeline flotation ditch on the eastern edge of Scofield Pass (Figure 3). The first jet probe, located near the shoreline at 3845139E, 276786N, suggested a pipeline elevation of -16.1 feet NAVD, '88. The second jet probe was located further seaward at 3845105E, 276823N, and suggested a pipeline elevation of -21.5 feet NAVD '88.

The bathymetric survey along the TGP 26" pipeline corridor indicated that the Scofield Pass channel thalweg was 450 feet wide at a depth greater than -15 feet NAVD '88, with a maximum depth of -24 feet NAVD '88 (Figure 4 and Profile A). One reconnaissance SCUBA dive in 17 feet of water along with a weighted line survey indicated that this pipeline is not exposed or suspended in the water column.



NOTES

1. COORDINATES SHOWN HEREON ARE IN FEET BASED ON THE LOUISIANA STATE PLANE COORDINATE SYSTEM SOUTH ZONE, NORTH AMERICAN DATUM (NAD 1983)
2. DATE OF AERIAL PHOTOGRAPHY: 03/18/2004
3. CPE MAGNETOMETER DATA SHOWN WAS COLLECTED WITH THE GEOMETRICS 881.

LEGEND

- MAGNETOMETER TARGETS
- SCUBA DIVE LOCATION
- JET PROBE LOCATION
- CONFIRMED PIPELINE
- VALVE PLATFORM
- MAGNETOMETER TRACKLINE
- 2003 PUBLISHED PIPELINE LOCATIONS

0 250 500 Feet

1 inch equals 500 feet

N

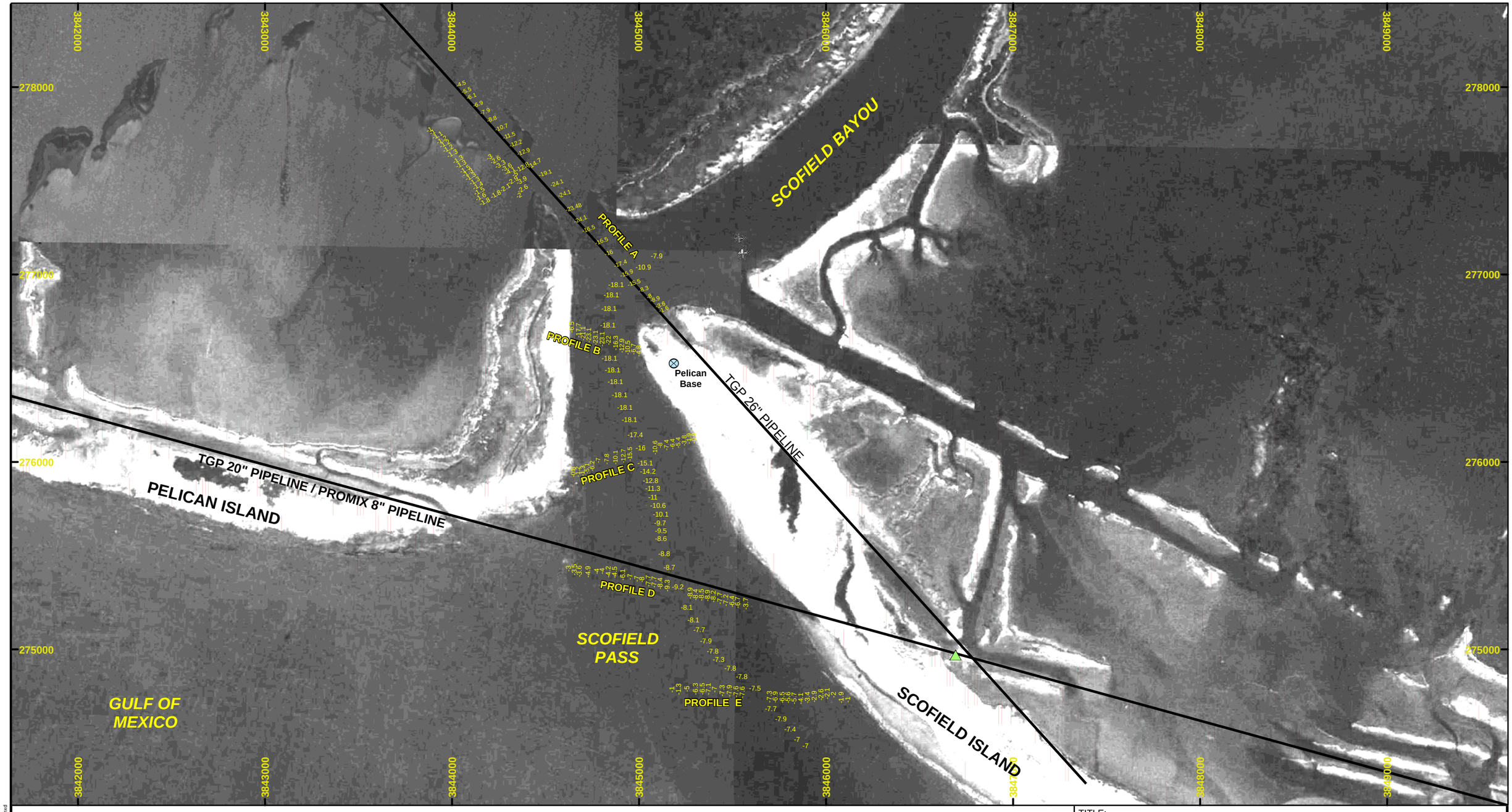
TITLE:

SCOFIELD PASS PIPELINE SURVEY MAGNETOMETER DATA AND JET PROBE LOCATIONS

COASTAL PLANNING & ENGINEERING, INC.
2481 N.W. BOCA RATON BLVD.
BOCA RATON, FL 33431
PH.(561)391-8102
FAX. (561)391-9116

DATE: 07/29/05	BY: KTW	COMM NO: 7621.21	**FIGURE 3**

G:\Louisiana\7262121\mxd\7262121_Pipeline_magdata_072905.mxd



NOTES

1. COORDINATES SHOWN HEREON ARE IN FEET BASED ON THE LOUISIANA STATE PLANE COORDINATE SYSTEM SOUTH ZONE, NORTH AMERICAN DATUM (NAD 1983)
2. DATE OF AERIAL PHOTOGRAPHY: 03/18/2004
3. DEPTHS SHOWN HEREON ARE IN FEET BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD 1988)

LEGEND

- BASE STATION
- VALVE PLATFORM
- 2003 PUBLISHED PIPELINE LOCATIONS

0 250 500 Feet

1 inch equals 500 feet

N

TITLE:

SCOFIELD PASS PIPELINE SURVEY BATHYMETRIC DATA

COASTAL PLANNING & ENGINEERING, INC.
2481 N.W. BOCA RATON BLVD.
BOCA RATON, FL 33431
PH.(561)391-8102
FAX. (561)391-9116

DATE: 07/29/05	BY: KTW	COMM NO: 7621.21	**FIGURE 4**

G:\Louisiana\7621\21\mxd\762121_Pipeline_BATHYdata_072905.mxd

Table 1. Table of Magnetometer Targets

Name	Signature Type	Amplitude	Northing	Easting
M1	Monopolar	~350	275219	3845788
M2	Monopolar	~350	275269	3845639
M3	Monopolar	~350	275275	3845585
M4	Monopolar	~350	275285	3845566
M5	Monopolar	~350	275215	3845832
M6	Monopolar	824	275302	3845485
M7	Monopolar	326	275333	3845404
M8	Monopolar	991	275354	3845325
M9	Monopolar	401	275482	3844983
M10	Monopolar	1403	275151	3845598
M11	Dipolar	1131	275196	3845476
M12	Dipolar	1538	275227	3845397
M13	Monopolar	1892	275317	3845022
M14	Monopolar	~350	276783	3845136
M15	Monopolar	~350	276512	3845377
M16	Monopolar	329	276986	3844956

