Preliminary Survey Report

No Name Bayou Marsh Creation and Nourishment (CS-78)

Cameron Parish, Louisiana

Prepared for the
State of Louisiana
Coastal Protection and Restoration Authority

Contract No. 4400005539 (2503-15-21)
Task Order No. 1

Chustz Surveying Inc.
211 Richy Street
New Roads, LA 70760
225-638-5949

April 2016

Section 1
General Project Description and Background

This project was conducted by Chustz Surveying, Inc. (CSI) for the State of Louisiana, Office of Coastal Protection and Restoration Authority (CPRA) under contract 4400005539, No Name Bayou Marsh Creation and Nourishment (CS-78), Cameron Parish, Louisiana.

1.1 Statement of Work to be Performed

The required work consists of a comprehensive survey of approximately 2.2 square miles at the No Name Bayou Marsh Creation site. The survey includes a fully constrained static GPS survey to establish control, 72 cross sections at 250 foot intervals to cover the marsh fill site, roadway, and levees, three centerline profiles with additional cross sections at 500 foot intervals, establishing two baselines, setting one staff gage, a full topographic survey of surface features and infrastructure, average marsh elevation shots in five sites, and a magnetometer survey.

Section 2
Survey Methodology and Data Processing

2.1 Permission and Access

Landowner information was provided to Chustz Surveying, Inc. by CPRA under Appendix B of the scope of work. All land owners were contacted via phone and/or notified by a certified letter. All contacts were made and necessary permissions were secured by December 29, 2015. Reference Appendix A for certified mail return receipts. Note that Cameron Parish Gravity Drainage District No. 3 was contacted only by telephone as that was the only contact information supplied.

2.2 Horizontal and Vertical Control

On January 4, 2016, CSI deployed a survey crew to the job site to begin the static GPS survey and set control. A four hour afternoon static GPS session was conducted utilizing a Trimble© 5700 receiver on a 2 meter fixed height tripod with a Trimble© Zephyr antenna set up on monument “NO NAME”. Two additional four hour static GPS sessions were conducted in the morning on January 5, and the early morning of January 6, to complete the static GPS surveys. The GPS data was then sent to the office for processing where it was uploaded to OPUS. Once the precise ephemeris was available, the data was then constrained to local CORS stations and a fully constrained network adjustment was performed in Trimble© Business Center to produce final values for “NO NAME”. Reference Appendix B for all GPS information.

The additional control on site was set utilizing RTK survey methods with two Trimble© 5700 receivers, Zephyr antennas and a TSC2 data collector with the base first set on monument “NO NAME” and the rover set on strategically set 60D nails and iron rods. From there RTK side shots and traverses were conducted to extend the control throughout the site for the required survey.

2.3 Baseline Survey

The baselines were set and surveyed on March 22, 2016. Two baselines were established utilizing RTK survey methods with two Trimble© 5700 receivers, Zephyr antennas and a TSC2 data collector. Brass caps on 2 foot long, 5/8” rebar were set for baseline monumentation and stamped PI-1 through PI-8. Baseline monuments PI-1 through PI-6 were set along the levee on the west side of the site to establish the baseline for the road and levee cross sections while PI-7 and PI-8 were set at the south end of the site on the east and west sides for the marsh fill site cross sections. Reference Appendix C for photos.

2.4 Staff Gage

The staff gage was set on February 2, 2016 and a water surface elevation was established with a 3rd Order level loop utilizing a Topcon AT-G3 level. First the crew conducted a level peg test to ensure that all of the leveling equipment was operating within the allowable tolerances. Next the crew ran a 3rd Order level loop from “NO NAME”, to a 60D nail set at the 3.0 foot mark and back to “NO NAME” with an observed error of 0.00 feet. They then set a style “C” staff gage made of iron and coated in enamel, marked -2.0 to +3.0 feet. It was set to match the 3.0 foot mark so that the zero is equal 0.0 feet in elevation referenced to NAVD88 utilizing the current epoch at the time of the GPS data collection. To reach the staff gage from the intersection of HWY 27 and HWY 1142, travel west on HWY 27 for 2.8 miles and turn left on Wakefield Rd. Travel north on Wakefield Rd. for 1.6 miles and continue 1.7 miles northeast on the shell road to the gage set on the right. The gage is set on the southwest corner of a boat dock owned by Robert Gaspard. It is located 18.5 feet south of a square “D” electric box, 86.4 feet south-southeast of the southeast corner of a camp, and 44.5 feet west of the centerline of a boat ramp. The approximate location of the gage is at 29°50'16.2" N, 93° 19'15.5" W based on a handheld GPS position. The water surface was recorded each day and referenced to this gage. Reference Appendix D for photos.

2.5 Marsh Creation Fill Site and Canal Clean-out Surveys

Once sufficient control was established with iron rods and 60D nails, the crews began collecting the cross sections in the Marsh Creation Fill site on January 5, 2016 using RTK survey methods with two 5700 receivers and two Zephyr antennas. The area was composed of 42 cross sections extending north to south and occurred at 250 foot intervals covering nearly two square miles of marsh at the Marsh Creation Fill site with shots at 25 foot intervals. Due to location and site conditions, the site was only accessible to survey from a boat or marsh buggy. Approximately half of the site was accessible and

surveyed with a Gator Tail boat and RTK equipment. For the remaining areas, Chustz Surveying's airboat was used to collect the data using RTK. Most ranges were surveying utilizing both vessels and the marsh was inconsistent throughout the entire site. The data collection for this aspect of the job was completed on March 15, 2016.

2.6 Surface Features and Infrastructure

A second crew was deployed to the site on February 29, 2016 to begin surveying the surface features and infrastructure at the site. Utilizing a Trimble© S6 robotic total station and a Trimble© TSC2 data collector, the crew began collecting the required topographic and utility data. The crew surveyed all features both visible and marked such as roads, levees, breaks in natural ground, piers, docks, buildings, power lines, power poles, utility boxes, culverts, inverts, fences, structures, etc. They began at the southwest end of the site and worked their way up north and to the east to cover the site completely. This portion of the survey was completed on March 4, 2016.

2.7 Roadway and Levee Surveys

The data collection for the 34 roadway and levee transects began on January 8, 2016, utilizing conventional survey methods with a Trimble© S6 robotic total station and a TSC2 data collector. The transects were collected at 250 foot intervals with a shot interval of 25 feet and ran along the road from the southwest corner of the site to the north water's edge. Additionally, 3 profiles at 25 foot shot intervals, covering over 3.5 miles were required with cross sections every 500 feet. The cross sections were collected at 2 foot shot intervals perpendicular to the profile, extending 50 feet from the centerline of the profile, out on both sides. The profiles were field fit to align with the roads and levees. With two Trimble© 5700 receivers and Zephyr antennas, an additional crew was deployed to assist the first crew in collecting the 34 cross sections along the roadway and levees using RTK survey methods. On January 26, 2016, another crew was deployed to assist in collecting the roadway and levee profile and cross section surveys. Utilizing two Trimble© R6 receivers and a TSC3 data collector, the crew began collecting the centerline profile and cross section data for CL-1. Data collection on CL-2 and CL-3 was started the next day and the profile and cross section data for the roadways and levees was completed on March 7, 2016.

2.8 Marsh Elevation Surveys

On March 7, 2016, a survey crew was deployed to the site to collect the Marsh Elevation Survey data. Two Trimble© 5700 receivers, two Zephyr antennas, and a TSC2 data collector were used to conduct the RTK survey to collect this data. The crew first contacted Mike Miller from the CPRA Lafayette Office to determine the survey site locations. Once the five sites were decided, the crew began at Site #4, collecting the necessary data. There were two types of marsh grass on site that were surveyed: Cordgrass (Spartina) and Patens Grass (Spartina Patens). The crew collected a shot on the ground at the base of the cordgrass only, but the patens grass data was collected on the ground at the base and at the top of the clumps. Once complete, they moved on to Site #5

then Site #3, Site #2, and Site #1. This portion of the job was completed the same day and the data was sent to the office for processing. The bottom shots of the marsh and the tops of the patens grass were averaged for each site to determine the average marsh elevations. Reference Appendix E for the average marsh elevations spreadsheet.

2.9 Magnetometer Survey

The magnetometer survey was conducted by John Chance/Fugro as a subcontractor of CSI. Prior to the commencement of the field surveys, locations for the pre-plotted magnetometer track lines were plotted in Trimble© Business Center software and exported to Google Earth along with the existing GPS reference control monuments to facilitate scheduling and logistics. All track lines were uploaded into the RTK survey controller so that the survey crews could navigate the required lines to record magnetic anomalies to later facilitate locating the possibility of pipelines or hazards within marsh creation area by probing.

2.9.1 Magnetometer Hazard Surveys

On Tuesday, February 8, 2016, the survey crew traveled to the project site to commence surveys. Upon meeting with the survey crews from Chustz Surveys, Inc. to discuss safety and project requirements, the JCLS crew installed the RTK Base Station on a brass cap monument called “No Name”, which is located on the eastern side of a water control structure at No Name Bayou. Upon installing the GPS base receiver with a fixed height tripod on the monument, the receiver was initialized to collect Static GPS and transmit corrections, via radio link, to the RTK Rover to accurately navigate along the track lines and record anomalies.

The survey crew installed the RTK rover to a push cart which held the Geometrics G858 MagMapper magnetometer and a laptop computer with HyPack software. Using the Hypack system, the survey crew integrated the RTK system and Magnetometer, applied the proper offsets, and initialized the system to record positions and anomalies into the software.

On Thursday, February 10th, magnetometer surveys were performed in the fill area and canals from an airboat to locate the possibility of hazards. Unidentified anomalies were located from the airboat using a Geometrics G858 MagMapper magnetometer and a laptop computer with HyPack software. The contacts are presumed to represent articles of ferrous debris which are either buried below the mudline or too small to be acoustically detected and probably associated with debris. A table of the recorded magnetic anomalies, identified and unidentified, is listed in this report. The unidentified anomalies are also numerically listed in a table located on a map included in this report. Magnetometer Surveys were completed on Wednesday, February 16th.

Probing commenced on Thursday, February 17, 2016, to verify existing pipeline locations in addition to determining the depth of cover. Once contact was made with the probe rod, water depths and depth of cover was measured and recorded in the field

notebook. After recording the precise location with RTK, a cane pole was placed at the location and flagged. All field work was completed on Saturday, February 19, 2016.

A nomogram provides a visual reference of the relationship between a ferrous object and magnetic deflection generated by the object. The amplitude and signature width of a magnetic deflection are dependent on a variety of factors that include object size and configuration, ferrous content, and distance from the sensor (Breiner, 1973). Since all of the variables involved in anomaly classification are not readily available, the nomogram provides only a rough estimate for anomalies and source size. The positions of the unidentified anomalies were recorded using the onboard DGPS system. Water surface shots were taken occasionally by the bathymetric survey crew using RTK to obtain the water surface elevation relative to NAVD88 using Geoid12B.

Back at the office, all of the raw data was imported into HYPACK® program, which includes the raw survey data, and the CRP/transducer offset file. The final adjusted and edited file was exported in ascii format and vertically adjusted using NAVD88-Geoid12B.

2.9.2 Static GPS and Real-time Kinematic (RTK) Surveys

Prior to commencing the RTK survey on Tuesday, February 8, 2016, the survey crew installed the RTK base unit on a brass cap monument called “No Name”, which is located on the eastern side of a water control structure at No Name Bayou. Upon installing the GPS base receiver with a fixed height tripod on the monument, the receiver was initialized to collect Static GPS and transmit corrections, via radio link, to the RTK Rover to accurately navigate along the track lines and record anomalies. The base unit was then activated to begin additional static data collection while simultaneously transmitting DGPS corrections to the RTK rover. Upon calibrating, the crew then navigated to pre-plotted transects to commence data collection.

Additional GPS Observations were performed on NGS monument “A 357” concurrently with RTK survey checks on additional benchmarks within the project from February 9 through February 19, 2016. All magnetic anomalies were located with RTK and finally, the verified probed locations were recorded with RTK.

Static GPS was collected at the base station concurrent with the RTK survey so that post processing could be performed and checked with NGS Online Positioning User Service (OPUS) Program. Upon completion of the RTK survey, the data logger was downloaded and the information checked.
GPS Survey Equipment

The equipment used for the static GPS survey consisted of Trimble© Navigation’s dual frequency R8 GNSS Mod 3 GPS (Base) receiver with built in antenna. A two-meter fixed-height tripods was used to eliminate human error that could be introduced by miss-measurement of the GPS antenna heights. The GPS data was downloaded, processed and adjusted using Trimble© Business Center Software. The

Geoid12B model was used to determine the geoid separation and applied to the ellipsoid heights for elevation determination.

The Real-time Kinematic (RTK) survey consists of two Trimble© Navigation's dual-frequency R8 GNSS Mod 3 GPS (Base) receiver with built in antennas and a radio link to transmit corrections to the rover from the base setup. A two-meter fixed height tripod was used at the base and a two meter fixed height rod at the rover. Geoid12B model was used to determine the geoid separation and applied to the ellipsoid heights for elevation determination. The data was collected and stored on a Trimble© TSC3 datalogger, then downloaded and post-processed using Trimble© Business Center (TBC), version 3.40. Reference Appendix F for the magnetometer survey information.

2.10 Office Processing

The survey data for this job was submitted to the CSI office and processed on a daily basis utilizing Trimble© Business Center and DC editor. Once all the data was collected, the processed data was compiled in Terramodel and QC/QA procedures were conducted. Once complete, the data for the required deliverables was extracted and final deliverables were produced using AutoCAD and Microsoft Office. The preliminary submittal package was delivered on Friday, March 22, 2016.

Appendix A

Certified Mail Receipts

No Name Bayou Marsh Creation and Nourishment (CS-78)

Cameron Parish, Louisiana

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Cameran Prairie National Wildlife Refuge
1428 Hwy. 27
Bell City, LA 70630

9590 9403 0397 5163 4723 43

2. Article Number *(Transfer from service label)*

7015 0640 0003 7655 5428

PS Form 3811, April 2015 PSN 7530-02-000-9053 Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Marsa Fontenot C. Date of Delivery 12-28-15

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Cheniere Energy, Inc
700 Milam St, Suite 1900
Houston, TX 77002

9590 9403 0397 5163 4723 36

Article Number *(Transfer from service label)*

7015 0640 0003 7655 5404

PS Form 3811, April 2015 PSN 7530-02-000-9053 Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X Paul DeLoon ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Paul DeLoon C. Date of Delivery 12/29/15

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

JAN 04 2016

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☑ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Port of Lake Charles
150 Maine St.
Lake Charles, LA 70601

9590 9403 0397 5163 4723 29

Article Number *(Transfer from service label)*

7015 0640 0003 7655 5398

PS Form 3811, April 2015 PSN 7530-02-000-9053 Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Erin Willer C. Date of Delivery 12-28-15

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Henry McCall
P.O. Box 186
Cameron, LA 70631

9590 9403 0397 5163 4723 12

2. Article Number *(Transfer from service label)*

7015 0640 0003 7655 5381

PS Form 3811, April 2015 PSN 7530-02-000-9053 Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Rocky Kelley C. Date of Delivery 12-28-15

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

USPS DEC 28 2015 CAMERON LA 70631

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

Appendix B

Static GPS Survey Control

No Name Bayou Marsh Creation and Nourishment (CS-78)

Cameron Parish, Louisiana

VICINITY MAP

Station Name: "LADNR NO NAME"

Monument Location: The station is located in Cameron Parish, LA, 2.7 miles North of Cameron, LA, 27.9 miles South of Sulphur, LA, and 42.5 miles Southwest of Lake Arthur, LA. To reach the station from the intersection of HWY 82 and HWY 27, travel West on HWY 82 for 7.0 miles to Wakefield Rd. and turn right, proceed 1.6 miles to the end of the road and continue North on a gravel road that crosses the levee for 1.8 miles to the station on the east side of the control structure.

Monument Description: The monument is a brass cap found on the top of the concrete on the east end of the control structure, located 84.1 feet East of the West chainlink fence gate, 0.8 feet West of the East chainlink fence gate, and 21.4 feet East-Northeast of a ladder.

Date: January 4, 2016

Monument Surveyed By:
Chustz Surveying, Inc.

Surveyed NAD 83 Geodetic Position*
Lat. 29 50 17.36714 N
Long. 93 19 13.80895 W

Surveyed Grid Position (LSZ 1702 ft) *
N: 492,099.90
E: 2,650,841.83

Surveyed Elevation (ft) *
NAVD 88 (Geoid 12B)
Elev. = 4.19

*** The surveyed information referenced above is the result of three Static GPS sessions fully constrained to local CORS stations.**

GPS Log Sheet for Fixed Height Tripods

USE THIS FORM IS USING FIXED HEIGHT TRIPODS

GPS LOG SHEET

Job No. 4400005539 | 2503-15-21 | Operator DEREK COLLETTE

Client CPRA | Job Description CS-78 NO NAME BAYOU

Location CAMERON PARISH

SESSION INFO

Station No. (4 Characters)	Julian Date (3 Characters)	Session No. (1 Character)
NNME	004	0

Long Name LADNR NO NAME

Monument Description BRASS CAP ON EAST END OF CONCRETE CONTROL STRUCTURE

Receiver Type TRIMBLE 5700 | Receiver Serial No. 0220310827

Antenna Type ZEPHYR GEODETIC | Ant. Serial No. 12286295

Antenna Height Measurement is **TRUE VERTICAL** to Bottom of Antenna Mount if Using Fixed Height Tripod

Reading 1	NA	Meters	Fixed Hgt 2 Meter Tripod	2.000	Meters
Reading 2	NA	Meters	Check Reading	6.562	Feet/Tenths
Reading 3	NA	Meters	Note: Record all readings on log sheet prior to entering in receiver		

Start Time 1121 | Stop Time 1604 | Session Time 0443

Time	Pdop	Satellites in View
1121	4.596	10

Time	Note any Power Failures, Weather Conditions, etc.
1400	MODERATE WINDS 5-15 MPH
1630	MODERATE WINDS 5-15 MPH

USE BACK OF THIS SHEET TO MAKE STATION SKETCH, REFERENCE TIES & DESCRIPTION

GPS Log Sheet for Fixed Height Tripods

USE THIS FORM IS USING FIXED HEIGHT TRIPODS

GPS LOG SHEET

Job No: 4400005539 2503-15-21 Operator: DEREK COLLETTE

Client: CPRA Job Description: CS-78 NO NAME BAYOU

Location: CAMERON PARISH

SESSION INFO

Station No. (4 Characters)	Julian Date (3 Characters)	Session No. (1 Character)
NNME	005	0

Long Name: LADNR NO NAME

Monument Description: BRASS CAP ON EAST END OF CONCRETE CONTROL STRUCTURE

Receiver Type: TRIMBLE 5700 Receiver Serial No.: 0220310827

Antenna Type: ZEPHYR GEODETIC Ant. Serial No.: 12286295

Antenna Height Measurement is **TRUE VERTICAL** to Bottom of Antenna Mount if Using Fixed Height Tripod

Reading 1	NA	Meters	Fixed Hgt 2 Meter Tripod	2.000	Meters
Reading 2	NA	Meters	Check Reading	6.562	Feet/Tenths
Reading 3	NA	Meters	Note: Record all readings on log sheet prior to entering in receiver		

Start Time: 0935 Stop Time: 1419 Session Time: 0444

Time	Pdop	Satellites in View
0935	5.371	10

Time	Note any Power Failures, Weather Conditions, etc.
0930	CLOUDY WITH MODERATE WINDS 5-15 MPH
1230	CLOUDY WITH MODERATE WINDS 5-15 MPH
1430	CLOUDY WITH MODERATE WINDS 5-15 MPH

USE BACK OF THIS SHEET TO MAKE STATION SKETCH, REFERENCE TIES & DESCRIPTION

GPS Log Sheet for Fixed Height Tripods

USE THIS FORM IS USING FIXED HEIGHT TRIPODS

GPS LOG SHEET

Job No. 4400005539 | 2503-15-21 | Operator DEREK COLLETTE

Client CPRA | Job Description CS-78 NO NAME BAYOU

Location CAMERON PARISH

SESSION INFO

Station No. (4 Characters)	Julian Date (3 Characters)	Session No. (1 Character)
NNME	006	0

Long Name LA DNR NO NAME

Monument Description BRASS CAP ON EAST END OF CONCRETE CONTROL STRUCTURE

Receiver Type TRIMBLE 5700 | Receiver Serial No. 0220310827

Antenna Type ZEPHYR GEODETIC | Ant. Serial No. 12286295

Antenna Height Measurement is **TRUE VERTICAL** to Bottom of Antenna Mount if Using Fixed Height Tripod

Reading 1	NA	Meters	Fixed Hgt 2 Meter Tripod	2.000	Meters
Reading 2	NA	Meters	Check Reading	6.562	Feet/Tenths
Reading 3	NA	Meters	Note: Record all readings on log sheet prior to entering in receiver		

Start Time 0543 | Stop Time 1000 | Session Time 0417

Time	Pdop	Satellites in View
0543	5.374	9

Time	Note any Power Failures, Weather Conditions, etc.
0800	CLOUDY WITH MODERATE WINDS 5-15 MPH
1000	CLOUDY WITH MODERATE WINDS 5-15 MPH

USE BACK OF THIS SHEET TO MAKE STATION SKETCH, REFERENCE TIES & DESCRIPTION

Project File Data		Coordinate System	
Name:	N:\Jobs\2015\15-042 CS-78 No Name Bayou\GPS\CS-78 GPS TBC 1 Test\CS-78 GPS TBC 1.vce	Name:	US State Plane 1983
Size:	82 KB	Datum:	NAD 1983 (Conus)
Modified:	1/26/2016 3:20:48 PM (UTC:-6)	Zone:	Louisiana South 1702
Time zone:	Central Standard Time	Geoid:	Geoid12B-CSI
Reference number:		Vertical datum:	
Description:			
Comment 1:			
Comment 2:			
Comment 3:			

Network Adjustment Report

Adjustment Settings

Set-Up Errors

GNSS

Error in Height of Antenna: 0.001 ft

Centering Error: 0.001 ft

Covariance Display

Horizontal:

Propagated Linear Error [E]: U.S.

Constant Term [C]: 0.000 ft

Scale on Linear Error [S]: 1.960

Three-Dimensional

Propagated Linear Error [E]: U.S.

Constant Term [C]: 0.000 ft

Scale on Linear Error [S]: 1.960

Adjustment Statistics

Number of Iterations for Successful Adjustment:	2
Network Reference Factor:	1.00
Chi Square Test (95%):	Passed
Precision Confidence Level:	95%
Degrees of Freedom:	44

Post Processed Vector Statistics

Reference Factor:	1.00
Redundancy Number:	44.00
A Priori Scalar:	2.53

Control Point Constraints

Point ID	Type	North σ (US survey foot)	East σ (US survey foot)	Height σ (US survey foot)	Elevation σ (US survey foot)
CAMR	Global	Fixed	Fixed	Fixed	
MCNE	Global	Fixed	Fixed	Fixed	
TONY	Global	Fixed	Fixed	Fixed	
TXOR	Global	Fixed	Fixed	Fixed	
Fixed = 0.000003(US survey foot)					

Adjusted Grid Coordinates

Point ID	Northing (US survey foot)	Northing Error (US survey foot)	Easting (US survey foot)	Easting Error (US survey foot)	Elevation (US survey foot)	Elevation Error (US survey foot)	Constraint
CAMR	477703.514	?	2649131.907	?	53.327	?	LLh
MCNE	616052.255	?	2685467.014	?	60.597	?	LLh
NNME	492099.899	0.006	2650841.833	0.007	4.192	0.036	

TONY	626697.397	?	3056035.612	?	71.046	?	LLh
TXOR	599553.891	?	2494646.426	?	25.529	?	LLh

Adjusted Geodetic Coordinates

Point ID	Latitude	Longitude	Height (US survey foot)	Height Error (US survey foot)	Constraint
CAMR	N29°47'54.57714"	W93°19'30.38070"	-34.033	?	LLh
MCNE	N30°10'50.02265"	W93°13'03.84331"	-28.543	?	LLh
NNME	N29°50'17.36714"	W93°19'13.80895"	-83.510	0.036	
TONY	N30°13'16.94744"	W92°02'42.38714"	-18.233	?	LLh
TXOR	N30°07'30.70480"	W93°49'13.45009"	-64.014	?	LLh

Adjusted ECEF Coordinates

Point ID	X (US survey foot)	X Error (US survey foot)	Y (US survey foot)	Y Error (US survey foot)	Z (US survey foot)	Z Error (US survey foot)	3D Error (US survey foot)	Constraint
CAMR	-1054106.566	?	-18143194.025	?	10337920.463	?	?	LLh
MCNE	-1016206.386	?	-18075797.244	?	10458272.801	?	?	LLh
NNME	-1052230.958	0.007	-18136075.061	0.032	10350410.960	0.019	0.037	
TONY	-645810.421	?	-18085355.037	?	10471106.679	?	?	LLh
TXOR	-1206949.742	?	-18074170.105	?	10440843.259	?	?	LLh

Error Ellipse Components

Point ID	Semi-major axis (US survey foot)	Semi-minor axis (US survey foot)	Azimuth
NNME	0.008	0.007	105°

Adjusted GNSS Observations

Transformation Parameters

Deflection in Latitude: 0.002 sec **(95%)** 0.010 sec
Deflection in Longitude: -0.018 sec **(95%)** 0.040 sec
Azimuth Rotation: 0.007 sec **(95%)** 0.002 sec
Scale Factor: 1.00000010 **(95%)** 0.00000002

Observation ID		Observation	A-posteriori Error	Residual	Standardized Residual
MCNE --> TXOR (PV17)	**Az.**	264°07'01"	0.002 sec	-0.011 sec	-2.346
	ΔHt.	-35.454 ft	0.008 ft	0.047 ft	2.570
	Ellip Dist.	191546.009 ft	0.003 ft	-0.011 ft	-1.333
CAMR --> TXOR (PV18)	**Az.**	307°16'06"	0.002 sec	-0.001 sec	-0.234
	ΔHt.	-29.969 ft	0.027 ft	0.014 ft	1.107
	Ellip Dist.	196771.183 ft	0.003 ft	-0.017 ft	-2.289
CAMR --> TONY (PV29)	**Az.**	68°53'37"	0.002 sec	0.005 sec	2.274
	ΔHt.	15.762 ft	0.028 ft	0.008 ft	0.598
	Ellip Dist.	433355.281 ft	0.007 ft	0.008 ft	1.158
MCNE --> TONY (PV28)	**Az.**	87°24'38"	0.002 sec	0.002 sec	0.872
	ΔHt.	10.277 ft	0.017 ft	0.037 ft	2.166
	Ellip Dist.	370746.679 ft	0.006 ft	0.010 ft	1.216
CAMR --> NNME (PV3)	**Az.**	5°46'40"	0.093 sec	0.212 sec	1.665
	ΔHt.	-49.478 ft	0.038 ft	-0.002 ft	-0.035
	Ellip Dist.	14498.579 ft	0.006 ft	-0.004 ft	-0.422

TXOR --> TONY (PV27)	**Az.**	85°59'10"	0.002 sec	-0.002 sec	-1.484
	ΔHt.	45.731 ft	0.025 ft	-0.012 ft	-0.841
	Ellip Dist.	562084.029 ft	0.010 ft	-0.003 ft	-0.415
MCNE --> NNME (PV11)	**Az.**	194°39'55"	0.010 sec	-0.008 sec	-0.527
	ΔHt.	-54.963 ft	0.034 ft	0.049 ft	0.869
	Ellip Dist.	128707.020 ft	0.006 ft	0.014 ft	1.397
TXOR --> NNME (PV21)	**Az.**	123°16'56"	0.007 sec	-0.004 sec	-0.359
	ΔHt.	-19.509 ft	0.035 ft	-0.032 ft	-0.585
	Ellip Dist.	189601.210 ft	0.007 ft	-0.016 ft	-1.130
TXOR --> NNME (PV20)	**Az.**	123°16'56"	0.007 sec	0.005 sec	0.504
	ΔHt.	-19.509 ft	0.035 ft	0.001 ft	0.026
	Ellip Dist.	189601.210 ft	0.007 ft	-0.016 ft	-1.112
TONY --> NNME (PV32)	**Az.**	251°16'10"	0.003 sec	0.005 sec	1.043
	ΔHt.	-65.241 ft	0.036 ft	-0.029 ft	-0.538
	Ellip Dist.	426995.080 ft	0.009 ft	0.018 ft	1.110
CAMR --> NNME (PV4)	**Az.**	5°46'40"	0.093 sec	0.126 sec	0.979
	ΔHt.	-49.478 ft	0.038 ft	0.002 ft	0.038
	Ellip Dist.	14498.579 ft	0.006 ft	0.000 ft	-0.037
MCNE --> NNME (PV10)	**Az.**	194°39'55"	0.010 sec	-0.014 sec	-0.953
	ΔHt.	-54.963 ft	0.034 ft	0.021 ft	0.364
	Ellip Dist.	128707.020 ft	0.006 ft	0.002 ft	0.209
CAMR --> NNME (PV5)	**Az.**	5°46'40"	0.093 sec	-0.034 sec	-0.237
	ΔHt.	-49.478 ft	0.038 ft	-0.020 ft	-0.371
	Ellip Dist.	14498.579 ft	0.006 ft	0.010 ft	0.938
MCNE --> NNME (PV12)	**Az.**	194°39'55"	0.010 sec	0.007 sec	0.475
	ΔHt.	-54.963 ft	0.034 ft	0.018 ft	0.317
	Ellip Dist.	128707.020 ft	0.006 ft	0.009 ft	0.828
TONY --> NNME (PV31)	**Az.**	251°16'10"	0.003 sec	0.001 sec	0.174
	ΔHt.	-65.241 ft	0.036 ft	0.004 ft	0.060
	Ellip Dist.	426995.080 ft	0.009 ft	0.011 ft	0.730
TXOR --> NNME (PV19)	**Az.**	123°16'56"	0.007 sec	0.000 sec	0.000
	ΔHt.	-19.509 ft	0.035 ft	-0.022 ft	-0.378

	Ellip Dist.	189601.210 ft	0.007 ft	-0.006 ft	-0.363
TONY --> NNME (PV30)	**Az.**	251°16'10"	0.003 sec	0.000 sec	0.031
	ΔHt.	-65.241 ft	0.036 ft	-0.003 ft	-0.056
	Ellip Dist.	426995.080 ft	0.009 ft	-0.003 ft	-0.219

Covariance Terms

From Point	To Point		Components	A-posteriori Error	Horiz. Precision (Ratio)	3D Precision (Ratio)
CAMR	TONY	**Az.**	68°53'37"	0.000 sec	1 : 0	1 : 0
		ΔHt.	15.799 ft	0.000 ft		
		ΔElev.	17.720 ft	0.000 ft		
		Ellip Dist.	433355.324 ft	0.000 ft		
CAMR	TXOR	**Az.**	307°16'06"	0.000 sec	1 : 0	1 : 0
		ΔHt.	-29.981 ft	0.000 ft		
		ΔElev.	-27.797 ft	0.000 ft		
		Ellip Dist.	196771.203 ft	0.000 ft		
MCNE	TONY	**Az.**	87°24'38"	0.000 sec	1 : 0	1 : 0
		ΔHt.	10.310 ft	0.000 ft		
		ΔElev.	10.449 ft	0.000 ft		
		Ellip Dist.	370746.716 ft	0.000 ft		
MCNE	TXOR	**Az.**	264°07'01"	0.000 sec	1 : 0	1 : 0
		ΔHt.	-35.470 ft	0.000 ft		
		ΔElev.	-35.068 ft	0.000 ft		
		Ellip Dist.	191546.028 ft	0.000 ft		
NNME	CAMR	**Az.**	185°46'48"	0.093 sec	1 : 2467355	1 : 2464910
		ΔHt.	49.478 ft	0.036 ft		
		ΔElev.	49.135 ft	0.036 ft		
		Ellip Dist.	14498.580 ft	0.006 ft		
NNME	MCNE	**Az.**	14°36'49"	0.010 sec	1 : 21953163	1 : 21953574
		ΔHt.	54.967 ft	0.036 ft		
		ΔElev.	56.406 ft	0.036 ft		
		Ellip Dist.	128707.033 ft	0.006 ft		

NNME	TONY	**Az.**	70°37'52"	0.003 sec	1 : 67266997	1 : 67375935
		ΔHt.	65.277 ft	0.036 ft		
		ΔElev.	66.855 ft	0.036 ft		
		Ellip Dist.	426995.123 ft	0.006 ft		
NNME	TXOR	**Az.**	303°31'55"	0.006 sec	1 : 29316068	1 : 29285180
		ΔHt.	19.496 ft	0.036 ft		
		ΔElev.	21.338 ft	0.036 ft		
		Ellip Dist.	189601.228 ft	0.006 ft		
TXOR	TONY	**Az.**	85°59'10"	0.000 sec	1 : 0	1 : 0
		ΔHt.	45.781 ft	0.000 ft		
		ΔElev.	45.517 ft	0.000 ft		
		Ellip Dist.	562084.084 ft	0.000 ft		

Date: 1/26/2016 3:23:11 PM	Project: N:\Jobs\2015\15-042 CS-78 No Name Bayou\GPS\CS-78 GPS TBC 1 Test\CS-78 GPS TBC 1.vce	Trimble Business Center

FILE: NNME0040.16o OP1453826243062

NGS OPUS SOLUTION REPORT
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All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: dreed@chustz.com DATE: January 26, 2016
RINEX FILE: nnme004r.16o TIME: 16:38:00 UTC

SOFTWARE: page5 1209.04 master91.pl 022814 START: 2016/01/04 17:21:00
EPHEMERIS: igs18781.eph [precise] STOP: 2016/01/04 22:04:00
NAV FILE: brdc0040.16n OBS USED: 11949 / 12282 : 97%
ANT NAME: TRM41249.00 NONE # FIXED AMB: 54 / 55 : 98%
ARP HEIGHT: 2.00 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2016.0104)

