ADDENDUM 3 TO BID DOCUMENTS FOR THE

CAMERON CREOLE MAINTENANCE PROJECT
STORM DAMAGE REPAIRS
(CS-04-a)

CAMERON PARISH, LOUISIANA

STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY

May 18, 2023

ADDENDUM 3 TO BID DOCUMENTS
CAMERON CREOLE MAINTENANCE PROJECT
STORM DAMAGE REPAIRS
(CS-04-a)

The interpretations, corrections, or changes in this addendum supersede the requirements in the Bid Documents, dated April 2023 and stamped and sealed by the Engineer of Record on April 3, 2023, and any contrary or conflicting information in any previously-issued addenda.

Bidders shall acknowledge receipt of this addendum in the Louisiana Uniform Public Work Bid Form.

I. Questions and **Responses**:

1. What water and land access rights does CPRA have that the contractor can use to access the No Name and Mangrove Bayou structures for performing the work outlined in this project?

   CPRA has land rights agreements in place with the landowners in the work area (No Name – Henry McCall / Mangrove – Miami Corporation) that grants CPRA, its agents, and its contractors temporary rights-of-way, servitudes, and easements for the purpose of maintenance and repair tasks to features of the Cameron-Creole Watershed. Access to all areas of work shall be limited to marine access. The awarded Contractor will be fully responsible for obtaining any additional private land and water access rights they deem necessary to execute their Work Plan.

2. Can CPRA provide vendor contact info for materials related to the Rodney Hunts Gates?

   Materials for aftermarket repairs to Rodney Hunt systems can be ordered through Ms. Zwicker, Rodney Hunt's Spares and Aftermarket Sales Representative. Furthermore, Rodney Hunt's Head of Engineering, Mr. Kibler, is familiar with the flap gate repair task on this project and is available to provide consultation to potential bidders. The contact information for both Ms. Zwicker and Mr. Kibler is listed below.

   Vickie Zwicker, Spares/After Market Sales
   O: (978) 894-4475
   E: spares@rodneyhunt.com

   Rob Kibler, Head of Engineering
   C: (413) 374-1662
   E: rkibler@rodneyhunt.com

3. If hazardous materials are encountered while removing the debris from the Mangrove Canal Channel, will a change order be provided for disposal and any special extraction costs incurred by the contractor?

   CPRA has no specific knowledge of the presence of hazardous materials in the area defined for siltation and debris removal. If hazardous wastes, electronics, and/or white goods are discovered within the excavation extents at Mangrove Bayou Outlet

channel, the Contractor shall immediately notify the Engineer for discussion and resolution. If additional compensation is due for work associated with the extraction and disposal of hazardous materials, the Contractor may submit a claim for extra costs in compliance with GP-42.

4. If the vegetation that is not covered by rock is damaged on the island next to the Mangrove Bayou Interior Canal Plug or the Lambert Bayou Island that will be bisected by sheet pile, Is the responsible for replacing this vegetation?

   The Contractor shall be held fully and solely responsible for any damage to vegetation outside of the construction footprint illustrated in the Plans.

   Impacts to areas outside of the construction footprint are not permitted. All work involved in this project shall be performed from within the extents of the water bodies adjacent to the Work, with the exception of personnel walking around the areas adjacent to the construction footprint. At no time will construction machinery be allowed on land or marshes and it will be the responsibility of the Contractor to ensure that the equipment they choose to utilize possesses the reach capabilities required to perform all of the Work associated with this Contract.

5. Will the hinges on the Rodney Hunt Flap Gates need to be recoated or replaced as part of the repair or replacement project? If so, will this be addressed by change order?

   Bidders shall assume that the hinges on the Rodney Hunt Flap Gate may be left in place and reused as is (with the exception of some minor hardware replacement, e.g. gate – to – hinge connection bolts and nuts) for the purposes of submitting the bid. A Modification to the Plans has been implemented for clarification of the Work included in Bid Item No.10 - Mechanical Repairs to Grand Bayou WCS, (SEE BELOW: SECTION II. CHANGES TO PLANS, MODIFICATION No. 2).

   Furthermore, Bidders should build their bid price for Bid Item No. 10 per the Scope of Work table provided in the Plans on the revised Sheet 23. If during the Work, the Engineer determines that additional work to any of the existing flap gate hinges is necessary, the Contractor may submit a claim for extra costs related to Bid Item No.10 - Mechanical Repairs to Grand Bayou WCS, in compliance with GP-42.

6. What rights will the contractor have in relation to priority access to the work areas on this project over the general public? If conflicts with the general public occur, who should the contractor contact to resolve these issues?

   CPRA has land rights agreements in the proposed areas of work as described in SP-12. These rights are assigned to the awarded Contractor for the purpose of performing the Work under this Contract.

   CPRA intends to notify Cameron Parish authorities and local stakeholders of the upcoming work. If conflicts with the general public occur while attempting to access or perform the project Work on the east/south side (interior side) of the protection levee, the Contractor shall inform the Engineer and the owner of the property of which the particular project feature is located on. If conflicts with the general public occur while attempting to access or perform the project work on the west/north side (exterior/lake

side) of the protection levee, the Contractor shall inform the Engineer and the Cameron Parish Sheriff's Department.

7. At No Name Bayou, can the concrete or stone riprap removed during the site prep be distributed as riprap elsewhere on site?

   Only Rip Rap conforming to TS-700 shall be allowed for Bid Items No. 20 "Rip Rap (TS-700) – No Name Bayou Water Control Structure and No. 23 "Rip Rap (TS-700) – No Name Bayou Levee Breach repair work. Concrete or stone rip rap, removed during the site preparation for the installation of TS-601 Woven Geotextile Fabric and TS-700 Rip Rap, may be distributed as rip rap elsewhere on site where written approval is obtained from the Engineer and in coordination with the landowner. Prior approval from the Engineer to utilize pre-existing materials from the site for any project feature will not be obtained until inspection of said materials can be performed.

8. What is the tolerance for gaps in the geotextile where it will be surrounding the batter piles?

   The awarded Contractor shall make every attempt necessary to limit the amount and space of gaps in the geotextile surrounding the batter piles. On-site inspection, to be performed by the Engineer or his agent, will take place during significant task phases, including geotextile/rip rap installation around the sheet pile walls. Determination of the validity of the awarded Contractor's attempt to limit gaps in the geotextile fabric shall be left to the discretion of the Engineer.

9. On page 20 of 45 on the plans for Grand Bayou WCS 3 cross sections are shown 11+45, 11+57 and 11+63, however on page 21 only 2 cross sections are shown 11+57 and 11+63. Can you please confirm which one is correct.

   Cross section 11+45.02, shown on sheet 20 of 45 on the Plans, is not needed and should be ignored as there is no corresponding cross section illustrated on sheets 21 and 22. Sheets 21 and 22 of the Plans are correct.

10. Are the AZ26-700 and PZC 26 considered to be acceptable alternatives to use for sheet piles for this project?

    AZ26-700 and PZC 26 are not considered to be acceptable alternatives to use for sheet piles for this project. The breach repairs for this project consists of the extension of an existing system of a sheet pile wall and batter piles with associated connections. The intent is to utilize materials with physical properties and dimensions similar or same to the existing system.

11. With regards to the as-built surveys, do you require final surveys of all features to be performed or can accepted process survey be used?

    Accepted Process Surveys may be included as part of the As-Built Survey.

12. General Provision GP-4 states that Davis-Bacon wage rates are applicable to this contract and provides a link to www.sam.gov for the wage determinations. Please provide the Wage Determination that is applicable to this contract. Alternatively, please provide the Wage Determination Number for downloading the correct wage rates from www.sam.gov .

The Davis-Bacon Wage Determination for this project shall be for Heavy Construction in Cameron Parish, Louisiana. See Davis-Bacon Act WD # LA20230004 under Attachment C.

The Contractor is responsible for utilizing the most current Prevailing Wage Determination Schedule.

13. Is the Buy American Act, or any similar requirement, applicable to this contract?

    Yes.

14. Specification TS-370 Excavation requires that the siltation and debris materials excavated at the Mangrove Bayou Outlet Channel be transported off-site and disposed of properly. We have the following questions:

    1. Are there any items to be excavated/removed by the contractor that would be considered hazardous or special waste for LDEQ disposal purposes? If so, please provide an estimated type and quantity for bidding purposes.

       Please refer to Question/Response No. 3 of this Addendum 3.

    2. Please provide a quantity estimate for the vegetative debris to be removed at Mangrove Bayou Outlet.

       Bidders shall assume that all of the materials to be excavated at Mangrove Bayou Outlet channel consist of siltation, vegetative debris, and construction/demolition debris for the purposes of developing a unit price for Bid Item 3. The quantity listed in the Bid Item Summary for Bid Item 3 is 4,000 Cubic Yards.

    3. Is there a location that the owner will provide for disposal of the silt and earthen materials excavated from Mangrove Bayou Outlet?

       Per the Technical Specifications, Section TS-370 Excavation, excavated material shall become the property of the Contractor. Disposal of excavated material shall be in accordance with Section 202.02 of the Louisiana Standard Specifications for Roads and Bridges 2016.

15. The PZ35 steel sheet pile specified for repairs at Grand Bayou and Lambert Bayou may require a mill rolling for the lengths and quantities specified in this contract. Mill rolling dates are subject to change until an actual order is placed. Will the CPRA consider providing a two-part NTP for ordering of long lead materials prior to NTP for start of contract time?

    The CPRA will not be implementing a two-part NTP for ordering of long lead materials. Bidders shall be knowledgeable in regards to which material orders pose the possibility of having significant lead times. The CPRA and the Engineer will take long lead materials into consideration when determining the issuance of the NTP for start of Contract Time under the following stipulations:

1. ***Immediately after the award of the Contract, the awarded Contractor shall notify the Engineer of the material orders that are suspected to have long lead times.***
2. ***The awarded Contractor shall begin submitting data sheets and obtaining the official Engineer's approval for suspected long lead materials immediately after the Contract is signed.***
3. ***Materials with suspected long lead times shall be ordered from the Manufacturer immediately after the Contractor has obtained the official Engineer's approval of the materials.***
4. ***The lead time for the order shall be reported to the Engineer for consideration in determining the issuance of the NTP for start of Contract Time, or for consideration of an extension of Contract Time.***

The Engineer reserves the right to proceed with the issuance of the NTP, without consideration of lead times, if timeliness becomes an issue during the process detailed above.

16. Drawing Sheet No. 5 includes the proposed access routes for the repair sites under this contract. Please provide the minimum water depths, or bottom elevations, along the proposed access routes for barge and marine equipment access.

    Per the Special Provisions, Section SP-15 Navigation, and the Technical Specifications, Section TS-120.3.1, the Contractor is responsible for verifying the adequacy of the potential access routes that he or she may utilize to perform the Work. Proposed access routes on Sheet 5 of the Plans were permitted on the basis of avoiding existing oyster beds.

    Bidders should obtain NOAA Nautical Charts and/or other charts to become familiar with the water bottom depths in the vicinity of the Project Site. Available water depth/water bottom elevation information collected during other CPRA projects in the area has been provided with this Addendum 3 for information purposes. (See Attachment A and Attachment B)

17. Drawing Sheet No. 7 for the Mangrove Bayou Outlet excavation shows the existing bottom elevation at Sta. 0+69.45 (beginning of channel excavation at Calcasieu Lake) to be at approximate elevation -2.5. Will the contractor be allowed to excavate for access to the Mangrove Bayou Outlet waterward of station number 0+69.45 for marine equipment access? If not, please provide the water depths, or elevations, that bidders should anticipate for marine equipment access.

    The Contractor will not be allowed to excavate outside of the template designated for siltation and debris removal. As stated in the Special Provisions, Section SP-15 Navigation, it is the responsibility of the Contractor to select equipment that can navigate to the Project Site without excavation of existing water bottoms. A -2.5' water bottom elevation at the mouth of the Mangrove Bayou Outlet Channel and a Mean High-Water Elevation of +1.3' suggests that this area regularly sees water depths of approximately 3.8-ft during the daily high tide period.

    Bidders should obtain NOAA Nautical Charts and/or other charts to become familiar with the water bottom depths in the vicinity of the Project Site.

18. The Mangrove Bayou Plug repairs and the Grand Bayou Plug Repairs are both located on the bayou running behind Calcasieu Lake shoreline. We do not see any way to access these worksites for the transport of riprap materials except through the Grand Bayou Breach, which is of limited width. Please provide acceptable access routes to the Mangrove Bayou Plug repairs and the Grand Bayou Plug Repair locations. Please also provide minimum water depths for marine equipment along the acceptable access routes to the Mangrove Bayou Plug repairs and the Grand Bayou Plug Repair locations.

    The Contractor is expected to start and complete the work required at the Mangrove Bayou and Grand Bayou Interior Canal Plugs prior to starting work at the Grand Bayou Breach so that they may utilize the breach for access to the Mangrove Bayou and Grand Bayou interior canal plugs. Per the survey data collected by T.Baker Smith, LLC. during June and July of 2022 and based off the Mean High-Water Elevation of +1.3', the width of the breach, having adequate water depth for barge access, during the average high tide period is approximately 53-ft wide.

    Available water depth/water bottom elevation information collected during other CPRA projects in the area has been provided with this Addendum 3 for informational purposes. (See Attachment A and Attachment B)

19. For the steel sheet repairs at the Grand Bayou Breach and Lambert Bayou Breach, the riprap is to be placed against the coated steel sheet pile and pipe piles after installation. The riprap will likely damage the sheet piling and pipe piling coating no matter how delicately it is placed. Please provide the owners expectation for the placement of riprap against coated sheet piling and pipe piling.

    The Contractor shall make every attempt necessary to minimize the amount of damage incurred to the sheet pile structure during installation of the rip rap. Damage to the sheet pile coating will be assessed by the Engineer or his representative to determine any remediation work required.

20. If any of the repair locations are silted in, will the contractor be allowed to excavate for barge access to install piling and/or place riprap?

    As stated in the Special Provisions, Section SP-15 Navigation, it is the responsibility of the Contractor to select equipment that can navigate to the Project Site without excavation or disturbance of existing water bottoms. Furthermore, it is the responsibility of the Contractor to ensure that the equipment they choose to utilize possesses the reach capabilities required to perform all of the Work associated with this Contract.

21. Please clarify if alternate steel sheet pile sections to the PZ 35 will be accepted. If so, please provide the minimum section modulus and web/flange thicknesses for alternate sheet pile sections.

    Please refer to Question/Response No. 10 of this Addendum 3.

22. We are requesting a one week bid extension for incorporation of answers/clarifications to questions submitted for this project.

A one-week extension of the bid opening date was provided in Addendum 2. The revised bid opening date is Wednesday, May 24, 2023 at 2:00 p.m.

23. Note 13 on Drawing Sheet 2A states that the contractor is required to obtain permits and pay all associated fees to perform construction on National Wildlife Refuge properties. Please clarify what permits the contractor is responsible for, the fees associated with these permits, and the contact information for obtaining more information regarding the NWR permit(s).

    The Contractor is responsible for obtaining a Special Use Permit for the proposed construction taking place on the Cameron Prairie National Wildlife Refuge (NWR). Contact Ms. Patrice Betz with U.S. Fish and Wildlife Service for information regarding the permit application and any associated application or activity fees. (See the Special Provisions, Section SP-12 Landowner Requirements, for NWR contact information).

24. Note 67 on Drawing Sheet 2B requires that all lifting holes in steel sheet piling be covered with 3/8" plate after installation. Please clarify the welding requirements for the 3/8" plates.

    1. ***Preparation:***
        a. ***Ensure that the welding site is dry and free of any water or moisture.***
        b. ***Use a marine-grade rust inhibitor to protect the surfaces of the steel sheet piling and 3/8" plates from corrosion.***

    2. ***Welding process:***
        a. ***Use a welding process that is suitable for marine environments, such as shielded metal arc welding with low-hydrogen electrodes, flux-cored arc welding with low-hydrogen flux, or gas tungsten arc welding.***
        b. ***Choose the appropriate welding electrode or wire based on the base metal and thickness of the steel sheet piling and 3/8" plates. Ensure that the welding electrode or wire used is suitable for marine environments and has a low hydrogen content.***
        c. ***Preheat the base metal before welding to a temperature suitable for the marine environment to reduce the risk of hydrogen cracking in the welds and to ensure proper fusion of the welds.***
        d. ***Use a welding technique that produces minimal spatter to avoid contamination of the water or marine environment.***
        e. ***Use a suitable welding shielding gas to prevent oxidation of the welds.***
        f. ***Use a copper backing strip or copper clamps to prevent the weld metal from contacting the salt water or moisture in the air.***
        g. ***Weld the plates to the steel sheet piling using a fillet weld. The size of the fillet weld should be equal to or greater than the thickness of the 3/8" plates.***

    3. ***Post-welding:***
        a. ***Clean the welds thoroughly to remove any salt, debris, or marine life that may have accumulated on the surface.***
        b. ***Apply 2 coats of coal tar epoxy-polyamide to the plates and welds in accordance with the Technical Specifications, Section TS-980 Metals***

and Section 811 of the Louisiana Standard Specifications for Roads and Bridges, latest Edition or Owner approved equivalent.

All welding shall be electric welding. Workmanship and technique shall conform to the American Welding Society - Structural Welding Codes AWS D1.1 and AWS D3.6 or latest version thereof.

25. The project drawings and specifications call for a Rodney Hunt Timber Valve FV-T Flap Gate to fit an existing water control structure opening of 108" x 60", as shown on Drawing Sheets 23 and 39. The Rodney Hunt representative for Louisiana, Glen Smith with Fluid Process & Pumps, LLC, notified us this morning that Rodney Hunt no longer makes Timber Flap Gates, only stainless-steel flap gates. Please provide an alternate flap gate made by Rodney Hunt or specify a different manufacturer and flap gate product. The sales representative says that he cannot provide an alternate product as he is not aware of any manufacturer making Timber Flap Gates at this time.

    Although Rodney Hunt has discontinued the manufacturing and selling of new Timber Valve FV-T Flap Gates, they still offer parts for repairs of existing structures through the Rodney Hunt Spares and Aftermarket Department. The Contractor is responsible for verifying the dimensions of all components required for the repair, prior to placing any material order, by collecting field measurements of said components from the adjacent gates.

    The Contractor will ultimately be responsible for fabricating his/her own flap gate repair in conformance with the requirements listed in the Technical Specifications, Section TS-520 Gates. The Contractor may choose to purchase available materials directly from Rodney Hunt Spares or from some other materials vendor. It shall be the responsibility of the Contractor to handle, store, and install the equipment specified in the Technical Specifications, Section TS-520, in strict accordance with the manufacturer's recommendation.

    Please refer to Question/Response No. 2 of this Addendum 3 for Rodney Hunt Spares and Aftermarket Department contact information.

26. Drawing Sheet 23 for the Grand Bayou WCS has a cloud drawn around the Lakeside flap gate hinges and references Note 3. Note 3 on this sheet pertains to the handrail/guardrail and not the flap gates. Note 5 appears to apply to the flap gates, but this work is not included on the Bid Item 10 Table shown on Drawing Sheet 23. In addition, Drawing Sheet 39 for the flap gates includes a note that the existing hinges are to remain. Please clarify the scope of work at the existing flap gates at the Grand Bayou WCS.

    Please refer to Question/Response No. 5 of this Addendum 3.

27. Note 5 on Drawing Sheet 23 includes work at the flap gates that is indeterminate. Please provide the dimensions, details, and sizes for the stainless-steel hinges and hardware to be replaced under Note 5. Please also provide an estimated quantity for each of the items that the contractor should expect to replace under Note 5.

    Please refer to Question/Response Nos. 5 and 26 of this Addendum 3.

28. We are having trouble finding the required Rodney Hunt Timber Valve series FV-T timber gate replacement for Grand Bayou. Rodney Hunt's sales team has stated that timber flap gates do not fall under their product range. Does the engineer have an alternate flap gate to suggest?

Please refer to Question/Response No. 25 of this Addendum 3.

29. Spec section 980.6 Painting indicates that the sheet pile needs to be blasted, primed and coated with Coal Tar Epoxy coating. Is this metal to be primed with zinc primer before coating or just blasted and coated? If the primer is required, are all other metal components of the sheet pile wall to be primed before coating as well?

The entire sheet pile system with ALL connected metal components, including the top whaler, gussets and connectors, pipe piles, and the H-pile (Lambert Bayou) shall be primed with a zinc primer compatible to the two-coat Coal Tar Epoxy Coating system utilized. A Modification to the Specifications has been implemented for clarification of the Painting/Coating requirements in the Technical Specifications, Section TS-980 Metals (SEE BELOW: SECTION III. CHANGES TO SPECIFICATIONS, MODIFICATION No. 7).

II. Changes to Plans:

1. **Modification:** ***Notes 57 and 59 of the Plans, Sheet 2A, regarding welding requirements have been revised. See Attachment D for the revised Sheet 2A of the Plans, containing the seal and stamp of the Engineer of Record, dated May 11, 2023.***

2. **Modification:** ***Includes revisions to Sheets 3, 23, and 39 of the Plans relating to all existing Rodney Hunt Flap Gate hinges on the Grand Bayou Water Control Structure.***

Sheet 3:

1. ***Table titled "BID ITEM No.10 – SCOPE OF WORK: MECHANICAL REPAIRS TO GRAND BAYOU WCS" was updated to include an additional item for inspection of flap gate hinges.***

Sheet 23:

1. ***Table titled "BID ITEM No.10 – SCOPE OF WORK: MECHANICAL REPAIRS TO GRAND BAYOU WCS" was updated to include an additional item for inspection of flap gate hinges.***
2. ***Callout for the flap gate hinges on the lake-side view profile revised to read "EXISTING FLAP GATE HINGES TO BE INSPECTED FOR DAMAGES AND CORROSION IN ACCORDANCE WITH NOTE 5 OF THIS SHEET."***
3. ***Note 5 in the bottom left corner revised to read "INSPECTION SHALL INCLUDE DETAILED DOCUMENTATION OF FINDINGS WITH PHOTOGRAPHS FOR EACH FLAP GATE HINGE TO BE SUBMITTED TO THE ENGINEER. IF THE ENGINEER DETERMINES THAT ADDITIONAL WORK TO THE EXISTING FLAP GATE HINGES IS NECESSARY, THE CONTRACTOR MAY***

SUBMIT A CLAIM FOR EXTRA COSTS IN COMPLIANCE WITH GP-42."

<u>Sheet 39:</u>

1. ***Callout for the hinges on the Half Elevation detail revised to read "HINGES TO REMAIN IN PLACE UNLESS OTHERWISE DETERMINED IN ACCORDANCE WITH ITEM 3 OF THE SCOPE OF WORK TABLE FOR BID ITEM NO. 10 (SEE SHEET 23)"***

The revisions are intended to clarify the Scope of Work included in Bid Item No.10, Mechanical Repairs to Grand Bayou WCS, as it relates to the flap gate hinges. See Attachment D for the revised Sheets 3, 23, and 39 of the Plans, containing the seal and stamp of the Engineer of Record, dated May 17, 2023.

III. Changes to Specifications:

1. **Modification:** ***Technical Specifications, Section TS-520 GATES, under 520.3 <u>Materials</u>, revise the following item as follows:***

   a) Flap Gate Timber Boards: Shall be constructed of pressure-treated southern yellow pine timbers with a 2.5 CCA retention value, No.1 dense structural grade, and smooth on 4 sides. Timbers shall have a minimum cross sectional thickness dimension of 3.5" and shall be machined so that sides are square and parallel. They shall be horizontal and drawn together by tie rods.

2. **Modification:** ***Technical Specifications, Section TS-920 PERMANENT STEEL SHEETING, under 920.4.3 <u>Driving</u>, add the following sentence after the first sentence as follows:***

   Vibratory hammers will not be allowed.

3. **Modification:** ***Technical Specifications, Section TS-920 PERMANENT STEEL SHEETING, add the following subsection under 920.4 <u>General Requirements:</u>***

   920.4.7 - <u>Preparation of Installation Surface:</u> Prior to installing the steel sheeting, the Contractor will inspect the surface within and around the footprint of the proposed steel sheeting installation for obstructions. The Contractor is responsible for locating and removing any obstructions including, but not limited to, existing rip rap and other debris prior to installing the steel sheeting. The Contractor assumes full responsibility for any damages or unsatisfactory conditions that occur as a result of impacting surface obstructions during installation of the steel sheeting.

4. **Modification:** ***Technical Specifications, Section TS-921 PILES, add the following subsection under 921.6 <u>Preparation for Installation of Driven Piles</u>:***

   921.6.4 <u>Preparation of Installation Surface:</u> Prior to installing the driven piles, the Contractor will inspect the surface within and around the footprint of the proposed pile installation for obstructions. The Contractor is responsible for locating and removing any obstructions including, but not limited to, existing rip

rap and other debris prior to installing the driven piles. The Contractor assumes full responsibility for any damages or unsatisfactory conditions that occur as a result of impacting surface obstructions during installation of the driven piles.

5. **Correction:** ***Under Technical Specifications, Section TS-921 PILES, the section numbering for <u>Unsatisfactory Piles</u> (920.9) and <u>Measurement and Payment</u> (920.10) is incorrect. Revised section numbering for these sections is as follows:***

   921.9 <u>Unsatisfactory Piles</u>
   921.10 <u>Measurement and Payment</u>

6. **Modification:** ***Technical Specifications, Section TS-980 METALS, add the following subsection under 980.6 <u>Painting</u>:***

   980.6.1 <u>Coating Requirements and Schedule:</u> The same manufacturer shall furnish the zinc primer and intermediate/exterior coating system to ensure compatibility. All coatings shall be applied in strict accordance with the manufacturer's specifications and recommendations.

   1st Coat: Aromatic Polyurethane, Zinc-Rich Primer
   Percent solids: 62.0 ± 2.0%
   Dry film thickness: 2.5 to 3.5 mils

   2nd Coat: Polyamide Epoxy-Coal Tar
   Percent Solids: 75.0 ± 2.0% (mixed)
   Dry Film Thickness: 8.0-10.0 mils

   3rd Coat: Polyamide Epoxy-Coal Tar
   Percent Solids: 75.0 ± 2.0% (mixed)
   Dry Film Thickness: 8.0-10.0 mils

END OF ADDENDUM No. 3

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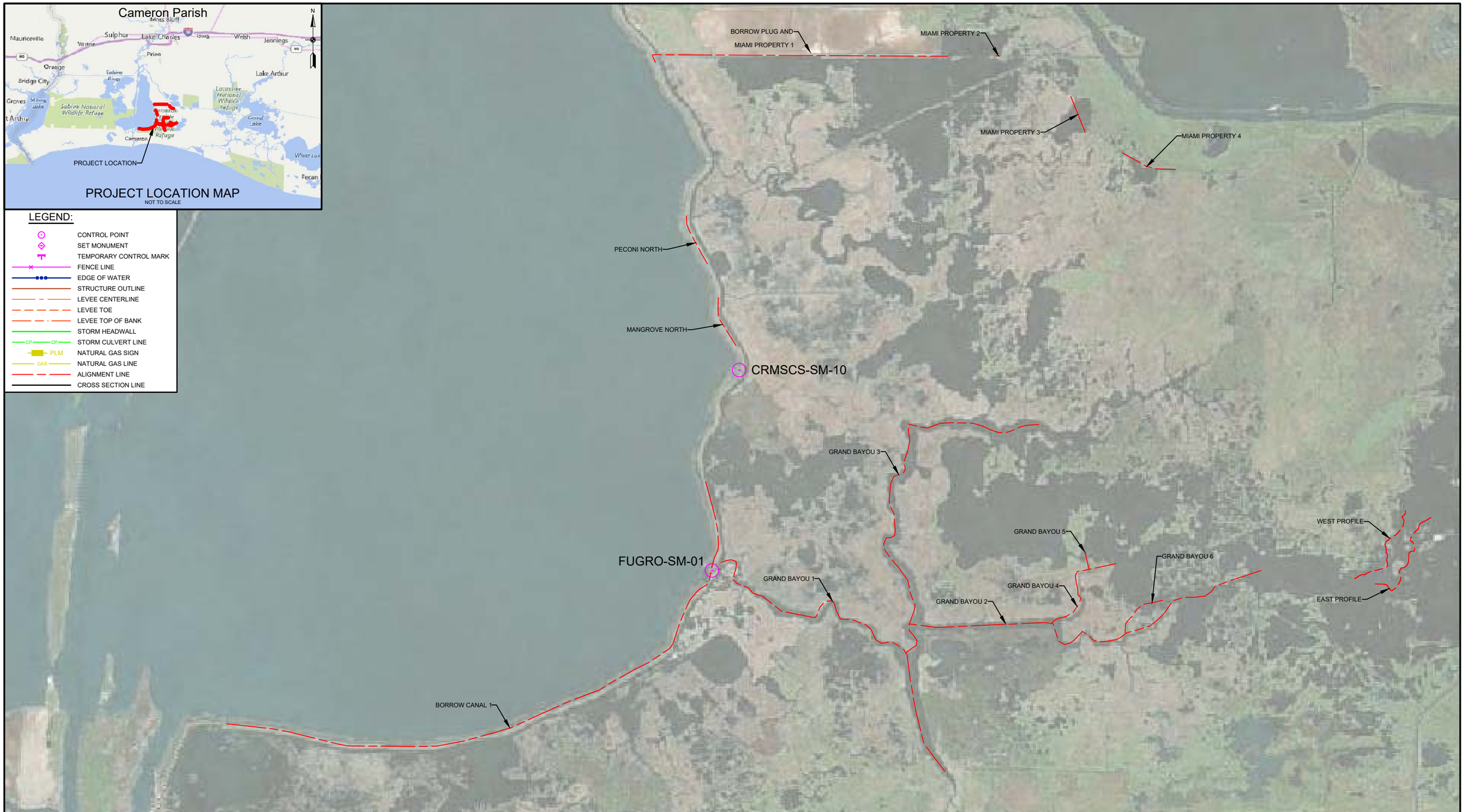
ATTACHMENT A



SURVEY NOTES:

1. SURVEY EQUIPMENT: TRIMBLE R10 AND R12 GNSS GPS SYSTEMS, SEAFLOOR HYDROLITE PLUS SINGLE FREQUENCY SOUNDER, GEOMETRICS G882 MAGNETOMETER AND A STARFISH 990F SIDESCAN.
2. COORDINATE SYSTEM: STATE PLANE GRID NAD 83 LOUISIANA SOUTH ZONE 1702 U.S. SURVEY FEET.
3. VERTICAL DATUM: NAVD 88 GEOID 2012B, U.S. SURVEY FEET.
4. THE INFORMATION DEPICTED ON THIS SURVEY PLAT CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THE TIME THE SURVEY WAS MADE.
5. PRIMARY CONTROL MONUMENT FUGRO-SM-1 WAS RECOVERED AND UTILIZED TO CONTROL ALL HORIZONTAL AND VERTICAL POSITIONS FOR THE PROJECT. CHECK-INS WERE MADE TO EXISTING MONUMENT CRMSCS-SM-10. FINAL COORDINATES FOR BOTH MARKS ARE SHOWN BELOW IN U.S. SURVEY FEET.
   FUGRO-SM-1 X= 2677961.361, Y= 5000697.644, Z= 4.399 (PRIMARY)
   CRMSCS-SM-10 X= 2679479.892, Y= 511880.498, Z= 3.461

