



Client Focused. Technology Driven.



SURVEY METHODOLOGY REPORT

**Topographic, Bathymetric,
Magnetometer Surveys, and
Marsh Elevation Survey**

Project:
**East Delacroix Marsh
Creation and Terracing
Project (BS-0037)**

St. Bernard Parish, Louisiana

Prepared for:
**Ms. Jessica Diez, PM
Coastal Protection and
Restoration Authority**

Prepared by:
**Mr. Ricardo Johnson, PLS
Fenstermaker**

**July 24, 2020
(Revised August 12, 2020)**

135 Regency Square | Lafayette, LA 70508 | 337.237.2200 phone | 337.232.3299 fax
www.fenstermaker.com

C. H. Fenstermaker & Associates, L.L.C.

LA Survey Firm Reg. No. VF.0000154. LA Engineering Firm Reg. No. EF.0000311. TX Survey Firm Reg. No. 10028500. TX Engineering Firm Reg. No. F-7855.

SURVEY METHODOLOGY REPORT

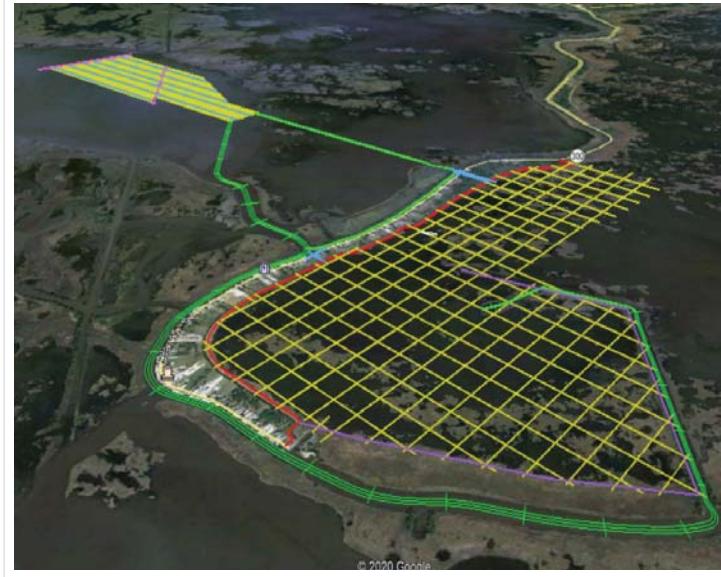
Prepared for the
Coastal Protection and Restoration Authority
in Support of
East Delacroix Marsh Creation and Terracing Project (BS-0037)
St. Bernard Parish, Louisiana

August 2020

Introduction

The East Delacroix Marsh Creation and Terracing Project (BS-0037) is funded by the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) under Priority Project List 28 in partnership with the National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NMFS). The Coastal Protection and Restoration Authority (CPRA) is serving as the local sponsor and has been authorized to execute Phase 1 (Engineering and Design) of BS-0037. APPENDIX A contains the CWPPRA PPL 28 Project Fact Sheet as well as other graphical information representing BS-0037.

The overall goal of the project is to create wetlands and terraces on the east and southeast sides of the community of Delacroix. Delacroix has had an increased exposure to flooding since Hurricanes Katrina and Rita, which caused wind erosion and saltwater intrusion causing the majority of wetland loss in the project area.



Topographic, bathymetric and magnetometer surveys are required to facilitate the project design and accurately estimate the quantities required for the fill area, the quantities available to be dredged in the borrow sites, construction access, and to determine the average marsh elevation within the project site..

Proposed Features

The project goal is to create and nourish approximately 406 acres of marsh and construct approximately 12,950 linear feet of terraces (approximately 8 acres) utilizing a layout to help protect the community of Delacroix.

Sediment would be hydraulically dredged from Lake Lery and placed in two confined disposal areas creating 353 acres of marsh and nourishing 53 acres of existing marsh. Two creation cells allow a channel for the existing pump station. Approximately 12,950 ft of earthen terraces would be constructed. The side and crown of the terraces would be planted with appropriate bare root plants in one row per side and crown.

Two additional areas of deteriorating marsh south and east of the proposed project will be investigated should the project be considered for further evaluation. Therefore, data acquisitioned for Engineering & Design will include an additional 114 acres to allow flexibility for analysis of these alternate features

Location

The project site is located in Region 2, Breton Basin, Saint Bernard Parish, Louisiana, and east of and adjacent to the community of Delacroix, LA. The approximate coordinates of the center of the project areas are: 29° 46' 1.110"N and 89° 46' 59.380"W.

Proposed Survey Work Plan

On November 21, 2019, Fenstermaker submitted a Survey Cost Estimate to the CPRA Project Manager that included the following Survey Work Plan designated as Attachment A of the submittal.

Attachment A - Proposed Survey Work Plan

Prior to mobilization, the Fenstermaker Team will participate in a review meeting with CPRA Project Manager and staff associated with the BS-0037 project to review tasks to be performed, Cost Estimate, Proposed Survey Work Plan, and Proposed Schedule. Any modifications to the Plan, Schedule, and Cost Estimate during the review meeting will be resubmitted to CPRA for approval. Upon receiving the Notice to Proceed, Fenstermaker will commence the following tasks.

- 1.0 Installation of Staff Gages and Marsh Elevation Survey** – Prior to commencement of surveys, Notice will be sent to all landowners where data collection efforts will be taking place. CPRA Biologist, Bryan Gossman, will be contacted ten days prior to scheduling the assisting of the survey crew during the Marsh Elevation Survey. Once determined, a survey crew will be mobilized to Delacroix to commence the installation of two Staff Gages, one located in Bayou Terre-Aux-Bouefs and one within the Marsh Creation Area. The gages will be calibrated using a Realtime Kinematic (RTK) rover receiving GPS corrections from the project benchmark. The following day, the survey crew will meet with a biologist from CPRA to direct the survey crew on the locations for performing the Marsh Elevation Survey within the Marsh Creation Area. The survey crew will consist of a 2-man survey crew and an airboat operator.
- 2.0 Topographic Survey at Marsh Creation/Terrace Area, Spoil Bank, Pump Station Outfall** – The 2-man survey crew will perform topographic surveys from an airboat utilizing RTK along Transects T-01 through T-41 at 500-foot grid intervals. Survey limits on the west and south sides will be to the marsh edge along the Tidal Levee to the west and south, and to the proposed containment dike to the east and south. While surveying Transect T-04, the survey crew will obtain pipe invert elevations at the pump station outfall. Marsh elevations and water bottoms will be recorded using an RTK rover pole with a 6" flatfoot attached to the bottom at a maximum distance of 25 feet along each transect, and where the change in elevation is greater than 0.5 feet, such as the marsh to water transition, spoil banks, etc. Topographic surveys will also be performed along the proposed containment dike (SB-1) and along the oilfield canal (SB-2).
- 3.0 Magnetometer Survey of Marsh Creation Area** - A 2-man survey crew will perform the magnetometer surveys from an airboat utilizing RTK along Transects T-01 through T-41 at 500-foot grid intervals. Survey limits on the west and south will be to the marsh edge along the Tidal Levee to the west and south, and the proposed containment dike to the east and south. Magnetic anomalies will be determined using a Cesium 882 marine magnetometer with positions recorded using RTK and integrated into HyPack.
- 4.0 Topographic Survey of Tidal Levee Profile and Cross-Sections** – The Tidal Levee Profile (TL-1) will be surveyed using a 3-man crew, RTK, and a utility terrain vehicle (UTV). Cross-Sections will be performed across TL-1 centerline from the marsh edge on the flood side to the bottom of the drainage canal on the protected side of the levee. A 14-foot skiff will be used to survey water bottoms within the drainage canal.
- 5.0 Topographic Survey of North and South Sediment Pipeline Crossings** – Prior to performing the topographic surveys along La Highway 300, LA One Call will be notified to mark all existing utilities within the pipeline crossings' footprint. Topographic surveys will be performed by the survey crew along Transects CL-1 through CL-10 and RC1 through RC-3. Surveys will be performed at 10-foot intervals or changes in elevation over 0.5 feet. Water levels will be recorded at the beginning and end of each day. All marked underground utilities and those visible above ground will be located. Note that Transects CL-5, CL-6, RC-1, and RC-2 will require clearing prior to the survey being performed due to thick scrub brush. Costs associated with clearing and grubbing are not included in this proposal. Bathymetric Surveys within the bayou will be performed when surveying the Proposed Access Routes below.
- 6.0 Topographic, Bathymetric and Magnetometer Surveys along Proposed Access Routes** – Proposed Access Routes identified at AR-1, AR-2, and AR-3 will be surveyed by a 3-man survey crew from a 28-foot shallow-draft marine vessel.

Equipment will include RTK for positioning and a Cesium-882 marine magnetometer integrated into HyPack to record anomalies and positions. A total of three lines will be surveyed within each Proposed Access Route, one along the centerline and 50 offset either side of the centerline. Single-beam bathymetry will be performed on Cross-sections along the access routes at 1000-foot intervals up to the 3-foot water depth. A 3-man survey crew utilizing a smaller marine vessel will perform topographic surveys from the 5-foot water depth to the bankline on either side of the access route to facilitate with each cross-section being completely captured.

- 7.0 Bathymetry, Magnetometer, Side-Scan Sonar, Sub-bottom Profile Surveys within the Proposed Borrow Area and Cultural Resource Investigation** – A 3-man survey crew from Fenstermaker will perform the Single-beam Bathymetric Surveys, Magnetometer Survey, and Side-Scan Sonar Surveys within the Proposed Borrow Area Transects BA-01 through BA-27. TerraSond, a subcontractor to Fenstermaker, will be assisting the survey crew with Sub-bottom Profile Surveys and Cultural Resource Investigations. All information will be collected and recorded onboard using HyPack. During the data collection, a Marine Archaeologist will be onboard reviewing the survey data, real-time, and documenting any information that will require further investigations and will compare with information obtained from SHPO. Pipelines located within or adjacent to the proposed Borrow Area will be crossed during the survey to determine their locations.
- 8.0 Pipeline Probing and Marking** – Upon completion of all surveys, magnetic anomalies will be mapped in AutoCAD and will include the anomaly number, durations, gammas, and geodetic positions. This information will be provided to the survey crew to facilitate in the location of existing pipelines to be marked and probed for depth of cover, and depth of water, if submerged. Flagged cane poles will be used to mark the existing pipelines at 200-foot intervals. Where two or more pipelines exist within the same area, cane poles will be marked with a different color scheme.
- 9.0 Deliverables:** Fenstermaker anticipates that deliverables will be completed 4 weeks upon completion of all Field Surveys. All deliverables will be provided as specified in the Scope of Work.

On January 14, 2020, Fenstermaker received a Notice to Proceed to commence surveys in support East Delacroix Marsh Creation Project. After completing the desktop research for permitted pipelines and Landowner Notification, Fenstermaker scheduled a survey crew to commence the data collection process in the field.

Static GPS Survey at Reference Control Monuments

Prior to the mobilization, all transects and coordinates for the reference monuments were setup in the Trimble Business Center (TBC) project file, and then uploaded to the surveyor's positioning device datalogger. On Monday, February 17, 2020, the survey crew mobilized and traveled from the Lafayette office to the project site to perform the required survey tasks.



Monument BS32-SM-01

Upon arriving at the project site, the survey crew navigated to an existing monument located south of the project site. After locating monument BS23-SM-01, the GPS base receiver was installed and initialized to begin logging static GPS. A GPS rover unit was then initialized to receive base corrections using Real-time Kinematic (RTK) for sub-centimeter positioning. The survey crew performed a quality control check at a nearby monument USACE 15055S DEL to validate correct positioning of the GPS system. The survey crew then navigated along pre-plotted transect lines and profile of the Tidal Levee to obtain natural ground and water bottom elevations.

Static GPS was collected on benchmarks for each day that survey crews performed on topographic, magnetometer, and bathymetric surveys. Additional temporary benchmarks (TBM's) were installed at various locations for efficiency. Initially, the TBM's were located using RTK to determine the positions and facilitated as a quality control check point. Afterward, the TBM's were used as reference base points and static GPS was collected and post-processed. A total of three TBM's were set throughout the project footprint. Static GPS surveys in support of the topographic, bathymetric, and magnetometer surveys were completed on June 19, 2020.

Upon completing the static GPS surveys each day, GPS raw data files were downloaded, then uploaded to Fenstermaker's ftp site for post-processing and adjustment.

Static GPS survey activities performed are in conformance with CPRA survey standards as specified in "A Contractor's Guide to the Standards of Practice Required by Louisiana Department of Natural Resources, Coastal Restoration Division for Contractor's Performing GPS Surveys and Establishing GPS Derived Orthometric Heights Within the Louisiana Coastal Zone Primary GPS Network" dated January 2019.

Static GPS Downloading, Processing & Adjustments

Upon completing the static GPS survey, GPS log sheets were checked and compared to the data files on the receivers. The raw GPS data was then downloaded into the project file created in Trimble Business Center (TBC) software. The IGS Precise Ephemeris was also downloaded from the NOAA/NGS Internet website for each day that GPS data was collected. All CORS¹ stations which were located nearest to or within the project area were also downloaded from the National Geodetic Survey (NGS) website and processed with the static GPS data. CORS Stations that were incorporated into the GPS network included "MARY", "SBCH", "BVHS", "GRIS", "LMCN", "HOUN", and "DSTR".

After post-processing the GPS Network, a report was then generated in the TBC program and reviewed to determine satellite cycle slips to avoid baseline float solutions in the processed data. If a baseline float solution existed, the elevation mask was raised 5 degrees and the baseline was re-processed to eliminate satellite noise that may have existed close to the horizon.

Upon completing the processing phase, the data was loaded into the adjustment program and adjusted. All necessary adjustments were performed using the TBC Network Adjustment software.

The initial adjustment for the GPS network was minimally constrained to the published adjusted NAD83 (2011) Epoch 2010.00 and the published ellipsoid height at the antenna reference point (ARP) for CORS Station "MARY". A re-adjustment was performed to identify potential outliers to be disabled from the adjustment. A scale factor was determined from the Statistics Summary and applied to the network and re-adjusted until the Chi-Square Test passed with a 95% confidence level.

The final fully constrained adjustment was performed by holding to the published values for the CORS Stations antenna reference points (ARP) at "MARY", "LMCN", and "BVHS". Orthometric heights (elevations) were calculated using the Geoid12B model. The adjusted ellipsoid heights for the remainder of the CORS Stations were compared with their published NAD83 (2011) values as a quality control check. All GPS files were submitted to the NGS Online Positioning User Service (OPUS) Program² for an independent solution and comparisons made with the final adjustment results.



Monument BS32-SM-01

¹ The National Geodetic Survey (NGS) coordinates two networks of continuously operating reference stations (CORS): the National CORS network and the Cooperative CORS network. Each CORS site provides Global Positioning System (GPS) carrier phase and code range measurements in support of 3-dimensional positioning activities throughout the United States and its territories. Surveyors, GIS/LIS professionals, engineers, scientists, and others can apply CORS data to position points at which GPS data have been collected. The CORS system enables positioning accuracies that approach a few centimeters relative to the National Spatial Reference System, both horizontally and vertically.

² The National Geodetic Survey operates the On-line Positioning User Service (OPUS) as a means to provide GPS users easier access to the National Spatial Reference System (NSRS). OPUS allows users to submit their GPS data files to NGS, where the data will be processed to determine a position using NGS computers and software. Each data file that is submitted will be processed with respect to 3 CORS sites.

Figure 1: Tabulation of Final GPS Adjustment Results at Reference Control

East Delacroix Marsh Creation and Terracing Project
Static GPS Adjustment Results

NAD83 (2011) Louisiana South Zone (1702) - NAVD88 (2009.55) Geoid12B

Name	Latitude	Longitude	Ellipsoid Hgt	Northing	Easting	Elevation	Description
BS32-SM-01	29d45'29.24786"	-89d47'02.06588"	-80.713	460,856.71	3,772,450.51	2.59	MON
TBM-1	29d46'05.05619"	-89d47'18.58732"	-79.163	464,453.88	3,770,945.70	4.25	CP
TBM-2	29d45'46.11876"	-89d47'21.20011"	-84.574	462,538.00	3,770,741.23	-1.22	CP
TBM-3	29d46'20.92590"	-89d47'09.36423"	-79.365	466,067.77	3,771,736.81	4.10	CP

RTK Survey of Topographic Features

Upon mobilization and travel to the project on Monday, February 17, 2020, the RTK base unit was initialized at reference monument BS32-SM-01. A quality control shot was measured at USACE 15055S DEL with the roving unit to verify that the system was operational and delivering corrected positions. Topographic surveys commenced along the Tidal Levee centerline profile and cross-sections. Invert shots were also captured at the discharge pipes located at the Pump Station. The Tidal Levee survey was completed on February 21st.

On March 4th, surveys commenced along transects within the proposed marsh creation site and proposed spoil bank. Once the GPS base was setup and initialized, the survey crew navigated by airboat to capture topographic features along pre-plotted transects within the Marsh Creation Area that included existing natural ground shots, spoil banks, shorelines, and water bottoms using a 2-meter pole with the RTK rover unit attached. Topographic surveys within marsh creation site were completed on March 18th.



Flap Gates on Flood Side of Pump Station

Topographic Surveys of North and South Sediment Pipeline Crossings were performed on March 5th to document existing ground elevations along the crossings and existing roadway of Delacroix Highway. After contacting LA One Call April 18th, the survey crew returned to the crossing locations to tie-in existing utilities which included power poles, fire hydrant, sewer hookups, water meters, and water valves.

RTK was used to perform topographic cross-sections within waterway channels, canals, bayous, and access routes using an extended pole to capture water bottoms. This data was used to validate bathymetric survey data collected with the single-beam echo sounder.

Topographic features were collected along transects as specified in the Section above titled "Proposed Survey Work Plan" using RTK. A flatfoot was attached to the bottom of the rover rod to prevent penetration into the water bottom. In addition, water surface shots were acquired daily to facilitate in determining a relationship to any nearby gauges.

Static GPS was collected at the base station concurrent with the RTK topographic survey for each day of

data collection. All topographic surveys conducted to capture existing features, including magnetometer surveys and pipeline probing, were completed on June 19, 2020.

Marsh Elevation Survey

On April 23, 2020, a survey crew met with an environmental specialist from Fenstermaker to direct the survey crew on the locations for performing the Marsh Elevation Survey within the Marsh Creation Area.

A total of three (3) sites were selected by the Fenstermaker environmental specialist. RTK surveys to determine marsh elevations were taken at twenty (20) locations within each selected site, separated by 20 to 40 feet. Elevations were recorded on datalogger at the top of the marsh root mass and top of the mudline adjacent to the root mass. The results were tabulated in a spreadsheet to determine average elevations for root mass and mudline for each site surveyed.

GPS and RTK Survey Equipment

The equipment used for the static GPS survey consisted of a Trimble® Navigation's dual-frequency GNSS GPS receiver with integrated GPS antenna, also called base stations. A two-meter fixed height tripod 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 (TBC) Software, Version 5.20. The Geoid12B model was used to determine the geoid separation and applied to the ellipsoid heights to determine elevation as specified in the scope.

To perform the RTK survey, a rover consisting of a Trimble® Navigation's dual-frequency GNSS GPS receivers with an integrated GPS antenna and a radio link was employed to transmit corrections to the rover from the base setup. A fixed height rod with attached flatfoot was used at the rover. The data was collected and stored on a Trimble® TSC3 datalogger and downloaded using TBC, Version 5.20.

Bathymetric Surveys within the Access Routes, Bayous and Borrow Area

Prior to commencing the single-beam bathymetric surveys, coordinates and line files for the proposed transect lines within the Bayou Terre Bouefs, Bayou Lery, Access Routes, and Proposed Borrow Area in Lake Lery were provided to the survey crew.

On March 4, 2020, the bathymetric survey crew commenced single-beam surveys in Bayou Terre Boeufs south and west of the marsh creation and terracing site. With the installation of a GPS base station at monument BS32-SM-01 and performing a QC check at the TBM, the survey crew mounted the RTK rover system on the marine vessel and integrated the positioning system with the onboard single-beam echosounder using HyPack. This allowed the survey crew to navigate along pre-plotted transect lines to obtain corrected water bottom elevations. Positioning was accomplished using Real-time kinematic (RTK) with the base station delivering GPS corrections from the reference marks located within the project site.

Prior to commencing bathymetric surveys within the Proposed Borrow Area, Fenstermaker survey technicians met with TerraSond technicians to install and calibrate GPS with single-beam Echotrac, side-scan, and sub-bottom profile devices through HyPack on the Fenstermaker marine vessel at the Lafayette office. Once all equipment was successfully communicating through the onboard computer software, Fenstermaker and TerraSond survey crews mobilized to the project site in Delacroix.

On Tuesday, June 2, 2020, bathymetric surveys commenced within the Proposed Borrow Area which included a single-beam fathometer, side-sonar, sub-bottom profiler, and marine magnetometer. Data acquisition for the single-beam survey was accomplished using HYPACK® digital data acquisition and navigation software. An Echotrac CV100 fathometer was used to determine the water depths along the pre-plotted transect lines. The fathometer was integrated with RTK to accurately position in three dimensions.

Water surface shots were taken in the morning and afternoon by the bathymetric survey crew using RTK to obtain the water surface elevations relative to NAVD88 using Geoid12B. Sound velocities were performed to determine the speed of sound in the water column using an Odom DigiBar Sound Velocity Sensor. Once the sound of velocity was determined and applied to the software, bar checks were performed at the beginning of the day to measure the actual depths relative to the recorded depths on the echo sounder with the average sound velocity, draft and index applied. Once the sound of velocity was determined and applied to the software, a steel plate was lowered beneath the transducer head at 5-foot intervals to validate correct depth readings delivered from the echosounder.

Once all checks were completed and the system initialized, the bathymetric crew navigated along the pre-plotted transects within the borrow area to collect water depths, water bottom features with the side-scan system, sub-bottom features with the profiler, and anomalies with the magnetometer. A Marine Archaeologist from Terrasond was also aboard the marine vessel during data collection to interpret the information that was collected in real-time. Bathymetric Surveys within the Borrow Area continued each day, as described above, and was completed on June 4th.

Back at the office, the raw data was imported into HYPACK® program, which includes the raw bathymetry data and corrected tide file. A graphic image was generated so that the digital sounder data could be swath edited to remove outliers. The final adjusted and edited file was exported in ascii format and vertically adjusted using NAVD88 using Geoid12B.

Prior to performing Bathymetric surveys within the Borrow Area and Access Routes, a staff gauge was installed at the boat launch located in Bayou Terre Boeufs to facilitate with recording water levels during the surveys. The gauge datum was calibrated to NAVD88, Geoid12B, using RTK.



Staff Gauge Installed at Boat Launch in Bayou Terre Aux Boeufs

Bathymetric Survey Equipment

Horizontal positioning was logged real-time using a Trimble R8 GNSS GPS Receiver integrated with RTK for GPS corrections resulting in a 5cm horizontal accuracy or better. Pitch and roll was recorded with the CDL MiniTilt Motion Sensor to correct for motion changes. Odom Echotrac CV100 was also used to determine water depths along all transect lines. Bathymetry data was corrected for velocity and adjusted to NAVD88 using Geoid12B.

Sub-bottom Profiler and Side-Scan Sonar equipment that was owned and operated by TerraSond is described in a separate report included with these deliverables.

Magnetometer Hazard Surveys within the Marsh Creation and Terracing Area

Prior to performing the magnetometer surveys, a search was made using the National Pipeline Mapping System (NPMS) database and RexTag within Fenstermaker's Map Analyst GIS Mapping System (See Attachment A). The database revealed that one pipeline existed within the Proposed Marsh Creation and Terracing Area. Additional pipelines were shown to exist within and adjacent to the Proposed Borrow Area.



Commencing on March 6, 2020, the magnetometer surveys were performed from an airboat along the 500-foot interval gridded transects to locate potential hazards and existing pipelines within the Proposed Marsh Creation and Terracing Area. The topographic survey crew located existing anomalies using a magnetometer towed behind the airboat to record positions. Magnetometer surveys were completed on March 19th. Anomalies determined from the processed magnetometer survey indicated that two potential pipelines existed within the marsh creation site.

On March 24th, survey crews returned to the field to investigate the apparent pipeline locations by probing the pipeline alignment at approximately 400-foot intervals. Once the pipeline was located, depth of cover, water depth, elevation, and position was recorded on the RTK datalogger and the location was marked with a flagged cane pole. A total of two pipelines running east/west were located within the proposed Marsh Creation Area. Due to the corrosion and deterioration of the northern pipeline, it was apparent that it was abandoned.

Instruments utilized for the surveys included a Trimble® R7 GNSS RTK system providing centimeter accuracy positioning and a Geometrics® 882 Cesium Marine Magnetometer.

The magnetometer on the airboat was operated in a towed configuration with the tow point at the stern of the vessel. The magnetometer dataset was collected through HYPACK® at a sampling rate of 10 Hz and a very high sensitivity of less than 0.1 gammas. Chesapeake Technology, Inc.'s SonarWiz.SBP software was used to interpret the magnetometer dataset.

For the Proposed Borrow Area, unidentified anomalies were located from the marine vessel using a Geometrics 882 Marine Magnetometer. Single-beam bathymetry surveys were performed in conjunction with the magnetometer survey to locate water bottoms along the planned track lines within the Proposed Borrow Area. Contacts, or mag hits, were 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, such as crab traps. A table of the recorded magnetic anomalies, identified and unidentified, is presented in a table. The table listing includes Anomaly Number, Coordinates, Duration, Frequency, Amplitude, Ground Elevation, Depth of Cover (if probed), and Water Depth.

A nomogram (See Figure 2) 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 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 Differential GPS system. Water surface shots were taken occasionally by the crew using RTK to obtain the water surface elevations relative to NAVD88 using Geoid12B.