X:	-320720.640(m)	0.001(m)	-320721.428(m)	0.001(m)
Y:	-5527886.735(m)	0.010(m)	-5527885.252(m)	0.010(m)
Z:	3154811.572(m)	0.011(m)	3154811.384(m)	0.011(m)

LAT:	29 50 17.36718	0.009(m)	29 50 17.38507	0.009(m)
E LON:	266 40 46.19095	0.001(m)	266 40 46.15845	0.001(m)
W LON:	93 19 13.80905	0.001(m)	93 19 13.84155	0.001(m)
EL HGT:	-25.452(m)	0.011(m)	-26.791(m)	0.011(m)
ORTHO HGT:	1.280(m)	0.022(m) [NAVD88 (Computed using GEOID12B)]		

	UTM COORDINATES (UTM (Zone 15))	STATE PLANE COORDINATES (SPC (1702 LA S))
Northing (Y) [meters]	3300895.205	149992.350
Easting (X) [meters]	469038.157	807978.204
Convergence [degrees]	-0.15946786	-0.99360981
Point Scale	0.99961183	0.99992975
Combined Factor	0.99961583	0.99993375

US NATIONAL GRID DESIGNATOR: 15RVP6903800895(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP7417	CALC CALCASIEU PASS CORS ARP	N294605.281	W0932034.371	8057.9
DK3579	CAMR CAMERON PARISH CT CORS ARP	N294754.577	W0931930.380	4419.2
DN4512	TXOR ORANGE CORS ARP	N300730.704	W0934913.450	57790.2

NEAREST NGS PUBLISHED CONTROL POINT

AV0821	LAKE 1924	N295021.984	W0931942.082	771.7

This position and the above vector components were computed without any
knowledge by the National Geodetic Survey regarding the equipment or

FILE: NNME0050.16o OP1453826243062

NGS OPUS SOLUTION REPORT
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All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: dreed@chustz.com DATE: January 26, 2016
RINEX FILE: nnme005p.16o TIME: 16:38:01 UTC

SOFTWARE: page5 1209.04 master92.pl 022814 START: 2016/01/05 15:35:00
EPHEMERIS: igs18782.eph [precise] STOP: 2016/01/05 20:19:00
NAV FILE: brdc0050.16n OBS USED: 11900 / 12094 : 98%
ANT NAME: TRM41249.00 NONE # FIXED AMB: 42 / 42 : 100%
ARP HEIGHT: 2.00 OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2016.0130)

X:	-320720.639(m)	0.006(m)	-320721.427(m)	0.006(m)
Y:	-5527886.725(m)	0.004(m)	-5527885.242(m)	0.004(m)
Z:	3154811.574(m)	0.020(m)	3154811.386(m)	0.020(m)

LAT:	29 50 17.36740	0.019(m)	29 50 17.38529	0.019(m)
E LON:	266 40 46.19097	0.006(m)	266 40 46.15846	0.006(m)
W LON:	93 19 13.80903	0.006(m)	93 19 13.84154	0.006(m)
EL HGT:	-25.460(m)	0.006(m)	-26.798(m)	0.006(m)
ORTHO HGT:	1.272(m)	0.015(m) [NAVD88 (Computed using GEOID12B)]		

	UTM COORDINATES (UTM (Zone 15))	STATE PLANE COORDINATES (SPC (1702 LA S))
Northing (Y) [meters]	3300895.212	149992.357
Easting (X) [meters]	469038.158	807978.205
Convergence [degrees]	-0.15946786	-0.99360980
Point Scale	0.99961183	0.99992975
Combined Factor	0.99961583	0.99993375

US NATIONAL GRID DESIGNATOR: 15RVP6903800895(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DM7838	TXPT PORT ARTHUR CORS ARP	N295650.700	W0935710.508	62273.5
DK3579	CAMR CAMERON PARISH CT CORS ARP	N294754.577	W0931930.380	4419.2
DN4512	TXOR ORANGE CORS ARP	N300730.704	W0934913.450	57790.2

NEAREST NGS PUBLISHED CONTROL POINT

AV0821	LAKE 1924	N295021.984	W0931942.082	771.7

This position and the above vector components were computed without any
knowledge by the National Geodetic Survey regarding the equipment or

FILE: NNME0060.16o OP1453826243062

NGS OPUS SOLUTION REPORT
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All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: dreed@chustz.com DATE: January 26, 2016
RINEX FILE: nnme006l.16o TIME: 16:37:57 UTC

SOFTWARE: page5 1209.04 master53.pl 022814 START: 2016/01/06 11:43:00
EPHEMERIS: igs18783.eph [precise] STOP: 2016/01/06 16:00:00
NAV FILE: brdc0060.16n OBS USED: 9886 / 10338 : 96%
ANT NAME: TRM41249.00 NONE # FIXED AMB: 50 / 51 : 98%
ARP HEIGHT: 2.00 OVERALL RMS: 0.014(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2016.0152)

X:	-320720.643(m)	0.002(m)	-320721.431(m)	0.002(m)
Y:	-5527886.732(m)	0.009(m)	-5527885.249(m)	0.009(m)
Z:	3154811.582(m)	0.020(m)	3154811.394(m)	0.020(m)

LAT:	29 50 17.36751	0.015(m)	29 50 17.38540	0.015(m)
E LON:	266 40 46.19083	0.003(m)	266 40 46.15833	0.003(m)
W LON:	93 19 13.80917	0.003(m)	93 19 13.84167	0.003(m)
EL HGT:	-25.450(m)	0.013(m)	-26.788(m)	0.013(m)
ORTHO HGT:	1.282(m)	0.025(m)	[NAVD88 (Computed using GEOID12B)]	

	UTM COORDINATES (UTM (Zone 15))	STATE PLANE COORDINATES (SPC (1702 LA S))
Northing (Y) [meters]	3300895.215	149992.360
Easting (X) [meters]	469038.154	807978.201
Convergence [degrees]	-0.15946788	-0.99360982
Point Scale	0.99961183	0.99992975
Combined Factor	0.99961583	0.99993375

US NATIONAL GRID DESIGNATOR: 15RVP6903800895(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DP7417	CALC CALCASIEU PASS CORS ARP	N294605.281	W0932034.371	8057.9
DK3579	CAMR CAMERON PARISH CT CORS ARP	N294754.577	W0931930.380	4419.2
DM7838	TXPT PORT ARTHUR CORS ARP	N295650.700	W0935710.508	62273.5

NEAREST NGS PUBLISHED CONTROL POINT

AV0821	LAKE 1924	N295021.984	W0931942.082	771.7

This position and the above vector components were computed without any
knowledge by the National Geodetic Survey regarding the equipment or

Appendix C

Baseline Monument Photos

No Name Bayou Marsh Creation and Nourishment (CS-78)

Cameron Parish, Louisiana

N: 485,416.84 E: 2,644,423.42 Elev: 4.02

N: 486,324.35 E: 2,645,796.98 Elev: 7.45

N: 487,090.02 E: 2,646,682.30 Elev: 7.52

N: 487,694.48 E: 2,646,924.78 Elev: 7.64

N: 488,265.54 E: 2,646,978.25 Elev: 7.55

N: 492,078.34 E: 2,648,557.98 Elev: 7.02

N: 486,675.78 E: 2,646,208.27 Elev: 7.62

N: 486,420.04 E: 2,657,515.99 Elev: 2.54

Appendix D

Staff Gage Photos

No Name Bayou Marsh Creation and Nourishment (CS-78)

Cameron Parish, Louisiana

CHUSTZ SURVEYING, INC.

CPRA

Appendix E

Average Marsh Elevations

No Name Bayou Marsh Creation and Nourishment (CS-78)

Cameron Parish, Louisiana

AVERAGE MARSH ELEVATIONS

Point Number	Northing LA South NAD83 US Feet	Easting LA South NAD83 US Feet	Elevation NAVD88 US Feet	Description	Site
19595	488223.24	2648148.05	0.40	Bottom of Cordgrass	SITE 1
19596	488199.31	2648130.69	0.37	Bottom of Cordgrass	SITE 1
19597	488171.41	2648113.59	0.33	Bottom of Cordgrass	SITE 1
19598	488151.47	2648100.32	0.32	Bottom of Cordgrass	SITE 1
19599	488132.52	2648079.69	0.23	Bottom of Cordgrass	SITE 1
19600	488113.70	2648100.82	0.76	Bottom of Cordgrass	SITE 1
19601	488134.37	2648116.04	0.71	Bottom of Cordgrass	SITE 1
19602	488155.45	2648130.24	0.74	Bottom of Cordgrass	SITE 1
19603	488178.33	2648146.05	0.69	Bottom of Cordgrass	SITE 1
19604	488199.06	2648160.89	0.64	Bottom of Cordgrass	SITE 1
19605	488216.93	2648179.77	0.89	Bottom of Cordgrass	SITE 1
19606	488196.40	2648199.76	0.71	Bottom of Cordgrass	SITE 1
19607	488175.35	2648185.27	0.91	Bottom of Cordgrass	SITE 1
19608	488154.02	2648169.25	0.73	Bottom of Cordgrass	SITE 1
19609	488132.63	2648152.33	0.59	Bottom of Cordgrass	SITE 1
19610	488108.57	2648132.51	0.71	Bottom of Cordgrass	SITE 1
19611	488094.07	2648111.16	0.40	Bottom of Cordgrass	SITE 1
19612	488061.28	2648098.57	0.68	Bottom of Cordgrass	SITE 1
19613	488067.79	2648073.83	0.57	Bottom of Cordgrass	SITE 1
19614	488078.50	2648049.22	0.31	Bottom of Cordgrass	SITE 1
19615	488086.74	2648026.49	0.45	Bottom of Cordgrass	SITE 1
19616	488063.55	2648017.01	0.07	Bottom of Cordgrass	SITE 1
19617	488048.45	2648050.20	0.18	Bottom of Cordgrass	SITE 1
			0.54	**Average Bottom of Marsh**	**SITE 1**

AVERAGE MARSH ELEVATIONS

Point Number	Northing LA South NAD83 US Feet	Easting LA South NAD83 US Feet	Elevation NAVD88 US Feet	Description	Site
19560	487528.93	2650272.94	0.38	Bottom of Cordgrass	SITE 2
19561	487510.14	2650262.61	0.68	Bottom of Cordgrass	SITE 2
19562	487483.45	2650249.39	0.54	Bottom of Cordgrass	SITE 2
19583	487435.16	2650287.14	0.51	Bottom of Cordgrass	SITE 2
19584	487409.28	2650273.46	0.36	Bottom of Cordgrass	SITE 2
19585	487399.66	2650304.10	0.42	Bottom of Cordgrass	SITE 2
19586	487421.49	2650312.55	0.43	Bottom of Cordgrass	SITE 2
19587	487443.13	2650322.59	0.36	Bottom of Cordgrass	SITE 2
19588	487468.11	2650335.05	0.32	Bottom of Cordgrass	SITE 2
19589	487494.94	2650343.68	0.61	Bottom of Cordgrass	SITE 2
19592	487460.95	2650357.11	0.41	Bottom of Cordgrass	SITE 2
19593	487434.51	2650349.84	0.36	Bottom of Cordgrass	SITE 2
19594	487408.33	2650343.20	0.41	Bottom of Cordgrass	SITE 2
19558	487554.93	2650282.30	0.74	Bottom of Patens Grass	SITE 2
19563	487458.04	2650239.65	0.70	Bottom of Patens Grass	SITE 2
19565	487432.81	2650226.76	0.72	Bottom of Patens Grass	SITE 2
19567	487424.14	2650255.72	0.57	Bottom of Patens Grass	SITE 2
19569	487448.68	2650267.29	0.56	Bottom of Patens Grass	SITE 2
19571	487475.56	2650278.25	0.57	Bottom of Patens Grass	SITE 2
19573	487501.29	2650285.87	0.47	Bottom of Patens Grass	SITE 2
19575	487530.05	2650295.52	0.60	Bottom of Patens Grass	SITE 2
19577	487514.68	2650325.88	0.76	Bottom of Patens Grass	SITE 2
19579	487486.36	2650312.79	0.49	Bottom of Patens Grass	SITE 2
19581	487462.87	2650299.19	0.59	Bottom of Patens Grass	SITE 2
19590	487486.07	2650364.20	0.60	Bottom of Patens Grass	SITE 2
			0.53	**Average Bottom of Marsh**	**SITE 2**

AVERAGE MARSH ELEVATIONS

Point Number	Northing LA South NAD83 US Feet	Easting LA South NAD83 US Feet	Elevation NAVD88 US Feet	Description	Site
19559	487554.77	2650282.87	0.89	Top of Patens Grass	SITE 2
19564	487457.92	2650239.51	0.84	Top of Patens Grass	SITE 2
19566	487432.47	2650227.05	0.83	Top of Patens Grass	SITE 2
19568	487424.72	2650255.59	0.75	Top of Patens Grass	SITE 2
19570	487448.08	2650267.31	0.59	Top of Patens Grass	SITE 2
19572	487474.80	2650278.22	0.61	Top of Patens Grass	SITE 2
19574	487500.96	2650285.76	0.59	Top of Patens Grass	SITE 2
19576	487530.13	2650295.75	0.66	Top of Patens Grass	SITE 2
19578	487513.87	2650326.00	0.79	Top of Patens Grass	SITE 2
19580	487487.48	2650313.19	0.69	Top of Patens Grass	SITE 2
19582	487462.83	2650298.81	0.73	Top of Patens Grass	SITE 2
19591	487486.25	2650364.72	0.67	Top of Patens Grass	SITE 2
			0.72	**Average Top of Patens**	**SITE 2**

AVERAGE MARSH ELEVATIONS

Point Number	Northing LA South NAD83 US Feet	Easting LA South NAD83 US Feet	Elevation NAVD88 US Feet	Description	Site
19532	490748.14	2650973.10	0.93	Bottom of Cordgrass	SITE 3
19533	490774.29	2650971.37	0.82	Bottom of Cordgrass	SITE 3
19534	490801.11	2650968.37	0.82	Bottom of Cordgrass	SITE 3
19535	490829.11	2650967.74	0.84	Bottom of Cordgrass	SITE 3
19536	490857.56	2650967.03	0.87	Bottom of Cordgrass	SITE 3
19537	490856.41	2650992.41	0.54	Bottom of Cordgrass	SITE 3
19538	490831.68	2650992.24	0.45	Bottom of Cordgrass	SITE 3
19539	490803.96	2650990.51	0.52	Bottom of Cordgrass	SITE 3
19540	490775.83	2650992.00	0.56	Bottom of Cordgrass	SITE 3
19541	490749.93	2650995.29	0.84	Bottom of Cordgrass	SITE 3
19542	490746.21	2651019.22	0.77	Bottom of Cordgrass	SITE 3
19543	490774.38	2651019.19	0.47	Bottom of Cordgrass	SITE 3
19544	490799.32	2651014.12	0.10	Bottom of Cordgrass	SITE 3
19545	490820.62	2651009.93	0.44	Bottom of Cordgrass	SITE 3
19546	490848.20	2651010.81	0.35	Bottom of Cordgrass	SITE 3
19547	490873.07	2651015.42	0.49	Bottom of Cordgrass	SITE 3
19548	490889.16	2651041.95	0.45	Bottom of Cordgrass	SITE 3
19549	490861.56	2651038.06	0.53	Bottom of Cordgrass	SITE 3
19550	490833.95	2651033.58	0.44	Bottom of Cordgrass	SITE 3
19551	490805.28	2651027.16	0.43	Bottom of Cordgrass	SITE 3
19552	490776.44	2651019.61	0.53	Bottom of Cordgrass	SITE 3
19553	490757.01	2651038.98	0.58	Bottom of Cordgrass	SITE 3
19554	490788.96	2651044.40	0.61	Bottom of Cordgrass	SITE 3
19555	490814.84	2651050.70	0.56	Bottom of Cordgrass	SITE 3
19556	490841.21	2651060.14	0.55	Bottom of Cordgrass	SITE 3
19557	490862.19	2651068.11	0.43	Bottom of Cordgrass	SITE 3
			0.57	**Average Bottom of Marsh**	**SITE 3**

AVERAGE MARSH ELEVATIONS

Point Number	Northing LA South NAD83 US Feet	Easting LA South NAD83 US Feet	Elevation NAVD88 US Feet	Description	Site
19448	490681.07	2656488.44	0.18	Bottom of Cordgrass	SITE 4
19455	490588.48	2656455.76	0.24	Bottom of Cordgrass	SITE 4
19456	490595.17	2656431.21	0.21	Bottom of Cordgrass	SITE 4
19463	490674.52	2656456.23	0.32	Bottom of Cordgrass	SITE 4
19464	490699.53	2656461.30	0.22	Bottom of Cordgrass	SITE 4
19465	490708.54	2656440.35	0.24	Bottom of Cordgrass	SITE 4
19466	490686.16	2656432.90	0.33	Bottom of Cordgrass	SITE 4
19467	490665.56	2656424.88	0.11	Bottom of Cordgrass	SITE 4
19472	490592.33	2656419.98	0.28	Bottom of Cordgrass	SITE 4
19479	490666.18	2656392.84	0.18	Bottom of Cordgrass	SITE 4
19482	490700.19	2656369.27	0.30	Bottom of Cordgrass	SITE 4
19483	490681.12	2656356.65	0.43	Bottom of Cordgrass	SITE 4
19484	490659.16	2656346.63	0.23	Bottom of Cordgrass	SITE 4
19485	490639.70	2656337.20	0.29	Bottom of Cordgrass	SITE 4
19449	490656.80	2656485.30	0.25	Bottom of Patens Grass	SITE 4
19451	490629.68	2656477.95	0.10	Bottom of Patens Grass	SITE 4
19453	490605.35	2656465.05	0.41	Bottom of Patens Grass	SITE 4
19457	490616.85	2656432.66	0.42	Bottom of Patens Grass	SITE 4
19459	490635.74	2656440.00	0.26	Bottom of Patens Grass	SITE 4
19461	490653.05	2656449.41	0.37	Bottom of Patens Grass	SITE 4
19468	490645.38	2656424.94	0.18	Bottom of Patens Grass	SITE 4
19470	490614.87	2656427.20	0.22	Bottom of Patens Grass	SITE 4
19473	490604.13	2656384.37	0.23	Bottom of Patens Grass	SITE 4
19475	490625.44	2656390.71	0.28	Bottom of Patens Grass	SITE 4
19477	490645.46	2656386.07	0.31	Bottom of Patens Grass	SITE 4
19480	490688.45	2656398.23	0.17	Bottom of Patens Grass	SITE 4
			0.26	**Average Bottom of Marsh**	**SITE 4**

AVERAGE MARSH ELEVATIONS

Point Number	Northing LA South NAD83 US Feet	Easting LA South NAD83 US Feet	Elevation NAVD88 US Feet	Description	Site
19450	490656.83	2656485.14	0.38	Top of Patens Grass	SITE 4
19452	490629.62	2656478.09	0.28	Top of Patens Grass	SITE 4
19454	490605.87	2656464.69	0.47	Top of Patens Grass	SITE 4
19458	490617.19	2656433.04	0.69	Top of Patens Grass	SITE 4
19460	490636.10	2656440.39	0.47	Top of Patens Grass	SITE 4
19462	490652.14	2656449.95	0.59	Top of Patens Grass	SITE 4
19469	490645.81	2656425.71	0.37	Top of Patens Grass	SITE 4
19471	490614.92	2656426.36	0.34	Top of Patens Grass	SITE 4
19474	490604.31	2656383.67	0.64	Top of Patens Grass	SITE 4
19476	490625.96	2656390.43	0.40	Top of Patens Grass	SITE 4
19478	490645.18	2656386.45	0.54	Top of Patens Grass	SITE 4
19481	490688.75	2656397.45	0.45	Top of Patens Grass	SITE 4
			0.47	**Average Top of Patens**	**SITE 4**

AVERAGE MARSH ELEVATIONS

Point Number	Northing LA South NAD83 US Feet	Easting LA South NAD83 US Feet	Elevation NAVD88 US Feet	Description	Site
19486	489045.15	2657022.87	0.16	Bottom of Patens Grass	SITE 5
19488	489044.56	2657001.50	0.31	Bottom of Patens Grass	SITE 5
19490	489047.83	2656980.88	0.12	Bottom of Patens Grass	SITE 5
19492	489048.97	2656955.82	0.15	Bottom of Patens Grass	SITE 5
19494	489056.10	2656932.39	0.14	Bottom of Patens Grass	SITE 5
19496	489063.09	2656916.10	0.38	Bottom of Patens Grass	SITE 5
19498	489082.28	2656920.49	0.32	Bottom of Patens Grass	SITE 5
19500	489069.67	2656942.59	0.18	Bottom of Patens Grass	SITE 5
19502	489071.87	2656965.40	0.15	Bottom of Patens Grass	SITE 5
19504	489070.75	2656988.37	0.12	Bottom of Patens Grass	SITE 5
19506	489076.89	2657011.32	0.07	Bottom of Patens Grass	SITE 5
19508	489079.61	2657032.59	0.17	Bottom of Patens Grass	SITE 5
19510	489102.19	2657011.82	0.01	Bottom of Patens Grass	SITE 5
19512	489094.95	2656984.40	0.06	Bottom of Patens Grass	SITE 5
19514	489097.55	2656958.85	0.08	Bottom of Patens Grass	SITE 5
19516	489104.14	2656938.50	0.10	Bottom of Patens Grass	SITE 5
19518	489125.35	2656951.42	0.11	Bottom of Patens Grass	SITE 5
19520	489120.54	2656971.12	0.04	Bottom of Patens Grass	SITE 5
19522	489115.16	2656994.14	0.10	Bottom of Patens Grass	SITE 5
19524	489108.82	2657021.85	0.18	Bottom of Patens Grass	SITE 5
19526	489097.61	2657041.77	0.34	Bottom of Patens Grass	SITE 5
19528	489071.17	2657059.50	0.26	Bottom of Patens Grass	SITE 5
19530	489049.43	2657052.07	0.37	Bottom of Patens Grass	SITE 5
			0.17	**Average Bottom of Marsh**	**SITE 5**

AVERAGE MARSH ELEVATIONS

Point Number	Northing LA South NAD83 US Feet	Easting LA South NAD83 US Feet	Elevation NAVD88 US Feet	Description	Site
19487	489044.00	2657022.67	0.41	Top of Patens Grass	SITE 5
19489	489044.34	2657001.21	0.55	Top of Patens Grass	SITE 5
19491	489047.99	2656980.37	0.44	Top of Patens Grass	SITE 5
19493	489048.57	2656955.85	0.31	Top of Patens Grass	SITE 5
19495	489056.68	2656932.28	0.38	Top of Patens Grass	SITE 5
19497	489062.44	2656915.73	0.56	Top of Patens Grass	SITE 5
19499	489081.93	2656920.52	0.47	Top of Patens Grass	SITE 5
19501	489069.63	2656943.14	0.44	Top of Patens Grass	SITE 5
19503	489072.23	2656964.79	0.45	Top of Patens Grass	SITE 5
19505	489071.32	2656988.74	0.41	Top of Patens Grass	SITE 5
19507	489077.49	2657011.32	0.31	Top of Patens Grass	SITE 5
19509	489079.85	2657033.78	0.63	Top of Patens Grass	SITE 5
19511	489102.35	2657011.67	0.38	Top of Patens Grass	SITE 5
19513	489095.24	2656984.61	0.35	Top of Patens Grass	SITE 5
19515	489097.04	2656958.26	0.39	Top of Patens Grass	SITE 5
19517	489104.40	2656938.08	0.37	Top of Patens Grass	SITE 5
19519	489125.61	2656951.07	0.42	Top of Patens Grass	SITE 5
19521	489121.27	2656971.06	0.34	Top of Patens Grass	SITE 5
19523	489115.99	2656994.11	0.41	Top of Patens Grass	SITE 5
19525	489109.56	2657022.01	0.45	Top of Patens Grass	SITE 5
19527	489097.99	2657041.98	0.46	Top of Patens Grass	SITE 5
19529	489071.53	2657059.61	0.51	Top of Patens Grass	SITE 5
19531	489049.34	2657051.92	0.52	Top of Patens Grass	SITE 5
			0.43	**Average Top of Patens**	**SITE 5**

Appendix F

Magnetometer Survey

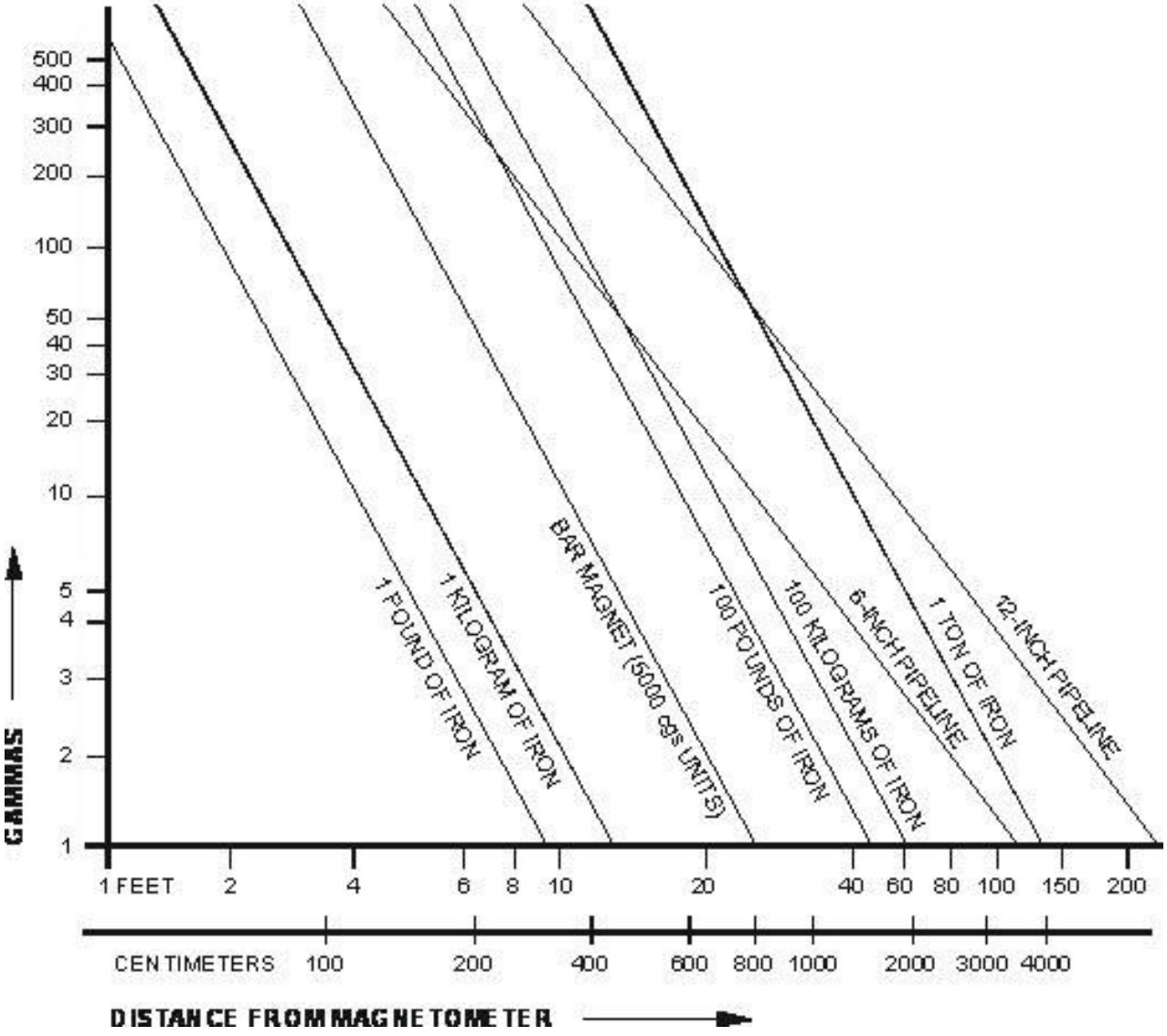
Nomogram Chart
Static GPS Surveys
Magnetometer Findings
Field Notes
Photos
Drawings

No Name Bayou Marsh Creation and Nourishment (CS-78)

Cameron Parish, Louisiana

ATTACHMENT A

NOMOGRAM FOR ESTIMATING ANOMALIES FROM TYPICAL OBJECTS (BREINER, 1973)



USE THIS FORM IF USING FIXED HEIGHT TRIPODS TO DOCUMENT STATIC SURVEYS ON BASE POINTS FOR ALL RTK SURVEYS

GPS LOG SHEET

Job No.	20150242	Date	2/8/2016	Operator	R. Mckeivier
Client	CPRA	Job Description	No Name Bayou Mag Survey		
Location	CAMERON			Proj. Mgr.	RICARDO JOHNSON

SESSION INFO

	4 Characters		3 Characters		1 Character
File Name	8994	**Julian Date**	039	**Session No.**	3

Long Name	NO NAME		
Mon. Description	BRASS CAP STAMPED NONAME SET IN CONCRETE		
Rec. Base Type	TRIMBLE R8 MODEL 3	**Rec Serial #**	5037448994
Base Ant Type		**Base Ant Ser #**	
Rover Ant Type	TRIMBLE R8 MODEL 3	**Rover Ant Ser #**	5051458175

Antenna Height Measurement is **TRUE VERTICAL** to the Bottom of Antenna Mount if Using Fixed Hgt Tripod

Fixed Hgt 2 Meter Tripod	2 meters	**Mtrs or Ft**
Tripod Number	RP 45	

Actual Start Time	9:54	Actual Stop Time	14:48	Session Time (Min 2:01 Hr)	4:54

BASE STATION INFORMATION

	NAD 83 or NAD 27		***Example**: LA South Zone or TX South Central Zone*
DATUM	NAD 83	**ZONE**	**LA SOUTH ZONE**
Northing/Lat	492099.898		
Easting/Long.	2650841.834		
Elevation	4.192		

Coordinate Origin-*Where did you get your positions?*

OFFICE

Note any power problems, obstructions, weather issues, etc.

ALL WHITE BOXES MUST BE FILLED IN WITH INFORMATION. A MINIMUM OBSERVATION OF 2 HOURS IS REQUIRED TO DETERMINE THE 3-D POSITION OF AN UNKNOWN POINT USING NGS-OPUS

USE BACK OF THIS SHEET TO MAKE STATION SKETCH, REFERENCE TIES & DESCRIPTION

Johnson, Ricardo

From: opus <opus@ngs.noaa.gov>
Sent: Friday, February 12, 2016 10:22 AM
To: Johnson, Ricardo
Subject: OPUS solution : 89940393.16o OP1455294021008

FILE: 89940393.16o OP1455294021008

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: rjohnson@fugro.com DATE: February 12, 2016
RINEX FILE: 8994039r.16o TIME: 16:21:22 UTC

SOFTWARE: page5 1209.04 master90.pl 022814 START: 2016/02/08 17:22:00
EPHEMERIS: igr18831.eph [rapid] STOP: 2016/02/08 20:48:30
NAV FILE: brdc0390.16n OBS USED: 8861 / 9444 : 94%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 41 / 45 : 91%
ARP HEIGHT: 2.000 OVERALL RMS: 0.016(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2016.1060)

X:	-320720.657(m)	0.005(m)	-320721.446(m)	0.005(m)
Y:	-5527886.743(m)	0.016(m)	-5527885.260(m)	0.016(m)
Z:	3154811.576(m)	0.019(m)	3154811.387(m)	0.019(m)
LAT:	29 50 17.36715	0.018(m)	29 50 17.38501	0.018(m)
E LON:	266 40 46.19034	0.006(m)	266 40 46.15780	0.006(m)
W LON:	93 19 13.80966	0.006(m)	93 19 13.84220	0.006(m)
EL HGT:	-25.443(m)	0.017(m)	-26.781(m)	0.017(m)
ORTHO HGT:	1.289(m)	0.031(m) [NAVD88 (Computed using GEOID12B)]		

	UTM COORDINATES (UTM (Zone 15))	STATE PLANE COORDINATES (SPC (1702 LA S))
Northing (Y) [meters]	3300895.204	149992.350
Easting (X) [meters]	469038.141	807978.188
Convergence [degrees]	-0.15946795	-0.99360989
Point Scale	0.99961183	0.99992975
Combined Factor	0.99961582	0.99993375

US NATIONAL GRID DESIGNATOR: 15RVP6903800895(NAD 83)

BASE STATIONS USED

Shared Solution

PID: BBFC60
Designation: NO NAME
Stamping: LADNR NO NAME
Stability: Most reliable; expected to hold position well
Setting: Large structures with deep foundations
Description: From the intersection of LA Hwy 27 and Wakefield Rd. in Cameron, LA, proceed northerly, easterly, then northerly on Wakefield Rd for 2.1 miles to T-Boy McCall's. Turn right and proceed northerly and easterly on Levee for 1.2 miles to Camp and monument located on the east end of the Flood Control Structure. NOTE: Permission is required from Robert Gaspard by calling 337-302-6644.
Observed: 2016-02-08T17:22:00Z
Source: OPUS - page5 1209.04

Close-up View

REF_FRAME: NAD_83 (2011)	EPOCH: 2010.0000	SOURCE: NAVD88 (Computed using GEOID12B)	UNITS: m	SET PROFILE	DETAILS

LAT:	29° 50' 17.36715" ± 0.018 m	
LON:	-93° 19' 13.80966" ± 0.006 m	
ELL HT:	-25.443 ± 0.017 m	
X:	-320720.657 ± 0.005 m	
Y:	-5527886.743 ± 0.016 m	
Z:	3154811.576 ± 0.019 m	
ORTHO HT:	1.289 ± 0.031 m	

	UTM 15	**SPC** 1702(LA S)
NORTHING:	3300895.204m	149992.350m
EASTING:	469038.141m	807978.188m
CONVERGENCE:	-0.15946795°	-0.99360989°
POINT SCALE:	0.99961183	0.99992975
COMBINED FACTOR:	0.99961582	0.99993375

CONTRIBUTED BY

rjohnson
- John Chance Land Surveys, Inc.