b. 20” Tennessee Gas Pipeline

The marine and terrestrial magnetometer surveys resulted in the detection of several magnetic anomalies (M1 – M9) along the expected pipeline corridor (Figure 3 and Table 1). Multiple jet probe attempts (>10) were conducted along four lines (approximately 30 feet in length) perpendicular to the expected pipeline corridor on either side of the magnetic anomalies on the eastern shore of Scofield Pass (Figure 3). These jet probes penetrated sediments to -20 and -22 feet NAVD '88 without encountering the pipeline. Additionally, the azimuth of the center-channel magnetic anomalies was extrapolated to the western edge of the channel where numerous jet probes attempts (>15) where completed on a perpendicular line (>30 feet in length) between 3844632E, 275602N, and 3844634E, 275564N, (Figure 3). None of these jet probes located the TGP 20” pipeline. There was consistent refusal of these western jet probes at approximately -15 to -16.5 feet NAVD '88. Even though multiple jet probes penetrated approximately -15 to -22 feet NAVD '88 and did not encounter the buried pipeline, it is not certain if the pipeline is buried deeper than refusal or if these particular jet probe locations failed to locate the top of a shallower pipeline.

The bathymetric survey along the TGP 20” pipeline corridor showed that the Scofield Pass channel thalweg was 260-feet wide and greater than -8 feet NAVD '88 in depth, with a maximum depth of -9.8 feet NAVD '88 (Figure 4 and Profile D). A weighted line survey indicated that this pipeline is not exposed or suspended in the water column through this channel.

c. 8” Promix (Wanda) Pipeline

Earlier conversations with Mr. Joel Kohler of Promix indicated that the 8” pipeline had not been active for many years. Mr. Kohler indicated that Promix had done no maintenance on this pipeline and that its existence may be in question due to long-term degradation and neglect. As a consequence, no engineering or construction drawings were provided to CPE for the Promix 8” pipeline.

Based on the remaining signage within Scofield Pass, the Promix line appeared to have been located within the same right-of-way, but south of the TGP 20” pipeline. The marine magnetometer survey resulted in multiple magnetic anomalies (M10 – M13) along the expected pipeline corridor, parallel and southwest of the TGP 20” pipeline (Figure 3 and Table 1).

Since the Promix line shares the same right-of-way as the TGP 20” line, the Scofield Pass bathymetric survey results were the same, with a 260-feet wide channel thalweg that was greater than -8 feet NAVD '88 in depth and with a maximum depth of -9.8 feet NAVD '88 (Figure 4 and Profile D). A weighted line survey indicated that this pipeline is not exposed or suspended in the water column through this channel.

IV. Recommendations

Based on the above results, it is recommended that a detailed bathymetric survey be conducted within Scofield Pass prior to construction to verify exact water depths. The data collected during this work suggests that the pipelines are buried deeper than -9.8 feet NAVD '88. A detailed, preconstruction bathymetric survey will provide precise channel access depths to the Contractor. If future hydrographic survey data indicate the need for excavation of Scofield Pass, then CPE recommends that, due to the uncertainty of the elevation of the TGP 20” and Promix 8” pipelines, any dredging be limited to -9.8 feet NAVD '88 and be restricted to the existing channel as defined in this survey. Offshore (south) of Scofield Pass may require excavation as some shoaling (<-7.6 feet NAVD '88) is evident (Profile E). This area is south of the pipeline corridors and can be excavated without danger to existing pipeline infrastructure.

Appendix 1

Field Work Synopsis

Appendix 1

Field Work Synopsis

Monday, July 18, 2005

At 8:00 AM the CPE geotechnical crew departed Boca Raton, Florida for Empire, LA. They arrived in New Orleans, LA at 10:00 PM and rendezvoused with two other members of the CPE geotechnical crew.

Tuesday, July 19, 2005

The CPE geotechnical crew departed New Orleans at 7:00 AM for Empire, LA. They arrived at the Empire Inn at 9:30 AM and started mobilizing the *Whiskey Pass*. Part of the survey crew departed the marina at 11:00 AM and proceeded to an existing monument near Empire Pass to begin setting up navigation and elevation control for the survey. A reconnaissance of the Empire Pass monument was conducted to confirm that the survey control was in place and undisturbed. An RTK GPS base station was used to locate and confirm the survey control at Empire Pass. Once the survey control was in place at Empire Pass, the geotechnical crew traveled to Scofield Island where they setup an RTK GPS base station and survey control point for this specific survey. Once this point was established, the RTK GPS crew returned to Empire Pass to ensure the accuracy of the new Scofield Island survey control point, and made way to the marina at 7:00 PM. The other members of the survey crew remained in Empire to calibrate the magnetometer and continue mobilization activities. The crew in Empire completed the mobilization activities and calibration of the magnetometer and met with the other crew at the marina at 7:30 PM.

Wednesday, July 20, 2005

The CPE geotechnical crew departed the marina at 7:00 AM. They arrived on site at 8:30 AM and began to set up the magnetometer and RTK GPS base station. The geotechnical crew then traveled by boat to an existing pipeline valve platform that services both the Tennessee Gas Pipeline (TGP) 26" and 20" pipelines. Earlier research of pipeline engineering plans provided an estimated azimuth for each pipeline. A RTK GPS position was taken on the platform to provide a base point to duplicate this azimuth on the island, resulting in an expected pipeline corridor. The first pipeline survey targeted the TGP 26" gas pipeline. The magnetometer was carried over the expected pipeline corridor in repeated, perpendicular passes. Several of these passes revealed magnetic anomalies which were subsequently marked with survey witness posts. Once the magnetic anomalies and the expected pipeline azimuth were marked, several jet probes were conducted in an attempt to determine the depth to the top of the pipeline. After several unsuccessful attempts, a jet probe conducted at the water's edge, at an elevation of approximately 2.5 feet, successfully located the top of the pipeline at approximately 17 feet beneath the seafloor. A second jet probe was conducted within Scofield Pass in approximately 3 feet of water locating the top of the pipeline at approximately 20 feet

beneath the seafloor. Shortly after completing this jet probe, the survey crew headed back to the marina, arriving at the 7:30 PM.

Thursday, July 21, 2005

The CPE geotechnical crew departed the marina at 7:00 AM. They arrived on site at 7:30 AM and began setting up the magnetometer and the RTK GPS base station. The second pipeline survey targeted the TGP 20" gas pipeline. Several moderate anomalies were detected as the magnetometer passed within the expected pipeline corridor. These anomalies were marked with survey witness posts. Once the magnetic anomalies and the expected pipeline azimuth were marked, multiple jet probes were conducted along the eastern shoreline of Scofield Pass. These jet probes were collected across the expected pipeline corridor in an attempt to determine the depth to the top of the pipeline. None of these jet probe attempts resulted in the location of the pipeline. The CPE geotechnical crew returned to the marina at 7:15 PM.

Friday, July 22, 2005

The CPE geotechnical crew departed the marina at 7:00 AM. They arrived on site at 7:30 AM and began setting up the magnetometer and the RTK GPS base station. Once setup was completed, a bathymetric survey utilizing manual survey rod water depth readings and DGPS was collected from the *Whiskey Pass* along the expected pipeline corridor for the TGP 26" line. Upon completion of the bathymetric survey two CPE members, both certified scientific divers, commenced a 7 minute dive in 17 feet of water to determine if the pipeline was exposed within the water column. After this dive the geotechnical crew received word that diving may not be covered under the contract and no further diving was attempted.