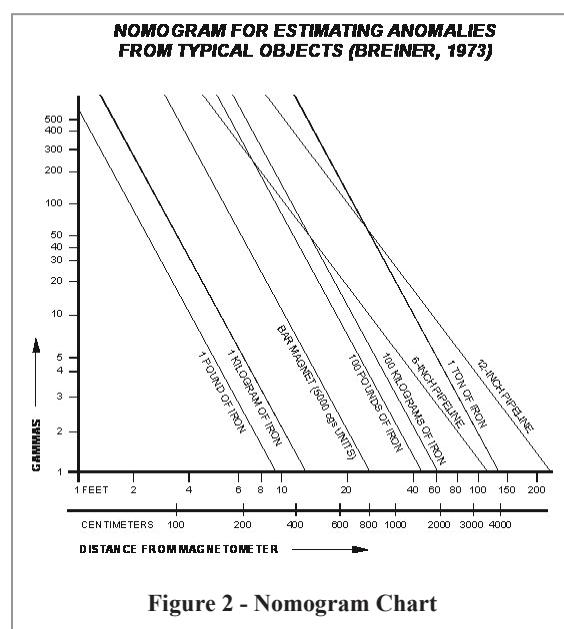


Figure 2 - Nomogram Chart

Back at the office, all raw data was imported into SonarWiz, which includes the raw magnetometer data and Magnetometer tow point position on the vessel. The magnetometer data is then laid back using the recorded laid-back values. A hydrographic survey specialist analyzed each file picking all magnetometer anomalies. The specialist then exported a file with all anomaly positions and amplitudes to be mapped.

Significant anomalies that were located and identified on this survey are associated with existing pipelines and ferrous debris, all of which are located within the project footprint. The remainder of these anomalies are determined to be consistent with targets usually associated with minor debris such as crab traps, steel cans and buckets, anchors, etc. Upon further investigations of the anomalies, crab traps seemed to be the most common debris source.

Conclusion

While reasonable efforts are made to locate all pipelines and magnetic anomalies, the equipment used and the characteristics of pipelines themselves make it impossible to guarantee total success. Accordingly, it is incumbent upon the owners, operators and/or contractors conducting operations, to do so with extreme caution, and recognize that hazards, in addition to those detected and reported by Fenstermaker, may exist within the areas of operation, regardless of Fenstermaker's most diligent efforts.

The presence of debris can have an adverse impact on the success of construction activities. The knowledge of the presence of magnetic anomalies will be factored in the alternatives analysis state of engineering and design for this project.

Louisiana (Louisiana One Call™ www.laonecall.com) maintains an information center and link between those who dig (excavators) and those who own and operate underground facilities (operators). It is advisable, and in most States, it is the law for the contractor to contact the center for assistance in locating and marking underground utilities.

FINAL NOTE

Please be advised that the data, which was collected during the survey of this project, represents an epoch, a snapshot at the time that the survey was performed. Due to the effects of crustal motion, subsidence, upheaval, drought and other conditions which influence the physical position and stability of surface monuments, topographic features, and other structures within the Louisiana Coastal Zone, it is recommended that GPS monuments used for this project be re-observed and reprocessed on future surveys using the same reference control, if possible, for the purpose of updating the three dimensional position of the reference monuments.

The GPS/RTK Survey protocols performed in support of this project were in accordance with the Coastal Protection and Restoration Authority of Louisiana requirements as described in "A Contractor's Guide to the Standards of Practice Required by Louisiana Department of Natural Resources, Coastal Restoration Division for Contractor's Performing GPS Surveys and Establishing GPS Derived Orthometric Heights Within the Louisiana Coastal Zone Primary GPS Network" dated January 2019. All Static GPS were adjusted using Trimble Business Center software to determine the final positions for all reference control monuments.

C. H. Fenstermaker & Associates, LLC




Ricardo M. Johnson, PLS LA Reg. 4767
Director of Coastal Services, Survey & Mapping

7/17/2020

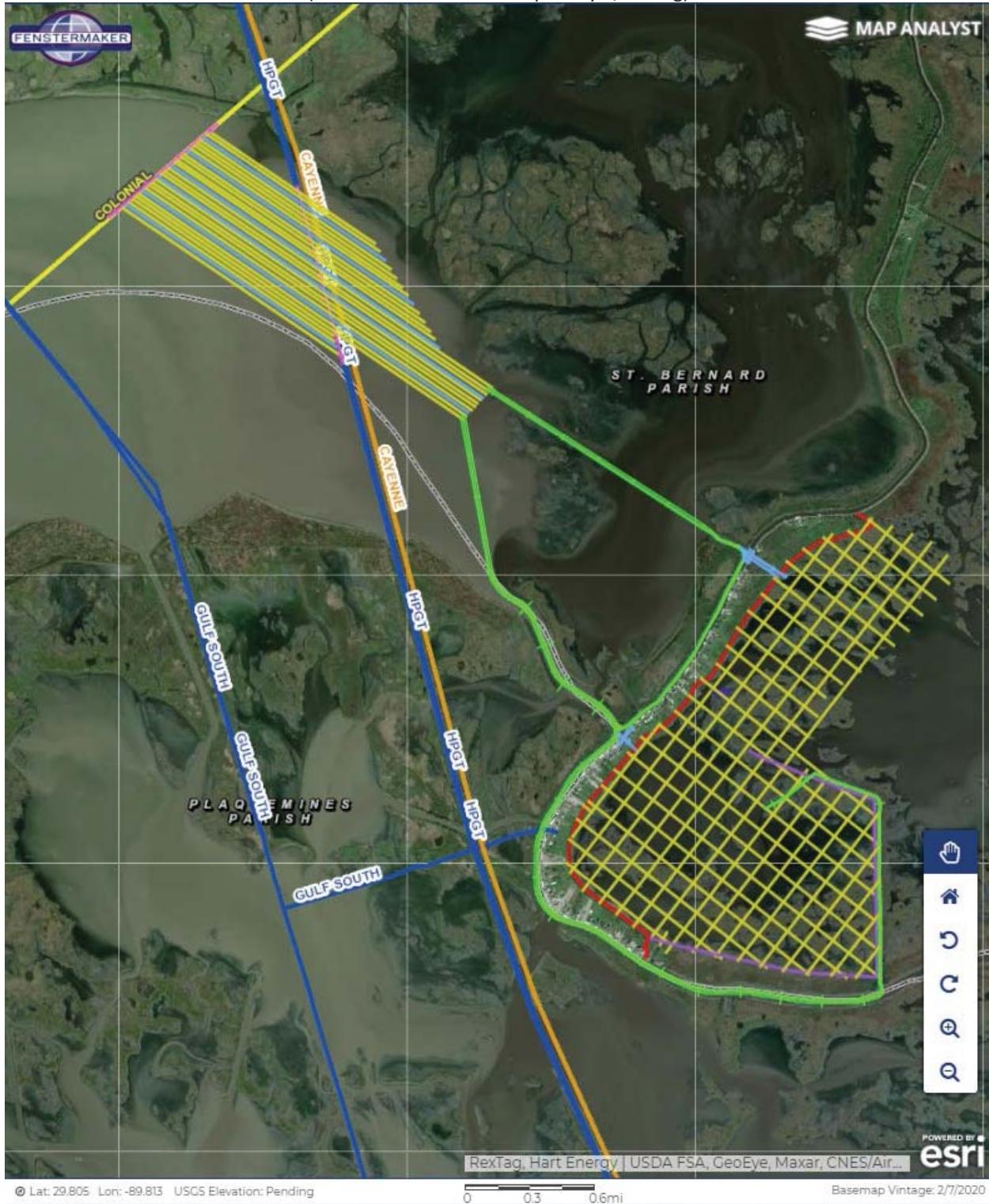
135 Regency Square | Lafayette, LA 70508 | 337.237.2200 phone | 337.232.3299 fax
www.fenstermaker.com

C. H. Fenstermaker & Associates, L.L.C.

LA Survey Firm Reg. No. VF.0000154. LA Engineering Firm Reg. No. EF.0000311. TX Survey Firm Reg. No. 10028500. TX Engineering Firm Reg. No. F-7855.

ATTACHMENT A – PIPELINE DATABASE RESEARCH

(Source: Fenstermaker Map Analyst/RexTag)

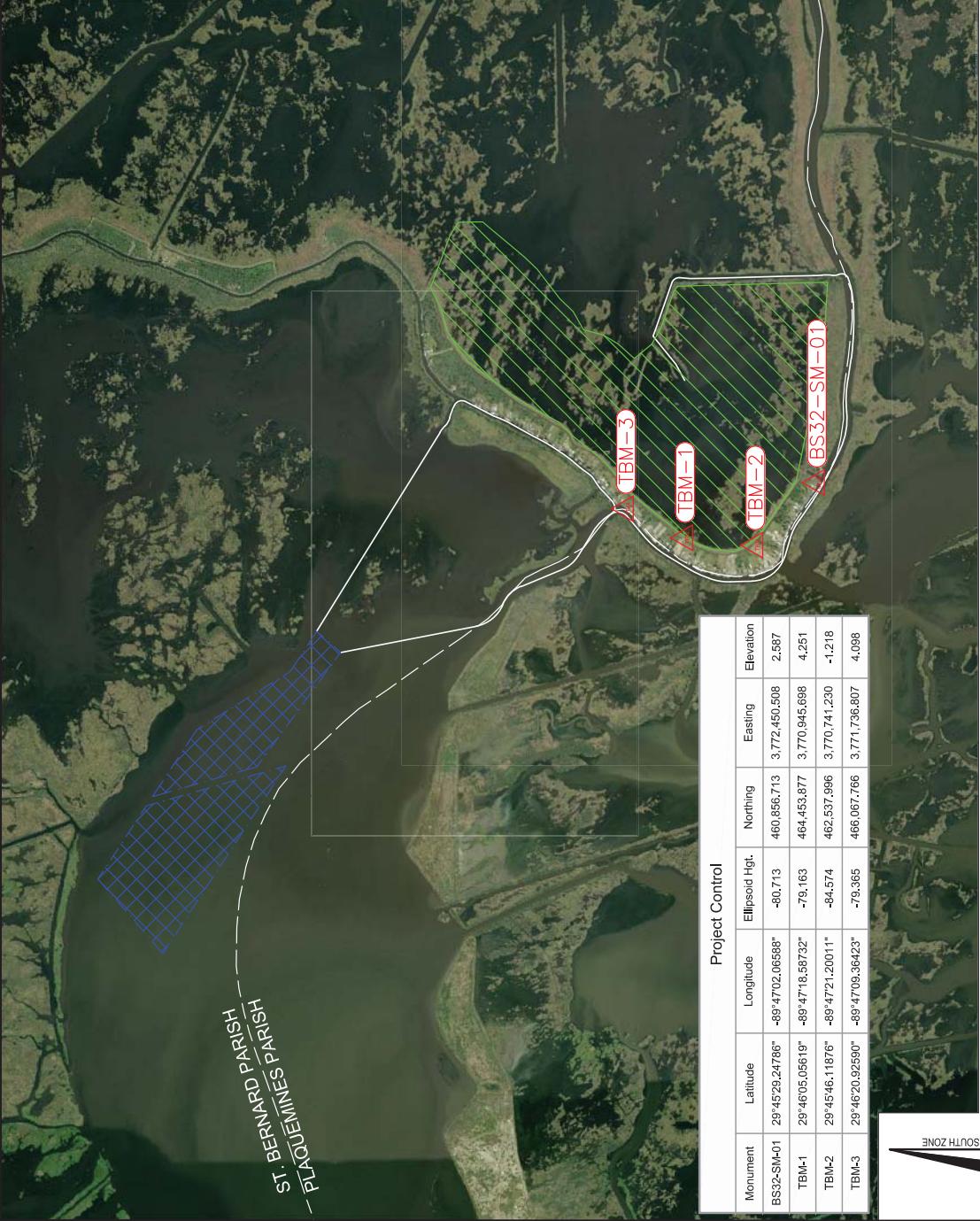


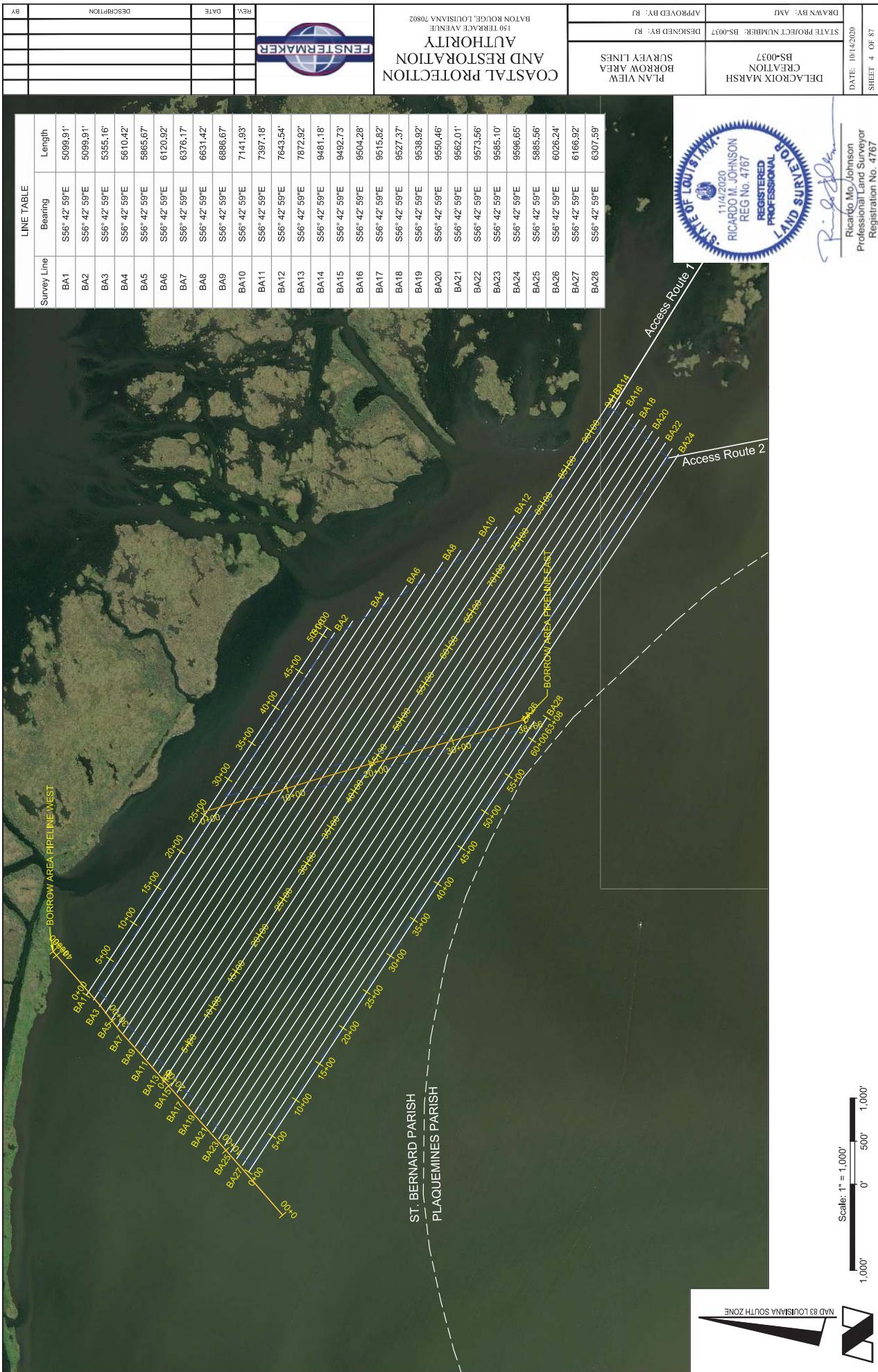
135 Regency Square | Lafayette, LA 70508 | 337.237.2200 phone | 337.232.3299 fax
www.fenstermaker.com

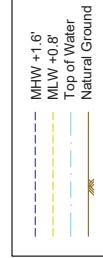
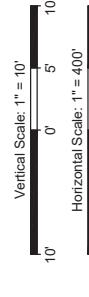
C. H. Fenstermaker & Associates, L.L.C.

LA Survey Firm Reg. No. VF.0000154. LA Engineering Firm Reg. No. EF.0000311. TX Survey Firm Reg. No. 10028500. TX Engineering Firm Reg. No. F-7855.

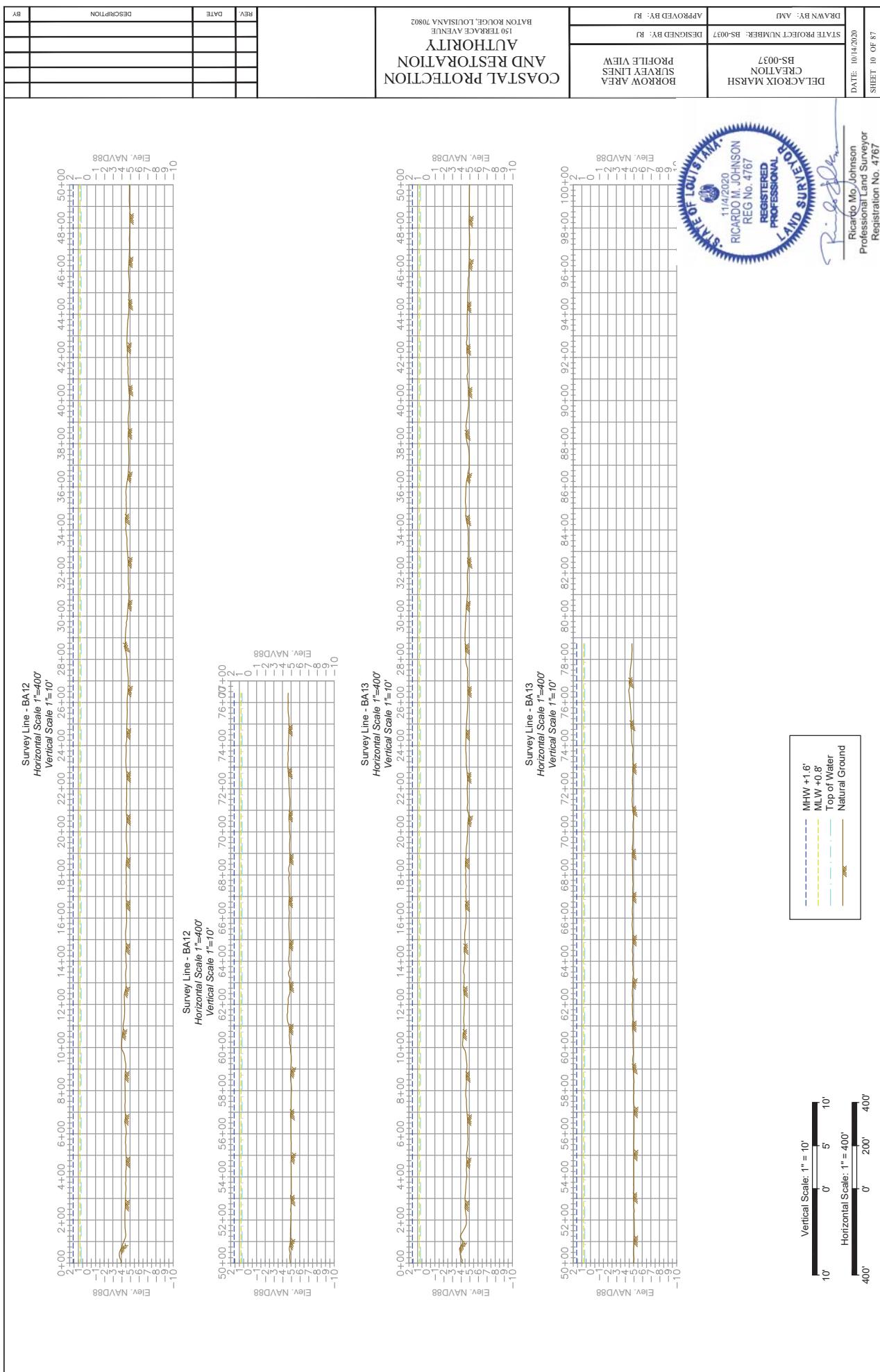






<p>Survey Line - BA1</p> <p>Horizontal Scale 1=40'</p> <p>Vertical Scale 1'=10'</p>	<p>Survey Line - BA2</p> <p>Horizontal Scale 1'=400'</p> <p>Vertical Scale 1'=10'</p>	<p>Survey Line - BA3</p> <p>Horizontal Scale 1'=400'</p> <p>Vertical Scale 1'=10'</p>	<p>DELAGROIX MARSH CREATION BS-0057</p> <p>BORROW AREA PROFILE VIEW SURVEY LINES PROFILE</p> <p>COSTAL PROTECTION AND RESTORATION AUTHORITY</p> <p>100 TERRACE AVENUE BATON ROUGE, LOUISIANA 70802</p> <p>APPROVED BY: RJ DESIGNED BY: RJ</p> <p>DATE: 10/14/2020</p>	<p>STATE PROJECT NUMBER: BS-0057</p> <p>DESIGNED BY: RJ APPROVED BY: RJ</p> <p>DATE: 10/14/2020</p> <p>STATE PROJECT NUMBER: BS-0057</p> <p>DESIGNED BY: RJ APPROVED BY: RJ</p> <p>DATE: 10/14/2020</p>	<p>STATE PROJECT NUMBER: BS-0057</p> <p>DESIGNED BY: RJ APPROVED BY: RJ</p> <p>DATE: 10/14/2020</p>
 <p>STATE OF LOUISIANA Ricardo M. Johnson REG No. 4767 REGISTERED PROFESSIONAL LAND SURVEYOR Ricardo M. Johnson Professional Land Surveyor Registration Land No. 4767</p>					
 <p>MHW +1.6' MLW +0.8' Top of Water Natural Ground</p>					
 <p>Vertical Scale: 1" = 10' Horizontal Scale: 1" = 400'</p>					

<p>Survey Line - BA8</p> <p>Horizontal Scale 1"=400'</p> <p>Vertical Scale 1"=10'</p> <p>Elev. NAVD88</p> <p>0+00 2+00 4+00 6+00 8+00 10+00 12+00 14+00 16+00 18+00 20+00 22+00 24+00 26+00 28+00 30+00 32+00 34+00 36+00 38+00 40+00 42+00 44+00 46+00 48+00 50+00</p>	<p>Survey Line - BA8</p> <p>Horizontal Scale 1"=400'</p> <p>Vertical Scale 1"=10'</p> <p>Elev. NAVD88</p> <p>0+00 2+00 4+00 6+00 8+00 10+00 12+00 14+00 16+00 18+00 20+00 22+00 24+00 26+00 28+00 30+00 32+00 34+00 36+00 38+00 40+00 42+00 44+00 46+00 48+00 50+00</p>	<p>Survey Line - BA9</p> <p>Horizontal Scale 1"=400'</p> <p>Vertical Scale 1"=10'</p> <p>Elev. NAVD88</p> <p>0+00 2+00 4+00 6+00 8+00 10+00 12+00 14+00 16+00 18+00 20+00 22+00 24+00 26+00 28+00 30+00 32+00 34+00 36+00 38+00 40+00 42+00 44+00 46+00 48+00 50+00</p>	<p>Survey Line - BA9</p> <p>Horizontal Scale 1"=400'</p> <p>Vertical Scale 1"=10'</p> <p>Elev. NAVD88</p> <p>0+00 2+00 4+00 6+00 8+00 10+00 12+00 14+00 16+00 18+00 20+00 22+00 24+00 26+00 28+00 30+00 32+00 34+00 36+00 38+00 40+00 42+00 44+00 46+00 48+00 50+00</p>	<p>Survey Line - BA9</p> <p>Horizontal Scale 1"=400'</p> <p>Vertical Scale 1"=10'</p> <p>Elev. NAVD88</p> <p>0+00 2+00 4+00 6+00 8+00 10+00 12+00 14+00 16+00 18+00 20+00 22+00 24+00 26+00 28+00 30+00 32+00 34+00 36+00 38+00 40+00 42+00 44+00 46+00 48+00 50+00</p>	<p>Survey Line - BA9</p> <p>Horizontal Scale 1"=400'</p> <p>Vertical Scale 1"=10'</p> <p>Elev. NAVD88</p> <p>0+00 2+00 4+00 6+00 8+00 10+00 12+00 14+00 16+00 18+00 20+00 22+00 24+00 26+00 28+00 30+00 32+00 34+00 36+00 38+00 40+00 42+00 44+00 46+00 48+00 50+00</p>
<p>AUTHORITY</p> <p>COSATAL PROTECTION AND RESTORATION</p> <p>BORROW AREA PROFILE VIEW SURVEY LINES STATE PROJECT NUMBER: BS-0037</p> <p>APPROVED BY: RJ DISCINDED BY: RJ DATE: 10/14/2020</p> <p>BATON ROUGE, LOUISIANA 70802 100 THREEGEE AVENUE</p> <p>DELAGROIX MARSH CREEKATION BS-0037 DRAWN BY: ADJ DATE: 10/14/2020</p> <p>DRAGN MEMBER: BS-0037 DRAWN BY: ADJ DATE: 10/14/2020</p> <p>REGISTRATION NO. 4767 RICARDO M. JOHNSON REGISTRATION NO. 4767</p> <p>REGISTERED PROFESSIONAL LAND SURVEYOR Ricardo M. Johnson Registration No. 4767</p> <p></p> <p></p> <p><small>SHEET 8 OF 87</small></p>					



Survey Line - BA14

Horizontal Scale 1'=400'
Vertical Scale 1'=10'

0+00 2+00 4+00 6+00 8+00 10+00 12+00 14+00 16+00 18+00 20+00 22+00 24+00 26+00 28+00 30+00 32+00 34+00 36+00 38+00 40+00 42+00 44+00 46+00 48+00 50+00
Elev. NAVD88

Survey Line - BA14

Horizontal Scale 1'=400'
Vertical Scale 1'=10'

50.00 52+00 54+00 56+00 58+00 60+00 62+00 64+00 66+00 68+00 70+00 72+00 74+00 76+00 78+00 80+00 82+00 84+00 86+00 88+00 90+00 92+00 94+00 96+00
Elev. NAVD88