Horizon View

The numerical values for this position solution have satisfied the quality control criteria of the National Geodetic Survey. The contributor has verified that the information submitted is accurate and complete.

USE THIS FORM IF USING FIXED HEIGHT TRIPODS TO DOCUMENT STATIC SURVEYS ON BASE POINTS FOR ALL RTK SURVEYS

GPS LOG SHEET

Job No.	20150242	Date	2/9/2016	Operator	R. Mckeivier
Client	CPRA	Job Description	No Name Bayou Mag Survey		
Location	CAMERON			Proj. Mgr.	RICARDO JOHNSON

SESSION INFO

	4 Characters		3 Characters		1 Character
File Name	8994	**Julian Date**	040	**Session No.**	3

Long Name	A357		
Mon. Description	NGS STYLE DEEP ROD SET IN PVC WITH ACCESS COVER 2' BELOW SURFACE IN 2' PVC IPE		
Rec. Base Type	TRIMBLE R8 MODEL 3	**Rec Serial #**	5037448994
Base Ant Type		**Base Ant Ser #**	
Rover Ant Type	TRIMBLE R8 MODEL 3	**Rover Ant Ser #**	5051458175

Antenna Height Measurement is **TRUE VERTICAL** to the Bottom of Antenna Mount if Using Fixed Hgt Tripod

Fixed Hgt 2 Meter Tripod	2 meters	**Mtrs or Ft**
Tripod Number	RP 45	

Actual Start Time	8:01	Actual Stop Time	16:01	Session Time (Min 2:01 Hr)	8:00

BASE STATION INFORMATION

	NAD 83 or NAD 27		***Example**: LA South Zone or TX South Central Zone*
DATUM	NAD 83	**ZONE**	**LA SOUTH ZONE**
Northing/Lat	479868.915		
Easting/Long.	2642723.498		
Elevation	1.627		

Coordinate Origin-*Where did you get your positions?*

OFFICE

Note any power problems, obstructions, weather issues, etc.

ALL WHITE BOXES MUST BE FILLED IN WITH INFORMATION. A MINIMUM OBSERVATION OF 2 HOURS IS REQUIRED TO DETERMINE THE 3-D POSITION OF AN UNKNOWN POINT USING NGS-OPUS

USE BACK OF THIS SHEET TO MAKE STATION SKETCH, REFERENCE TIES & DESCRIPTION

Johnson, Ricardo

From: opus <opus@ngs.noaa.gov>
Sent: Friday, February 12, 2016 10:44 AM
To: Johnson, Ricardo
Subject: OPUS solution : 89940400.16o OP1455295317413
Attachments: 8994040o.16o.xml

FILE: 89940400.16o OP1455295317413

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: rjohnson@fugro.com DATE: February 12, 2016
RINEX FILE: 8994040o.16o TIME: 16:43:35 UTC

SOFTWARE: page5 1209.04 master51.pl 022814 START: 2016/02/09 14:01:00
EPHEMERIS: igr18832.eph [rapid] STOP: 2016/02/09 22:02:00
NAV FILE: brdc0400.16n OBS USED: 19351 / 21187 : 91%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 100 / 124 : 81%
ARP HEIGHT: 2.000 OVERALL RMS: 0.020(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2016.1086)

X:	-323234.747(m)	0.012(m)	-323235.536(m)	0.012(m)
Y:	-5529618.134(m)	0.011(m)	-5529616.650(m)	0.011(m)
Z:	3151539.680(m)	0.013(m)	3151539.491(m)	0.013(m)

LAT:	29 48 14.90174	0.008(m)	29 48 14.91958	0.008(m)
E LON:	266 39 16.46161	0.012(m)	266 39 16.42905	0.012(m)
W LON:	93 20 43.53839	0.012(m)	93 20 43.57095	0.012(m)
EL HGT:	-26.144(m)	0.015(m)	-27.484(m)	0.015(m)
ORTHO HGT:	0.511(m)	0.028(m)	[NAVD88 (Computed using GEOID12B)]	

	UTM COORDINATES (UTM (Zone 15))	STATE PLANE COORDINATES (SPC (1702 LA S))
Northing (Y) [meters]	3297132.745	146264.327
Easting (X) [meters]	466619.003	805503.738
Convergence [degrees]	-0.17169163	-1.00607253
Point Scale	0.99961375	0.99993160
Combined Factor	0.99961785	0.99993571

US NATIONAL GRID DESIGNATOR: 15RVN6661997132(NAD 83)

Shared Solution

PID: AV0548
Designation: A 357
Stamping: A 357 1982
Stability: May hold commonly subject to ground movement
Setting: Stainless steel rod in sleeve (10FT+ or 3.048M+)
Mark Condition: G
Description: Described by NGS 1982, located 2.4 km (1.5 mi) west from Cameron. 2.4 km (1.5 mi)
west along State Highway 27 from the US Post Office in Cameron, to the east bank of the Calcasieu ship channel and the mark
between the old and the new ferry crossings, 10.06 mtrs (33.0 ft) east of the waters edge, 3.78 meters (12.4 ft) east-southeast of the south end of the headwall of the old ferry crossing, 1.74 mtrs (5.7 ft) east of a utility pole with lines
running to two other utility poles with lights.
Observed: 2016-02-09T14:01:00Z See Also 2016-02-18
Source: OPUS - page5 1209.04

Close-up View

REF_FRAME: NAD_83 (2011)	EPOCH: 2010.0000	SOURCE: NAVD88 (Computed using GEOID12B)	UNITS: m	SET PROFILE	DETAILS

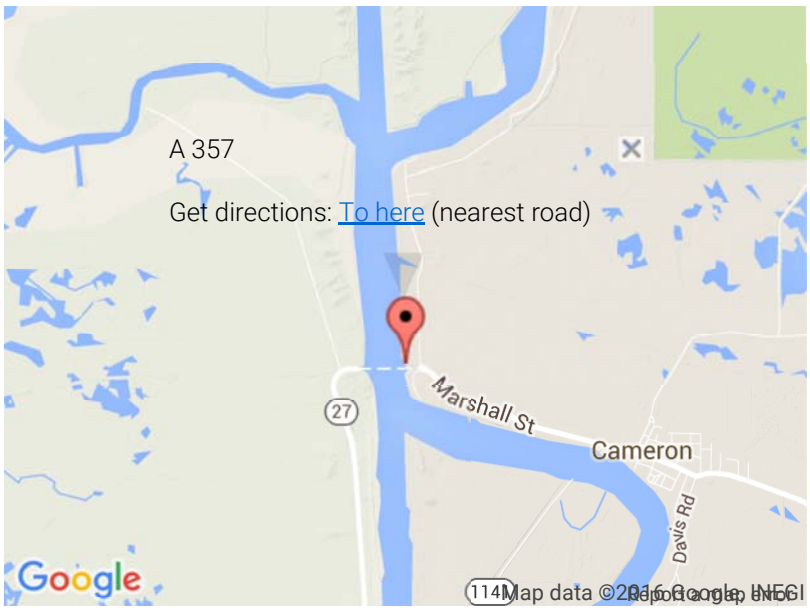
LAT:	29° 48' 14.90174"	± 0.008	m
LON:	-93° 20' 43.53839"	± 0.012	m
ELL HT:	-26.144	± 0.015	m
X:	-323234.747	± 0.012	m
Y:	-5529618.134	± 0.011	m
Z:	3151539.680	± 0.013	m
ORTHO HT:	0.511	± 0.028	m

	UTM 15	**SPC** 1702(LA S)
NORTHING:	3297132.745m	146264.327m
EASTING:	466619.003m	805503.738m
CONVERGENCE:	-0.17169163°	-1.00607253°
POINT SCALE:	0.99961375	0.99993160
COMBINED FACTOR:	0.99961785	0.99993571

CONTRIBUTED BY

rjohnson
- John Chance Land Surveys, Inc.

Horizon View



The numerical values for this position solution have satisfied the quality control criteria of the National Geodetic Survey. The contributor has verified that the information submitted is accurate and complete.

USE THIS FORM IF USING FIXED HEIGHT TRIPODS TO DOCUMENT STATIC SURVEYS ON BASE POINTS FOR ALL RTK SURVEYS

GPS LOG SHEET

Job No.	20150242	Date	2/10/2016	Operator	R. Mckeivier
Client	CPRA	Job Description	No Name Bayou Mag Survey		
Location	CAMERON			Proj. Mgr.	RICARDO JOHNSON

SESSION INFO

	4 Characters		3 Characters		1 Character
File Name	8994	**Julian Date**	041	**Session No.**	3

Long Name	A357		
Mon. Description	NGS STYLE DEEP ROD SET IN PVC WITH ACCESS COVER 2' BELOW SURFACE IN 2' PVC IPE		
Rec. Base Type	TRIMBLE R8 MODEL 3	**Rec Serial #**	5037448994
Base Ant Type		**Base Ant Ser #**	
Rover Ant Type	TRIMBLE R8 MODEL 3	**Rover Ant Ser #**	5051458175

Antenna Height Measurement is **TRUE VERTICAL** to the Bottom of Antenna Mount if Using Fixed Hgt Tripod

Fixed Hgt 2 Meter Tripod	2 meters	**Mtrs or Ft**
Tripod Number	RP 45	

Actual Start Time	7:58	Actual Stop Time	15:15	Session Time (Min 2:01 Hr)	7:17

BASE STATION INFORMATION

	NAD 83 or NAD 27		***Example**: LA South Zone or TX South Central Zone*
DATUM	NAD 83	**ZONE**	**LA SOUTH ZONE**
Northing/Lat	479868.915		
Easting/Long.	2642723.498		
Elevation	1.627		

Coordinate Origin-*Where did you get your positions?*

OFFICE

Note any power problems, obstructions, weather issues, etc.

ALL WHITE BOXES MUST BE FILLED IN WITH INFORMATION. A MINIMUM OBSERVATION OF 2 HOURS IS REQUIRED TO DETERMINE THE 3-D POSITION OF AN UNKNOWN POINT USING NGS-OPUS

USE BACK OF THIS SHEET TO MAKE STATION SKETCH, REFERENCE TIES & DESCRIPTION

Johnson, Ricardo

From: opus <opus@ngs.noaa.gov>
Sent: Friday, February 12, 2016 10:48 AM
To: Johnson, Ricardo
Subject: OPUS solution : 89940410.16o OP1455295633404
Attachments: 8994041n.16o.xml

FILE: 89940410.16o OP1455295633404

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: rjohnson@fugro.com DATE: February 12, 2016
RINEX FILE: 8994041n.16o TIME: 16:47:40 UTC

SOFTWARE: page5 1209.04 master51.pl 022814 START: 2016/02/10 13:59:00
EPHEMERIS: igr18833.eph [rapid] STOP: 2016/02/10 18:52:00
NAV FILE: brdc0410.16n OBS USED: 11331 / 13181 : 86%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 89 / 99 : 90%
ARP HEIGHT: 2.000 OVERALL RMS: 0.017(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2016.1111)

X:	-323234.742(m)	0.008(m)	-323235.531(m)	0.008(m)
Y:	-5529618.149(m)	0.007(m)	-5529616.665(m)	0.007(m)
Z:	3151539.688(m)	0.023(m)	3151539.499(m)	0.023(m)

LAT:	29 48 14.90173	0.021(m)	29 48 14.91957	0.021(m)
E LON:	266 39 16.46183	0.008(m)	266 39 16.42927	0.008(m)
W LON:	93 20 43.53817	0.008(m)	93 20 43.57073	0.008(m)
EL HGT:	-26.128(m)	0.011(m)	-27.467(m)	0.011(m)
ORTHO HGT:	0.527(m)	0.022(m)	[NAVD88 (Computed using GEOID12B)]	

	UTM COORDINATES (UTM (Zone 15))	STATE PLANE COORDINATES (SPC (1702 LA S))
Northing (Y) [meters]	3297132.745	146264.326
Easting (X) [meters]	466619.009	805503.744
Convergence [degrees]	-0.17169160	-1.00607250
Point Scale	0.99961375	0.99993160
Combined Factor	0.99961785	0.99993570

US NATIONAL GRID DESIGNATOR: 15RVN6661997132(NAD 83)

Shared Solution

PID: AV0548
Designation: A 357
Stamping: A 357 1982
Stability: May hold commonly subject to ground movement
Setting: Stainless steel rod in sleeve (10FT+ or 3.048M+)
Mark Condition: G
Description: Described by NGS 1982, located 2.4 km (1.5 mi) west from Cameron. 2.4 km (1.5 mi)
west along State Highway 27 from the US Post Office in Cameron, to the east bank of the Calcasieu ship channel and the mark
between the old and the new ferry crossings, 10.06 mtrs (33.0 ft) east of the waters edge, 3.78 meters (12.4 ft) east-southeast of the south end of the headwall of the old ferry crossing, 1.74 mtrs (5.7 ft) east of a utility pole with lines
running to two other utility poles with lights.
Observed: 2016-02-10T13:59:00Z See Also 2013-11-22
Source: OPUS - page5 1209.04

Close-up View

REF_FRAME: NAD_83 (2011)	EPOCH: 2010.0000	SOURCE: NAVD88 (Computed using GEOID12B)	UNITS: m	SET PROFILE	DETAILS

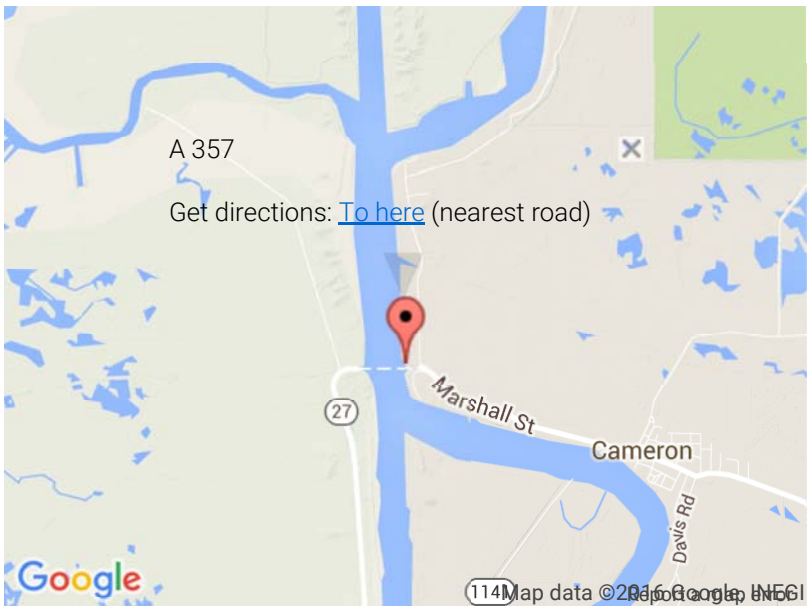
LAT:	29° 48' 14.90173" ± 0.021 m	
LON:	-93° 20' 43.53817" ± 0.008 m	
ELL HT:	-26.128 ± 0.011 m	
X:	-323234.742 ± 0.008 m	
Y:	-5529618.149 ± 0.007 m	
Z:	3151539.688 ± 0.023 m	
ORTHO HT:	0.527 ± 0.022 m	

	UTM 15	SPC 1702(LA S)
NORTHING:	3297132.745m	146264.326m
EASTING:	466619.009m	805503.744m
CONVERGENCE:	-0.17169160°	-1.00607250°
POINT SCALE:	0.99961375	0.99993160
COMBINED FACTOR:	0.99961785	0.99993570

CONTRIBUTED BY

rjohnson
- John Chance Land Surveys, Inc.

Horizon View



The numerical values for this position solution have satisfied the quality control criteria of the National Geodetic Survey. The contributor has verified that the information submitted is accurate and complete.

USE THIS FORM IF USING FIXED HEIGHT TRIPODS TO DOCUMENT STATIC SURVEYS ON BASE POINTS FOR ALL RTK SURVEYS

GPS LOG SHEET

Job No.	20150242	Date	2/11/2016	Operator	R. Mckeivier
Client	CPRA	Job Description	No Name Bayou Mag Survey		
Location	CAMERON			Proj. Mgr.	RICARDO JOHNSON

SESSION INFO

	4 Characters		3 Characters		1 Character
File Name	8994	**Julian Date**	042	**Session No.**	3

Long Name	A357		
Mon. Description	NGS STYLE DEEP ROD SET IN PVC WITH ACCESS COVER 2' BELOW SURFACE IN 2' PVC IPE		
Rec. Base Type	TRIMBLE R8 MODEL 3	**Rec Serial #**	5037448994
Base Ant Type		**Base Ant Ser #**	
Rover Ant Type	TRIMBLE R8 MODEL 3	**Rover Ant Ser #**	5051458175

Antenna Height Measurement is **TRUE VERTICAL** to the Bottom of Antenna Mount if Using Fixed Hgt Tripod

Fixed Hgt 2 Meter Tripod	2 meters	**Mtrs or Ft**
Tripod Number	RP 45	

Actual Start Time	8:15	Actual Stop Time	12:17	Session Time (Min 2:01 Hr)	4:02

BASE STATION INFORMATION

	NAD 83 or NAD 27		***Example**: LA South Zone or TX South Central Zone*
DATUM	NAD 83	**ZONE**	**LA SOUTH ZONE**
Northing/Lat	479868.915		
Easting/Long.	2642723.498		
Elevation	1.627		

Coordinate Origin-*Where did you get your positions?*

OFFICE

Note any power problems, obstructions, weather issues, etc.

ALL WHITE BOXES MUST BE FILLED IN WITH INFORMATION. A MINIMUM OBSERVATION OF 2 HOURS IS REQUIRED TO DETERMINE THE 3-D POSITION OF AN UNKNOWN POINT USING NGS-OPUS

USE BACK OF THIS SHEET TO MAKE STATION SKETCH, REFERENCE TIES & DESCRIPTION

Johnson, Ricardo

From: opus <opus@ngs.noaa.gov>
Sent: Thursday, February 18, 2016 11:07 AM
To: Johnson, Ricardo
Subject: OPUS solution : 89940420.16o OP1455815166817
Attachments: 8994042o.16o.xml

FILE: 89940420.16o OP1455815166817

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: rjohnson@fugro.com DATE: February 18, 2016
RINEX FILE: 8994042o.16o TIME: 17:06:37 UTC

SOFTWARE: page5 1209.04 master53.pl 022814 START: 2016/02/11 14:15:00
EPHEMERIS: igr18834.eph [rapid] STOP: 2016/02/11 18:17:00
NAV FILE: brdc0420.16n OBS USED: 9896 / 10959 : 90%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 67 / 78 : 86%
ARP HEIGHT: 2.000 OVERALL RMS: 0.019(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2016.1139)

X:	-323234.763(m)	0.001(m)	-323235.552(m)	0.001(m)
Y:	-5529618.143(m)	0.010(m)	-5529616.659(m)	0.010(m)
Z:	3151539.673(m)	0.005(m)	3151539.484(m)	0.005(m)

LAT:	29 48 14.90138	0.006(m)	29 48 14.91923	0.006(m)
E LON:	266 39 16.46103	0.000(m)	266 39 16.42848	0.000(m)
W LON:	93 20 43.53897	0.000(m)	93 20 43.57152	0.000(m)
EL HGT:	-26.139(m)	0.009(m)	-27.479(m)	0.009(m)
ORTHO HGT:	0.516(m)	0.019(m)	[NAVD88 (Computed using GEOID12B)]	

	UTM COORDINATES (UTM (Zone 15))	STATE PLANE COORDINATES (SPC (1702 LA S))
Northing (Y) [meters]	3297132.734	146264.316
Easting (X) [meters]	466618.988	805503.723
Convergence [degrees]	-0.17169171	-1.00607261
Point Scale	0.99961375	0.99993160
Combined Factor	0.99961785	0.99993571

US NATIONAL GRID DESIGNATOR: 15RVN6661897132(NAD 83)

Shared Solution

PID: AV0548
Designation: A 357
Stamping: A 357 1982
Stability: May hold commonly subject to ground movement
Setting: Stainless steel rod in sleeve (10FT+ or 3.048M+)
Mark Condition: G
Description: Described by NGS 1982, located 2.4 km (1.5 mi) west from Cameron. 2.4 km (1.5 mi)west along State Highway 27 from the US Post Office in Cameron, to the east bank of the Calcasieu ship channel and the mark between the old and the new ferry crossings, 10.06 mtrs (33.0 ft)east of the waters edge, 3.78 meters (12.4 ft) east-southeast of the south end of the headwall of the old ferry crossing, 1.74 mtrs (5.7 ft) east of a utility pole with lines running to two other utility poles with lights.
Observed: 2016-02-11T14:15:00Z See Also 2016-02-18
Source: OPUS - page5 1209.04

Close-up View

REF_FRAME: NAD_83 (2011)	EPOCH: 2010.0000	SOURCE: NAVD88 (Computed using GEOID12B)	UNITS: m	SET PROFILE	DETAILS

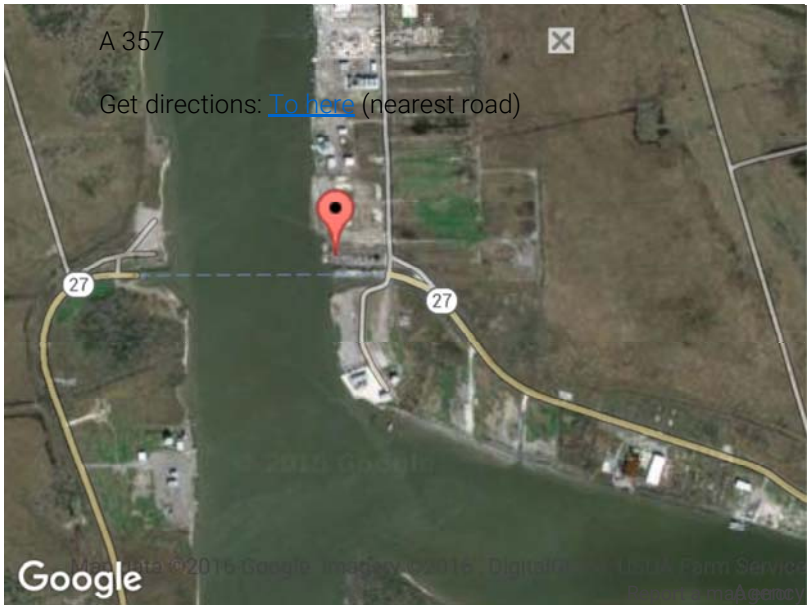
LAT:	29° 48' 14.90138"	± 0.006 m
LON:	-93° 20' 43.53897"	± 0.000 m
ELL HT:	-26.139	± 0.009 m
X:	-323234.763	± 0.001 m
Y:	-5529618.143	± 0.010 m
Z:	3151539.673	± 0.005 m
ORTHO HT:	0.516	± 0.019 m

	UTM 15	**SPC** 1702(LA S)
NORTHING:	3297132.734m	146264.316m
EASTING:	466618.988m	805503.723m
CONVERGENCE:	-0.17169171°	-1.00607261°
POINT SCALE:	0.99961375	0.99993160
COMBINED FACTOR:	0.99961785	0.99993571

CONTRIBUTED BY

rjohnson
- John Chance Land Surveys, Inc.

Horizon View



The numerical values for this position solution have satisfied the quality control criteria of the National Geodetic Survey. The contributor has verified that the information submitted is accurate and complete.

USE THIS FORM IF USING FIXED HEIGHT TRIPODS TO DOCUMENT STATIC SURVEYS ON BASE POINTS FOR ALL RTK SURVEYS

GPS LOG SHEET

Job No.	20150242	Date	2/12/2016	Operator	R. Mckeivier
Client	CPRA	Job Description	No Name Bayou Mag Survey		
Location	CAMERON			Proj. Mgr.	RICARDO JOHNSON

SESSION INFO

	4 Characters		3 Characters		1 Character
File Name	8994	**Julian Date**	043	**Session No.**	0

Long Name	A357		
Mon. Description	NGS STYLE DEEP ROD SET IN PVC WITH ACCESS COVER 2' BELOW SURFACE IN 2' PVC IPE		
Rec. Base Type	TRIMBLE R8 MODEL 3	**Rec Serial #**	5037448994
Base Ant Type		**Base Ant Ser #**	
Rover Ant Type	TRIMBLE R8 MODEL 3	**Rover Ant Ser #**	5051458175

Antenna Height Measurement is **TRUE VERTICAL** to the Bottom of Antenna Mount if Using Fixed Hgt Tripod

Fixed Hgt 2 Meter Tripod	2 meters	**Mtrs or Ft**
Tripod Number	RP 45	

Actual Start Time	8:28	Actual Stop Time	14:20	Session Time (Min 2:01 Hr)	5:52

BASE STATION INFORMATION

	NAD 83 or NAD 27		***Example**: LA South Zone or TX South Central Zone*
DATUM	NAD 83	**ZONE**	**LA SOUTH ZONE**
Northing/Lat	479868.915		
Easting/Long.	2642723.498		
Elevation	1.627		

Coordinate Origin-*Where did you get your positions?*

OFFICE

Note any power problems, obstructions, weather issues, etc.

ALL WHITE BOXES MUST BE FILLED IN WITH INFORMATION. A MINIMUM OBSERVATION OF 2 HOURS IS REQUIRED TO DETERMINE THE 3-D POSITION OF AN UNKNOWN POINT USING NGS-OPUS

USE BACK OF THIS SHEET TO MAKE STATION SKETCH, REFERENCE TIES & DESCRIPTION

Johnson, Ricardo

From: opus <opus@ngs.noaa.gov>
Sent: Thursday, February 18, 2016 11:10 AM
To: Johnson, Ricardo
Subject: OPUS solution : 89940430.16o OP1455815378434
Attachments: 8994043o.16o.xml

FILE: 89940430.16o OP1455815378434

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: rjohnson@fugro.com DATE: February 18, 2016
RINEX FILE: 8994043o.16o TIME: 17:10:12 UTC

SOFTWARE: page5 1209.04 master51.pl 022814 START: 2016/02/12 14:29:00
EPHEMERIS: igr18835.eph [rapid] STOP: 2016/02/12 20:19:30
NAV FILE: brdc0430.16n OBS USED: 14567 / 15859 : 92%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 92 / 113 : 81%
ARP HEIGHT: 2.000 OVERALL RMS: 0.021(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2016.1167)

X:	-323234.739(m)	0.007(m)	-323235.528(m)	0.007(m)
Y:	-5529618.130(m)	0.008(m)	-5529616.646(m)	0.008(m)
Z:	3151539.680(m)	0.020(m)	3151539.491(m)	0.020(m)

LAT:	29 48 14.90181	0.022(m)	29 48 14.91965	0.022(m)
E LON:	266 39 16.46190	0.007(m)	266 39 16.42934	0.007(m)
W LON:	93 20 43.53810	0.007(m)	93 20 43.57066	0.007(m)
EL HGT:	-26.148(m)	0.003(m)	-27.488(m)	0.003(m)
ORTHO HGT:	0.507(m)	0.013(m)	[NAVD88 (Computed using GEOID12B)]	

	UTM COORDINATES (UTM (Zone 15))	STATE PLANE COORDINATES (SPC (1702 LA S))
Northing (Y) [meters]	3297132.747	146264.329
Easting (X) [meters]	466619.011	805503.746
Convergence [degrees]	-0.17169159	-1.00607249
Point Scale	0.99961375	0.99993160
Combined Factor	0.99961786	0.99993571

US NATIONAL GRID DESIGNATOR: 15RVN6661997132(NAD 83)

Shared Solution

PID: AV0548
Designation: A 357
Stamping: A 357 1982
Stability: May hold commonly subject to ground movement
Setting: Stainless steel rod in sleeve (10FT+ or 3.048M+)
Mark Condition: G
Description: Described by NGS 1982, located 2.4 km (1.5 mi) west from Cameron. 2.4 km (1.5 mi)west along State Highway 27 from the US Post Office in Cameron, to the east bank of the Calcasieu ship channel and the mark between the old and the new ferry crossings, 10.06 mtrs (33.0 ft)east of the waters edge, 3.78 meters (12.4 ft) east-southeast of the south end of the headwall of the old ferry crossing, 1.74 mtrs (5.7 ft) east of a utility pole with lines running to two other utility poles with lights
Observed: 2016-02-12T14:29:00Z See Also 2016-02-18
Source: OPUS - page5 1209.04

Close-up View

REF_FRAME: NAD_83 (2011)	EPOCH: 2010.0000	SOURCE: NAVD88 (Computed using GEOID12B)	UNITS: m	SET PROFILE	DETAILS

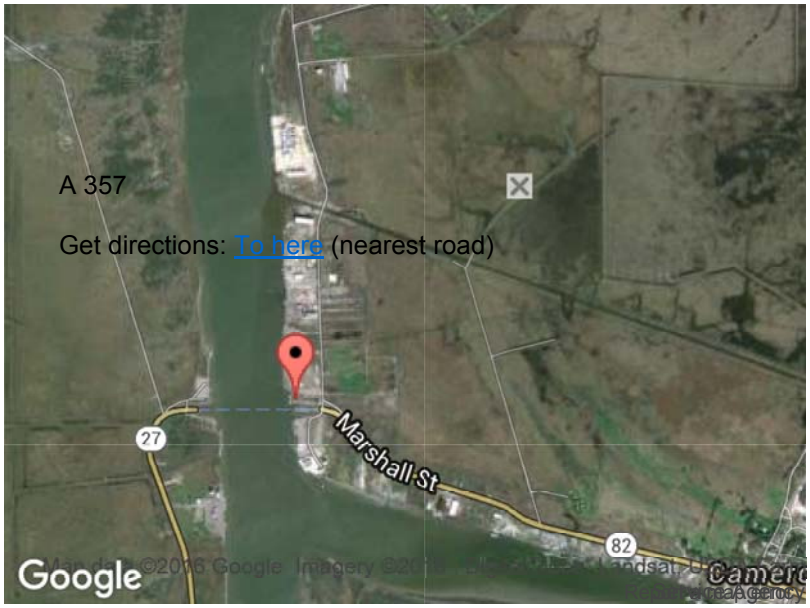
LAT:	29° 48' 14.90181"	± 0.022 m
LON:	-93° 20' 43.53810"	± 0.007 m
ELL HT:	-26.148	± 0.003 m
X:	-323234.739	± 0.007 m
Y:	-5529618.130	± 0.008 m
Z:	3151539.680	± 0.020 m
ORTHO HT:	0.507	± 0.013 m

	UTM 15	**SPC** 1702(LA S)
NORTHING:	3297132.747m	146264.329m
EASTING:	466619.011m	805503.746m
CONVERGENCE:	-0.17169159°	-1.00607249°
POINT SCALE:	0.99961375	0.99993160
COMBINED FACTOR:	0.99961786	0.99993571

CONTRIBUTED BY

rjohnson
- John Chance Land Surveys, Inc.

Horizon View



The numerical values for this position solution have satisfied the quality control criteria of the National Geodetic Survey. The contributor has verified that the information submitted is accurate and complete.

USE THIS FORM IF USING FIXED HEIGHT TRIPODS TO DOCUMENT STATIC SURVEYS ON BASE POINTS FOR ALL RTK SURVEYS

GPS LOG SHEET

Job No.	20150242	Date	2/15/2016	Operator	R. Mckeivier
Client	CPRA	Job Description	No Name Bayou Mag Survey		
Location	CAMERON			Proj. Mgr.	RICARDO JOHNSON

SESSION INFO

	4 Characters		3 Characters		1 Character
File Name	8994	**Julian Date**	046	**Session No.**	0

Long Name	A357		
Mon. Description	NGS STYLE DEEP ROD SET IN PVC WITH ACCESS COVER 2' BELOW SURFACE IN 2' PVC IPE		
Rec. Base Type	TRIMBLE R8 MODEL 3	**Rec Serial #**	5037448994
Base Ant Type		**Base Ant Ser #**	
Rover Ant Type	TRIMBLE R8 MODEL 3	**Rover Ant Ser #**	5051458175

Antenna Height Measurement is **TRUE VERTICAL** to the Bottom of Antenna Mount if Using Fixed Hgt Tripod

Fixed Hgt 2 Meter Tripod	2 meters	**Mtrs or Ft**
Tripod Number	RP 45	

Actual Start Time	8:40	Actual Stop Time	14:39	Session Time (Min 2:01 Hr)	5:59

BASE STATION INFORMATION

	NAD 83 or NAD 27		***Example**: LA South Zone or TX South Central Zone*
DATUM	NAD 83	**ZONE**	**LA SOUTH ZONE**
Northing/Lat	479868.915		
Easting/Long.	2642723.498		
Elevation	1.627		

Coordinate Origin-*Where did you get your positions?*

OFFICE

Note any power problems, obstructions, weather issues, etc.