The geotechnical crew then revisited the TGP 20" gas pipeline corridor where further magnetometer operations were undertaken. Several additional moderate anomalies were detected as the magnetometer passed within the expected pipeline corridor. These anomalies were marked with survey witness posts. Once the magnetic anomalies and the expected pipeline azimuth were marked, multiple jet probes were conducted perpendicular to the expected pipeline corridor in an attempt to determine the depth to the top of the pipeline. None of these jet probe attempts resulted in the location of the pipeline.

After the unsuccessful jet probe attempts, the geotechnical crew began a bathymetric survey utilizing direct rod depth measurements and DGPS collected from the *Whiskey Pass* along the expected pipeline corridor for the TGP 20" line. The CPE geotechnical crew returned to the marina at 6:00 PM.

Saturday, July 23, 2005

The CPE geotechnical crew departed the marina at 7:30 AM. Once onsite, the crew setup the RTK GPS and magnetometer. Once this was finished, the crew began a bathymetric

survey utilizing manual survey rod water depth readings and DGPS collected from the *Whiskey Pass* along three intermediate crossing (E-W) lines, two small lines behind Pelican Island, and one line along the main Scofield Pass channel.

Upon completion of the bathymetric survey, the *Whiskey Pass* was mobilized for a marine magnetometer survey. This survey towed the magnetometer behind the boat along the main Scofield Pass channel, crossing the expected pipeline corridors. Magnetic anomalies along all three pipeline corridors were evident. The magnetic anomalies corresponding to the TGP 20" line were recorded using RTK GPS. The azimuth for these magnetic anomalies was extrapolated to the shallow, western edge of the Scofield Pass channel where jet probes were attempted. None of these jet probe attempts resulted in the location of the pipeline.

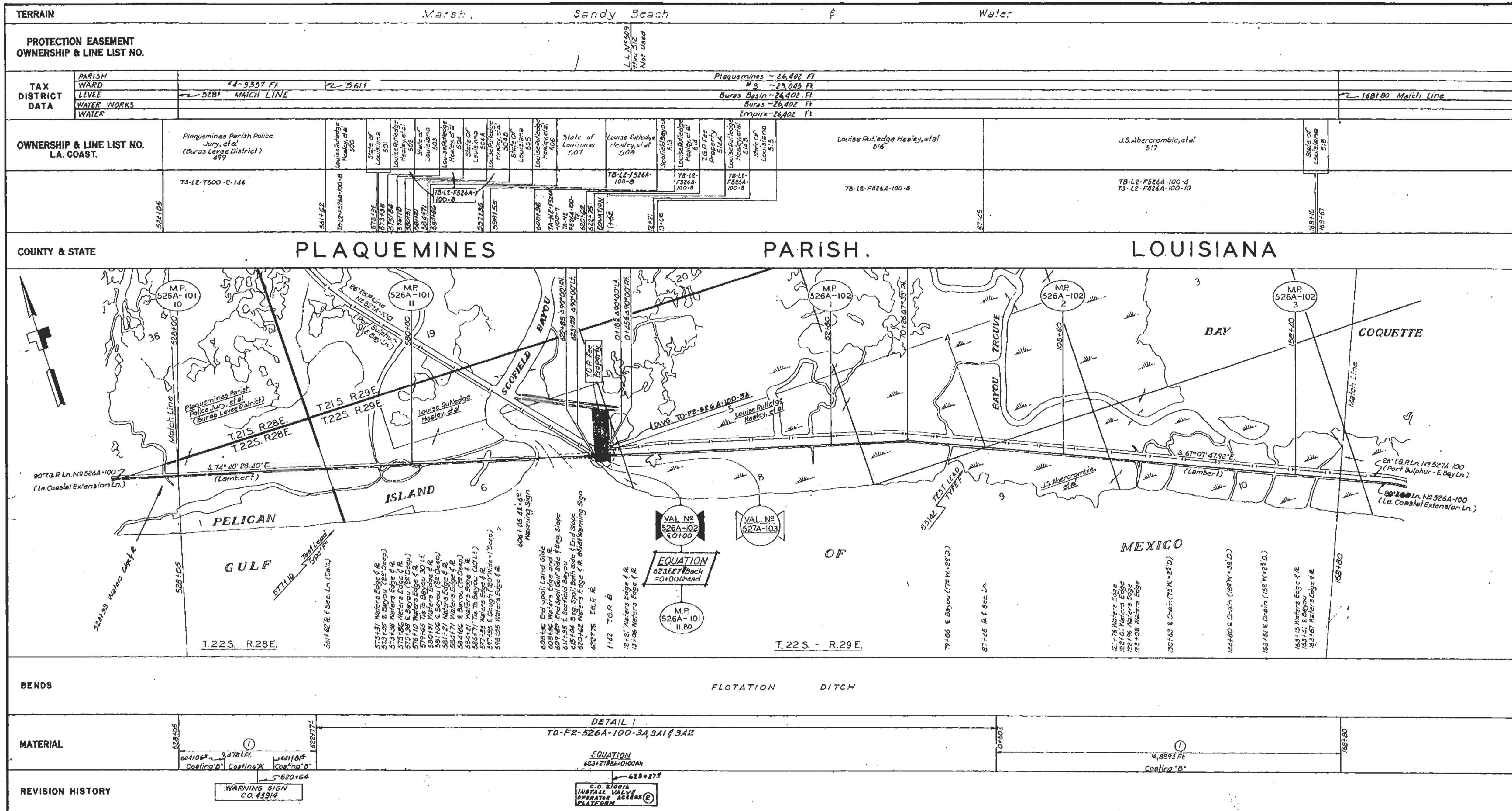
The geotechnical crew completed jet probe operations and began dragging the main Scofield Pass channel with two weighted lines. The purpose of this weight survey was to verify that no pipeline was exposed within the water column along the main channel. After completion of the weight survey the geotechnical crew demobilized from the island, packed all gear, and returned to the marina at 6:00 PM.

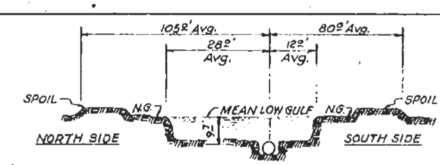
Sunday, July 24, 2005

The CPE geotechnical crew departed Empire, LA at 4:15 AM, arriving in Boca Raton, FL at 10:00 PM

Appendix 2

Tennessee Gas Pipeline Company
Completion Drawings:
TO-F2-526A-100-3
TO-F2-527A-100-5
TO-F2-527A-100-5A





FLOTATION DITCH SECTION
Scale: None

LOCATION SCHEDULE		
SIGN (ITEM №)	PLUG (TYPE)	℄ STATION
3		606+05
3		0+62
4		620+57

MATERIAL LEGEND

ITEM NO.	DESCRIPTION

MATERIAL LEGEND

ITEM NO.	DESCRIPTION
1	20" O.D. × .375" W.T. 78.60#/Ft. Gr. X-52 A.O. Smith Pipe
2	Operator Access Platform Complete
3	4' × 6' Warning Sign (Do Not Dredge)
4	8' × 6' Warning Sign (Do Not Dredge)
~	Coating "A" ~ Pittsburgh Chem. Modified Primer & Enamel (2-Coats) w/Midwestern "Corroglass" Fiber Glass Drawn-In and w/Barretts 15# Asbestos Felt Outerwrap (Perforated) w/Reinforced Concrete Coating 3" Thick To 125% Negative Buoyancy in Salt Water.
~	Coating "B" ~ Pittsburgh Chem. Modified Primer & Enamel (2-Coats) w/Midwestern "Corroglass" Fiber Glass Drawn-In and w/Barretts 15# Asbestos Felt Outerwrap (Perforated) w/Reinforced Concrete Coating 2½" Thick To 115% Negative Buoyancy in Salt Water.