Survey Line - BA15

Horizontal Scale 1'=400'
Vertical Scale 1'=10'

0+00 2+00 4+00 6+00 8+00 10+00 12+00 14+00 16+00 18+00 20+00 22+00 24+00 26+00 28+00 30+00 32+00 34+00 36+00 38+00 40+00 42+00 44+00 46+00 48+00 50+00
Elev. NAVD88

Survey Line - BA15

Horizontal Scale 1'=400'
Vertical Scale 1'=10'

50.00 52+00 54+00 56+00 58+00 60+00 62+00 64+00 66+00 68+00 70+00 72+00 74+00 76+00 78+00 80+00 82+00 84+00 86+00 88+00 90+00 92+00 94+00 96+00
Elev. NAVD88

Survey Line - BA16

Horizontal Scale 1'=400'
Vertical Scale 1'=10'

0+00 2+00 4+00 6+00 8+00 10+00 12+00 14+00 16+00 18+00 20+00 22+00 24+00 26+00 28+00 30+00 32+00 34+00 36+00 38+00 40+00 42+00 44+00 46+00 48+00 50+00
Elev. NAVD88

Survey Line - BA16

Horizontal Scale 1'=400'
Vertical Scale 1'=10'

50.00 52+00 54+00 56+00 58+00 60+00 62+00 64+00 66+00 68+00 70+00 72+00 74+00 76+00 78+00 80+00 82+00 84+00 86+00 88+00 90+00 92+00 94+00 96+00
Elev. NAVD88

Survey Line - BA17

Horizontal Scale 1'=400'
Vertical Scale 1'=10'

0+00 2+00 4+00 6+00 8+00 10+00 12+00 14+00 16+00 18+00 20+00 22+00 24+00 26+00 28+00 30+00 32+00 34+00 36+00 38+00 40+00 42+00 44+00 46+00 48+00 50+00
Elev. NAVD88

Survey Line - BA17

Horizontal Scale 1'=400'
Vertical Scale 1'=10'

50.00 52+00 54+00 56+00 58+00 60+00 62+00 64+00 66+00 68+00 70+00 72+00 74+00 76+00 78+00 80+00 82+00 84+00 86+00 88+00 90+00 92+00 94+00 96+00
Elev. NAVD88

Survey Line - BA18

Horizontal Scale 1'=400'
Vertical Scale 1'=10'

0+00 2+00 4+00 6+00 8+00 10+00 12+00 14+00 16+00 18+00 20+00 22+00 24+00 26+00 28+00 30+00 32+00 34+00 36+00 38+00 40+00 42+00 44+00 46+00 48+00 50+00
Elev. NAVD88

Survey Line - BA18

Horizontal Scale 1'=400'
Vertical Scale 1'=10'

50.00 52+00 54+00 56+00 58+00 60+00 62+00 64+00 66+00 68+00 70+00 72+00 74+00 76+00 78+00 80+00 82+00 84+00 86+00 88+00 90+00 92+00 94+00 96+00
Elev. NAVD88

Legend:

- MHW +1.6'
- MLW +0.8'
- Top of Water
- Natural Ground

Scale:

- Vertical Scale: 1" = 10'
- Horizontal Scale: 1" = 400'

Stamp:

STATE PROJECT NUMBER: BS-0037
CREATED BY: RJA
PROFILE LINES PROFILE VIEW
COSTAL PROTECTION AND RESTORATION AUTHORITY
105 TERRACE AVENUE, BATON ROUGE, LOUISIANA 70802
DATE: 10/14/2020
DRAWN BY: AMD
APPROVED BY: RJ
DISCLOSED BY: RJ
DESIGNER: BS-0037
DRAWN BY: AMD
APPROVED BY: RJ
DISCLOSED BY: RJ
11/14/2020
RICARDO M. JOHNSON
REG No. 4767
REGISTERED PROFESSIONAL LAND SURVEYOR
Ricardo M. Johnson
Professional Land Surveyor
Registration No. 4767
Date: 10/14/2020
Sheet 11 of 87

STATE PROJECT NUMBER: BS-0037

DELACROIX MARSHP

CREEK AREA

BORROW AREA

SURVEY LINES

PROFILE VIEW

COSTAL PROTECTION

AND RESTORATION

AUTHORITY

BATON ROUGE, LOUISIANA 70802

150 TERRACE AVENUE

DATE: 10/14/2020

DRAWN BY: AMU

APPROVED BY: RJ

DESIGNED BY: JR

DESCRPTION

REV:

DATE:

BY:

Survey Line - BA16
Horizontal Scale 1"=400'
Vertical Scale 1"=10'

Survey Line - BA16
Horizontal Scale 1"=400'
Vertical Scale 1"=10'

Survey Line - BA17
Horizontal Scale 1"=400'
Vertical Scale 1"=10'

Survey Line - BA17
Horizontal Scale 1"=400'
Vertical Scale 1"=10'

Survey Line - BA17
Horizontal Scale 1"=400'
Vertical Scale 1"=10'

Survey Line - BA17
Horizontal Scale 1"=400'
Vertical Scale 1"=10'

Legend:

- MHW +1' 1' = 10'
- MLW -0.8'
- Top of Water
- Natural Ground

COASTAL PROTECTION AND RESTORATION AUTHORITY PROFILE VIEW

STATE PROJECT NUMBER: BS-0037

DELACOURT MARSH CREATION

BORROW AREA PROFILE LINES

APPROVED BY: RJ

DISPENSED BY: RJ

BTON ROUGE AVENUE 103082

DATE: 10/14/2020

RICOH RICOH RICOH

REGISTERED PROFESSIONAL LAND SURVEYOR

Ricardo M. Johnson

Registration No. 4767

SHEET 13 OF 87

Survey Line - BA18
Horizontal Scale 1"=400'
Vertical Scale 1'=10'
Elev. NAVD88

Survey Line - BA18
Horizontal Scale 1"=400'
Vertical Scale 1'=10'
Elev. NAVD88

Survey Line - BA19
Horizontal Scale 1"=400'
Vertical Scale 1'=10'
Elev. NAVD88

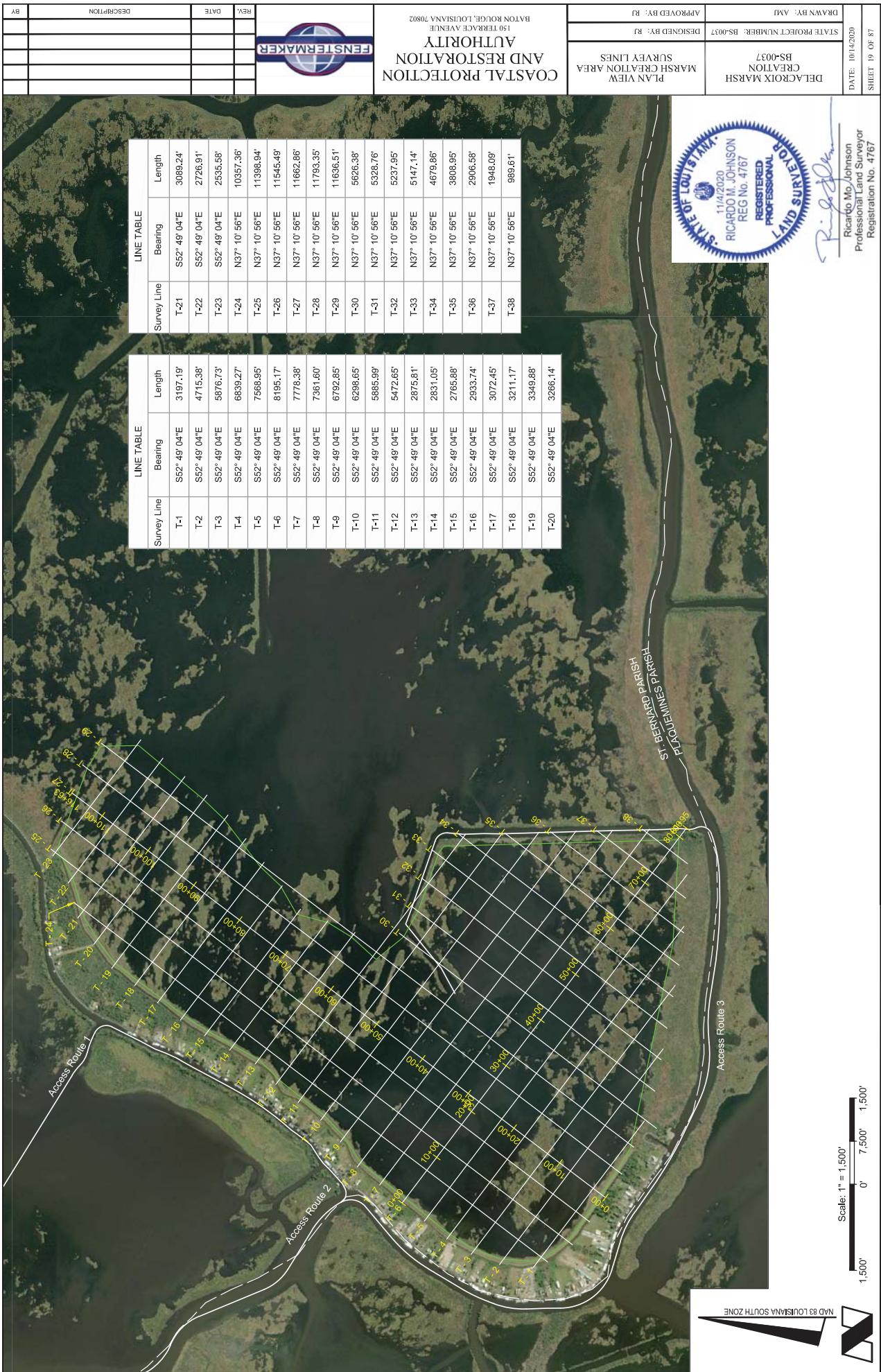
Survey Line - BA19
Horizontal Scale 1"=400'
Vertical Scale 1'=10'
Elev. NAVD88

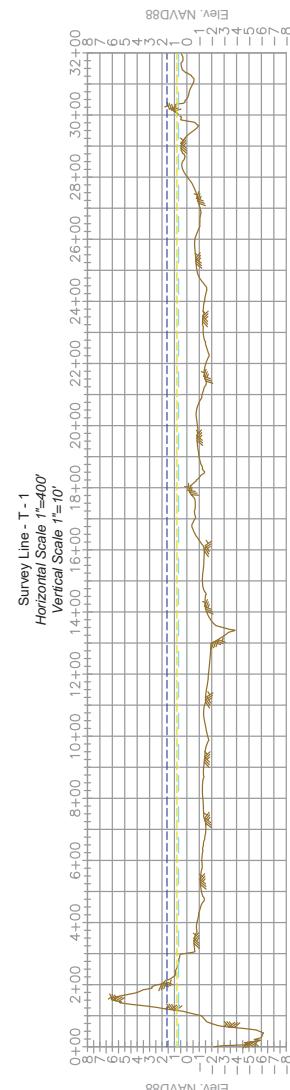
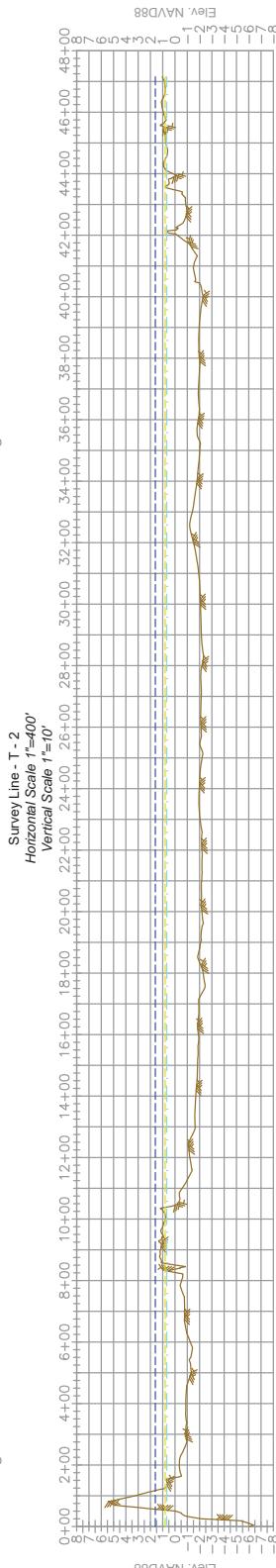
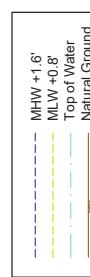
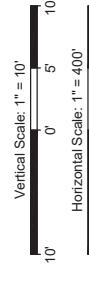
Survey Line - BA20
Horizontal Scale 1"=400'
Vertical Scale 1'=10'
Elev. NAVD88

Survey Line - BA21
Horizontal Scale 1"=400'
Vertical Scale 1'=10'
Elev. NAVD88

Legend:

- MHW+1.6'
- MLW+0.8'
- Top of Water
- Natural Ground



<p>DELAWARE STATE PROJECT NUMBER: BS-0037</p> <p>DESIGNED BY: RJ</p> <p>APPROVED BY: RJ</p> <p>DRAWN BY: AMJ</p> <p>DATE: 10/14/2020</p>	<p>CEMETATION AREA BS-0037</p> <p>MARSH CREATON AREA AND RESTORATION</p> <p>COSTAL PROTECTION AND RESTORATION AUTHORITY</p> <p>BATON ROUGE, LOUISIANA 70802 100 TERRACE AVENUE</p>	<p>REV. DATE DESCRIPTION</p>
		<p><i>Ricardo M. Johnson</i></p> <p>Professional Surveyor Registration No. 4767</p> <p>Ricardo M. Johnson Professional Land Surveyor Registration No. 4767</p>
 <p>Survey Line - T-1</p> <p>Horizontal Scale 1"=400' Vertical Scale 1"=10'</p> <p>Ele. NAVD88</p>		
 <p>Survey Line - T-2</p> <p>Horizontal Scale 1"=400' Vertical Scale 1"=10'</p> <p>Ele. NAVD88</p>		
 <p>MHW +1.6' MLW -0.8' Top of Water Natural Ground</p>		
 <p>Vertical Scale: 1" = 10' Horizontal Scale: 1" = 400'</p>		

STATE PROJECT NUMBER: BS-0037

DELACROIX MARSHP

COSTAL PROTECTION AND RESTORATION AREA

AUTHORITY

BATON ROUGE, LOUISIANA 70802
105 TERRACE AVENUE

PROFILE VIEW
SURVEY LINES

APPROVED BY: RJ
DESIGNED BY: RJ

DATE: 10/14/2020

DRAWN BY: AMJ
DESCRPTION

REV. DATE

11/14/2020
RICARDO M. JOHNSON
REG No. 4767
REGISTERED PROFESSIONAL LAND SURVEYOR
Ricardo M. Johnson
Professional Land Surveyor
Registration No. 4767

Survey Line - T-3
Horizontal Scale 1"-400'
Vertical Scale 1"-10'
Elev. NAVD88

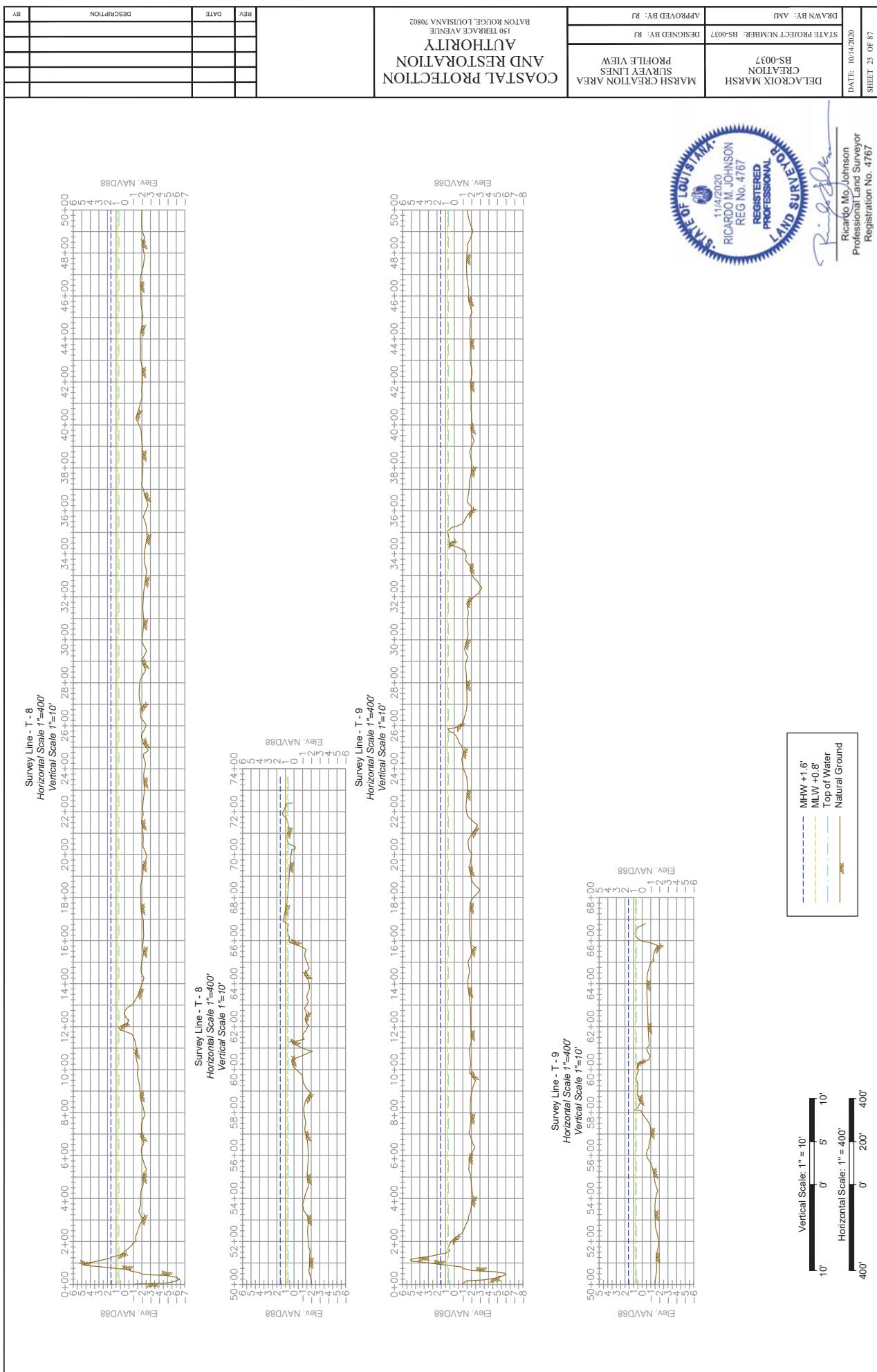
Survey Line - T-3
Horizontal Scale 1"-400'
Vertical Scale 1"-10'
Elev. NAVD88

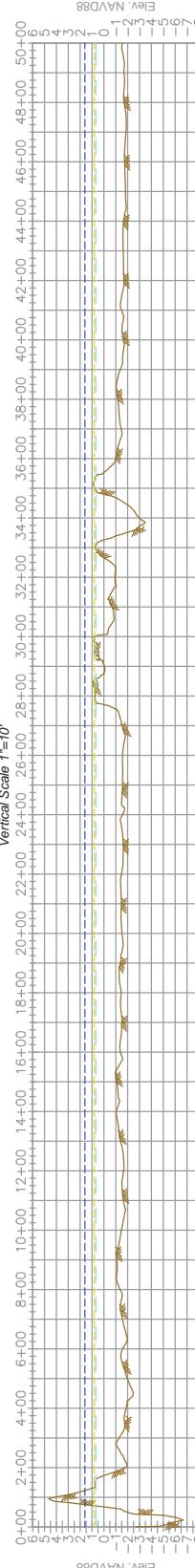
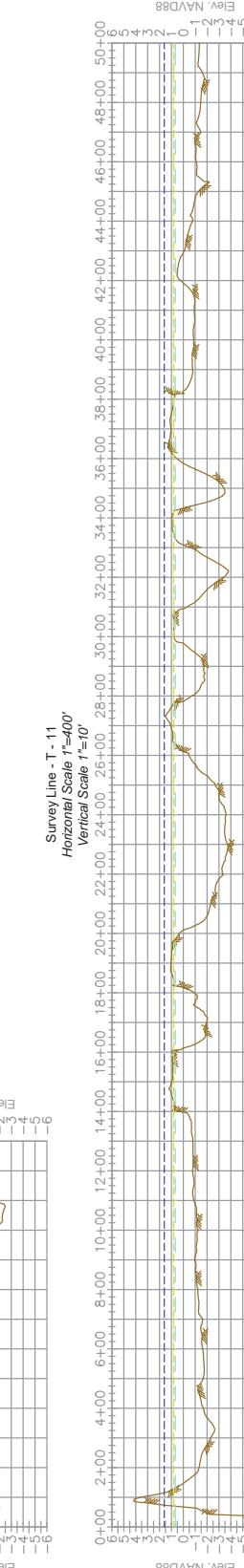
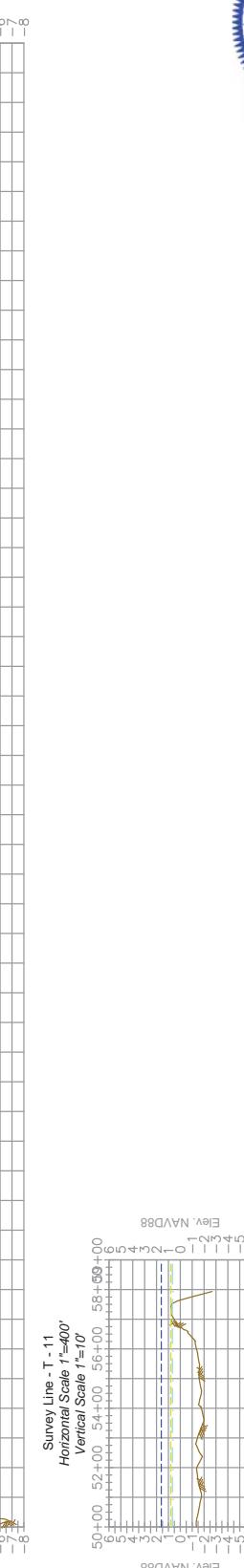
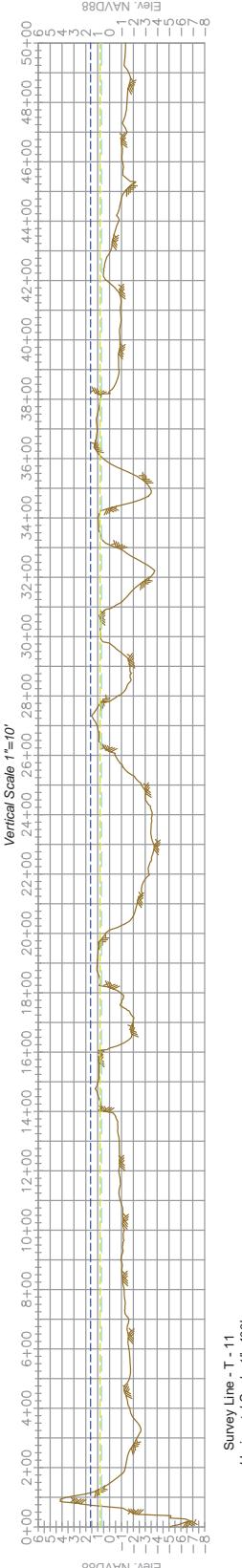
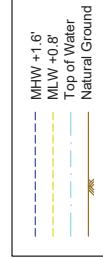
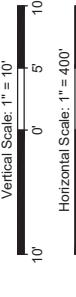
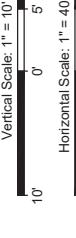
Survey Line - T-4
Horizontal Scale 1"-400'
Vertical Scale 1"-10'
Elev. NAVD88

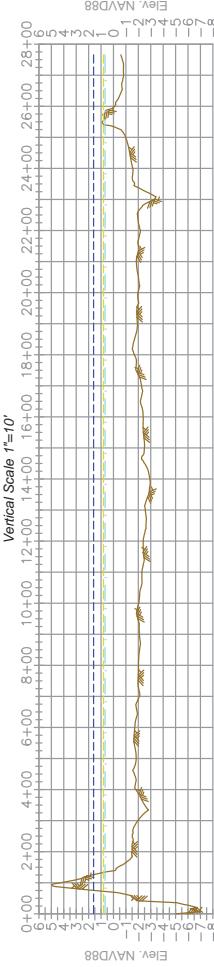
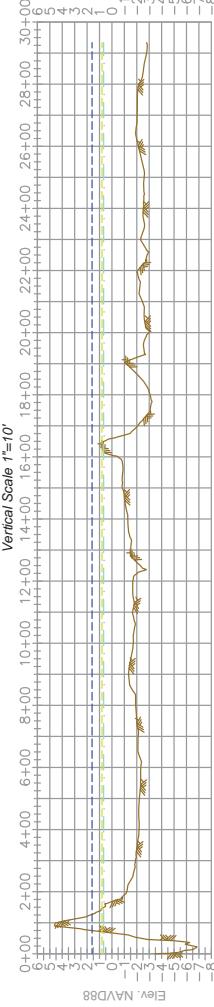
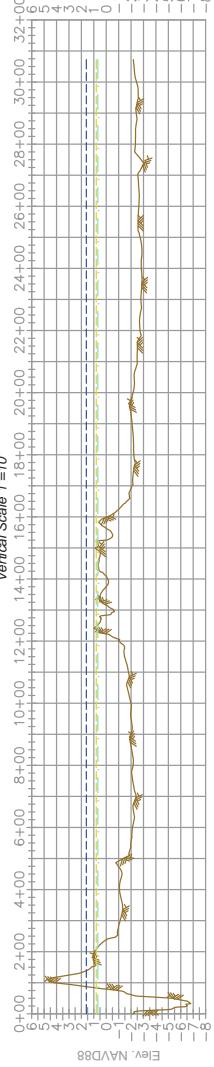
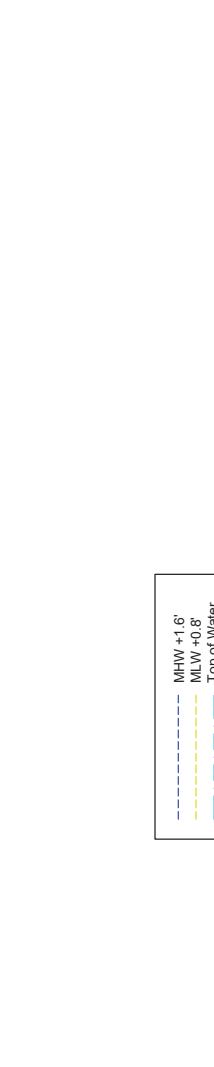
Survey Line - T-4
Horizontal Scale 1"-400'
Vertical Scale 1"-10'
Elev. NAVD88