ALL WHITE BOXES MUST BE FILLED IN WITH INFORMATION. A MINIMUM OBSERVATION OF 2 HOURS IS REQUIRED TO DETERMINE THE 3-D POSITION OF AN UNKNOWN POINT USING NGS-OPUS

USE BACK OF THIS SHEET TO MAKE STATION SKETCH, REFERENCE TIES & DESCRIPTION

Johnson, Ricardo

From: opus <opus@ngs.noaa.gov>
Sent: Thursday, February 18, 2016 11:12 AM
To: Johnson, Ricardo
Subject: OPUS solution : 89940460.16o OP1455815486543
Attachments: 8994046o.16o.xml

FILE: 89940460.16o OP1455815486543

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: rjohnson@fugro.com DATE: February 18, 2016
RINEX FILE: 8994046o.16o TIME: 17:11:54 UTC

SOFTWARE: page5 1209.04 master92.pl 022814 START: 2016/02/15 14:40:00
EPHEMERIS: igr18841.eph [rapid] STOP: 2016/02/15 19:14:00
NAV FILE: brdc0460.16n OBS USED: 10773 / 12322 : 87%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 64 / 89 : 72%
ARP HEIGHT: 2.000 OVERALL RMS: 0.021(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2016.1249)

X:	-323234.751(m)	0.001(m)	-323235.541(m)	0.001(m)
Y:	-5529618.104(m)	0.041(m)	-5529616.620(m)	0.041(m)
Z:	3151539.648(m)	0.035(m)	3151539.459(m)	0.035(m)

LAT:	29 48 14.90132	0.017(m)	29 48 14.91916	0.017(m)
E LON:	266 39 16.46140	0.002(m)	266 39 16.42880	0.002(m)
W LON:	93 20 43.53860	0.002(m)	93 20 43.57120	0.002(m)
EL HGT:	-26.186(m)	0.053(m)	-27.526(m)	0.053(m)
ORTHO HGT:	0.469(m)	0.091(m)	[NAVD88 (Computed using GEOID12B)]	

	UTM COORDINATES (UTM (Zone 15))	STATE PLANE COORDINATES (SPC (1702 LA S))
Northing (Y) [meters]	3297132.732	146264.314
Easting (X) [meters]	466618.997	805503.732
Convergence [degrees]	-0.17169166	-1.00607256
Point Scale	0.99961375	0.99993160
Combined Factor	0.99961786	0.99993571

US NATIONAL GRID DESIGNATOR: 15RVN6661897132(NAD 83)

Shared Solution

PID: AV0548
Designation: A 357
Stamping: A 357 1982
Stability: May hold commonly subject to ground movement
Setting: Stainless steel rod in sleeve (10FT+ or 3.048M+)
Mark Condition: G
Description: Described by NGS 1982, located 2.4 km (1.5 mi) west from Cameron. 2.4 km (1.5 mi)west along State Highway 27 from the US Post Office in Cameron, to the east bank of the Calcasieu ship channel and the mark between the old and the new ferry crossings, 10.06 mtrs (33.0 ft) east of the waters edge, 3.78 meters (12.4 ft) east-southeast of the south end of the headwall of the old ferry crossing, 1.74 mtrs (5.7 ft) east of a utility pole with lines running to two other utility poles with lights.
Observed: 2016-02-15T14:40:00Z See Also 2016-02-18
Source: OPUS - page5 1209.04

Close-up View

REF_FRAME: NAD_83 (2011)	EPOCH: 2010.0000	SOURCE: NAVD88 (Computed using GEOID12B)	UNITS: m	SET PROFILE	DETAILS

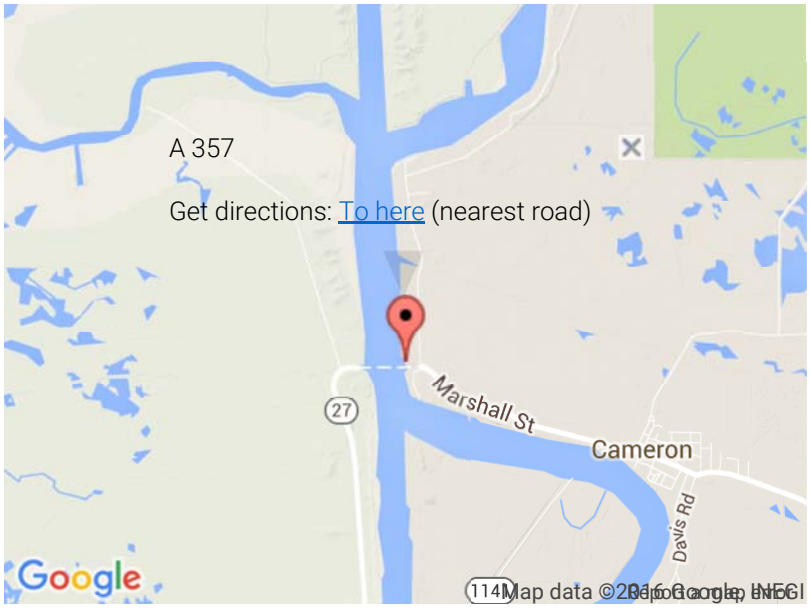
LAT:	29° 48' 14.90132"	± 0.017	m
LON:	-93° 20' 43.53860"	± 0.002	m
ELL HT:	-26.186	± 0.053	m
X:	-323234.751	± 0.001	m
Y:	-5529618.104	± 0.041	m
Z:	3151539.648	± 0.035	m
ORTHO HT:	0.469	± 0.091	m

	UTM 15	**SPC** 1702(LA S)
NORTHING:	3297132.732m	146264.314m
EASTING:	466618.997m	805503.732m
CONVERGENCE:	-0.17169166°	-1.00607256°
POINT SCALE:	0.99961375	0.99993160
COMBINED FACTOR:	0.99961786	0.99993571

CONTRIBUTED BY

rjohnson
- John Chance Land Surveys, Inc.

Horizon View



The numerical values for this position solution have satisfied the quality control criteria of the National Geodetic Survey. The contributor has verified that the information submitted is accurate and complete.

USE THIS FORM IF USING FIXED HEIGHT TRIPODS TO DOCUMENT STATIC SURVEYS ON BASE POINTS FOR ALL RTK SURVEYS

GPS LOG SHEET

Job No.	20150242	Date	2/16/2016	Operator	R. Mckeivier
Client	CPRA	Job Description	No Name Bayou Mag Survey		
Location	CAMERON			Proj. Mgr.	RICARDO JOHNSON

SESSION INFO

	4 Characters		3 Characters		1 Character
File Name	8994	**Julian Date**	047	**Session No.**	0

Long Name	A357		
Mon. Description	NGS STYLE DEEP ROD SET IN PVC WITH ACCESS COVER 2' BELOW SURFACE IN 2' PVC IPE		
Rec. Base Type	TRIMBLE R8 MODEL 3	**Rec Serial #**	5037448994
Base Ant Type		**Base Ant Ser #**	
Rover Ant Type	TRIMBLE R8 MODEL 3	**Rover Ant Ser #**	5051458175

Antenna Height Measurement is **TRUE VERTICAL** to the Bottom of Antenna Mount if Using Fixed Hgt Tripod

Fixed Hgt 2 Meter Tripod	2 meters	**Mtrs or Ft**
Tripod Number	RP 45	

Actual Start Time	7:55	Actual Stop Time	15:34	Session Time (Min 2:01 Hr)	7:39

BASE STATION INFORMATION

	NAD 83 or NAD 27		***Example**: LA South Zone or TX South Central Zone*
DATUM	NAD 83	**ZONE**	**LA SOUTH ZONE**
Northing/Lat	479868.915		
Easting/Long.	2642723.498		
Elevation	1.627		

Coordinate Origin-*Where did you get your positions?*

OFFICE

Note any power problems, obstructions, weather issues, etc.

ALL WHITE BOXES MUST BE FILLED IN WITH INFORMATION. A MINIMUM OBSERVATION OF 2 HOURS IS REQUIRED TO DETERMINE THE 3-D POSITION OF AN UNKNOWN POINT USING NGS-OPUS

USE BACK OF THIS SHEET TO MAKE STATION SKETCH, REFERENCE TIES & DESCRIPTION

Johnson, Ricardo

From: opus <opus@ngs.noaa.gov>
Sent: Wednesday, May 25, 2016 1:16 PM
To: Johnson, Ricardo
Subject: OPUS solution : 89940470.16o OP1464200122092

FILE: 89940470.16o OP1464200122092

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: rjohnson@fugro.com DATE: May 25, 2016
RINEX FILE: 8994047n.16o TIME: 18:16:06 UTC

SOFTWARE: page5 1209.04 master53.pl 160321 START: 2016/02/16 13:56:00
EPHEMERIS: igs18842.eph [precise] STOP: 2016/02/16 21:33:30
NAV FILE: brdc0470.16n OBS USED: 17433 / 20049 : 87%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 125 / 137 : 91%
ARP HEIGHT: 2.000 OVERALL RMS: 0.018(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2016.1277)

X:	-323234.760(m)	0.009(m)	-323235.550(m)	0.009(m)
Y:	-5529618.144(m)	0.018(m)	-5529616.660(m)	0.018(m)
Z:	3151539.680(m)	0.014(m)	3151539.491(m)	0.014(m)
LAT:	29 48 14.90156	0.021(m)	29 48 14.91941	0.021(m)
E LON:	266 39 16.46115	0.009(m)	266 39 16.42856	0.009(m)
W LON:	93 20 43.53885	0.009(m)	93 20 43.57144	0.009(m)
EL HGT:	-26.135(m)	0.015(m)	-27.475(m)	0.015(m)
ORTHO HGT:	0.520(m)	0.027(m) [NAVD88 (Computed using GEOID12B)]		

	UTM COORDINATES (UTM (Zone 15))	STATE PLANE COORDINATES (SPC (1702 LA S))
Northing (Y) [meters]	3297132.740	146264.322
Easting (X) [meters]	466618.991	805503.726
Convergence [degrees]	-0.17169170	-1.00607260
Point Scale	0.99961375	0.99993160
Combined Factor	0.99961785	0.99993570

US NATIONAL GRID DESIGNATOR: 15RVN6661897132(NAD 83)

BASE STATIONS USED

USE THIS FORM IF USING FIXED HEIGHT TRIPODS TO DOCUMENT STATIC SURVEYS ON BASE POINTS FOR ALL RTK SURVEYS

GPS LOG SHEET

Job No.	20150242	Date	2/17/2016	Operator	R. Mckeivier
Client	CPRA	Job Description	No Name Bayou Mag Survey		
Location	CAMERON			Proj. Mgr.	RICARDO JOHNSON

SESSION INFO

	4 Characters		3 Characters		1 Character
File Name	8994	**Julian Date**	048	**Session No.**	0

Long Name	A357		
Mon. Description	NGS STYLE DEEP ROD SET IN PVC WITH ACCESS COVER 2' BELOW SURFACE IN 2' PVC IPE		
Rec. Base Type	TRIMBLE R8 MODEL 3	**Rec Serial #**	5037448994
Base Ant Type		**Base Ant Ser #**	
Rover Ant Type	TRIMBLE R8 MODEL 3	**Rover Ant Ser #**	5051458175

Antenna Height Measurement is **TRUE VERTICAL** to the Bottom of Antenna Mount if Using Fixed Hgt Tripod

Fixed Hgt 2 Meter Tripod	2 meters	**Mtrs or Ft**
Tripod Number	RP 45	

Actual Start Time	7:55	Actual Stop Time	15:54	Session Time (Min 2:01 Hr)	7:59

BASE STATION INFORMATION

	NAD 83 or NAD 27		***Example**: LA South Zone or TX South Central Zone*
DATUM	NAD 83	**ZONE**	**LA SOUTH ZONE**
Northing/Lat	479868.915		
Easting/Long.	2642723.498		
Elevation	1.627		

Coordinate Origin-*Where did you get your positions?*

OFFICE

Note any power problems, obstructions, weather issues, etc.

ALL WHITE BOXES MUST BE FILLED IN WITH INFORMATION. A MINIMUM OBSERVATION OF 2 HOURS IS REQUIRED TO DETERMINE THE 3-D POSITION OF AN UNKNOWN POINT USING NGS-OPUS

USE BACK OF THIS SHEET TO MAKE STATION SKETCH, REFERENCE TIES & DESCRIPTION

Johnson, Ricardo

From: opus <opus@ngs.noaa.gov>
Sent: Wednesday, May 25, 2016 1:17 PM
To: Johnson, Ricardo
Subject: OPUS solution : 89940480.16o OP1464200135943

FILE: 89940480.16o OP1464200135943

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: rjohnson@fugro.com DATE: May 25, 2016
RINEX FILE: 8994048n.16o TIME: 18:16:19 UTC

SOFTWARE: page5 1209.04 master52.pl 160321 START: 2016/02/17 13:56:00
EPHEMERIS: igs18843.eph [precise] STOP: 2016/02/17 21:54:00
NAV FILE: brdc0480.16n OBS USED: 18230 / 20783 : 88%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 132 / 159 : 83%
ARP HEIGHT: 2.000 OVERALL RMS: 0.018(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2016.1304)

X:	-323234.741(m)	0.002(m)	-323235.531(m)	0.002(m)
Y:	-5529618.136(m)	0.007(m)	-5529616.652(m)	0.007(m)
Z:	3151539.668(m)	0.004(m)	3151539.479(m)	0.004(m)
LAT:	29 48 14.90137	0.003(m)	29 48 14.91922	0.003(m)
E LON:	266 39 16.46184	0.002(m)	266 39 16.42924	0.002(m)
W LON:	93 20 43.53816	0.002(m)	93 20 43.57076	0.002(m)
EL HGT:	-26.149(m)	0.007(m)	-27.488(m)	0.007(m)
ORTHO HGT:	0.506(m)	0.017(m) [NAVD88 (Computed using GEOID12B)]		

	UTM COORDINATES (UTM (Zone 15))	STATE PLANE COORDINATES (SPC (1702 LA S))
Northing (Y) [meters]	3297132.734	146264.316
Easting (X) [meters]	466619.009	805503.744
Convergence [degrees]	-0.17169160	-1.00607250
Point Scale	0.99961375	0.99993160
Combined Factor	0.99961786	0.99993571

US NATIONAL GRID DESIGNATOR: 15RVN6661997132(NAD 83)

BASE STATIONS USED

USE THIS FORM IF USING FIXED HEIGHT TRIPODS TO DOCUMENT STATIC SURVEYS ON BASE POINTS FOR ALL RTK SURVEYS

GPS LOG SHEET

Job No.	20150242	Date	2/18/2016	Operator	R. Mckeivier
Client	CPRA	Job Description	MAG SURVEY		
Location	CAMERON			Proj. Mgr.	RICARDO JOHNSON

SESSION INFO

	4 Characters		3 Characters		1 Character
File Name	8994	**Julian Date**	049	**Session No.**	0

Long Name	A357		
Mon. Description	NGS STYLE DEEP ROD SET IN PVC WITH ACCESS COVER 2' BELOW SURFACE IN 2' PVC IPE		
Rec. Base Type	TRIMBLE R8 MODEL 3	**Rec Serial #**	5037448994
Base Ant Type		**Base Ant Ser #**	
Rover Ant Type	TRIMBLE R8 MODEL 3	**Rover Ant Ser #**	5051458175

Antenna Height Measurement is **TRUE VERTICAL** to the Bottom of Antenna Mount if Using Fixed Hgt Tripod

Fixed Hgt 2 Meter Tripod	2 meters	**Mtrs or Ft**
Tripod Number	RP 45	

Actual Start Time	7:54	Actual Stop Time	15:02	Session Time (Min 2:01 Hr)	7:08

BASE STATION INFORMATION

	NAD 83 or NAD 27		***Example**: LA South Zone or TX South Central Zone*
DATUM	NAD 83	**ZONE**	**LA SOUTH ZONE**
Northing/Lat	479868.915		
Easting/Long.	2642723.498	**Coordinate Origin**-*Where did you get your positions?*	OFFICE
Elevation	1.627		

Note any power problems, obstructions, weather issues, etc.

ALL WHITE BOXES MUST BE FILLED IN WITH INFORMATION. A MINIMUM OBSERVATION OF 2 HOURS IS REQUIRED TO DETERMINE THE 3-D POSITION OF AN UNKNOWN POINT USING NGS-OPUS

USE BACK OF THIS SHEET TO MAKE STATION SKETCH, REFERENCE TIES & DESCRIPTION

Johnson, Ricardo

From: opus <opus@ngs.noaa.gov>
Sent: Wednesday, May 25, 2016 2:07 PM
To: Johnson, Ricardo
Subject: OPUS solution : 89940490.16o OP1464203149719

FILE: 89940490.16o OP1464203149719

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: rjohnson@fugro.com DATE: May 25, 2016
RINEX FILE: 8994049n.16o TIME: 19:06:28 UTC

SOFTWARE: page5 1209.04 master53.pl 160321 START: 2016/02/18 13:55:00
EPHEMERIS: igs18844.eph [precise] STOP: 2016/02/18 17:04:00
NAV FILE: brdc0490.16n OBS USED: 7538 / 8355 : 90%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 57 / 62 : 92%
ARP HEIGHT: 2.000 OVERALL RMS: 0.017(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2016.1329)

X:	-323234.760(m)	0.007(m)	-323235.550(m)	0.007(m)
Y:	-5529618.121(m)	0.016(m)	-5529616.637(m)	0.016(m)
Z:	3151539.669(m)	0.007(m)	3151539.480(m)	0.007(m)
LAT:	29 48 14.90163	0.002(m)	29 48 14.91947	0.002(m)
E LON:	266 39 16.46110	0.006(m)	266 39 16.42851	0.006(m)
W LON:	93 20 43.53890	0.006(m)	93 20 43.57149	0.006(m)
EL HGT:	-26.160(m)	0.017(m)	-27.500(m)	0.017(m)
ORTHO HGT:	0.495(m)	0.032(m) [NAVD88 (Computed using GEOID12B)]		

	UTM COORDINATES (UTM (Zone 15))	STATE PLANE COORDINATES (SPC (1702 LA S))
Northing (Y) [meters]	3297132.742	146264.324
Easting (X) [meters]	466618.990	805503.725
Convergence [degrees]	-0.17169170	-1.00607260
Point Scale	0.99961375	0.99993160
Combined Factor	0.99961786	0.99993571

US NATIONAL GRID DESIGNATOR: 15RVN6661897132(NAD 83)

BASE STATIONS USED

USE THIS FORM IF USING FIXED HEIGHT TRIPODS TO DOCUMENT STATIC SURVEYS ON BASE POINTS FOR ALL RTK SURVEYS

GPS LOG SHEET

Job No.	20150242	Date	2/19/2016	Operator	R. Mckeivier
Client	CPRA	Job Description	MAG SURVEY		
Location	CAMERON			Proj. Mgr.	RICARDO JOHNSON

SESSION INFO

	4 Characters		3 Characters		1 Character
File Name	8994	**Julian Date**	050	**Session No.**	0

Long Name	A357		
Mon. Description	NGS STYLE DEEP ROD SET IN PVC WITH ACCESS COVER 2' BELOW SURFACE IN 2' PVC IPE		
Rec. Base Type	TRIMBLE R8 MODEL 3	**Rec Serial #**	5037448994
Base Ant Type		**Base Ant Ser #**	
Rover Ant Type	TRIMBLE R8 MODEL 3	**Rover Ant Ser #**	5051458175

Antenna Height Measurement is **TRUE VERTICAL** to the Bottom of Antenna Mount if Using Fixed Hgt Tripod

Fixed Hgt 2 Meter Tripod	2 meters	**Mtrs or Ft**
Tripod Number	RP 45	

Actual Start Time	8:28	Actual Stop Time	13:31	Session Time (Min 2:01 Hr)	5:03

BASE STATION INFORMATION

	NAD 83 or NAD 27		***Example**: LA South Zone or TX South Central Zone*
DATUM	NAD 83	**ZONE**	**LA SOUTH ZONE**
Northing/Lat	479868.915		
Easting/Long.	2642723.498		
Elevation	1.627		

Coordinate Origin-*Where did you get your positions?*

OFFICE

Note any power problems, obstructions, weather issues, etc.

ALL WHITE BOXES MUST BE FILLED IN WITH INFORMATION. A MINIMUM OBSERVATION OF 2 HOURS IS REQUIRED TO DETERMINE THE 3-D POSITION OF AN UNKNOWN POINT USING NGS-OPUS

USE BACK OF THIS SHEET TO MAKE STATION SKETCH, REFERENCE TIES & DESCRIPTION

Johnson, Ricardo

From: opus <opus@ngs.noaa.gov>
Sent: Wednesday, May 25, 2016 2:07 PM
To: Johnson, Ricardo
Subject: OPUS solution : 89940500.16o OP1464203187520

FILE: 89940500.16o OP1464203187520

NGS OPUS SOLUTION REPORT
==========

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: rjohnson@fugro.com DATE: May 25, 2016
RINEX FILE: 8994050o.16o TIME: 19:07:02 UTC

SOFTWARE: page5 1209.04 master93.pl 160321 START: 2016/02/19 14:28:00
EPHEMERIS: igs18845.eph [precise] STOP: 2016/02/19 19:33:00
NAV FILE: brdc0500.16n OBS USED: 11790 / 13441 : 88%
ANT NAME: TRMR8_GNSS3 NONE # FIXED AMB: 89 / 100 : 89%
ARP HEIGHT: 2.000 OVERALL RMS: 0.020(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2016.1358)

X:	-323234.735(m)	0.007(m)	-323235.525(m)	0.007(m)
Y:	-5529618.136(m)	0.014(m)	-5529616.652(m)	0.014(m)
Z:	3151539.675(m)	0.006(m)	3151539.486(m)	0.006(m)
LAT:	29 48 14.90158	0.004(m)	29 48 14.91942	0.004(m)
E LON:	266 39 16.46206	0.008(m)	266 39 16.42947	0.008(m)
W LON:	93 20 43.53794	0.008(m)	93 20 43.57053	0.008(m)
EL HGT:	-26.146(m)	0.014(m)	-27.485(m)	0.014(m)
ORTHO HGT:	0.509(m)	0.026(m) [NAVD88 (Computed using GEOID12B)]		

	UTM COORDINATES (UTM (Zone 15))	STATE PLANE COORDINATES (SPC (1702 LA S))
Northing (Y) [meters]	3297132.740	146264.322
Easting (X) [meters]	466619.015	805503.750
Convergence [degrees]	-0.17169157	-1.00607247
Point Scale	0.99961375	0.99993160
Combined Factor	0.99961785	0.99993571

US NATIONAL GRID DESIGNATOR: 15RVN6661997132(NAD 83)

BASE STATIONS USED

CS-78 No Name Bayou Marsh Creation Project

Average of OPUS Solutions for Monument "A 357"

Horizontal Datum: NAD83 (2011) LA South Zone (1702) Ft - Vertical Datum: NAVD88/OPUS (GEOID12B) Feet

GPS File	Latitude	Longitude	Northing Mtrs	Easting Mtrs	Northing Ft	Easting Ft	Ellipsoid Hgt Mtrs	Elevation Mtrs	Elevation Hgt Ft
89940400	29 48 14.90174	93 20 43.53839	146,264.327	805,503.738	479,868.88	2,642,723.51	-26.144	0.511	1.68
89940410	29 48 14.90173	93 20 43.53817	146,264.326	805,503.744	479,868.88	2,642,723.53	-26.128	0.527	1.73
89940420	29 48 14.90138	93 20 43.53897	146,264.316	805,503.723	479,868.84	2,642,723.46	-26.139	0.516	1.69
89940430	29 48 14.90181	93 20 43.53810	146,264.329	805,503.746	479,868.89	2,642,723.54	-26.148	0.507	1.66
89940460	29 48 14.90132	93 20 43.53860	146,264.314	805,503.732	479,868.84	2,642,723.49	-26.186	0.469	1.54
89940470	29 48 14.90156	93 20 43.53885	146,264.322	805,503.726	479,868.86	2,642,723.47	-26.135	0.520	1.71
89940480	29 48 14.90137	93 20 43.53816	146,264.316	805,503.744	479,868.84	2,642,723.53	-26.149	0.506	1.66
89940490	29 48 14.90163	93 20 43.53890	146,264.324	805,503.725	479,868.87	2,642,723.47	-26.160	0.495	1.62
89940500	29 48 14.90158	93 20 43.53794	146,264.322	805,503.750	479,868.86	2,642,723.55	-26.146	0.509	1.67
OPUS Average	**29 48 14.90157**	**93 20 43.53845**	**146,264.322**	**805,503.736**	**479,868.86**	**2,642,723.51**	**-26.148**	**0.511**	**1.68**
		Standard Deviation =	**0.005**	**0.010**	**0.018**	**0.033**	**0.017**	**0.017**	**0.055**

VICINITY MAP Not to Scale Reproduced from Louisiana 2005 DOQQ

Station Name: "A 357"

Location: Described by National Geodetic Survey 1982, located 2.4 km (1.5 mi) west from Cameron. 2.4 kilometers (1.5 miles) west along State Highway 27 from the US Post Office in Cameron, to the east bank of the Calcasieu ship Channel and the mark between the old and the new ferry crossings, 10.06 meters (33.0 feet) east of the waters edge, 3.78 meters (12.4 feet) east-southeast of the south end of the headwall of the old ferry crossing, 1.74 meters (5.7 feet) east of a utility pole with lines running to two other utility poles with lights. The mark is 0.46 meters south from a witness post. The mark is 0.06 m above water.

Monument Description: Stainless steel rod driven to 120.1 ft to refusal in flange.

Stamping: A 357 1982

Installation Date: 1982 **Date of Survey:** February 9-19, 2016

Monument Established By: NGS

Adjusted NAD83 (2011) Geodetic Position
Lat. 29°48'14.90157" N
Long. 93°20'43.53845" W

Adjusted NAD83 (2011) Datum LSZ (1702) Ft
N= 479,868.86
E= 2,642,723.51

Adjusted NAVD88 Height (2011)
Elevation = 1.68 feet (0.511 mtrs)

Ellipsoid Height = -26.148 mtrs.
Geoid12B Height = -26.659 mtrs.

Adjusted NAVD88 Height (2006.81)
Elevation = 2.00 feet (0.609 mtrs)

Ellipsoid Height = -26.210 mtrs.
Geoid03 Height = -26.819 mtrs. (2004.65)

Adjusted Position Established John Chance Land Surveys, Inc. for the Coastal Protection & Restoration Authority of Louisiana

No Name Bayou Marsh Creation Project (CS-78)

RTK Survey Points Listing

Hor Datum: NAD83 (2011) LA South Zone (1702) Ft - Vert Datum: NAVD88/OPUS (GEOID12B) Ft

Point No.	Northing	Easting	Elev	Description
100	487,306.26	2,646,655.97	2.88	1/4 IN REBAR
101	492,227.34	2,650,089.10	6.59	CHK MON 15-095C-10
102	492,099.88	2,650,841.86	4.29	CHK MON NO NAME
103	488,287.87	2,646,997.49	6.62	MO 20-1
104	492,099.87	2,650,841.82	4.27	CHK MON NO NAME
105	492,099.92	2,650,841.87	4.27	CHK MON NO NAME
106	492,099.88	2,650,841.81	4.35	CHK MON NO NAME
107	492,099.92	2,650,841.87	4.40	CHK MON NO NAME
108	492,099.89	2,650,841.87	4.29	CHK MON NO NAME
109	486,347.66	2,652,016.98	1.57	MAG HIT 40 GAMA
110	492,099.94	2,650,841.86	4.35	CHK MON NO NAME
111	486,659.17	2,647,005.37	0.08	42" PL 4.0C 0.0W
112	486,867.23	2,647,148.02	0.02	42" PL 4.0C 0.0W
113	487,062.43	2,647,277.18	-0.03	42" PL 4.0C 0.0W
114	487,500.39	2,647,572.79	0.01	42" PL 4.0C 0.0W
115	487,840.86	2,647,802.55	0.10	42" PL 4.0C 0.0W
116	488,047.22	2,647,941.01	-0.12	42" PL 4.0 C 0.0W
117	488,302.69	2,648,113.12	-0.16	42" PL 3.5C 0.5W
118	488,493.22	2,648,239.24	0.01	42" PL 3.0C 1.0W
119	488,651.19	2,648,340.48	0.60	42" PL 3.0C 1.0W
120	488,815.09	2,648,446.92	0.16	42" PL 3.0C 1.0W
121	489,000.57	2,648,576.08	-0.06	42" PL 4.0C 1.0W
122	489,167.15	2,648,688.31	-0.08	42" PL 4.0C 0.5W
123	489,320.21	2,648,794.23	-0.16	42" PL 4.0C 1.0W
124	489,456.64	2,648,887.37	-0.12	42" PL 4.0C 2.0W
125	489,653.33	2,649,018.46	-0.29	42" PL 4.5C 2.0W
126	489,824.09	2,649,133.94	-0.31	42" PL 4.5C 2.0W
127	489,996.88	2,649,255.49	0.45	42" PL 4.0C 2.0W
128	490,174.59	2,649,396.86	-0.23	42" PL 5.5C 2.0W
129	490,340.33	2,649,539.61	-0.10	42" PL 4.0C 2.0W
130	490,488.77	2,649,678.54	-0.24	42" PL 4.5C 2.0W
131	490,601.04	2,649,790.35	0.00	42" PL 4.0C 2.0W

No Name Bayou Marsh Creation Project (CS-78)

RTK Survey Points Listing

Hor Datum: NAD83 (2011) LA South Zone (1702) Ft - Vert Datum: NAVD88/OPUS (GEOID12B) Ft

Point No.	Northing	Easting	Elev	Description
132	490,718.06	2,649,916.81	-0.40	42" PL 3.5C 2.0W
133	490,821.72	2,650,036.01	-0.41	42" PL 4.5C 2.0W
134	490,905.80	2,650,141.39	-0.38	42" PL 4.0C 1.0W
135	491,023.87	2,650,293.59	-0.34	42" PL 4.0C 1.0W
136	491,125.75	2,650,436.41	-0.16	42" PL 4.5C 0.5W
137	491,211.16	2,650,569.16	-0.06	42" PL 4.5C 0.5W
138	491,312.17	2,650,727.94	0.09	42" PL 5.0C 0.0W
139	491,550.16	2,651,168.73	0.12	42" PL 5.5C 0.5W
140	491,602.45	2,651,270.53	-0.24	42" PL 9.0C 0.5W
141	491,650.90	2,651,357.71	0.09	42" PL 10.5C 0.5W
143	492,099.94	2,650,841.85	4.30	CHK MON NO NAME
144	485,216.24	2,653,818.70	-0.32	PL 5.5C 0.0W
145	485,300.90	2,653,867.42	-0.13	PL 5.5C 0.0W
146	485,606.48	2,654,040.85	-0.38	PL 5.0C 0.0W
147	485,810.52	2,654,156.29	-0.29	PL 5.0C 0.0W
148	486,028.91	2,654,282.65	-0.23	PL 5.0C 0.0W
149	486,321.23	2,654,449.28	-0.16	PL 5.0C 0.0W
150	486,561.33	2,654,585.98	-0.49	PL 5.0C 0.0W
151	486,766.52	2,654,703.15	-0.25	PL 5.0C 0.0W
152	486,992.95	2,654,832.19	-0.34	PL 5.0C 0.0W
153	487,198.50	2,654,947.07	0.21	PL 5.0C 0.0W
154	487,435.63	2,655,081.20	-0.15	PL 5.0C 0.0W
155	487,670.50	2,655,217.36	-0.21	PL 5.0C 0.0W
156	492,099.92	2,650,841.85	4.26	CHK MON NO NAME
157	487,870.78	2,655,339.48	-0.08	PL 5.0C 0.0W
158	488,124.03	2,655,475.26	-0.24	PL 5.0C 0.0W
159	488,306.16	2,655,582.30	-0.03	PL 5.0C 0.0W
160	488,497.23	2,655,686.96	1.38	PL 5.0C 0.0W
161	488,729.92	2,655,820.65	0.08	PL 5.0C 0.0W
162	488,993.70	2,655,970.28	0.20	PL 5.0C 0.0W
163	489,226.13	2,656,104.51	0.26	PL 5.0C 0.0W
164	489,418.07	2,656,214.25	0.11	PL 5.0C 0.0W

No Name Bayou Marsh Creation Project (CS-78)

RTK Survey Points Listing

Hor Datum: NAD83 (2011) LA South Zone (1702) Ft - Vert Datum: NAVD88/OPUS (GEOID12B) Ft

Point No.	Northing	Easting	Elev	Description
165	489,628.80	2,656,334.52	0.27	PL 5.0C 0.0W
166	489,838.47	2,656,454.08	0.20	PL 5.0C 0.0W
167	490,008.01	2,656,550.45	0.33	PL 5.0C 0.0W
168	490,175.93	2,656,646.79	0.17	PL 5.0C 0.0W
169	490,356.17	2,656,749.27	0.17	PL 5.0C 0.0W
170	490,482.71	2,656,820.68	-0.05	PL 5.0C 0.5W
171	490,526.97	2,656,845.58	-0.13	PL 5.0C 0.5W
172	490,566.82	2,656,869.26	-0.13	PL 5.0C 0.5W
173	490,612.01	2,656,895.13	0.28	PL POSSIBLE END
174	491,664.81	2,651,389.22	0.09	42" PL 10.0C
175	491,717.21	2,651,478.13	0.41	RD 20.0 COV
176	491,691.87	2,651,431.60	-0.22	RD 14.0 COV
177	491,879.87	2,651,781.34	0.43	RD HIT
178	491,785.17	2,651,606.21	0.08	RD HIT
179	491,825.04	2,651,681.47	0.00	RD HIT
180	491,939.67	2,651,890.04	1.01	RD HIT
181	492,003.04	2,652,008.74	3.67	PLM
182	492,030.95	2,652,058.72	2.36	PLM
183	492,077.39	2,652,147.77	1.76	PLM
184	491,429.57	2,650,934.57	-0.02	42" PL 4.0C 0.0W
185	490,863.69	2,657,014.81	-0.27	PL 2.0 COV
186	490,890.76	2,657,045.64	0.10	PL 2.0 COV
187	490,901.60	2,657,057.27	0.28	PL 4.5 COV
188	490,858.56	2,657,010.75	0.11	PL POSSIBLE END
A357	479,868.88	2,642,723.53	1.70	MON
NoName	492,099.90	2,650,841.77	4.19	MON

No Name Bayou Marsh Creation Project (CS-78)

Calculated Top of Pipe Elevations at Probing Locations

Hor Datum: NAD83 (2011) LA South Zone (1702) Ft - Vert Datum: NAVD88/OPUS (GEOID12B) Ft