THIS DWG CURRENT THRU

C.O. NUMBER & DESCRIPTION	C.O. 18567 ORIG. CONST.	C.O. 45914 WARNING SIGN	C.O. 58755 INSTALL TEED	C.O. 210016 INSTALL VALVE OPERATOR ACCESS PLATFORM	CO64243 RO95083 RELOCATION
FIELD BOOKS PRELIM.	7665				
FIELD BOOKS CONST.	8240				
FIELD BOOKS FINAL	8240				
		C.O. File	C.O. File		
ENGINEERS CHECK					
PLANT ACC'TG. CHECK					
TAX DEPT. CHECK				1995	1997

REFERENCE DRAWINGS
Alignment Line № 527A-100 — TO-F2-527A-100-5
Details — TO-F2-526A-100-3A
Details — TO-F2-526A-100-3A1
Details — TO-F2-526A-100-3A2

TENNESSEE GAS PIPELINE CO.
A DIVISION OF TENNECO INC.
ENGINEERING DEPARTMENT HOUSTON, TEXAS

LOUISIANA COASTAL EXTENSION LINE
LINE № 526A-100
PLAQUEMINES PARISH, LOUISIANA

VALVE SECTION VAL. № 526A-102 ON THIS SHEET

DRAWN BY H.F.M.W.	DATE 2-6-68	APPROVED BY Kenneth C. [illegible] 5/18/73	
CHECKED BY KBW & WIP	DATE 5-17-73		
CORRECT BY C.H.B.	DATE 5-18-73		
APPROVED BY W.H.H.	DATE 5-21-73	COMPLETION DRAWING	
SCALE 1" = 1000'			
ISSUE DATES	ORIGINAL 6-1-73	TO-F2-526A-100-3	
	LAST 6-98		

TERRAIN: MARSH

PROTECTION EASEMENT OWNERSHIP & LINE LIST NO.

TAX DISTRICT DATA	
PARISH	498+96 Match Line — Plaquemines ~ 26,400 Ft. — 134+68 Match Line
WARD	Nº 10 ~ 26,400 Ft.
SCHOOL	Nº 10 ~ 26,400 Ft.
WATER	Buras Water Works ~ 26,400 Ft. - Empire Water Dist. ~ 26,400 Ft.
LEVEE	Buras Basin Levee ~ 26,400 Ft.

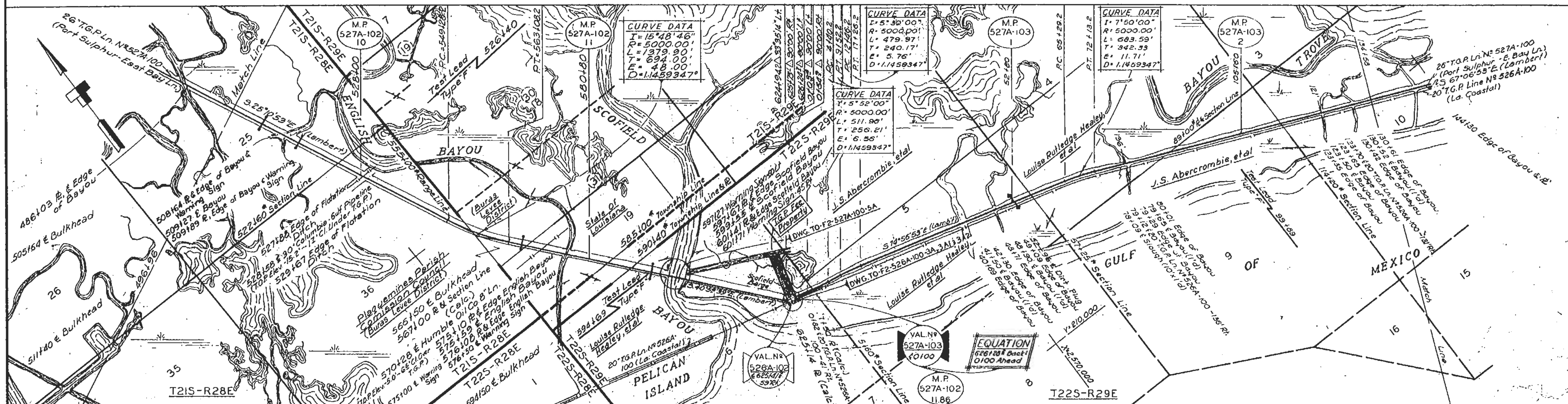
OWNERSHIP & LINE LIST NO. PORT SUL.-E. BAY

69	Plaquemines Parish Commission Council (Buras Levee District)
70	State of Louisiana
71	Plaquemines Parish Commission Council (Buras Levee District)
78	T.G.P. Fee Property
79	Louise Rulledge Healey, et al
80	J.S. Abercrombie, et al

TS-L2-F527A-100-20; T5-N2-F527A-100-4; TA-N2-F527A-100-4F; TS-L2-F527A-100-20; TA-L2-F527A-100-14; TG-K2-F527A-100-7; TG-L2-F527A-100-9

486+03; 508+64; 509+89; 567+00; 575+10; 590+40; 597+67; 601+41; 625+14 EQUATION; 89+00; 144+30

COUNTY & STATE: PLAQUEMINES PARISH, LOUISIANA



BENDS: Flotation Ditch ~ 5000 Ft. Minimum Radius

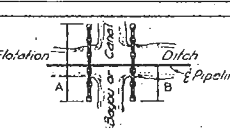
MATERIAL: SCOFIELD BAYOU CROSSING DWG. TO-F2-527A-100-5A; FOR CONSTRUCTION DETAILS & MATERIAL SEE DWG. TO-F2-526A-100-3A, 3A1, & 3A2; Coating "A"; Coating "B"; Item ④ 40± Ft.; Item ③ 51± Ft. Coating "C"; EQUATION 626+28 Bk. 0+00 Ah.; Item ③ 107± Ft. Coating "C"; Item ② 13,298± Ft. Coating "D"

NOTE: All line pipe in C.O. 35410 is internally coated.

REVISION HISTORY: WARNING SIGN C.O. 43916; EXTEND BULKHEAD C.O. 54491; REPAIR PLUG C.O. 27654

VAL. Nº 527A-103
LAT. 29°15' N.
LONG. 89°34' W.

LAMBERT COORDINATES	
P.I. STATION	
556+22.2	X: 2,561,326.22
	Y: 219,518.40
624+94.2	X: 2,565,852.18
	Y: 214,310.84
6+80.4	X: 2,566,574.15
	Y: 214,137.34
14+86.4	X: 2,567,353.58
	Y: 214,007.03
68+71.5	X: 2,572,553.94
	Y: 212,614.18



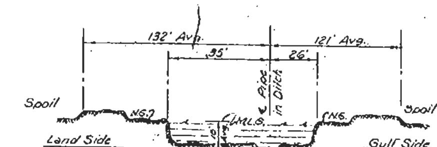
DETAIL Nº 1
Scale: None

BULKHEAD DIMENSIONS			
STATION	ITEM Nº	A	B
505+64	6	115±	54'
511+40	6	114±	49'
566+50	6	115'	46'
594+50	6	105	47'

LOCATION SCHEDULE		
SIGN (ITEM Nº)	PLUG (TYPE)	STATION
7		597+27
7		601+71
	Shell Dirt	625+27
		52+96
7		508+64
7		509+89
7		575+00
7		576+50

MATERIAL LEGEND		
	ITEM NO.	DESCRIPTION
	5	26" O.D. x .563" W.T. Gr. X-52 3-R L.T. 90° Weld Ell (13¹' Lg.)
	6	26" O.D. x .563" W.T. Gr. X-52 3-R L.T. 45° Weld Ell (6²' Lg.)
	7	26" O.D. x .563" W.T. x 20" O.D. x .625" W.T. Gr. X-52 Reducing Scraper Bar Weld Tee (3² Lg.)
	8	26" O.D. x .563" W.T. x 8.625" O.D. x .500" W.T. Gr. X-52 Reducing Weld Tee (3¹' Lg.)
	9	20" A.S.A. 600# Grove B-5 Ball Valve W/W