GRID NORTH
-00°57'04"
TRUE NORTH

0 1250 2500 5000

SCALE FACTOR = 0.99993261

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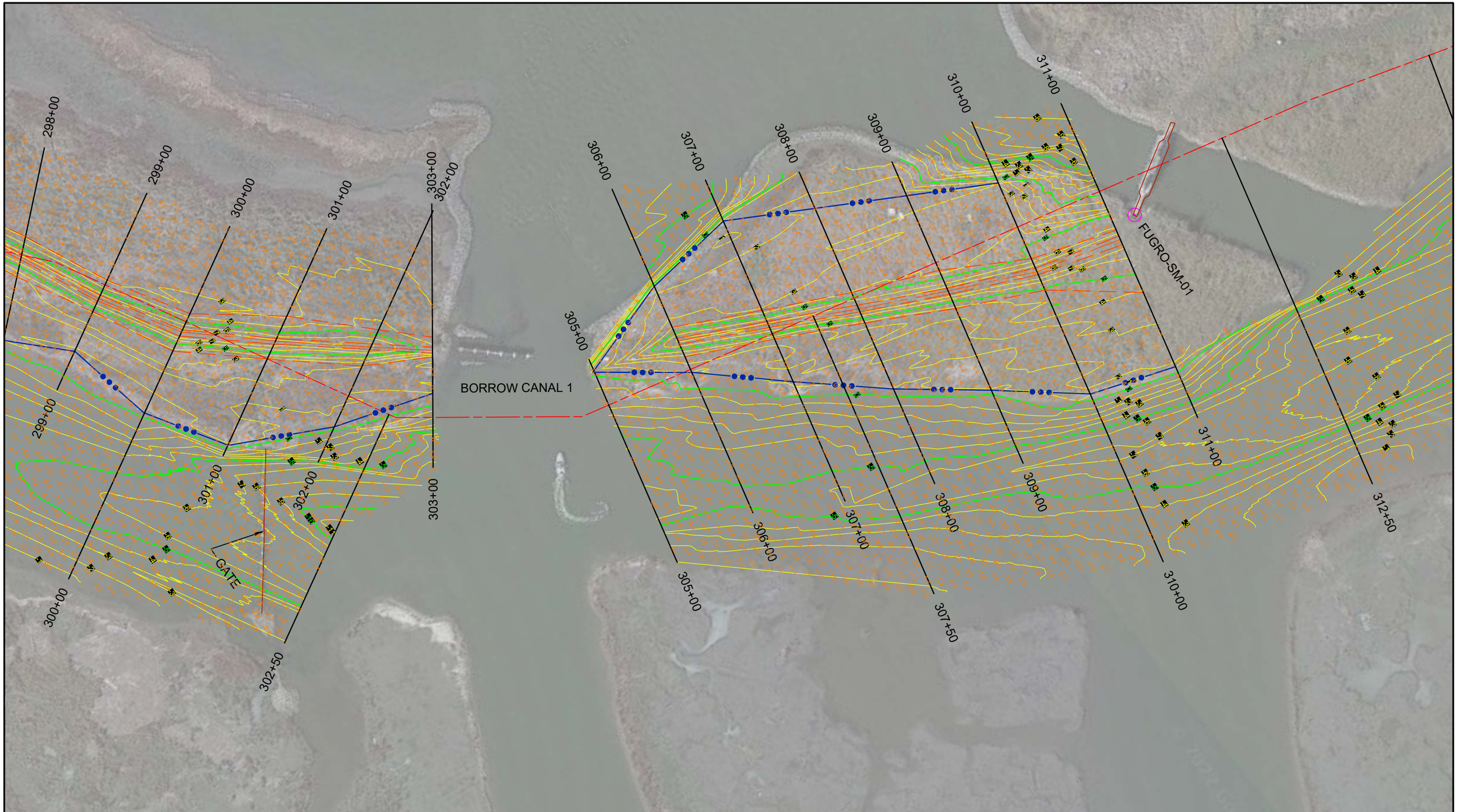
HYDROGRAPHIC AND GEOPHYSICAL SURVEY
CALCASIEU-SABINE LARGE SCALE MARSH CREATION
AND HYDROLOGIC RESTORATION (CS-0087)
CAMERON PARISH, LOUISIANA

DRAWN BY:	CHECKED BY:	SURVEY DATE	PLOT DATE	SHEET NO.	EMC JOB NUMBER
JP	BG	9/25/22	12/20/22	1/208	EMC-22083

EMC, INC. DRAWING NAME: EMC22083_CS-0087.DWG



SURVEY NOTES:

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   FUGRO-SM-1 X= 2677961.361, Y= 5000697.644, Z= 4.399 (PRIMARY)
   CRMSCS-SM-10 X= 2679479.892, Y= 511880.498, Z= 3.461

GRID NORTH
-00°57'04"
TRUE NORTH

0 1250 2500 5000

SCALE FACTOR = 0.99993261

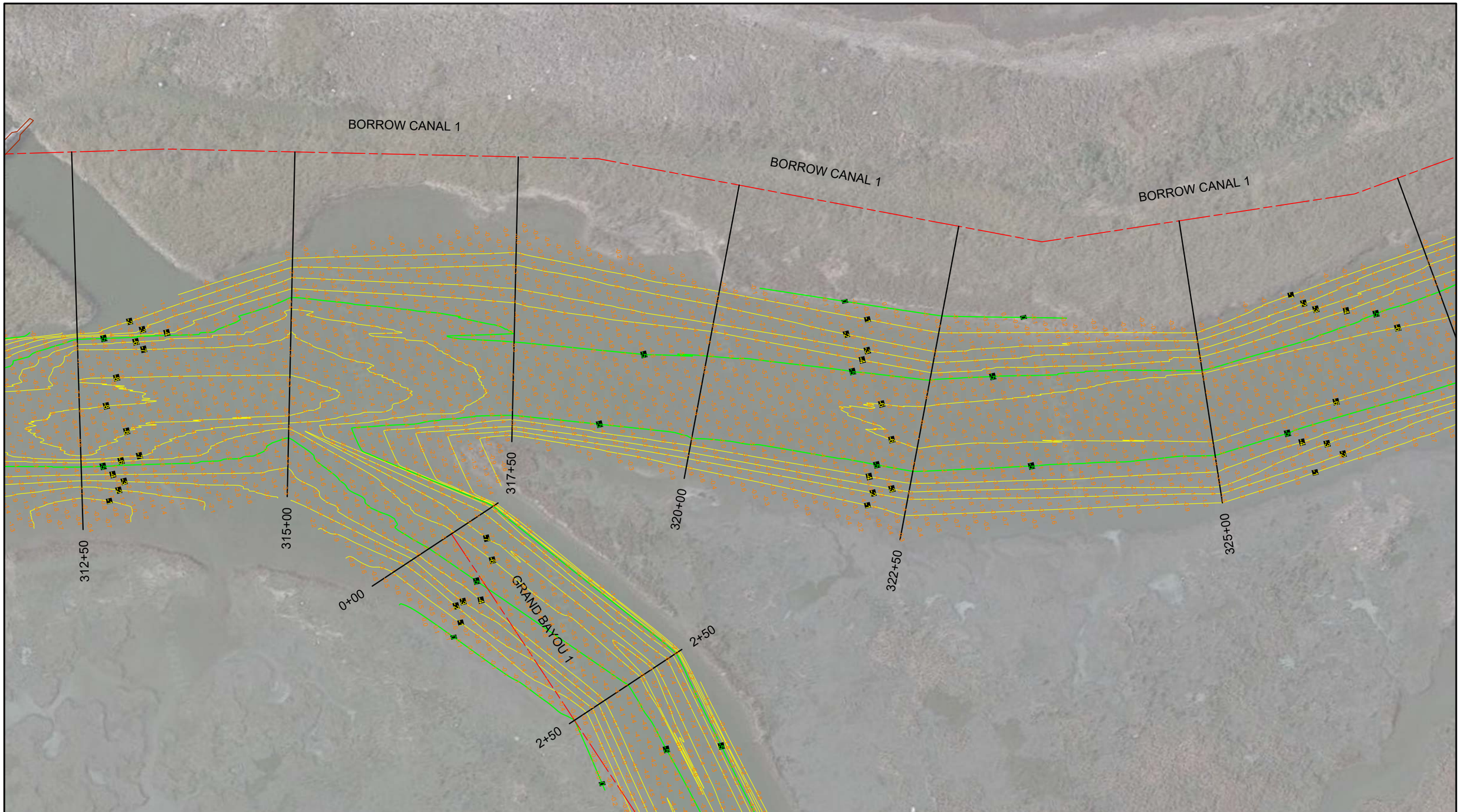
EMC SURVEYING & MAPPING
2472 SUNSET DRIVE, GRENADA, MISSISSIPPI 38901
PHONE: (662) 226-5166
EMAIL: INFO@EMCSURVEY.COM
WEB: WWW.EMCSURVEY.COM

COASTAL PROTECTION AND RESTORATION AUTHORITY
P.O. BOX 44027
BATON ROUGE, LA 70804-4027

HYDROGRAPHIC AND GEOPHYSICAL SURVEY
CALCASIEU-SABINE LARGE SCALE MARSH CREATION
AND HYDROLOGIC RESTORATION (CS-0087)
CAMERON PARISH, LOUISIANA

DRAWN BY:	CHECKED BY:	SURVEY DATE	PLOT DATE	SHEET NO.	EMC JOB NUMBER
JP	BG	9/25/22	12/20/22	24/208	EMC-22083

EMC, INC. DRAWING NAME: EMC22083_CS-0087.DWG



SURVEY NOTES:

1. SURVEY EQUIPMENT: TRIMBLE R10 AND R12 GNSS GPS SYSTEMS, SEAFLOOR HYDROLITE PLUS SINGLE FREQUENCY SOUNDER, GEOMETRICS G882 MAGNETOMETER AND A STARFISH 990F SIDESCAN.
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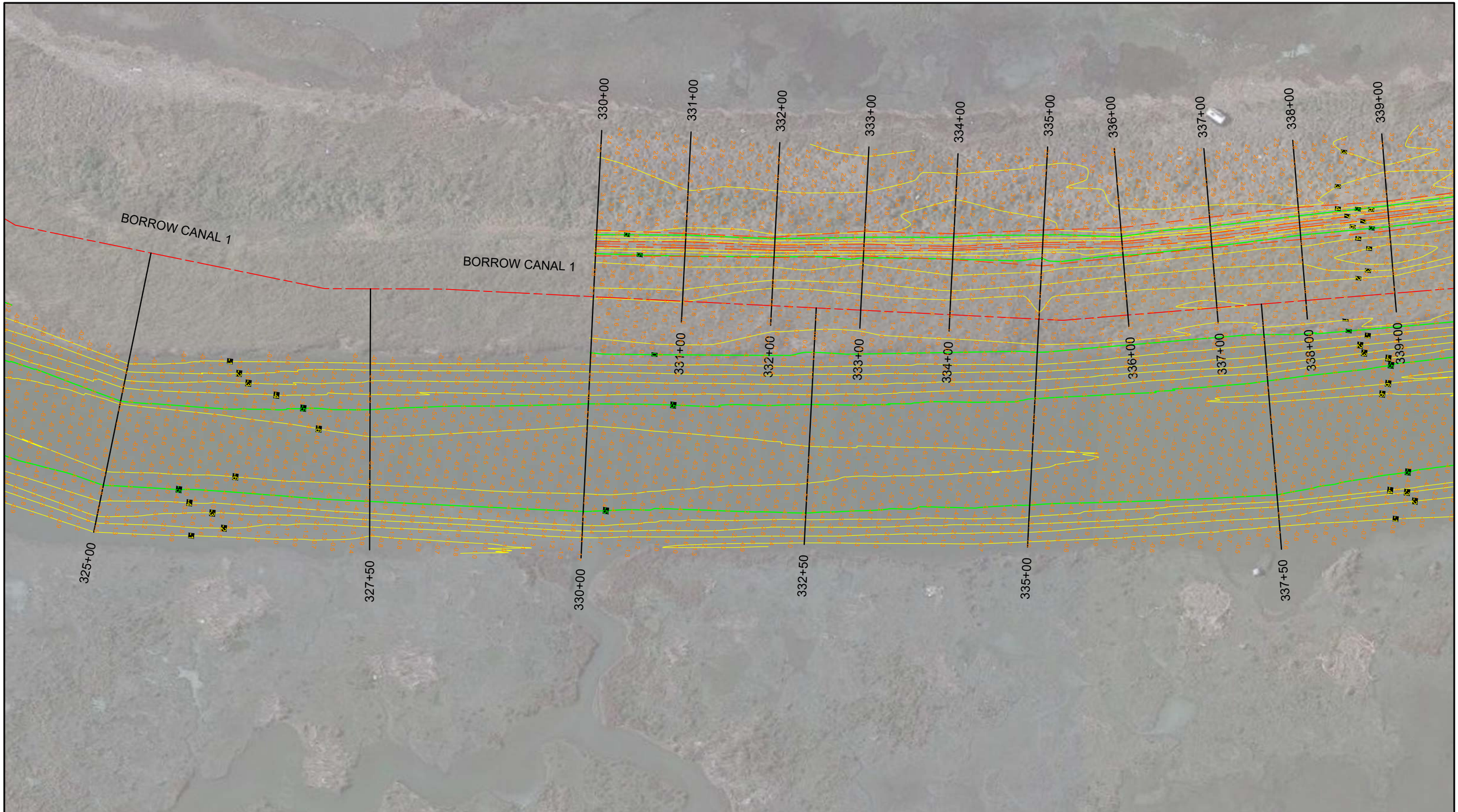

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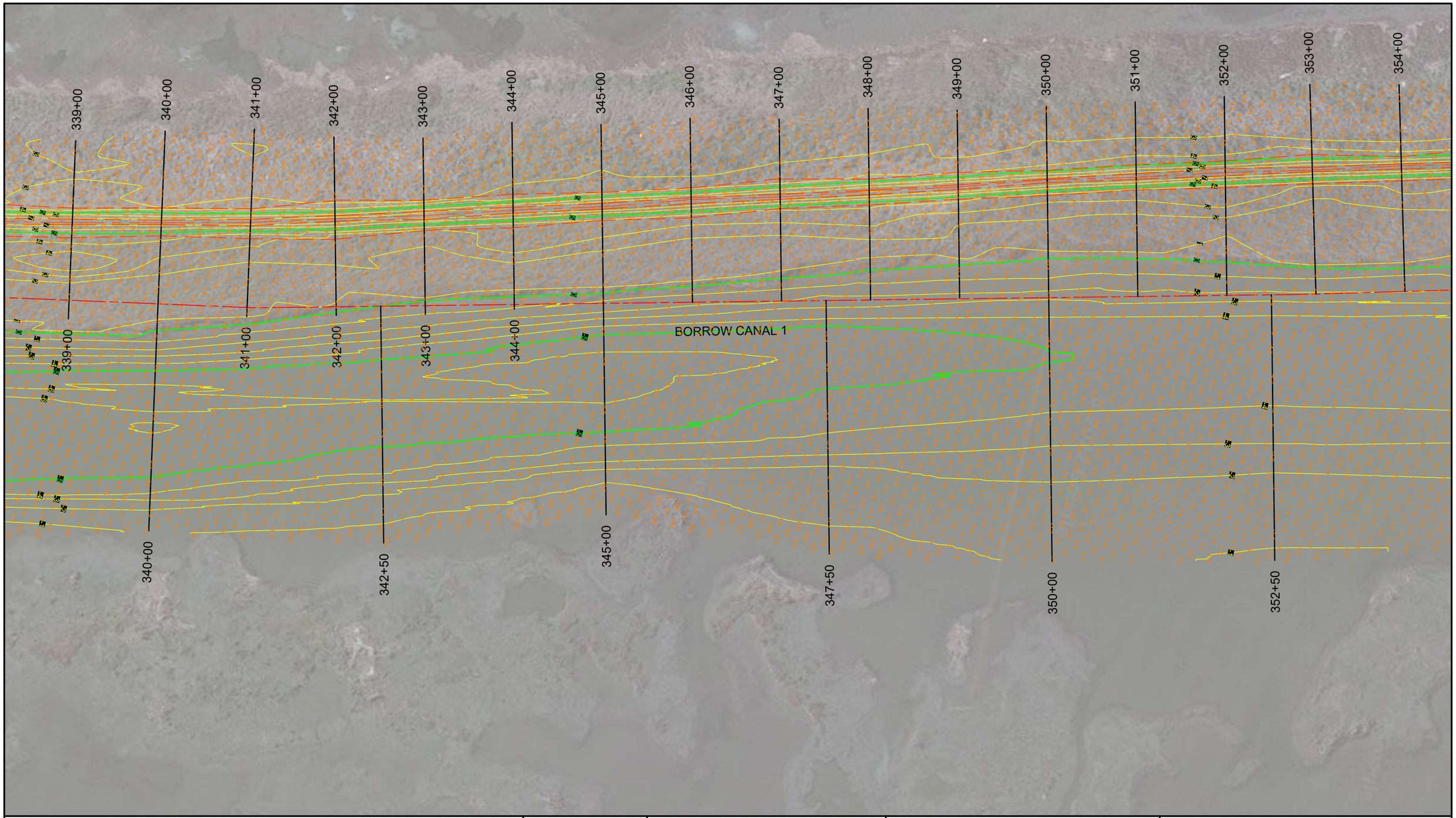

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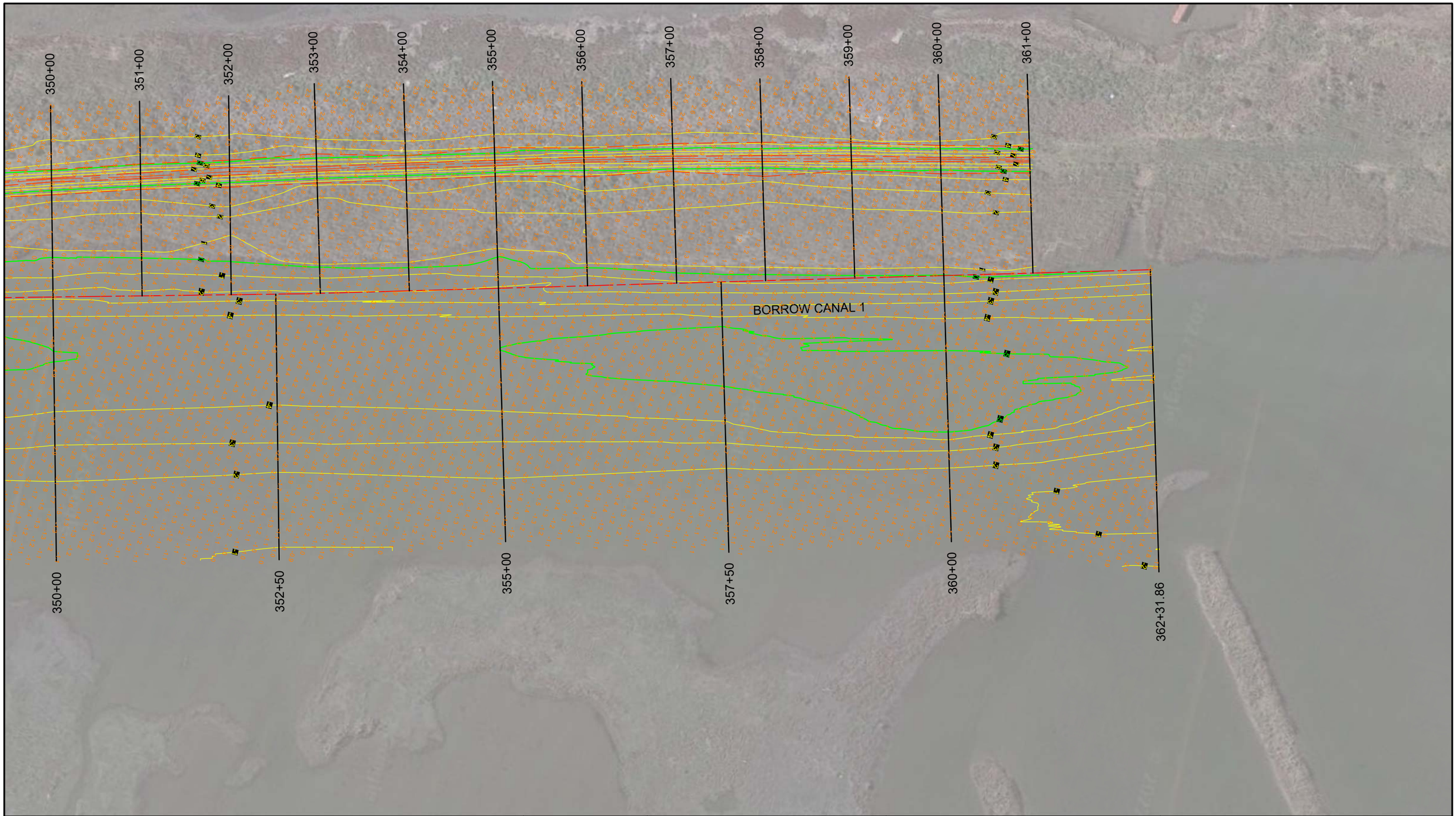

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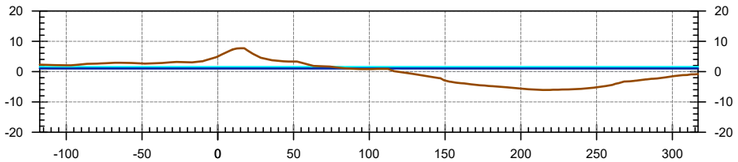
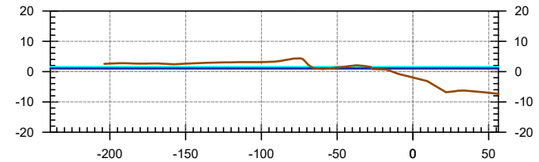
EMC, INC. DRAWING NAME: EMC22083_CS-0087.DWG

AVERAGE HIGH WATER SURFACE (1.49')
AVERAGE LOW WATER SURFACE (1.00')
NATURAL GROUND

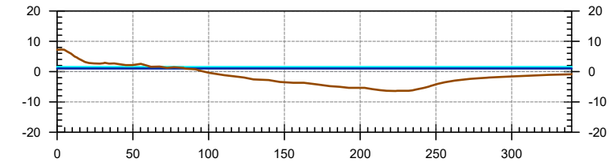
BORROW CANAL 1 STA. 300+00



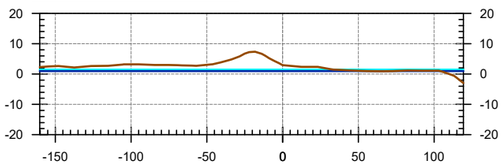
BORROW CANAL 1 STA. 303+00



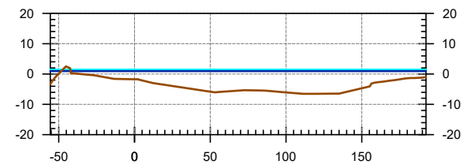
BORROW CANAL 1 STA. 307+50



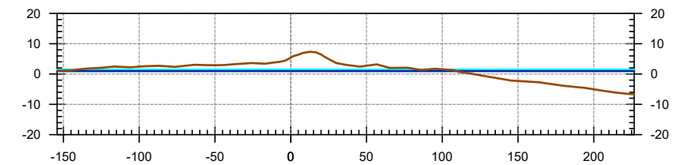
BORROW CANAL 1 STA. 301+00



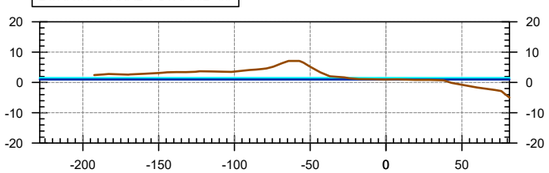
BORROW CANAL 1 STA. 305+00



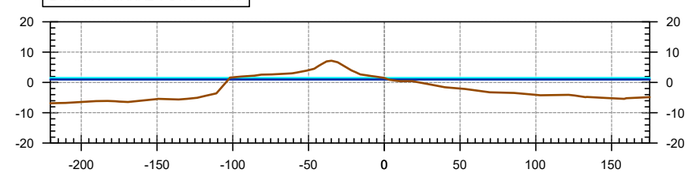
BORROW CANAL 1 STA. 308+00



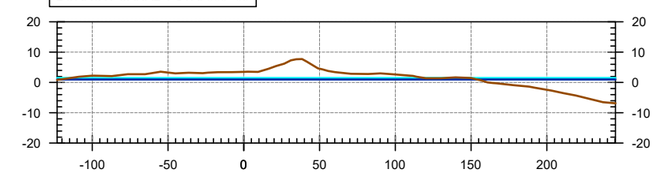
BORROW CANAL 1 STA. 302+00



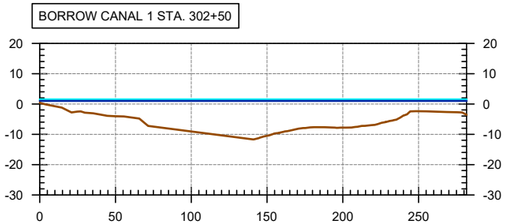
BORROW CANAL 1 STA. 306+00



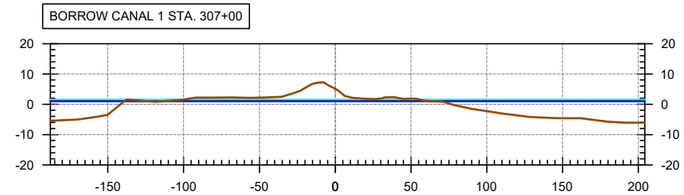
BORROW CANAL 1 STA. 309+00



BORROW CANAL 1 STA. 302+50



BORROW CANAL 1 STA. 307+00



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0 25 50 100
HORZ. SCALE IN FEET

0 12.5 25 50
VERT. SCALE IN FEET

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CALCASIEU-SABINE LARGE SCALE MARSH CREATION
AND HYDROLOGIC RESTORATION (CS-0087)
CAMERON PARISH, LOUISIANA

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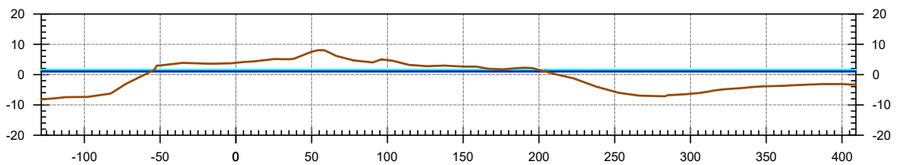
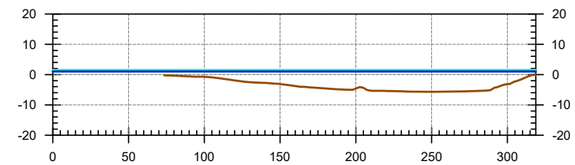
EMC, INC. DRAWING NAME: EMC22083_CS-0087.DWG

AVERAGE HIGH WATER SURFACE (1.49')
AVERAGE LOW WATER SURFACE (1.00')
NATURAL GROUND

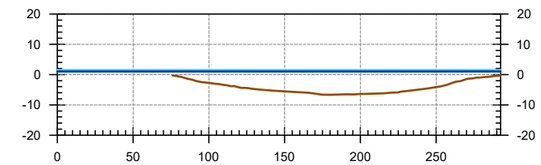
BORROW CANAL 1 STA. 310+00



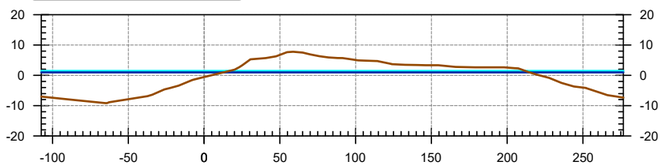
BORROW CANAL 1 STA. 317+50



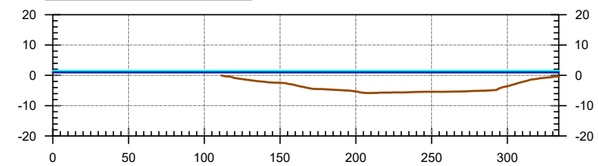
BORROW CANAL 1 STA. 327+50



BORROW CANAL 1 STA. 311+00



BORROW CANAL 1 STA. 320+00



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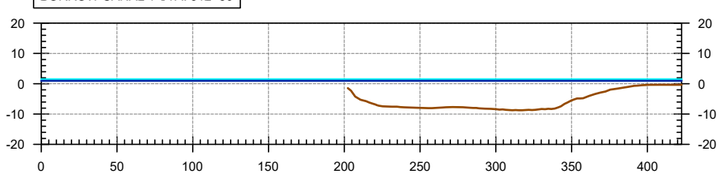
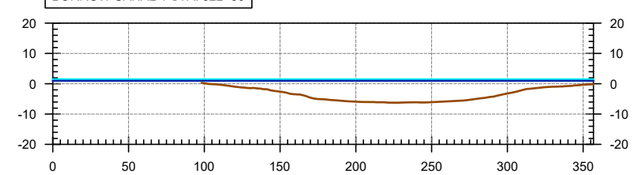
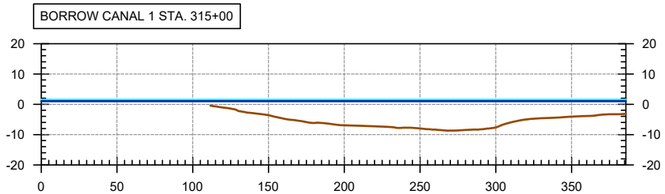


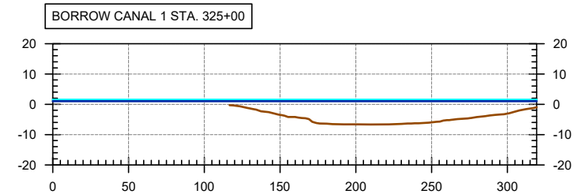
BORROW CANAL 1 STA. 322+50



BORROW CANAL 1 STA. 315+00



BORROW CANAL 1 STA. 325+00



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EMC, INC. DRAWING NAME: EMC22083_CS-0087.DWG

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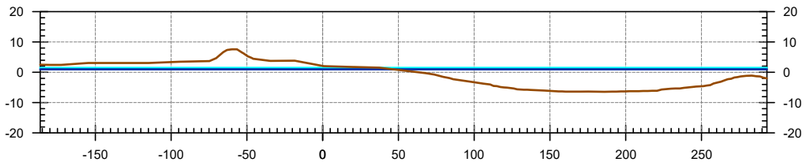
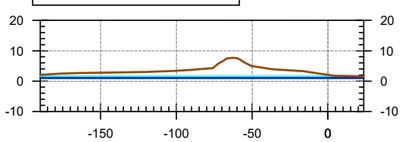
AVERAGE LOW WATER SURFACE (1.00')
NATURAL GROUND

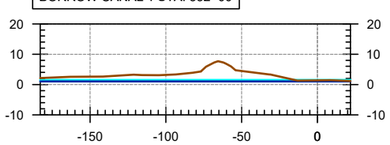
BORROW CANAL 1 STA. 330+00



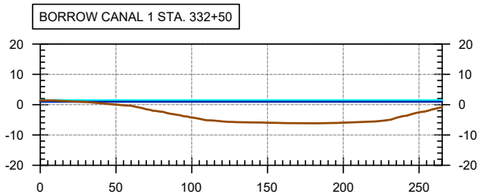
BORROW CANAL 1 STA. 331+00



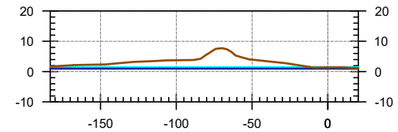
BORROW CANAL 1 STA. 332+00



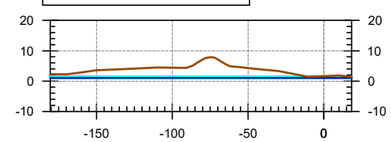
BORROW CANAL 1 STA. 332+50



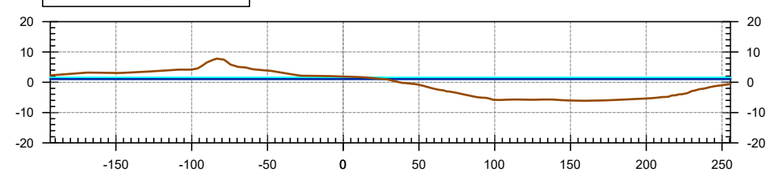
BORROW CANAL 1 STA. 333+00



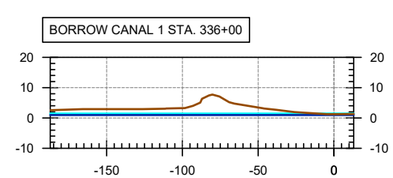
BORROW CANAL 1 STA. 334+00



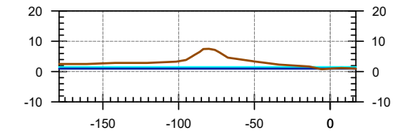
BORROW CANAL 1 STA. 335+00



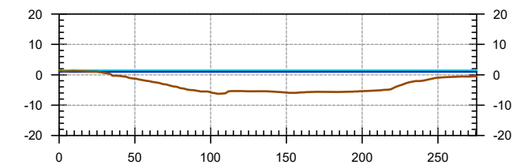
BORROW CANAL 1 STA. 336+00



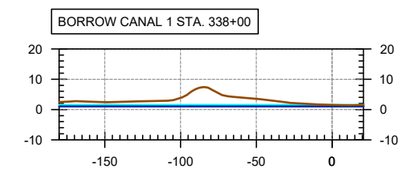
BORROW CANAL 1 STA. 337+00



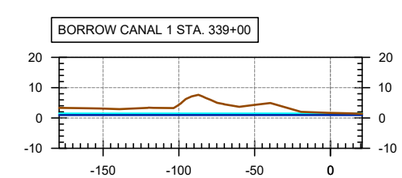
BORROW CANAL 1 STA. 337+50



BORROW CANAL 1 STA. 338+00



BORROW CANAL 1 STA. 339+00



SURVEY NOTES:

1. SURVEY EQUIPMENT: TRIMBLE R10 AND R12 GNSS GPS SYSTEMS, SEAFLOOR HYDROLITE PLUS SINGLE FREQUENCY SOUNDER, GEOMETRICS G882 MAGNETOMETER AND A STARFISH 990F SIDESCAN.
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3. VERTICAL DATUM: NAVD 88 GEOID 2012B, U.S. SURVEY FEET.
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   FUGRO-SM-1 X= 2677961.361, Y= 5000697.644, Z= 4.399 (PRIMARY)
   CRMSCS-SM-10 X= 2679479.892, Y= 511880.498, Z= 3.461

0 25 50 100
HORZ. SCALE IN FEET

0 12.5 25 50
VERT. SCALE IN FEET

EMC SURVEYING & MAPPING
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COASTAL PROTECTION AND RESTORATION AUTHORITY
CPRA

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P.O. BOX 44027
BATON ROUGE, LA 70804-4027

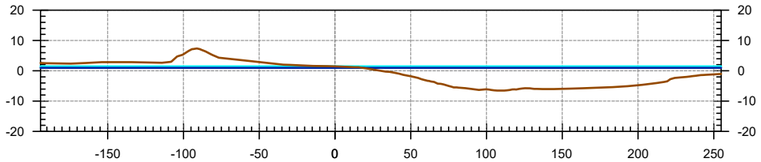
HYDROGRAPHIC AND GEOPHYSICAL SURVEY
CALCASIEU-SABINE LARGE SCALE MARSH CREATION
AND HYDROLOGIC RESTORATION (CS-0087)
CAMERON PARISH, LOUISIANA

DRAWN BY:	CHECKED BY:	SURVEY DATE	PLOT DATE	SHEET NO.	EMC JOB NUMBER
JP	BG	9/25/22	12/20/22	152/208	EMC-22083

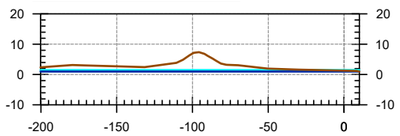
EMC, INC. DRAWING NAME: EMC22083_CS-0087.DWG

AVERAGE HIGH WATER SURFACE (1.49')
AVERAGE LOW WATER SURFACE (1.00')
NATURAL GROUND

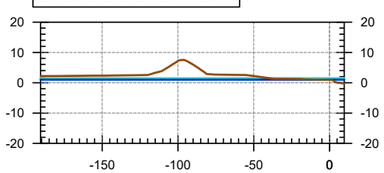
BORROW CANAL 1 STA. 340+00



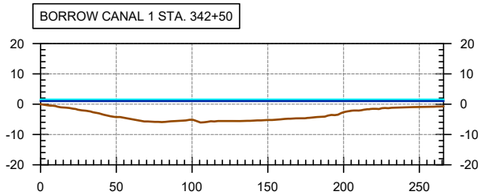
BORROW CANAL 1 STA. 341+00



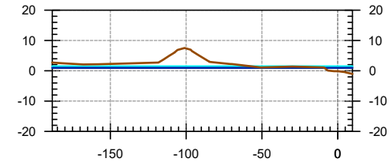
BORROW CANAL 1 STA. 342+00



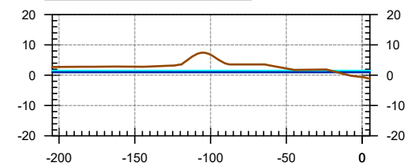
BORROW CANAL 1 STA. 342+50



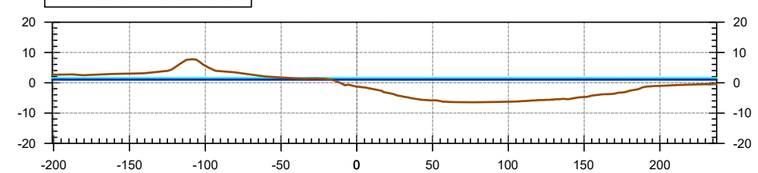
BORROW CANAL 1 STA. 343+00



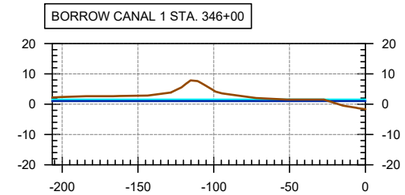
BORROW CANAL 1 STA. 344+00



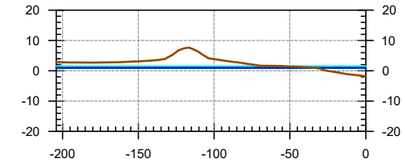
BORROW CANAL 1 STA. 345+00



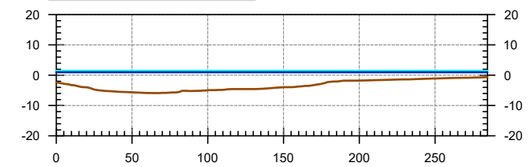
BORROW CANAL 1 STA. 346+00



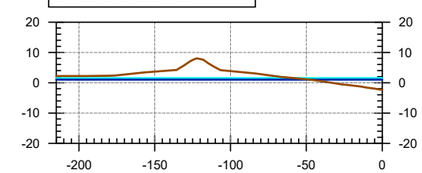
BORROW CANAL 1 STA. 347+00



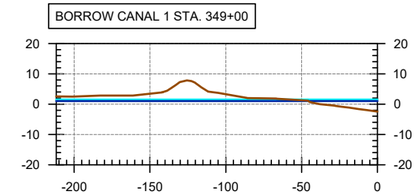
BORROW CANAL 1 STA. 347+50



BORROW CANAL 1 STA. 348+00



BORROW CANAL 1 STA. 349+00



SURVEY NOTES:

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3. VERTICAL DATUM: NAVD 88 GEOID 2012B, U.S. SURVEY FEET.
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   FUGRO-SM-1 X= 2677961.361, Y= 5000697.644, Z= 4.399 (PRIMARY)
   CRMSCS-SM-10 X= 2679479.892, Y= 511880.498, Z= 3.461

0 25 50 100
HORZ. SCALE IN FEET

0 12.5 25 50
VERT. SCALE IN FEET

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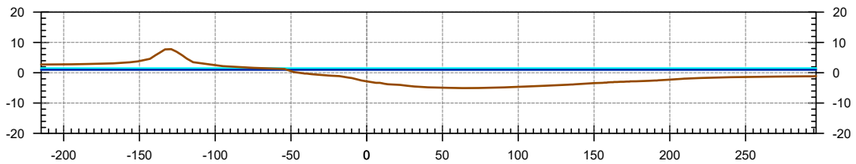
HYDROGRAPHIC AND GEOPHYSICAL SURVEY
CALCASIEU-SABINE LARGE SCALE MARSH CREATION
AND HYDROLOGIC RESTORATION (CS-0087)
CAMERON PARISH, LOUISIANA

DRAWN BY:	CHECKED BY:	SURVEY DATE	PLOT DATE	SHEET NO.	EMC JOB NUMBER
JP	BG	9/25/22	12/20/22	153/208	EMC-22083

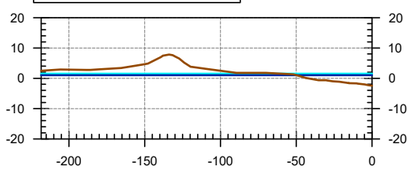
EMC, INC. DRAWING NAME: EMC22083_CS-0087.DWG

AVERAGE HIGH WATER SURFACE (1.49')
AVERAGE LOW WATER SURFACE (1.00')
NATURAL GROUND

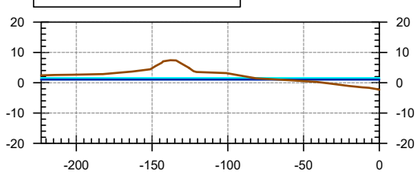
BORROW CANAL 1 STA. 350+00



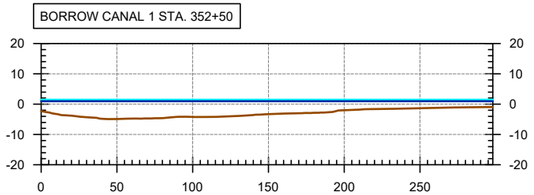
BORROW CANAL 1 STA. 351+00



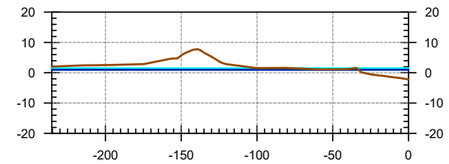
BORROW CANAL 1 STA. 352+00



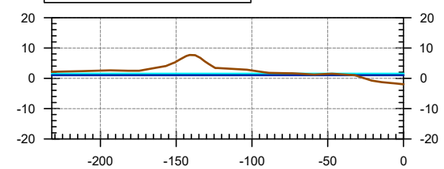
BORROW CANAL 1 STA. 352+50



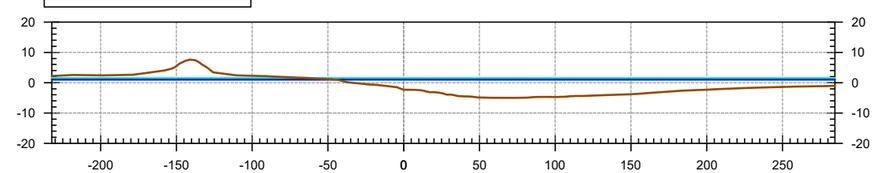
BORROW CANAL 1 STA. 353+00



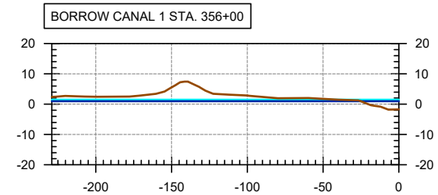
BORROW CANAL 1 STA. 354+00



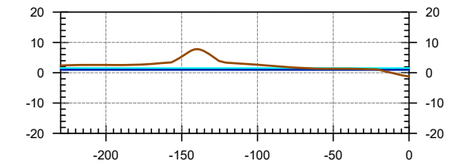
BORROW CANAL 1 STA. 355+00



BORROW CANAL 1 STA. 356+00



BORROW CANAL 1 STA. 357+00



SURVEY NOTES:

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0 25 50 100
HORZ. SCALE IN FEET

0 12.5 25 50
VERT. SCALE IN FEET

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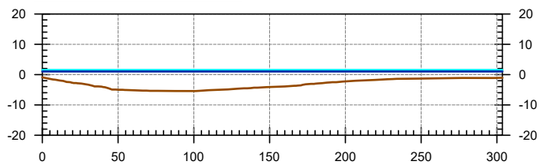
HYDROGRAPHIC AND GEOPHYSICAL SURVEY
CALCASIEU-SABINE LARGE SCALE MARSH CREATION
AND HYDROLOGIC RESTORATION (CS-0087)
CAMERON PARISH, LOUISIANA

DRAWN BY:	CHECKED BY:	SURVEY DATE	PLOT DATE	SHEET NO.	EMC JOB NUMBER
JP	BG	9/25/22	12/20/22	154/208	EMC-22083

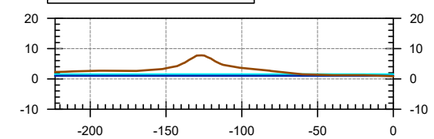
EMC, INC. DRAWING NAME: EMC22083_CS-0087.DWG

AVERAGE HIGH WATER SURFACE (1.49')
AVERAGE LOW WATER SURFACE (1.00')
NATURAL GROUND

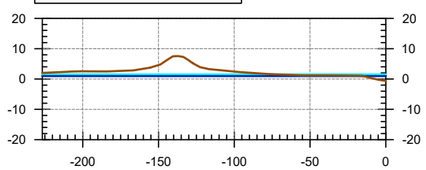
BORROW CANAL 1 STA. 357+50



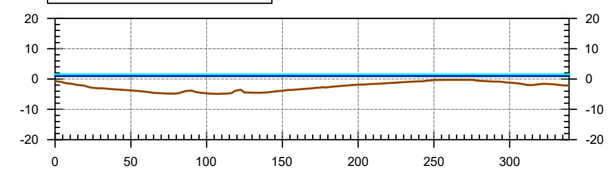
BORROW CANAL 1 STA. 361+00



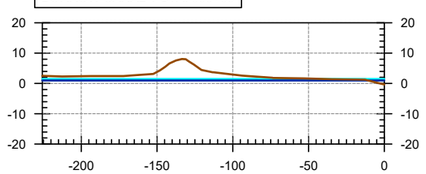
BORROW CANAL 1 STA. 358+00



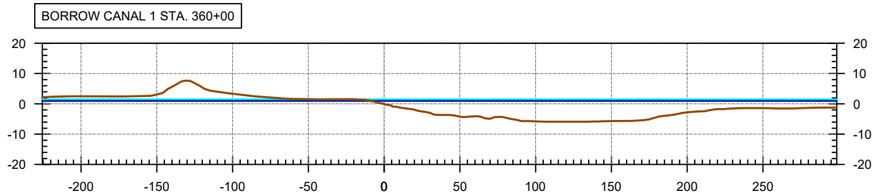
BORROW CANAL 1 STA. 362+31.86



BORROW CANAL 1 STA. 359+00



BORROW CANAL 1 STA. 360+00



SURVEY NOTES:

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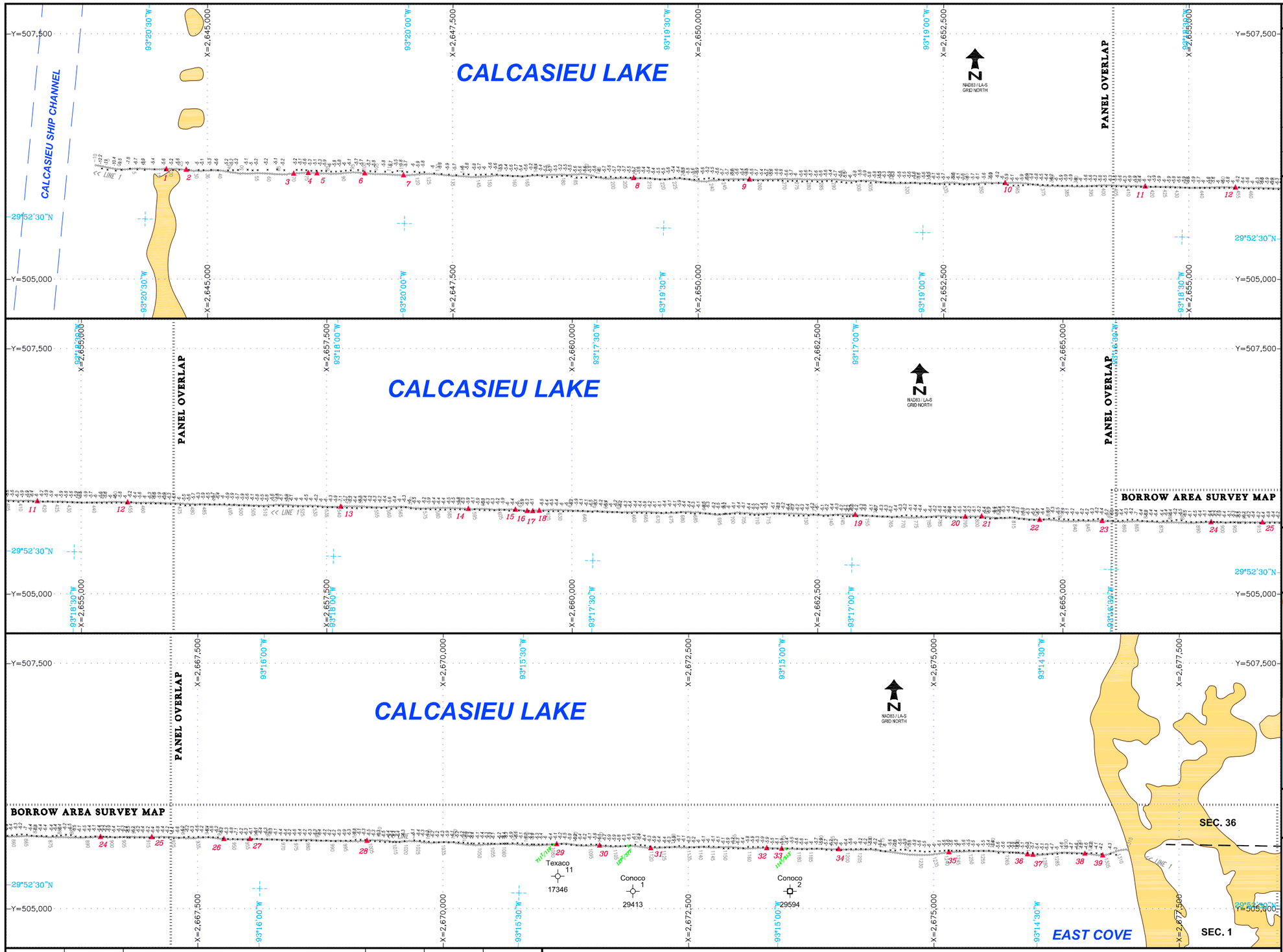
HYDROGRAPHIC AND GEOPHYSICAL SURVEY
CALCASIEU-SABINE LARGE SCALE MARSH CREATION
AND HYDROLOGIC RESTORATION (CS-0087)
CAMERON PARISH, LOUISIANA

DRAWN BY:	CHECKED BY:	SURVEY DATE	PLOT DATE	SHEET NO.	EMC JOB NUMBER
JP	BG	9/25/22	12/20/22	155/208	EMC-22083

EMC, INC. DRAWING NAME: EMC22083_CS-0087.DWG

ATTACHMENT B



PLAN VIEW

<< LINE 195	Navigation trackline with name, direction run, fix, and fix number
5.9	Spot water depths in feet
	Zero datum = NAVD88 Average water surface based on tide readings at "EC-1" = +1.11'
▲ 23	Unidentified magnetic anomaly with reference number
117/116	Magnetic anomaly (with amplitude in gammas and duration in feet) associated with known infrastructure

UNIDENTIFIED MAGNETIC ANOMALIES

NUMBER	AMPLITUDE	DURATION	NUMBER	AMPLITUDE	DURATION
1	24	33	21	29	37
2	8	26	22	30	94
3	14	113	23	4836	147
4	716	125	24	7	41
5	47	116	25	13	36
6	2	16	26	581	110
7	7	30	27	53	95
8	24	38	28	49	52
9	3	36	29	49	19
10	2	26	30	40	39
11	33	28	31	17	19
12	4	36	32	199	57
13	881	416	33	44	40
14	23	33	34	34	30
15	15	25	35	3	21
16	4	23	36	72	31
17	4	48	37	3	21
18	4	26	38	2	17
19	2	22	39	10	28
20	2	15			

All field data acquired June 19, & July 13-14, 2012.
Survey vessel: M/V C-Star
EQUIPMENT UTILIZED:
Subbottom - Edgetech 3100 SB-216S
Side Scan Sonar - GeoAcoustics 114-410 khz
Magnetometer - Geometrics 882 marine magnetometer
Fathometer - Hydrotrac HT97001

Coastal Protection and Restoration Authority of Louisiana

BATHYMETRY AND MAGNETIC ANOMALY MAP

ACCESS CORRIDOR SURVEY

CAMERON-CREOLE WATERSHED

GRAND BAYOU MARSH CREATION PROJECT (CS-54)

CALCASIEU LAKE, CAMERON PARISH, LOUISIANA

500' 0 500' 1000'
SCALE IN US SURVEY FEET

ISSUE	DATE	DESCRIPTION	DRAWN	INTERP	CHECKED
1	July 19, 2012	Preliminary Issue with report	D. Pierrottle	T. George	G. Prather

GEODETIC DATUM: NAD 83
ELLIPSOID: GRS 80
GRID UNITS: US SURVEY FEET
PROJECTION: LAMBERT CONFORMAL CONIC
ZONE: LOUISIANA SOUTH SPCS
CENTRAL MERIDIAN: 91°20' W
FALSE EASTING: 3,280,833.33 ft. at C.M.
FALSE NORTHING: 0.00 ft. at 28° 30' N

PREPARED BY:
C&C Technologies SURVEY SERVICES
730 E. KALISTE SALOOM ROAD, LAFAYETTE, LA (337) 261-0060

JOB NO. 110829 | DATE: July 19, 2012
FILENAME: 110829_CORRIDOR.DWG

SHEET 1 of 1

34" x 22"
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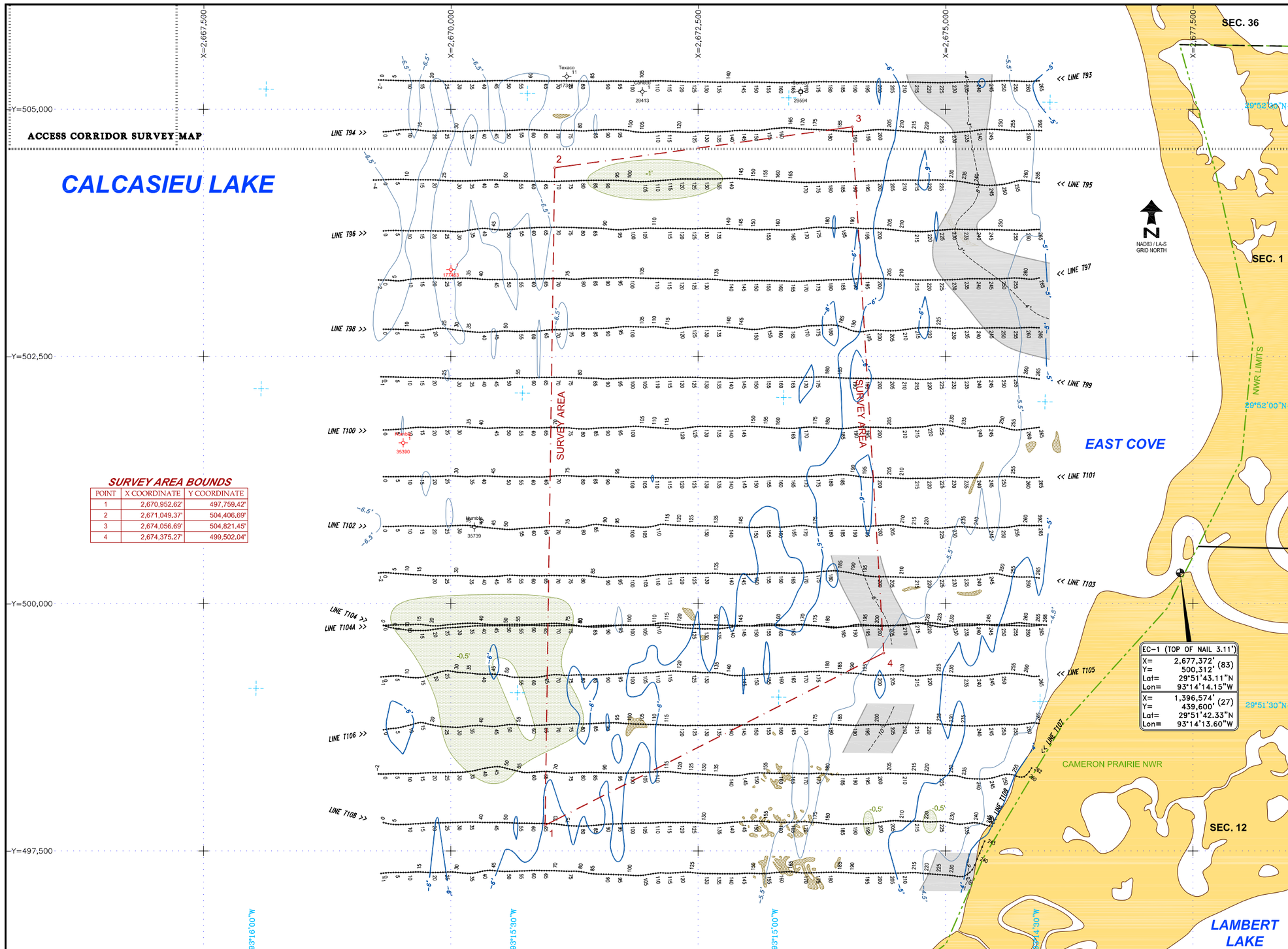

SURVEY AREA BOUNDS

POINT	X COORDINATE	Y COORDINATE
1	2,670,952.62'	497,759.42'
2	2,671,049.37'	504,406.69'
3	2,674,056.69'	504,821.45'
4	2,674,375.27'	499,502.04'

PLAN VIEW

210 215 220 << LINE T95	Navigation trackline with name, direction run, fix, and fix number
	Contour interval = 0.5 foot
	Zero datum = NAVD88
	Average water surface based on tide readings at "EC-1" = +1.11'
	Areas of exposed shell interpreted from side scan sonar data
-0.5'	Possible oyster beds 1'-2' in thickness with burial depth
-6'	Buried channel 1 foot below lake floor and thalweg where discernible

All field data acquired June 20-21, & July 13, 2012.
Survey vessel: M/V C-Star
EQUIPMENT UTILIZED:
Subbottom - Edgetech 3100 SB-216S
Side Scan Sonar - GeoAcoustics 114-410 khz
Magnetometer - Geometrics 882 marine magnetometer
Fathometer - Hydrotrac HT97001

Preliminary

Coastal Protection and Restoration Authority of Louisiana

BATHYMETRY, LAKE FLOOR AND SUBBOTTOM FEATURES MAP

BORROW AREA SURVEY

CAMERON-CREOLE WATERSHED
GRAND BAYOU MARSH CREATION PROJECT (CS-54)
CALCASIEU LAKE, CAMERON PARISH, LOUISIANA

500' 0 500' 1000'
SCALE IN US SURVEY FEET

ISSUE	DATE	DESCRIPTION	DRAWN	INTERP	CHECKED
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PREPARED BY:
C&C Technologies SURVEY SERVICES
730 E. KALISTE SALOOM ROAD, LAFAYETTE, LA (337) 261-0660

JOB NO. 110829 | DATE: July 19, 2012
FILENAME: 110829_OBS.dwg

SHEET 1 of 4

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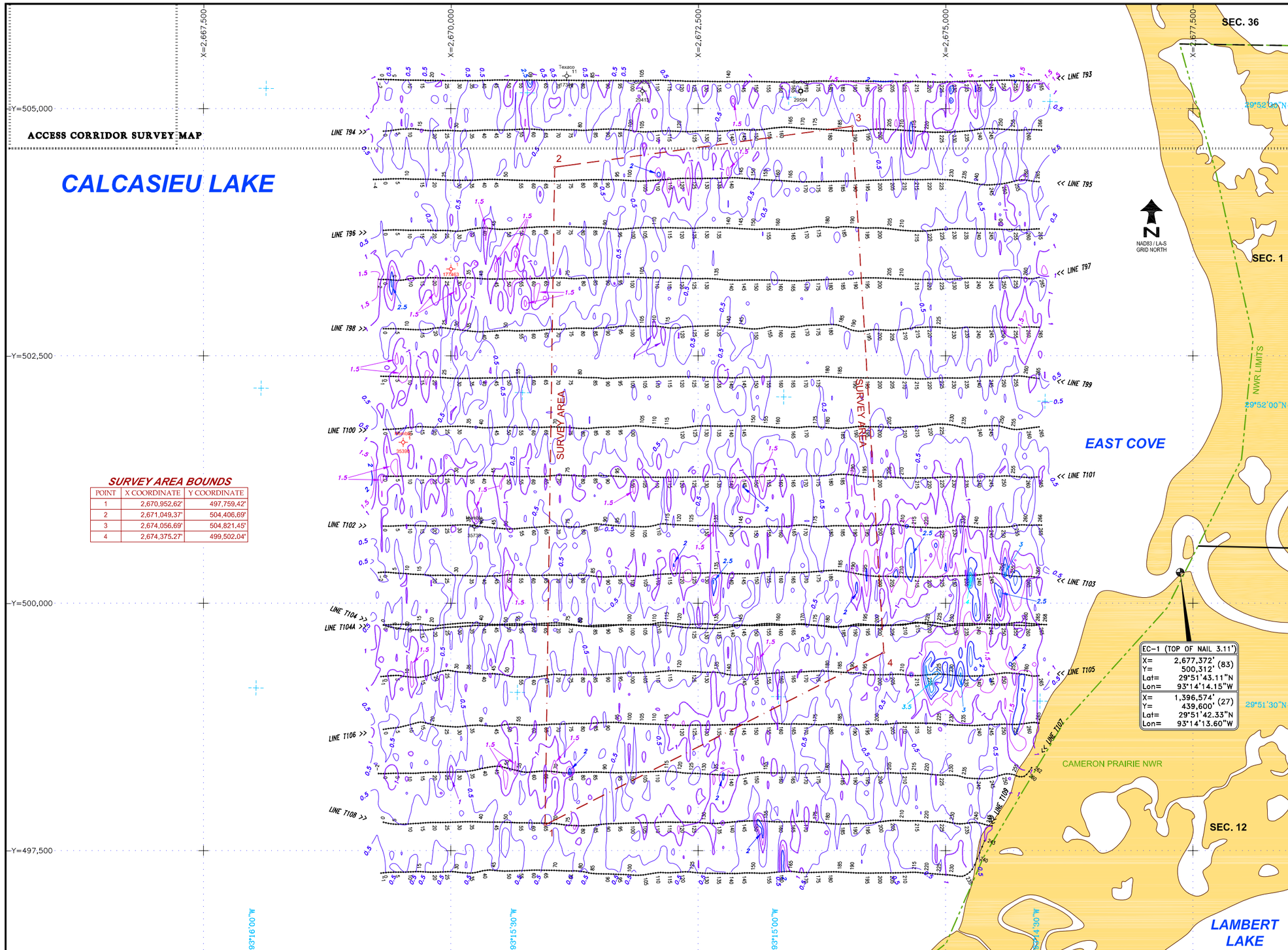

SURVEY AREA BOUNDS

POINT	X COORDINATE	Y COORDINATE
1	2,670,952.62'	497,759.42'
2	2,671,049.37'	504,406.69'
3	2,674,056.69'	504,821.45'
4	2,674,375.27'	499,502.04'

PLAN VIEW

210 215 220 << LINE T95	Navigation trackline with name, direction run, fix, and fix number
	Contour interval = 0.5

All field data acquired June 20-21, & July 13, 2012.
Survey vessel: M/V C-Star
EQUIPMENT UTILIZED:
Subbottom - Edgetech 3100 SB-216S
Side Scan Sonar - GeoAcoustics 114-410 khz
Magnetometer - Geometrics 882 marine magnetometer
Fathometer - Hydrotrac HT97001

Coastal Protection and Restoration Authority of Louisiana

LAKE FLOOR AMPLITUDE MAP

BORROW AREA SURVEY

CAMERON-CREOLE WATERSHED

GRAND BAYOU MARSH CREATION PROJECT (CS-54)

CALCASIEU LAKE, CAMERON PARISH, LOUISIANA

500' 0 500' 1000'
SCALE IN US SURVEY FEET

ISSUE	DATE	DESCRIPTION	DRAWN	INTERP	CHECKED
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730 E. KALISTE SALOOM ROAD, LAFAYETTE, LA (337) 261-0660