Point No.	Northing	Easting	Elev	Description	Top of Pipe Elev.
111	486,659.17	2,647,005.37	0.08	42" PL 4.0C 0.0W	-3.92
112	486,867.23	2,647,148.02	0.02	42" PL 4.0C 0.0W	-3.98
113	487,062.43	2,647,277.18	-0.03	42" PL 4.0C 0.0W	-4.03
114	487,500.39	2,647,572.79	0.01	42" PL 4.0C 0.0W	-3.99
115	487,840.86	2,647,802.55	0.10	42" PL 4.0C 0.0W	-3.90
116	488,047.22	2,647,941.01	-0.12	42" PL 4.0 C 0.0W	-4.12
117	488,302.69	2,648,113.12	-0.16	42" PL 3.5C 0.5W	-3.66
118	488,493.22	2,648,239.24	0.01	42" PL 3.0C 1.0W	-2.99
119	488,651.19	2,648,340.48	0.60	42" PL 3.0C 1.0W	-2.40
120	488,815.09	2,648,446.92	0.16	42" PL 3.0C 1.0W	-2.84
121	489,000.57	2,648,576.08	-0.06	42" PL 4.0C 1.0W	-4.06
122	489,167.15	2,648,688.31	-0.08	42" PL 4.0C 0.5W	-4.08
123	489,320.21	2,648,794.23	-0.16	42" PL 4.0C 1.0W	-4.16
124	489,456.64	2,648,887.37	-0.12	42" PL 4.0C 2.0W	-4.12
125	489,653.33	2,649,018.46	-0.29	42" PL 4.5C 2.0W	-4.79
126	489,824.09	2,649,133.94	-0.31	42" PL 4.5C 2.0W	-4.81
127	489,996.88	2,649,255.49	0.45	42" PL 4.0C 2.0W	-3.55
128	490,174.59	2,649,396.86	-0.23	42" PL 5.5C 2.0W	-5.73
129	490,340.33	2,649,539.61	-0.10	42" PL 4.0C 2.0W	-4.10
130	490,488.77	2,649,678.54	-0.24	42" PL 4.5C 2.0W	-4.74
131	490,601.04	2,649,790.35	0.00	42" PL 4.0C 2.0W	-4.00
132	490,718.06	2,649,916.81	-0.40	42" PL 3.5C 2.0W	-3.90
133	490,821.72	2,650,036.01	-0.41	42" PL 4.5C 2.0W	-4.91
134	490,905.80	2,650,141.39	-0.38	42" PL 4.0C 1.0W	-4.38
135	491,023.87	2,650,293.59	-0.34	42" PL 4.0C 1.0W	-4.34
136	491,125.75	2,650,436.41	-0.16	42" PL 4.5C 0.5W	-4.66
137	491,211.16	2,650,569.16	-0.06	42" PL 4.5C 0.5W	-4.56
138	491,312.17	2,650,727.94	0.09	42" PL 5.0C 0.0W	-4.91
139	491,550.16	2,651,168.73	0.12	42" PL 5.5C 0.5W	-5.38
140	491,602.45	2,651,270.53	-0.24	42" PL 9.0C 0.5W	-9.24
141	491,650.90	2,651,357.71	0.09	42" PL 10.5C 0.5W	-10.41
144	485,216.24	2,653,818.70	-0.32	PL 5.5C 0.0W	-5.82
145	485,300.90	2,653,867.42	-0.13	PL 5.5C 0.0W	-5.63
146	485,606.48	2,654,040.85	-0.38	PL 5.0C 0.0W	-5.38
147	485,810.52	2,654,156.29	-0.29	PL 5.0C 0.0W	-5.29
148	486,028.91	2,654,282.65	-0.23	PL 5.0C 0.0W	-5.23
149	486,321.23	2,654,449.28	-0.16	PL 5.0C 0.0W	-5.16
150	486,561.33	2,654,585.98	-0.49	PL 5.0C 0.0W	-5.49
151	486,766.52	2,654,703.15	-0.25	PL 5.0C 0.0W	-5.25
152	486,992.95	2,654,832.19	-0.34	PL 5.0C 0.0W	-5.34
153	487,198.50	2,654,947.07	0.21	PL 5.0C 0.0W	-4.79
154	487,435.63	2,655,081.20	-0.15	PL 5.0C 0.0W	-5.15

No Name Bayou Marsh Creation Project (CS-78)

Calculated Top of Pipe Elevations at Probing Locations

Hor Datum: NAD83 (2011) LA South Zone (1702) Ft - Vert Datum: NAVD88/OPUS (GEOID12B) Ft

Point No.	Northing	Easting	Elev	Description	Top of Pipe Elev.
155	487,670.50	2,655,217.36	-0.21	PL 5.0C 0.0W	-5.21
157	487,870.78	2,655,339.48	-0.08	PL 5.0C 0.0W	-5.08
158	488,124.03	2,655,475.26	-0.24	PL 5.0C 0.0W	-5.24
159	488,306.16	2,655,582.30	-0.03	PL 5.0C 0.0W	-5.03
160	488,497.23	2,655,686.96	1.38	PL 5.0C 0.0W	-3.62
161	488,729.92	2,655,820.65	0.08	PL 5.0C 0.0W	-4.92
162	488,993.70	2,655,970.28	0.20	PL 5.0C 0.0W	-4.81
163	489,226.13	2,656,104.51	0.26	PL 5.0C 0.0W	-4.74
164	489,418.07	2,656,214.25	0.11	PL 5.0C 0.0W	-4.89
165	489,628.80	2,656,334.52	0.27	PL 5.0C 0.0W	-4.74
166	489,838.47	2,656,454.08	0.20	PL 5.0C 0.0W	-4.80
167	490,008.01	2,656,550.45	0.33	PL 5.0C 0.0W	-4.67
168	490,175.93	2,656,646.79	0.17	PL 5.0C 0.0W	-4.83
169	490,356.17	2,656,749.27	0.17	PL 5.0C 0.0W	-4.83
170	490,482.71	2,656,820.68	-0.05	PL 5.0C 0.5W	-5.05
171	490,526.97	2,656,845.58	-0.13	PL 5.0C 0.5W	-5.13
172	490,566.82	2,656,869.26	-0.13	PL 5.0C 0.5W	-5.13
173	490,612.01	2,656,895.13	0.28	PL POSSIBLE END	
174	491,664.81	2,651,389.22	0.09	42" PL 10.0C	-9.91
175	491,717.21	2,651,478.13	0.41	RD 20.0 COV	-19.59
176	491,691.87	2,651,431.60	-0.22	RD 14.0 COV	-14.22
177	491,879.87	2,651,781.34	0.43	RD HIT	
178	491,785.17	2,651,606.21	0.08	RD HIT	
179	491,825.04	2,651,681.47	0.00	RD HIT	
180	491,939.67	2,651,890.04	1.01	RD HIT	
181	492,003.04	2,652,008.74	3.67	PLM	
182	492,030.95	2,652,058.72	2.36	PLM	
183	492,077.39	2,652,147.77	1.76	PLM	
184	491,429.57	2,650,934.57	-0.02	42" PL 4.0C 0.0W	-4.02
185	490,863.69	2,657,014.81	-0.27	PL 2.0 COV	-2.27
186	490,890.76	2,657,045.64	0.10	PL 2.0 COV	-1.90
187	490,901.60	2,657,057.27	0.28	PL 4.5 COV	-4.24
188	490,858.56	2,657,010.75	0.11	PL POSSIBLE END	

CS-78 NO NAME BAYOU - MAGNETIC ANOMALY TABLE

(Louisiana South Coordinate System)

ANOMALY NO.	LINE NO.	AMPLITUDE (GAMMAS)	DURATION (FEET)	ANOMALY SIGNATURE	INITIAL DESCRIPTION	LAT27	LON27	X-COORD (FEET)	Y-COORD (FEET)	LAT83	LON83	FINAL RESULTS FROM PROBING	Will Impact Proposed Dredging Cleanout
1	M1	571	10	DIPOLE	unknown anomaly-debris	29.838587	-93.326849	2,648,785	492,372	29.838807	-93.327003		No
2	M10	301	11	DIPOLE	unknown anomaly-debris	29.826068	-93.332432	2,646,936	487,851	29.826288	-93.332586		No
3	**M10B**	**145**	**48**	**MONOPOLE**	**unknown anomaly-debris**	**29.826478**	**-93.305963**	**2,655,330**	**487,854**	**29.826698**	**-93.306117**	**Pipeline**	No
4	**M10B**	**3,135**	**243**	**DIPOLE**	**Pipeline**	**29.826117**	**-93.329626**	**2,647,826**	**487,853**	**29.826337**	**-93.329780**	**Pipeline**	No
5	M10B	183	36	MONOPOLE	unknown anomaly-debris	29.826073	-93.332065	2,647,053	487,851	29.826293	-93.332219		Caution
6	**M11**	**2,427**	**219**	**DIPOLE**	**Pipeline**	**29.824725**	**-93.330709**	**2,647,474**	**487,353**	**29.824945**	**-93.330863**	**Pipeline**	No
7	**M11**	**189**	**42**	**DIPOLE**	**unknown anomaly-debris**	**29.825082**	**-93.306871**	**2,655,034**	**487,352**	**29.825302**	**-93.307025**	**Pipeline**	No
8	M12	407	11	MONOPOLE	unknown anomaly-debris	29.823363	-93.334047	2,646,407	486,876	29.823583	-93.334201		No
9	M12	257	14	DIPOLE	unknown anomaly-debris	29.823327	-93.334705	2,646,198	486,867	29.823547	-93.334858		No
10	M12	1,484	37	DIPOLE	unknown anomaly-debris	29.823344	-93.334499	2,646,263	486,872	29.823564	-93.334653		No
11	M12	318	15	MONOPOLE	unknown anomaly-debris	29.823399	-93.334244	2,646,345	486,891	29.823619	-93.334398		No
12	M12	250	14	DIPOLE	unknown anomaly-debris	29.823404	-93.334162	2,646,371	486,892	29.823625	-93.334316		No
13	M12	149	6	DIPOLE	unknown anomaly-debris	29.823375	-93.334068	2,646,400	486,881	29.823595	-93.334222		No
14	M12A	1,932	76	MONOPOLE	unknown anomaly-debris	29.824587	-93.333340	2,646,639	487,317	29.824807	-93.333494		No
15	M12A	47	3	MONOPOLE	unknown anomaly-debris	29.824677	-93.333774	2,646,502	487,353	29.824897	-93.333928		No
16	M12A	780	7	DIPOLE	unknown anomaly-debris	29.824660	-93.333727	2,646,517	487,346	29.824881	-93.333881		No
17	M12A	323	4	MONOPOLE	unknown anomaly-debris	29.824663	-93.333734	2,646,514	487,347	29.824883	-93.333888		No
18	**M13B**	**146**	**42**	**MONOPOLE**	**unknown anomaly-debris**	**29.823692**	**-93.307714**	**2,654,758**	**486,851**	**29.823912**	**-93.307867**	**Pipeline**	No
19	M13B	21	43	MONOPOLE	unknown anomaly-debris	29.823497	-93.316793	2,651,878	486,830	29.823717	-93.316946		No
20	M14	358	8	DIPOLE	anomaly-man-made feature	29.821878	-93.336437	2,645,640	486,350	29.822098	-93.336591		No
21	M14	726	24	DIPOLE	anomaly-man-made feature	29.821874	-93.336395	2,645,653	486,348	29.822094	-93.336548		No
22	M14	659	9	MONOPOLE	anomaly-man-made feature	29.821880	-93.336334	2,645,672	486,350	29.822100	-93.336488		No
23	M14B	28	65	MONOPOLE	unknown anomaly-debris	29.823609	-93.318994	2,651,181	486,883	29.823829	-93.319148		No
24	M14B	16	64	MONOPOLE	unknown anomaly-debris	29.823499	-93.319287	2,651,087	486,844	29.823719	-93.319441		No
25	M14B	14	15	DIPOLE	unknown anomaly-debris	29.823521	-93.320317	2,650,761	486,858	29.823741	-93.320471		No
26	M14B	18	109	MONOPOLE	unknown anomaly-debris	29.823521	-93.322740	2,649,993	486,871	29.823741	-93.322894		No
27	M14B	61	10	MONOPOLE	unknown anomaly-debris	29.823434	-93.323491	2,649,754	486,844	29.823654	-93.323645		No
28	M14C	16	79	DIPOLE	unknown anomaly-debris	29.822098	-93.320220	2,650,783	486,340	29.822318	-93.320374		No
29	M14C	77	51	DIPOLE	unknown anomaly-debris	29.822091	-93.319924	2,650,877	486,336	29.822311	-93.320077		No
30	M14C	116	65	DIPOLE	unknown anomaly-debris	29.822121	-93.313243	2,652,995	486,310	29.822341	-93.313397		No
31	M14C	128	57	DIPOLE	unknown anomaly-debris	29.822302	-93.309362	2,654,227	486,355	29.822522	-93.309515		No
32	**M14C**	**76**	**58**	**MONOPOLE**	**unknown anomaly-debris**	**29.822284**	**-93.308651**	**2,654,452**	**486,344**	**29.822504**	**-93.308805**	**Pipeline**	No
33	M14C	46	23	DIPOLE	unknown anomaly-debris	29.822321	-93.307451	2,654,833	486,351	29.822541	-93.307604		No
34	M15	510	8	MONOPOLE	unknown anomaly-debris	29.820493	-93.337545	2,645,280	485,852	29.820713	-93.337699		No
35	M15	126	9	MONOPOLE	unknown anomaly-debris	29.820479	-93.337674	2,645,239	485,848	29.820699	-93.337828		No
36	M15	228	14	DIPOLE	unknown anomaly-debris	29.820476	-93.337733	2,645,220	485,847	29.820697	-93.337886		No
37	M15	1,820	13	DIPOLE	unknown anomaly-debris	29.820474	-93.337761	2,645,211	485,846	29.820694	-93.337915		No

CS-78 NO NAME BAYOU - MAGNETIC ANOMALY TABLE

(Louisiana South Coordinate System)

ANOMALY NO.	LINE NO.	AMPLITUDE (GAMMAS)	DURATION (FEET)	ANOMALY SIGNATURE	INITIAL DESCRIPTION	LAT27	LON27	X-COORD (FEET)	Y-COORD (FEET)	LAT83	LON83	FINAL RESULTS FROM PROBING	Will Impact Proposed Dredging Cleanout
38	M15	2,079	11	DIPOLE	unknown anomaly-debris	29.820468	-93.337920	2,645,161	485,845	29.820689	-93.338074		No
39	M15	774	8	MONOPOLE	unknown anomaly-debris	29.820465	-93.337975	2,645,143	485,844	29.820685	-93.338129		No
40	M15	1,099	13	MONOPOLE	unknown anomaly-debris	29.820466	-93.338057	2,645,117	485,845	29.820687	-93.338211		No
41	M15	343	12	MONOPOLE	unknown anomaly-debris	29.820475	-93.338111	2,645,100	485,849	29.820695	-93.338265		No
42	M15	2,832	18	MONOPOLE	unknown anomaly-debris	29.820497	-93.338265	2,645,051	485,858	29.820717	-93.338419		No
43	M15	992	4	MONOPOLE	unknown anomaly-debris	29.820467	-93.337931	2,645,157	485,845	29.820688	-93.338085		No
44	M15	387	4	MONOPOLE	unknown anomaly-debris	29.820471	-93.337865	2,645,178	485,846	29.820691	-93.338019		No
45	**M15B**	**325**	**55**	**MONOPOLE**	**unknown anomaly-debris**	**29.820903**	**-93.309460**	**2,654,187**	**485,847**	**29.821123**	**-93.309613**	**Pipeline**	No
46	**M16**	**67**	**34**	**DIPOLE**	**unknown anomaly-debris**	**29.819536**	**-93.310367**	**2,653,891**	**485,354**	**29.819756**	**-93.310521**	**Pipeline**	No
47	M16B	37	21	MONOPOLE	unknown anomaly-debris	29.820724	-93.322533	2,650,041	485,853	29.820944	-93.322687		No
48	M16B	13	14	MONOPOLE	unknown anomaly-debris	29.820706	-93.321706	2,650,303	485,842	29.820926	-93.321859		No
49	M16B	20	26	MONOPOLE	unknown anomaly-debris	29.820711	-93.321283	2,650,437	485,842	29.820931	-93.321436		No
50	M16B	8	22	MONOPOLE	unknown anomaly-debris	29.820738	-93.320835	2,650,579	485,849	29.820958	-93.320988		No
51	M16B	16	27	MONOPOLE	unknown anomaly-debris	29.820774	-93.320717	2,650,617	485,861	29.820994	-93.320871		No
52	M16B	24	70	MONOPOLE	unknown anomaly-debris	29.820819	-93.320427	2,650,709	485,876	29.821040	-93.320581		No
53	M16B	17	12	MONOPOLE	unknown anomaly-debris	29.820770	-93.320242	2,650,767	485,857	29.820990	-93.320396		No
54	M17	14,442	23	MONOPOLE	unknown anomaly-debris	29.819161	-93.339550	2,644,635	485,379	29.819382	-93.339704		No
55	M17	15,094	32	MONOPOLE	unknown anomaly-debris	29.819104	-93.339541	2,644,638	485,358	29.819325	-93.339695		No
56	M18	11,550	33	DIPOLE	unknown anomaly-debris	29.820448	-93.337941	2,645,154	485,838	29.820669	-93.338095		No
57	M18	858	18	MONOPOLE	unknown anomaly-debris	29.820235	-93.337849	2,645,182	485,760	29.820455	-93.338003		No
58	M18	1,758	22	DIPOLE	unknown anomaly-debris	29.820086	-93.337880	2,645,171	485,706	29.820306	-93.338034		No
59	M18	2,749	13	MONOPOLE	unknown anomaly-debris	29.820686	-93.337967	2,645,147	485,925	29.820906	-93.338121		No
60	M18	2,550	27	MONOPOLE	unknown anomaly-debris	29.820549	-93.337982	2,645,141	485,875	29.820769	-93.338136		No
61	M18	3,786	20	MONOPOLE	unknown anomaly-debris	29.820494	-93.337964	2,645,147	485,855	29.820714	-93.338118		No
62	M19	652	8	MONOPOLE	unknown anomaly-debris	29.822472	-93.336413	2,645,651	486,566	29.822693	-93.336567		No
63	M19	5,866	13	MONOPOLE	unknown anomaly-debris	29.822228	-93.336428	2,645,645	486,477	29.822449	-93.336582		No
64	M19	634	37	MONOPOLE	unknown anomaly-debris	29.822166	-93.336429	2,645,644	486,454	29.822386	-93.336583		No
65	M19	12,598	56	DIPOLE	unknown anomaly-debris	29.821933	-93.336421	2,645,645	486,369	29.822153	-93.336575		No
66	M19	1,974	98	DIPOLE	unknown anomaly-debris	29.821602	-93.336414	2,645,645	486,249	29.821822	-93.336567		No
67	M19	479	4	MONOPOLE	unknown anomaly-debris	29.822447	-93.336418	2,645,649	486,556	29.822667	-93.336572		No
68	M19	7,141	32	MONOPOLE	unknown anomaly-debris	29.822331	-93.336417	2,645,649	486,514	29.822552	-93.336571		No
69	M19	10,645	28	DIPOLE	unknown anomaly-debris	29.822266	-93.336425	2,645,646	486,491	29.822486	-93.336579		No
70	M2	167	16	MONOPOLE	unknown anomaly-debris	29.837281	-93.327737	2,648,496	491,902	29.837501	-93.327891		No
71	M2	394	20	MONOPOLE	unknown anomaly-debris	29.837294	-93.327809	2,648,473	491,907	29.837513	-93.327963		No
72	M20	154	9	DIPOLE	unknown anomaly-debris	29.823075	-93.334945	2,646,120	486,777	29.823295	-93.335099		No
73	M21	325	74	MONOPOLE	anomaly-man-made feature	29.824003	-93.333513	2,646,580	487,106	29.824223	-93.333667		No
74	M21	392	92	MONOPOLE	anomaly-man-made feature	29.824233	-93.333448	2,646,602	487,189	29.824453	-93.333602		No

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(Louisiana South Coordinate System)

ANOMALY NO.	LINE NO.	AMPLITUDE (GAMMAS)	DURATION (FEET)	ANOMALY SIGNATURE	INITIAL DESCRIPTION	LAT27	LON27	X-COORD (FEET)	Y-COORD (FEET)	LAT83	LON83	FINAL RESULTS FROM PROBING	Will Impact Proposed Dredging Cleanout
75	M21	3,361	75	MONOPOLE	anomaly-man-made feature	29.824677	-93.333288	2,646,656	487,350	29.824897	-93.333442		No
76	M22	487	16	MONOPOLE	unknown anomaly-debris	29.827695	-93.331890	2,647,118	488,439	29.827915	-93.332044		No
77	M22	584	20	MONOPOLE	unknown anomaly-debris	29.828397	-93.331751	2,647,167	488,694	29.828617	-93.331905		No
78	M22	88	5	MONOPOLE	unknown anomaly-debris	29.828234	-93.331709	2,647,179	488,634	29.828454	-93.331863		No
79	M22	395	30	MONOPOLE	unknown anomaly-debris	29.828558	-93.331742	2,647,171	488,752	29.828778	-93.331896		No
80	M22A	17	24	MONOPOLE	unknown anomaly-debris	29.827070	-93.331793	2,647,145	488,211	29.827290	-93.331947		No
81	M22A	15	18	MONOPOLE	unknown anomaly-debris	29.827144	-93.331800	2,647,143	488,239	29.827364	-93.331954		Caution
82	M22A	51	47	DIPOLE	unknown anomaly-debris	29.827463	-93.331818	2,647,140	488,355	29.827683	-93.331972		Caution
83	M22A	437	47	DIPOLE	unknown anomaly-debris	29.827601	-93.331819	2,647,140	488,405	29.827821	-93.331973		No
84	M22A	61	11	MONOPOLE	unknown anomaly-debris	29.827687	-93.331816	2,647,142	488,436	29.827907	-93.331969		No
85	M23	587	27	MONOPOLE	unknown anomaly-debris	29.831646	-93.330267	2,647,658	489,867	29.831866	-93.330421		No
86	M23A	75	32	DIPOLE	unknown anomaly-debris	29.830429	-93.330285	2,647,644	489,425	29.830649	-93.330439		Caution
87	M23A	119	35	DIPOLE	unknown anomaly-debris	29.826941	-93.330218	2,647,644	488,156	29.827161	-93.330372		No
88	M23A	24	18	MONOPOLE	unknown anomaly-debris	29.826474	-93.330206	2,647,644	487,986	29.826694	-93.330360		No
89	M23A	11	13	MONOPOLE	unknown anomaly-debris	29.826167	-93.330195	2,647,646	487,875	29.826387	-93.330349		No
90	**M23A**	**1,679**	**50**	**DIPOLE**	**Pipeline**	**29.825505**	**-93.330186**	**2,647,645**	**487,634**	**29.825725**	**-93.330340**	**Pipeline**	No
91	M23A	28	58	MONOPOLE	unknown anomaly-debris	29.825665	-93.330197	2,647,642	487,692	29.825885	-93.330351		No
92	**M23A**	**3,372**	**109**	**DIPOLE**	**Pipeline**	**29.825436**	**-93.330188**	**2,647,644**	**487,609**	**29.825656**	**-93.330342**	**Pipeline**	No
93	M23A	24	23	MONOPOLE	unknown anomaly-debris	29.825144	-93.330170	2,647,647	487,502	29.825364	-93.330324		No
94	M23A	5	8	MONOPOLE	unknown anomaly-debris	29.824728	-93.330164	2,647,647	487,351	29.824948	-93.330318		No
95	M23A	18	18	MONOPOLE	unknown anomaly-debris	29.824547	-93.330163	2,647,646	487,285	29.824767	-93.330317		No
96	M23A	15	8	DIPOLE	unknown anomaly-debris	29.824427	-93.330165	2,647,645	487,242	29.824648	-93.330319		No
97	M24	1,620	59	DIPOLE	unknown anomaly-debris	29.834385	-93.329086	2,648,049	490,856	29.834605	-93.329240		No
98	M24A	131	63	DIPOLE	unknown anomaly-debris	29.825711	-93.328620	2,648,142	487,700	29.825931	-93.328774		No
100	**M24B**	**10,541**	**228**	**DIPOLE**	**Pipeline**	**29.827495**	**-93.328638**	**2,648,148**	**488,349**	**29.827715**	**-93.328792**	**Pipeline**	No
101	M24B	83	41	DIPOLE	unknown anomaly-debris	29.833639	-93.328763	2,648,147	490,583	29.833859	-93.328917		Caution
102	M25	61	4	MONOPOLE	unknown anomaly-debris	29.837955	-93.327341	2,648,625	492,145	29.838175	-93.327495		No
103	M25A	33	27	MONOPOLE	unknown anomaly-debris	29.832085	-93.327164	2,648,644	490,010	29.832305	-93.327318		No
104	**M25A**	**4,211**	**203**	**DIPOLE**	**Pipeline**	**29.829515**	**-93.327123**	**2,648,641**	**489,075**	**29.829735**	**-93.327277**	**Pipeline**	No
105	**M25A**	**3,627**	**69**	**MONOPOLE**	**Pipeline**	**29.829613**	**-93.327124**	**2,648,641**	**489,111**	**29.829833**	**-93.327278**	**Pipeline**	No
106	M25A	17	22	MONOPOLE	unknown anomaly-debris	29.831423	-93.327151	2,648,644	489,769	29.831643	-93.327305		No
107	M26	1,311	18	DIPOLE	anomaly-man-made feature	29.838134	-93.325647	2,649,163	492,200	29.838354	-93.325801		No
108	M26A	314	22	DIPOLE	unknown anomaly-debris	29.824979	-93.332804	2,646,811	487,457	29.825199	-93.332958		No
109	M26A	216	16	MONOPOLE	unknown anomaly-debris	29.824526	-93.332945	2,646,764	487,293	29.824746	-93.333098		No
110	M26A	166	25	DIPOLE	unknown anomaly-debris	29.824352	-93.333011	2,646,742	487,230	29.824572	-93.333165		No
111	M26A	145	37	MONOPOLE	unknown anomaly-debris	29.824201	-93.333072	2,646,721	487,175	29.824421	-93.333226		No
112	M26A	8,461	24	DIPOLE	unknown anomaly-debris	29.826196	-93.332404	2,646,946	487,897	29.826416	-93.332558		No

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(Louisiana South Coordinate System)

ANOMALY NO.	LINE NO.	AMPLITUDE (GAMMAS)	DURATION (FEET)	ANOMALY SIGNATURE	INITIAL DESCRIPTION	LAT27	LON27	X-COORD (FEET)	Y-COORD (FEET)	LAT83	LON83	FINAL RESULTS FROM PROBING	Will Impact Proposed Dredging Cleanout
113	M26A	5,263	9	DIPOLE	anomaly-man-made feature	29.827148	-93.332336	2,646,973	488,243	29.827369	-93.332490		No
114	M26A	41	10	DIPOLE	unknown anomaly-debris	29.827099	-93.332346	2,646,970	488,225	29.827319	-93.332500		No
115	M26A	229	8	MONOPOLE	unknown anomaly-debris	29.826211	-93.332405	2,646,946	487,903	29.826431	-93.332559		No
116	M26A	109	7	DIPOLE	unknown anomaly-debris	29.827048	-93.332351	2,646,968	488,207	29.827268	-93.332505		No
117	M26A	64	6	DIPOLE	unknown anomaly-debris	29.826787	-93.332373	2,646,959	488,112	29.827007	-93.332527		No
118	M26A	159	7	DIPOLE	unknown anomaly-debris	29.826655	-93.332381	2,646,956	488,064	29.826875	-93.332535		No
119	M26A	130	14	DIPOLE	unknown anomaly-debris	29.826553	-93.332386	2,646,954	488,027	29.826773	-93.332540		No
120	M26A	526	6	MONOPOLE	anomaly-man-made feature	29.827134	-93.332339	2,646,972	488,238	29.827355	-93.332493		No
121	M26A	1,270	10	DIPOLE	unknown anomaly-debris	29.826075	-93.332425	2,646,938	487,853	29.826295	-93.332579		No
122	**M26C**	**3,200**	**192**	**DIPOLE**	**Pipeline**	**29.831552**	**-93.325567**	**2,649,147**	**489,807**	**29.831772**	**-93.325721**	**Pipeline**	No
123	**M26C**	**829**	**67**	**DIPOLE**	**Pipeline**	**29.831705**	**-93.325569**	**2,649,148**	**489,863**	**29.831925**	**-93.325723**	**Pipeline**	No
124	M26C	13	29	MONOPOLE	unknown anomaly-debris	29.834598	-93.325628	2,649,147	490,914	29.834817	-93.325781		No
125	M26C	92	35	MONOPOLE	unknown anomaly-debris	29.837696	-93.325726	2,649,136	492,042	29.837916	-93.325880		Caution
126	M27	278	34	DIPOLE	anomaly-man-made feature	29.838368	-93.324133	2,649,645	492,277	29.838587	-93.324287		No
127	M27A	17	25	DIPOLE	unknown anomaly-debris	29.830266	-93.323968	2,649,646	489,330	29.830486	-93.324122		No
128	M27A	72	40	DIPOLE	unknown anomaly-debris	29.830118	-93.323988	2,649,639	489,277	29.830338	-93.324142		No
129	M27A	66	23	MONOPOLE	unknown anomaly-debris	29.828793	-93.323941	2,649,645	488,795	29.829013	-93.324094		No
130	M27A	287	41	DIPOLE	unknown anomaly-debris	29.828269	-93.323948	2,649,640	488,604	29.828489	-93.324102		No
131	M27A	258	43	MONOPOLE	unknown anomaly-debris	29.822935	-93.323841	2,649,640	486,664	29.823155	-93.323995		No
132	M27A	21	42	MONOPOLE	unknown anomaly-debris	29.827381	-93.323915	2,649,645	488,281	29.827601	-93.324069		No
133	M27A	11	23	MONOPOLE	unknown anomaly-debris	29.826048	-93.323894	2,649,643	487,796	29.826268	-93.324048		No
134	M27A	30	20	DIPOLE	Unknown anomaly-debris	29.837426	-93.324120	2,649,643	491,934	29.837645	-93.324274		No
135	M27A	144	64	MONOPOLE	unknown anomaly-debris	29.825179	-93.323873	2,649,644	487,480	29.825399	-93.324026		No
136	M27A	53	29	DIPOLE	Unknown anomaly-debris	29.834442	-93.324057	2,649,644	490,849	29.834662	-93.324210		No
137	**M27A**	**2,621**	**205**	**DIPOLE**	**Pipeline**	**29.833337**	**-93.324044**	**2,649,641**	**490,448**	**29.833557**	**-93.324198**	**Pipeline**	No
138	M27A	17	46	DIPOLE	unknown anomaly-debris	29.831997	-93.324009	2,649,644	489,960	29.832217	-93.324163		No
139	M27A	12	15	MONOPOLE	unknown anomaly-debris	29.830735	-93.323977	2,649,646	489,501	29.830954	-93.324130		No
140	M27A	330	18	DIPOLE	unknown anomaly-debris	29.819155	-93.323776	2,649,637	485,289	29.819375	-93.323930		No
141	M28	210	11	MONOPOLE	anomaly-man-made feature	29.838088	-93.322674	2,650,106	492,167	29.838308	-93.322828		No
142	M28A	151	15	DIPOLE	unknown anomaly-debris	29.837955	-93.322582	2,650,134	492,118	29.838175	-93.322736		No
143	M28A	24	18	MONOPOLE	unknown anomaly-debris	29.837832	-93.322549	2,650,144	492,073	29.838051	-93.322703		Caution
144	M28A	26	37	MONOPOLE	unknown anomaly-debris	29.837271	-93.322540	2,650,143	491,870	29.837491	-93.322694		No
145	M28A	52	12	MONOPOLE	unknown anomaly-debris	29.837173	-93.322535	2,650,144	491,834	29.837392	-93.322689		No
146	M28A	24	27	DIPOLE	unknown anomaly-debris	29.836995	-93.322517	2,650,149	491,769	29.837214	-93.322670		No
147	M28A	21	8	MONOPOLE	unknown anomaly-debris	29.836888	-93.322519	2,650,147	491,730	29.837108	-93.322673		No
148	**M28A**	**2,879**	**156**	**DIPOLE**	**Pipeline**	**29.834651**	**-93.322483**	**2,650,145**	**490,917**	**29.834871**	**-93.322636**	**Pipeline**	No
149	M28B	13	25	MONOPOLE	unknown anomaly-debris	29.824746	-93.322294	2,650,142	487,314	29.824966	-93.322448		No

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(Louisiana South Coordinate System)