MATERIAL LEGEND		
QUANTITY	ITEM NO.	DESCRIPTION



FLOATATION DITCH SECTION
Scale: None
Permit Dwg. TA-N2-F527A-100-4M & 4N

REFERENCE DRAWINGS
Scofield Bayou Crossing ~ TO-F2-527A-100-5A
Details ~ TO-F2-526A-100-3A, 3A1 & 3A2

C.O. 43916 WARNING SIGN	C.O. 54491 EXTEND BULKHEAD	C.O. 180905 R.O. 93890 REPAIR LINE		
C.O. File	C.O. File	C.O. / R.O. File	C.O. & R.O. File	
			1986	

TENNESSEE GAS PIPELINE CO.
A DIVISION OF TENNESSEE GAS TRANSMISSION CO.
ENGINEERING DEPARTMENT — HOUSTON, TEXAS

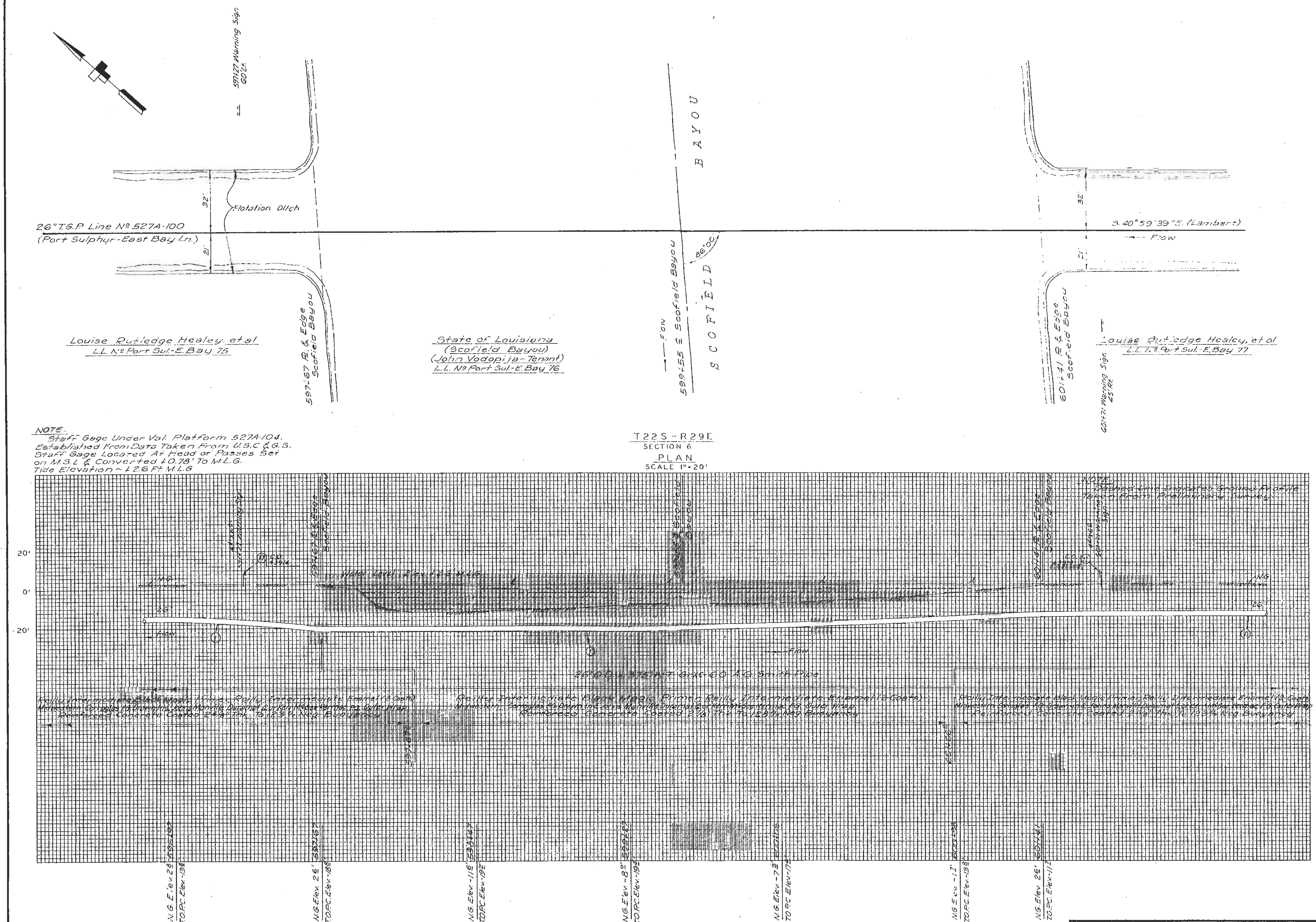
PORT SULPHUR EAST BAY LINE
LINE Nº 527A-100
PLAQUEMINES PARISH, LOUISIANA
VALVE SECTION VAL. Nº 527A-103 ON THIS SHEET

DRAWN BY B.J.G. — DATE 3-19-66
CHECKED BY K.B.W. — DATE 1-12-66
CORRECT BY C.H.G. — DATE 4-24-66
APPROVED BY — DATE 6-15-66
SCALE 1" = 1000'

COMPLETION DRAWING

ISSUE DATES: ORIGINAL 6-30-66; LAST 9-00

TO-F2-527A-100-6



PROFILE
SCALE: HORIZONTAL 1"=20', VERTICAL 1"=20'

Permit Drawing Nº's TB-N2-F527A-100-4, TB-N2-F527A-100-4E

REFERENCE DRAWING
Alignment & Material - TO-F2-527A-100-5

THIS DWG CURRENT THRU		3-30-76
C.O. NUMBERS & DESCRIPTION	See Dwg	TO-F2-527A-100-5
PRELIM.		
CONST.		
FINAL		
ENGINEERS CHECK		

TENNESSEE GAS PIPELINE CO.
A DIVISION OF TENNESSEE GAS TRANSMISSION CO.
ENGINEERING DEPARTMENT — HOUSTON, TEXAS

PORT SULPHUR-EAST BAY LINE
LINE Nº 527A-100
SCOFIELD BAYOU CROSSING
PLAQUEMINES PARISH, LOUISIANA

VALVE SECTION BETWEEN VAL. Nº 527A-102 & 527A-103

DRAWN BY PAYNE	DATE 4-7-65	APPROVED BY Kenneth C. Britain 6/20/66 asst. CHIEF ENGINEER
CHECKED BY	DATE	
CORRECT BY	DATE 4-26-66	
APPROVED BY	DATE 6-15-66	COMPLETION DRAWING
SCALE 1"=20'		

ISSUE DATES	ORIGINAL 6-30-66	TO-F2-527A-100-5A
	LAST 9-79	

APERTURE

Appendix 3

Field Notes

Pelican Island Pipeline Survey

7/18/05

KW / BS / JS / GW

08:00 E.T.	JS / GW Depart CPE office in Boca in route to New orleans
12:30 C.T.	BS Arrive @ New Orleans Int. Airport
13:03 CT	KW Arrives @ New orleans Int. Airport
14:00 -	KW / BS pick up Supplies for job @ Home depot / Walmart.
19:00 -	KW / BS meet w/ T.C. / EH / VB / GT for dinner w/ Gregg & Beau of the LACNR.
22:30 -	Arrive @ Hotel in New Orleans & met JS / GW

7/19/05

07:00 CT	- Depart Hotel to drop off Rental Car
07:30	- Drop of Rental Car
08:45	- Stop in Belle Chase for groceries
09:15	- Depart with Dixie in route to Empire.
10:30	Arrive @ Empire Inn and meet Sam from Lumcon. Begin Moving Equipment and Brief everyone on the job
13:00	Put boat in water @ Joshuas Marina in Buras & KW / GW head out to Empire Jetty + Sam, BS / JS working on Mag Setup.
14:15	Arrive @ Jetty to set up RTK on "Scofield"
15:05	Depart Base for Scofield Pass. Turn around, lost radio @ 3200 Feet.
15:20	Go Back to Check Base. Put radio Higher up.
16:05	Stop @ Platform "A" Set "Point" Plat Base
18:00	Arrive @ Scofield Pass & Set EB/C "Pelican Base" & Surveyed the area Visually

- 18:40 Arrive @ Empire to Break down Base. Took shot on Rock for Reference.
- 19:00 Depart Empire Jetty
- 19:30 Arrive @ dock @ Joshuas Marina.
- 20:10 Arrive @ Empire Inn.