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FILENAME: 110829_OBS.dwg

SHEET 2 of 4

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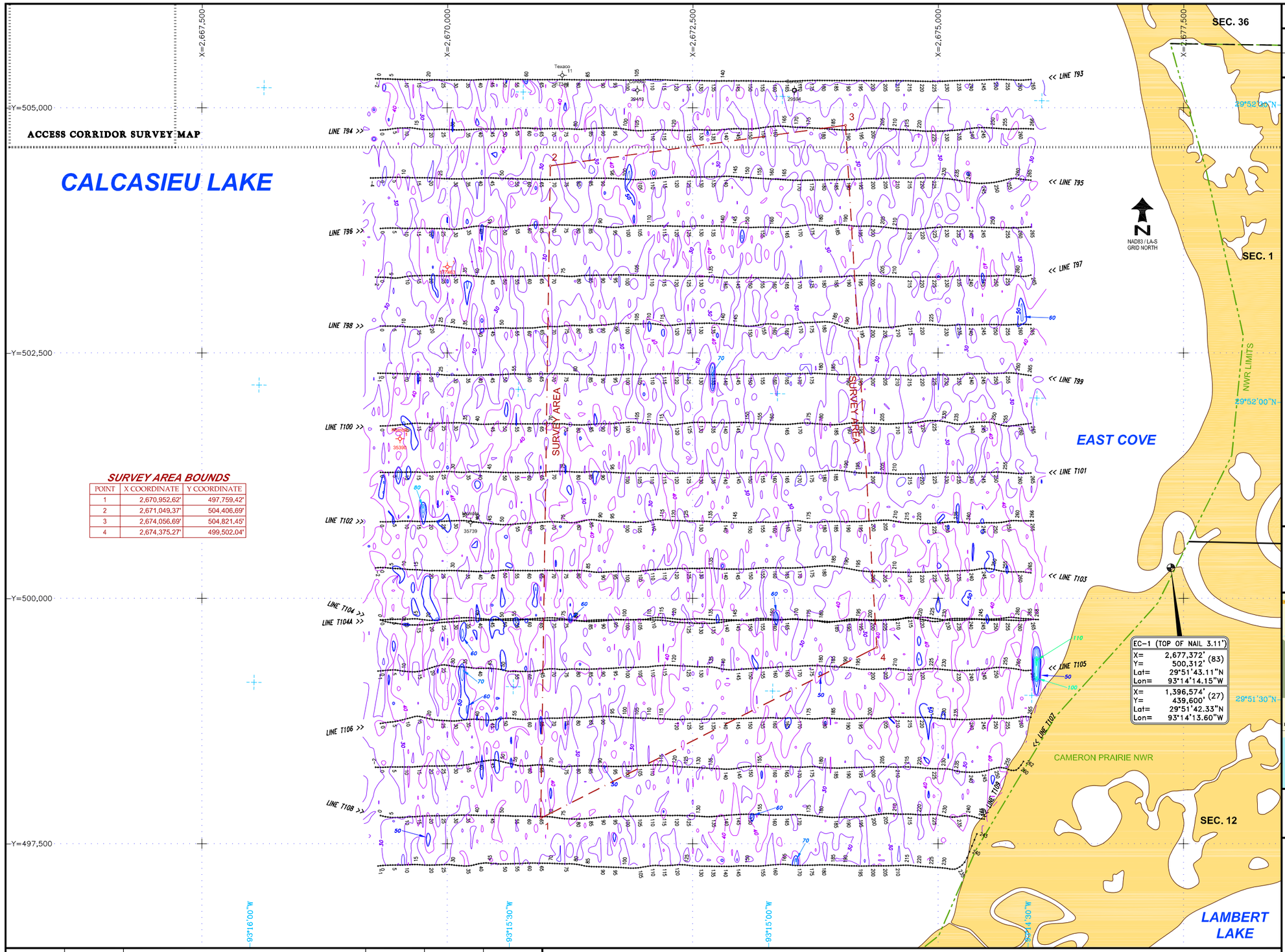

SURVEY AREA BOUNDS

POINT	X COORDINATE	Y COORDINATE
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PLAN VIEW

<< LINE T95	Navigation trackline with name, direction run, fix, and fix number
	Contour interval = 10

All field data acquired June 20-21, & July 13, 2012.
Survey vessel: M/V C-Star
EQUIPMENT UTILIZED:
Subbottom - Edgetech 3100 SB-216S
Side Scan Sonar - GeoAcoustics 114-410 khz
Magnetometer - Geometrics 882 marine magnetometer
Fathometer - Hydrotrac HT97001

Preliminary

Coastal Protection and Restoration Authority of Louisiana

SEISMIC AMPLITUDE SUMMATIONS BETWEEN LAKE FLOOR AND FIVE FEET BELOW MUDLINE MAP

BORROW AREA SURVEY

CAMERON-CREOLE WATERSHED
GRAND BAYOU MARSH CREATION PROJECT (CS-54)
CALCASIEU LAKE, CAMERON PARISH, LOUISIANA

500' 0 500' 1000'
SCALE IN US SURVEY FEET

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PREPARED BY:
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720 E. KALISTE SALOOM ROAD, LAFAYETTE, LA (337) 261-0660

JOB NO. 110829 | DATE: July 19, 2012
FILENAME: 110829_OBS.dwg

SHEET 3 of 4

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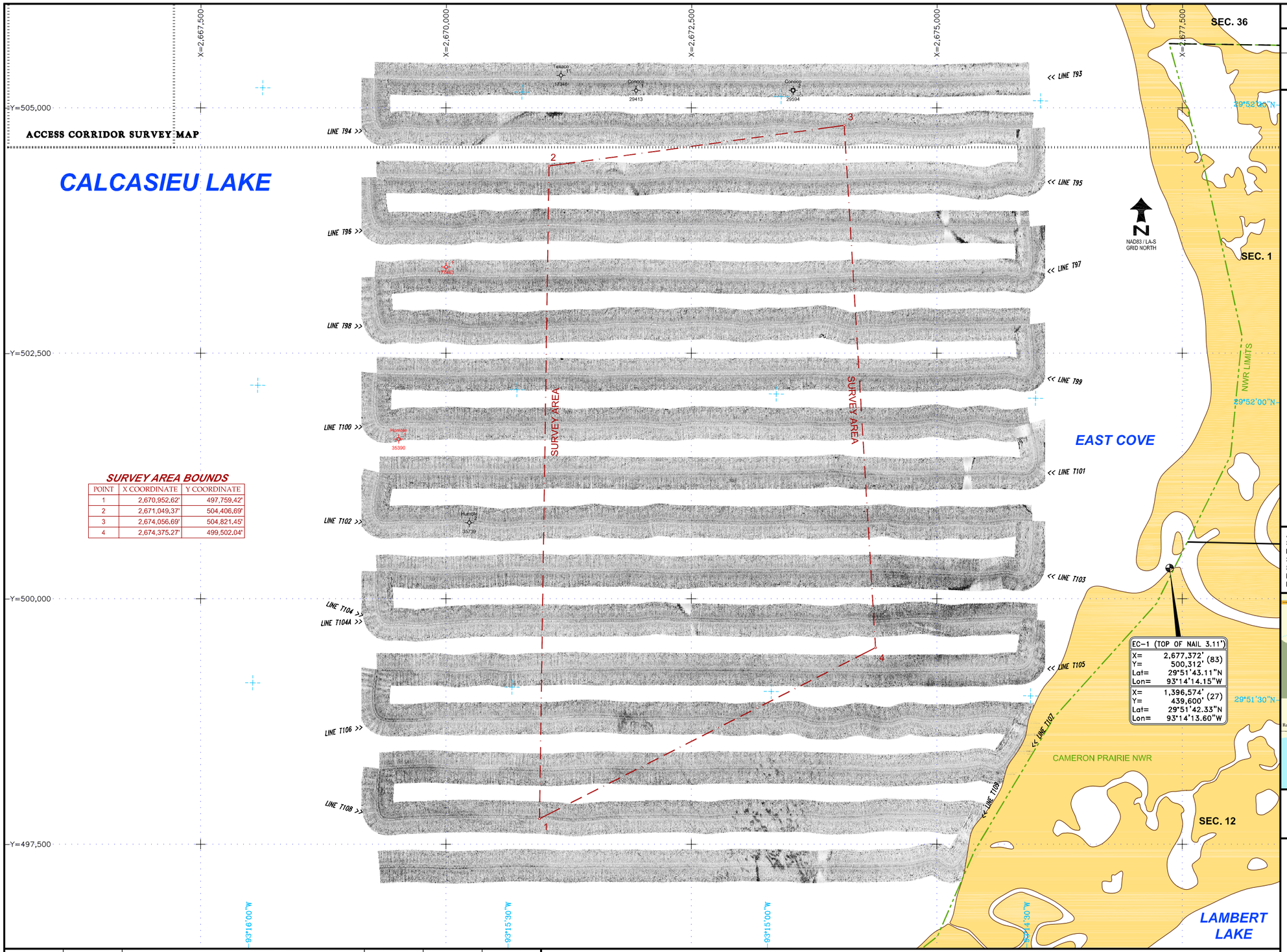

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PLAN VIEW

<< LINE T95	Navigation trackline name and direction run

SONAR MOSAIC

Dark returns represent higher seafloor reflectivity.

All field data acquired June 20-21, & July 13, 2012.
Survey vessel: M/V C-Star
EQUIPMENT UTILIZED:
Subbottom - Edgetech 3100 SB-216S
Side Scan Sonar - GeoAcoustics 114-410 khz
Magnetometer - Geometrics 882 marine magnetometer
Fathometer - Hydrotrac HT97001

Coastal Protection and Restoration Authority of Louisiana

SIDE SCAN SONAR MOSAIC MAP

BORROW AREA SURVEY

CAMERON-CREOLE WATERSHED

GRAND BAYOU MARSH CREATION PROJECT (CS-54)

CALCASIEU LAKE, CAMERON PARISH, LOUISIANA

500' 0 500' 1000'
SCALE IN US SURVEY FEET

ISSUE	DATE	DESCRIPTION	DRAWN	INTERP	CHECKED
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PREPARED BY:
C&C Technologies SURVEY SERVICES
730 E. KALISTE SALOOM ROAD, LAFAYETTE, LA. (337) 261-0660

JOB NO. 110829 | DATE: July 19, 2012
FILENAME: 110829_OBS.dwg

SHEET 4 of 4

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APOLLO ENVIRONMENTAL STRATEGIES, LLC

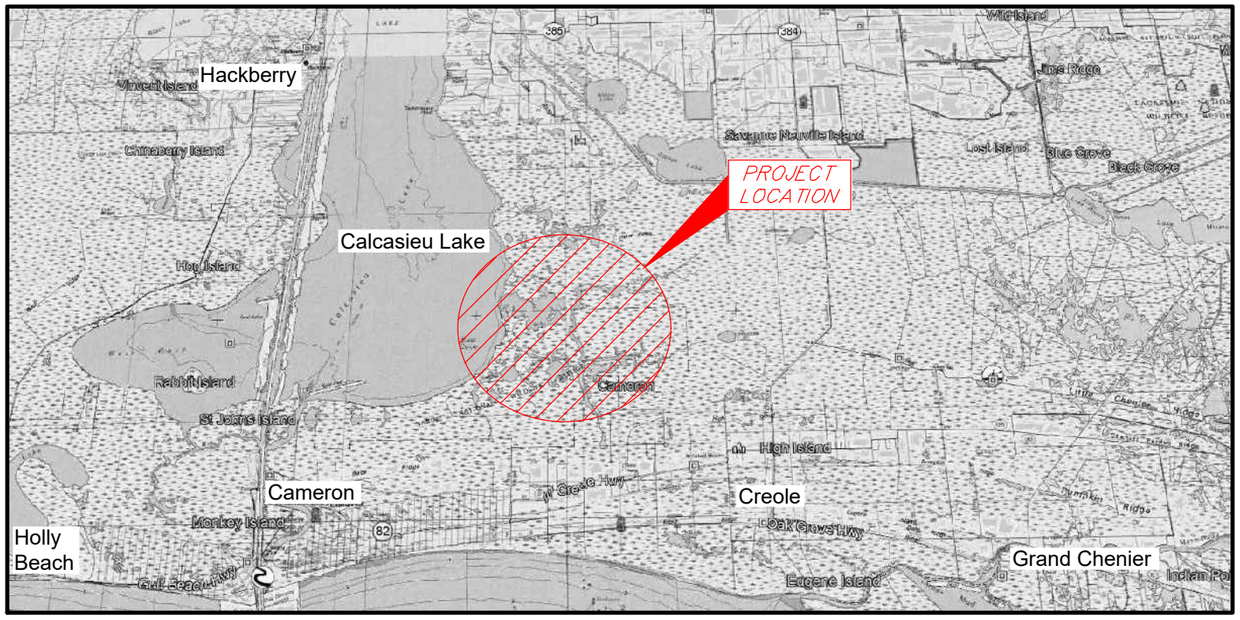
STATE OF LOUISIANA
COASTAL PROTECTION AND RESTORATION AUTHORITY

CAMERON-CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

DREDGE ACCESS-PIPELINE CORRIDORS

CAMERON PARISH, LA



VICINITY MAP (N.T.S.)

STATE OF LOUISIANA
KEITH J. ROBERTS
REG. No. 4780
REGISTERED PROFESSIONAL LAND SURVEYOR
1/29/17

THIS MAP REPRESENTS AN ACTUAL FIELD SURVEY MADE UNDER DIRECT SUPERVISION OF THE UNDERSIGNED.

KEITH J, ROBERTS, PLS # 4780
HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEYING FIRM NO. 614
202 JACOBS RUN
SCOTT, LOUISIANA 70583
(337) 706-8219

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SHEET NO.	DESCRIPTION
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16 - 18	TRANSECT B65 - EQUIPMENT ACCESS - SURVEY PLAN VIEW, PROFILE VIEWS, & CROSS-SECTION VIEWS
19 - 21	TRANSECT B50 - PERMITTED ACCESS DREDGING CHANNEL - SURVEY PLAN VIEW, PROFILE VIEWS, & CROSS-SECTION VIEWS
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REVISED BY:	DATE:

PLAN SCALE
SCALE: NTS

NTS NTS NTS NTS

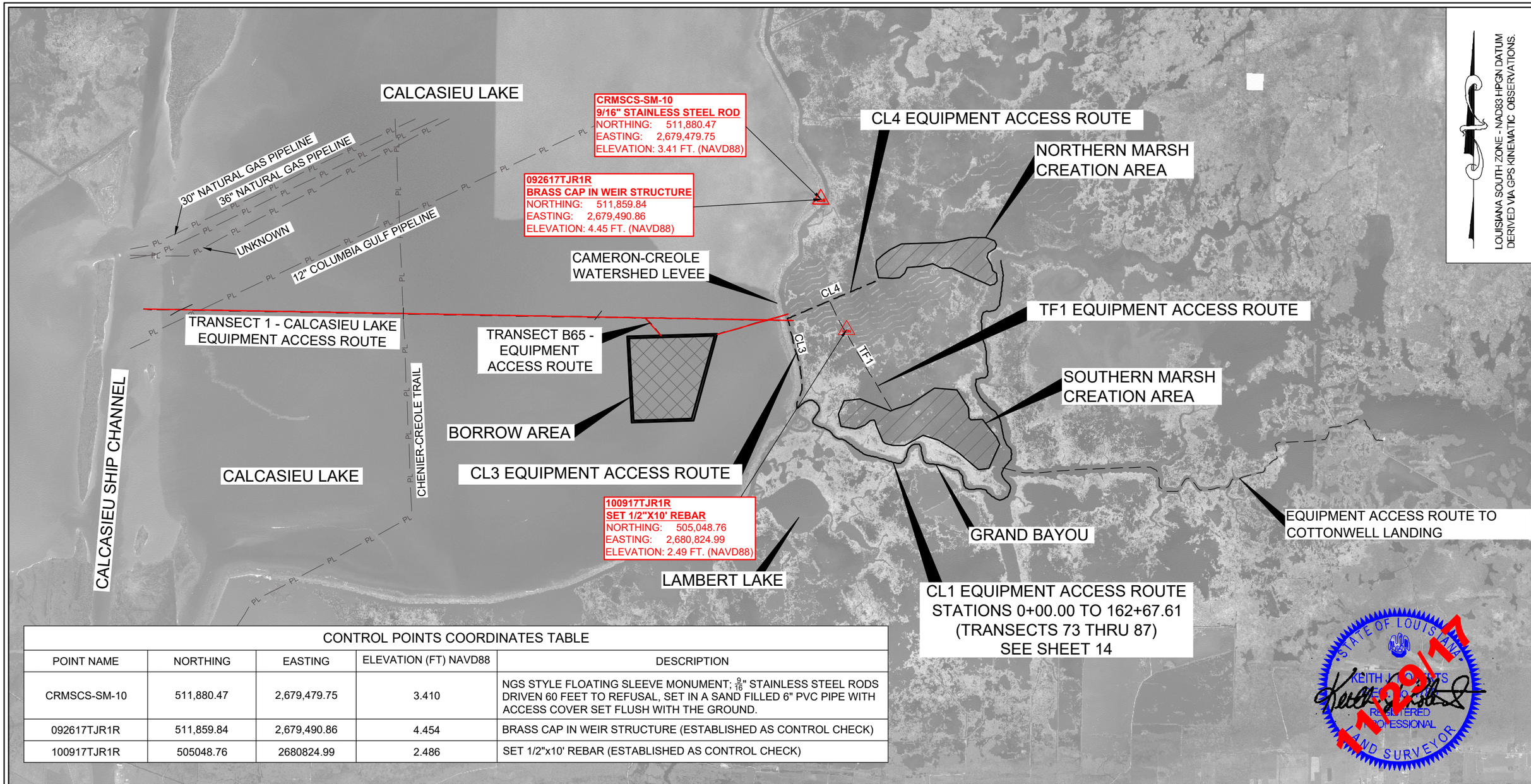
HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)
PRE-CONSTRUCTION SURVEY
DREDGE ACCESS - PIPELINE CORRIDORS
TITLE PAGE
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PLAN.dwg | SHEET: 1 OF 39



CONTROL POINTS COORDINATES TABLE

POINT NAME	NORTHING	EASTING	ELEVATION (FT) NAVD88	DESCRIPTION
CRMSCS-SM-10	511,880.47	2,679,479.75	3.410	NGS STYLE FLOATING SLEEVE MONUMENT; $\frac{9}{16}$" STAINLESS STEEL RODS DRIVEN 60 FEET TO REFUSAL, SET IN A SAND FILLED 6" PVC PIPE WITH ACCESS COVER SET FLUSH WITH THE GROUND.
092617TJR1R	511,859.84	2,679,490.86	4.454	BRASS CAP IN WEIR STRUCTURE (ESTABLISHED AS CONTROL CHECK)
100917TJR1R	505048.76	2680824.99	2.486	SET 1/2"x10' REBAR (ESTABLISHED AS CONTROL CHECK)

NOTES:

1. ALL HORIZONTAL COORDINATES ARE BASED ON LOUISIANA SOUTH ZONE - NAD83 HPGN DATUM, US SURVEY FOOT AS DERIVED FROM PROJECT CONTROL "CRMSCS-SM-10" VIA GPS KINEMATIC OBSERVATIONS.
2. ELEVATIONS ARE BASED ON NAVD 88 US SURVEY FEET (GEOID03) AS DERIVED FROM PROJECT CONTROL "CRMSCS-SM-10" VIA GPS KINEMATIC OBSERVATIONS.
3. MAGNETOMETER SURVEY PERFORMED USING A GEOMETRICS G-882 MAGNETOMETER.
4. HYDROGRAPHIC SURVEY DATA ACQUISITION WAS PERFORMED WITH AN ODOM MARK III 200/24kHz TRANSDUCER INTEGRATED WITH RTK.
5. VERIFICATION OF MAGNETOMETER ANOMALIES WAS PERFORMED USING A TRITECH STARFISH 450F SIDE SCAN SONAR 400 kHz.
6. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
7. PRE-CONSTRUCTION SURVEY AND MAGNETOMETER DATA ACQUISITION WAS PERFORMED BY HYDROTERRA TECHNOLOGIES, LLC ON 10/23/17, 11/01/17, 11/02/17, 11/08/17, 11/09/17, 11/10/17, AND 11/14/17.

LEGEND

- PROJECT BASELINE / ALIGNMENT
- EQUIPMENT ACCESS ROUTE
- BORROW AREA
- MARSH CREATION AREA
- CONTROL POINT

REVISED BY:	DATE:

HORIZONTAL SCALE

5000' 0' 2500' 5000'

DATE: 11/29/2017 JOB# 2171030

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

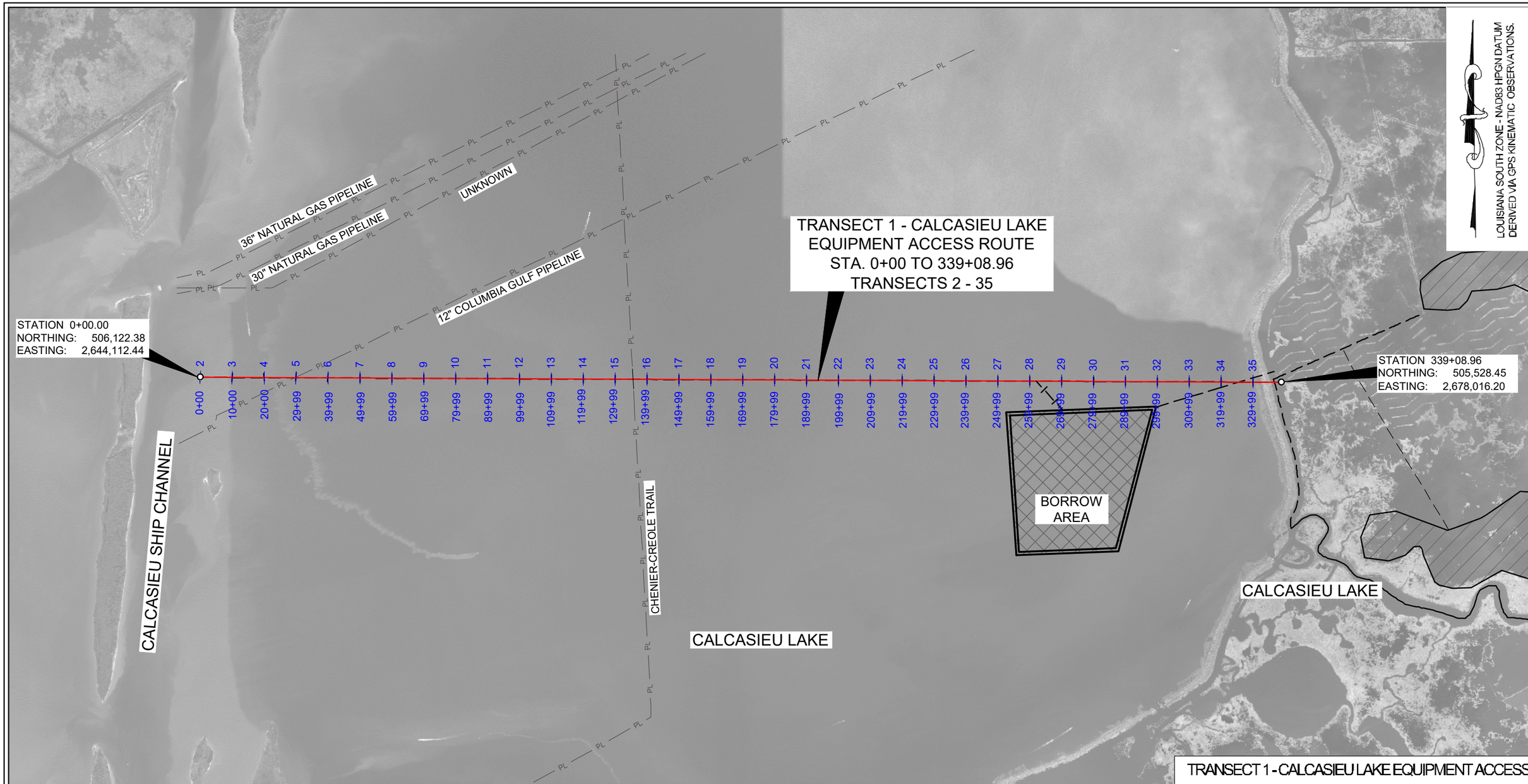
DREDGE ACCESS - PIPELINE CORRIDORS

OVERALL PLAN VIEW
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PLAN.dwg

SHEET: 2 OF 39



TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS

STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

- PROJECT BASELINE/ALIGNMENT EQUIPMENT ACCESS ROUTE
- EQUIPMENT ACCESS ROUTE
- BORROW AREA
- MARSH CREATION AREA
- SURVEY CROSS-SECTION

REVISED BY:	DATE:

HORIZONTAL SCALE

3000' 0' 1500' 3000'

DATE: 11/29/2017 JOB# 2171030

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO®
Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

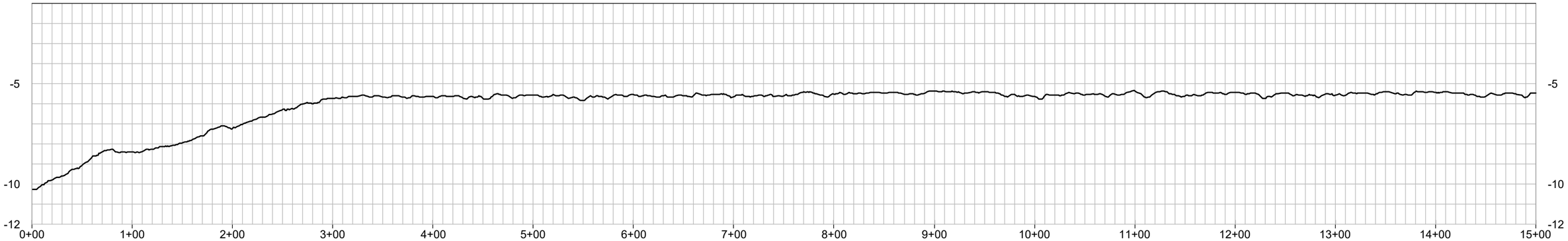
DREDGE ACCESS - PIPELINE CORRIDORS

SURVEY PLAN VIEW
CAMERON PARISH, LA.

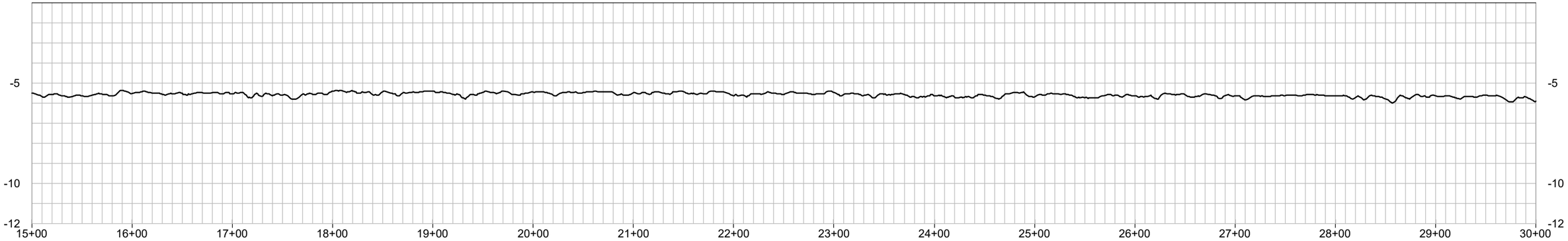
PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PLAN.dwg

TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS ROUTE



TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS ROUTE



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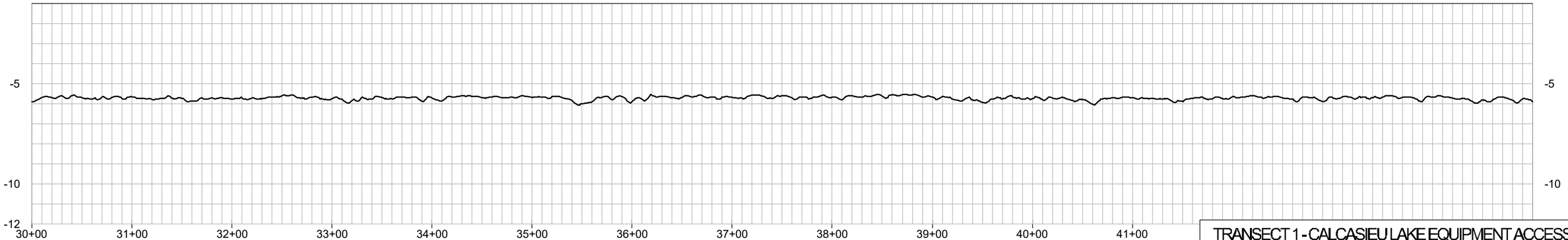


TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS

STATE OF LOUISIANA
KEITH J. ROBERTS
PROFESSIONAL LAND SURVEYOR
REGISTERED
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE

100' 0' 50' 100'

VERTICAL SCALE

5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

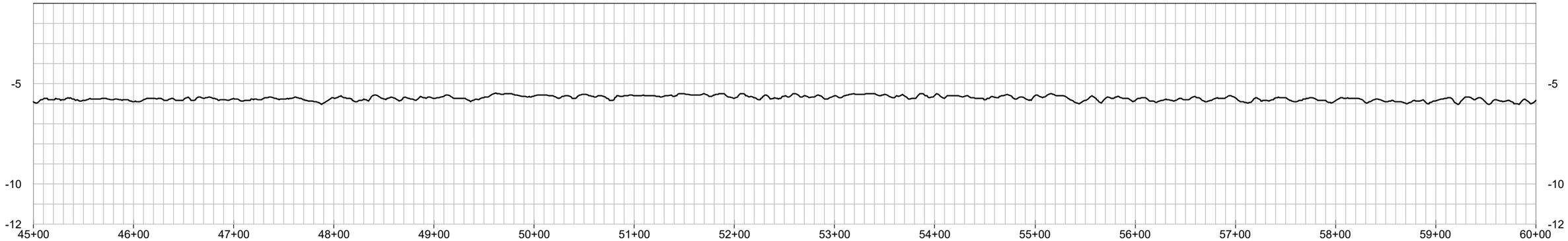
DREDGE ACCESS - PIPELINE CORRIDORS

PROFILE VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PROFILES.dwg | SHEET: 4 OF 39

TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS ROUTE



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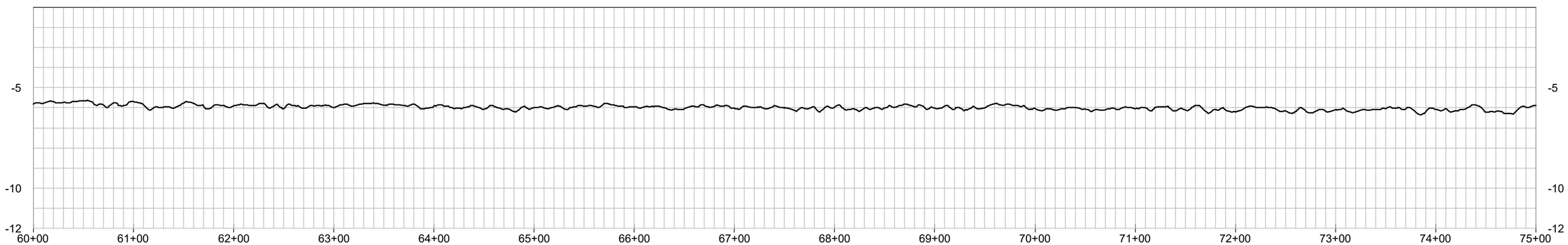

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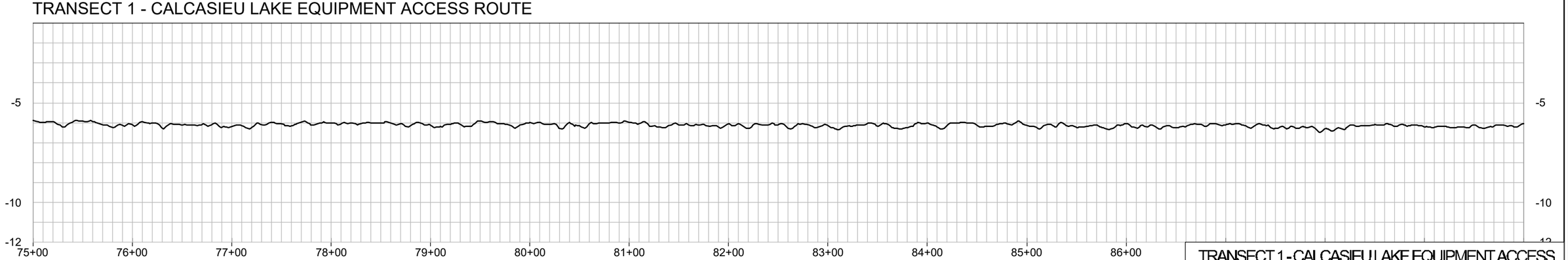


TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS

STATE OF LOUISIANA
KEITH J. ROBERTS
PROFESSIONAL LAND SURVEYOR
REGISTERED
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE

100' 0' 50' 100'

VERTICAL SCALE

5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

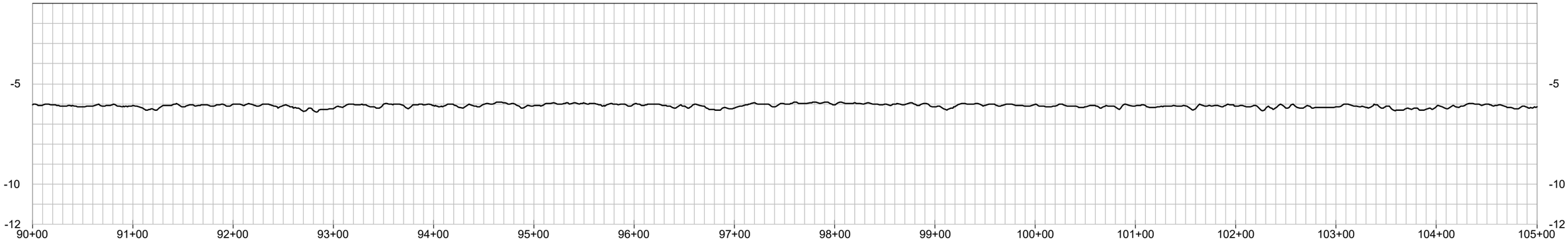
DREDGE ACCESS - PIPELINE CORRIDORS

PROFILE VIEWS
CAMERON PARISH, LA.