Survey Line - T-4
Horizontal Scale 1"-400'
Vertical Scale 1"-10'
Elev. NAVD88

Vertical Scale: 1" = 10'
Horizontal Scale: 1" = 400'



<p>Survey Line - T-10 Horizontal Scale 1"-400' Vertical Scale 1"-10'</p> 	<p>Survey Line - T-11 Horizontal Scale 1"-400' Vertical Scale 1"-10'</p> 	<p>Survey Line - T-11 Horizontal Scale 1"-400' Vertical Scale 1"-10'</p> 
<p>Survey Line - T-10 Horizontal Scale 1"-400' Vertical Scale 1"-10'</p> 	<p>Survey Line - T-11 Horizontal Scale 1"-400' Vertical Scale 1"-10'</p> 	<p>Survey Line - T-11 Horizontal Scale 1"-400' Vertical Scale 1"-10'</p> 
 STATE PROJECT NUMBER: BS-0037 DESIGNED BY: RJ APPROVED BY: RJ BATON ROUGE, LOUISIANA 70802 100' TERRACE AVENUE COSTAL PROTECTION AND RESTORATION AUTHORITY MARSH CREATION AREA PROFILE LINES SURVEY LINES DELAGROIX MARS CREATION EL 6/14/2020 DATE: 10/14/2020 DRAWN BY: AMJ DESCRIPITION By		
 RICARDO M. JOHNSON REG No. 4767 REGISTERED PROFESSIONAL LAND SURVEYOR Ricardo M. Johnson Professional Land Surveyor Registration No. 4767 Date: 10/14/2020 SHEET 26 OF 87		
 <ul style="list-style-type: none"> MHW +1.6' MLW +0.8' Top of Water Natural Ground 		
 <p>Horizontal Scale: 1"-400'</p>		
 <p>Vertical Scale: 1"-10'</p>		

DRAWN BY: AMJ		DATE: 10/14/2020	
STATE PROJECT NUMBER: BS-0037		SHEET 28 OF 87	
APPROVED BY: RJ		BATON ROUGE, LOUISIANA 70802 150 TERRACE AVENUE	
DESIGNED BY: RJ		REV'D:	
PROFILINE VIEW		DATE:	
SURVEY LINES		DESCRIPTION	
COSATL PROTECTION AND RESTORATION AUTHORITY		MARS CREATION AREA	
BS-0037		PROJECT NUMBER	
DELAGOIX MARS		DRAWN BY: AMJ	
LAND SURVEYORS REGISTERED PROFESSIONAL		Ricardo M. Johnson Registration No. 4767	
11/14/2020 RICARDO M. JOHNSON REG No. 4767		Signature	
Elev. NAVD88		Elev. NAVD88	
Survey Line - T-15		Survey Line - T-16	
Horizontal Scale 1"=400' Vertical Scale 1"=10'		Horizontal Scale 1"=400' Vertical Scale 1"=10'	
			
Elev. NAVD88		Elev. NAVD88	
Survey Line - T-17		Survey Line - T-18	
Horizontal Scale 1"=400' Vertical Scale 1"=10'		Horizontal Scale 1"=400' Vertical Scale 1"=10'	
			
Elev. NAVD88		Elev. NAVD88	
Legend:		Legend:	
MHW +1.6' MLW +0.8' Top of Water Natural Ground		MHW +1.6' MLW +0.8' Top of Water Natural Ground	
Vertical Scale: 1" = 10' Horizontal Scale: 1" = 400'		Vertical Scale: 1" = 10' Horizontal Scale: 1" = 400'	

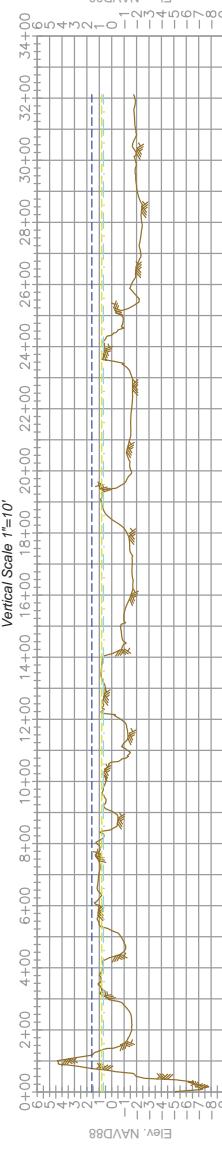
BY		
		REV: DATE: DESCRIPTION
		APPROVED BY: RJ
		STATE PROJECT NUMBER: BS-0037
		DESIGNED BY: RJ
		BATON ROUGE, LOUISIANA 70802 105 TERRACE AVENUE
		DRAWN BY: AMJ
		DATE: 10/14/2020
		SHEET 29 OF 87

DELAWARE MARS CEEATON BS-0037
MARSH CREATION AREA PROFILE VIEW
COSITAL PROTECTION AND RESTORATION SURVEY LINES
AUTHORITY APPROVED BY: RJ



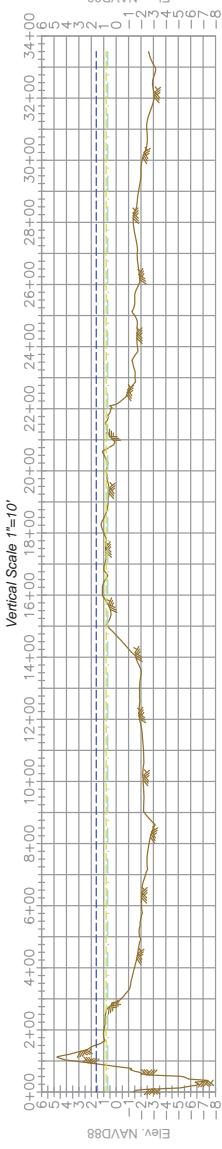
11/4/2020
RICARDO M. JOHNSON
REG No. 4767
REGISTERED PROFESSIONAL LAND SURVEYOR
Ricardo Mo. Johnson
Registration No. 4767

Survey Line - T-18
Horizontal Scale 1"=100'
Vertical Scale 1"=10'



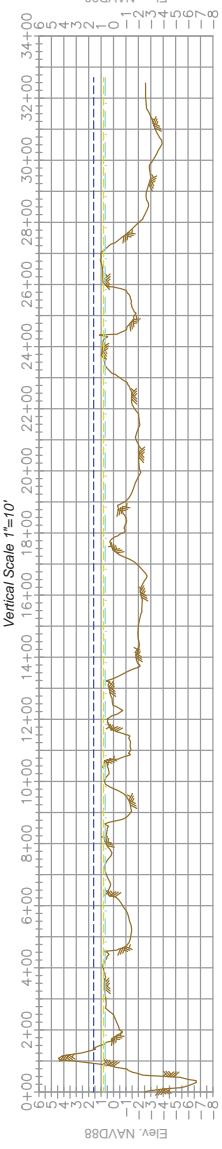
Elev. NAVD88

Survey Line - T-19
Horizontal Scale 1"=100'
Vertical Scale 1"=10'



Elev. NAVD88

Survey Line - T-20
Horizontal Scale 1"=100'
Vertical Scale 1"=10'



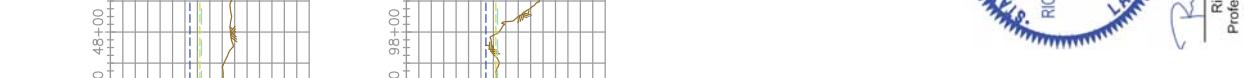
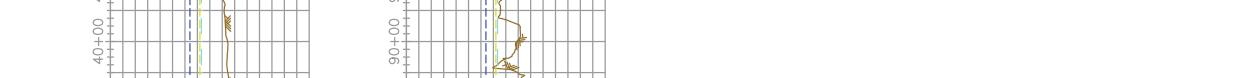
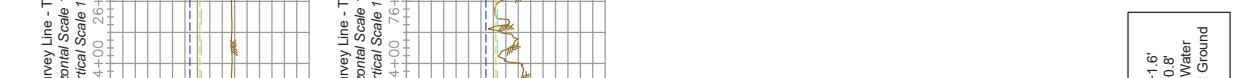
Elev. NAVD88

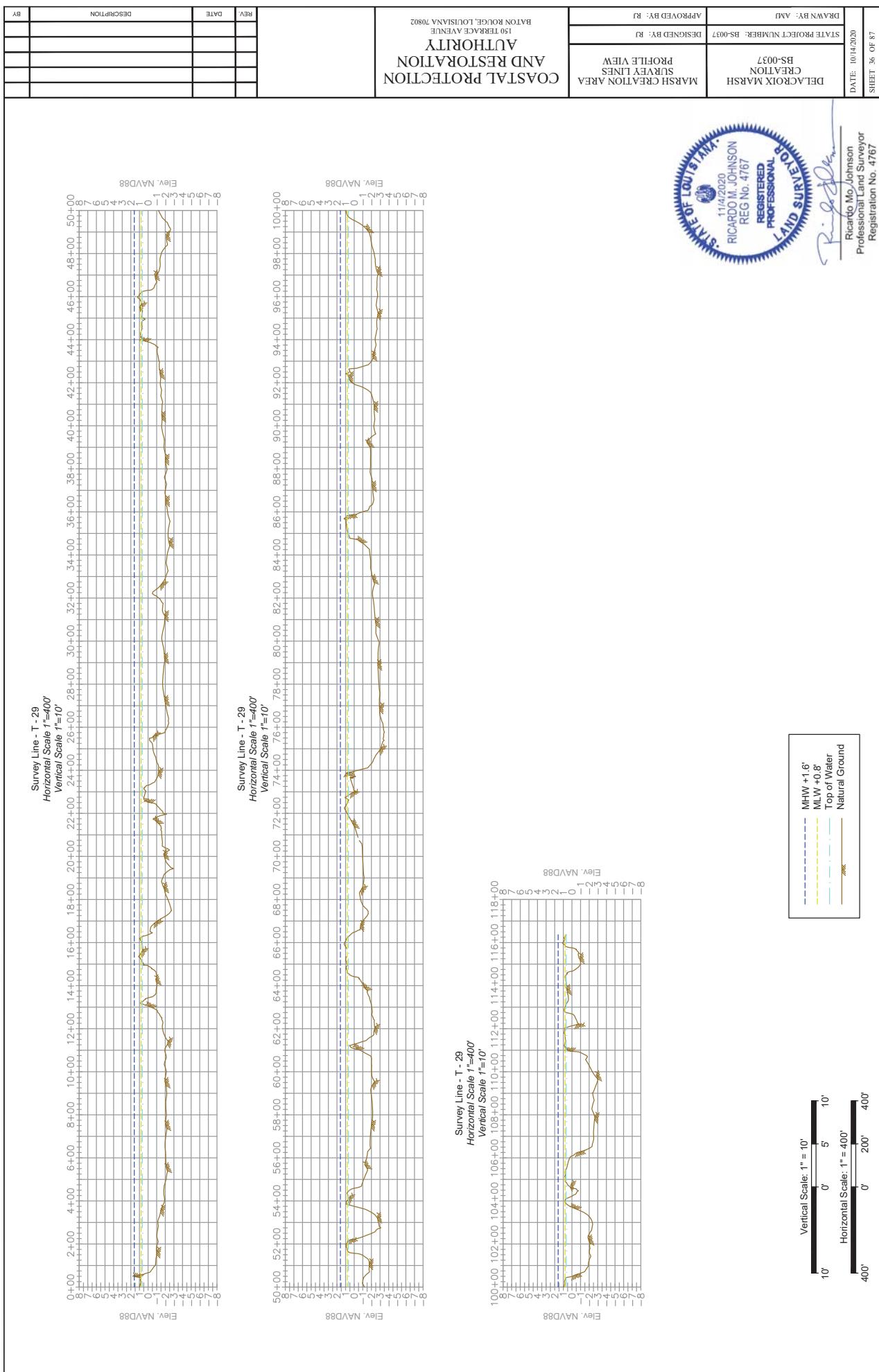
Legend:

- MHW +1.6' (Blue dashed line)
- MLW -0.8' (Yellow dashed line)
- Top of Water (Green dashed line)
- Natural Ground (Black solid line)

Vertical Scale: 1" = 10'
Horizontal Scale: 1" = 400'



									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
									
<img alt="Survey Line T-28 Profile View BS-0037" data-bbox="10 7									



	<p>COSTAL PROTECTION AND RESTORATION AREA</p> <p>MARS CREATATION AREA SURVEY LINES PROFILE VIEW</p> <p>BATON ROUGE, LOUISIANA 70802 150 TERRACE AVENUE STATE PROJECT NUMBER: BS-0037 DESIGNED BY: JR APPROVED BY: RJ DRAWN BY: AMU</p>  <p><i>Ricardo M. Johnson Professional Surveyor Registration No. 4767</i></p> <p>Survey Line - T - 30 Horizontal Scale 1"=400' Vertical Scale 1"=10' Elev. NAVD88</p> <p>Survey Line - T - 31 Horizontal Scale 1"=400' Vertical Scale 1"=10' Elev. NAVD88</p> <p>Survey Line - T - 31 Horizontal Scale 1"=400' Vertical Scale 1"=10' Elev. NAVD88</p> <p>Survey Line - T - 31 Horizontal Scale 1"=400' Vertical Scale 1"=10' Elev. NAVD88</p> <p>Legend: — MHW +1.6' — MLW +0.8' — Top of Water — Natural Ground </p>	<p>DATE: 10/14/2020 SHEET 37 OF 87</p>
--	--	--

**COSTAL PROTECTION
AND RESTORATION
AREA**

MARS CREATION AREA
SURVEY LINES PROFILE VIEW

STATE PROJECT NUMBER: BS-0037
DELA CROIIX MARS
CRÉATION BS-0037

APPROVED BY: RJ
DESIGNED BY: RJ

BATO ROUGE, LOUISIANA 70802
105 TERRACE AVENUE
DATE: 10/14/2020
SHEET 38 OF 87

DRAWN BY: AMJ
DESCRIPITION
REV: DATE

11/14/2020
RICARDO M. JOHNSON
REG No. 4167
REGISTERED
PROFESSIONAL
LAND SURVEYOR
Ricardo M. Johnson
Registration No. 4167
Professional Land Surveyor

Survey Line - T-32
Horizontal Scale 1"=400'
Vertical Scale 1"=10'
Elev. NAVD88

Survey Line - T-33
Horizontal Scale 1"=400'
Vertical Scale 1"=10'
Elev. NAVD88

Survey Line - T-34
Horizontal Scale 1"=400'
Vertical Scale 1"=10'
Elev. NAVD88

Survey Line - T-35
Horizontal Scale 1"=400'
Vertical Scale 1"=10'
Elev. NAVD88

Legend:
— MHW +1.6'
--- MLW -0.8'
- - - Top of Water
— Natural Ground

Scale Bar:
Vertical Scale: 1" = 10'
Horizontal Scale: 1" = 400'
0' 5' 10' 200' 400'

SHEET 39 OF 87

DATE:	10/14/2020	STAKE PROJECT NUMBER:	BS-0037	DESIGNED BY:	RI	APPROVED BY:	RI	DRAWN BY:	ADM
COSATL PROTECTION AND RESTORATION AUTHORITY									
MARS CREATON AREA SURVEY LINES PROFILE VIEW									
BATON ROUGE, LOUISIANA 70802 105 TERRACE AVENUE									
REV. DATE DESCRIPTION									



11/4/2020
RICARDO M. JOHNSON
REG No. 4767
REGISTERED PROFESSIONAL LAND SURVEYOR
R. Johnson
Professional Land Surveyor
Registration No. 4767

Survey Line - T - 35
 Horizontal Scale 1"=400'
 Vertical Scale 1"=10'
 Elv. NAVD88

Survey Line - T - 36
 Horizontal Scale 1"=400'
 Vertical Scale 1"=10'
 Elv. NAVD88

Survey Line - T - 37
 Horizontal Scale 1"=400'
 Vertical Scale 1"=10'
 Elv. NAVD88

Survey Line - T - 38
 Horizontal Scale 1"=400'
 Vertical Scale 1"=10'
 Elv. NAVD88

Legend:

- MHW +1.6'
- MLW +0.8'
- Top of Water
- Natural Ground

Vertical Scale: 1" = 10'
 Horizontal Scale: 1" = 400'

STATE PROJECT NUMBER: BS-0037

DELACOURT MARSHPALMATION

PLAN VIEW

ACCESSES LOCATE

ANOMALIES

STATE PROJECT NUMBER: BS-0037

DRAWN BY: ADU

APPROVED BY: RJ

DISINDED BY: RJ

BATON ROUGE, LOUISIANA 70802

150 TERRACE AVENUE

FENSTERMARKER

AUTHORITY

COSATL PROTECTION AND RESTORATION

REV. DATE DESCRIPTION

DATE: 10/14/2020

SHEET 42 OF 87

Scale: 1:1,000'

MD 83 LOUISIANA SOUTH ZONE

**Ricardo M. Johnson
Professional Land Surveyor
Registration No. 4767**

11/14/2020

**RICARDO M. JOHNSON
REGISTERED PROFESSIONAL LAND SURVEYOR**

Access Route 1

Access Route 2

PLUGGED & ABANDONED:

COASTAL CORP #001

156_389

156_329

156_330

156_331

156_352

156_353

156_354

156_355

156_356

156_357

156_358

156_359

156_334

156_335

156_320

156_319

156_360

156_361

156_318

156_316

156_317

156_362

156_363

156_337

156_338

156_315

156_364

156_365

156_367

156_368

156_339

156_366

156_369

156_370

156_371

156_312

156_311

156_372

156_310

156_342

156_373

156_309

156_380

064_3_78

064_3_61

064_3_63

064_3_64

064_3_74

064_3_75

064_3_41

064_3_57

064_3_40

064_3_39

064_3_44

064_3_43

064_3_38

064_3_65

064_3_51

064_3_73

064_3_32

064_3_72

064_3_30

064_3_60

064_3_29

064_3_36

064_3_48

064_3_49

064_3_28

064_3_37

064_3_36

064_3_27

064_3_33

064_3_48

064_3_49

064_3_28

064_3_37

064_3_36

064_3_27

064_3_35

064_3_25

064_3_50

064_3_59

064_3_51

064_3_59

064_3_24

064_3_56

064_3_23

064_3_55

064_3_21

064_3_53

064_3_54

064_3_67

064_3_19

064_3_81

064_3_80

156_310

156_311

156_312

156_313

156_314

156_315

156_316

156_317

156_318

156_319

156_320

156_321

156_322

156_323

156_324

156_325

156_326

156_327

156_328

156_329

156_330

156_331

156_332

156_333

156_334

156_335

156_336

156_337

156_338

156_339

156_340

156_341

156_342

156_343

156_344

156_345

156_346

156_347

156_348

156_349

156_350

156_351

156_352

156_353

156_354

156_355

156_356

156_357

156_358

156_359

156_360

156_361

156_362

156_363

156_364

156_365

156_366

156_367

156_368

156_369

156_370

156_371

156_372

156_373

156_374

156_375

156_376

156_377

156_378

156_379

156_380

156_381

156_382

156_383

156_384

156_385

156_386

156_387

156_388

156_389

156_390

156_391

156_392

156_393

156_394

156_395

156_396

156_397

156_398

156_399

156_400

156_401

156_402

156_403

156_404

156_405

156_406

156_407

156_408

156_409

156_410

156_411

156_412

156_413

156_414

156_415

156_416

156_417

156_418

156_419

156_420

156_421

156_422

156_423

156_424

156_425

156_426

156_427

156_428

156_429

156_430

156_431

156_432

156_433

156_434

156_435

156_436

156_437

156_438

156_439

156_440

156_441

156_442

156_443

156_444

156_445

156_446

156_447

156_448

156_449

156_450

156_451

156_452

156_453

156_454

156_455

156_456

156_457

156_458

156_459

156_460

156_461

156_462

156_463

156_464

156_465

156_466

156_467

156_468

156_469

156_470

156_471

156_472

156_473

156_474

156_475

156_476

156_477

156_478

156_479

156_480

156_481

156_482

156_483

156_484

156_485

156_486

156_487

156_488

156_489

156_490

156_491

156_492

156_493

156_494

156_495

156_496

156_497

156_498

156_499

156_500

156_501

156_502

156_503

156_504

156_505

156_506

156_507

156_508

156_509

156_510

156_511

156_512

156_513

156_514

156_515

156_516

156_517

156_518

156_519

156_520

156_521

156_522

156_523

156_524

156_525

156_526

156_527

156_528

156_529

156_530

156_531

156_532

156_533

156_534

156_535

156_536

156_537

156_538

156_539

156_540

156_541

156_542

156_543

156_544

156_545

156_546

156_547

156_548

156_549

156_550

156_551

156_552

156_553

156_554

156_555

156_556

156_557

156_558

156_559

156_560

156_561

156_562

156_563

156_564

156_565

156_566

156_567

156_568

156_569

156_570

156_571

156_572

156_573

156_574

156_575

156_576

156_577

156_578

156_579

156_580

156_581

156_582

156_583

156_584

156_585

156_586

156_587

156_588

156_589

156_590

156_591

156_592

156_593

156_594

156_595

156_596

156_597

156_598

156_599

156_600

156_601

156_602

156_603

156_604

156_605

156_606

156_607

156_608

156_609

156_610

156_611

156_612

156_613

156_614

156_615

156_616

156_617

156_618

156_619

156_620

156_621

156_622

156_623

156_624

156_625

156_626

156_627

156_628

156_629

156_630

156_631

156_632

156_633

156_634

156_635

156_636

156_637

156_638

156_639

156_640

156_641

156_642

156_643

156_644

156_645

156_646

156_647

156_648

156_649

156_650

156_651

156_652

156_653

156_654

156_655

156_656

156_657

156_658

156_659

156_660

156_661

156_662

156_663

156_664

156_665

156_666

156_667

156_668

156_669

156_670

156_671

156_672

156_673

156_674

156_675

156_676

156_677

156_678

156_679

156_680

156_681

156_682

156_683

156_684

156_685

156_686

156_687

156_688

156_689

156_690

156_691

156_692

156_693

156_694

156_695

156_696

156_697

156_698

156_699

156_700

156_701

156_702

156_703

156_704

156_705

156_706

156_707

156_708

156_709

156_710

156_711

156_712

156_713

156_714

156_715

156_716

156_717

156_718

156_719

156_720

156_721

156_722

156_723

156_724

156_725

156_726

156_727

156_728

156_729

156_730

156_731

156_732

156_733

156_734

156_735

156_736

156_737

156_738

156_739

156_740

156_741

156_742

156_743

156_744

156_745

156_746

156_747

156_748

156_749

156_750

156_751

156_752

156_753

156_754

156_755

156_756

156_757

156_758

156_759

156_760

156_761

156_762

156_763

156_764

156_765

156_766

156_767

156_768

156_769

156_770

156_771

156_772

156_773

156_774

156_775

156_776

156_777

156_778

156_779

156_780

156_781

156_782

156_783

156_784

156_785

156_786

156_787

156_788

156_789

156_790

156_791

156_792

156_793

156_794

156_795

156_796

156_797

156_798

156_799

156_800

156_801

156_802

156_803

156_804

156_805

156_806

156_807

156_808

156_809

156_810

156_811

156_812

156_813

156_814

156_815

156_816

156_817

156_818

156_819

156_820

156_821

156_822

156_823

156_824

156_825

156_826

156_827

156_828

156_829

156_830

156_831

156_832

156_833

156_834

156_835

156_836

156_837

156_838

156_839

156_840

156_841

156_842

156_843

156_844

156_845

156_846

156_847

156_848

156_849

156_850

156_851

156_852

156_853

156_854

156_855

156_856

156_857

156_858

156_859

156_860

156_861

156_862

156_863

156_864

156_865

156_866

156_867

156_868

156_869

156_870

156_871

156_872

156_873

156_874

156_875

156_876

156_877

156_878

156_879

156_880

156_881

156_882

156_883

156_884

156_885

156_886

156_887

156_888

156_889

156_890

156_891

156_892

156_893

156_894

156_895

156_896

156_897

156_898

156_899

156_900

156_901

156_902

156_903

156_904

156_905

156_906

156_907

156_908

156_909

156_910

156_911

156_912

156_913

156_914

156_915

156_916

156_917

156_918

156_919

156_920

156_921

156_922

156_923

156_924

156_925

156_926

156_927

156_928

156_929

156_930

156_931

156_932

156_933

156_934

156_935

156_936

156_937

156_938

156_939

156_940

156_941

156_942

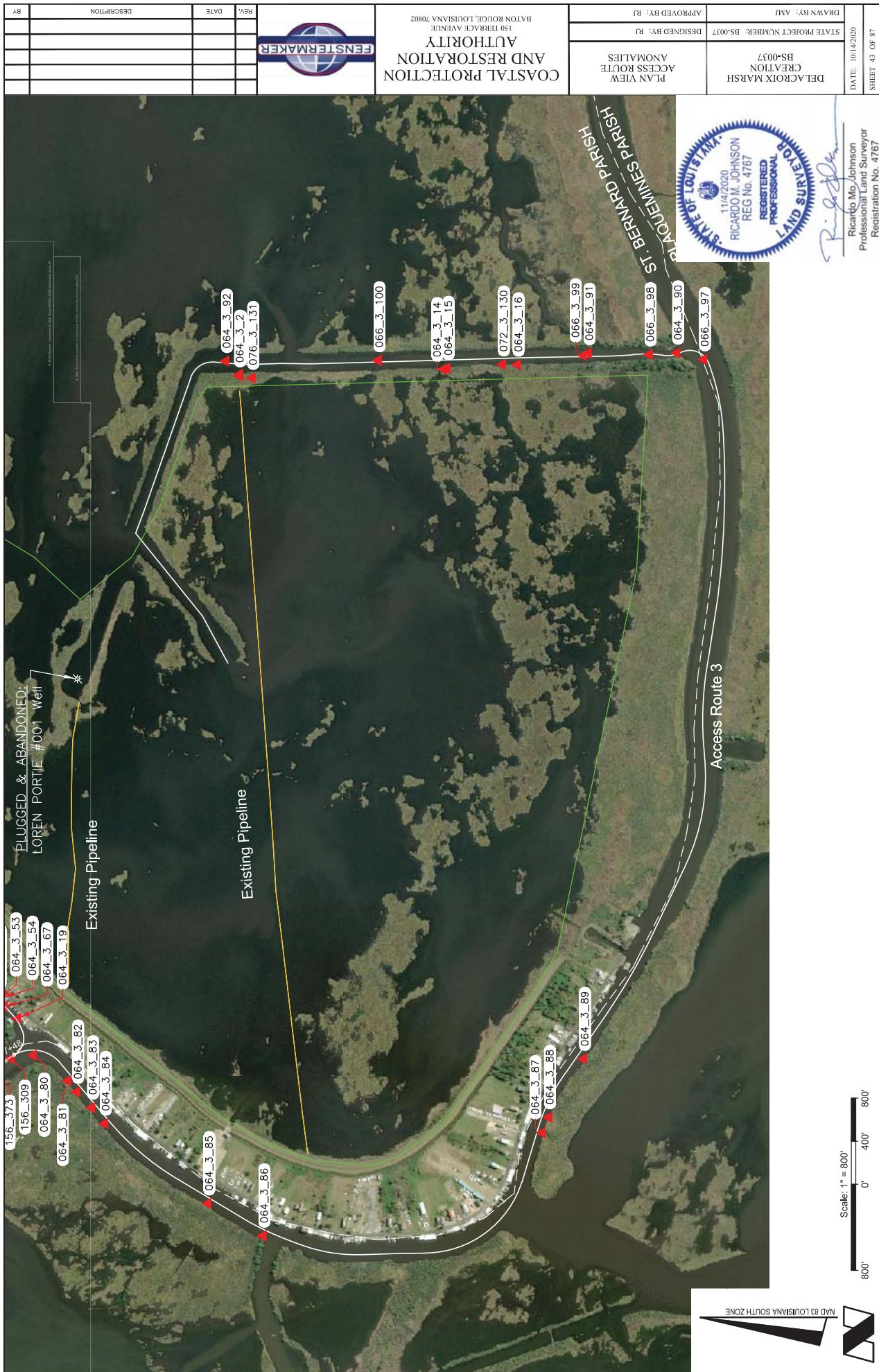
156_943

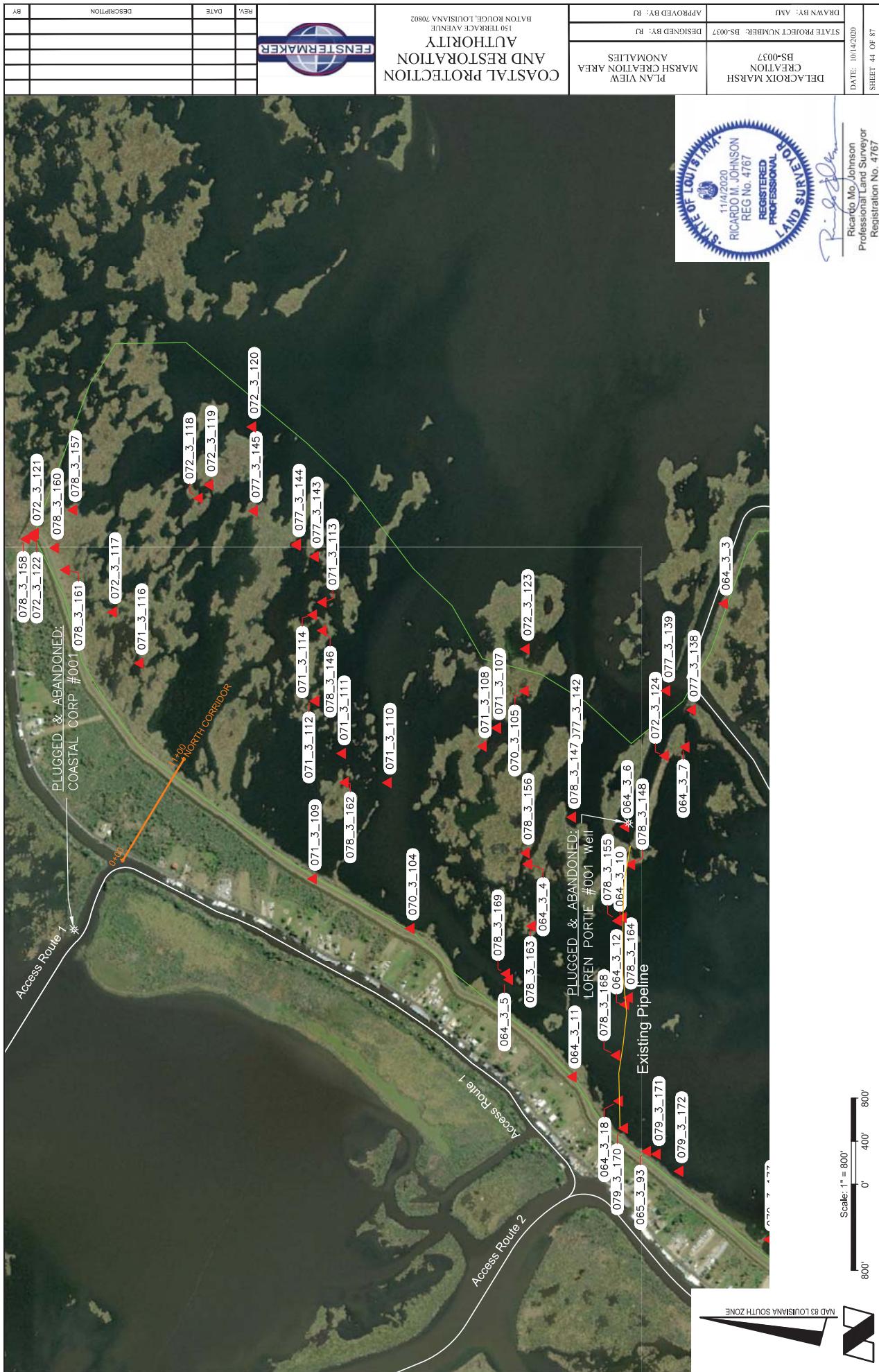
156_944

156_945

156_946

15





STATE PROJECT NUMBER: BS-0037

DELACROIX MARS

CREATION

PLAN VIEW

MARSH CREATON AREA

ANOMALIES

COSTAL PROTECTION

AND RESTORATION

AUTHORITY

BATON ROUGE, LOUISIANA 70802

100 TERRACE AVENUE

APPROVED BY: RJ

REV.: DATE:

DRAWN BY: AMU

DESCRPTION

FENSTERMARKER

11/14/2020

RICARDO M. JOHNSON

REG No. 4767

REGISTERED

PROFESSIONAL

STATE PROJECT NUMBER: BS-0037

DESIGNED BY: RJ

APPROVED BY: RJ

REV.: DATE:

DRAWN BY: AMU

DESCRPTION

11/14/2020

Ricardo M. Johnson

Professional Land Surveyor

Registration No. 4767

Scale: 1" = 600'

600'

Access Route 3

Existing Pipeline

Access Route 3

079_3_172

079_3_173

072_3_127

078_3_167

079_3_174

078_3_166

070_3_103

070_3_102

070_3_101

072_3_128

078_3_165

078_3_153

078_3_150

078_3_151

078_3_152

078_3_154

077_3_140

065_3_96

065_3_94

064_3_77

077_3_141

072_3_125

077_3_136

077_3_134

064_3_9

064_3_13

064_3_7

064_3_3

077_3_138

077_3_139

064_3_8

077_3_132

Access Route 3

072_3_126

077_3_135

072_3_129

077_3_137

077_3_135

072_3_128

078_3_149

078_3_148

078_3_147

078_3_146

078_3_145

078_3_144

078_3_143

078_3_142

078_3_141

078_3_140

078_3_139

078_3_138

078_3_137

078_3_136

078_3_135

078_3_134

078_3_133

078_3_132

078_3_131

078_3_130

078_3_129

078_3_128

078_3_127

078_3_126

078_3_125

078_3_124

078_3_123

078_3_122

078_3_121

078_3_120

078_3_119

078_3_118

078_3_117

078_3_116

078_3_115

078_3_114

078_3_113

078_3_112

078_3_111

078_3_110

078_3_109

078_3_108

078_3_107

078_3_106

078_3_105

078_3_104

078_3_103

078_3_102

078_3_101

078_3_100

078_3_99

078_3_98

078_3_97

078_3_96

078_3_95

078_3_94

078_3_93

078_3_92

078_3_91

078_3_90

078_3_89

078_3_88

078_3_87

078_3_86

078_3_85

078_3_84

078_3_83

078_3_82

078_3_81

078_3_80

078_3_79

078_3_78

078_3_77

078_3_76

078_3_75

078_3_74

078_3_73

078_3_72

078_3_71

078_3_70

078_3_69

078_3_68

078_3_67

078_3_66

078_3_65

078_3_64

078_3_63

078_3_62

078_3_61

078_3_60

078_3_59

078_3_58

078_3_57

078_3_56

078_3_55

078_3_54

078_3_53

078_3_52

078_3_51

078_3_50

078_3_49

078_3_48

078_3_47

078_3_46

078_3_45

078_3_44

078_3_43

078_3_42

078_3_41

078_3_40

078_3_39

078_3_38

078_3_37

078_3_36

078_3_35

078_3_34

078_3_33

078_3_32

078_3_31

078_3_30

078_3_29

078_3_28

078_3_27

078_3_26

078_3_25

078_3_24

078_3_23

078_3_22

078_3_21

078_3_20

078_3_19

078_3_18

078_3_17

078_3_16

078_3_15

078_3_14

078_3_13

078_3_12

078_3_11

078_3_10

078_3_9

078_3_8

078_3_7

078_3_6

078_3_5

078_3_4

078_3_3

078_3_2

078_3_1

078_3_0

078_3_1

078_3_2

078_3_3

078_3_4

078_3_5

078_3_6

078_3_7

078_3_8

078_3_9

078_3_10

078_3_11

078_3_12

078_3_13

078_3_14

078_3_15

078_3_16

078_3_17

078_3_18

078_3_19

078_3_20

078_3_21

078_3_22

078_3_23

078_3_24

078_3_25

078_3_26

078_3_27

078_3_28

078_3_29

078_3_30

078_3_31

078_3_32

078_3_33

078_3_34

078_3_35

078_3_36

078_3_37

078_3_38

078_3_39

078_3_40

078_3_41

078_3_42

078_3_43

078_3_44

078_3_45

078_3_46

078_3_47

078_3_48

078_3_49

078_3_50

078_3_51

078_3_52

078_3_53

078_3_54

078_3_55

078_3_56

078_3_57

078_3_58

078_3_59

078_3_60

078_3_61

078_3_62

078_3_63

078_3_64

078_3_65

078_3_66

078_3_67

078_3_68

078_3_69

078_3_70

078_3_71

078_3_72

078_3_73

078_3_74

078_3_75

078_3_76

078_3_77

078_3_78

078_3_79

078_3_80

078_3_81

078_3_82

078_3_83

078_3_84

078_3_85

078_3_86

078_3_87

078_3_88

078_3_89

078_3_90

078_3_91

078_3_92

078_3_93

078_3_94

078_3_95

078_3_96

078_3_97

078_3_98

078_3_99

078_3_100

078_3_101

078_3_102

078_3_103

078_3_104

078_3_105

078_3_106

078_3_107

078_3_108

078_3_109

078_3_110

078_3_111

078_3_112

078_3_113

078_3_114

078_3_115

078_3_116

078_3_117

078_3_118

078_3_119

078_3_120

078_3_121

078_3_122

078_3_123

078_3_124

078_3_125

078_3_126

078_3_127

078_3_128

078_3_129

078_3_130

078_3_131

078_3_132

078_3_133

078_3_134

078_3_135

078_3_136

078_3_137

078_3_138

078_3_139

078_3_140

078_3_141

078_3_142

078_3_143

078_3_144

078_3_145

078_3_146

078_3_147

078_3_148

078_3_149

078_3_150

078_3_151

078_3_152

078_3_153

078_3_154

078_3_155

078_3_156

078_3_157

078_3_158

078_3_159

078_3_160

078_3_161

078_3_162

078_3_163

078_3_164

078_3_165

078_3_166

078_3_167

078_3_168

078_3_169

078_3_170

078_3_171

078_3_172

078_3_173

078_3_174

078_3_175

078_3_176

078_3_177

078_3_178

078_3_179

078_3_180

078_3_181

078_3_182

078_3_183

078_3_184

078_3_185

078_3_186

078_3_187

078_3_188

078_3_189

078_3_190

078_3_191

078_3_192

078_3_193

078_3_194

078_3_195

078_3_196

078_3_197

078_3_198

078_3_199

078_3_200

078_3_201

078_3_202

078_3_203

078_3_204

078_3_205

078_3_206

078_3_207

078_3_208

078_3_209

078_3_210

078_3_211

078_3_212

078_3_213

078_3_214

078_3_215

078_3_216

078_3_217

078_3_218

078_3_219

078_3_220

078_3_221

078_3_222

078_3_223

078_3_224

078_3_225

078_3_226

078_3_227

078_3_228

078_3_229

078_3_230

078_3_231

078_3_232

078_3_233

078_3_234

078_3_235

078_3_236

078_3_237

078_3_238

078_3_239

078_3_240

078_3_241

078_3_242

078_3_243

078_3_244

078_3_245

078_3_246

078_3_247

078_3_248

078_3_249

078_3_250

078_3_251

078_3_252

078_3_253

078_3_254

078_3_255

078_3_256

078_3_257

078_3_258

078_3_259

078_3_260

078_3_261

078_3_262

078_3_263

078_3_264

078_3_265

078_3_266

078_3_267

078_3_268

078_3_269

078_3_270

078_3_271

078_3_272

078_3_273

078_3_274

078_3_275

078_3_276

078_3_277

078_3_278

078_3_279

078_3_280

078_3_281

078_3_282

078_3_283

078_3_284

078_3_285

078_3_286

078_3_287

078_3_288

078_3_289

078_3_290

078_3_291

078_3_292

078_3_293

078_3_294

078_3_295

078_3_296

078_3_297

078_3_298

078_3_299

078_3_300

078_3_301

078_3_302

078_3_303

078_3_304

078_3_305

078_3_306

078_3_307

078_3_308

078_3_309

078_3_310

078_3_311

078_3_312

078_3_313

078_3_314

078_3_315

078_3_316

078_3_317

078_3_318

078_3_319

078_3_320

078_3_321

078_3_322

078_3_323

078_3_324

078_3_325

078_3_326

078_3_327

078_3_328

078_3_329

078_3_330

078_3_331

078_3_332

078_3_333

078_3_334

078_3_335

078_3_336

078_3_337

078_3_338

078_3_339

078_3_340

078_3_341

078_3_342

078_3_343

078_3_344

078_3_345

078_3_346

078_3_347

078_3_348

078_3_349

078_3_350

078_3_351

078_3_352

078_3_353

078_3_354

078_3_355

078_3_356

078_3_357

078_3_358

078_3_359

078_3_360

078_3_361

078_3_362

078_3_363

078_3_364

078_3_365

078_3_366

078_3_367

078_3_368

078_3_369

078_3_370

078_3_371

078_3_372

078_3_373

078_3_374

078_3_375

078_3_376

078_3_377

078_3_378

078_3_379

078_3_380

078_3_381

078_3_382

078_3_383

078_3_384

078_3_385

078_3_386

078_3_387

078_3_388

078_3_389

078_3_390

078_3_391

078_3_392

078_3_393

078_3_394

078_3_395

078_3_396

078_3_397

078_3_398

078_3_399

078_3_400

078_3_401

078_3_402

078_3_403

078_3_404

078_3_405

078_3_406

078_3_407

078_3_408

078_3_409

078_3_410

078_3_411

078_3_412

078_3_413

078_3_414

078_3_415

078_3_416

078_3_417

078_3_418

078_3_419

078_3_420

078_3_421

078_3_422

078_3_423

078_3_424

078_3_425

078_3_426

078_3_427

078_3_428

078_3_429

078_3_430

078_3_431

078_3_432

078_3_433

078_3_434

078_3_435

078_3_436

078_3_437

078_3_438

078_3_439

078_3_440

078_3_441

078_3_442

078_3_443

078_3_444

078_3_445

078_3_446

078_3_447

078_3_448

078_3_449

078_3_450

078_3_451

078_3_452

078_3_453

078_3_454

078_3_455

078_3_456

078_3_457

078_3_458

078_3_459

078_3_460

078_3_461

078_3_462

078_3_463

078_3_464

078_3_465

078_3_466

078_3_467

078_3_468

078_3_469

078_3_470

078_3_471

078_3_472

078_3_473

078_3_474

078_3_475

078_3_476

078_3_477

078_3_478

078_3_479

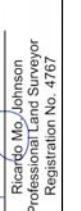
078_

Magnetometer Survey Anomalies Borrow Area West											
Pt. #	NAD83 X	NAD83 Y	Line No.	Duration	Type	Gamma	Sequence No.	Description	Pt. #	NAD83 X	NAD83 Y
156_404	480434.84	3761437.75	28	2888.5	MONOPOLE	2888.5	404	Debris	154_230	477617.83	3761398.31
156_400	478302.10	3762834.59	26	464.8	MONOPOLE	484.8	400	Pro Well	154_225	475958.72	3763888.16
156_399	475223.61	3761436.13	26	65.5	MONOPOLE	65.5	399	Debris	154_217	476376.95	3762206.42
156_397	473758.41	3760632.05	26	388.1	MONOPOLE	388.1	397	Debris	154_214	475700.09	3764504.66
156_393	478269.65	3763333.00	10	203.6	MONOPOLE	203.6	383	Debris	154_213	4782871.72	3759661.24
156_374	480165.99	3761135.58	7	1779.7	MONOPOLE	1779.7	374	Debris	154_211	478248.34	3760761.16
156_351	479228.62	3762674.79	6	58.7	MONOPOLE	58.7	351	Debris	154_207	475896.59	3764392.33
156_350	478751.38	3763475.17	6	90.2	MONOPOLE	90.2	350	Debris	154_206	475833.46	3764472.59
156_349	478742.75	3763488.91	6	86.3	MONOPOLE	86.3	349	Debris	154_201	47658.73	3763659.67
156_305	479889.16	3762516.66	3	61.8	MONOPOLE	61.8	305	Debris	154_199	477112.70	3762680.02
156_405	479357.58	3763049.62	28	355.2	DIPOLE	355.2	405	Debris	154_198	477248.73	3762507.71
156_403	479432.15	3762101.57	27	158	DIPOLE	158	403	Debris	154_197	477289.64	3762442.85
156_398	479403.52	3761198.88	26	59.6	DIPOLE	59.6	398	Debris	154_196	477373.80	3762310.16
156_396	479615.06	3760465.91	26	3719.3	DIPOLE	3719.3	396	Debris	154_195	478927.92	3759947.84
156_395	478780.57	3762460.18	11	1114.4	DIPOLE	1114.4	395	Pro Well	154_194	479010.32	3769808.34
156_394	478432.69	3762874.12	11	127.2	DIPOLE	127.2	394	Debris	154_193	478710.07	3761263.61
156_382	478778.77	3762504.01	10	517	DIPOLE	517	382	Debris	154_188	477462.87	3762367.79
156_381	479889.28	3760800.02	10	976.3	DIPOLE	976.3	381	Pipeline	154_186	476687.10	3763527.71
156_376	480303.92	3760989.76	8	1854.6	DIPOLE	1854.6	376	Pipeline	155_293	479504.02	3760343.51
156_323	480317.54	3761271.81	5	730.7	DIPOLE	730.7	323	Pipeline	155_285	479224.20	3760307.85
156_306	480463.51	3761617.50	3	377.7	DIPOLE	377.7	306	Pipeline	155_284	478793.83	3760862.81
156_300	479885.83	3762669.12	2	68.5	DIPOLE	68.5	300	Debris	155_282	477115.70	3762498.64
156_299	479311.76	3762626.52	2	206.2	DIPOLE	206.2	299	Debris	155_271	477053.99	3763751.33
156_298	480231.47	3762179.52	2	171.2	DIPOLE	171.2	298	Debris	155_269	478972.20	3760971.61
156_297	480571.18	3761616.62	2	383.2	DIPOLE	383.2	297	Pipeline	155_268	478576.44	3761537.57
156_304	479303.21	3761810.73	3	1736.6	COMPLEX	1736.6	304	Pipeline	155_267	477758.72	3762821.20
156_301	479135.19	3763794.50	2	1985.4	COMPLEX	1985.4	301	Pipeline	155_254	478389.02	3762411.95
155_295	477879.57	3762826.77	25	304.6	MONOPOLE	304.6	295	Debris	154_241	476839.63	3763524.35
155_294	479319.50	3760640.40	25	1134.8	MONOPOLE	1134.8	294	Debris	154_239	477108.94	3763102.14
155_287	478578.03	3761088.37	17	92.5	MONOPOLE	92.5	287	Debris	154_236	478524.75	3760927.08
155_286	479201.21	3760313.76	17	56	MONOPOLE	56	286	Debris	154_235	478917.28	3760325.07
155_283	47818.92	3761893.24	16	86.3	MONOPOLE	86.3	283	Debris	154_234	47958.82	3759962.02
155_281	476705.81	3764053.93	16	225.1	MONOPOLE	225.1	281	Debris	154_231	477820.69	3761086.46
155_270	47930.23	3760219.11	15	323.7	MONOPOLE	323.7	270	Pipeline	154_228	477199.03	3762018.97
155_255	477633.42	3763573.35	12	93.6	MONOPOLE	93.6	295	Debris	154_227	477047.05	3762245.15
155_253	479277.61	3761055.05	12	84.6	MONOPOLE	84.6	253	Debris	154_226	476506.43	3763091.81
155_252	479632.39	3760507.25	12	812.1	MONOPOLE	812.1	252	Pipeline	154_224	475516.74	3764436.29
155_251	477401.83	3764082.50	1	120.5	MONOPOLE	120.5	251	Debris	154_223	475578.54	3764358.36
154_237	478242.75	3761332.56	24	100.2	MONOPOLE	100.2	237	Debris	154_221	476036.70	3763642.98
154_233	478351.14	3760317.13	23	52.7	MONOPOLE	52.7	233	Debris	154_220	475635.03	3764218.13

STATE PROJECT NUMBER: BS-0037	DRAWN BY: ANDI
DESIGNER: RJ	APPROVED BY: RJ
CREATION DATE: 11/14/2020	REGISTRATION NO: 4767
DEPARTMENT OF LAND SURVEYING REGISTERED PROFESSIONAL LAND SURVEYOR	
Ricardo M. Johnson Professional Land Surveyor Registration No. 4767	