11/20/05

06:30 - Begin to mob trailer & boat @ Empire Inn
07:00 - Depart Empire Inn for Joshuas Marina.
07:15 - Arrive @ Marina & Mob boat
08:00 - Leave Marina
08:45 - Arrive @ Scofield Pass & Demob
09:45 - Start Base station on "Pelican Base"
KW/BW Stake out Pump station.
BS/JS Set up Mag
10:45 - Shot Point @ Pump station "Pump station" for Stakeout
11:30 - Check into Point @ Empire H: 0.079sft
V: 0.046sft
11:50 - KW/BW Return to Scofield Pass. JS + BS have Identified 2 targets in line assumed to be Pipeline.
12:30 - Begin Jetting to find Pipeline. (~~Shoreward~~ landward)
13:30 - Check into Point @ Shell Island H: 0.423
PICTURES TAKEN V: 0.334
17:00 - First hit on Landward Pipeline located w/ JetProbe "Landward Point 1"
17:40 - 2nd Point located on landward Pipeline w/ JetProbe "Landward Point 2"
18:45 - Depart Scofield Pass
19:30 - Arrive @ Dock & Demob
20:10 - EOD

DATE 7/19/65

		PELICAN ISLAND PIPE			NAVD 88		
⊼ KW							
⊕ GW	PIPE 1						
STA	~~DEPTH~~ DIST	+	HI	−	ELEV	REMARK	FOUND
		4.35	7.35	~~4.35~~	3.003	HUB LANDWARD	
				4.08	3.27	SS HUB	
	16.40			7.04	0.31	TOP OF HOLE	17:00
				4.35	3.00	HUB LANDWARD	
		4.87	8.14		3.27	SS HUB	
				5.14	3.00	HUB LANDWARD	
	20.25	9.22 ✓		9.22 ✓			
	20.25			9.34	-1.2	TOP OF HOLE	17:40
				5.14	3.00	HUB LANDWARD	
		4.31	7.58		3.27	SS HUB	
				4.58	3.00	HUB LANDWARD	
		9.45 ✓		9.45 ✓			
	PIPE 2						
STA	~~DEPTH~~	+	HI	−	ELEV	REMARK	FOUND
						TOP OF HOLE	12:15

4.35	4.35	4.35	4.87	4.08
5.14	4.87	5.14	4.35	5.14
9.89	9.22	9	9.22 ✓	9.22 ✓

~~4.08~~		
4.87	5.14	
4.58	4.31	
9.45 ✓	9.45 ✓	

PELICAN ISLAND PIPELINE SURVEY

KW/JS/BS/GW 07/21/05

-06:30 - Mob @ Empire Inn
-07:00 - Depart Empire Inn.
-07:30 - Arrive @ Scofield Pass & Setup
-08:30 - Set up RTK & Check into Extra Scofield Point "EX CHK SOD 072105"
H: 0.036'
V: 0.011'
-09:30 - Check into Empire "Scofield" Point "SCO CHK SOD 072105"
H: 0.035
V: 0.089
-10:00 KW/JS/BS using Mag to find Pipeline Detect Anomaly in 2 Spots
-11:00 Set up for JetProbes.
12:19 SET HUB ONLINE FOR PIPE2 HUB CALLED "MOUTH HUB PIPE2"
ELEVATION: 4.005 ft NAVD88
1:15 JetProbe to 20 Feet 3 times each either side of Mag Anomaly #2 Never found Pipeline @ that location
14:00 restart Mag efforts further seaward and mark two additional targets - Mag Target 3
- Mag Target 4
15:00 Begin JetProbing of Mag Target 4. @ 20 JetProbes performed in vicinity w/ out successfully detecting Pipe
17:45 End JetProbing and begin demob
18:30 Head for Marina
19:15 Arrive @ Marina

KW/DS/BS/CW 07/22/05

05:30 Mob @ Emile Inn
06:00 Depart Emile Inn
06:30 Arrive @ Marina & Begin Mob Process
07:00 Leave Dock
07:40 Arrive @ Island - Set up RTK
8:00 Set up the Corsonite Posts to line up the azimuth of the landward P.Pelin 26"
8:10 SET UP BASE STATION ON "PELICAN BASE"
CHECKED IN ON "ex chk eod 072005" IK/C
POINT STORED AS "ex chk sod 072205"
H: 0.049
V: 0.018
9:10 - Pulled across sled for depth measurements
9:30 Leave Shore w/ divers
9:40 divers in the water for 7 mins to verify No Pipeline.
0:00 Back on Shore.
2:30 Started Mag operations on 20' shore Parallel Pipe. Found 2 additional Anomalies
Mag Trgt 5 / Mag Target 6
1:30 Began Seismic operations Punched 12 holes No Pipe.
3:30 Set up for Bathy metric Survey
:30 - Strong Rain Storm for 45 mins
:15 - Reset for Bathy Survey
5:20 - "DGPS SOD" "CHK SOD 072205"
:30 - Start Bathy Surveys
:45 - Finish Bathy Survey
:00 - Shoot in tide station & Demob Beach
:25 - En route to marina
:00 - Arrive @ Joshuas Marina

DATE 7/22/05

~~Base Chk - Point near base @ Empire Jetty to make sure ATK was relatively close 1km~~

Bathy Survey Rod & Target Survey
KW/GW 7/22/05

STA	DEPTH	+	HT	−	elev.	
		4.48	8.49		4.005	mouth hub
				3.84	4.65	ss stump
				5.16	3.33	ss Tide stand
				4.48	4.01	Hub (Chk) Mouth Hub
				5.17	3.32	ss Tide Stand (Check)
				4.49	4.00	Hub Chk (Mouth Hub
		2.92	7.57		4.65	ss stump.
				3.56	4.01	ss Mouth Hub
						Reset Tide Station
		[7.30] ✓		[7.30] ✓		

BS Tide Shots

Time	Reading	Tide in Ft NAVD 88
15:17	1.15	1.53
15:28	1.13	1.43
15:31	1.10	1.43
15:37	0.99	1.33

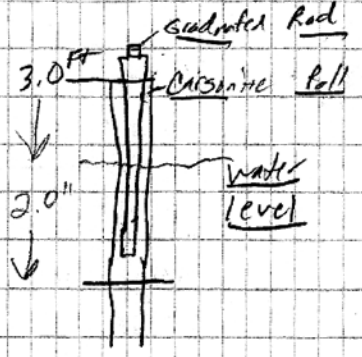
Elevation @ Top of Carsonite Post = 3.33 NAVD 88 Ft.

Reset Tide stand

16:11	2.45	1.13
16:16	2.41	1.09
16:23	2.46	1.14
16:27	2.31	0.99
16:33	2.26	0.94
16:47	2.18	0.86

Elevation @ Top of Carsonite Post = 1.68 NAVD88 Ft.