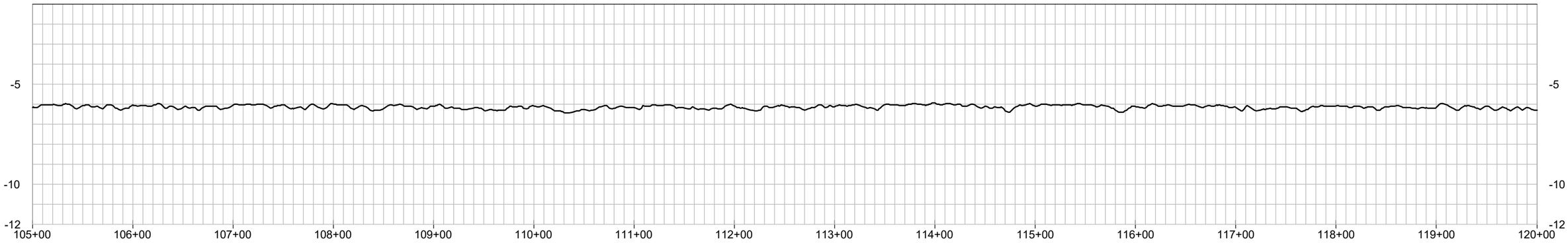
PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PROFILES.dwg | SHEET: 5 OF 39

TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS ROUTE



TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS ROUTE



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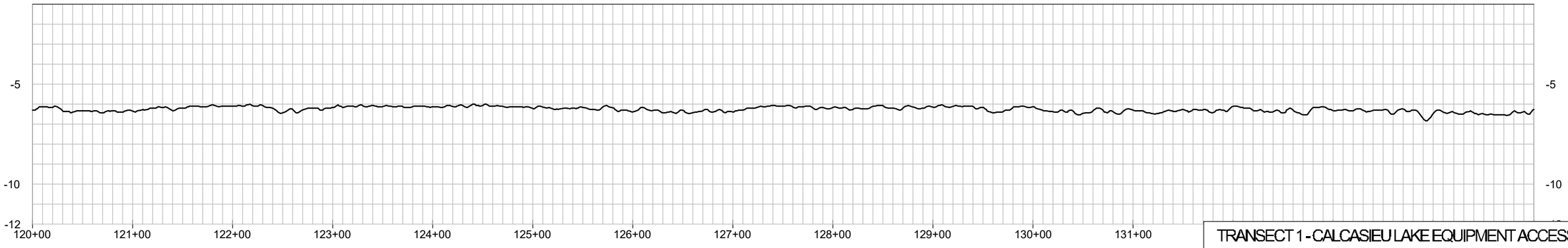


TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS

STATE OF LOUISIANA
KEITH J. ROBERTS
PROFESSIONAL LAND SURVEYOR
REGISTERED
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE

100' 0' 50' 100'

VERTICAL SCALE

5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO®
Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

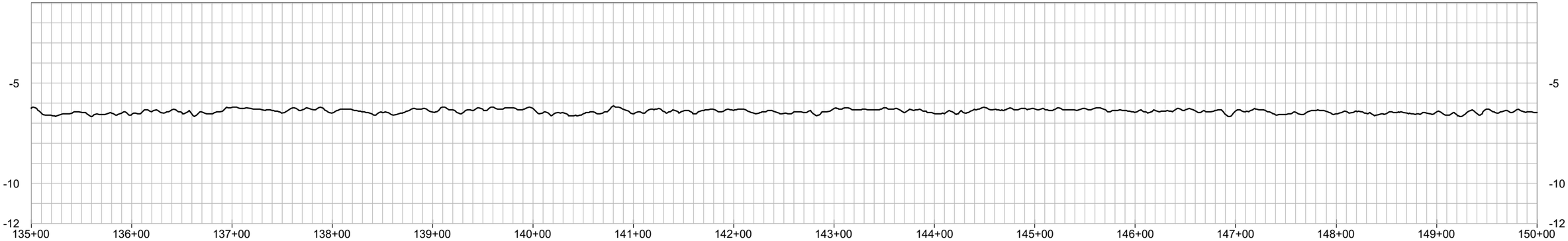
DREDGE ACCESS - PIPELINE CORRIDORS

PROFILE VIEWS
CAMERON PARISH, LA.

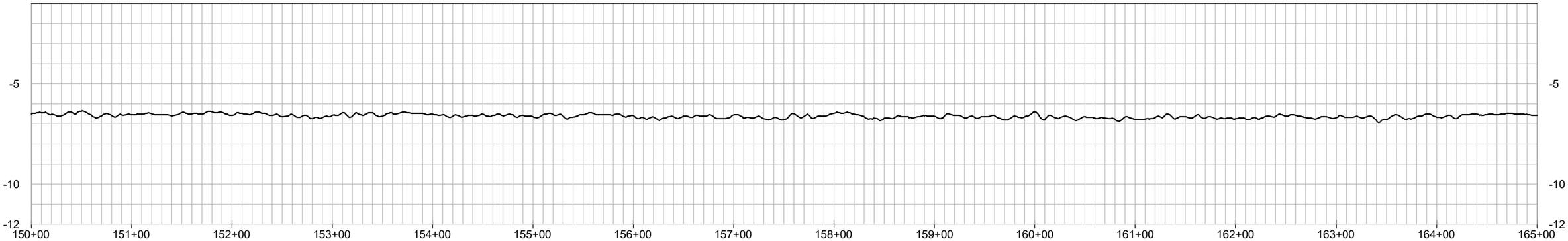
PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PROFILES.dwg | SHEET: 6 OF 39

TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS ROUTE



TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS ROUTE



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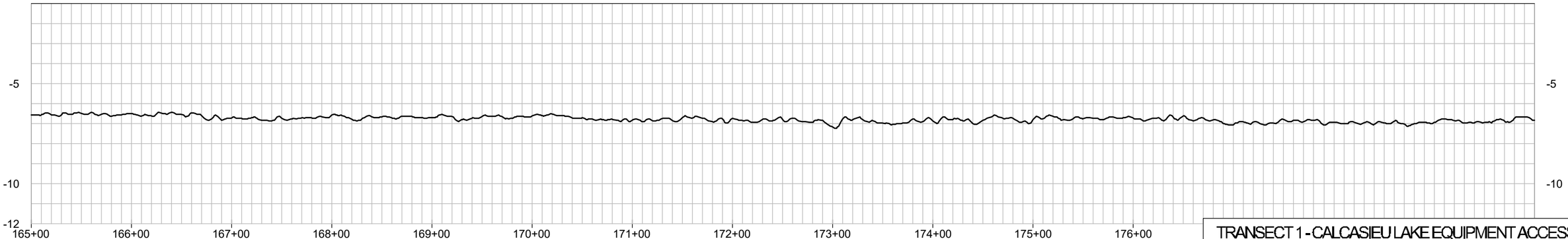


TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS

STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE

100' 0' 50' 100'

VERTICAL SCALE

5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

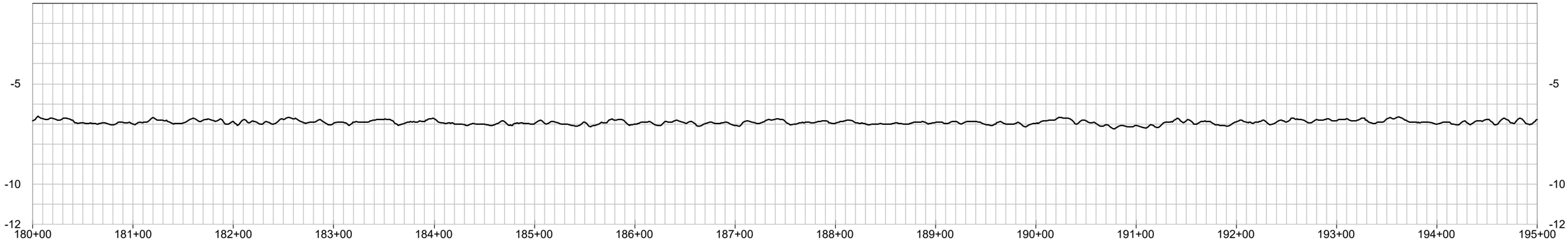
DREDGE ACCESS - PIPELINE CORRIDORS

PROFILE VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PROFILES.dwg | SHEET: 7 OF 39

TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS ROUTE



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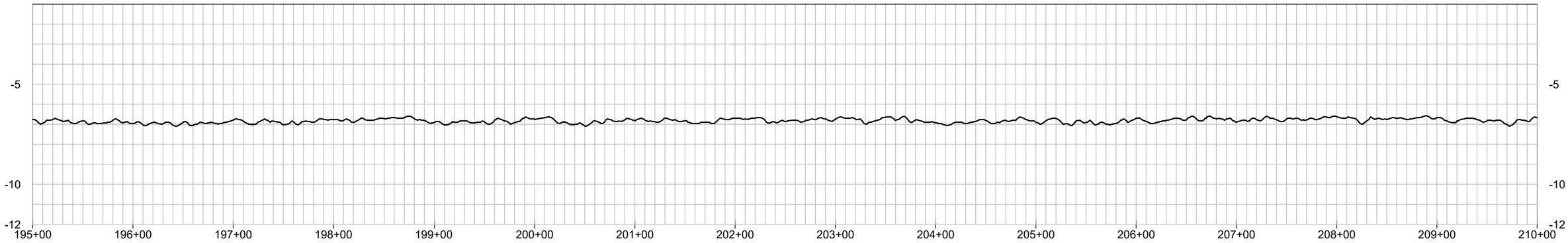

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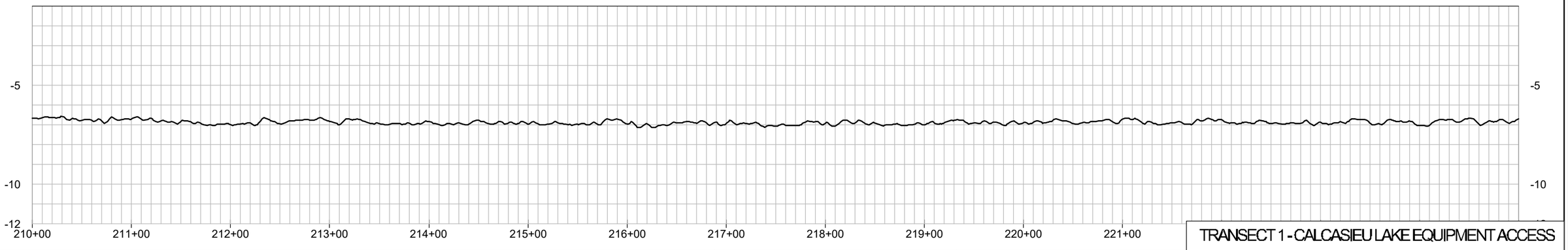


TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS

STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11-29-17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE

100' 0' 50' 100'

VERTICAL SCALE

5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

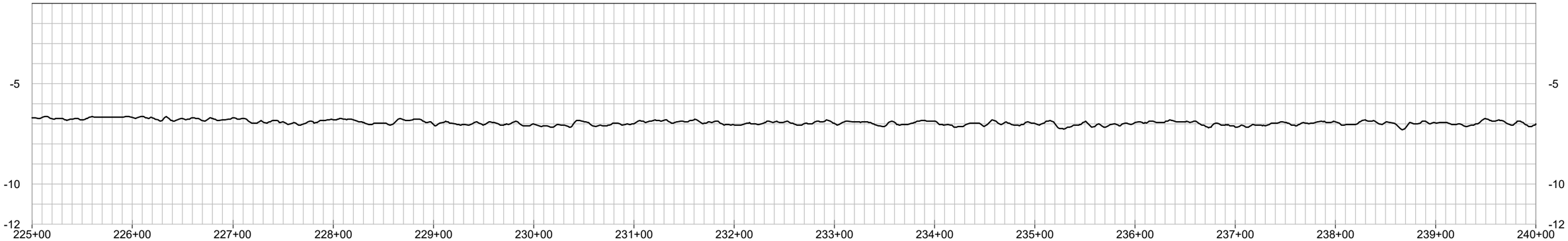
DREDGE ACCESS - PIPELINE CORRIDORS

PROFILE VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PROFILES.dwg | SHEET: 8 OF 39

TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS ROUTE



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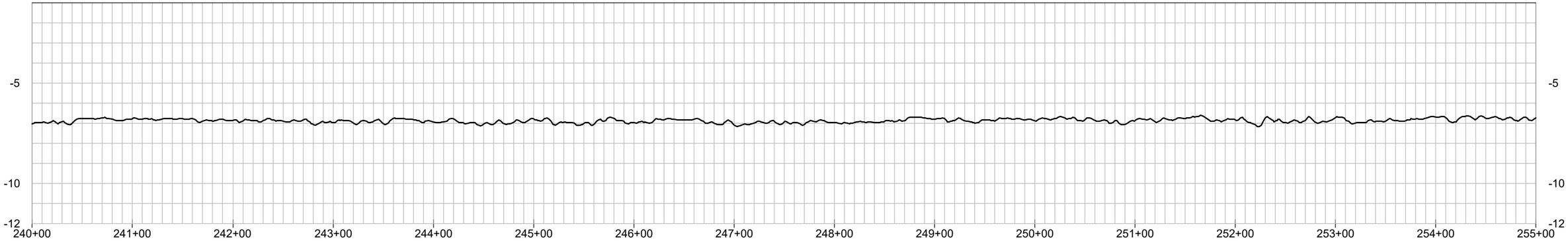

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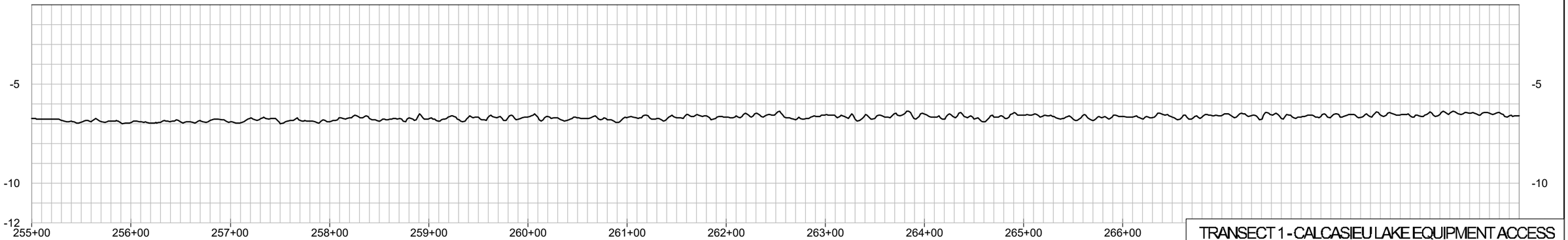


TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS

STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
12/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE

100' 0' 50' 100'

VERTICAL SCALE

5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

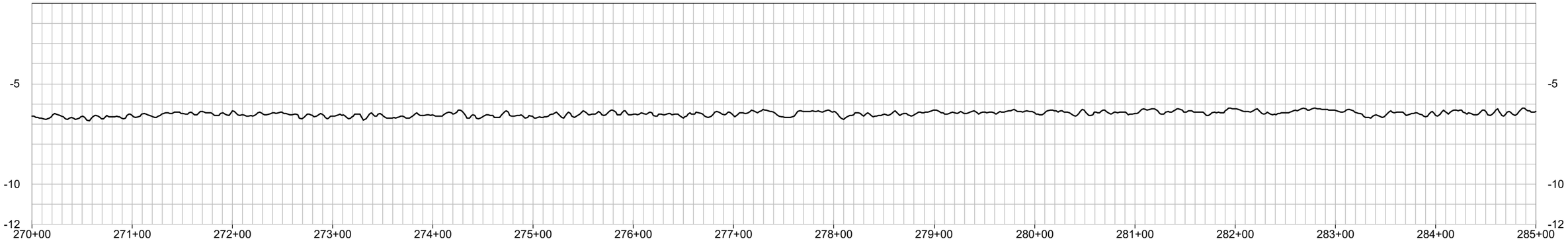
DREDGE ACCESS - PIPELINE CORRIDORS

PROFILE VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PROFILES.dwg | SHEET: 9 OF 39

TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS ROUTE



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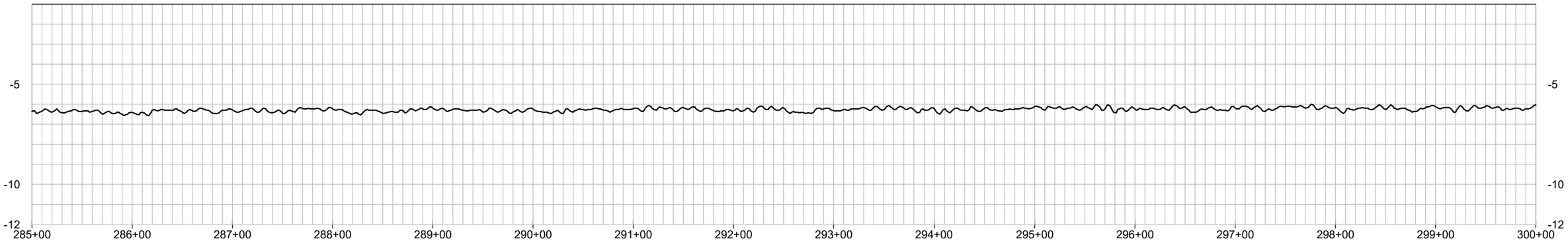

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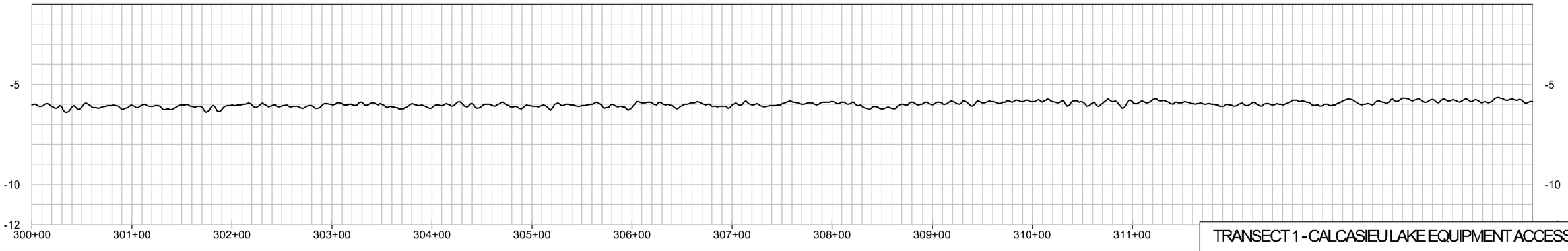


TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS

STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11-29-17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE

100' 0' 50' 100'

VERTICAL SCALE

5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO®
Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

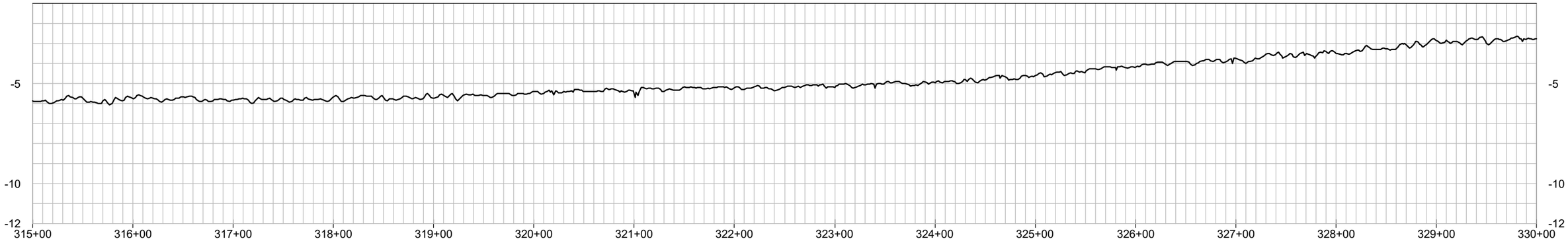
DREDGE ACCESS - PIPELINE CORRIDORS

PROFILE VIEWS
CAMERON PARISH, LA.

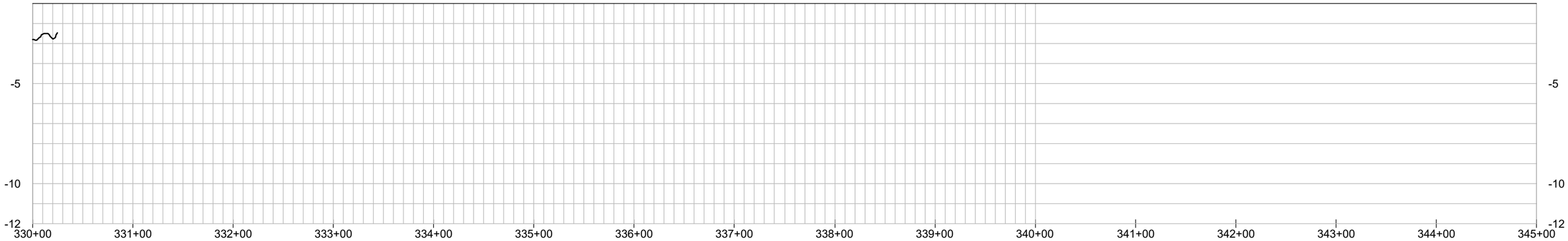
PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PROFILES.dwg | SHEET: 10 OF 39

TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS ROUTE



TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS ROUTE



TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS

STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE

100' 0' 50' 100'

VERTICAL SCALE

5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

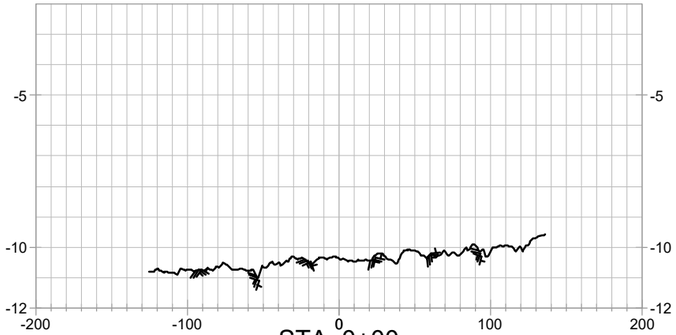
PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

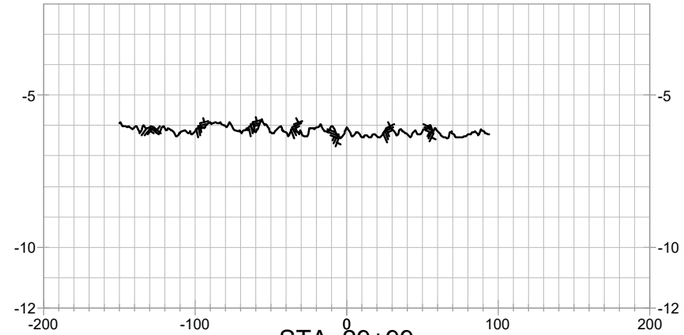
PROFILE VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

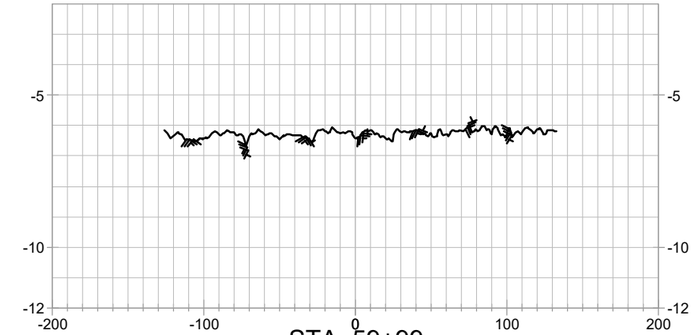
DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PROFILES.dwg | SHEET: 11 OF 39



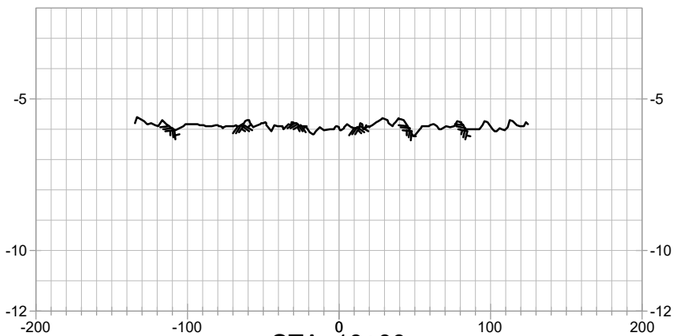
STA. 0+00
TRANSECT 2



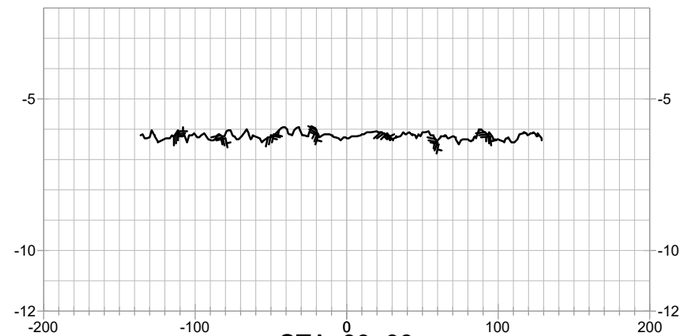
STA. 29+99
TRANSECT 5



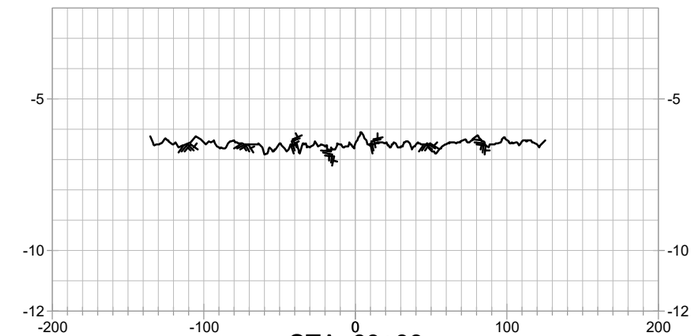
STA. 59+99
TRANSECT 8



STA. 10+00
TRANSECT 3



STA. 39+99
TRANSECT 6



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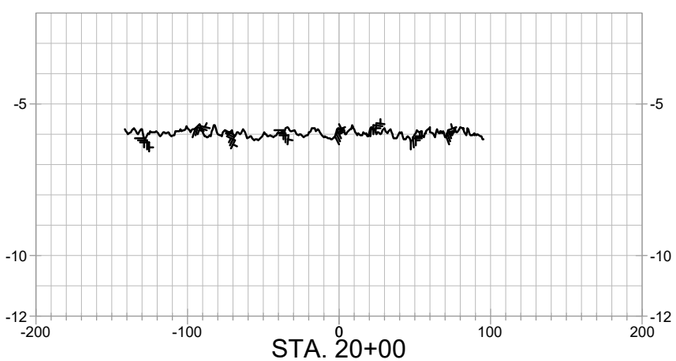
TRANSECT 9



STA. 20+00
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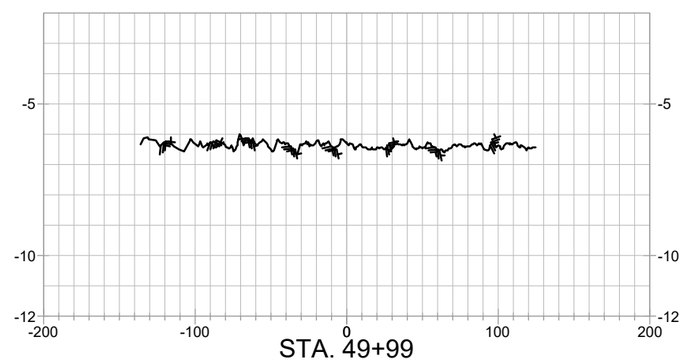
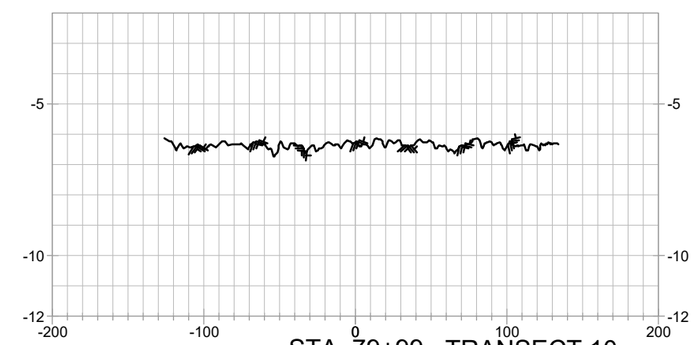


STA. 49+99
TRANSECT 7



STA. 79+99 TRANSECT 10

TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS

STATE OF LOUISIANA
KEITH [illegible]
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE
100' 0' 50' 100'

VERTICAL SCALE
5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO®
Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

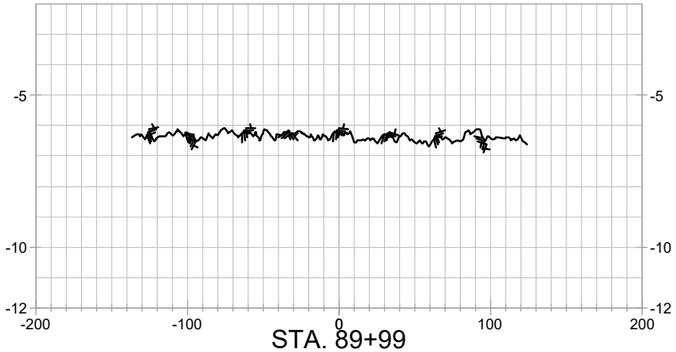
PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

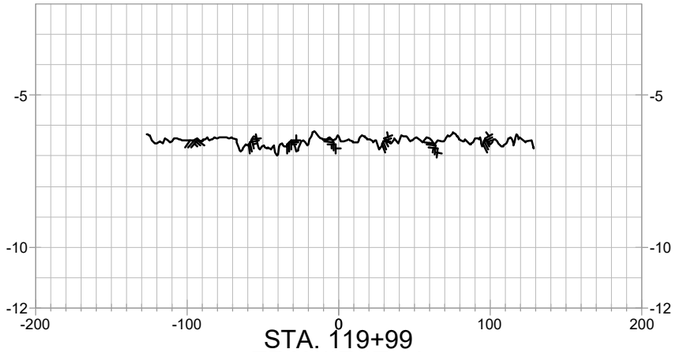
CROSS-SECTION VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

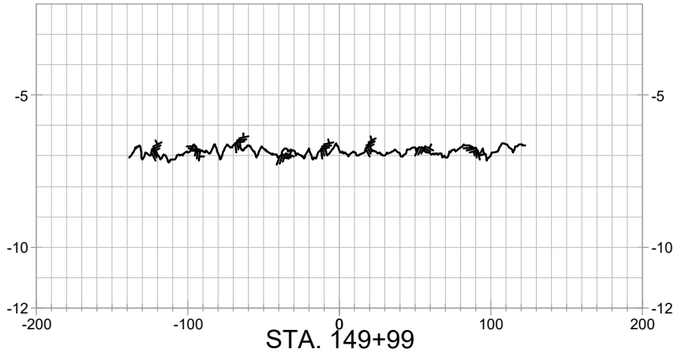
DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_SEC.dwg | SHEET: 12 OF 39