ANOMALY NO.	LINE NO.	AMPLITUDE (GAMMAS)	DURATION (FEET)	ANOMALY SIGNATURE	INITIAL DESCRIPTION	LAT27	LON27	X-COORD (FEET)	Y-COORD (FEET)	LAT83	LON83	FINAL RESULTS FROM PROBING	Will Impact Proposed Dredging Cleanout
150	M28B	5	50	MONOPOLE	unknown anomaly-debris	29.822992	-93.322231	2,650,151	486,676	29.823213	-93.322384		No
151	M28B	6	12	MONOPOLE	unknown anomaly-debris	29.822844	-93.322229	2,650,150	486,622	29.823064	-93.322383		No
152	M28B	15	38	MONOPOLE	unknown anomaly-debris	29.821643	-93.322242	2,650,139	486,186	29.821863	-93.322396		No
153	M28B	226	37	DIPOLE	unknown anomaly-debris	29.821481	-93.322225	2,650,143	486,127	29.821701	-93.322378		No
154	M28B	5	13	DIPOLE	unknown anomaly-debris	29.821253	-93.322241	2,650,137	486,044	29.821473	-93.322394		No
155	M28B	11	22	MONOPOLE	unknown anomaly-debris	29.821329	-93.322241	2,650,137	486,071	29.821549	-93.322394		No
156	M28B	31	21	DIPOLE	unknown anomaly-debris	29.821011	-93.322215	2,650,144	485,956	29.821231	-93.322368		No
157	M28B	16	9	MONOPOLE	unknown anomaly-debris	29.821102	-93.322215	2,650,144	485,989	29.821322	-93.322368		No
158	M28B	23	23	MONOPOLE	unknown anomaly-debris	29.821204	-93.322228	2,650,141	486,026	29.821424	-93.322382		No
159	M28B	28	16	DIPOLE	unknown anomaly-debris	29.819406	-93.322206	2,650,136	485,372	29.819626	-93.322360		No
160	M28B	28	32	MONOPOLE	unknown anomaly-debris	29.819256	-93.322217	2,650,132	485,318	29.819476	-93.322371		No
161	M29	182	16	DIPOLE	unknown anomaly-debris	29.837554	-93.320978	2,650,640	491,964	29.837774	-93.321131		Caution
162	**M29**	**4,653**	**162**	**DIPOLE**	**Pipeline**	**29.835661**	**-93.320920**	**2,650,646**	**491,275**	**29.835880**	**-93.321074**	**Pipeline**	No
163	M29	9	16	DIPOLE	unknown anomaly-debris	29.834865	-93.320905	2,650,646	490,986	29.835085	-93.321059		No
164	M29	62	24	DIPOLE	unknown anomaly-debris	29.833714	-93.320888	2,650,644	490,567	29.833933	-93.321041		No
165	M29	85	30	DIPOLE	unknown anomaly-debris	29.830116	-93.320809	2,650,647	489,258	29.830336	-93.320963		No
166	M29A	7	43	MONOPOLE	unknown anomaly-debris	29.824866	-93.320695	2,650,650	487,349	29.825086	-93.320849		No
167	M29A	4	74	MONOPOLE	unknown anomaly-debris	29.823008	-93.320661	2,650,649	486,673	29.823228	-93.320815		No
168	M29C	54	12	MONOPOLE	unknown anomaly-debris	29.821342	-93.320788	2,650,598	486,068	29.821562	-93.320942		No
169	M29C	10	60	MONOPOLE	unknown anomaly-debris	29.820654	-93.320656	2,650,636	485,818	29.820875	-93.320809		No
170	M29C	20	9	DIPOLE	unknown anomaly-debris	29.819451	-93.320608	2,650,643	485,380	29.819672	-93.320762		No
171	M2A	29	23	MONOPOLE	unknown anomaly-debris	29.837035	-93.314543	2,652,677	491,740	29.837254	-93.314696		Caution
172	M2A	53	26	DIPOLE	unknown anomaly-debris	29.837191	-93.315623	2,652,335	491,802	29.837411	-93.315777		No
173	M2A	51	25	MONOPOLE	unknown anomaly-debris	29.837232	-93.315745	2,652,297	491,818	29.837451	-93.315899		No
174	M2A	208	41	MONOPOLE	unknown anomaly-debris	29.837235	-93.316010	2,652,213	491,821	29.837455	-93.316164		No
175	M2A	80	17	MONOPOLE	unknown anomaly-debris	29.837314	-93.316797	2,651,964	491,854	29.837534	-93.316951		No
176	**M2A**	**1,141**	**292**	**DIPOLE**	**Pipeline**	**29.837307**	**-93.317492**	**2,651,743**	**491,855**	**29.837526**	**-93.317646**	**Pipeline**	**YES**
177	M2A	212	381	MONOPOLE	unknown anomaly-debris	29.837288	-93.318460	2,651,436	491,853	29.837507	-93.318614		Caution
178	M2A	44	22	MONOPOLE	unknown anomaly-debris	29.837275	-93.319129	2,651,224	491,852	29.837495	-93.319283		Caution
179	M2A	20	22	DIPOLE	unknown anomaly-debris	29.837283	-93.319318	2,651,165	491,856	29.837502	-93.319471		Caution
180	M2A	128	27	MONOPOLE	unknown anomaly-debris	29.837261	-93.320117	2,650,911	491,852	29.837480	-93.320270		No
181	M2A	6,548	99	DIPOLE	unknown anomaly-debris	29.837241	-93.322235	2,650,239	491,857	29.837461	-93.322389		No
182	M2A	1,126	24	MONOPOLE	unknown anomaly-debris	29.837229	-93.322339	2,650,206	491,853	29.837449	-93.322493		No
183	M2A	880	36	MONOPOLE	unknown anomaly-debris	29.837223	-93.322441	2,650,174	491,852	29.837443	-93.322595		No
184	M2A	297	42	MONOPOLE	unknown anomaly-debris	29.837218	-93.323177	2,649,941	491,854	29.837438	-93.323330		No
185	M2A	97	82	DIPOLE	unknown anomaly-debris	29.837190	-93.324977	2,649,370	491,853	29.837410	-93.325131		No
186	M2A	28	24	MONOPOLE	unknown anomaly-debris	29.837172	-93.325806	2,649,107	491,852	29.837392	-93.325960		No

CS-78 NO NAME BAYOU - MAGNETIC ANOMALY TABLE

(Louisiana South Coordinate System)

ANOMALY NO.	LINE NO.	AMPLITUDE (GAMMAS)	DURATION (FEET)	ANOMALY SIGNATURE	INITIAL DESCRIPTION	LAT27	LON27	X-COORD (FEET)	Y-COORD (FEET)	LAT83	LON83	FINAL RESULTS FROM PROBING	Will Impact Proposed Dredging Cleanout
187	M2A	17	32	MONOPOLE	unknown anomaly-debris	29.837149	-93.327068	2,648,707	491,850	29.837369	-93.327222		Caution
188	M3	149	4	MONOPOLE	unknown anomaly-debris	29.835663	-93.328763	2,648,160	491,319	29.835882	-93.328917		No
189	M3	210	31	MONOPOLE	unknown anomaly-debris	29.835740	-93.328957	2,648,099	491,348	29.835959	-93.329110		No
190	M3	408	23	MONOPOLE	unknown anomaly-debris	29.835602	-93.328578	2,648,218	491,296	29.835822	-93.328732		No
191	M30A	38	33	MONOPOLE	unknown anomaly-debris	29.832444	-93.319293	2,651,142	490,096	29.832663	-93.319447		No
192	**M30A**	**2,721**	**106**	**MONOPOLE**	**Pipeline**	**29.836391**	**-93.319366**	**2,651,144**	**491,532**	**29.836610**	**-93.319520**	**Pipeline**	No
193	M30A	32	14	MONOPOLE	unknown anomaly-debris	29.837119	-93.319389	2,651,141	491,797	29.837338	-93.319543		No
194	M30A	190	15	DIPOLE	unknown anomaly-debris	29.837189	-93.319388	2,651,142	491,822	29.837408	-93.319541		No
195	M30A	13	18	MONOPOLE	unknown anomaly-debris	29.837474	-93.319390	2,651,143	491,926	29.837693	-93.319544		Caution
196	M30B	39	14	MONOPOLE	unknown anomaly-debris	29.820075	-93.319070	2,651,135	485,598	29.820295	-93.319224		No
197	**M31**	**457**	**120**	**MONOPOLE**	**Pipeline**	**29.837181**	**-93.317802**	**2,651,645**	**491,811**	**29.837400**	**-93.317955**	**Pipeline**	**YES**
198	M31	1,092	26	MONOPOLE	unknown anomaly-debris	29.837369	-93.317855	2,651,629	491,879	29.837589	-93.318009		No
199	M31	138	32	DIPOLE	unknown anomaly-debris	29.834222	-93.317734	2,651,647	490,734	29.834442	-93.317888		No
200	M31	12	22	MONOPOLE	unknown anomaly-debris	29.833957	-93.317738	2,651,644	490,638	29.834177	-93.317892		No
201	M31	33	23	MONOPOLE	unknown anomaly-debris	29.833786	-93.317738	2,651,643	490,576	29.834006	-93.317891		No
202	M31A	18	4	MONOPOLE	unknown anomaly-debris	29.819452	-93.317453	2,651,644	485,363	29.819673	-93.317606		No
203	M31A	7	10	DIPOLE	unknown anomaly-debris	29.819462	-93.317451	2,651,644	485,367	29.819683	-93.317605		No
204	M31A	5	9	MONOPOLE	unknown anomaly-debris	29.820096	-93.317477	2,651,640	485,597	29.820316	-93.317631		No
205	M32	13	36	DIPOLE	unknown anomaly-debris	29.825336	-93.316011	2,652,138	487,494	29.825556	-93.316164		No
206	M32	249	33	MONOPOLE	unknown anomaly-debris	29.837209	-93.316235	2,652,141	491,812	29.837428	-93.316389		Caution
207	M32A	10	34	MONOPOLE	unknown anomaly-debris	29.819226	-93.315834	2,652,155	485,272	29.819446	-93.315988		No
208	M33B	12	7	MONOPOLE	unknown anomaly-debris	29.837273	-93.314606	2,652,658	491,827	29.837493	-93.314760		No
209	M33B	17	21	MONOPOLE	unknown anomaly-debris	29.837338	-93.314611	2,652,657	491,850	29.837558	-93.314765		No
210	M33B	595	28	DIPOLE	unknown anomaly-debris	29.837119	-93.314639	2,652,647	491,771	29.837338	-93.314792		No
211	M33B	217	7	MONOPOLE	unknown anomaly-debris	29.837093	-93.314642	2,652,645	491,761	29.837313	-93.314796		No
212	M33B	12	35	MONOPOLE	unknown anomaly-debris	29.836749	-93.314641	2,652,644	491,636	29.836969	-93.314795		Caution
213	M33B	5	23	DIPOLE	unknown anomaly-debris	29.836636	-93.314638	2,652,644	491,595	29.836855	-93.314791		No
214	M33B	12	19	DIPOLE	unknown anomaly-debris	29.836567	-93.314639	2,652,643	491,570	29.836787	-93.314793		No
215	M33B	11	17	MONOPOLE	unknown anomaly-debris	29.836514	-93.314624	2,652,648	491,551	29.836733	-93.314778		No
216	M33B	17	15	DIPOLE	unknown anomaly-debris	29.823117	-93.314369	2,652,644	486,678	29.823337	-93.314523		No
217	M33C	12	7	DIPOLE	unknown anomaly-debris	29.821345	-93.314344	2,652,641	486,034	29.821565	-93.314498		No
218	M33C	8	18	MONOPOLE	unknown anomaly-debris	29.821313	-93.314351	2,652,639	486,022	29.821533	-93.314505		No
219	M34	21	8	DIPOLE	unknown anomaly-debris	29.837210	-93.313138	2,653,123	491,796	29.837429	-93.313292		No
220	M34	16	17	DIPOLE	unknown anomaly-debris	29.837263	-93.313113	2,653,131	491,815	29.837483	-93.313267		No
221	M35	22	53	DIPOLE	unknown anomaly-debris	29.820398	-93.311154	2,653,647	485,672	29.820618	-93.311307		No
222	**M36**	**253**	**119**	**MONOPOLE**	**unknown anomaly-debris**	**29.820710**	**-93.309594**	**2,654,143**	**485,777**	**29.820931**	**-93.309748**	**Pipeline**	No
223	M36	33	25	MONOPOLE	unknown anomaly-debris	29.836509	-93.309895	2,654,147	491,523	29.836729	-93.310049		Caution

CS-78 NO NAME BAYOU - MAGNETIC ANOMALY TABLE

(Louisiana South Coordinate System)

ANOMALY NO.	LINE NO.	AMPLITUDE (GAMMAS)	DURATION (FEET)	ANOMALY SIGNATURE	INITIAL DESCRIPTION	LAT27	LON27	X-COORD (FEET)	Y-COORD (FEET)	LAT83	LON83	FINAL RESULTS FROM PROBING	Will Impact Proposed Dredging Cleanout
224	M37	103	20	MONOPOLE	unknown anomaly-debris	29.826589	-93.308129	2,654,644	487,907	29.826809	-93.308283		No
225	M37	76	84	DIPOLE	unknown anomaly-debris	29.823055	-93.308057	2,654,645	486,621	29.823275	-93.308210		No
226	**M37**	**228**	**49**	**DIPOLE**	**unknown anomaly-debris**	**29.823232**	**-93.308069**	**2,654,642**	**486,686**	**29.823452**	**-93.308222**	**Pipeline**	No
227	M37	25	15	MONOPOLE	unknown anomaly-debris	29.822245	-93.307279	2,654,887	486,323	29.822465	-93.307432		No
228	M37	81	41	DIPOLE	unknown anomaly-debris	29.822042	-93.307351	2,654,863	486,249	29.822262	-93.307504		No
229	**M38D**	**285**	**158**	**MONOPOLE**	**unknown anomaly-debris**	**29.825615**	**-93.306534**	**2,655,144**	**487,544**	**29.825835**	**-93.306687**	**Pipeline**	No
230	M38D	33	13	DIPOLE	unknown anomaly-debris	29.833401	-93.306679	2,655,147	490,375	29.833621	-93.306833		No
231	**M39**	**426**	**94**	**DIPOLE**	**unknown anomaly-debris**	**29.828073**	**-93.305010**	**2,655,643**	**488,429**	**29.828293**	**-93.305163**	**Pipeline**	No
232	M39	25	26	DIPOLE	unknown anomaly-debris	29.827846	-93.305020	2,655,638	488,347	29.828066	-93.305174		No
233	M39	266	129	DIPOLE	unknown anomaly-debris	29.824882	-93.304993	2,655,628	487,269	29.825102	-93.305147		No
234	M3E	52	45	DIPOLE	unknown anomaly-debris	29.835843	-93.323341	2,649,880	491,355	29.836063	-93.323495		No
235	**M3E**	**486**	**74**	**MONOPOLE**	**Pipeline**	**29.835885**	**-93.320252**	**2,650,860**	**491,353**	**29.836105**	**-93.320406**	**Pipeline**	No
236	**M3E**	**2,085**	**44**	**DIPOLE**	**Pipeline**	**29.835874**	**-93.320433**	**2,650,802**	**491,350**	**29.836094**	**-93.320587**	**Pipeline**	No
237	**M3E**	**955**	**120**	**DIPOLE**	**Pipeline**	**29.835871**	**-93.320532**	**2,650,771**	**491,349**	**29.836091**	**-93.320686**	**Pipeline**	No
238	M3E	157	50	DIPOLE	unknown anomaly-debris	29.835912	-93.318527	2,651,407	491,353	29.836132	-93.318681		No
239	M3E	19	37	MONOPOLE	unknown anomaly-debris	29.835918	-93.318064	2,651,553	491,353	29.836138	-93.318218		No
240	M3E	21	38	MONOPOLE	unknown anomaly-debris	29.835944	-93.316031	2,652,198	491,351	29.836163	-93.316184		No
241	M3E	121	26	MONOPOLE	unknown anomaly-debris	29.835949	-93.315690	2,652,306	491,351	29.836169	-93.315844		No
242	M4	99	10	MONOPOLE	unknown anomaly-debris	29.834456	-93.329219	2,648,008	490,883	29.834676	-93.329373		No
243	M4	212	17	MONOPOLE	unknown anomaly-debris	29.834398	-93.328996	2,648,078	490,861	29.834618	-93.329150		No
244	M4	301	21	MONOPOLE	unknown anomaly-debris	29.834411	-93.329063	2,648,057	490,866	29.834631	-93.329217		No
245	M4	141	24	MONOPOLE	unknown anomaly-debris	29.834435	-93.329178	2,648,021	490,875	29.834655	-93.329332		No
246	**M40**	**225**	**44**	**MONOPOLE**	**unknown anomaly-debris**	**29.830514**	**-93.303450**	**2,656,152**	**489,308**	**29.830733**	**-93.303604**	**Pipeline**	No
247	**M40**	**103**	**52**	**DIPOLE**	**unknown anomaly-debris**	**29.830413**	**-93.303477**	**2,656,143**	**489,271**	**29.830633**	**-93.303630**	**Pipeline**	No
248	**M41**	**1,491**	**172**	**DIPOLE**	**unknown anomaly-debris**	**29.832941**	**-93.301959**	**2,656,640**	**490,183**	**29.833161**	**-93.302112**	**Pipeline**	No
249	M41	38	18	DIPOLE	unknown anomaly-debris	29.826998	-93.301835	2,656,643	488,021	29.827218	-93.301988		No
250	M42	2,785	61	DIPOLE	unknown anomaly-debris	29.830211	-93.300323	2,657,142	489,181	29.830431	-93.300476		No
251	M4A	109	16	MONOPOLE	Probable pipeline	29.834478	-93.322375	2,650,178	490,853	29.834697	-93.322529		No
252	M4A	658	53	MONOPOLE	Probable pipeline	29.834474	-93.322614	2,650,102	490,853	29.834693	-93.322768		No
253	**M4A**	**2,251**	**161**	**DIPOLE**	**Probable pipeline**	**29.834471**	**-93.322735**	**2,650,064**	**490,853**	**29.834691**	**-93.322889**	**Pipeline**	No
254	M4A	60	29	MONOPOLE	Probable pipeline	29.834466	-93.323188	2,649,920	490,853	29.834686	-93.323342		No
255	**M4A**	**2,872**	**157**	**MONOPOLE**	**unknown anomaly-debris**	**29.834799**	**-93.300821**	**2,657,012**	**490,852**	**29.835019**	**-93.300975**	**Pipeline**	YES
256	M5	255	30	MONOPOLE	unknown anomaly-debris	29.832954	-93.329750	2,647,830	490,340	29.833174	-93.329904		No
257	M5A	66	20	MONOPOLE	unknown anomaly-debris	29.832989	-93.329312	2,647,969	490,350	29.833209	-93.329465		No
258	M5A	32	22	MONOPOLE	unknown anomaly-debris	29.833005	-93.328879	2,648,106	490,354	29.833225	-93.329033		Caution
259	M5A	21	20	MONOPOLE	unknown anomaly-debris	29.833008	-93.328522	2,648,220	490,352	29.833228	-93.328676		No
260	M5A	43	23	MONOPOLE	unknown anomaly-debris	29.833063	-93.325913	2,649,047	490,358	29.833283	-93.326067		No

CS-78 NO NAME BAYOU - MAGNETIC ANOMALY TABLE

(Louisiana South Coordinate System)

ANOMALY NO.	LINE NO.	AMPLITUDE (GAMMAS)	DURATION (FEET)	ANOMALY SIGNATURE	INITIAL DESCRIPTION	LAT27	LON27	X-COORD (FEET)	Y-COORD (FEET)	LAT83	LON83	FINAL RESULTS FROM PROBING	Will Impact Proposed Dredging Cleanout
261	M5A	12	24	MONOPOLE	unknown anomaly-debris	29.833069	-93.324813	2,649,396	490,354	29.833289	-93.324966		No
262	**M5A**	**961**	**224**	**MONOPOLE**	**Pipeline**	**29.833070**	**-93.324323**	**2,649,551**	**490,352**	**29.833290**	**-93.324477**	**Pipeline**	No
263	M5A	10	34	DIPOLE	unknown anomaly-debris	29.833107	-93.321806	2,650,350	490,351	29.833326	-93.321959		No
264	M5A	8	22	MONOPOLE	unknown anomaly-debris	29.833144	-93.319429	2,651,103	490,352	29.833364	-93.319583		No
265	**M5A**	**195**	**47**	**MONOPOLE**	**unknown anomaly-debris**	**29.833410**	**-93.301643**	**2,656,743**	**490,351**	**29.833629**	**-93.301796**	**Pipeline**	No
266	M6	111	11	MONOPOLE	unknown anomaly-debris	29.831600	-93.330237	2,647,667	489,850	29.831819	-93.330391		No
267	M6	344	29	MONOPOLE	unknown anomaly-debris	29.831620	-93.330313	2,647,643	489,858	29.831840	-93.330467		No
268	**M6A**	**97**	**73**	**MONOPOLE**	**unknown anomaly-debris**	**29.832026**	**-93.302491**	**2,656,466**	**489,853**	**29.832246**	**-93.302644**	**Pipeline**	No
269	**M6A**	**2,035**	**245**	**MONOPOLE**	**Pipeline**	**29.831682**	**-93.325499**	**2,649,170**	**489,854**	**29.831902**	**-93.325653**	**Pipeline**	No
270	M6A	23	30	DIPOLE	unknown anomaly-debris	29.831608	-93.329512	2,647,897	489,849	29.831827	-93.329666		Caution
271	M7	143	51	MONOPOLE	unknown anomaly-debris	29.830205	-93.331397	2,647,290	489,349	29.830425	-93.331551		No
272	M7	62	16	MONOPOLE	unknown anomaly-debris	29.830169	-93.331226	2,647,345	489,335	29.830389	-93.331380		No
273	M7	188	17	MONOPOLE	unknown anomaly-debris	29.830122	-93.330956	2,647,430	489,317	29.830342	-93.331110		No
274	M7A	70	88	MONOPOLE	Possible pipeline	29.830283	-93.326790	2,648,751	489,352	29.830503	-93.326944		No
275	**M7A**	**2,858**	**91**	**MONOPOLE**	**Pipeline**	**29.830293**	**-93.326582**	**2,648,818**	**489,355**	**29.830513**	**-93.326736**	**Pipeline**	No
276	M7A	40	8	MONOPOLE	Possible pipeline	29.830295	-93.326271	2,648,916	489,354	29.830515	-93.326425		No
277	**M7A**	**400**	**63**	**MONOPOLE**	**unknown anomaly-debris**	**29.830637**	**-93.303396**	**2,656,170**	**489,353**	**29.830857**	**-93.303550**	**Pipeline**	No
278	M8	122	18	MONOPOLE	unknown anomaly-debris	29.828881	-93.331494	2,647,251	488,868	29.829101	-93.331648		No
279	**M8A**	**135**	**41**	**MONOPOLE**	**unknown anomaly-debris**	**29.829242**	**-93.304262**	**2,655,887**	**488,850**	**29.829461**	**-93.304416**	**Pipeline**	No
280	**M8A**	**5,652**	**282**	**DIPOLE**	**Pipeline**	**29.828899**	**-93.327582**	**2,648,492**	**488,853**	**29.829119**	**-93.327736**	**Pipeline**	No
281	M9	2,376	28	DIPOLE	anomaly-man-made feature	29.827491	-93.332765	2,646,840	488,370	29.827711	-93.332919		No
282	M9	238	16	MONOPOLE	unknown anomaly-debris	29.827494	-93.332199	2,647,019	488,368	29.827714	-93.332353		No
283	M9A	359	27	MONOPOLE	unknown anomaly-debris	29.827582	-93.331890	2,647,118	488,398	29.827802	-93.332044		No
284	M9A	687	6	MONOPOLE	unknown anomaly-debris	29.827470	-93.331857	2,647,127	488,358	29.827691	-93.332011		No
285	M9A	95	13	MONOPOLE	unknown anomaly-debris	29.827504	-93.331825	2,647,138	488,369	29.827724	-93.331978		No
286	M9B	1,119	17	DIPOLE	unknown anomaly-debris	29.827434	-93.331898	2,647,114	488,345	29.827654	-93.332052		No
287	M9B	411	39	DIPOLE	unknown anomaly-debris	29.827469	-93.331511	2,647,237	488,355	29.827689	-93.331665		Caution
288	**M9B**	**6,517**	**216**	**DIPOLE**	**Pipeline**	**29.827503**	**-93.328644**	**2,648,146**	**488,352**	**29.827723**	**-93.328798**	**Pipeline**	No
289	M9B	39	16	MONOPOLE	unknown anomaly-debris	29.827578	-93.323816	2,649,677	488,352	29.827798	-93.323970		No
290	M9B	14	28	MONOPOLE	unknown anomaly-debris	29.827749	-93.312435	2,653,287	488,352	29.827969	-93.312588		No
291	**M9B**	**63**	**31**	**MONOPOLE**	**unknown anomaly-debris**	**29.827868**	**-93.305132**	**2,655,603**	**488,355**	**29.828087**	**-93.305285**	**Pipeline**	No

53

0600	Meet Crew
0840	@ Site
0954	Start static @ NoName
	Mag Lines
1448	End Survey
	Demob
1630	C/R Hotel
1745	@ Hotel
100	1/4" Rebar (Disturbed)
Static	89940393.T02
Base Pt	NoName
N	492099.898
E	2650841.814
Z	4.192

Monday February 8 2016 (039) 53

R McKeivier
J Granger
S Daigle

2015-0242
CPRA
Noname Bayou Marsh Creation
Cameron Parish, LA

NAD 83 Louisiana South Zone
Geoid 12A

RPM-039-2016-20150242

54

0600	Meet Crew
	E/R
0801	Start Base @ A357
	Mag Lines
1601	End Survey
1630	E/R Hotel
1745	@ Hotel

Static	89940400.T02
Base Pt	A357
N	479868.915
E	2642723.498
Z	1.627

JCLS BOOK NO. 1126

54

Tuesday February 9, 2016
(040)

R McKeivier
J Granger
S Daigle

2015-0242
Chastz Surveying
No Name Bayou Marsh Creation
Cameron Parish, LA

NAD 83 Louisiana South Zone
Geoid 12A

RPM-040-2016-20150242

JCLS BOOK NO. 1126

55

101 15-095C-10

102 CHK ΔH .015 ΔV -.019

103 MD 20 -1

JCLS BOOK NO. 1126

55

JCLS BOOK NO. 1126

0600	Meet Crew	
	E/R	
0758	Start Base @ A357	
	Mob Airboat w/ Mag	
	Mag Lines	
	Demob	
1515	End Survey	
1600	E/R	
1730	@ Hotel	
104	CHK	ΔH .045 ΔV .004
Static	89940410.702	
Base Pt	A357	
N	479868.915	
E	2642723.498	
Z	1.627	

Wednesday February 10, 2016 (041)

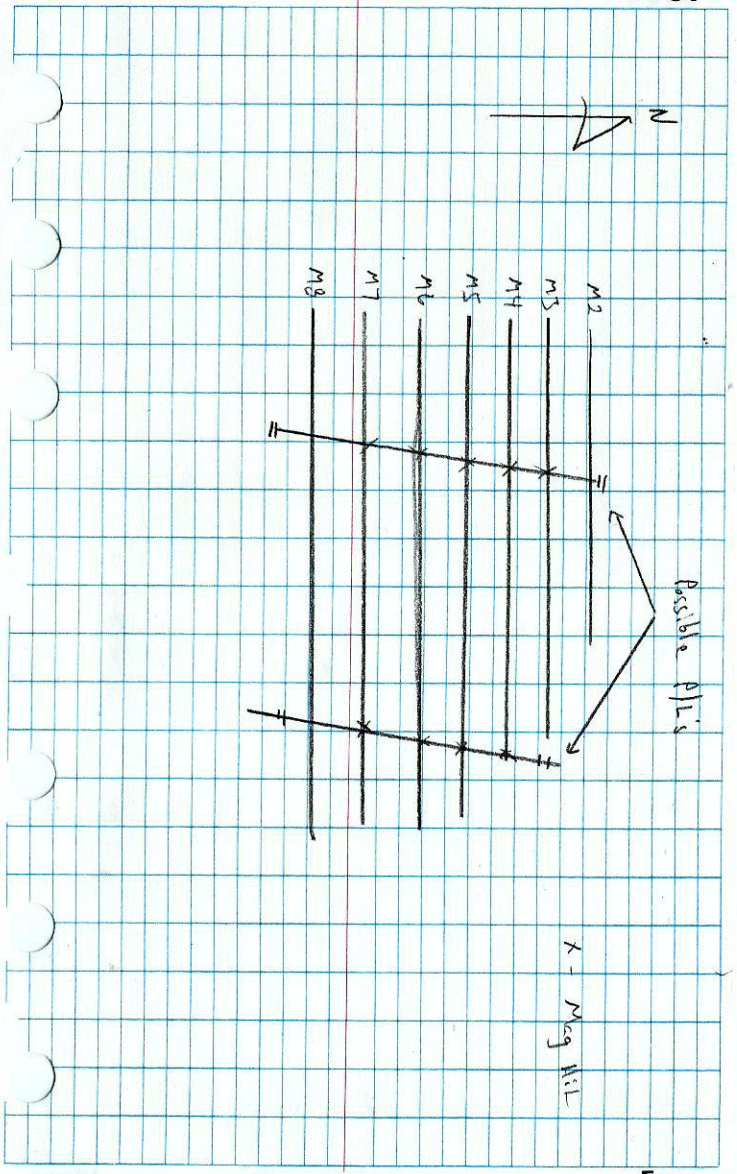
R McKeivier
J Granger
S Daigle

2015-0242
Chustz Surveying
No Name Bayou Marsh Creation
- Cameron Parish, LA

NAD 83 Louisiana South Zone
Geoid 12A

RPM_041_2016_20150242

Line	
M4	0935
M3	1006 - Computer crash
M3-002	1040
M2	1130 (Alot Crabtraps on East End)
M5	1151
M6	1215
M7	1352
M8	1415



0600	Meet Crew
	E/R
0815	Start Base @ A357
	Mag Lines
	Airboat Belt Broke
1277	End Survey
1245	Load Airboat send to bet fixed
105	CHK ΔH: 0.054 ΔV: 0.002
Static	8990420.T02
Base Pt	A357
N	479868.915
E	2642723.498
Z	1.627

Thursday February 11, 2016 (042)

R McKeivier
J Granger
S Daigle

2015_0242
Chustz Surveying Inc
No Name Bayou Marsh Creation
Cameron Parish, LA

NAD 83 Louisiana South Zone
Geoid 12A

RPM_042_2016_20150242

59

Line

M9 0936 (Trash at Beginning Line)

M10 0958

JCLS BOOK NO. 1126

FUGRO

59

JCLS BOOK NO. 1126

FUGRO

60

0600	Meet Crew
	E/R
0828	Start Base @ A357
	Mag
	Demob
1420	End Survey
1500	E/R
1800	@ office Drop Equipment

Static	89940430.702
Base Pt	A357
N	479868.915
E	2642723.498
Z	1.627

Friday February 12, 2016 (043) 60

R McKeivier
J Granger
S Daigle

2015-0242
Chustz Surveying Inc
No Name Bayou Marsh Creation
Cameron Parish, LA

NAD 83 Louisiana South Zone
Geoid 12A

RPM-043-2016-20150242

61

Line	
M28	0935
M16	1015
M15A	1029
M14A	1040
M13A	1100
M11	1215
M26	1244
M27	1330

Sand Bars (Had to Go Around)

JCLS BOOK NO. 1126

61

JCLS BOOK NO. 1126

62

0600 Meet Crew
Load Canepoles
0840 Start Base @ A357
Mag Lines
Wait on Weather / Raining
1439 End Survey
Get new Equipment for
Computer at Bestbuy
1800 @ Hotel

107 CHK ΔH: 0.060
ΔV: 0.130

Static 89940460.T02
Base Pt A357
N 479868.915
E 2642723.498
Z 1.627

JCLS BOOK NO. 1126

Monday February 15, 2016 (046) 62

R McKeivier
J Granger
S Daigle

2015_0242
Chustz Surveying Inc
NO Name Bayou Marsh Creation
Cameron Parish, LA

NAD 83 Louisiana South Zone
Geoid 12A

RPM_046_2016_20150242

JCLS BOOK NO. 1126

63

Lines

M25	1021
M24	1035
M23	1050
M22	1102
M29	1123
M 30	1202
M 30A	1204

JCLS BOOK NO. 1126

63

JCLS BOOK NO. 1126

64

0600 Meet Crew
C/R
0755 Start Base @ A357
Mag lines
1534 End Survey
@ Ferry
1630 C/R
1745 @ Hotel

108 CHK ΔH: 0.031 ΔV: 0.025
109 Mag hit

Static 89940470.T02
Base Pt A357
N 479868.915
E 2642723.498
Z 1.627

JCLS BOOK NO. 1126

Tuesday February 16, 2016 64
(047)

R McKeivier
J Granger
S Daigle

2015-0242
Chustz Surveying Inc
No Name Bayou Marsh Creation
Cameron Parish, LA

NAD 83 Louisiana South Zone
Geoid 12A

RPM-047-2016-20150242

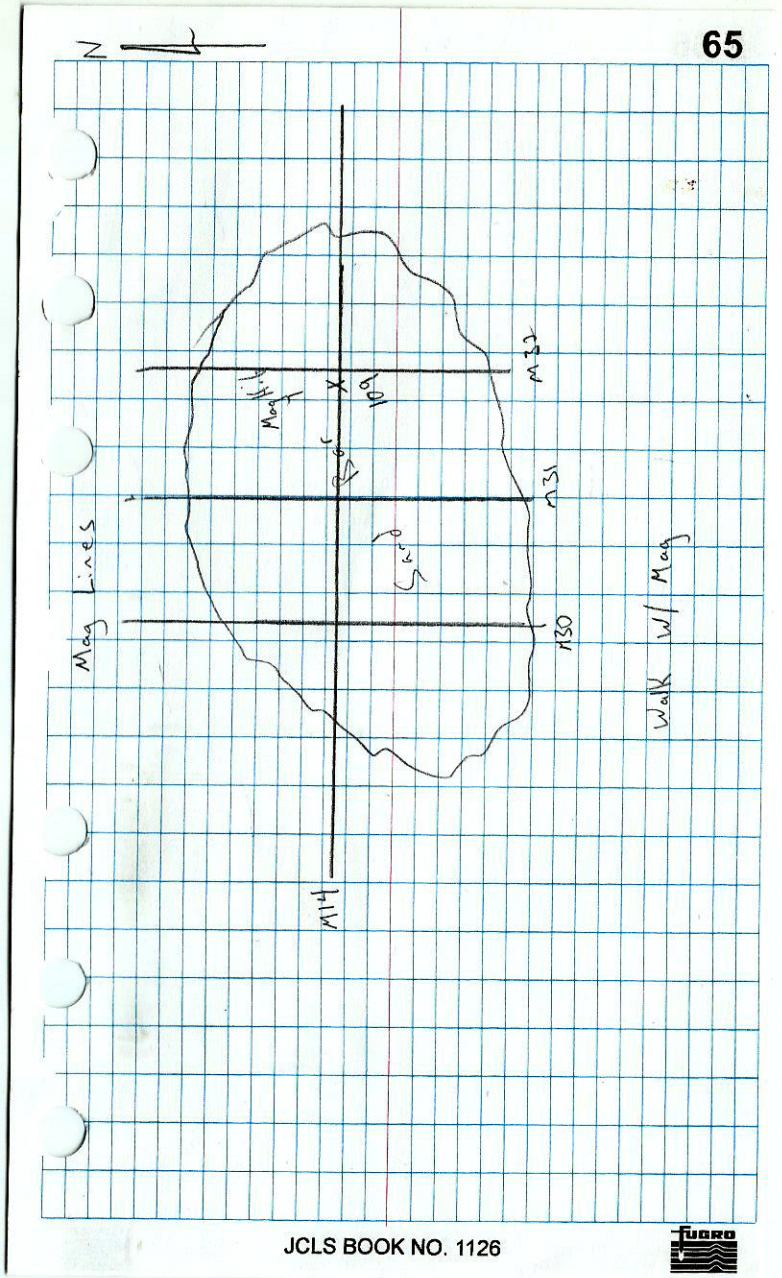
JCLS BOOK NO. 1126

65

Lines

M31	0855	- Sand Cant Run Abboat
M32	0905	
M33	0920	
M34	0938	
M35	0954	
M36	1008	
M37	1025	
M38	1045	
M39	1058	
M40	1115	
M41	1125	
M42	1135	