DATE: 10/14/2020
SHEET: 46 OF 55
Registration No. 4767

Magnetometer Survey Anomalies Borrow Area West										Magnetometer Survey Anomalies Borrow Area East									
Pt. #	NAD83 X	NAD83 Y	Line No.	Duration	Type	Gamma	Sequence No.	Description	Pt. #	NAD83 X	NAD83 Y	Line No.	Duration	Type	Gamma	Sequence No.	Description		
154_219	476241.75	376312.53	22	329.3	DIPOLE	329.3	219	Debris	156_391	476438.53	3765973.53	11	97.2	MONOPOLE	97.2	391	Debris		
154_216	477663.91	3761140.23	22	160.7	DIPOLE	160.7	216	Debris	156_390	475756.33	376968.89	11	207.5	MONOPOLE	207.5	390	Debris		
154_212	478303.22	3760685.31	20	204	DIPOLE	204	212	Debris	156_388	476007.74	3766750.05	10	128.7	MONOPOLE	128.7	388	Debris		
154_210	477335.09	3762207.06	20	107.8	DIPOLE	107.8	210	Debris	156_386	477415.33	3764633.40	10	76.9	MONOPOLE	76.9	386	Debris		
154_209	477236.95	3762319.54	20	182.6	DIPOLE	182.6	209	Debris	156_344	477502.81	3765379.78	6	276.6	MONOPOLE	276.6	344	Debris		
154_208	476840.39	3762947.20	20	111	DIPOLE	111	208	Debris	156_343	477086.63	3766026.53	6	599.2	MONOPOLE	599.2	343	Debris		
154_202	476403.54	3763799.42	19	150.6	DIPOLE	150.6	202	Debris	156_328	477643.70	3765345.23	5	84.9	MONOPOLE	84.9	328	Debris		
154_200	476874.99	3763047.32	19	73.5	DIPOLE	73.5	200	Debris	156_327	477985.18	3764858.42	5	88.2	MONOPOLE	88.2	327	Debris		
154_192	478072.92	3761400.23	18	59.6	DIPOLE	59.6	192	Debris	156_325	478531.46	3764232.68	5	413	MONOPOLE	413	325	Debris		
154_191	477979.78	3761592.42	18	53.2	DIPOLE	53.2	191	Debris	156_408	477656.92	3765710.45	28	165	DIPOLE	165	408	Debris		
154_190	477601.30	3762119.82	18	63.1	DIPOLE	63.1	190	Debris	156_407	477999.99	3765202.86	28	135.3	DIPOLE	135.3	407	Debris		
154_189	477665.80	3762041.15	18	120.7	DIPOLE	120.7	189	Debris	156_406	478888.32	37635834.03	28	3546.8	DIPOLE	3546.8	406	Pipeline		
154_187	4776740.11	3763463.12	18	102.6	DIPOLE	102.6	187	Debris	156_392	477028.87	3765004.26	11	203	DIPOLE	203	392	Debris		
154_185	476527.68	3763786.73	18	81.1	DIPOLE	81.1	185	Debris	156_387	476741.93	3765685.02	10	235	DIPOLE	235	387	Debris		
154_240	476857.84	3763454.01	24	134.4	COMPLEX	134.4	240	Debris	156_385	477517.82	3764461.13	10	240.7	DIPOLE	240.7	385	Debris		
154_238	47756.65	3762930.60	24	180.7	COMPLEX	180.7	238	Debris	156_379	476901.40	3765587.75	9	108.2	DIPOLE	108.2	379	Debris		
154_232	477905.71	3760977.49	23	61.9	COMPLEX	61.9	232	Debris	156_378	477839.18	3764515.17	9	4235.6	DIPOLE	4235.6	378	Pipeline		
154_229	477383.54	3761739.84	23	78.4	COMPLEX	78.4	229	Debris	156_377	477988.01	3764120.06	8	3763.2	DIPOLE	3763.2	377	Pipeline		
154_222	475797.05	3764005.28	22	97.5	COMPLEX	97.5	222	Debris	156_375	478307.66	3763390.44	7	6893.1	DIPOLE	6893.1	375	Pipeline		
154_218	476496.45	3762945.42	22	78.9	COMPLEX	78.9	218	Debris	156_347	478182.36	3764558.76	6	314.9	DIPOLE	314.9	347	Debris		
154_215	478747.11	3759497.69	22	157	COMPLEX	157	215	Pipeline	156_346	478031.11	3764553.58	6	80.9	DIPOLE	80.9	346	Debris		
										156_345	477870.74	3764834.17	6	87.6	DIPOLE	87.6	345	Debris	
										156_326	478198.41	3764507.82	5	99.8	DIPOLE	99.8	326	Debris	
										156_308	478714.73	3763909.57	4	2855.9	DIPOLE	2855.9	308	Pipeline	
										156_307	477239.08	3765982.20	4	214.8	DIPOLE	214.8	307	Debris	
										156_303	477795.70	3765670.78	3	52.1	DIPOLE	52.1	303	Debris	
										156_302	478086.23	3765412.95	2	255.3	DIPOLE	255.3	302	Debris	
										156_402	478191.00	3764082.07	27	2405.6	COMPLEX	2405.6	402	Pipeline	
										156_401	477440.64	3764248.57	26	4093.2	COMPLEX	4093.2	401	Pipeline	
										156_393	477336.92	3764244.42	11	4940.3	COMPLEX	4940.3	393	Pipeline	
										156_384	477683.81	376207.21	10	5414.6	COMPLEX	5414.6	384	Pipeline	
										156_348	478394.75	3763972.04	6	1989.6	COMPLEX	1989.6	348	Pipeline	
										156_324	478582.74	3763930.34	5	1903.8	COMPLEX	1903.8	324	Pipeline	
										155_290	474530.26	377032.56	17	111.3	MONOPOLE	111.3	290	Debris	
										155_276	474232.70	3768010.03	15	69.7	MONOPOLE	69.7	276	Debris	
										155_273	476366.51	3764752.96	15	57.6	MONOPOLE	57.6	273	Debris	
										155_265	475392.38	3766406.58	14	92.8	MONOPOLE	92.8	265	Debris	
										155_264	475037.79	3766977.01	14	87.6	MONOPOLE	87.6	264	Debris	
										155_261	476323.04	3755365.64	13	69	MONOPOLE	69	261	Debris	
										155_260	474888.44	377546.08	13	79.6	MONOPOLE	79.6	260	Debris	

DELA CROIX MARS BS-0037	PLAN VIEW BORROW AREA	BORROWABLE ANOMALIES	COASTAL PROTECTION AND RESTORATION AUTORITY	FENSTERMAKER Baton Rouge, Louisiana 150 Terrebonne Avenue Baton Rouge, Louisiana 70802
DRAWN BY: ANDI	DESIGNED BY: RJ	APPROVED BY: RJ	 <p>STATE PROJECT NUMBER: BS-0037 DATE: 10/14/2020 SHEET: 47 OF 45</p>	
DESIGNED BY: ANDI	APPROVED BY: RJ	DRAWN BY: ANDI	 <p>Ricardo Johnson Professional Land Surveyor Registration No. 4767</p>	

Magnetometer Survey Anomalies Borrow Area East											
Pt. #	NAD83 X	NAD83 Y	Line No.	Duration	Type	Gamma	Sequence No.	Description	Pt. #	NAD83 X	NAD83 Y
155_257	476399.71	3765482.06	12	635.8	MONPOLE	635.8	257	Debris	154_184	475931.19	3764682.61
155_246	474791.36	3768079.45	1	56	MONPOLE	56	246	Debris			
154_245	473971.89	3767874.65	24	68.3	MONPOLE	68.3	245	Debris			
154_205	475676.77	3764711.36	20	931.2	MONPOLE	931.2	205	Pipeline			
154_204	475051.56	3765849.58	19	97.2	MONPOLE	97.2	204	Debris			
154_183	475711.29	3764964.95	18	94.6	MONPOLE	94.6	183	Debris			
154_181	475312.56	3765643.22	18	89.1	MONPOLE	89.1	181	Debris			
154_177	474767.22	3766464.10	18	94.1	MONPOLE	94.1	177	Debris			
154_175	474008.96	3767605.87	18	82.3	MONPOLE	82.3	175	Debris			
155_292	474000.24	3767977.17	17	83	DIPOLE	83	292	Debris			
155_291	474511.21	3767216.14	17	163.3	DIPOLE	163.3	291	Debris			
155_289	475140.15	3766257.90	17	147.8	DIPOLE	147.8	289	Debris			
155_288	476239.32	3764563.97	17	2275.5	DIPOLE	2275.5	288	Pipeline			
155_280	477341.44	3764575.91	16	2043.8	DIPOLE	2043.8	280	Pipeline			
155_279	475895.96	3765261.45	16	430.2	DIPOLE	430.2	279	Debris			
155_278	475417.35	3766016.03	16	62.4	DIPOLE	62.4	278	Debris			
155_277	474927.90	3766754.68	16	103.1	DIPOLE	103.1	277	Debris			
155_275	474507.16	3767589.96	15	59.4	DIPOLE	59.4	275	Debris			
155_274	475400.24	3766337.13	15	130.7	DIPOLE	130.7	274	Debris			
155_272	476546.91	3764501.71	15	3560	DIPOLE	3560	272	Pipeline			
155_262	476811.93	3764636.55	13	79.3	DIPOLE	79.3	262	Debris			
155_258	474966.70	3767644.20	12	249.6	DIPOLE	249.6	258	Debris			
155_256	477155.72	3764553.98	12	3370.6	DIPOLE	3370.6	256	Pipeline			
155_249	476740.53	3765098.61	1	106	DIPOLE	106	249	Debris			
155_248	476643.11	37656243.96	1	210.6	DIPOLE	210.6	248	Debris			
155_247	476510.71	3765452.29	1	51.5	DIPOLE	51.5	247	Debris			
154_244	474552.35	3767033.41	24	311.5	DIPOLE	311.5	244	Debris			
154_243	475574.30	3765430.87	24	368.1	DIPOLE	368.1	243	Debris			
154_203	475793.11	3764715.21	19	1982	DIPOLE	1982	203	Pipeline			
154_182	475423.71	3765460.81	18	51.5	DIPOLE	51.5	182	Debris			
154_180	475284.35	3765703.38	18	128.9	DIPOLE	128.9	180	Debris			
154_179	475155.49	3765844.41	18	107.8	DIPOLE	107.8	179	Debris			
154_178	474997.55	3766115.96	18	83.5	DIPOLE	83.5	178	Debris			
154_176	474319.56	3767152.16	18	905	DIPOLE	905	176	Debris			
155_296	476827.58	3764437.75	25	3881	COMPLEX	3881	296	Pipeline			
155_266	476661.29	3764473.09	14	2366.8	COMPLEX	2366.8	266	Pipeline			
155_263	476982.53	3764401.12	13	3074.9	COMPLEX	3074.9	263	Pipeline			
155_259	474616.60	3767969.66	13	354.2	COMPLEX	354.2	259	Debris			
155_250	477241.33	3764327.44	1	3479.2	COMPLEX	3479.2	250	Pipeline			
154_242	476066.70	3764646.04	24	598.1	COMPLEX	598.1	242	Pipeline			

Magnetometer Survey Anomalies Borrow Area East											
Pt. #	NAD83 X	NAD83 Y	Line No.	Duration	Type	Gamma	Sequence No.	Description	Pt. #	NAD83 X	NAD83 Y
155_257	476399.71	3765482.06	12	635.8	MONPOLE	635.8	257	Debris	154_184	475931.19	3764682.61
155_246	474791.36	3768079.45	1	56	MONPOLE	56	246	Debris			
154_245	473971.89	3767874.65	24	68.3	MONPOLE	68.3	245	Debris			
154_205	475676.77	3764711.36	20	931.2	MONPOLE	931.2	205	Pipeline			
154_204	475051.56	3765849.58	19	97.2	MONPOLE	97.2	204	Debris			
154_183	475711.29	3764964.95	18	94.6	MONPOLE	94.6	183	Debris			
154_181	475312.56	3765643.22	18	89.1	MONPOLE	89.1	181	Debris			
154_177	474767.22	3766464.10	18	94.1	MONPOLE	94.1	177	Debris			
154_175	474008.96	3767605.87	18	82.3	MONPOLE	82.3	175	Debris			
155_292	474000.24	3767977.17	17	83	DIPOLE	83	292	Debris			
155_291	474511.21	3767216.14	17	163.3	DIPOLE	163.3	291	Debris			
155_289	475140.15	3766257.90	17	147.8	DIPOLE	147.8	289	Debris			
155_288	476239.32	3764563.97	17	2275.5	DIPOLE	2275.5	288	Pipeline			
155_280	477341.44	3764575.91	16	2043.8	DIPOLE	2043.8	280	Pipeline			
155_279	475895.96	3765261.45	16	430.2	DIPOLE	430.2	279	Debris			
155_278	475417.35	3766016.03	16	62.4	DIPOLE	62.4	278	Debris			
155_277	474927.90	3766754.68	16	103.1	DIPOLE	103.1	277	Debris			
155_275	474507.16	3767589.96	15	59.4	DIPOLE	59.4	275	Debris			
155_274	475400.24	3766337.13	15	130.7	DIPOLE	130.7	274	Debris			
155_272	476546.91	3764501.71	15	3560	DIPOLE	3560	272	Pipeline			
155_262	476811.93	3764636.55	13	79.3	DIPOLE	79.3	262	Debris			
155_258	474966.70	3767644.20	12	249.6	DIPOLE	249.6	258	Debris			
155_256	477155.72	3764553.98	12	3370.6	DIPOLE	3370.6	256	Pipeline			
155_249	476740.53	3765098.61	1	106	DIPOLE	106	249	Debris			
155_248	476643.11	37656243.96	1	210.6	DIPOLE	210.6	248	Debris			
155_247	476510.71	3765452.29	1	51.5	DIPOLE	51.5	247	Debris			
154_244	474552.35	3767033.41	24	311.5	DIPOLE	311.5	244	Debris			
154_243	475574.30	3765430.87	24	368.1	DIPOLE	368.1	243	Debris			
154_203	475793.11	3764715.21	19	1982	DIPOLE	1982	203	Pipeline			
154_182	475423.71	3765460.81	18	51.5	DIPOLE	51.5	182	Debris			
154_180	475284.35	3765703.38	18	128.9	DIPOLE	128.9	180	Debris			
154_179	475155.49	3765844.41	18	107.8	DIPOLE	107.8	179	Debris			
154_178	474997.55	3766115.96	18	83.5	DIPOLE	83.5	178	Debris			
154_176	474319.56	3767152.16	18	905	DIPOLE	905	176	Debris			
155_296	476827.58	3764437.75	25	3881	COMPLEX	3881	296	Pipeline			
155_266	476661.29	3764473.09	14	2366.8	COMPLEX	2366.8	266	Pipeline			
155_263	476982.53	3764401.12	13	3074.9	COMPLEX	3074.9	263	Pipeline			
155_259	474616.60	3767969.66	13	354.2	COMPLEX	354.2	259	Debris			
155_250	477241.33	3764327.44	1	3479.2	COMPLEX	3479.2	250	Pipeline			
154_242	476066.70	3764646.04	24	598.1	COMPLEX	598.1	242	Pipeline			

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER BY: BS-0037

DATE: 10/14/2020

SHEET: 48 OF 55

STATE PROJECT NUMBER: BS-0037

CRAZIX MARS

CRS-0037

BS-0037

11/14/2020

RICARDO JOHNSON

REG NO. 4767

REGISTERED

PROFESSIONAL

LAND SURVEYOR

Ricardo Johnson

Professional Land Surveyor

Registration No. 4767

Magnetometer Survey Anomalies Access											
Pt. #	NAD83 X	NAD83 Y	Line No.	Duration	Type	Gamma	Sequence No.	Description	Pt. #	NAD83 X	NAD83 Y
156_380	474062.78	3769093.11	9	64.2	MONPOLE	64.2	380	Debris	156_317	470491.18	3768460.62
156_372	467020.09	3770833.28	6	157.9	MONPOLE	157.9	372	Debris	156_316	470423.85	3768466.53
156_366	468005.68	3769029.43	6	332.9	MONPOLE	332.9	366	Debris	156_315	470266.75	3768495.33
156_360	470791.56	3768350.56	6	98.5	MONPOLE	98.5	360	Debris	156_311	467156.61	3770795.19
156_358	471559.96	3768188.69	6	235.9	MONPOLE	235.9	358	Debris	156_373	466627.26	3771420.14
156_355	472383.26	3768045.09	6	431.9	MONPOLE	431.9	355	Debris	156_367	468615.15	3769677.26
156_342	466787.34	3771406.38	5	170.4	MONPOLE	170.4	342	Debris	156_365	468957.46	3769535.60
156_337	470398.63	3768532.55	5	80.8	MONPOLE	80.8	337	Debris	156_363	469523.01	3768845.90
156_334	471615.02	3768321.06	5	73.5	MONPOLE	73.5	334	Debris	156_362	470369.81	3768443.51
156_329	473545.81	3767933.41	5	72.5	MONPOLE	72.5	329	Debris	156_340	467197.23	3770803.71
156_319	471007.45	3768358.45	4	252.3	MONPOLE	252.3	319	Debris	156_339	468106.87	3770016.70
156_314	468115.12	3768939.50	4	199.3	MONPOLE	199.3	314	Debris	156_312	467321.28	3770523.46
156_313	467570.91	3770227.08	4	163.8	MONPOLE	163.8	313	Debris	064_3_92	464490.68	3778043.35
156_310	466886.60	3771255.29	4	58.3	MONPOLE	58.3	310	Debris	064_3_89	461165.84	3771561.95
156_309	466486.67	3771566.51	4	332.3	MONPOLE	332.3	309	Debris	064_3_87	461552.85	3770875.83
156_389	474388.97	3768573.37	10	211.5	DIPOLE	211.5	389	Debris	064_3_85	464655.54	3770219.31
156_371	467449.78	3770256.59	6	57.3	DIPOLE	57.3	371	Debris	064_3_73	468895.74	3773859.84
156_370	467623.17	3770120.51	6	122.7	DIPOLE	122.7	370	Debris	064_3_70	467724.95	3773169.55
156_369	467859.30	3770017.22	6	191.7	DIPOLE	191.7	369	Debris	064_3_59	467297.60	3772875.81
156_368	468380.59	3769780.85	6	86.2	DIPOLE	86.2	368	Debris	064_3_58	467197.26	3772804.96
156_364	469309.35	3769222.08	6	131.6	DIPOLE	131.6	364	Debris	064_3_54	466557.05	3772131.01
156_361	470712.92	3768371.67	6	111.3	DIPOLE	111.3	361	Debris	064_3_50	467443.60	3772952.94
156_359	471382.57	3768214.89	6	150.6	DIPOLE	150.6	359	Debris	064_3_45	468900.43	3773860.15
156_357	472201.14	3768077.52	6	82.6	DIPOLE	82.6	357	Debris	064_3_44	468842.65	3774325.51
156_356	472280.09	3768069.67	6	82.9	DIPOLE	82.9	356	Debris	064_3_43	469397.36	3774108.79
156_354	472971.76	3767930.36	6	175.7	DIPOLE	175.7	354	Debris	064_3_37	468232.96	3773557.63
156_353	473040.49	3767914.42	6	85.5	DIPOLE	85.5	353	Debris	064_3_26	467825.69	3773288.91
156_352	473196.68	3767898.38	6	173.9	DIPOLE	173.9	352	Debris	064_3_25	467566.39	3773102.90
156_341	467117.29	3770952.52	5	230.5	DIPOLE	230.5	341	Debris	064_3_23	466985.74	3772830.20
156_338	470291.09	3768564.62	5	158.1	DIPOLE	158.1	338	Debris	064_3_19	466423.13	3771938.79
156_336	471167.57	3768401.69	5	262.6	DIPOLE	262.6	336	Debris	064_3_2	464369.42	3777910.13
156_335	471451.71	3768333.29	5	136.3	DIPOLE	136.3	335	Debris	076_3_131	464247.36	3777887.01
156_333	472280.82	3768175.94	5	65	DIPOLE	65	333	Debris	072_3_130	461918.85	3778012.00
156_332	472974.27	3768056.97	5	97	DIPOLE	97	332	Debris	066_3_100	463074.32	3778051.24
156_331	473353.83	3767959.69	5	104	DIPOLE	104	331	Debris	066_3_99	461161.10	3778096.77
156_330	473442.38	3767948.80	5	161.4	DIPOLE	161.4	330	Debris	066_3_98	460556.79	3778103.97
156_322	473440.43	3767907.63	4	100.9	DIPOLE	100.9	322	Debris	066_3_97	460050.85	3778059.57
156_321	472237.40	3768122.74	4	77.2	DIPOLE	77.2	321	Debris	064_3_91	461122.61	3778116.81
156_320	471235.55	3768311.63	4	149.9	DIPOLE	149.9	320	Debris	064_3_90	460300.01	3778121.23
156_318	470591.92	3768451.41	4	110.3	DIPOLE	110.3	318	Debris	064_3_88	461489.96	3771019.47

Magnetometer Survey Anomalies Access											
Pt. #	NAD83 X	NAD83 Y	Line No.	Duration	Type	Gamma	Sequence No.	Description	Pt. #	NAD83 X	NAD83 Y
156_380	474062.78	3769093.11	9	64.2	MONPOLE	64.2	380	Debris	156_317	470491.18	3768460.62
156_372	467020.09	3770833.28	6	157.9	MONPOLE	157.9	372	Debris	156_316	470423.85	3768466.53
156_366	468005.68	3769029.43	6	332.9	MONPOLE	332.9	366	Debris	156_315	470266.75	3768495.33
156_360	470791.56	3768350.56	6	98.5	MONPOLE	98.5	360	Debris	156_311	467156.61	3770795.19
156_358	471559.96	3768188.69	6	235.9	MONPOLE	235.9	358	Debris	156_373	466627.26	3771420.14
156_355	472383.26	3768045.09	6	431.9	MONPOLE	431.9	355	Debris	156_367	468615.15	3769677.26
156_342	466787.34	3771406.38	5	170.4	MONPOLE	170.4	342	Debris	156_365	468957.46	3769535.60
156_337	470398.63	3768532.55	5	80.8	MONPOLE	80.8	337	Debris	156_363	469523.01	3768845.90
156_334	471615.02	3768321.06	5	73.5	MONPOLE	73.5	334	Debris	156_362	470369.81	3768443.51
156_329	473545.81	3767933.41	5	72.5	MONPOLE	72.5	329	Debris	156_340	467197.23	3770803.71
156_319	471007.45	3768358.45	4	252.3	MONPOLE	252.3	319	Debris	156_339	468106.87	3770016.70
156_314	468115.12	3768939.50	4	199.3	MONPOLE	199.3	314	Debris	156_312	467321.28	3770523.46
156_313	467570.91	3770227.08	4	163.8	MONPOLE	163.8	313	Debris	064_3_92	464490.68	3778043.35
156_310	466886.60	3771255.29	4	58.3	MONPOLE	58.3	310	Debris	064_3_89	461165.84	3771561.95
156_309	466486.67	3771566.51	4	332.3	MONPOLE	332.3	309	Debris	064_3_87	461552.85	3770875.83
156_389	474388.97	3768573.37	10	211.5	DIPOLE	211.5	389	Debris	064_3_85	464655.54	3770219.31
156_371	467449.78	3770256.59	6	57.3	DIPOLE	57.3	371	Debris	064_3_73	468895.74	3773859.84
156_370	467623.17	3770120.51	6	122.7	DIPOLE	122.7	370	Debris	064_3_70	467724.95	3773169.55
156_369	467859.30	3770017.22	6	191.7	DIPOLE	191.7	369	Debris	064_3_59	467297.60	3772875.81
156_368	468380.59	3769780.85	6	86.2	DIPOLE	86.2	368	Debris	064_3_58	467197.26	3772804.96
156_364	469309.35	3769222.08	6	131.6	DIPOLE	131.6	364	Debris	064_3_54	466557.05	3772131.01
156_361	470712.92	3768371.67	6	111.3	DIPOLE	111.3	361	Debris	064_3_50	467443.60	3772952.94
156_359	471382.57	3768214.89	6	150.6	DIPOLE	150.6	359	Debris	064_3_45	468900.43	3773860.15
156_357	472201.14	3768077.52	6	82.6	DIPOLE	82.6	357	Debris	064_3_44	468842.65	3774325.51
156_356	472280.09	3768069.67	6	82.9	DIPOLE	82.9	356	Debris	064_3_43	469397.36	3774108.79
156_354	472971.76	3767930.36	6	175.7	DIPOLE	175.7	354	Debris	064_3_37	468232.96	3773557.63
156_353	473040.49	3767914.42	6	85.5	DIPOLE	85.5	353	Debris	064_3_26	467825.69	3773288.91
156_352	473196.68	3767898.38	6	173.9	DIPOLE	173.9	352	Debris	064_3_25	467566.39	3773102.90
156_341	467117.29	3770952.52	5	230.5	DIPOLE	230.5	341	Debris	064_3_23	466985.74	3772830.20
156_338	470291.09	3768564.62	5	158.1	DIPOLE	158.1	338	Debris	064_3_19	466423.13	3771938.79
156_336	471167.57	3768401.69	5	262.6	DIPOLE	262.6	336	Debris	064_3_2	464369.42	3777910.13
156_335	471451.71	3768333.29	5	136.3	DIPOLE	136.3	335	Debris	076_3_131	464247.36	3777887.01
156_333	472280.82	3768175.94	5	65	DIPOLE	65	333	Debris	072_3_130	461918.85	3778012.00
156_332	472974.27	3768056.97	5	97	DIPOLE	97	332	Debris	066_3_100	463074.32	3778051.24
156_331	473353.83	3767959.69	5	104	DIPOLE	104	331	Debris	066_3_99	461161.10	3778096.77
156_330	473442.38	3767948.80	5	161.4	DIPOLE	161.4	330	Debris	066_3_98	460556.79	3778103.97
156_322	473440.43	3767907.63	4	100.9	DIPOLE	100.9	322	Debris	066_3_97	460050.85	3778059.57
156_321	472237.40	3768122.74	4	77.2	DIPOLE	77.2	321	Debris	064_3_91	461122.61	3778116.81
156_320	471235.55	3768311.63	4	149.9	DIPOLE	149.9	320	Debris	064_3_90	460300.01	3778121.23
156_318	470591.92	37									