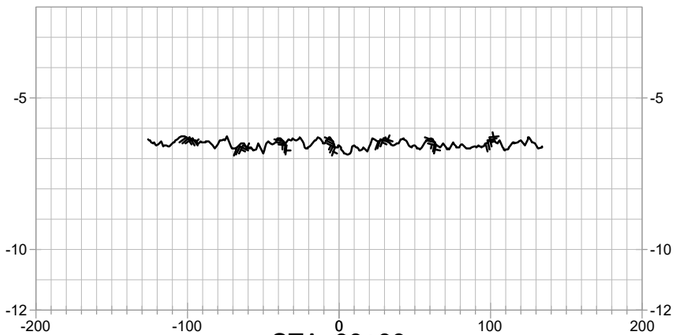
STA. 89+99
TRANSECT 11



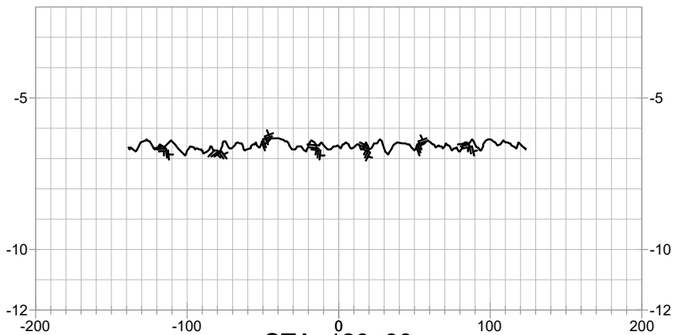
STA. 119+99
TRANSECT 14



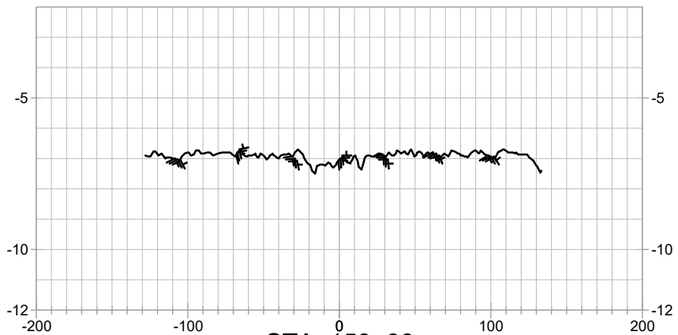
STA. 149+99
TRANSECT 17



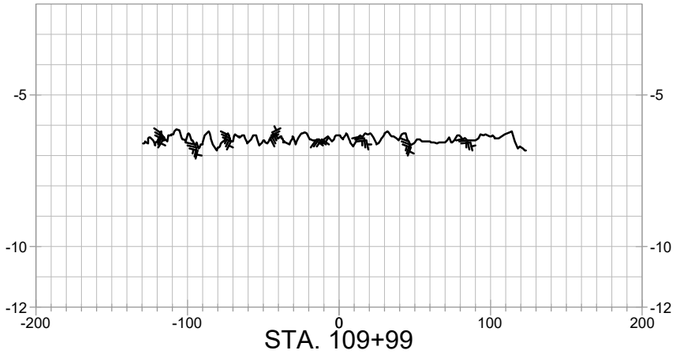
STA. 99+99
TRANSECT 12



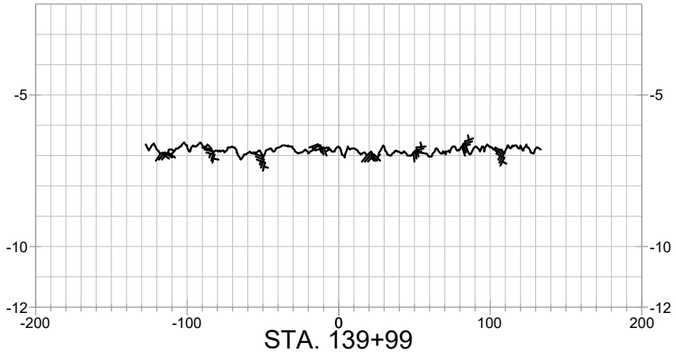
STA. 129+99
TRANSECT 15



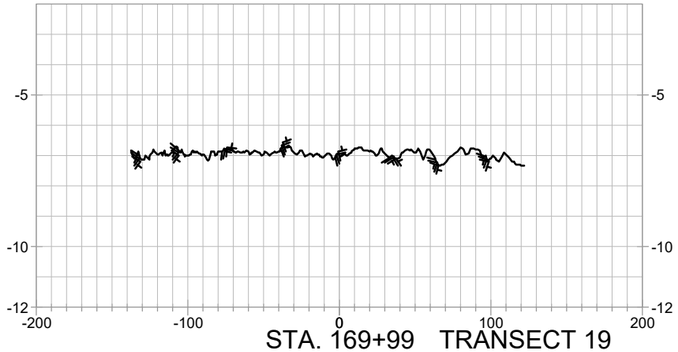
STA. 159+99
TRANSECT 18



STA. 109+99
TRANSECT 13



STA. 139+99
TRANSECT 16



STA. 169+99 TRANSECT 19

TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS

STATE OF LOUISIANA
KEITH [illegible]
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE
100' 0' 50' 100'

VERTICAL SCALE
5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO®
Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

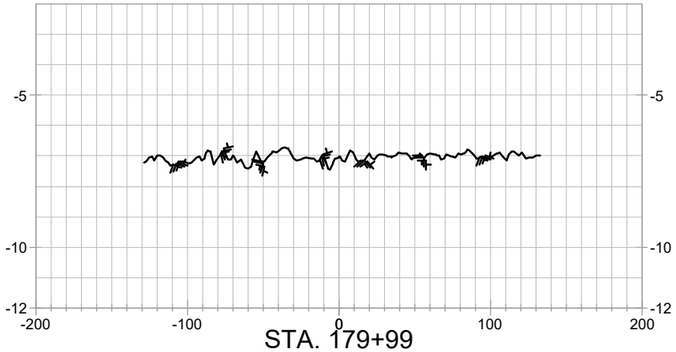
PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

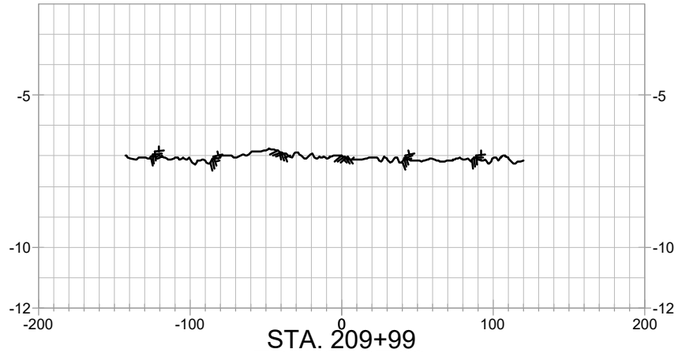
CROSS-SECTION VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

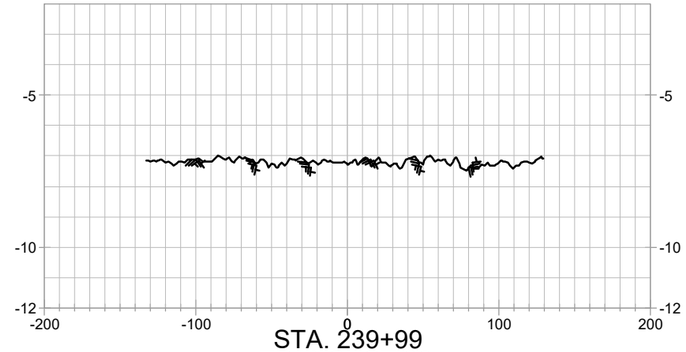
DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_SEC.dwg | SHEET: 13 OF 39



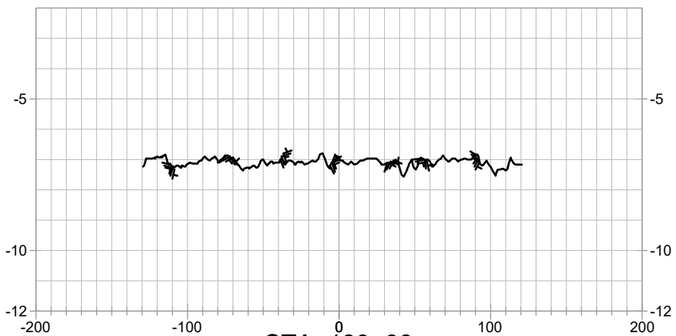
STA. 179+99
TRANSECT 20



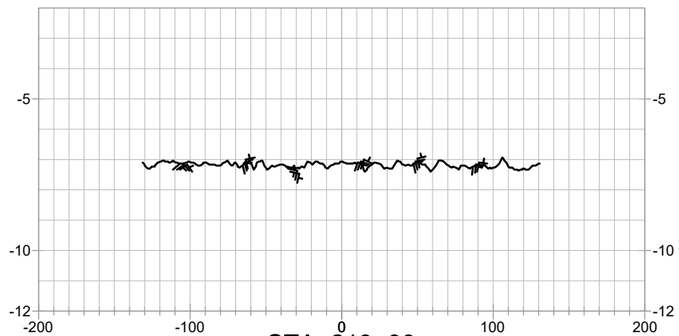
STA. 209+99
TRANSECT 23



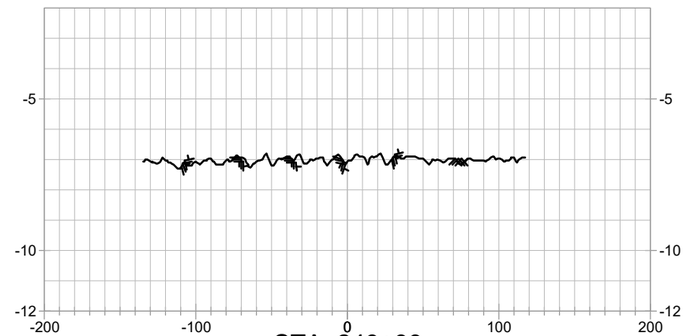
STA. 239+99
TRANSECT 26



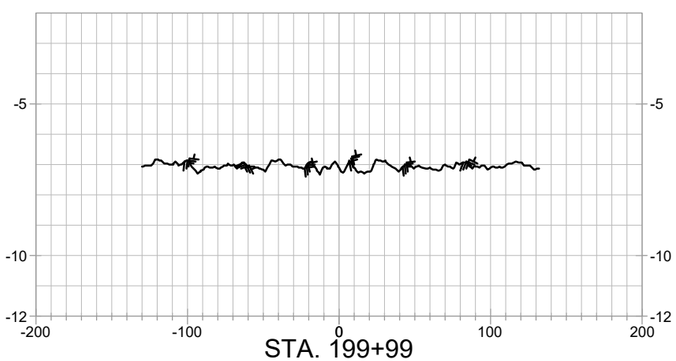
STA. 189+99
TRANSECT 21



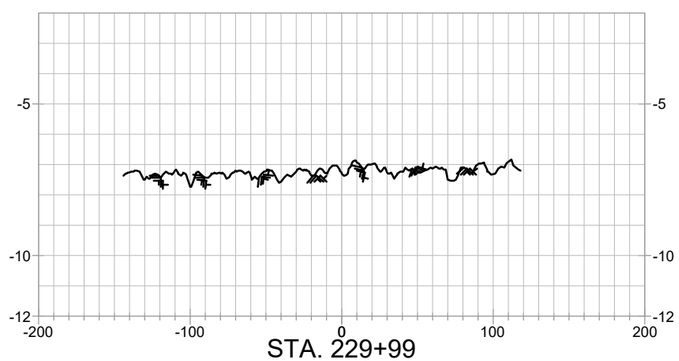
STA. 219+99
TRANSECT 24



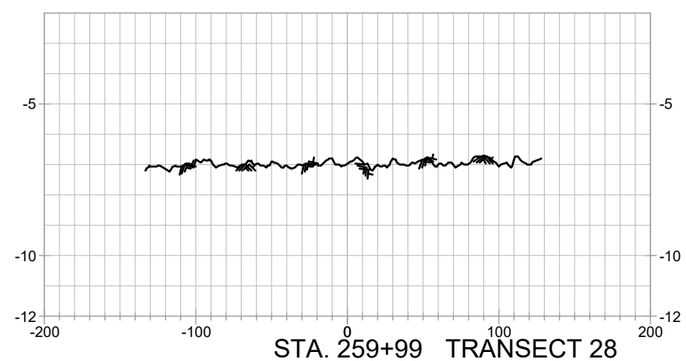
STA. 249+99
TRANSECT 27



STA. 199+99
TRANSECT 22



STA. 229+99
TRANSECT 25



STA. 259+99 TRANSECT 28

TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS

STATE OF LOUISIANA
KEITH [illegible]
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE

100' 0' 50' 100'

VERTICAL SCALE

5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO®
Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

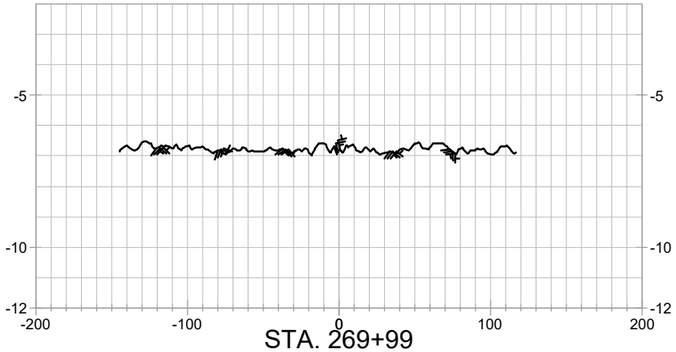
PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

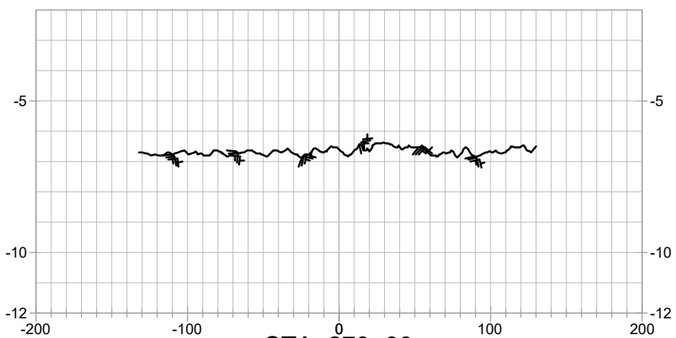
CROSS-SECTION VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

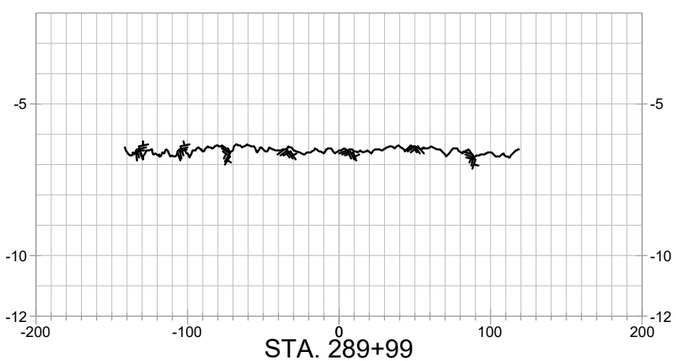
DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_SEC.dwg | SHEET: 14 OF 39



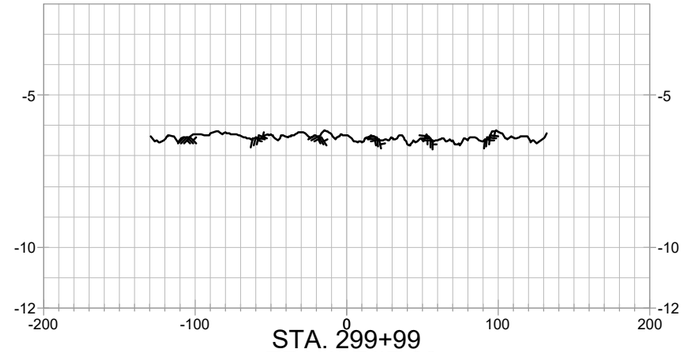
STA. 269+99
TRANSECT 29



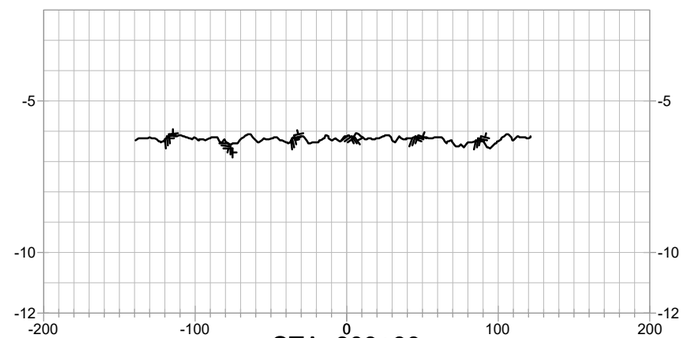
STA. 279+99
TRANSECT 30



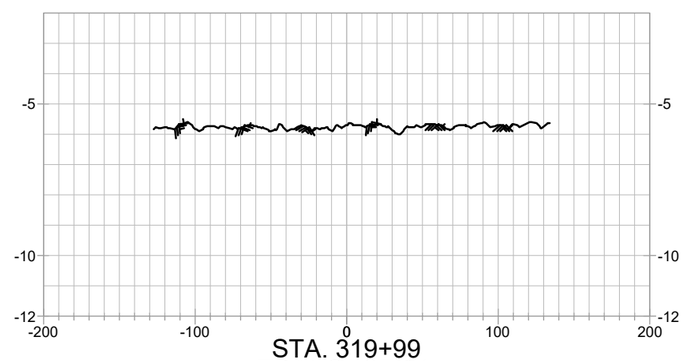
STA. 289+99
TRANSECT 31



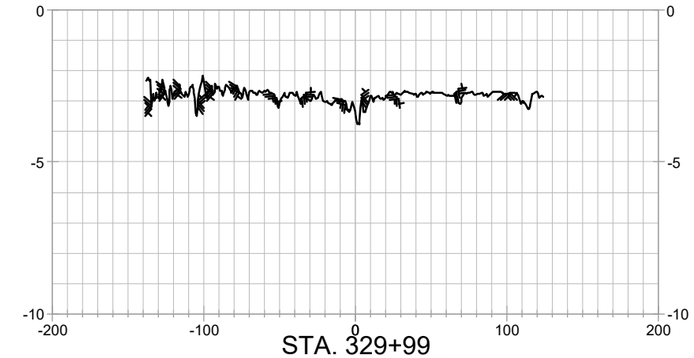
STA. 299+99
TRANSECT 32



STA. 309+99
TRANSECT 33



STA. 319+99
TRANSECT 34



STA. 329+99
TRANSECT 35

TRANSECT 1 - CALCASIEU LAKE EQUIPMENT ACCESS

STATE OF LOUISIANA
KEITH [illegible]
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE
100' 0' 50' 100'

VERTICAL SCALE
5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO®
Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

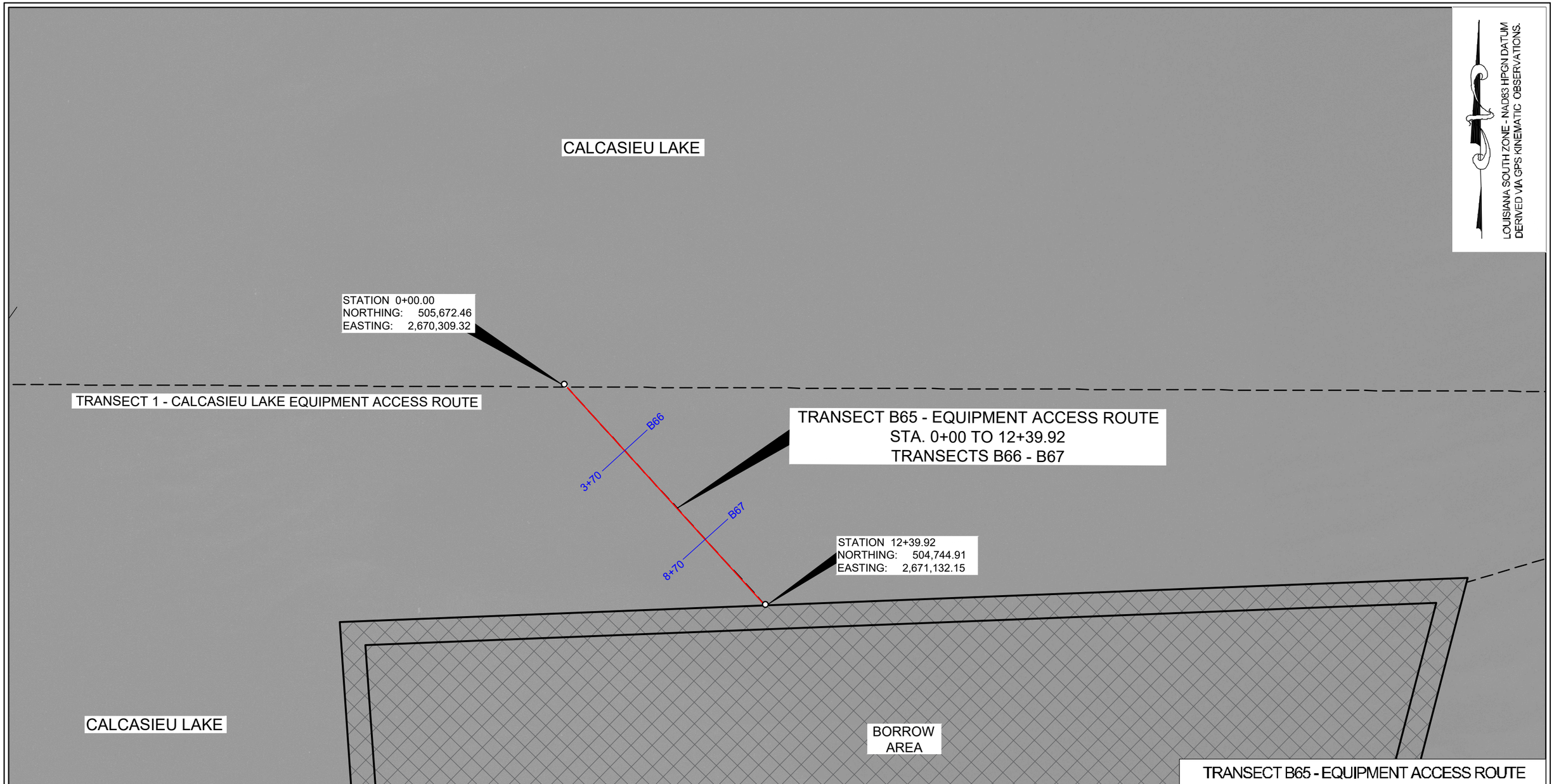
PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

CROSS-SECTION VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_SEC.dwg | SHEET: 15 OF 39



TRANSECT B65 - EQUIPMENT ACCESS ROUTE

STATE OF LOUISIANA
KEITH J. ROBERTS
PROFESSIONAL LAND SURVEYOR
REGISTERED
11/29/17

LEGEND

- PROJECT BASELINE/ALIGNMENT EQUIPMENT ACCESS ROUTE
- EQUIPMENT ACCESS ROUTE
- BORROW AREA
- MARSH CREATION AREA
- SURVEY CROSS-SECTION

REVISED BY:	DATE:

HORIZONTAL SCALE

400' 0' 200' 400'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

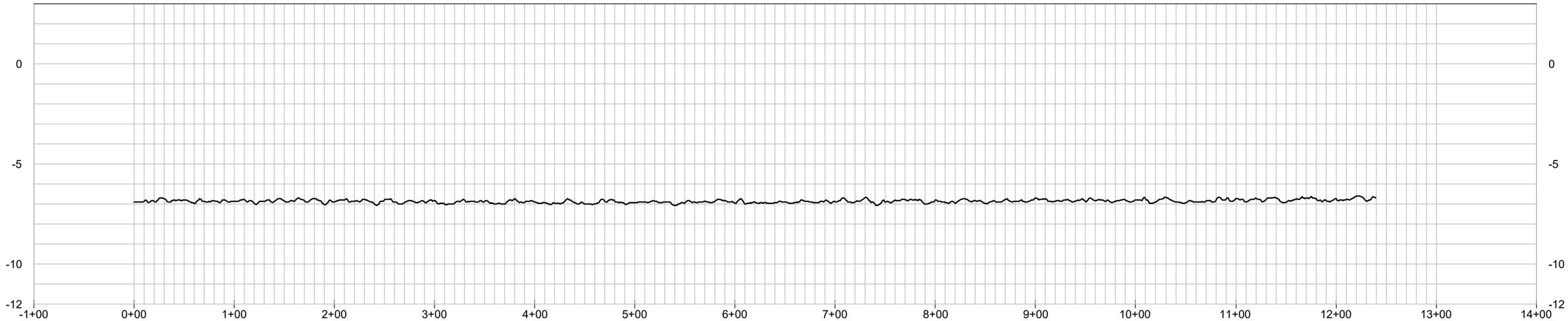
DREDGE ACCESS - PIPELINE CORRIDORS

SURVEY PLAN VIEW
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PLAN.dwg | SHEET: 16 OF 39

TRANSECT B65 - EQUIPMENT ACCESS ROUTE



TRANSECT B65- EQUIPMENT ACCESS ROUTE

STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE

100' 0' 50' 100'

VERTICAL SCALE

5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

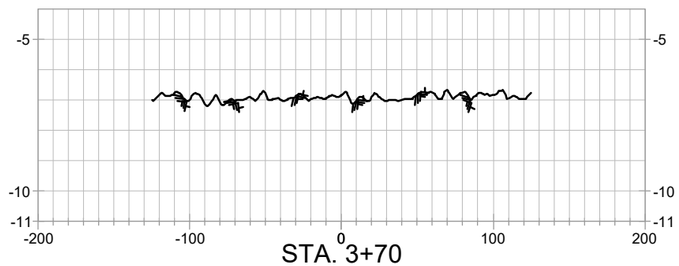
PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

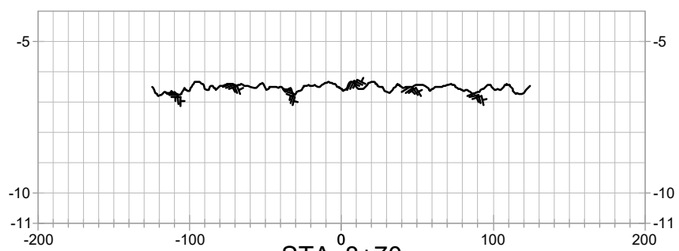
PROFILE VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PROFILES.dwg | SHEET: 17 OF 39



STA. 3+70
TRANSECT B66



STA. 8+70
TRANSECT B67

TRANSECT B65 - EQUIPMENT ACCESS ROUTE

STATE OF LOUISIANA
KEITH A. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE

100' 0' 50' 100'

VERTICAL SCALE

5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO®
Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

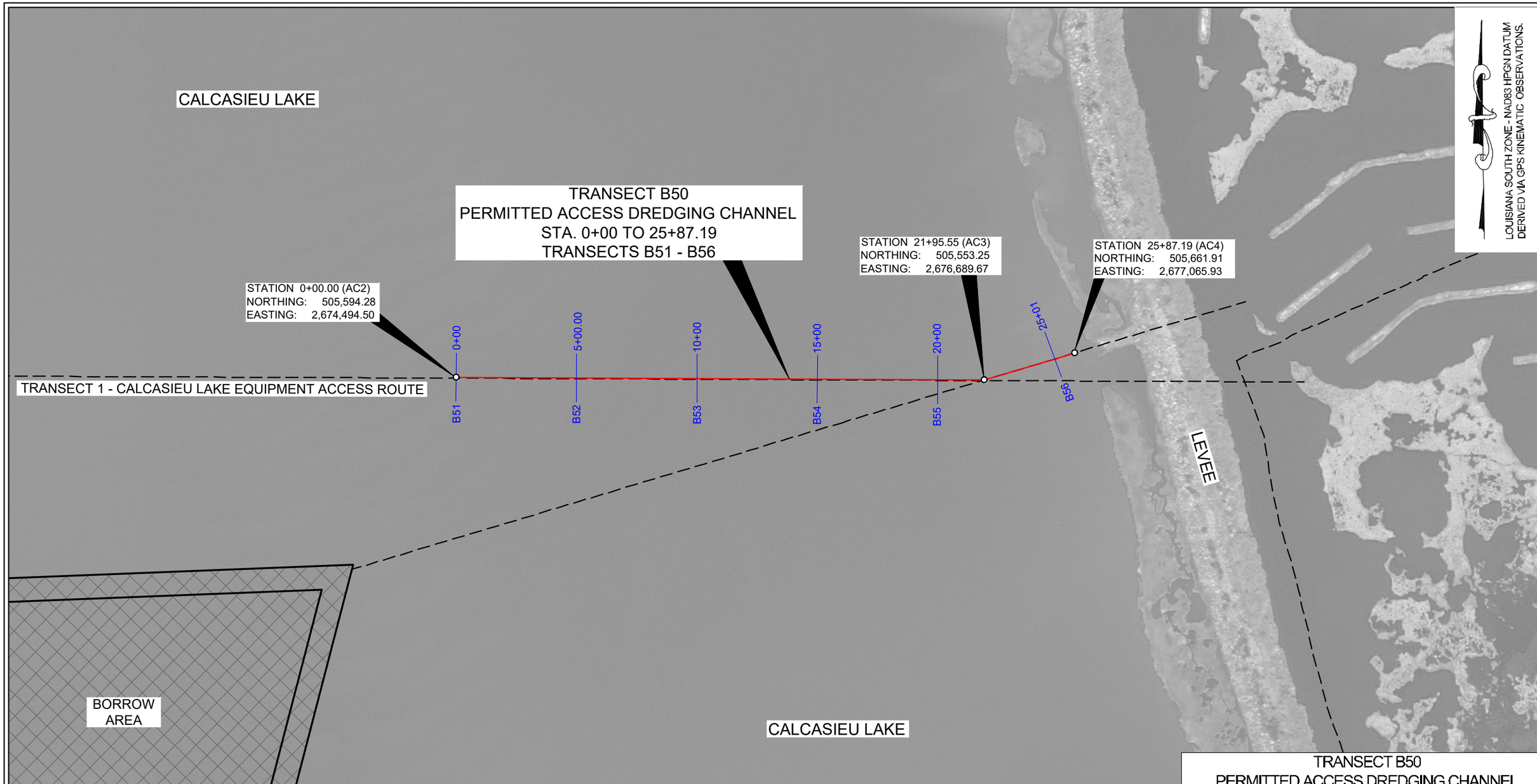
PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

CROSS-SECTION VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_SEC.dwg | SHEET: 18 OF 39



TRANSECT B50
PERMITTED ACCESS DREDGING CHANNEL

STATE OF LOUISIANA
KEITH J. ROBERTS
PROFESSIONAL
REGISTERED
LAND SURVEYOR
11/29/17

LEGEND

- PROJECT BASELINE/ALIGNMENT EQUIPMENT ACCESS ROUTE
- EQUIPMENT ACCESS ROUTE
- BORROW AREA
- MARSH CREATION AREA
- SURVEY CROSS-SECTION

REVISED BY:	DATE:

HORIZONTAL SCALE
400' 0' 200' 400'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

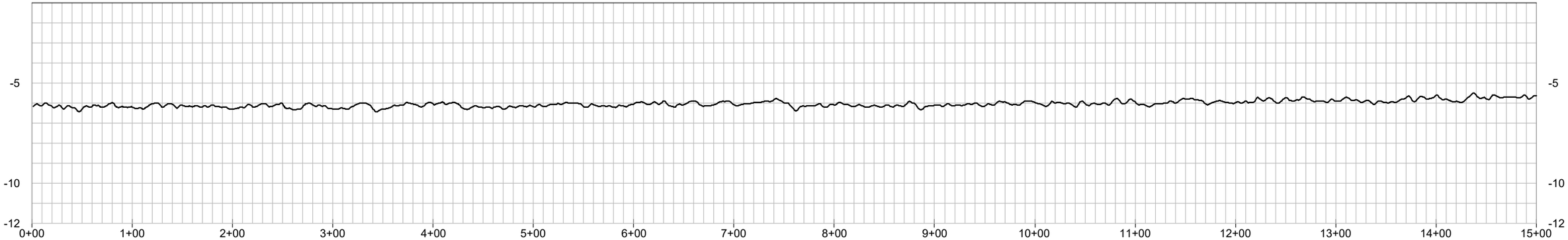
DREDGE ACCESS - PIPELINE CORRIDORS

SURVEY PLAN VIEW
CAMERON PARISH, LA.

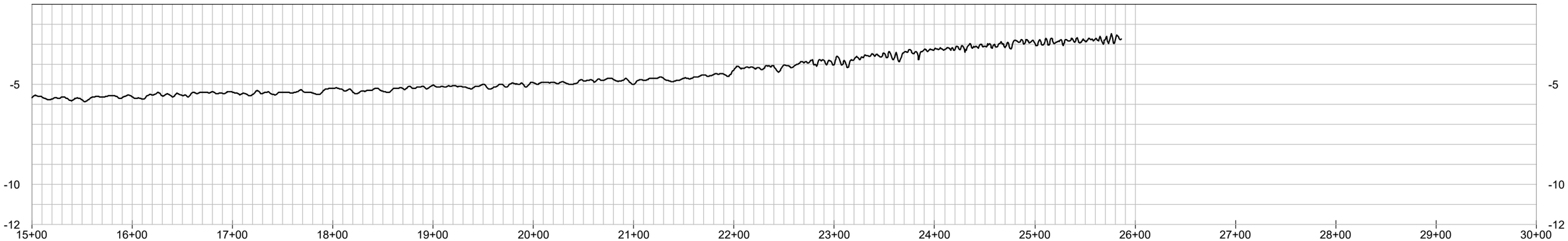
PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PLAN.dwg | SHEET: 19 OF 39

TRANSECT 50 - PERMITTED ACCESS DREDGING CHANNEL



TRANSECT 50 - PERMITTED ACCESS DREDGING CHANNEL



TRANSECT B50
PERMITTED ACCESS DREDGING CHANNEL

STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE
100' 0' 50' 100'
VERTICAL SCALE
5' 0' 2.5' 5'

DATE: 11/29/2017 JOB# 2171030

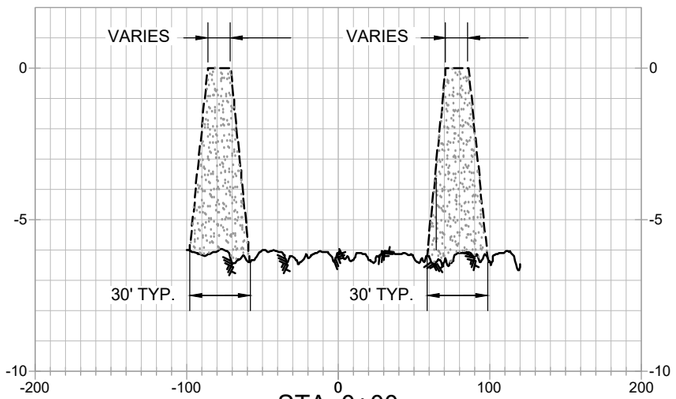
HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS
APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)
PRE-CONSTRUCTION SURVEY
DREDGE ACCESS - PIPELINE CORRIDORS
PROFILE VIEWS
CAMERON PARISH, LA.