Tide Stand Setup 7/22/05



- Reading for tideshot is off the graduated Rod attached to the Carsonite.
- Tide stand shot was taken @ top of carsonite "3.0"

(KW)

Elevation @ Top of Carsonite Witness Post = 3.33 NAVD88 Ft.

KW/JS/GW Bathy Survey Pelican Island 7/22/05

Target	Poll depth						
16:22:17	7.7		16:29.26	6.2		34.31	9.7
16:22:27	8.1		16:29.33	6.3		34.38	9.7
16:22:38	9.0		16:29.38	5.8		34.47	10.2
16:22:46	7.2		16:29.45	6.4		34.55	10.3
16:22:57	9.5		16:29.51	7.5		35.04	10.4
16:23:09	9.6		29.57	8.2		35.12	11.1
16:23:21	9.9		30.03	8.4		35.19	10.5
16:23:31	9.9		30.11	8.9		35.27	10.6
16:23:44	10.0		30.19	9.6		35.36	9.7
16:23:53	10.2		30.27	9.3		35.46	9.0
16:24.02	10.4		30.36	10.1		35.52	9.0
16:24.12	10.5		30.44	10.8		35.59	9.3
16:24.20	10.4		30.52	10.8		36.04	8.3
16:24.31	10.0		31.02	10.3		36.13	8.3
16:24.41	9.3		31.11	10.4		36:19	8.1
16:24.50	8.9		31.20	10.4		36.25	7.4
16:24.59	9.0		31.29	9.8		36.31	7.4
16:25:10	8.3		31.39	9.6		36.37	5.8
16:25.20	8.3		31.47	8.8	1.1	36.43	5.5
16:2536	8.4		31.56	8.1		38.48	5.3
16:25.41	8.6		32.05	8.7		36.52	5.3
16:25.53	6.4		32.14	7.0			
16:26.02	5.7		32.59	5.2		37.05	6.2
16:26.10	5.7		32.24	3.8		37.13	4.9
16:26.18	5.6					37.17	4.8
16:26.26	5.3		33.37	5.1		37.23	4.3
16:26.38	6.3		33.43	7.1		37.26	4.0 099
16:26.47	4.4		33.48	8.1		37.31	2.6
16:26.56	3.7		33.54	7.8			
16:27.03	3.3		34.01	8.6			
16:27.08	2.9		34.08	9.1			
16:27.13	2.6		34.16	9.6			
			34.23	10.3			

20 ft Pipeline survey shore Parallel

26" Inshore Pipeline.

Time	Pull depth
12.51	9.0
20.03	5.3
20.09	5.1
20.17	5.4
20.22	5.9
20.27	6.3
20.33	7.2
20.39	7.7
20.47	8.7
20.54	9.2
21.01	10.7
21.10	12.4
21.19	13.4
21.30	14.7
21.40	17.0
21.54	24.0
22.18	18.4
22.33	17.9
22.45	20.2
22.59	23.6
23.11	16.8
23.22	17.6
23.34	16.9
23.45	19.1
23.57	16.2
24.09	17.8
24.21	13.8
24.25	13.3
24.55	10.0
25.09	11.5
25.23	10.7
25.37	4.5

2.46

~40 ft from shore

Time	Pull depth
29.58	5.5
30.05	6.5
30.12	7.1
30.21	7.9
30.30	8.9
30.39	9.7
30.49	11.6
31.00	12.4
31.09	13.1
31.19	13.8
31.31	15.6
31.44	>20
31.58	>25
32.08	24.38
32.21	>25
32.35	>25
32.46	17.4
33.00	17.4
33.13	16.9
33.26	18.3
33.39	16.8
33.55	16.4
34.06	11.3
34.15	9.2
34.24	8.8
34.33	8.9
34.42	9.8
34.51	10.3
35.02	4.5
35.15	[illegible]

2.26

Time	Pull depth	
17.38.20	5.1	
38.27	5.1	
38.33	5.4	
38.38	5.8	
38.43	6.2	
38.51	6.4	
38.57	6.8	
39.02	6.9	
39.08	7.5	
39.14	7.9	
39.21	8.8	
—	9.6	
39.35	10.5	
39.45	12.5	
39.54	13.7	
40.03	15.5	
40.16	>21	
40.28	24.8	2.2
40.47	22.0	
41.03	20.8	
41.19	25.0	
41.33	16.3	
41.46	16.9	
42.00	15.9	
42.12	17.9	
42.27	19.4	
42.40	15.5	
42.54	13.5	
43.05	9.2	
43.13	9.2	
43.20	9.8	
43.27	8.8	

continue

KW/GW 7/22/05

Reset Tide station

STA	DEPTH	+	HI	−	ELEV		Elev
		4.16	8.17		4.005	MOUTH HUB	
				3.52	SS STUMP		4.65
				6.48	SS TIDE STAND		1.69
				6.49	SS Tide Stand		1.68
				4.17 ✓	Mouth Hub		4.00
		4.56	9.21		SS Stump		4.65
				5.19	Mouth Hub		4.02
		8.72 ✓		8.91 ✓			

Continued

43.35	10.2
43.32	10.8
43.52	8.7
44.08	7.0

Pelican Island Pipeline Survey

7/23/05

06:30 Mob @ Empire Inn

07:00 Depart Empire Inn

07:15 Arrive @ JDChivas Marina

07:35 Depart Marina in route to Seadrift Pass

08:10 Arrive @ Seadrift Pass & setup RTK
Check @ CHK H: 0.046
V: -0.004

08:30 Set Range Marks for Patrols
& Set up Tide Stand

09:30 Rain Stop

10:30 Start Bathy Survey Chk w/ RTK for dGPS

11:30 End Bathy Survey & Mob Mag for Boat tow

12:15 Start Mag tow lines. Mag Layback 70 Feet Aft.

13:15 End Mag tow lines
GPS Chk w/ RTK "DGPS ~~EOD~~ CHK EOD 0723

14:15 Begin Jetprobing of Targetted Area

15:45 End Jetprobe & Begin to demob Boat

16:00 Chk into "Ex CHK" H:
V:

16:15 - Drag the Center Channel for Pipeline
Nothing Found.

16:30 Load Boat

17:00 Depart Seadrift Pass

18:10 Arrive @ Marina

18:30 Arrive @ Empire Inn

Mag Survey Lines

Descr.	SOL	EOL	Direction	Name
Pass 1	13:14	13:41	out channel	000_1314.Raw
Pass 2	13:42	13:50	in channel	000_1342.Raw
Pass 3	13:52	13:56	out channel	000_13:52.Raw
Pass 4	13:59	14:06	in channel	000_13:57.Raw

MAG TARGETS

Pass 1
Pass 2
Pass 3
Pass 4

Larger Mag hit

Az: 2-3	110°	14'	48"	110°	14'	
Az: 2-4	284	55'	25"	104°	55'	25"
Az: 2-1	291	25'	31"	111	25'	
Az: 1-3	110°	42'	43"	110°	42	
Az: 1-4	283°	29'	45"	103	29	
Az: 3-4	286°	04'	36	106	04	

110 105
105 108
111 111
111 111
103 109
106 110
646 654

Smaller Mag hit

Az 1-2	104°	53'	11"	
1-3	108°	00'	15"	
1-4	290°	31	10"	110 31.1
2-3	110°	56'	34"	
2-4	289°	29'	23"	109 29
3-4	289°	43'	34"	109 43

6)646 = 107   674

7/23/05 KW/GW

Survey in. tide stand.