JCLS BOOK NO. 1126



JCLS BOOK NO. 1126

66

0600 Meet Crew
E/R

0755 Start Base @ A357
Locate 42" Chenniere P/L

1554 End Survey
Wait on Ferry

1745 @ Hotel

Static B9940480. T02
Base Pt A357
N 479868.915
E 2642723.498
Z 1.627

JCLS BOOK NO. 1126

Wednesday February 17, 2016 66
(048)

R McKeivier
J Granger
S Daigle

2015_0242
Chustz Surveying Inc
No Name Bayou Marsh Creation
Cameron Parish, LA

Nad 83 Louisiana South Zone
Geoid 12A

RPM_048_2016_20150242

JCLS BOOK NO. 1126

110	CHK ΔH 0.078 ΔV 0.082		
111	4.0 cov	134	1w 4cov
112	4.0 cov	135	1w 4cov
113	4.0 cov	136	.5w 4.5cov
114	4.0 cov	137	.5w 4.5cov
115	4.0 cov	138	45' cov
116	4.0 cov	139	4 cov
117	.5w 3.5cov	140	.5w 5.5cov
118	1w, 3cov	141	.5w 9cov
119	1w 3cov	142	.5w 10.5cov
120	1w 3cov		
121	1w 4cov		
122	.5w 4cov		
123	1w 4cov		
124	2w 4cov		
125	2w 4.5cov		
126	2w 4.5cov		
127	2w 4cov		
128	2w 5.5cov		
129	2w 4cov		
130	2w 4.5cov		
131	2w 4cov		
132	2w 3.5cov		
133	2w 4.5cov		

67

JCLS BOOK NO. 1126

68

0600 Meet Crew
E/R

0754 Start Rose @ A357
Locate P/L

1503 End Survey
@ Ferry

1730 @ Hotel

Static 89940490.T02
Base Pt A357
N 479868.915
E 2642723.498
Z 1.627

Thursday February 18, 2016 68
(049)

R McKeivier
J Granger
S Daigle

2015-0242
Chustz Surveying Inc
No Name Bayou Marsh Creation
Cameron Parish, LA

NAD 83 Louisiana South Zone
Geoid 12A

RPM-049-2016-20150242

143	CHK ΔH .079 ΔV .032
144	5.5 COV
145	5.5 COV
146	5.0 COV
147	5.0 COV
148	5.0 COV
149	5.0 COV
150	5.0 COV
151	5.0 COV
152	5.0 COV
153	5.0 COV
154	5.0 COV
155	5.0 COV

69

JCLS BOOK NO. 1126

0600 Meet Crew
E/R

0828 Start Base @ A357
Locate P/L

1331 End Survey
Demob
E/R

1730 @ office

Static 89940500.T02
Base Pt A357
N 479868.915
E 2642723.498
Z 1.627

Friday February 19, 2016
(050)

R McKeivier
J Granger
S Daigle

2015-0242
Chustz Surveying Inc
No Name Bayou Marsh Creation
Cameron Parish, LA

Nad 83 Louisiana South Zone
Geoid 12A

RPM-050-2016-20150242

156	CHR ΔH .062 ΔV -.004	
157	5.0 cov	180 RD Hit
158	5.0 cov	181 PL Marker
159	5.0 cov	182 PL Marker
160	5.0 cov	183 PL Marker
161	5.0 cov	184 42" PL 4.0 cov
162	5.0 cov	185 2.0 cov
163	5.0 cov	186 2.0 cov
164	5.0 cov	187 4.5 cov
165	5.0 cov	188 Possible End
166	5.0 cov	
167	5.0 cov	
168	5.0 cov	
169	5.0 cov	
170	.5w 5 cov	
171	.5w 5 cov	
172	.5w 5 cov	
173	Possible End	
174	42" 10' cov	
175	RD 20' cov	
176	RD 14' cov	
177	RD Hit	
178	RD Hit	
179	RD Hit	

71

JCLS BOOK NO. 1126

RPM_040_MO20-01_EYELEVEL.jpg

RPM_040_MO20-01_CLOSEUP.jpg

RPM_040_A357_HORIZON.jpg

RPM_040_A357_EYELEVEL.jpg

RPM_040_A357_CLOSEUP.jpg

RPM_039_TBM1_EYELEVEL.jpg

RPM_039_TBM1_CLOSEUP.jpg

RPM_039_NONAME_HORIZON.jpg

RPM_039_NONAME_EYELEVEL.jpg

RPM_039_NONAME_CLOSEUP.jpg

IMG006.jpg

IMG005.jpg

CALCASIEU LAKE

CALCASIEU LAKE

CHART 2
CHART 4

CHART 3
CHART 5

CHART 4
CHART 6

CHART 5
CHART 7

MATCH LINE "A"
MATCH LINE "A"

MATCH LINE "B"
MATCH LINE "B"

MATCH LINE "C"
MATCH LINE "C"

MATCH LINE "D"
MATCH LINE "D"

MATCH LINE "E"
MATCH LINE "E"

MATCH LINE "F"
MATCH LINE "F"

MATCH LINE "G"
MATCH LINE "G"

HAZARD

EXISTING 42" PIPELINE

EXISTING PIPELINE

POSSIBLE PIPELINE

POSSIBLE PIPELINE

POSSIBLE PIPELINE

POSSIBLE PIPELINE

POSSIBLE PIPELINE

GRID NORTH

TRACKLINES

PIPELINE FROM DATA BASE

AS-BUILT PIPELINES

MAGNETIC ANOMALY 54

PROPOSED MAG ROUTE

RTK PROBED POINTS 10111

Proj. Mgr.: RMJ
Revised: 6/13/16
Printed: 6/13/16

COASTAL PROTECTION & RESTORATION AUTHORITY OF LOUISIANA

NO-NAME MARSH CREATION & NOURISHMENT (CS-78) MAGNETOMETER SURVEYS

CAMERON PARISH, LOUISIANA

JOHN CHANCE
LAND SURVEYS, INC.

TUCRO

GEODETIC DATUM: NAD83
PROJECTION: LOUISIANA SOUTH
GRID UNITS: US SURVEY FEET

SCALE IN FEET 0 1,000'

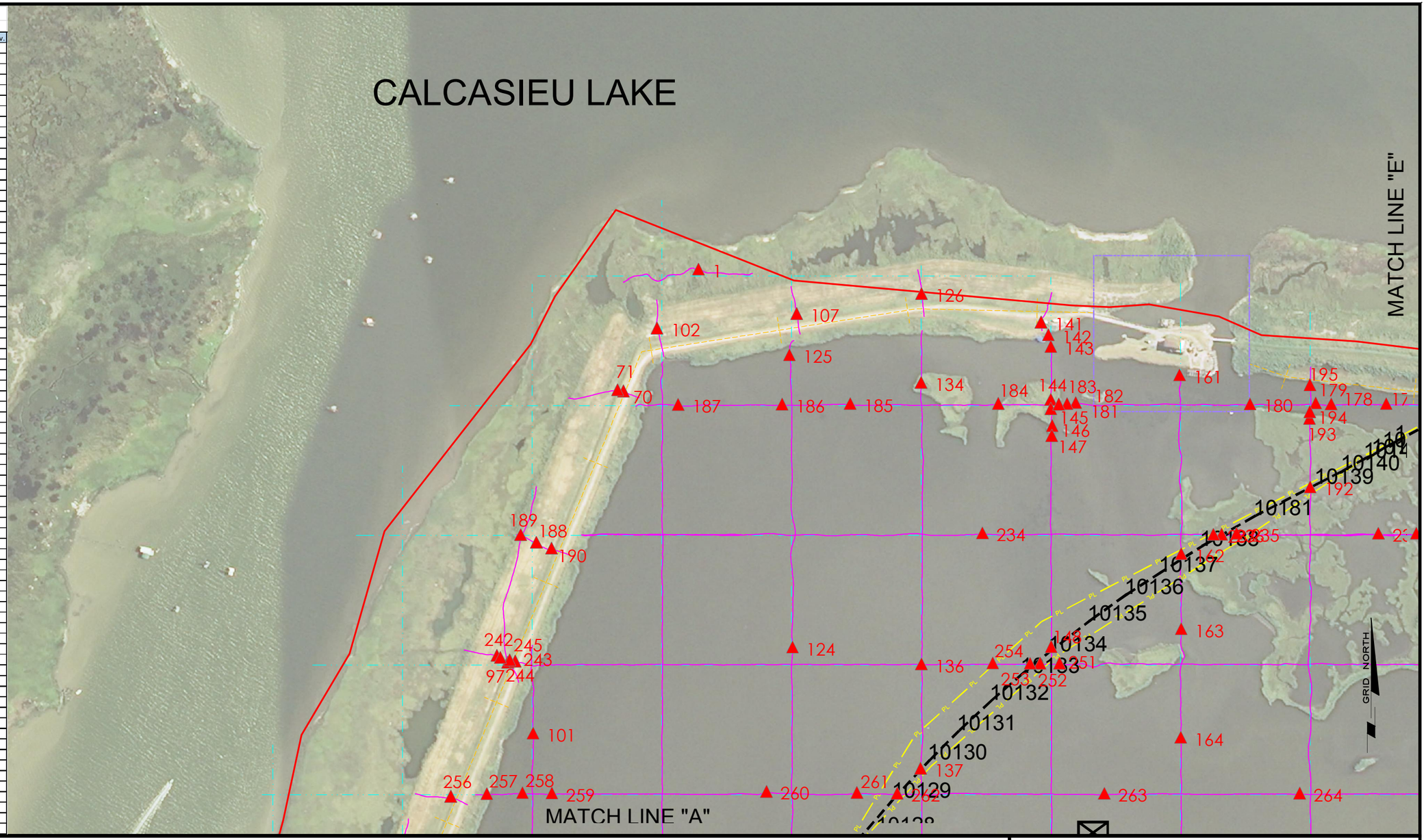
Job No.: 15-0242 | Date: 4/5/16 | Drwn: OLIVIERA/DUNBARJ | Chart: 1 Of: 9

Dwgfile: L:\2015\150242\CAD\MagAnomalies_Small Sheet_Cover

No Name Bayou Marsh Creation Project (CS-78)

Calculated top of Pipe Elevations at Probing Locations

Point No.	Northing	Easting	Elev	Description	Top of Pipe Elev.
10111	486659.17	2647005.37	0.08	42" PL 4.0C 0.0W	-3.92
10112	486867.23	2647148.02	0.02	42" PL 4.0C 0.0W	-3.98
10113	487062.43	2647277.18	-0.03	42" PL 4.0C 0.0W	-4.03
10114	487500.39	2647572.79	0.01	42" PL 4.0C 0.0W	-3.99
10115	487840.86	2647802.55	0.10	42" PL 4.0C 0.0W	-3.90
10116	488047.22	2647941.01	-0.12	42" PL 4.0 C 0.0W	-4.12
10117	488302.69	2648113.12	-0.16	42" PL 3.5C 0.5W	-3.66
10118	488493.22	2648239.24	0.01	42" PL 3.0C 1.0W	-2.99
10119	488651.19	2648340.48	0.60	42" PL 3.0C 1.0W	-2.40
10120	488815.09	2648446.92	0.16	42" PL 3.0C 1.0W	-2.84
10121	489000.57	2648576.08	-0.06	42" PL 4.0C 1.0W	-4.06
10122	489167.15	2648688.31	-0.08	42" PL 4.0C 0.5W	-4.08
10123	489320.21	2648794.23	-0.16	42" PL 4.0C 1.0W	-4.16
10124	489456.64	2648887.37	-0.12	42" PL 4.0C 2.0W	-4.12
10125	489653.33	2649018.46	-0.29	42" PL 4.5C 2.0W	-4.79
10126	489824.09	2649133.94	-0.31	42" PL 4.5C 2.0W	-4.81
10127	489996.88	2649255.49	0.45	42" PL 4.0C 2.0W	-3.55
10128	490174.59	2649396.86	-0.23	42" PL 5.5C 2.0W	-5.73
10129	490340.33	2649539.61	-0.10	42" PL 4.0C 2.0W	-4.10
10130	490488.77	2649678.54	-0.24	42" PL 4.5C 2.0W	-4.74
10131	490601.04	2649790.35	0.00	42" PL 4.0C 2.0W	-4.00
10132	490718.06	2649916.81	-0.40	42" PL 3.5C 2.0W	-3.90
10133	490821.72	2650036.01	-0.41	42" PL 4.5C 2.0W	-4.91
10134	490905.80	2650141.39	-0.38	42" PL 4.0C 1.0W	-4.38
10135	491023.87	2650293.59	-0.34	42" PL 4.0C 1.0W	-4.34
10136	491125.75	2650436.41	-0.16	42" PL 4.5C 0.5W	-4.66
10137	491211.16	2650569.16	-0.06	42" PL 4.5C 0.5W	-4.56
10138	491312.17	2650727.94	0.09	42" PL 5.0C 0.0W	-4.91
10139	491550.16	2651168.73	0.12	42" PL 5.5C 0.5W	-5.38
10140	491602.45	2651270.53	-0.24	42" PL 9.0C 0.5W	-9.24
10141	491650.90	2651357.71	0.09	42" PL 10.5C 0.5W	-10.41
10144	485216.24	2653818.70	-0.32	PL 5.5C 0.0W	-5.82
10145	485300.90	2653867.42	-0.13	PL 5.5C 0.0W	-5.63
10146	485606.48	2654040.85	-0.38	PL 5.0C 0.0W	-5.38
10147	485810.52	2654156.29	-0.29	PL 5.0C 0.0W	-5.29
10148	486028.91	2654282.65	-0.23	PL 5.0C 0.0W	-5.23
10149	486321.23	2654449.28	-0.16	PL 5.0C 0.0W	-5.16
10150	486561.33	2654585.98	-0.49	PL 5.0C 0.0W	-5.49
10151	486766.52	2654703.15	-0.25	PL 5.0C 0.0W	-5.25
10152	486992.95	2654832.19	-0.34	PL 5.0C 0.0W	-5.34
10153	487198.50	2654947.07	0.21	PL 5.0C 0.0W	-4.79
10154	487435.63	2655081.20	-0.15	PL 5.0C 0.0W	-5.15
10155	487670.50	2655217.36	-0.21	PL 5.0C 0.0W	-5.21
10157	487870.78	2655339.48	-0.08	PL 5.0C 0.0W	-5.08
10158	488124.03	2655475.26	-0.24	PL 5.0C 0.0W	-5.24
10159	488306.16	2655582.30	-0.03	PL 5.0C 0.0W	-5.03
10160	488497.23	2655686.96	1.38	PL 5.0C 0.0W	-3.62
10161	488729.92	2655820.65	0.08	PL 5.0C 0.0W	-4.92
10162	488993.70	2655970.28	0.20	PL 5.0C 0.0W	-4.81
10163	489226.13	2656104.51	0.26	PL 5.0C 0.0W	-4.74
10164	489418.07	2656214.25	0.11	PL 5.0C 0.0W	-4.89
10165	489628.80	2656334.52	0.27	PL 5.0C 0.0W	-4.74
10166	489838.47	2656454.08	0.20	PL 5.0C 0.0W	-4.80
10167	490008.01	2656550.45	0.33	PL 5.0C 0.0W	-4.67
10168	490175.93	2656646.79	0.17	PL 5.0C 0.0W	-4.83
10169	490356.17	2656749.27	0.17	PL 5.0C 0.0W	-4.83
10170	490482.71	2656820.68	-0.05	PL 5.0C 0.5W	-5.05
10171	490526.97	2656845.58	-0.13	PL 5.0C 0.5W	-5.13
10172	490566.82	2656869.26	-0.13	PL 5.0C 0.5W	-5.13
10173	490612.01	2656895.13	0.28	PL POSSIBLE END	
10174	491664.81	2651389.22	0.09	42" PL 10.0C	-9.91
10175	491717.21	2651478.13	0.41	RD 20.0 COV	-19.59
10176	491691.87	2651431.60	-0.22	RD 14.0 COV	-14.22
10177	491879.87	2651781.34	0.43	RD HIT	
10178	491785.17	2651606.21	0.08	RD HIT	
10179	491825.04	2651681.47	0.00	RD HIT	
10180	491939.67	2651890.04	1.01	RD HIT	
10181	492003.04	2652008.74	3.67	PLM	
10182	492030.95	2652058.72	2.36	PLM	
10183	492077.39	2652147.77	1.76	PLM	
10184	491429.57	2650934.57	-0.02	42" PL 4.0C 0.0W	-4.02
10185	490863.69	2657014.81	-0.27	PL 2.0 COV	-2.27
10186	490890.76	2657045.64	0.10	PL 2.0 COV	-1.90
10187	490901.60	2657057.27	0.28	PL 4.5 COV	-4.24
10188	490858.56	2657010.75	0.11	PL POSSIBLE END	



TRACKLINES

PIPELINE FROM DATA BASE — PL — PL — PL

AS-BUILT PIPELINES

MAGNETIC ANOMALY 54▲

PROPOSED MAG ROUTE

RTK PROBED POINTS 10111

Proj. Mgr.: RMJ
Revised: 6/13/16
Printed: 6/13/16

COASTAL PROTECTION & RESTORATION AUTHORITY OF LOUISIANA

NO-NAME MARSH CREATION & NOURISHMENT (CS-78) MAGNETOMETER SURVEYS

CAMERON PARISH, LOUISIANA

JOHN CHANCE LAND SURVEYS, INC. — FUGRO

GEODETIC DATUM: NAD83
PROJECTION: LOUISIANA SOUTH
GRID UNITS: US SURVEY FEET

SCALE IN FEET 0 400'

Job No.: 15-0242 | Date: 4/5/16 | Drwn: OLIVIERA/DUNBARJ | Chart: 2 Of: 9

Dwgfile: L:\2015\150242\CAD\MagAnomalies_Small Sheet

CALCASIEU LAKE

MATCH LINE "E"

MATCH LINE "B"

GRID NORTH

TRACKLINES

PIPELINE FROM DATA BASE

AS-BUILT PIPELINES

MAGNETIC ANOMALY

PROPOSED MAG ROUTE

RTK PROBED POINTS

COASTAL PROTECTION & RESTORATION AUTHORITY OF LOUISIANA

NO-NAME MARSH CREATION & NOURISHMENT (CS-78)
MAGNETOMETER SURVEYS

CAMERON PARISH, LOUISIANA

JOHN CHANCE
LAND SURVEYS, INC.

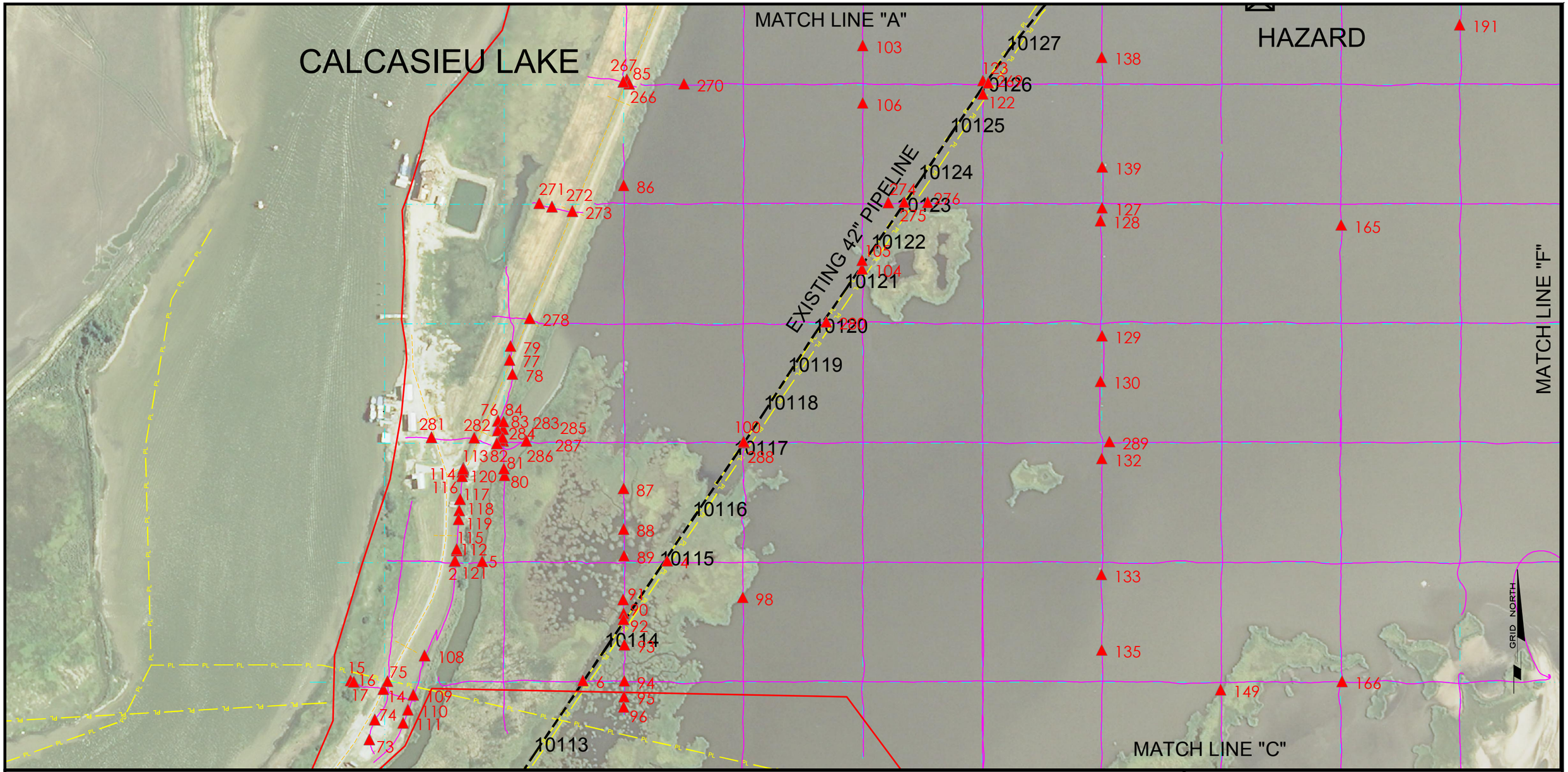
GEODETIC DATUM: NAD83
PROJECTION: LOUISIANA SOUTH
GRID UNITS: US SURVEY FEET

SCALE IN FEET 0 400'

Job No.: 15-0242 | Date: 4/5/16 | Drwn: OLIVIERA/DUNBARJ | Chart: 3 Of: 9

Dwgfile: L:\2015\150242\CAD\MagAnomalies_Small Sheet

Proj. Mgr.: RMJ
Revised: 6/13/16
Printed: 6/13/16



TRACKLINES

PIPELINE FROM DATA BASE

AS-BUILT PIPELINES

MAGNETIC ANOMALY 54

PROPOSED MAG ROUTE

RTK PROBED POINTS 10111

108

COASTAL PROTECTION & RESTORATION AUTHORITY OF LOUISIANA

NO-NAME MARSH CREATION & NOURISHMENT (CS-78) MAGNETOMETER SURVEYS

CAMERON PARISH, LOUISIANA

JOHN CHANCE LAND SURVEYS, INC.

GEODETIC DATUM: NAD83
PROJECTION: LOUISIANA SOUTH
GRID UNITS: US SURVEY FEET

SCALE IN FEET 0 400'

Job No.: 15-0242 | Date: 4/5/16 | Drwn: OLIVIERA/DUNBARJ | Chart: 4 Of: 9

Dwgfile: L:\2015\150242\CAD\MagAnomalies_Small Sheet

Proj. Mgr.: RMJ
Revised: 6/13/16
Printed: 6/13/16

MATCH LINE "B"

MATCH LINE "F"

MATCH LINE "D"

248 10165
10164
268 10163
10162
10161
277
246
247 10160
250
10159
279
10158
EXISTING PIPELINE
10157
231
291
10156
232
10155
249
224
10154
3
10153
229
10152
7
233
10151
10150
290
205

POSSIBLE PIPELINE

GRID NORTH

TRACKLINES

PIPELINE FROM DATA BASE

AS-BUILT PIPELINES

MAGNETIC ANOMALY 54

PROPOSED MAG ROUTE

RTK PROBED POINTS 10111

COASTAL PROTECTION & RESTORATION AUTHORITY OF LOUISIANA

NO-NAME MARSH CREATION & NOURISHMENT (CS-78) MAGNETOMETER SURVEYS

CAMERON PARISH, LOUISIANA

JOHN CHANCE
LAND SURVEYS, INC.

FUGRO

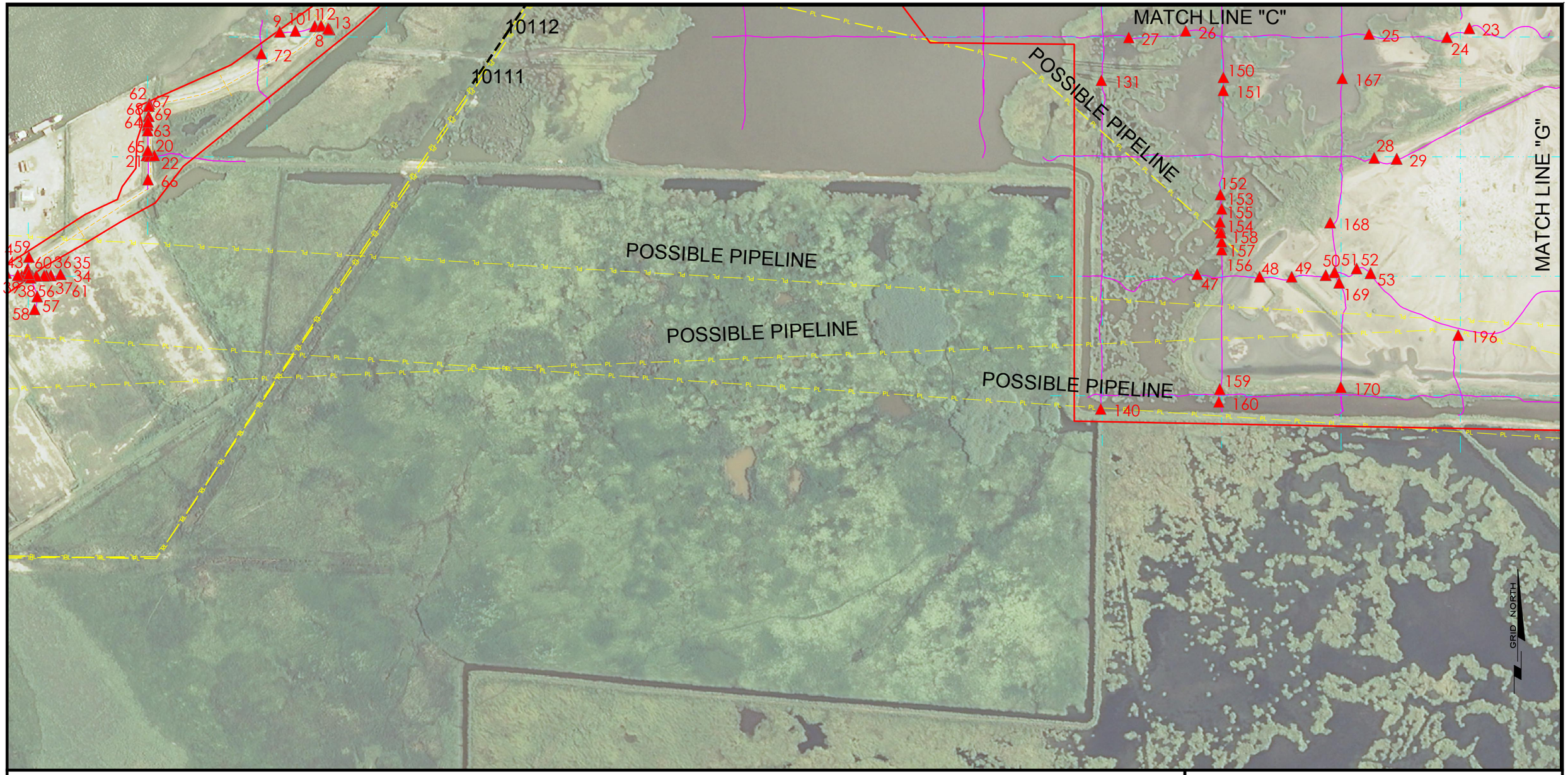
GEODETIC DATUM: NAD83
PROJECTION: LOUISIANA SOUTH
GRID UNITS: US SURVEY FEET

SCALE IN FEET 0 400'

Job No.: 15-0242 | Date: 4/5/16 | Drwn: OLIVIERA/DUNBARJ | Chart: 5 Of: 9

Dwgfile: L:\2015\150242\CAD\MagAnomalies_Small Sheet

Proj. Mgr.: RMJ
Revised: 6/13/16
Printed: 6/13/16



TRACKLINES

PIPELINE FROM DATA BASE

AS-BUILT PIPELINES

MAGNETIC ANOMALY 54

PROPOSED MAG ROUTE

RTK PROBED POINTS 10111

Proj. Mgr.: RMJ
Revised: 6/13/16
Printed: 6/13/16

COASTAL PROTECTION & RESTORATION AUTHORITY OF LOUISIANA

NO-NAME MARSH CREATION & NOURISHMENT (CS-78) MAGNETOMETER SURVEYS

CAMERON PARISH, LOUISIANA

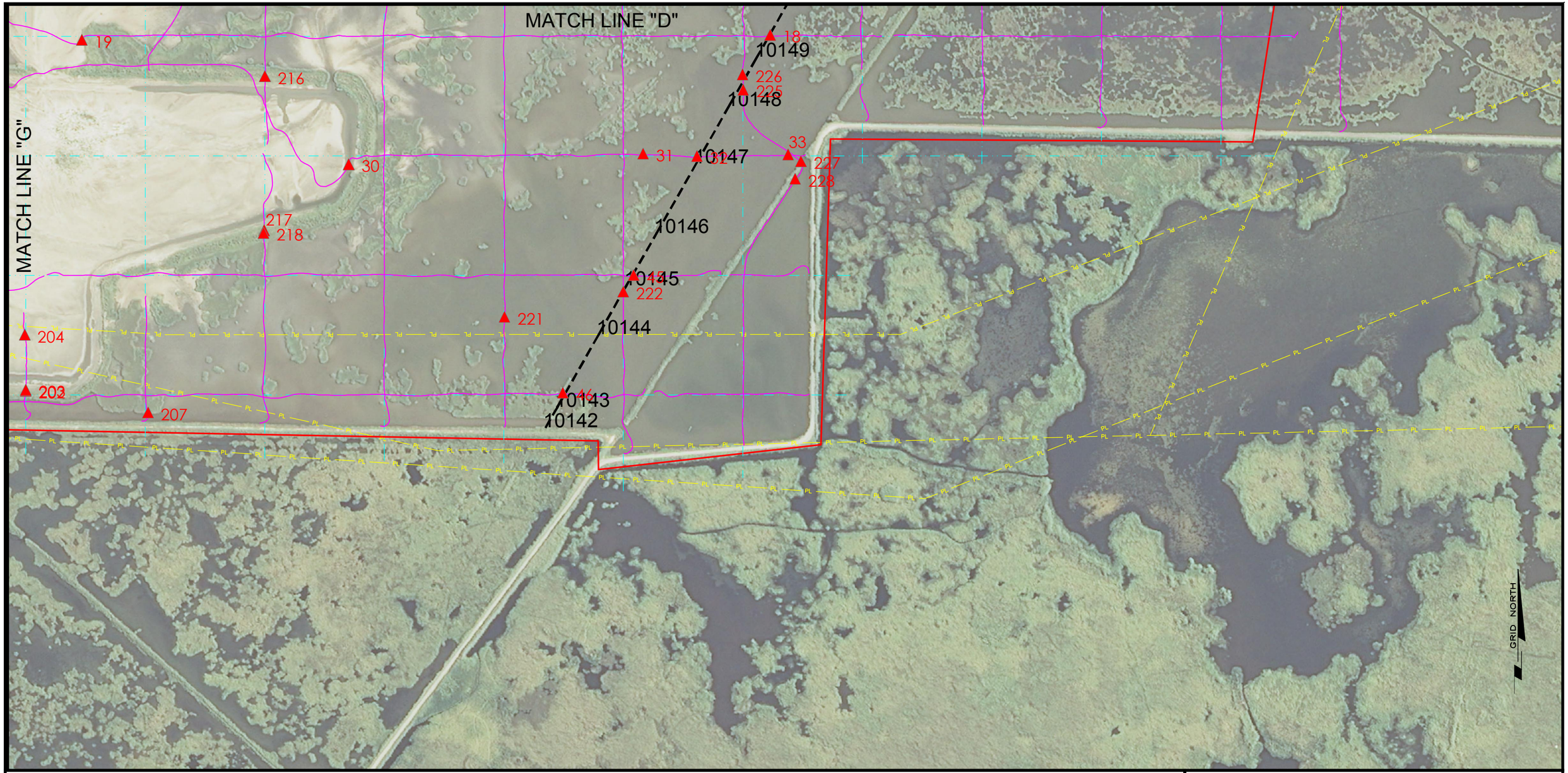
JOHN CHANCE LAND SURVEYS, INC.