Magnetometer Survey Anomalies Access												Magnetometer Survey Anomalies Access											
Pt. #	NAD83 X	NAD83 Y	Line No.	Duration	Type	Gamma	Sequence No.	Description	Pt. #	NAD83 X	NAD83 Y	Line No.	Duration	Type	Gamma	Sequence No.	Description						
064_3_86	464143.60	376918.80	23	1706.9	DIPOLE	1706.9	86	Debris	064_3_31	469214.95	3774074.31	3	1836.6	DIPOLE	1836.6	31	Debris						
064_3_84	465615.61	3770900.38	23	698.9	DIPOLE	698.9	84	Debris	064_3_30	468706.22	3773809.00	3	3436.9	DIPOLE	3436.9	30	Debris						
064_3_83	465735.04	3771108.87	23	2664.3	DIPOLE	2664.3	83	Debris	064_3_29	468632.90	3773759.71	3	3054.5	DIPOLE	3054.5	29	Debris						
064_3_81	465957.16	3771359.52	23	622.1	DIPOLE	622.1	81	Debris	064_3_28	468258.29	3773569.17	3	778.9	DIPOLE	778.9	28	Debris						
064_3_80	466227.23	3771596.50	23	163.1	DIPOLE	163.1	80	Debris	064_3_27	468072.22	3773450.98	3	555.6	DIPOLE	555.6	27	Debris						
064_3_79	470909.93	3774095.84	4	3350.9	DIPOLE	3350.9	79	Debris	064_3_24	467155.27	3772267.36	3	2053.8	DIPOLE	2053.8	24	Debris						
064_3_78	470985.72	3774054.06	4	3367.6	DIPOLE	3367.6	78	Prog Well	064_3_22	466945.31	3772557.67	3	1743.6	DIPOLE	1743.6	22	Debris						
064_3_76	470969.42	3774068.97	5	9820.2	DIPOLE	9820.2	76	Debris	064_3_21	466640.64	3772187.96	3	1631.2	DIPOLE	1631.2	21	Debris						
064_3_75	470865.79	3774218.16	4	1839.4	DIPOLE	1839.4	75	Debris	064_3_20	466593.75	3772141.70	3	1553.9	DIPOLE	1553.9	20	Debris						
064_3_74	470751.46	3774477.05	4	393.3	DIPOLE	393.3	74	Debris	064_3_16	461782.37	3778010.19	26	225.8	DIPOLE	225.8	16	Debris						
064_3_72	468806.50	3773811.22	4	971	DIPOLE	971	72	Debris	064_3_14	462466.55	3777969.18	27	803.4	DIPOLE	803.4	14	Debris						
064_3_71	468093.87	3773409.63	4	1317.9	DIPOLE	1317.9	71	Debris	064_3_1	464358.92	3777923.05	30	253.7	DIPOLE	253.7	1	Pipeline						
064_3_69	467152.92	3772717.29	4	687.4	DIPOLE	687.4	69	Debris	064_3_82	465873.60	3771255.61	23	2664.3	COMPLEX	2664.3	82	Debris						
064_3_68	466968.88	3772555.25	4	1266.5	DIPOLE	1266.5	68	Debris	064_3_77	470925.17	3774078.52	5	6762.1	COMPLEX	6762.1	77	Debris						
064_3_67	466547.65	3772046.92	4	1668.1	DIPOLE	1668.1	67	Debris	064_3_36	468117.52	3773499.10	3	794.7	COMPLEX	794.7	36	Debris						
064_3_66	4688267.93	3773544.50	5	1890.2	DIPOLE	1890.2	66	Debris	064_3_35	467688.21	3773187.67	4	603.2	COMPLEX	603.2	35	Debris						
064_3_65	469247.92	3774096.10	5	1990	DIPOLE	1990	65	Debris	064_3_15	462432.35	3777976.50	27	104	COMPLEX	104	15	Debris						
064_3_64	470866.35	3774208.83	5	1832.2	DIPOLE	1832.2	64	Debris															
064_3_63	470916.51	3774017.75	5	2721.2	DIPOLE	2721.2	63	Debris															
064_3_62	470926.58	3774084.03	5	7418	DIPOLE	7418	62	Debris															
064_3_61	470949.64	3774093.93	3	5518.9	DIPOLE	5518.9	61	Debris															
064_3_60	468704.92	3773814.55	3	4097.3	DIPOLE	4097.3	60	Debris															
064_3_57	470416.57	3774675.86	3	757.7	DIPOLE	757.7	57	Debris															
064_3_56	467077.31	3772718.02	3	2029.8	DIPOLE	2029.8	56	Debris															
064_3_55	466795.85	3772379.24	3	1487.8	DIPOLE	1487.8	55	Debris															
064_3_53	466605.77	3772108.01	3	703.2	DIPOLE	703.2	53	Debris															
064_3_52	466668.74	3772152.27	3	495.6	DIPOLE	495.6	52	Debris															
064_3_51	467091.82	3772666.08	3	1107.9	DIPOLE	1107.9	51	Debris															
064_3_49	468244.56	3773506.15	3	616	DIPOLE	616	49	Debris															
064_3_48	468367.79	3773599.70	3	616	DIPOLE	616	48	Debris															
064_3_47	468663.01	3773742.57	3	2657.9	DIPOLE	2657.9	47	Debris															
064_3_46	468812.72	3773808.41	3	1307.6	DIPOLE	1307.6	46	Debris															
064_3_42	470973.71	3774074.19	4	9687.6	DIPOLE	9687.6	42	Debris															
064_3_41	470546.27	3774672.18	4	115.7	DIPOLE	115.7	41	Debris															
064_3_40	470276.65	3774645.72	4	212.6	DIPOLE	212.6	40	Debris															
064_3_39	469944.91	3774398.94	4	543.5	DIPOLE	543.5	39	Debris															
064_3_38	469205.88	3774036.74	4	426.3	DIPOLE	426.3	38	Debris															
064_3_34	468073.25	3773594.28	4	829.7	DIPOLE	829.7	34	Debris															
064_3_33	468393.69	3773597.76	4	405.9	DIPOLE	405.9	33	Debris															
064_3_32	468810.05	3773814.18	4	1492.4	DIPOLE	1492.4	32	Debris															

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AMI

APPROVED BY: RJ

DESIGNER: BS-0037

STATE PROJECT NUMBER: BS-0037

DRAWN BY: AM

Magnetometer Survey Anomalies Marsh Creation Area											
Pt. #	NAD83 X	NAD83 Y	Line No.	Duration	Type	Gamma	Sq. No.	Description	Pt. #	NAD83 X	NAD83 Y
079_3_174	464182.25	3770933.69	1	1565.5	MONPOLE	1565.5	174	Debris	077_3_145	469344.03	3777991.44
079_3_171	465601.71	3772017.90	1	943.9	MONPOLE	943.9	171	Debris	077_3_144	468943.52	3777684.54
078_3_169	467000.44	3773692.78	2	63.9	MONPOLE	63.9	169	Debris	077_3_143	468779.23	3777568.10
078_3_166	463838.58	3771308.73	2	643.3	MONPOLE	643.3	166	Pipeline	077_3_142	466366.87	3775735.68
078_3_158	471460.40	3777730.71	3	80.6	MONPOLE	80.6	158	Debris	077_3_140	464088.11	3774006.25
078_3_146	468705.53	3776680.48	5	238.7	MONPOLE	238.7	146	Debris	077_3_136	464188.04	3775328.94
077_3_139	465512.11	3776322.06	8	248.8	MONPOLE	248.8	139	Debris	077_3_135	462000.41	3773675.02
077_3_138	463276.38	3776142.73	8	1599.4	MONPOLE	1599.4	138	Debris	077_3_132	464329.78	3777329.69
077_3_133	464273.85	3776658.58	10	1600.9	MONPOLE	1600.9	133	Pipeline	072_3_121	471378.55	3777777.29
072_3_129	463305.85	3773514.89	23	94.8	MONPOLE	94.8	129	Debris	072_3_119	469759.26	3778233.61
072_3_127	464441.51	3770225.60	23	163.7	MONPOLE	163.7	127	Debris	072_3_117	470653.70	3777052.05
072_3_126	461351.21	3772851.71	17	59.1	MONPOLE	59.1	126	Debris	071_3_116	470406.04	3776577.34
072_3_125	464141.85	3774876.59	7	1626.4	MONPOLE	1626.4	125	Pipeline	071_3_115	468947.46	3777673.32
072_3_124	465527.16	3775718.20	7	115.8	MONPOLE	115.8	124	Debris	071_3_114	468794.74	3777025.51
072_3_123	466820.80	3776708.78	7	262.2	MONPOLE	262.2	123	Debris	071_3_113	468706.05	3777143.90
072_3_120	469360.37	3777877.11	39	702.1	MONPOLE	702.1	120	Debris	071_3_112	468773.86	3776225.97
072_3_118	469856.07	3778110.70	39	611.5	MONPOLE	611.5	118	Debris	071_3_109	468796.03	3774574.41
071_3_111	468525.48	3775739.19	34	110.3	MONPOLE	110.3	111	Debris	071_3_108	467217.53	3775805.06
071_3_110	468100.17	3775467.21	33	109.8	MONPOLE	109.8	110	Debris	071_3_107	467087.22	3775977.34
064_3_9	464252.62	3776141.41	28	1240.4	MONPOLE	1240.4	9	Pipe Line	070_3_106	467084.57	3775973.54
064_3_7	465334.57	3775799.09	29	83.5	MONPOLE	83.5	7	Debris	070_3_105	466828.86	3776319.83
064_3_6	465896.38	3775059.27	29	1224	MONPOLE	1224	6	Pna Well	070_3_104	467883.64	3774113.10
064_3_5	466973.82	3776358.95	29	246.5	MONPOLE	246.5	5	Debris	070_3_102	463801.34	3777206.50
079_3_173	464560.31	3777233.33	1	392.2	DIPOLE	392.2	173	Debris	070_3_101	463893.71	3777191.33
079_3_170	465907.07	37772257.21	1	1850.4	DIPOLE	1850.4	170	Possible Pipeline	065_3_95	463957.67	3777430.17
078_3_168	465978.42	3772935.40	2	750	DIPOLE	750	168	Possible Pipeline	065_3_94	464090.20	3777413.10
078_3_167	464230.44	3771613.02	2	80.2	DIPOLE	80.2	167	Debris	065_3_93	465692.54	3772043.13
078_3_163	466762.82	3774135.57	3	61.7	DIPOLE	61.7	163	Debris	064_3_17	464134.15	37774912.27
078_3_162	468500.71	3775649.97	3	572	DIPOLE	572	162	Debris	064_3_13	464195.08	3775655.40
078_3_161	471092.44	377743.22	3	3025.8	DIPOLE	3025.8	161	Debris	064_3_12	465894.75	3773407.58
078_3_160	471190.99	3777647.84	3	491	DIPOLE	491	160	Debris	064_3_10	465917.82	3774215.06
078_3_157	471023.21	3777999.87	4	67.8	DIPOLE	67.8	157	Debris	064_3_8	464301.18	3777162.46
078_3_155	463962.39	3774185.37	4	4294.4	DIPOLE	4294.4	155	Possible Pipeline	064_3_4	466797.45	3777412.00
078_3_152	462229.00	3771373.92	4	74.6	DIPOLE	74.6	152	Debris	064_3_3	464977.81	3777130.83
078_3_151	462530.03	3772195.13	5	104.7	DIPOLE	104.7	151	Debris	079_3_172	465390.79	3777857.17
078_3_150	462276.15	3772752.53	5	222.8	DIPOLE	222.8	150	Debris	078_3_165	463845.30	3777937.41
078_3_149	463995.98	3773311.90	5	1994.9	DIPOLE	1994.9	149	Pipeline	078_3_164	465861.81	3773407.72
078_3_147	466338.55	3775147.27	5	1225.8	DIPOLE	1225.8	147	Debris	078_3_159	471381.51	3777783.50

Magnetometer Survey Anomalies Marsh Creation Area											
Pt. #	NAD83 X	NAD83 Y	Line No.	Duration	Type	Gamma	Sq. No.	Description	Pt. #	NAD83 X	NAD83 Y
077_3_139	465512.11	3776322.06	8	248.8	MONPOLE	248.8	139	Debris	077_3_135	462000.41	3773675.02
077_3_138	463276.38	3776142.73	8	1599.4	MONPOLE	1599.4	138	Debris	077_3_132	464329.78	3777329.69
077_3_133	464273.85	3776658.58	10	1600.9	MONPOLE	1600.9	133	Pipeline	072_3_121	471378.55	3777777.29
072_3_129	463305.85	3773514.89	23	94.8	MONPOLE	94.8	129	Debris	072_3_119	469759.26	3778233.61
072_3_127	464441.51	3770225.60	23	163.7	MONPOLE	163.7	127	Debris	072_3_117	470653.70	3777052.05
072_3_126	461351.21	3772851.71	17	59.1	MONPOLE	59.1	126	Debris	071_3_116	470406.04	3776577.34
072_3_125	464141.85	3774876.59	7	1626.4	MONPOLE	1626.4	125	Pipeline	071_3_115	468947.46	3777673.32
072_3_124	465527.16	3775718.20	7	115.8	MONPOLE	115.8	124	Debris	071_3_114	468794.74	3777025.51
072_3_123	466820.80	3776708.78	7	262.2	MONPOLE	262.2	123	Debris	071_3_113	468706.05	3777143.90
072_3_120	469360.37	3777877.11	39	702.1	MONPOLE	702.1	120	Debris	071_3_112	468773.86	3776225.97
072_3_118	469856.07	3778110.70	39	611.5	MONPOLE	611.5	118	Debris	071_3_109	468796.03	3774574.41
071_3_111	468525.48	3775739.19	34	110.3	MONPOLE	110.3	111	Debris	071_3_108	467217.53	3775805.06
071_3_110	468100.17	3775467.21	33	109.8	MONPOLE	109.8	110	Debris	071_3_107	467087.22	3775977.34
064_3_9	464252.62	3776141.41	28	1240.4	MONPOLE	1240.4	9	Pipe Line	070_3_106	467084.57	3775973.54
064_3_7	465334.57	3775799.09	29	83.5	MONPOLE	83.5	7	Debris	070_3_105	466828.86	3776319.83
064_3_6	465896.38	3775059.27	29	1224	MONPOLE	1224	6	Pna Well	070_3_104	467883.64	3774113.10
064_3_5	466973.82	3776358.95	29	246.5	MONPOLE	246.5	5	Debris	070_3_102	463801.34	3777206.50
079_3_173	464560.31	3777233.33	1	392.2	DIPOLE	392.2	173	Debris	070_3_101	463893.71	3777191.33
079_3_170	465907.07	37772257.21	1	1850.4	DIPOLE	1850.4	170	Possible Pipeline	065_3_95	463957.67	3777430.17
078_3_168	465978.42	3772935.40	2	750	DIPOLE	750	168	Possible Pipeline	065_3_94	464090.20	3777413.10
078_3_167	464230.44	3771613.02	2	80.2	DIPOLE	80.2	167	Debris	065_3_93	465692.54	3772043.13
078_3_163	466762.82	3774135.57	3	61.7	DIPOLE	61.7	163	Debris	064_3_17	464134.15	37774912.27
078_3_162	468500.71	3775649.97	3	572	DIPOLE	572	162	Debris	064_3_13	464195.08	3775655.40
078_3_161	471092.44	377743.22	3	3025.8	DIPOLE	3025.8	161	Debris	064_3_12	465894.75	3773407.58
078_3_160	471190.99	3777647.84	3	491	DIPOLE	491	160	Debris	064_3_10	465917.82	3774215.06
078_3_157	471023.21	3777999.87	4	67.8	DIPOLE	67.8	157	Debris	064_3_8	464301.18	3777162.46
078_3_155	463962.39	3774185.37	4	4294.4	DIPOLE	4294.4	155	Possible Pipeline	064_3_4	466797.45	3777412.00
078_3_152	462229.00	3771373.92	4	74.6	DIPOLE	74.6	152	Debris	064_3_3	464977.81	3777130.83
078_3_151	462530.03	3772195.13	5	104.7	DIPOLE	104.7	151	Debris	079_3_172	465390.79	3777857.17
078_3_150	462276.15	3772752.53	5	222.8	DIPOLE	222.8	150	Debris	078_3_165	463845.30	3777937.41
078_3_149	463995.98	3773311.90	5	1994.9	DIPOLE	1994.9	149	Pipeline	078_3_164	465861.81	3773407.72
078_3_147	466338.55	3775147.27	5	1225.8	DIPOLE	1225.8	147	Debris	078_3_159	471381.51	3777783.50


STATE PROJECT NUMBER: BS-0037

DRAWN BY: ADU

APPROVED BY: RJ

DESIGNED BY: RJ

BATON ROUGE, LOUISIANA

COASTAL PROTECTION AND RESTORATION AUTHORITY

DEPARTMENT OF NATURAL RESOURCES

LAND SURVEYOR

Ricardo M. Johnson
Registration No. 4767
DATE: 10/14/2020
SHEET: 51 OF 15

Magnetometer Survey Anomalies Marsh Creation Area									
Pt. #	NAD83 X	NAD83 Y	Line No.	Duration	Type	Gamma	Seq. No.	Description	
078_3_156	466817.13	3774814.63	4	499.1	COMPLEX	499.1	156	Debris	
078_3_154	46404.59	3772689.15	4	394.6	COMPLEX	394.6	154	Pipeline	
078_3_153	463823.80	3772561.28	4	293	COMPLEX	293	153	Debris	
078_3_148	465639.29	3774706.84	5	9349.9	COMPLEX	9349.9	148	Possible Pipeline	
077_3_141	464299.01	3774168.06	6	5062.9	COMPLEX	5062.9	141	Debris	
077_3_137	462223.75	3773832.15	8	7327.5	COMPLEX	7327.5	137	Debris	
077_3_134	464240.41	3776004.62	9	406.3	COMPLEX	406.3	134	Pipeline	
072_3_128	463970.68	3772649.96	23	1177.8	COMPLEX	1177.8	128	Pipeline	
072_3_122	471399.17	3777750.06	41	375.2	COMPLEX	375.2	122	Debris	
070_3_103	463645.78	3770597.60	19	2062.5	COMPLEX	2062.5	103	Possible Pipeline	
065_3_96	464033.66	3773389.36	24	289.8	COMPLEX	289.8	96	Pipeline	
064_3_18	465954.04	3772509.95	26	2089.5	COMPLEX	2089.5	18	Abandoned Pipeline	
064_3_11	466384.24	3772735.26	27	1890.3	COMPLEX	1890.3	11	Debris	

DELACROIX MARSHP	CREATION BS-0037	MARSH CREATON AREA	PLAN VIEW ANOMALIES	COSTAL PROTECTION AND RESTORATION	AUTHORITY	BATON ROUGE, LOUISIANA 70802
APPROVED BY: RJD	DESIGNED BY: RJ	REV:	DATE:	REV:	DATE:	DRAWN BY: ABD
 <p>STATE PROJECT NUMBER: BS-0037 DESIGNED BY: RJ APPROVED BY: RJD REV: DATE: DRAWN BY: ABD</p>						



Ricardo M. Johnson
Professional Land Surveyor
Registration No. 4767

R. Johnson

DATE: 10/14/2020
SHEET: 52 OF 55





Ricardo M. Johnson
Professional Land Surveyor
Registration No. 4767

DRAWN BY: AMU

DATE: 10/14/2020

SHEET: 57 OF 47

DELA CROIX MARS	CROSS SECTION BS-0037	ACCESS ROUTE I	APPROVED BY: RJ
CRÉATION	BS-0037	DESIGNED BY: RJ	10/14/2020

BATON ROUGE, LOUISIANA 70802	150 TERRACE AVENUE
AUTHORITY	COSTAL PROTECTION AND RESTORATION

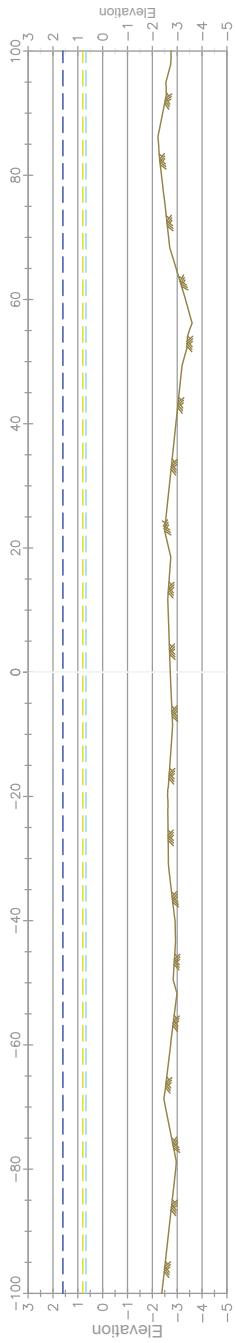
REV	DATE	DESCRIPTION	BY

ALIGNMENT AR1

Cross Section @ Station. AR1-G-AR1-G'

Horizontal Scale 1" = 20

Vertical Scale 1" = 5'

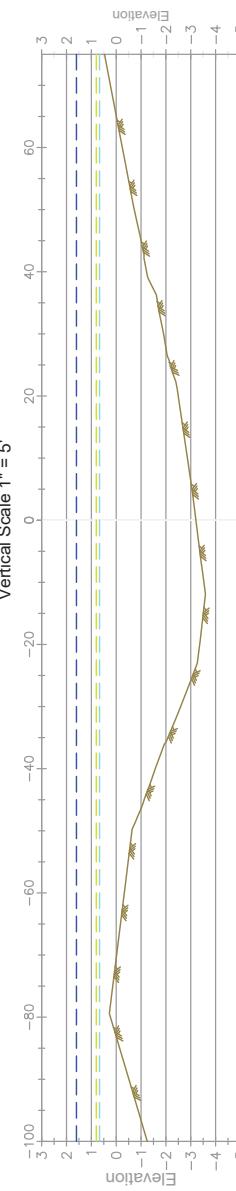


ALIGNMENT AR1

Cross Section @ Station. AR1-H-AR1-H'

Horizontal Scale 1" = 20

Vertical Scale 1" = 5'

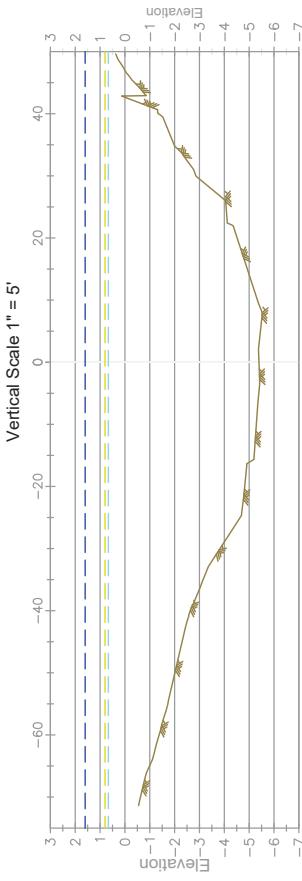


ALIGNMENT AR1

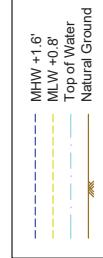
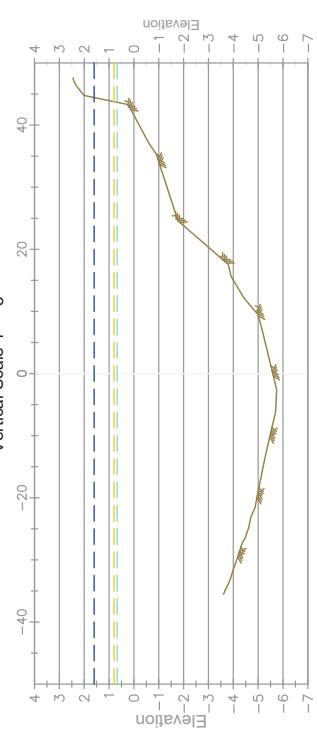
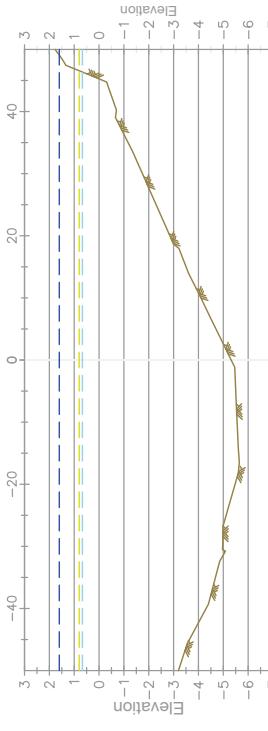
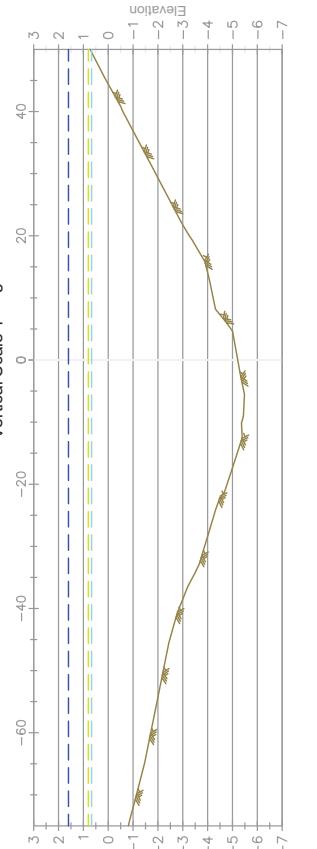
Cross Section @ Station. AR1-I-AR1-I'

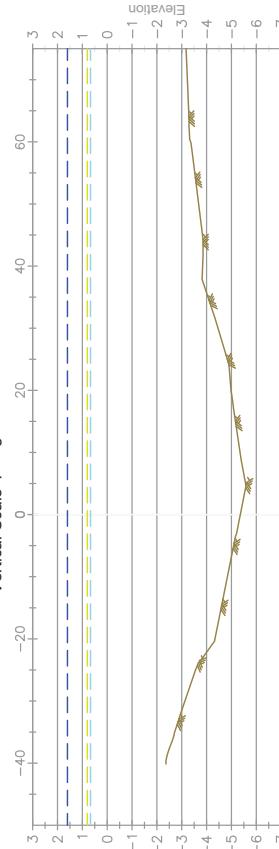
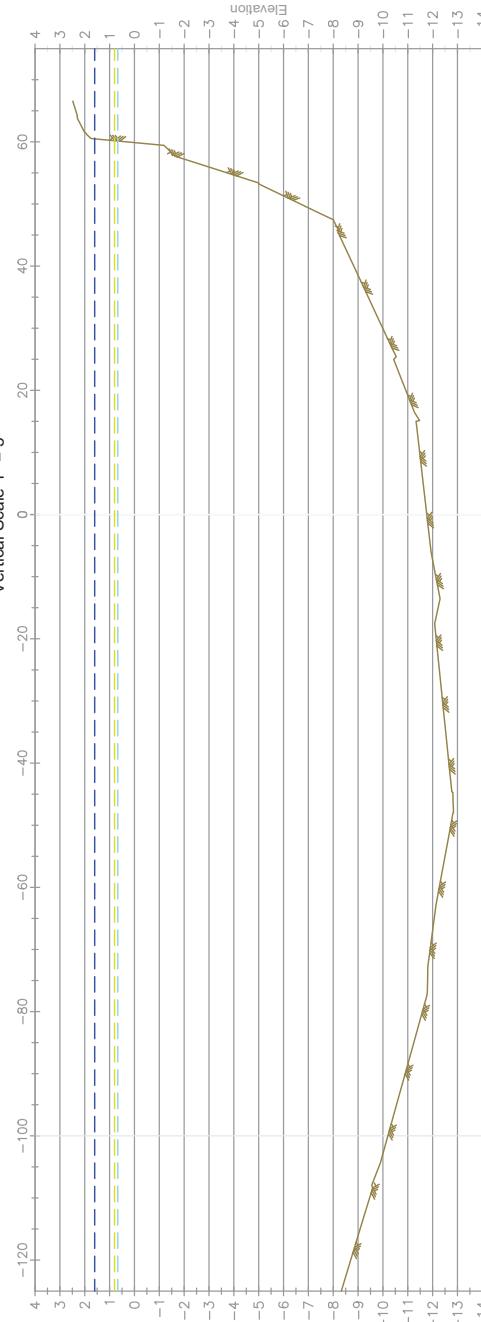
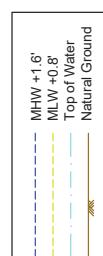
Horizontal Scale 1" = 20