STA	Dist	+	Hi	-	Elev	Rem
		5.26	8.18		2.92	"Hub landed"
				4.91	3.27	ss stamp
				4.64	3.54	Tide stand.
				4.69	3.27	Tide stand CHK
				5.25	2.93	Hub CHK
		3.93	7.20		3.27	ss stamp
				4.27	2.93	
		9.19 ✓		9.18 ✓		

Tide

10:18	1.9			17:34	1.9	
10:20	1.9					
10:25	1.9			16:25	1.2	
10:29	1.9					
10:34	1.9					
10:39	2.0					
10:45	2.0					
10:49	1.9					
10:54	1.9					

= 3.54 Ft NAVD 88

Scaffold Time	Pass Roll	Throat
11:19.32	7.2	
11:19.44	8.5	
11:20.14	>20	1.92
11:20.22	>25	
11:20.36	>25	
11:20.47	>25	
21.01	>25	
21.13	24.2	
21.22	19.5	
21.34	16.0	
21.46	12.7	
21.56	10.9	
22.10	7.9	
22.18	6.7	
24.56	5.8	
25.03	8.4	
25.10	12.8	
25.20	19.6	
25.33	23.0	
25.45	>25	1.93
25.57	>25	
26.08	>25	
26.20	23.9	
26.32	18.2	
26.44	14.8	
11:26.56	12.4	
27.03	10.7	
27.10	8.6	
27.17	7.2	
27.24	6.7	

Scaffold Time	Pass Roll	Profile
30:31	2.7	
30:38	2.4	
30.43	3.0	
30.49	3.0	
30.54	3.5	
30.59	3.5	
31.06	7.7	
31.12	8.4	
31.19	8.9	
31.26	9.6	
31.33	11.0	
31:43	14.7	
31.51	3.5	
32:02	18.1	
32:12	16.3	
32:23	11.8	
32:33	9.7	
32:43	8.5	
32:50	7.2	
32:57	5.7	
33:04	3.8	
36:17	2.7	
36:23	2.7	
36:27	2.7	
36:31	3.1	
36:35	3.3	
36:39	7.1	
36:48	8.2	
36.54	9.0	
37:02	9.8	
37:10	12.1	

Profile 2

37:18	14.7
37:26	12.5
37:36	18.0
37:44	16.1
37:54	12.6
38:01	10.0
38:07	9.4
38:14	8.4
38:21	7.4
38:28	5.8
38:35	3.7
38:41	2.9

Scofield Pass outside

44.25	2.9	
44.34	2.9	
44.41	2.9	
44.46	3.1	
44.56	4.3	2.0
44.59	5.6	
45.04	7.3	
45.09	7.9	
45.16	9.1	
45.23	9.2	
45.29	9.5	
45.35	9.5	
45.42	9.6	
45.48	9.7	
45.54	9.4	
46.01	9.4	
46.06	9.3	
46.14	9.4	
46.19	9.4	
46.25	8.9	
46.32	8.5	
46.39	8.2	
46.45	7.4	
46.52	6.6	
46.57	5.7	
47.03	5.4	
47.09	4.8	
47.15	4.7	
47.21	4.4	
47.26	4.1	
47.35	4.1	

49.01	3.0
49.11	3.5
49.19	3.4
49.25	3.4
49.31	3.8
49.37	3.8
49.42	3.9
49.47	4.0
49.53	4.4
49.58	4.5
50.04	4.8
50.12	5.0
50:	5.3
50:23	6.0
50.31	7.6
50.36	7.5
50.43	8.4
50.49	8.8
50.57	9.2
51.04	9.4
51.11	9.5
51.19	9.4
51:27	9.7
51.34	9.5
51.40	9.5
51.47	9.8
51.56	9.2
52.03	8.9
52.10	9.0
52.17	8.4
52.24	8.2
52.30	6.9
52.36	5.5

52:42	3.2
52:47	2.9
52:52	2.7

Scofield Pass Inlet Profile.

Time	Pell						
57:23	8.4		01:13	10:00		06:26	>20
57:33	8.9		01:22	10:3		06.35	>20
57:41	9.1		01:31	10.0		06:44	>20
57:50	8.9		01:39	10,1		06:53	>20
57:58	9.1		01:49	10.4		07:01	>20
58.05	9.1		01:57	11.1		07:12	>20
58,12	9.3		02:05	11.1		07:21	>20
58.20	9,2		02:13	11.4		07:31	>20
58.27	9,6		02,22	10.6		07:41	>20
58.33	9.8		0	10.0		07:54	>20
58.39	9.1		02:39	10,7		08:05	>20
58.45	9.3		02:48	10.1		08:15	>20
58.52	9.6		02:57	10.5		08:25	>20
58.58	9.4		03:06	11.4		08:34	>20
59.04	9.8		03:15	11.6		08:43	>20
59.10	9.3		03.25	12.0		08:54	18.8
59.17	9.4		03:35	12.5		09:05	16.2
59.24	9.4		03:34	12.9		09:16	14.2
59.30	9.5		03:53	13.2		09:25	14.6
59.37	9.6		04.03	14.7		09.34	12.8
59.45	9.7		04:14	16.1			
59.52	9.7	1.9	04:24	17.0			
00:02	9.7		04:35	17.4			
00:12	9.6		04:46	18.2			
00:17	9.2		04:55	19.3			
00:22	9.8		05:10	>20	1.9		
00:29	9.7		05:19	>20			
00:36	9.8		05:29	>20			
00:43	9.8		05:38	>20			
00:52	9.8		05:47	>20			
01:00	9.6		05:57	>20			
			06:06	>20			
			06:17	>20			

11:12	9.8		16:23	17.4			21.58	
11:20	9.4		16:33	15.9			22.05	9.8
11:28	12.3		16.44	15.4			22.14	9.6
11:37	13.6		16.56	14.5			22.25	9.4
11:45	13.7		17:08	13.7			22.34	9.5
11:54	15.6		17:18	13.4			22.24	9.4
12:04	17.8		17:28	12.5			22.53	9.7
12:15	19.4		17:39	12.4				
12:26	> 20		17:50	12.1				
12:35	"		18.01	11.6				
12:44	"		18.11	11.3				
12:53	"		18.22	11.3				
13:01	"		18.32	10.9				
13:09	"		18.42	11.1				
13:17	"		18.52	10.8				
13:26	"		19.01	10.7				
20.	"		19.10	10.4				
13:44	"		19:21	10.5				
13:54	"		19.31	10.7				
14:02	"		19.41	10.6				
14:11	"		19.51	10.6				
14:19	"		20.01	10.1				
14.28	"		20.09	9.9				
14:38	"		20.18	9.7	1.93			
14:48	"		20.27	9.6				
14:58	"		20.36	9.7				
15:06	"		20.45	9.7				
15:14	"		20.55	9.6				
15:25	"	1.93	21.03	9.8				
15:35	"		21.10	9.8				
15:44	"		21.20	9.5				
15:54	19.1		21.28	9.7				
16.03	18.1		21.37	9.6				
16.13	17.7		21.48	9.2				

Extra Points @ Thru.

34.34	7.4		37.47	3.1			
34.44	14.7		37.51	3.1			
34.54	6.5		37.54	3.1			
35.01	6.7		37.59	3.0			
35.08	4.8		38.03	3.0			
35.16	4.0		38.10	2.9			
35.23	3.9		38.15	2.9	1.93		
	3.8						
35.34	3.7						
	3.6		40:00	4.9			
35.45	3.6		40:07	4.5			
35.50	3.7		40:13	5.2			
35.58	3.7		40:20	5.5			
36.06	3.6		40.27	6.0			
36.13	3.5		40.33	6.9			
36.21	3.4		40.40	6.3			
36:27	3.3		40.46	5.8			
36:34	3.4		40.51	5.2			
36:29	3.2		41:00	4.5			
36:35	3.4		41.05	3.9			
36:49	3.2						
	3.2		11:45	1.9			
36:58	3.2						
37:01	3.4						
37:06	3.2						
37.10	3.2						
37.14	3.3						
37:18	3.2						
37:22	3.4						
37:26	3.3						
37:30	3.2						
37:34	3.3						
37:	3.1						