FUGRO

GEODETIC DATUM: NAD83
PROJECTION: LOUISIANA SOUTH
GRID UNITS: US SURVEY FEET

SCALE IN FEET 0 400'

Job No.: 15-0242	Date: 4/5/16	Drwn: OLIVIERA/DUNBARJ	Chart: 6 Of: 9
Dwgfile: L:\2015\150242\CAD\MagAnomalies_Small Sheet			



TRACKLINES

PIPELINE FROM DATA BASE — PL — PL — PL

AS-BUILT PIPELINES

MAGNETIC ANOMALY 54▲

PROPOSED MAG ROUTE

RTK PROBED POINTS 10111

Proj. Mgr.: RMJ
Revised: 6/13/16
Printed: 6/13/16

COASTAL PROTECTION & RESTORATION AUTHORITY OF LOUISIANA

NO-NAME MARSH CREATION & NOURISHMENT (CS-78)
MAGNETOMETER SURVEYS

CAMERON PARISH, LOUISIANA

JOHN CHANCE LAND SURVEYS, INC.

GEODETIC DATUM: NAD83 PROJECTION: LOUISIANA SOUTH GRID UNITS: US SURVEY FEET		SCALE IN FEET 0 400'	
Job No.: 15-0242	Date: 4/5/16	Drwn: OLIVIERA/DUNBARJ	Chart: 7 Of: 9
Dwgfile: L:\2015\150242\CAD\MagAnomalies_Small Sheet			

UNIDENTIFIED MAGNETIC ANOMALIES

ANOMALY NUMBER	LINE NUMBER	SHOT PT. NUMBER	X COORDINATE	Y COORDINATE	AMPLITUDE (GAMMAS)	DURATION (FEET)	SIGNATURE
1	M1	0.0	2,648,785.28'	492,371.66'	572	10	DIPOLE
2	M10	0.0	2,646,936.16'	487,850.82'	302	11	DIPOLE
3	M10B	0.0	2,655,330.42'	487,854.47'	145	48	MONOPOLE
4	M10B	0.0	2,647,825.94'	487,853.22'	3135	243	DIPOLE
5	M10B	0.0	2,647,052.62'	487,850.75'	184	36	MONOPOLE
6	M11	0.0	2,647,473.78'	487,352.96'	2428	219	DIPOLE
7	M11	0.0	2,655,033.79'	487,351.92'	189	42	DIPOLE
8	M12	0.0	2,646,406.98'	486,876.34'	408	11	MONOPOLE
9	M12	0.0	2,646,198.22'	486,866.89'	258	14	DIPOLE
10	M12	0.0	2,646,263.47'	486,871.79'	1485	37	DIPOLE
11	M12	0.0	2,646,344.74'	486,890.53'	319	15	MONOPOLE
12	M12	0.0	2,646,370.77'	486,891.95'	251	14	DIPOLE
13	M12	0.0	2,646,400.31'	486,880.70'	149	6	DIPOLE
14	M12A	0.0	2,646,638.85'	487,317.25'	1933	76	MONOPOLE
15	M12A	0.0	2,646,501.79'	487,352.58'	47	3	MONOPOLE
16	M12A	0.0	2,646,516.56'	487,346.20'	780	7	DIPOLE
17	M12A	0.0	2,646,514.28'	487,347.03'	323	4	MONOPOLE
18	M13B	0.0	2,654,757.84'	486,850.93'	147	42	MONOPOLE
19	M13B	0.0	2,651,878.26'	486,829.95'	22	43	MONOPOLE
20	M14	0.0	2,645,639.73'	486,349.63'	358	8	DIPOLE
21	M14	0.0	2,645,653.17'	486,347.92'	727	24	DIPOLE
22	M14	0.0	2,645,672.34'	486,349.66'	660	9	MONOPOLE
23	M14B	0.0	2,651,180.93'	486,882.53'	28	65	MONOPOLE
24	M14B	0.0	2,651,087.35'	486,844.27'	16	64	MONOPOLE
25	M14B	0.0	2,650,760.85'	486,857.98'	14	15	DIPOLE
26	M14B	0.0	2,649,992.67'	486,871.16'	19	109	MONOPOLE
27	M14B	0.0	2,649,754.03'	486,843.75'	62	10	MONOPOLE
28	M14C	0.0	2,650,782.83'	486,339.92'	17	79	DIPOLE
29	M14C	0.0	2,650,876.74'	486,335.84'	78	51	DIPOLE
30	M14C	0.0	2,652,995.00'	486,309.94'	117	65	DIPOLE
31	M14C	0.0	2,654,226.67'	486,354.58'	129	57	DIPOLE
32	M14C	0.0	2,654,451.84'	486,344.13'	76	58	MONOPOLE
33	M14C	0.0	2,654,832.74'	486,351.17'	47	23	DIPOLE
34	M15	0.0	2,645,279.64'	485,852.20'	510	8	MONOPOLE
35	M15	0.0	2,645,238.55'	485,847.65'	127	9	MONOPOLE
36	M15	0.0	2,645,220.08'	485,847.17'	228	14	DIPOLE
37	M15	0.0	2,645,210.93'	485,846.37'	1821	13	DIPOLE
38	M15	0.0	2,645,160.70'	485,845.27'	2080	11	DIPOLE
39	M15	0.0	2,645,143.19'	485,844.29'	774	8	MONOPOLE
40	M15	0.0	2,645,117.02'	485,845.39'	1100	13	MONOPOLE
41	M15	0.0	2,645,099.98'	485,848.76'	344	12	MONOPOLE
42	M15	0.0	2,645,051.32'	485,857.66'	2833	18	MONOPOLE
43	M15	0.0	2,645,157.15'	485,844.95'	993	4	MONOPOLE
44	M15	0.0	2,645,178.11'	485,845.95'	387	4	MONOPOLE
45	M15B	0.0	2,654,186.82'	485,846.57'	325	55	MONOPOLE
46	M16	0.0	2,653,890.51'	485,354.43'	67	34	DIPOLE
47	M16B	0.0	2,650,040.80'	485,853.02'	38	21	MONOPOLE
48	M16B	0.0	2,650,302.95'	485,842.01'	13	14	MONOPOLE
49	M16B	0.0	2,650,437.12'	485,841.59'	20	26	MONOPOLE
50	M16B	0.0	2,650,579.36'	485,848.83'	9	22	MONOPOLE
51	M16B	0.0	2,650,616.73'	485,861.41'	16	27	MONOPOLE
52	M16B	0.0	2,650,708.96'	485,876.26'	24	70	MONOPOLE
53	M16B	0.0	2,650,767.31'	485,857.16'	18	12	MONOPOLE
54	M17	0.0	2,644,635.42'	485,379.19'	14443	23	MONOPOLE
55	M17	0.0	2,644,638.06'	485,358.36'	15094	32	MONOPOLE
56	M18	0.0	2,645,153.94'	485,838.20'	11550	33	DIPOLE
57	M18	0.0	2,645,181.63'	485,760.01'	859	18	MONOPOLE
58	M18	0.0	2,645,170.87'	485,706.04'	1758	22	DIPOLE
59	M18	0.0	2,645,147.08'	485,924.67'	2750	13	MONOPOLE
60	M18	0.0	2,645,141.47'	485,874.81'	2550	27	MONOPOLE
61	M18	0.0	2,645,146.90'	485,854.86'	3786	20	MONOPOLE
62	M19	0.0	2,645,651.25'	486,565.55'	652	8	MONOPOLE
63	M19	0.0	2,645,644.67'	486,476.99'	5867	13	MONOPOLE
64	M19	0.0	2,645,644.14'	486,454.13'	635	37	MONOPOLE
65	M19	0.0	2,645,645.18'	486,369.44'	12599	56	DIPOLE
66	M19	0.0	2,645,645.44'	486,249.06'	1975	98	DIPOLE
67	M19	0.0	2,645,649.27'	486,556.38'	480	4	MONOPOLE
68	M19	0.0	2,645,648.92'	486,514.27'	7142	32	MONOPOLE
69	M19	0.0	2,645,646.03'	486,490.66'	10645	28	DIPOLE
70	M2	0.0	2,648,495.66'	491,901.89'	168	16	MONOPOLE
71	M2	0.0	2,648,472.81'	491,906.77'	395	20	MONOPOLE
72	M20	0.0	2,646,120.38'	486,776.50'	155	9	DIPOLE
73	M21	0.0	2,646,580.37'	487,106.04'	326	74	MONOPOLE
74	M21	0.0	2,646,602.36'	487,189.31'	392	92	MONOPOLE
75	M21	0.0	2,646,655.80'	487,349.78'	3362	75	MONOPOLE

UNIDENTIFIED MAGNETIC ANOMALIES

ANOMALY NUMBER	LINE NUMBER	SHOT PT. NUMBER	X COORDINATE	Y COORDINATE	AMPLITUDE (GAMMAS)	DURATION (FEET)	SIGNATURE
76	M22	0.0	2,647,118.36'	488,439.36'	487	16	MONOPOLE
77	M22	0.0	2,647,166.80'	488,693.93'	585	20	MONOPOLE
78	M22	0.0	2,647,178.97'	488,634.40'	89	5	MONOPOLE
79	M22	0.0	2,647,170.74'	488,752.15'	395	30	MONOPOLE
80	M22A	0.0	2,647,145.16'	488,211.44'	18	24	MONOPOLE
81	M22A	0.0	2,647,143.19'	488,238.69'	16	18	MONOPOLE
82	M22A	0.0	2,647,139.73'	488,354.50'	52	47	DIPOLE
83	M22A	0.0	2,647,140.07'	488,404.95'	437	47	DIPOLE
84	M22A	0.0	2,647,141.83'	488,436.00'	62	11	MONOPOLE
85	M23	0.0	2,647,657.82'	489,866.87'	588	27	MONOPOLE
86	M23A	0.0	2,647,644.38'	489,424.50'	76	32	DIPOLE
87	M23A	0.0	2,647,643.64'	488,155.92'	119	35	DIPOLE
88	M23A	0.0	2,647,644.46'	487,986.00'	24	18	MONOPOLE
89	M23A	0.0	2,647,645.84'	487,874.56'	11	13	MONOPOLE
90	M23A	0.0	2,647,644.52'	487,633.60'	1679	50	DIPOLE
91	M23A	0.0	2,647,642.11'	487,691.87'	29	58	MONOPOLE
92	M23A	0.0	2,647,643.61'	487,608.73'	3373	109	DIPOLE
93	M23A	0.0	2,647,647.46'	487,502.25'	25	23	MONOPOLE
94	M23A	0.0	2,647,646.54'	487,351.08'	5	8	MONOPOLE
95	M23A	0.0	2,647,645.75'	487,285.25'	19	18	MONOPOLE
96	M23A	0.0	2,647,644.56'	487,241.82'	16	8	DIPOLE
97	M24	0.0	2,648,049.48'	490,856.21'	1620	59	DIPOLE
98	M24A	0.0	2,648,142.28'	487,700.05'	132	63	DIPOLE
100	M24B	0.0	2,648,147.88'	488,348.59'	10542	228	DIPOLE
101	M24B	0.0	2,648,147.13'	490,583.22'	84	41	DIPOLE
102	M25	0.0	2,648,625.34'	492,144.79'	62	4	MONOPOLE
103	M25A	0.0	2,648,644.27'	490,009.53'	33	27	MONOPOLE
104	M25A	0.0	2,648,641.16'	489,074.77'	4212	203	DIPOLE
105	M25A	0.0	2,648,641.43'	489,110.52'	3628	69	MONOPOLE
106	M25A	0.0	2,648,644.32'	489,768.72'	18	22	MONOPOLE
107	M26	0.0	2,649,163.39'	492,200.39'	1311	18	DIPOLE
108	M26A	0.0	2,646,811.25'	487,456.77'	314	22	DIPOLE
109	M26A	0.0	2,646,763.82'	487,292.97'	216	16	MONOPOLE
110	M26A	0.0	2,646,741.60'	487,230.21'	166	25	DIPOLE
111	M26A	0.0	2,646,721.38'	487,175.41'	145	37	MONOPOLE
112	M26A	0.0	2,646,945.92'	487,897.13'	8461	24	DIPOLE
113	M26A	0.0	2,646,973.36'	488,243.14'	5264	9	DIPOLE
114	M26A	0.0	2,646,969.81'	488,225.32'	41	10	DIPOLE
115	M26A	0.0	2,646,945.55'	487,902.79'	229	8	MONOPOLE
116	M26A	0.0	2,646,967.91'	488,206.79'	110	7	DIPOLE
117	M26A	0.0	2,646,959.42'	488,111.76'	65	6	DIPOLE
118	M26A	0.0	2,646,956.07'	488,063.92'	160	7	DIPOLE
119	M26A	0.0	2,646,953.75'	488,026.85'	130	14	DIPOLE
120	M26A	0.0	2,646,972.24'	488,238.07'	526	6	MONOPOLE
121	M26A	0.0	2,646,938.32'	487,853.29'	1270	10	DIPOLE
122	M26C	0.0	2,649,147.34'	489,806.86'	3200	192	DIPOLE
123	M26C	0.0	2,649,147.68'	489,862.60'	829	67	DIPOLE
124	M26C	0.0	2,649,147.30'	490,914.49'	14	29	MONOPOLE
125	M26C	0.0	2,649,135.60'	492,041.59'	93	35	MONOPOLE
126	M27	0.0	2,649,644.90'	492,276.97'	279	34	DIPOLE
127	M27A	0.0	2,649,646.10'	489,330.45'	17	25	DIPOLE
128	M27A	0.0	2,649,638.79'	489,276.79'	72	40	DIPOLE
129	M27A	0.0	2,649,645.42'	488,794.83'	66	23	MONOPOLE
130	M27A	0.0	2,649,639.65'	488,604.36'	288	41	DIPOLE
131	M27A	0.0	2,649,639.87'	486,664.25'	259	43	MONOPOLE
132	M27A	0.0	2,649,644.65'	488,281.08'	21	42	MONOPOLE
133	M27A	0.0	2,649,642.78'	487,796.44'	12	23	MONOPOLE
134	M27A	0.0	2,649,642.93'	491,934.39'	30	20	DIPOLE
135	M27A	0.0	2,649,644.16'	487,480.28'	145	64	MONOPOLE
136	M27A	0.0	2,649,644.37'	490,849.19'	53	29	DIPOLE
137	M27A	0.0	2,649,641.43'	490,447.52'	2622	205	DIPOLE
138	M27A	0.0	2,649,643.93'	489,960.17'	18	46	DIPOLE
139	M27A	0.0	2,649,646.29'	489,500.83'	12	15	MONOPOLE
140	M27A	0.0	2,649,636.63'	485,289.45'	330	18	DIPOLE
141	M28	0.0	2,650,105.73'	492,167.24'	210	11	MONOPOLE
142	M28A	0.0	2,650,133.93'	492,118.40'	152	15	DIPOLE
143	M28A	0.0	2,650,143.71'	492,073.31'	25	18	MONOPOLE
144	M28A	0.0	2,650,142.94'	491,869.53'	27	37	MONOPOLE
145	M28A	0.0	2,650,143.84'	491,833.74'	52	12	MONOPOLE
146	M28A	0.0	2,650,148.67'	491,768.81'	24	27	DIPOLE
147	M28A	0.0	2,650,147.15'	491,730.09'	21	8	MONOPOLE
148	M28A	0.0	2,650,144.63'	490,916.68'	2879	156	DIPOLE
149	M28B	0.0	2,650,141.90'	487,314.12'	13	25	MONOPOLE
150	M28B	0.0	2,650,150.99'	486,676.30'	6	50	MONOPOLE

UNIDENTIFIED MAGNETIC ANOMALIES

ANOMALY NUMBER	LINE NUMBER	SHOT PT. NUMBER	X COORDINATE	Y COORDINATE	AMPLITUDE (GAMMAS)	DURATION (FEET)	SIGNATURE
151	M28B	0.0	2,650,150.40'	486,622.31'	7	12	MONOPOLE
152	M28B	0.0	2,650,138.69'	486,185.61'	15	38	MONOPOLE
153	M28B	0.0	2,650,143.34'	486,126.69'	227	37	DIPOLE
154	M28B	0.0	2,650,136.77'	486,043.79'	6	13	DIPOLE
155	M28B	0.0	2,650,137.30'	486,071.43'	11	22	MONOPOLE
156	M28B	0.0	2,650,143.52'	485,955.81'	32	21	DIPOLE
157	M28B	0.0	2,650,144.10'	485,988.90'	17	9	MONOPOLE
158	M28B	0.0	2,650,140.52'	486,025.88'	24	23	MONOPOLE
159	M28B	0.0	2,650,136.03'	485,372.24'	28	16	DIPOLE
160	M28B	0.0	2,650,131.75'	485,317.74'	29	32	MONOPOLE
161	M29	0.0	2,650,640.04'	491,963.84'	182	16	DIPOLE
162	M29	0.0	2,650,646.27'	491,275.01'	4653	162	DIPOLE
163	M29	0.0	2,650,646.14'	490,985.61'	10	16	DIPOLE
164	M29	0.0	2,650,644.39'	490,566.98'	63	24	DIPOLE
165	M29	0.0	2,650,646.52'	489,258.39'	85	30	DIPOLE
166	M29A	0.0	2,650,649.66'	487,348.97'	7	43	MONOPOLE
167	M29A	0.0	2,650,648.73'	486,673.21'	5	74	MONOPOLE
168	M29C	0.0	2,650,597.94'	486,068.16'	55	12	MONOPOLE
169	M29C	0.0	2,650,635.59'	485,817.52'	10	60	MONOPOLE
170	M29C	0.0	2,650,643.09'	485,379.85'	20	9	DIPOLE
171	M2A	0.0	2,652,676.70'	491,739.63'	29	23	MONOPOLE
172	M2A	0.0	2,652,335.23'	491,802.46'	54	26	DIPOLE
173	M2A	0.0	2,652,296.77'	491,817.78'	51	25	MONOPOLE
174	M2A	0.0	2,652,212.64'	491,820.52'	208	41	MONOPOLE
175	M2A	0.0	2,651,963.72'	491,853.66'	80	17	MONOPOLE
176	M2A	0.0	2,651,743.39'	491,854.70'	1141	292	DIPOLE
177	M2A	0.0	2,651,436.44'	491,853.10'	212	381	MONOPOLE
178	M2A	0.0	2,651,224.30'	491,852.17'	45	22	MONOPOLE
179	M2A	0.0	2,651,164.59'	491,856.01'	20	22	DIPOLE
180	M2A	0.0	2,650,911.13'	491,852.30'	128	27	MONOPOLE
181	M2A	0.0	2,650,239.48'	491,857.01'	6548	99	DIPOLE
182	M2A	0.0	2,650,206.29'	491,853.22'	1127	24	MONOPOLE
183	M2A	0.0	2,650,174.02'	491,851.55'	881	36	MONOPOLE
184	M2A	0.0	2,649,940.82'	491,853.77'	298	42	MONOPOLE
185	M2A	0.0	2,649,369.83'	491,853.48'	98	82	DIPOLE
186	M2A	0.0	2,649,107.10'	491,851.52'	29	24	MONOPOLE
187	M2A	0.0	2,648,706.80'	491,850.09'	17	32	MONOPOLE
188	M3	0.0	2,648,160.05'	491,319.01'	150	4	MONOPOLE
189	M3	0.0	2,648,099.21'	491,348.11'	211	31	MONOPOLE
190	M3	0.0	2,648,218.44'	491,295.92'	409	23	MONOPOLE
191	M30A	0.0	2,651,141.84'	490,096.45'	39	33	MONOPOLE
192	M30A	0.0	2,651,143.51'	491,531.94'	2722	106	MONOPOLE
193	M30A	0.0	2,651,140.85'	491,796.75'	33	14	MONOPOLE
194	M30A	0.0	2,651,141.80'	491,822.18'	191	15	DIPOLE
195	M30A	0.0	2,651,142.79'	491,925.88'	13	18	MONOPOLE
196	M30B	0.0	2,651,134.51'	485,598.24'	40	14	MONOPOLE
197	M31	0.0	2,651,644.50'	491,810.61'	458	120	MONOPOLE
198	M31	0.0	2,651,628.62'	491,879.43'	1092	26	MONOPOLE
199	M31	0.0	2,651,647.22'	490,734.47'	139	32	DIPOLE
200	M31	0.0	2,651,644.24'	490,638.24'	12	22	MONOPOLE
201	M31	0.0	2,651,643.43'	490,575.99'	33	23	MONOPOLE
202	M31A	0.0	2,651,643.53'	485,362.93'	18	4	MONOPOLE
203	M31A	0.0	2,651,644.12'	485,366.53'	8	10	DIPOLE
204	M31A	0.0	2,651,639.81'	485,596.93'	6	9	MONOPOLE
205	M32	0.0	2,652,137.79'	487,494.21'	13	36	DIPOLE
206	M32	0.0	2,652,141.36'	491,812.17'	250	33	MONOPOLE
207	M32A	0.0	2,652,155.20'	485,271.65'	10	34	MONOPOLE
208	M33B	0.0	2,652,658.15'	491,826.73'	12	7	MONOPOLE
209	M33B	0.0	2,652,656.83'	491,850.26'	17	21	MONOPOLE
210	M33B	0.0	2,652,646.77'	491,770.66'	596	28	DIPOLE
211	M33B	0.0	2,652,645.41'	491,761.34'	217	7	MONOPOLE
212	M33B	0.0	2,652,643.75'	491,636.40'	13	35	MONOPOLE
213	M33B	0.0	2,652,644.06'	491,595.04'	6	23	DIPOLE
214	M33B	0.0	2,652,643.25'	491,570.21'	12	19	DIPOLE
215	M33B	0.0	2,652,647.55'	491,550.64'	11	17	MONOPOLE
216	M33B	0.0	2,652,644.21'	486,678.33'	18	15	DIPOLE
217	M33C	0.0	2,652,640.97'	486,034.04'	13	7	DIPOLE
218	M33C	0.0	2,652,638.54'	486,022.37'	8	18	MONOPOLE
219	M34	0.0	2,653,123.09'	491,795.53'	21	8	DIPOLE
220	M34	0.0	2,653,131.29'	491,814.86'	17	17	DIPOLE
221	M35	0.0	2,653,646.62'	485,671.99'	23	53	DIPOLE
222	M36	0.0	2,654,143.07'	485,777.19'	254	119	MONOPOLE
223	M36	0.0	2,654,146.67'	491,523.15'	34	25	MONOPOLE
224	M37	0.0	2,654,644.39'	487,906.58'	104	20	MONOPOLE
225	M37	0.0	2,654,645.16'	486,621.36'	76	84	DIPOLE

UNIDENTIFIED MAGNETIC ANOMALIES

ANOMALY NUMBER	LINE NUMBER	SHOT PT. NUMBER	X COORDINATE	Y COORDINATE	AMPLITUDE (GAMMAS)	DURATION (FEET)	SIGNATURE
226	M37	0.0	2,654,642.42'	486,685.54'	229	49	DIPOLE
227	M37	0.0	2,654,886.77'	486,322.51'	26	15	MONOPOLE
228	M37	0.0	2,654,862.60'	486,249.21'	81	41	DIPOLE
229	M38D	0.0	2,655,144.00'	487,543.82'	285	158	MONOPOLE
230	M38D	0.0	2,655,146.63'	490,375.35'	34	13	DIPOLE
231	M39	0.0	2,655,642.66'	488,428.97'	427	94	DIPOLE
232	M39	0.0	2,655,637.84'	488,346.70'	26	26	DIPOLE
233	M39	0.0	2,655,627.86'	487,268.86'	266	129	DIPOLE
234	M3E	0.0	2,649,880.06'	491,354.76'	52	45	DIPOLE
235	M3E	0.0	2,650,859.58'	491,353.03'	487	74	MONOPOLE
236	M3E	0.0	2,650,801.98'	491,349.95'	2086	44	DIPOLE
237	M3E	0.0	2,650,770.75'	491,349.39'	956	120	DIPOLE
238	M3E	0.0	2,651,406.55'	491,353.42'	158	50	DIPOLE
239	M3E	0.0	2,651,553.23'	491,353.07'	20	37	MONOPOLE
240	M3E	0.0	2,652,198.16'	491,351.07'	21	38	MONOPOLE
241	M3E	0.0	2,652,306.17'	491,351.20'	121	26	MONOPOLE
242	M4	0.0	2,648,007.87'	490,882.82'	100	10	MONOPOLE
243	M4	0.0	2,648,078.22'	490,860.58'	213	17	MONOPOLE
244	M4	0.0	2,648,056.90'	490,865.70'	302	21	MONOPOLE
245	M4	0.0	2,648,020.79'	490,874.99'	142	24	MONOPOLE
246	M40	0.0	2,656,152.35'	489,307.98'	225	44	MONOPOLE
247	M40	0.0	2,656,143.30'	489,271.47'	104	52	DIPOLE
248	M41	0.0	2,656,640.31'	490,182.54'	1492	172	DIPOLE
249	M41	0.0	2,656,642.52'	488,020.80'	38	18	DIPOLE
250	M42	0.0	2,657,141.97'	489,181.02'	2785	61	DIPOLE
251	M4A	0.0	2,650,177.52'	490,852.88'	109	16	MONOPOLE
252	M4A	0.0	2,650,101.79'	490,852.81'	659	53	MONOPOLE
253	M4A	0.0	2,650,063.50'	490,852.51'	2252	161	DIPOLE
254	M4A	0.0	2,649,919.79'	490,853.25'	61	29	MONOPOLE
255	M4A	0.0	2,657,012.44'	490,851.81'	2873	157	MONOPOLE
256	M5	0.0	2,647,829.88'	490,339.58'	255	30	MONOPOLE
257	M5A	0.0	2,647,969.25'	490,349.83'	67	20	MONOPOLE
258	M5A	0.0	2,648,106.44'	490,353.53'	33	22	MONOPOLE
259	M5A	0.0	2,648,219.71'	490,352.43'	21	20	MONOPOLE
260	M5A	0.0	2,649,047.02'	490,358.11'	44	23	MONOPOLE
261	M5A	0.0	2,649,396.02'	490,354.34'	13	24	MONOPOLE
262	M5A	0.0	2,649,551.16'	490,351.80'	961	224	MONOPOLE
263	M5A	0.0	2,650,349.55'	490,351.33'	10	34	DIPOLE
264	M5A	0.0	2,651,103.04'	490,351.85'	9	22	MONOPOLE
265	M5A	0.0	2,656,743.36'	490,351.02'	196	47	MONOPOLE
266	M6	0.0	2,647,666.95'	489,849.85'	111	11	MONOPOLE
267	M6	0.0	2,647,643.00'	489,857.82'	344	29	MONOPOLE
268	M6A	0.0	2,656,465.94'	489,852.67'	97	73	MONOPOLE
269	M6A	0.0	2,649,169.71'	489,853.78'	2036	245	MONOPOLE
270	M6A	0.0	2,647,896.84'	489,848.79'	24	30	DIPOLE
271	M7	0.0	2,647,290.43'	489,349.10'	144	51	MONOPOLE
272	M7	0.0	2,647,344.51'	489,335.16'	63	16	MONOPOLE
273	M7	0.0	2,647,429.84'	489,316.60'	189	17	MONOPOLE
274	M7A	0.0	2,648,751.41'	489,352.33'	71	88	MONOPOLE
275	M7A	0.0	2,648,817.61'	489,354.50'	2859	91	MONOPOLE
276	M7A	0.0	2,648,916.06'	489,353.71'	40	8	MONOPOLE
277	M7A	0.0	2,656,170.13'	489,352.70'	401	63	MONOPOLE
278	M8	0.0	2,647,251.28'	488,868.40'	122	18	MONOPOLE
279	M8A	0.0	2,655,886.94'	488,849.92'	135	41	MONOPOLE
280	M8A	0.0	2,648,491.70'	488,853.18'	5652	282	DIPOLE
281	M9	0.0	2,646,839.70'	488,370.15'	2377	28	DIPOLE
282	M9	0.0	2,647,018.91'	488,387.89'	239	16	MONOPOLE
283	M9A	0.0	2,647,117.57'	488,398.37'	360	27	MONOPOLE
284	M9A	0.0	2,647,127.34'	488,357.57'	687	6	MONOPOLE
285	M9A	0.0	2,647,137.82'	488,369.41'	96	13	MONOPOLE
286	M9B	0.0	2,647,114.07'	488,344.67'	1120	17	DIPOLE
287	M9B	0.0	2,647,236.93'	488,355.23'	412	39	DIPOLE
288	M9B	0.0	2,648,146.11'	488,351.72'	6517	216	DIPOLE
289	M9B	0.0	2,649,677.14'	488,352.32'	40	16	MONOPOLE
290	M9B	0.0	2,653,286.64'	488,352.01'	15	28	MONOPOLE
291	M9B	0.0	2,655,602.67'	488,355.08'	63	31	MONOPOLE

GRID NORTH

COASTAL PROTECTION & RESTORATION AUTHORITY OF LOUISIANA

NO-NAME MARSH CREATION & NOURISHMENT (CS-78)
MAGNETOMETER SURVEYS

CAMERON PARISH, LOUISIANA

JOHN CHANCE
LAND SURVEYS, INC.

GEODETIC DATUM: NAD83
PROJECTION: LOUISIANA SOUTH
GRID UNITS: US SURVEY FEET

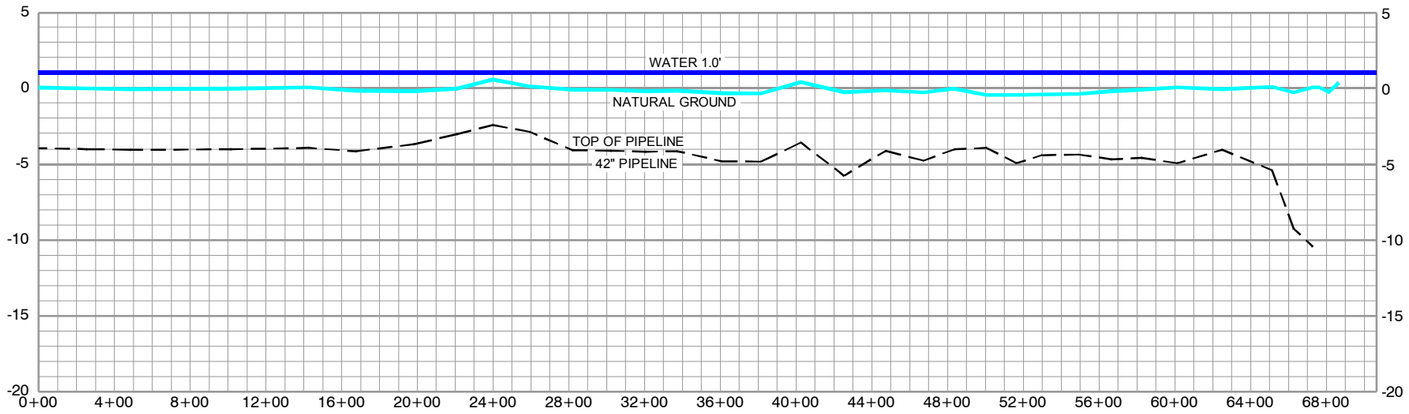
SCALE IN FEET 0 400'

Proj. Mgr.: RMJ
Revised: 6/13/16
Printed: 6/13/16

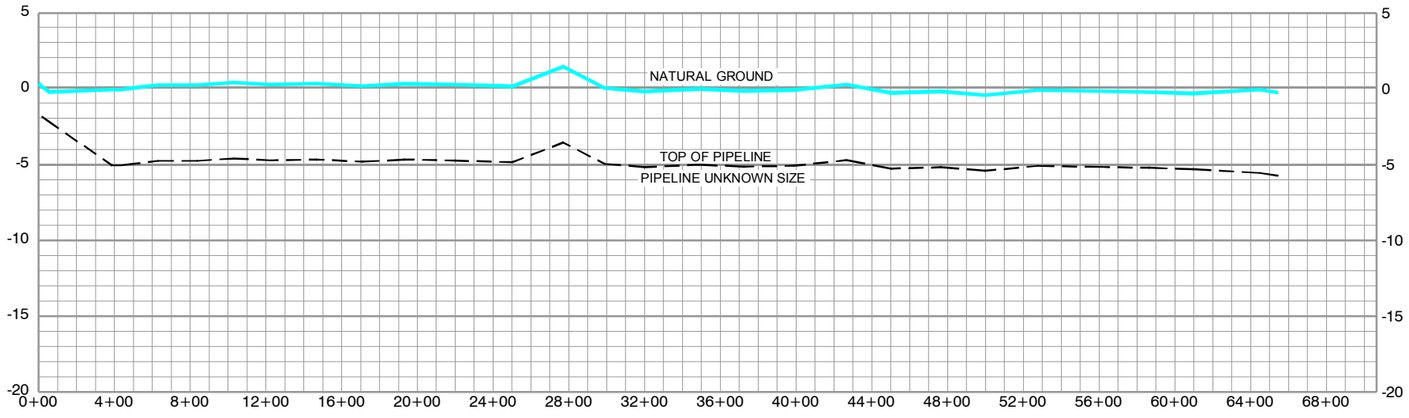
Job No.: 15-0242 | Date: 4/5/16 | Drwn: OLIVIERA/DUNBARJ | Chart: 8 Of: 9

Dwgfile: L:\2015\150242\CAD\MagAnomalies_Small Sheet

PIPELINE PROFILE 42"



PIPELINE PROFILE UNKNOWN SIZE



GRID NORTH

TRACKLINES

PIPELINE FROM DATA BASE — PL — PL — PL

AS-BUILT PIPELINES

MAGNETIC ANOMALY 54▲

PROPOSED MAG ROUTE

RTK PROBED POINTS 10111

HORIZONTAL SCALE

SCALE IN FEET 0 800'

VERTICAL SCALE

SCALE IN FEET 0 10'

Proj. Mgr.: RMJ
Revised: 6/13/16
Printed: 6/13/16

COASTAL PROTECTION & RESTORATION AUTHORITY OF LOUISIANA

NO-NAME MARSH CREATION & NOURISHMENT (CS-78) MAGNETOMETER SURVEYS

CAMERON PARISH, LOUISIANA

JOHN CHANCE LAND SURVEYS, INC.

FUGRO

GEODETIC DATUM: NAD83
PROJECTION: LOUISIANA SOUTH
GRID UNITS: US SURVEY FEET

Job No.: 15-0242	Date: 4/5/16	Drwn: OLIVIERA/DUNBARJ	Chart: 9 Of: 9
Dwgfile: L:\2015\150242\CAD\MagAnomalies_Small Sheet			