Vertical Scale 1" = 5'



MHW +1.6'
MLW +0.8'
Top of Water
Natural Ground

 <p>STATE PROJECT NUMBER: BS-0037</p> <p>DELACROIX MARSHP</p> <p>CROSS SECTION BS-0037</p> <p>AUTHORITY AND RESTORATION</p> <p>CROSS ROUTE 1</p> <p>ACCESSES SECTIONS</p> <p>COASTAL PROTECTION</p> <p>BATON ROUGE, LOUISIANA 70802</p> <p>ISO THREE-FIGURE AVENUE</p> <p>REV. DATE DESCRIPTION</p>									
<p>DRAWN BY: ADJ</p> <p>APPROVED BY: RJ</p> <p>DESIGNED BY: RJ</p> <p>DATE: 10/14/2020</p> <p>REGISTRATION NO. 4767</p> <p>Ricardo M. Johnson</p> <p>Professional Land Surveyor</p> <p>Registration No. 4767</p> <p>DATE: 10/14/2020</p> <p>Sheets 60 of 87</p>									
<p>ALIGNMENT AR1</p> <p>Cross Section @ Station AR1-N-AR1-N'</p> <p>Horizontal Scale 1" = 20'</p> <p>Vertical Scale 1" = 5'</p> <p>Vertical Scale 1" = 20'</p> <p>Vertical Scale 1" = 5'</p> <p>Vertical Scale 1" = 20'</p> <p>Vertical Scale 1" = 5'</p> <p>Vertical Scale 1" = 20'</p> <p>Vertical Scale 1" = 5'</p>									
<p>ALIGNMENT AR1</p> <p>Cross Section @ Station AR1-O-AR1-O'</p> <p>Horizontal Scale 1" = 20'</p> <p>Vertical Scale 1" = 5'</p> <p>Vertical Scale 1" = 20'</p> <p>Vertical Scale 1" = 5'</p> <p>Vertical Scale 1" = 20'</p> <p>Vertical Scale 1" = 5'</p> <p>Vertical Scale 1" = 20'</p> <p>Vertical Scale 1" = 5'</p>									
<p>ALIGNMENT AR1-P</p> <p>Cross Section @ Station AR1-P-AR1-P'</p> <p>Horizontal Scale 1" = 20'</p> <p>Vertical Scale 1" = 5'</p> <p>Vertical Scale 1" = 20'</p> <p>Vertical Scale 1" = 5'</p> <p>Vertical Scale 1" = 20'</p> <p>Vertical Scale 1" = 5'</p> <p>Vertical Scale 1" = 20'</p> <p>Vertical Scale 1" = 5'</p>									
									
									
									
									

DELAGROIX MARSCH CROSS SECTION BS-0037					
COASTAL PROTECTION AND RESTORATION AUTHORITY					
CROSS SECTION I ACCESSION NUMBER BS-0037			APPROVED BY: RJ DISINDED BY: RJ		
BATON ROUGE, LOUISIANA 70802 ISO THREE-DIGIT AVNINE 100 THREEDIGIT AVNINE			DRAWN BY: ADJ STAFF PROJECT MEMBER: BS-0037		
REV:	DATE:	DESCRIPTION	REV:	DATE:	BY
SHEET 61 OF 87 DATE: 10/14/2020					
 <p>STATE LAND SURVEYOR REGISTRATION NO. 4767 RICARDO M. JOHNSON REG. NO. 4767 11/14/2020 Ricardo M. Johnson Professional Land Surveyor Registration No. 4767</p>					
 <p>ALIGNMENT AR1 Cross Section @ Station: AR1-Q-AR1-Q' Horizontal Scale 1" = 20 Vertical Scale 1" = 5'</p>					
 <p>ALIGNMENT AR1 Cross Section @ Station: AR1-R-AR1-R' Horizontal Scale 1" = 20 Vertical Scale 1" = 5'</p>					
 <p>MHW +1.6' MLW +0.8' Top of Water Natural Ground</p>					



CROSS SECTION BS-0037

DELACROIX MARSHP

STATE PROJECT NUMBER: BS-0037

DESIGNED BY: RJ

APPROVED BY: RJ

BATON ROUGE, LOUISIANA 70802

150 TERRACE AVENUE

AUTHORITY

COSTAL PROTECTION

AND RESTORATION

ACROSS ROUTE 2

BY

REV. DATE DESCRIPTION

DATE: 10/14/2020

DRAWN BY: AMU

11/4/2020

RICARDO M. JOHNSON

REG No. 4767

REGISTERED PROFESSIONAL

LAND SURVEYOR

R. Johnson

Professional Land Surveyor

Registration No. 4767

DATE: 10/14/2020

SHEET 66 OF 87

ALIGNMENT AR2

Cross Section @ Station AR2-H-AR2-H'

Horizontal Scale 1" = 30'

Vertical Scale 1" = 8'

Elevation

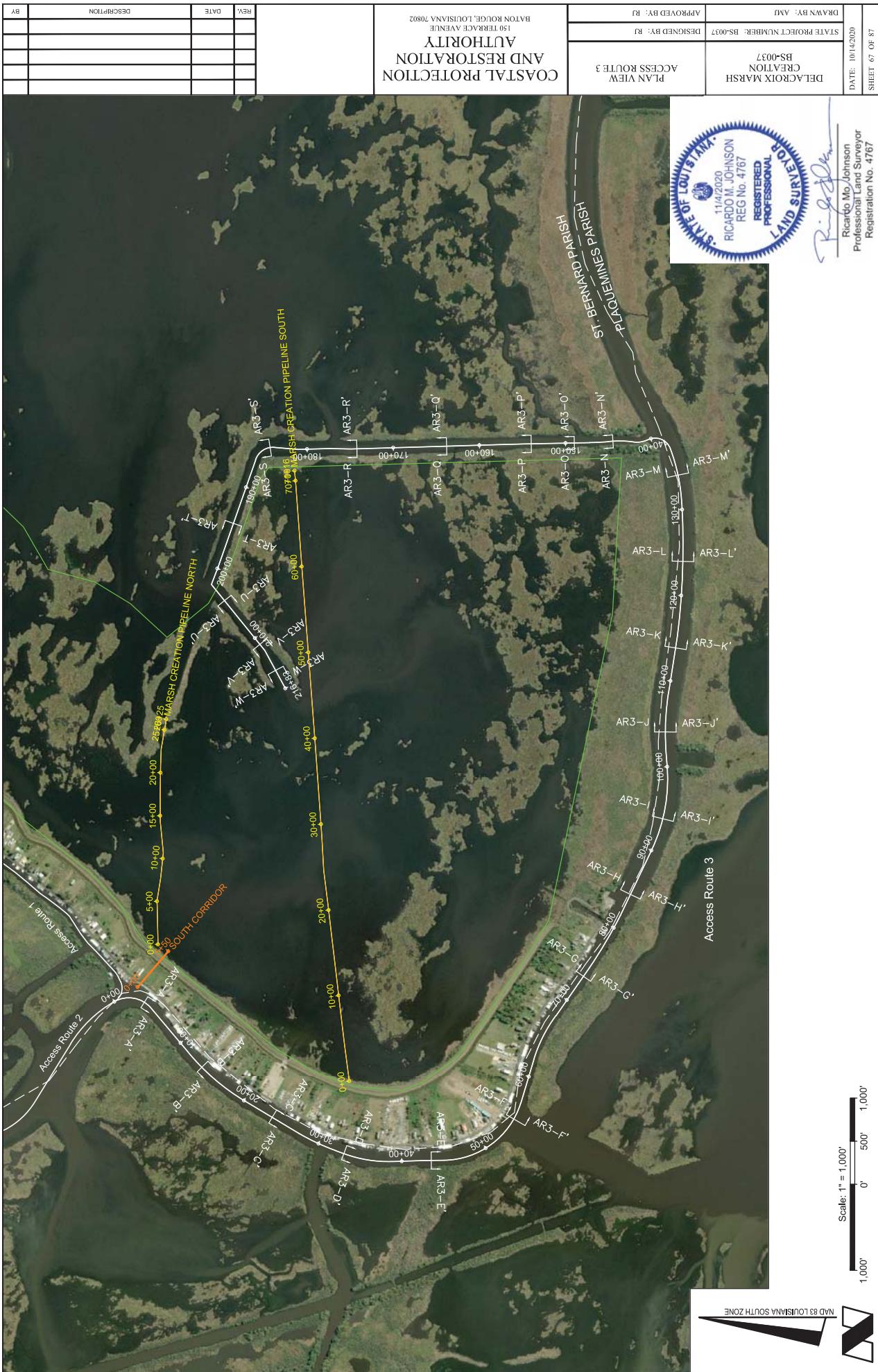
MHW +16'

MLW -08'

Top of Water

Natural Ground

Point	Distance (miles)	Elevation (feet)
1	-1.5	-190
2	-1.5	-180
3	-1.5	-170
4	-1.5	-160
5	-1.5	-150
6	-1.5	-140
7	-1.5	-130
8	-1.5	-120
9	-1.5	-110
10	-1.5	-100
11	-1.5	-90
12	-1.5	-80
13	-1.5	-70
14	-1.5	-60
15	-1.5	-50
16	-1.5	-40
17	-1.5	-30
18	-1.5	-20
19	-1.5	-10
20	-1.5	0
21	-1.5	10
22	-1.5	20
23	-1.5	30
24	-1.5	40
25	-1.5	50
26	-1.5	60
27	-1.5	70
28	-1.5	80
29	-1.5	90
30	-1.5	100
31	-1.5	110
32	-1.5	120
33	-1.5	130
34	-1.5	140
35	-1.5	150
36	-1.5	160
37	-1.5	170
38	-1.5	180
39	-1.5	190
40	-1.5	200
41	0.0	180
42	0.0	160
43	0.0	140
44	0.0	120
45	0.0	100
46	0.0	80
47	0.0	60
48	0.0	40
49	0.0	20
50	0.0	0
51	0.0	-20
52	0.0	-40
53	0.0	-60
54	0.0	-80
55	0.0	-100
56	0.0	-120
57	0.0	-140
58	0.0	-160
59	0.0	-180
60	0.0	-200



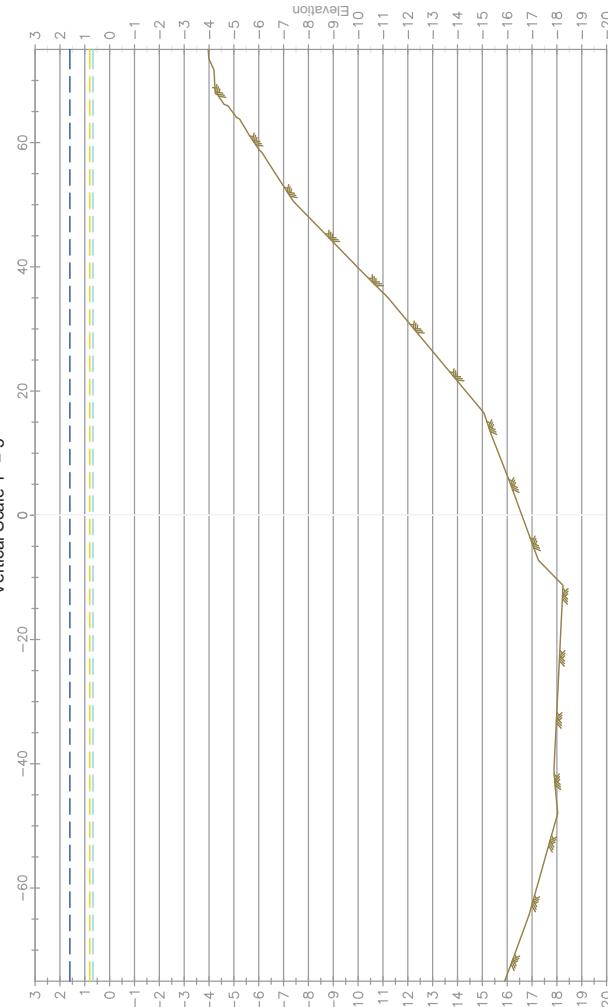
**COSTAL PROTECTION
AND RESTORATION**
AUTHORITY

CROSS SECTIONS AND ELEVATIONS	REV. DATE	DESCRIPTION
STATE PROJECT NUMBER: BS-0037	DESIGNED BY: RJ	APPROVED BY: RJ
BATON ROUGE, LOUISIANA 70802 100 TERRACE AVENUE	DESIGNED BY: RJ	APPROVED BY: RJ
DELAWARE MARS	BS-0037	DATE: 10/14/2020
CREATION	DESIGNED BY: RJ	SHEET 70 OF 87
ACCESSION NO.	APPROVED BY: RJ	DATE: 10/14/2020
REV. DATE	DESCRIPTION	BY



11/16/2020
RICARDO M. JOHNSON
REG No. 4767
REGISTERED
PROFESSIONAL
LAND SURVEYOR
Ricardo Mo. Johnson
Professional Surveyor
Registration No. 4767

ALIGNMENT AR3
Cross Section @ Station AR3-A-AR3-A'
Horizontal Scale 1" = 20
Vertical Scale 1" = 5'



100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

100

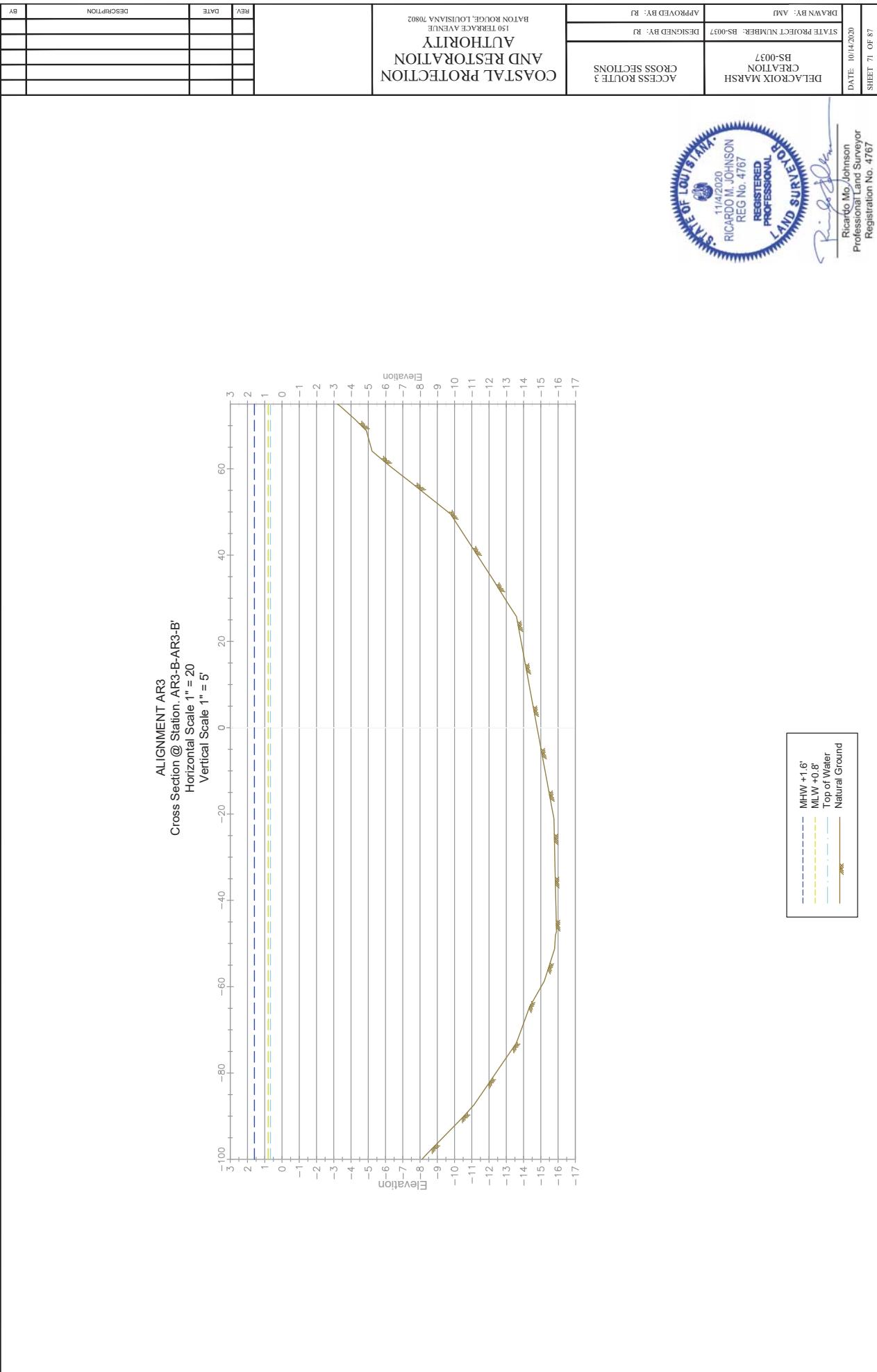
100

100

100

100

100



STATE PROJECT NUMBER: BS-0037

DESIGNED BY: RJ

APPROVED BY: RJ

BATON ROUGE, LOUISIANA 70802

100' TERRACE AVENUE

AUTHORITY

COSTAL PROTECTION

AND RESTORATION

ACCESSION BOLIFF 3

CROSS SECTIONS

REV. DATE DESCRIPTION BY

DELAGROIX MARSH

BS-0037

CREATION

DATE: 10/14/2020

STATE PROJECT NUMBER: AR3-D

CROSS SECTION @ Station. AR3-D-AR3-D'

Horizontal Scale 1" = 20

Vertical Scale 1" = 5'

ALIGNMENT AR3

Vertical Elevation

MHW +1.6'

MLW +0.8'

Top of Water

Natural Ground

Horizontal Distance (ft)	Vertical Elevation (ft)	Profile Type
-98	-10.0	Natural Ground
-95	-10.5	Natural Ground
-90	-11.0	Natural Ground
-85	-11.5	Natural Ground
-80	-12.0	Natural Ground
-75	-12.5	Natural Ground
-70	-13.0	Natural Ground
-65	-13.5	Natural Ground
-60	-14.0	Natural Ground
-55	-14.5	Natural Ground
-50	-15.0	Natural Ground
-45	-15.5	Natural Ground
-40	-16.0	Natural Ground
-35	-16.5	Natural Ground
-30	-17.0	Natural Ground
-25	-17.5	Natural Ground
-20	-18.0	Natural Ground
-15	-18.5	Natural Ground
-10	-19.0	Natural Ground
-5	-19.5	Natural Ground
0	-20.0	Natural Ground
5	-19.5	Top of Water
10	-19.0	Top of Water
15	-18.5	Top of Water
20	-18.0	Top of Water
25	-17.5	Top of Water
30	-17.0	Top of Water
35	-16.5	Top of Water
40	-16.0	Top of Water
45	-15.5	Top of Water
50	-15.0	Top of Water
55	-14.5	Top of Water
60	-14.0	Top of Water
65	-13.5	Top of Water
70	-13.0	Top of Water
75	-12.5	Top of Water
80	-12.0	Top of Water
85	-11.5	Top of Water
90	-11.0	Top of Water
95	-10.5	Top of Water
100	-10.0	Top of Water

ALIGNMENT AR3
Cross Section @ Station AR3-E-AR3-E'
Horizontal Scale 1" = 20
Vertical Scale 1" = 5'

CROSS SECTION
AND RESTORATION
AUTHORITY
COSTAL PROTECTION
AND RESTORATION
AUTHORITY

STATE PROJECT NUMBER: BS-0037	DESIGNED BY: RJ	APPROVED BY: RJ	DRAWN BY: AMJ
CREATION	CROSS SECTIONS	REV. DATE	DESCRIPTION
BS-0037			

100' TERRACE AVENUE
BATON ROUGE, LOUISIANA 70802
100' TERRACE AVENUE
BATON ROUGE, LOUISIANA 70802

11/4/2020
RICARDO M. JOHNSON
REG No. 4767
REGISTERED
PROFESSIONAL
LAND SURVEYOR
Ricardo M. Johnson
Professional Land Surveyor
Registration No. 4767

DATE: 10/14/2020
SHEET 74 OF 87

<p>ALIGNMENT AR3</p> <p>Cross Section @ Station AR3-K-AR3-K'</p> <p>Horizontal Scale 1" = 20'</p> <p>Vertical Scale 1" = 5'</p>	<p>ALIGNMENT AR3</p> <p>Cross Section @ Station AR3-L-AR3-L'</p> <p>Horizontal Scale 1" = 20'</p> <p>Vertical Scale 1" = 5'</p>	<p>COSTAL PROTECTION AND RESTORATION AUTHORITY</p> <p>CROSS ROUTE 3 AND RESTORATION</p> <p>ACCESSES SECTIONS</p> <p>DELAWARE MARS</p> <p>CREATION BS-0037</p> <p>STATE PROJECT NUMBER: BS-0037</p> <p>APPROVED BY: RJ</p> <p>DISINDED BY: RJ</p> <p>BATON ROUGE AVENUE ISO THREE GELOUISIANA 70802</p> <p>DRAWN BY: ADJ</p> <p>DATE: 10/14/2020</p> <p>SHEET 78 OF 87</p>
--	--	---



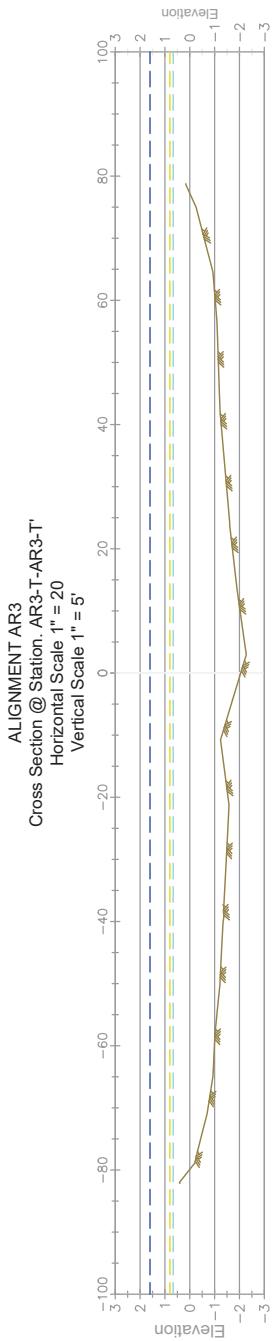
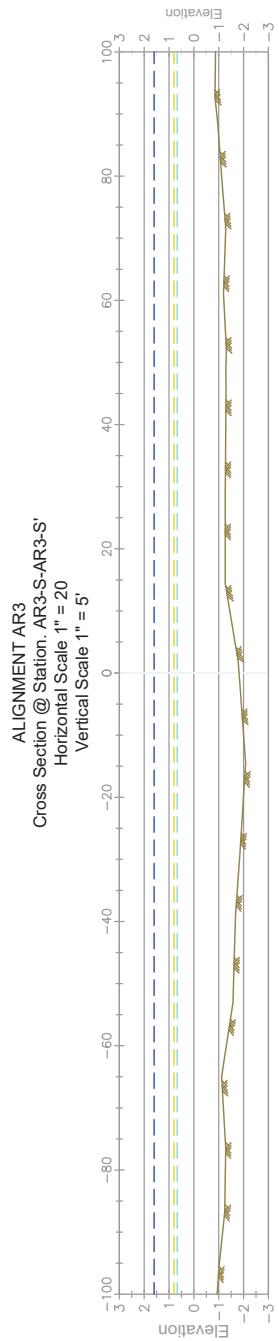
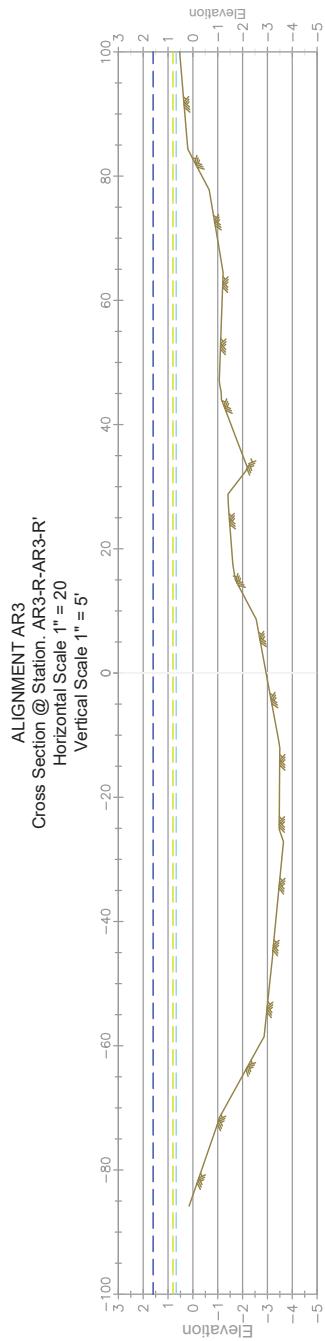
Ricardo M. Johnson
Professional Land Surveyor
Registration No. 4767

DATE: 10/14/2020

SHEET: 81 OF 87

DELA CROIX MARS	CROSS SECTION BS-0037	ACCESS ROUTE 3	APPROVED BY: RJ	DRAWN BY: AMU
DESIGNER BY: RJ	DATE: 10/14/2020	PROJECT NUMBER: BS-0037	DESCRIPITION	REV. DATE

BATON ROUGE, LOUISIANA 70802	150 TERRACE AVENUE	AUTHORITY	CROSS SECTION AND RESTORATION	COSTAL PROTECTION
------------------------------	--------------------	-----------	-------------------------------	-------------------



MHW +1.6'
MLW +0.8'
Top of Water
Natural Ground