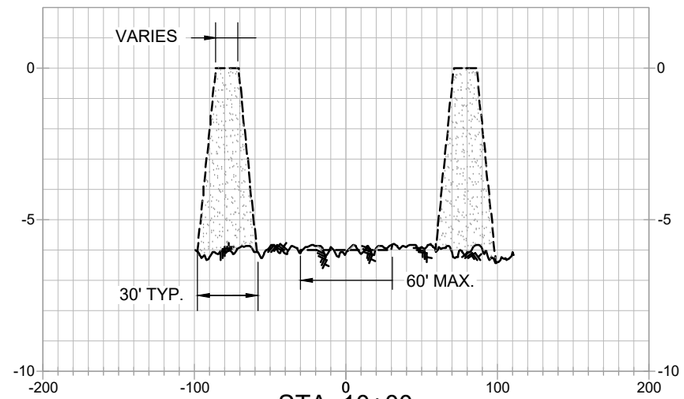
PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PROFILES.dwg

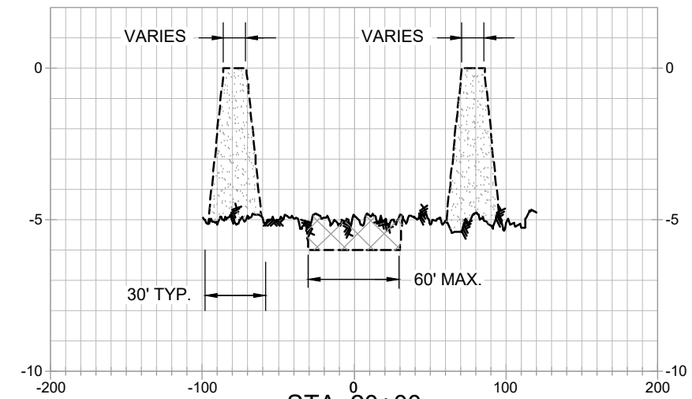
SHEET: 20 OF 39



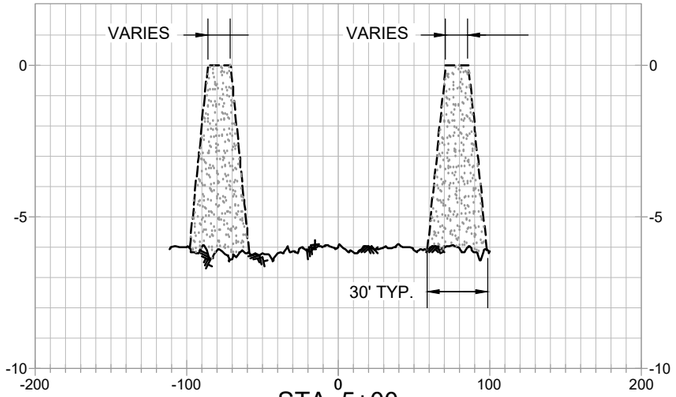
STA. 0+00
TRANSECT B51



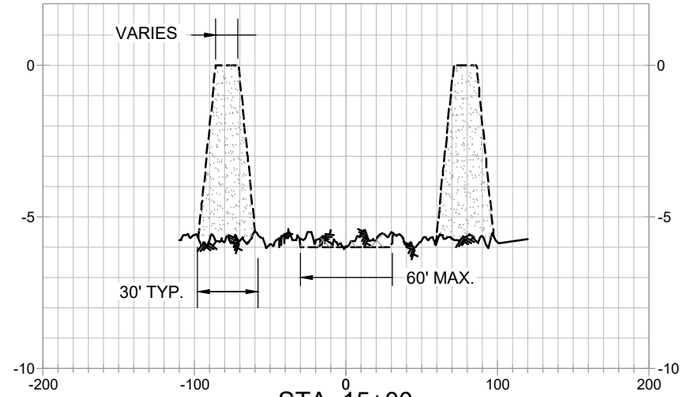
STA. 10+00
TRANSECT B53



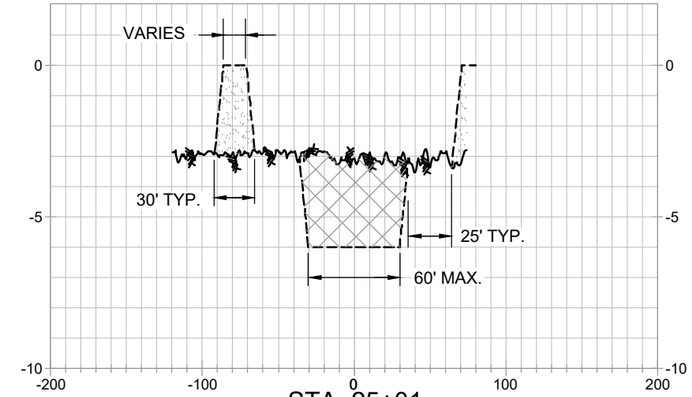
STA. 20+00
TRANSECT B55



STA. 5+00
TRANSECT B52



STA. 15+00
TRANSECT B54



STA. 25+01
TRANSECT B56

TRANSECT B50
PERMITTED ACCESS DREDGING CHANNEL

STATE OF LOUISIANA
KEITH L. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

- PRE-CONSTRUCTION SURVEY
- TEMPORARY SPOIL PLACEMENT AREA
- PERMITTED ACCESS DREDGING CHANNEL

REVISED BY:	DATE:

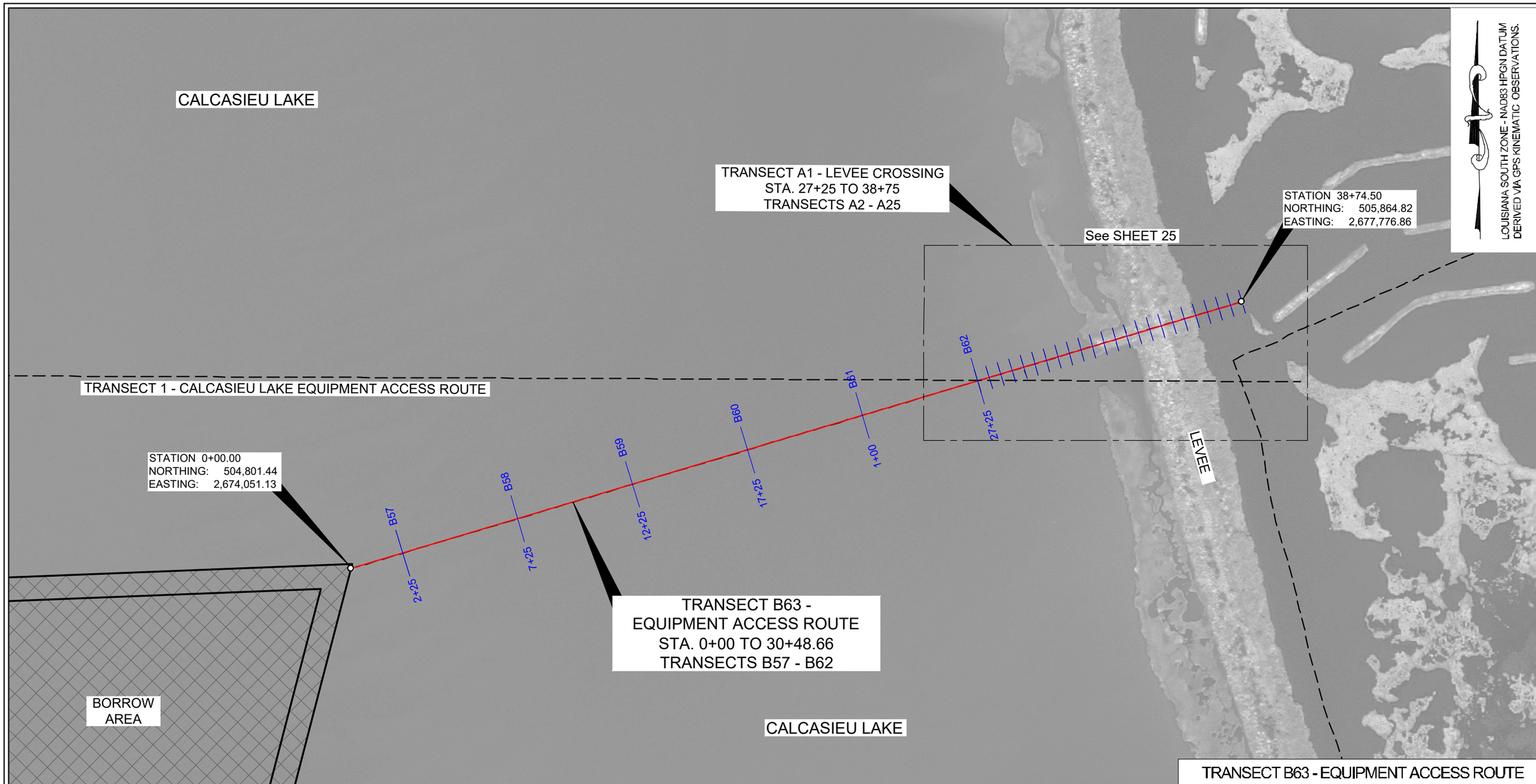
HORIZONTAL SCALE
100' 0' 50' 100'
VERTICAL SCALE
5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS
APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)
PRE-CONSTRUCTION SURVEY
DREDGE ACCESS - PIPELINE CORRIDORS
CROSS-SECTION VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_SEC.dwg | SHEET: 21 OF 39



TRANSECT B63 - EQUIPMENT ACCESS ROUTE

STATE OF LOUISIANA
KEITH J. ROBERTS
PROFESSIONAL LAND SURVEYOR
REGISTERED
11/29/17

LEGEND

- PROJECT BASELINE/ALIGNMENT EQUIPMENT ACCESS ROUTE
- EQUIPMENT ACCESS ROUTE
- BORROW AREA
- MARSH CREATION AREA
- SURVEY CROSS-SECTION

REVISED BY:	DATE:

HORIZONTAL SCALE

400' 0' 200' 400'

DATE: 11/29/2017 JOB# 2171030

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

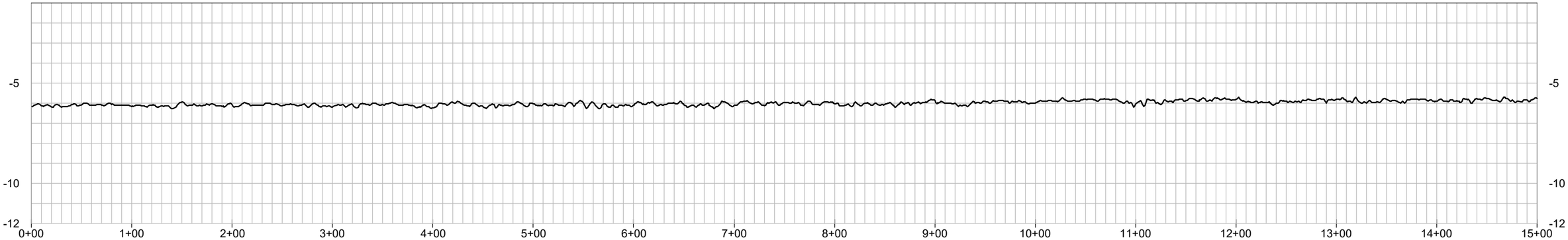
DREDGE ACCESS - PIPELINE CORRIDORS

SURVEY PLAN VIEW
CAMERON PARISH, LA.

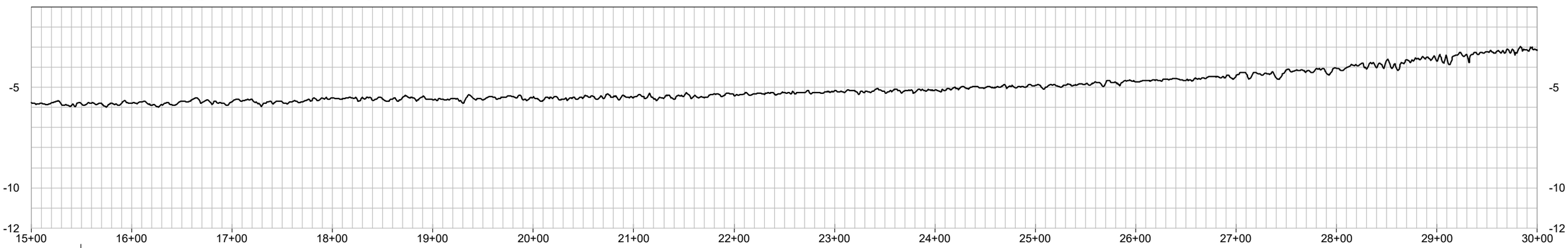
PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PLAN.dwg

TRANSECT B63 - EQUIPMENT ACCESS ROUTE



TRANSECT B63 - EQUIPMENT ACCESS ROUTE



TRANSECT B63 - EQUIPMENT ACCESS ROUTE

STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
12/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE

100' 0' 50' 100'

VERTICAL SCALE

5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

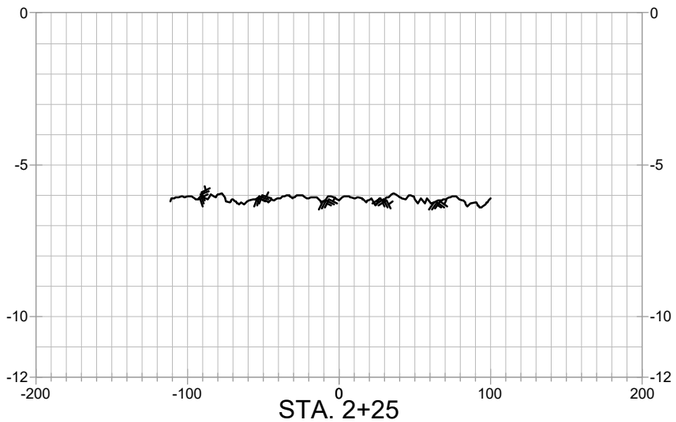
PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

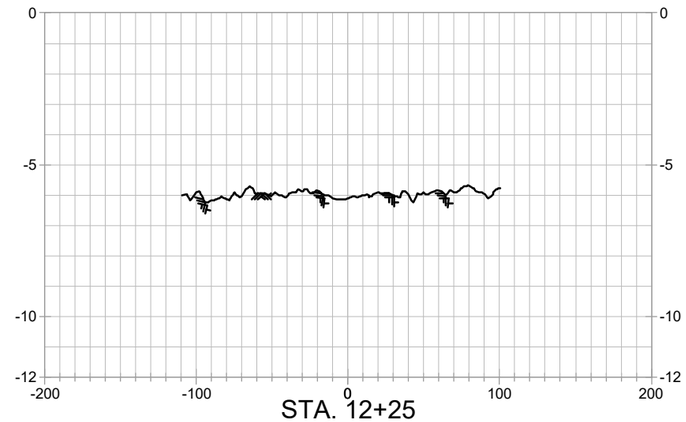
PROFILE VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

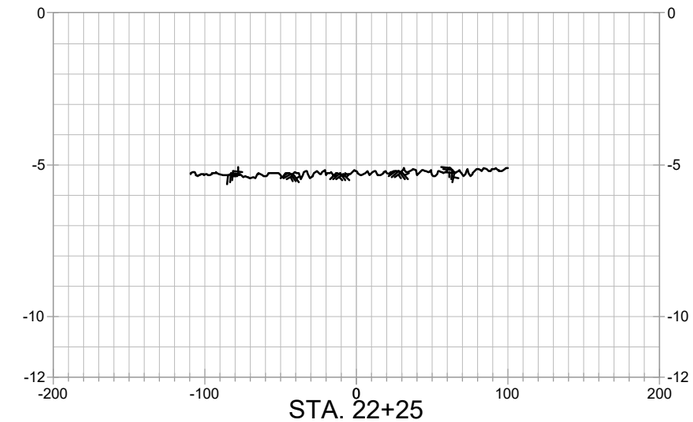
DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PROFILES.dwg | SHEET: 23 OF 39



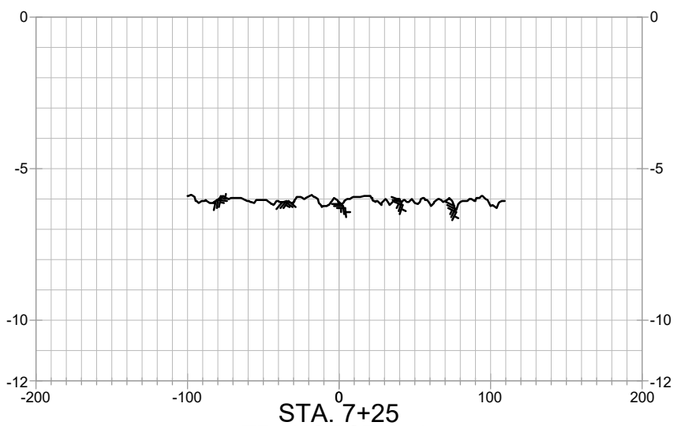
STA. 2+25
TRANSECT B57



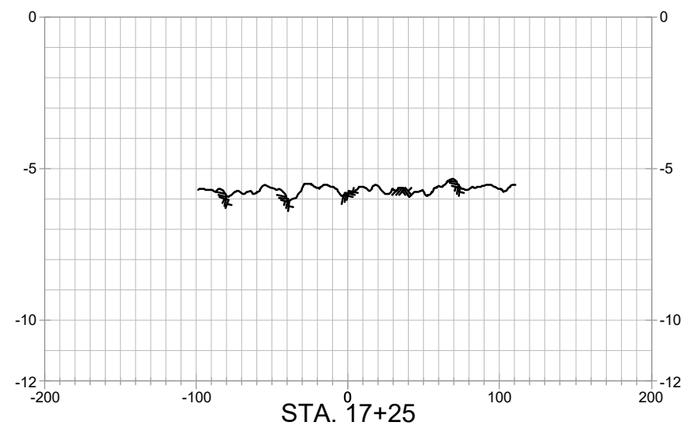
STA. 12+25
TRANSECT B59



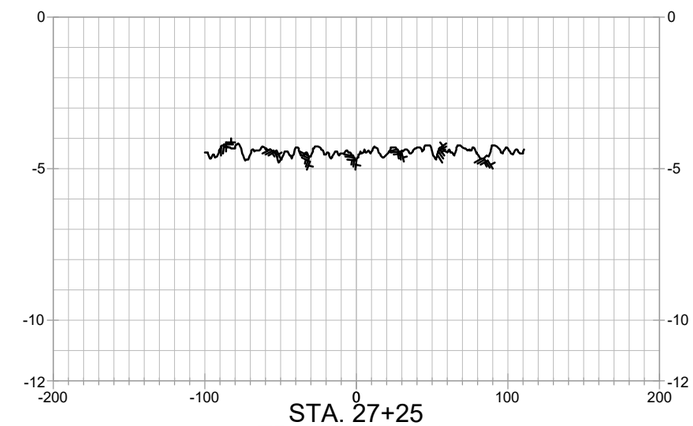
STA. 22+25
TRANSECT B61



STA. 7+25
TRANSECT B58



STA. 17+25
TRANSECT B60



STA. 27+25
TRANSECT B62

TRANSECT B63 - EQUIPMENT ACCESS ROUTE

STATE OF LOUISIANA
KEITH [illegible]
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE
100' 0' 50' 100'
VERTICAL SCALE
5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO®
Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

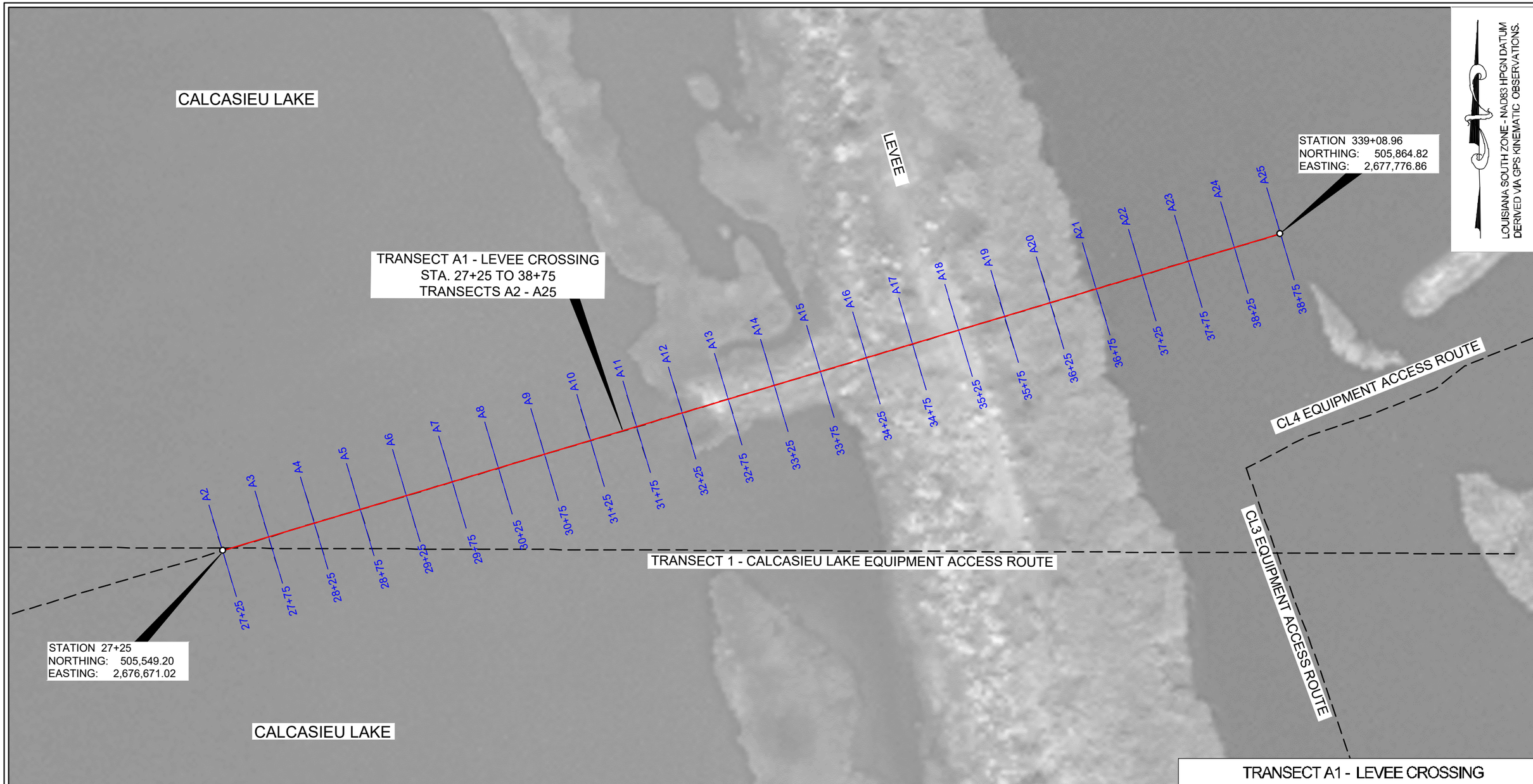
PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

CROSS-SECTION VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_SEC.dwg | SHEET: 24 OF 39



TRANSECT A1 - LEVEE CROSSING

STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

- PROJECT BASELINE/ALIGNMENT EQUIPMENT ACCESS ROUTE
- EQUIPMENT ACCESS ROUTE
- BORROW AREA
- MARSH CREATION AREA
- SURVEY CROSS-SECTION

REVISED BY:	DATE:

HORIZONTAL SCALE

400' 0' 200' 400'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

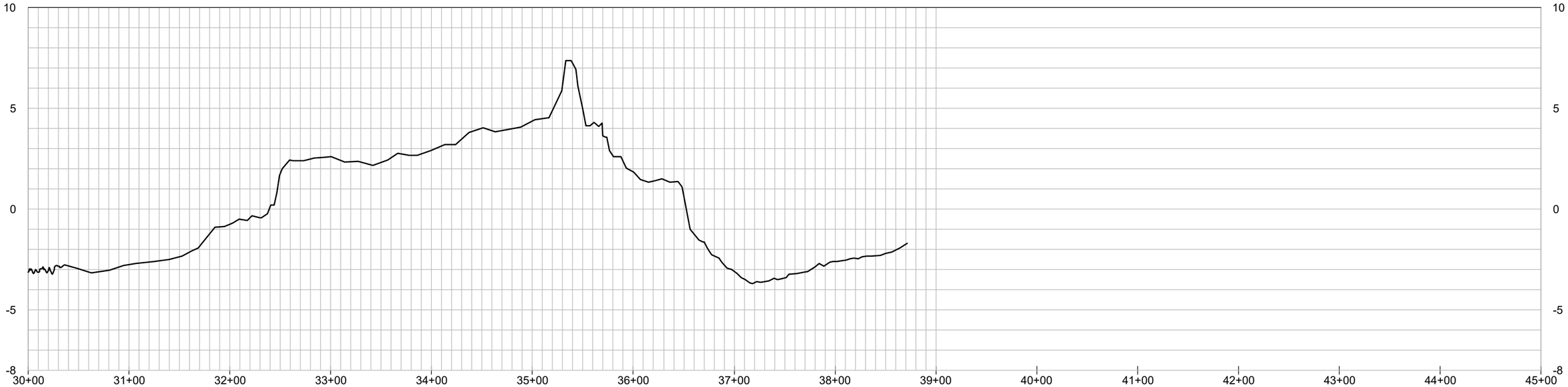
DREDGE ACCESS - PIPELINE CORRIDORS

SURVEY PLAN VIEW
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PLAN.dwg | SHEET: 25 OF 39

TRANSECT A1 - LEVEE CROSSING EQUIPMENT ACCESS ROUTE



TRANSECT A1 - LEVEE CROSSING

STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE

100' 0' 50' 100'

VERTICAL SCALE

5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO®
Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

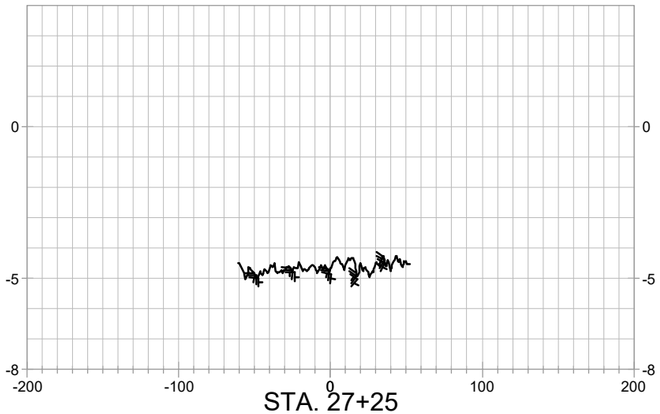
PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

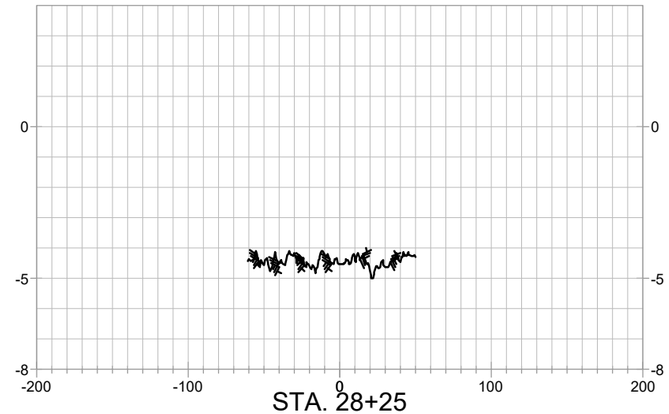
PROFILE VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

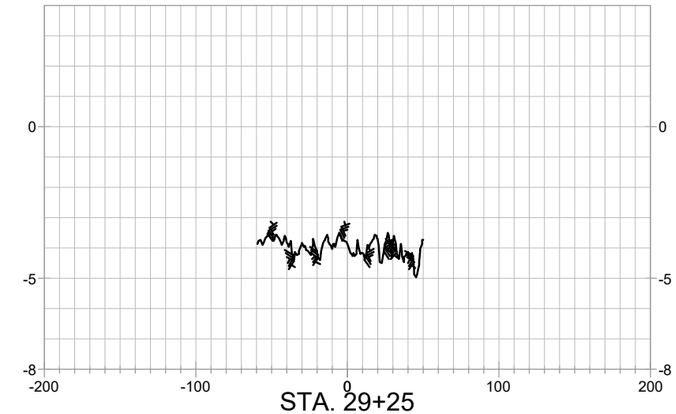
DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PROFILES.dwg | SHEET: 26 OF 39



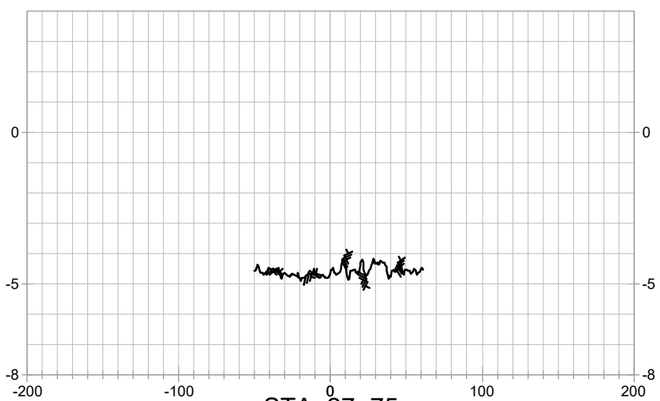
STA. 27+25
TRANSECT A2



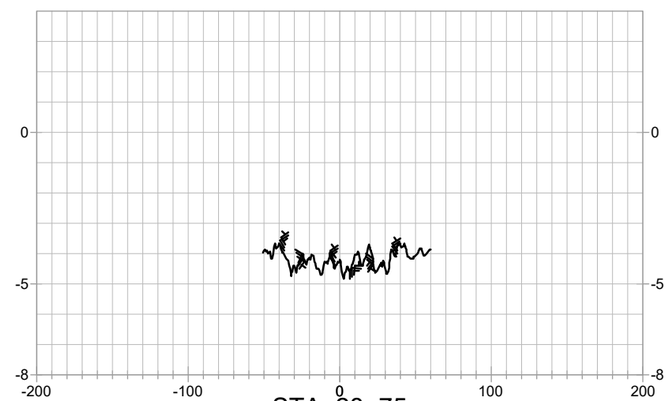
STA. 28+25
TRANSECT A4



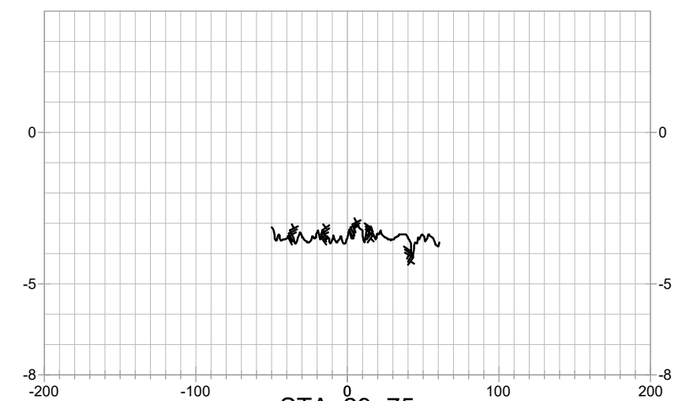
STA. 29+25
TRANSECT A6



STA. 27+75
TRANSECT A3



STA. 28+75
TRANSECT A5



STA. 29+75
TRANSECT A7

TRANSECT A1 - LEVEE CROSSING

STATE OF LOUISIANA
KEITH L. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE
100' 0' 50' 100'
VERTICAL SCALE
5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO®
Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

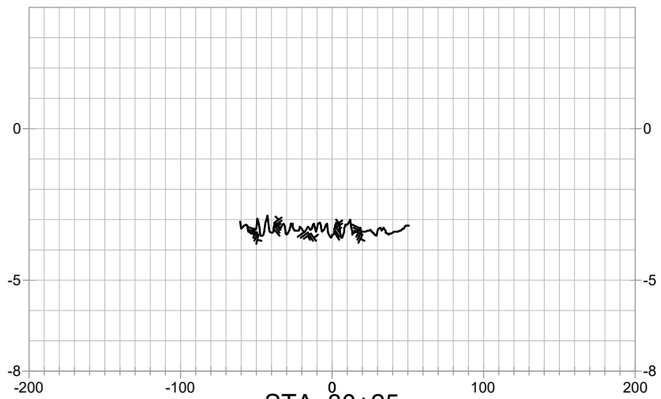
PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

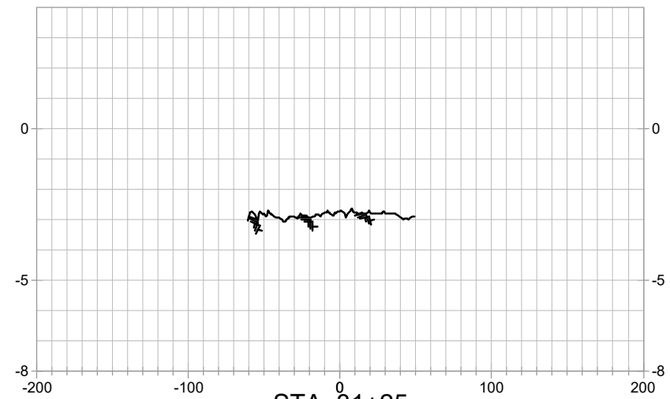
CROSS-SECTION VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

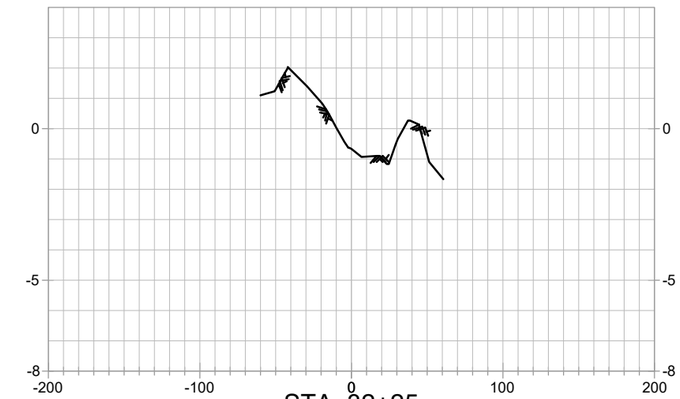
DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_SEC.dwg | SHEET: 27 OF 39



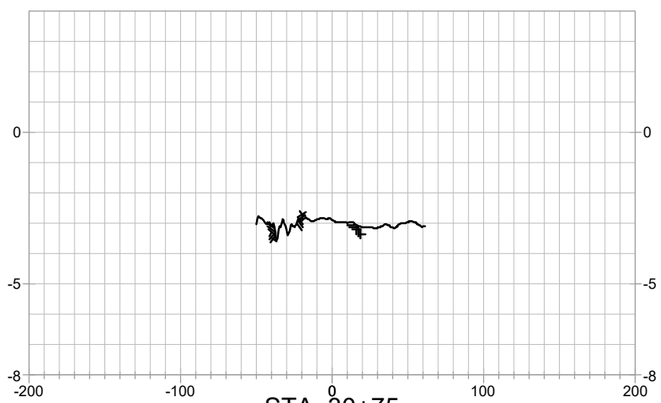
STA. 30+25
TRANSECT A8



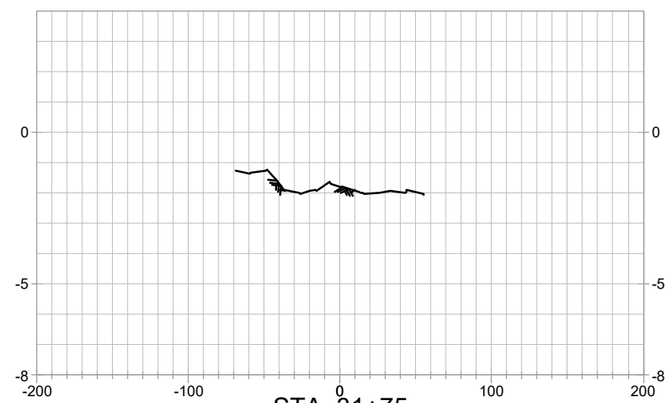
STA. 31+25
TRANSECT A10



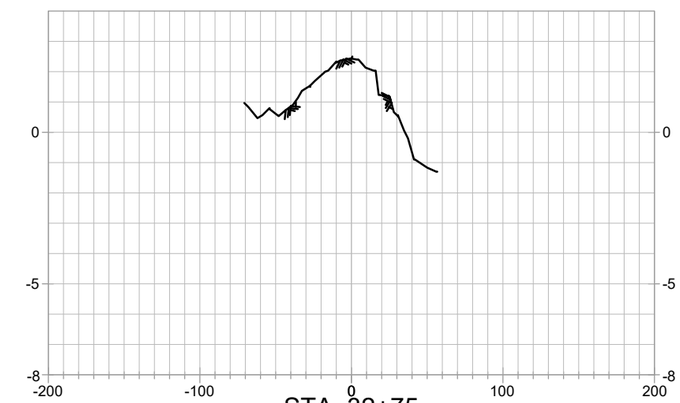
STA. 32+25
TRANSECT A12



STA. 30+75
TRANSECT A9



STA. 31+75
TRANSECT A11



STA. 32+75
TRANSECT A13

TRANSECT A1 - LEVEE CROSSING

STATE OF LOUISIANA
KEITH A. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE
100' 0' 50' 100'
VERTICAL SCALE
5' 0' 2.5' 5'

DATE: 11/29/2017 | JOB# 2171030

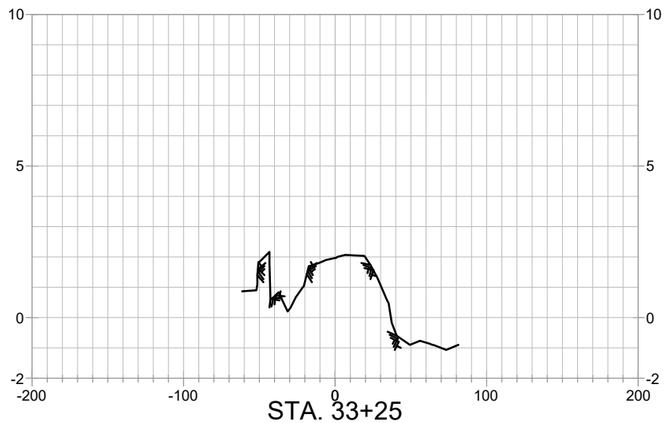
HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS
APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)
PRE-CONSTRUCTION SURVEY
DREDGE ACCESS - PIPELINE CORRIDORS
CROSS-SECTION VIEWS
CAMERON PARISH, LA.

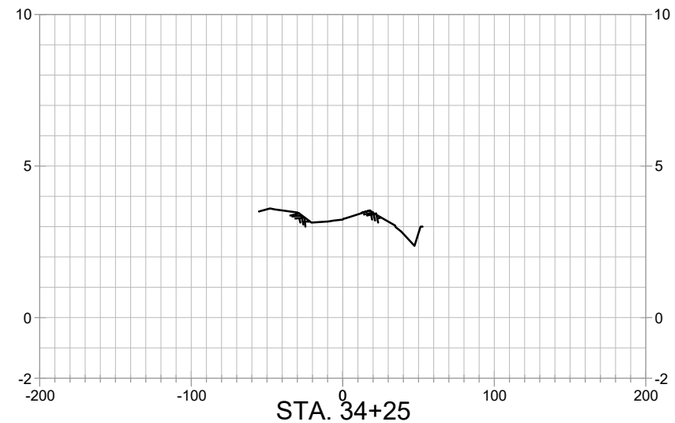
PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_SEC.dwg

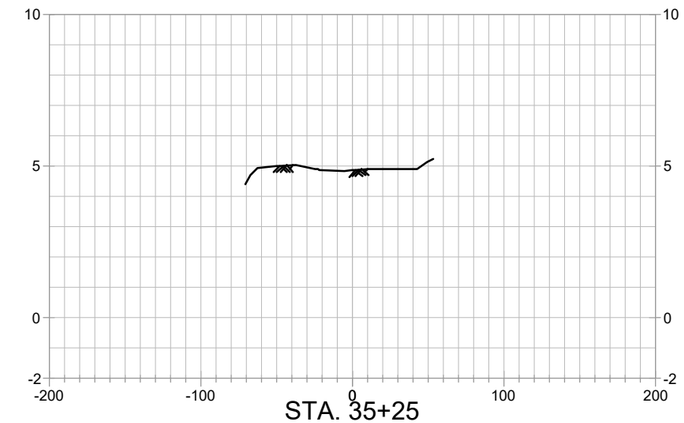
SHEET: 28 OF 39



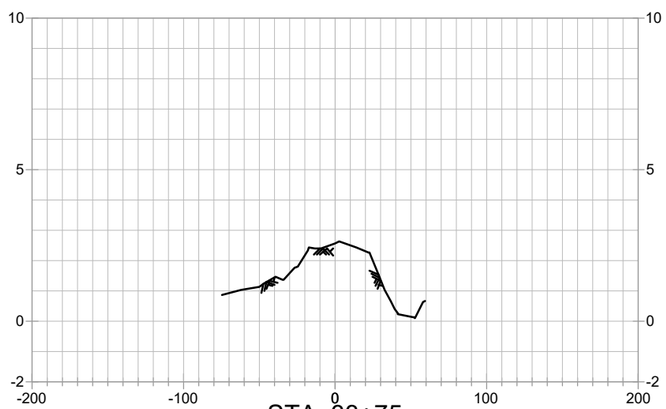
STA. 33+25
TRANSECT A14



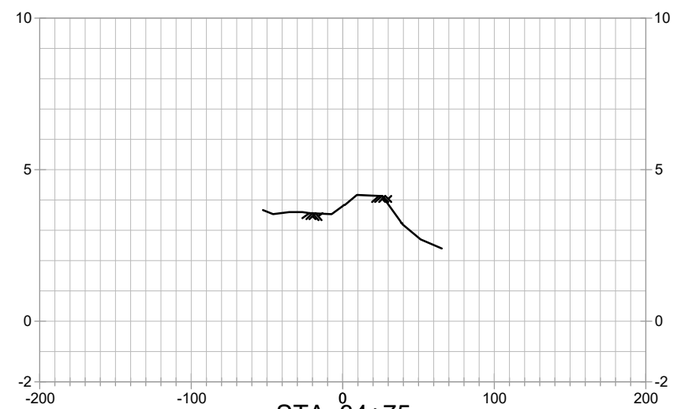
STA. 34+25
TRANSECT A16



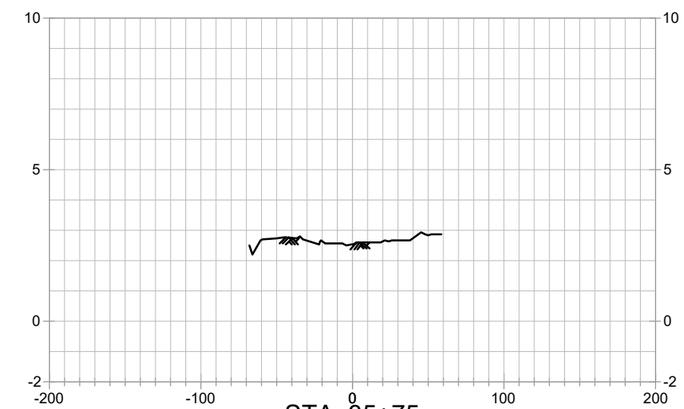
STA. 35+25
TRANSECT A18



STA. 33+75
TRANSECT A15



STA. 34+75
TRANSECT A17



STA. 35+75
TRANSECT A19

TRANSECT A1 - LEVEE CROSSING

STATE OF LOUISIANA
KEITH L. ROBERTS
PROFESSIONAL ENGINEER
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE
100' 0' 50' 100'
VERTICAL SCALE
5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

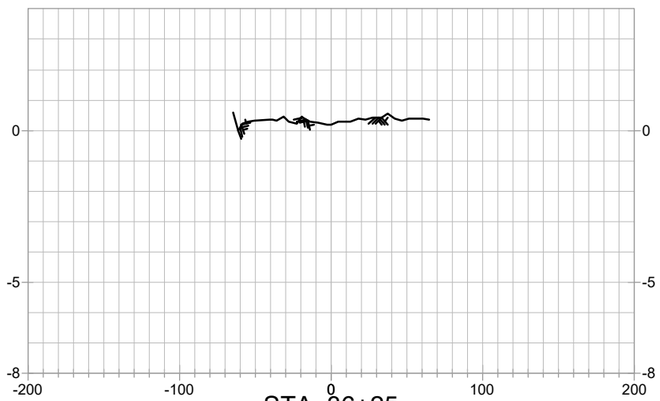
PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

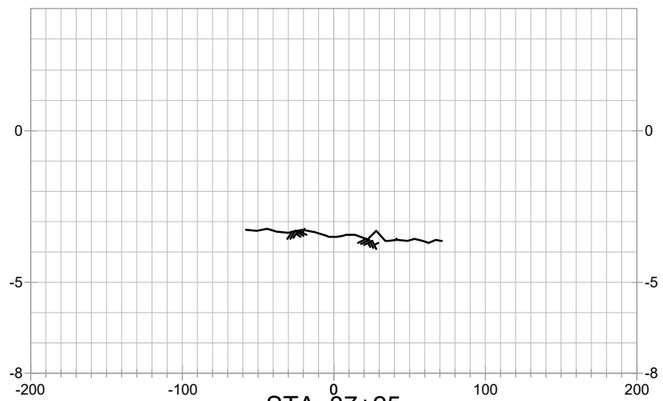
CROSS-SECTION VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

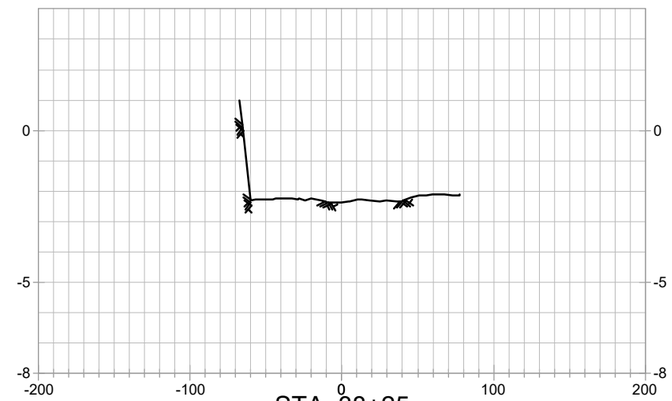
DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_SEC.dwg | SHEET: 29 OF 39



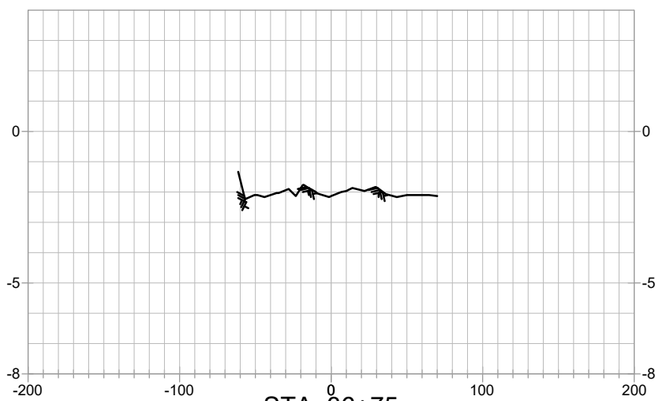
STA. 36+25
TRANSECT A20



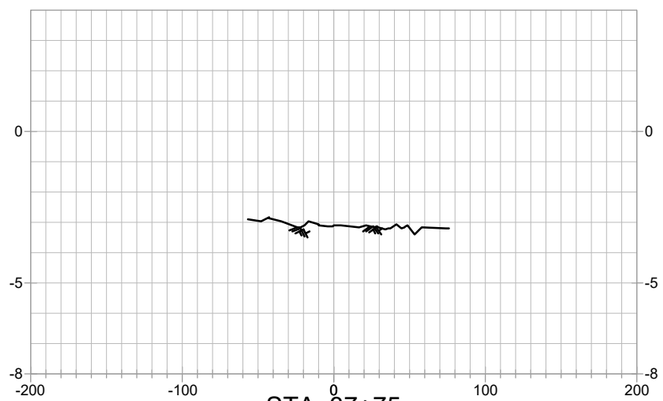
STA. 37+25
TRANSECT A22



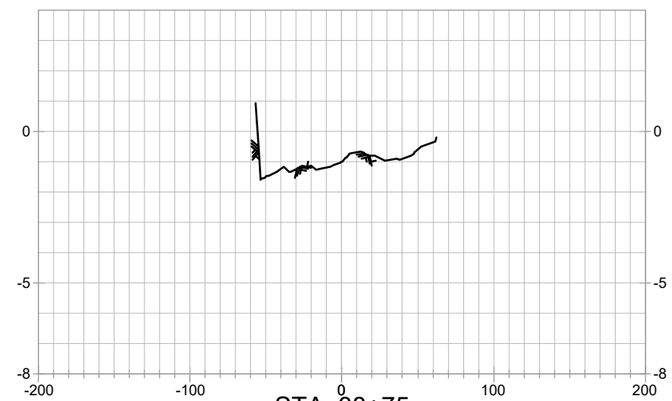
STA. 38+25
TRANSECT A24



STA. 36+75
TRANSECT A21



STA. 37+75
TRANSECT A23



STA. 38+75
TRANSECT A25

TRANSECT A1 - LEVEE CROSSING

STATE OF LOUISIANA
KEITH L. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

LEGEND

PRE-CONSTRUCTION SURVEY

REVISED BY:	DATE:

HORIZONTAL SCALE
100' 0' 50' 100'

VERTICAL SCALE
5' 0' 2.5' 5'

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO®
Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

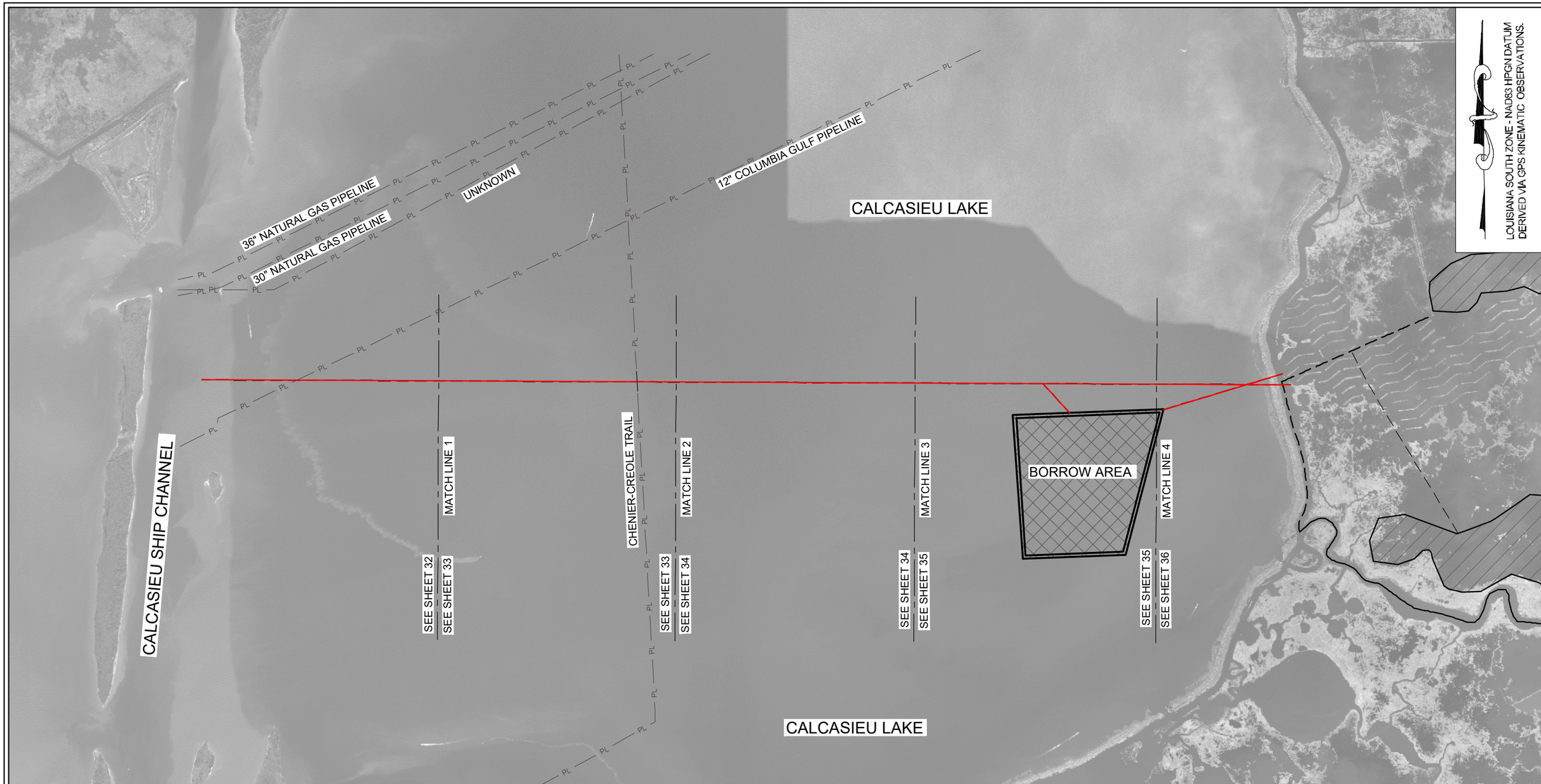
PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

CROSS-SECTION VIEWS
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_SEC.dwg | SHEET: 30 OF 39



STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11-29-17

LEGEND

- PROJECT BASELINE/ALIGNMENT EQUIPMENT ACCESS ROUTE
- EQUIPMENT ACCESS ROUTE
- BORROW AREA
- MARSH CREATION AREA

REVISED BY:	DATE:

HORIZONTAL SCALE

500' 0' 250' 500'

DATE: 11/29/2017 | JOB# 2171030

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

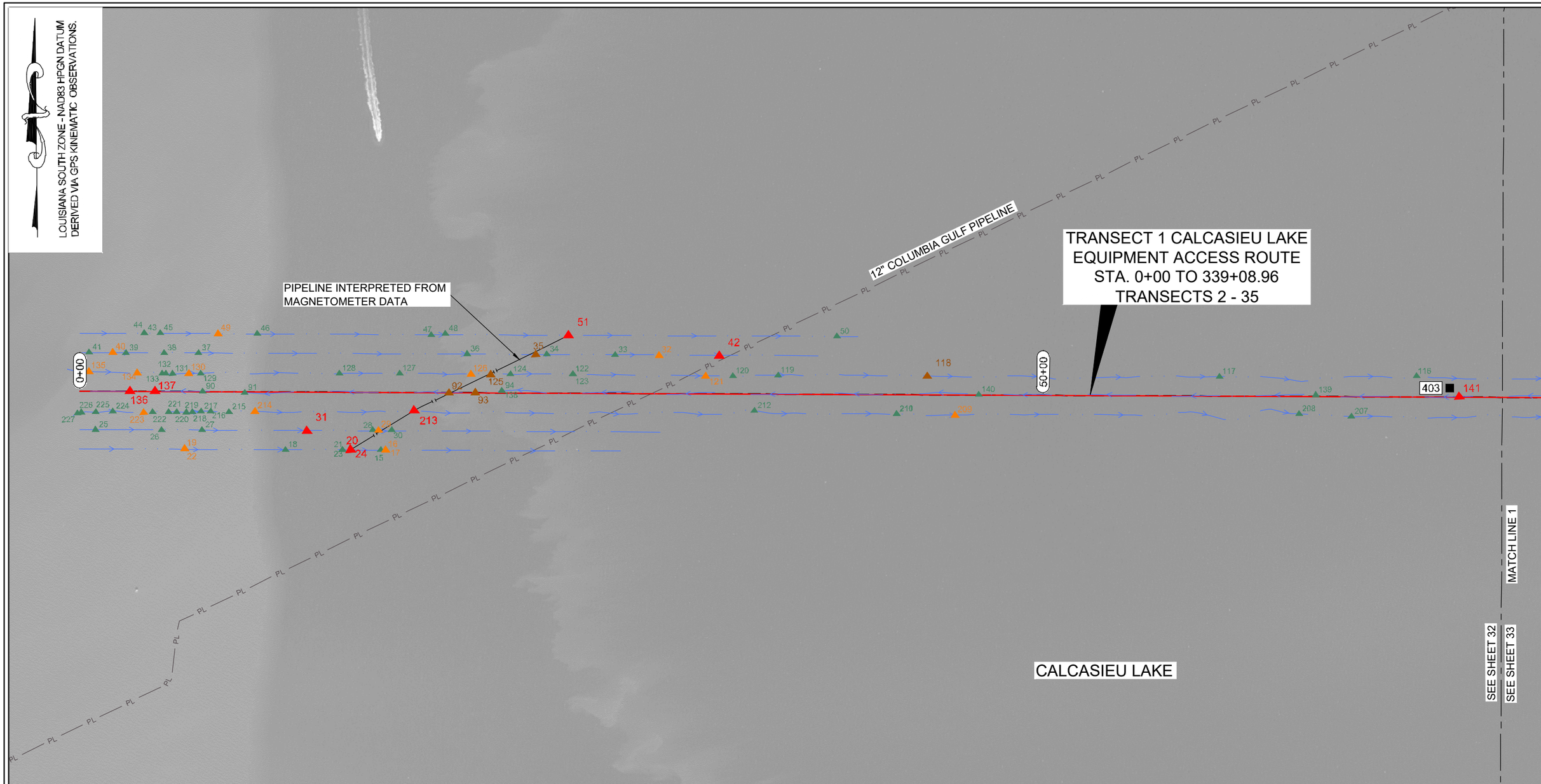
DREDGE ACCESS - PIPELINE CORRIDORS

MAGNETEOMER OVERALL PLAN VIEW
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PLAN.dwg

SHEET: 31 OF 39



STATE OF LOUISIANA
KEITH J. ROBERTS
PROFESSIONAL LAND SURVEYOR
REGISTERED
11/29/17

MAG LEGEND
1-50 GAMMAS
51-100 GAMMAS
101-500 GAMMAS
501-1000 GAMMAS
> 1001 GAMMAS

LEGEND	
	PROJECT BASELINE/ALIGNMENT (EQUIPMENT ACCESS ROUTE)
	EQUIPMENT ACCESS ROUTE
	MAGNETOMETER SURVEY LINES
SN 35739	GIS DATABASE OIL/GAS WELL AND SERIAL NUMBER SEE SONRIS (http://www.sonris.com/)
(P&A)	PLUGGED AND ABANDONED
PL	PIPELINE TAKEN FROM CONSTRUCTION DRAWINGS
	PIPELINE INTERPRETED FROM MAGNETOMTER DATA
400	SIDE SCAN TARGET AND NUMBER

REVISED BY:	DATE:

HORIZONTAL SCALE

500' 0' 250' 500'

DATE: 11/29/2017 JOB# 2171030

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

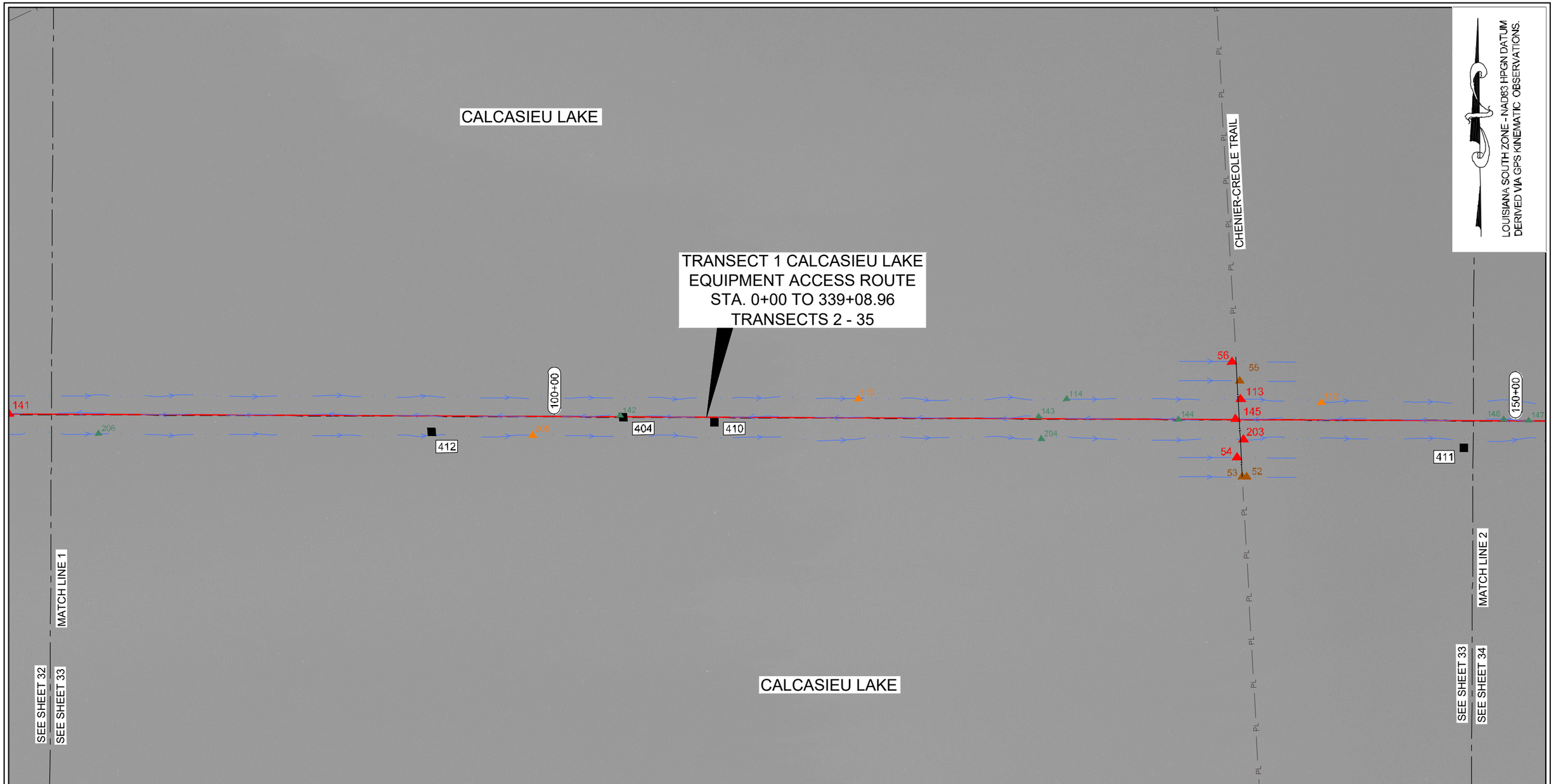
DREDGE ACCESS - PIPELINE CORRIDORS

MAGNETOMETER SURVEY PLAN VIEW
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PLAN.dwg

SHEET: 32 OF 39



STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

MAG LEGEND	
1-50 GAMMAS	
51-100 GAMMAS	
101-500 GAMMAS	
501-1000 GAMMAS	
> 1001 GAMMAS	

LEGEND	
	PROJECT BASELINE/ALIGNMENT (EQUIPMENT ACCESS ROUTE)
	EQUIPMENT ACCESS ROUTE
	MAGNETOMETER SURVEY LINES
SN 35739	GIS DATABASE OIL/GAS WELL AND SERIAL NUMBER SEE SONRIS (http://www.sonris.com/)
(P&A)	PLUGGED AND ABANDONED
PL	PIPELINE TAKEN FROM CONSTRUCTION DRAWINGS
	PIPELINE INTERPRETED FROM MAGNETOMTER DATA
400	SIDE SCAN TARGET AND NUMBER

REVISED BY:	DATE:

HORIZONTAL SCALE

500' 0' 250' 500'

DATE: 11/29/2017 JOB# 2171030

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

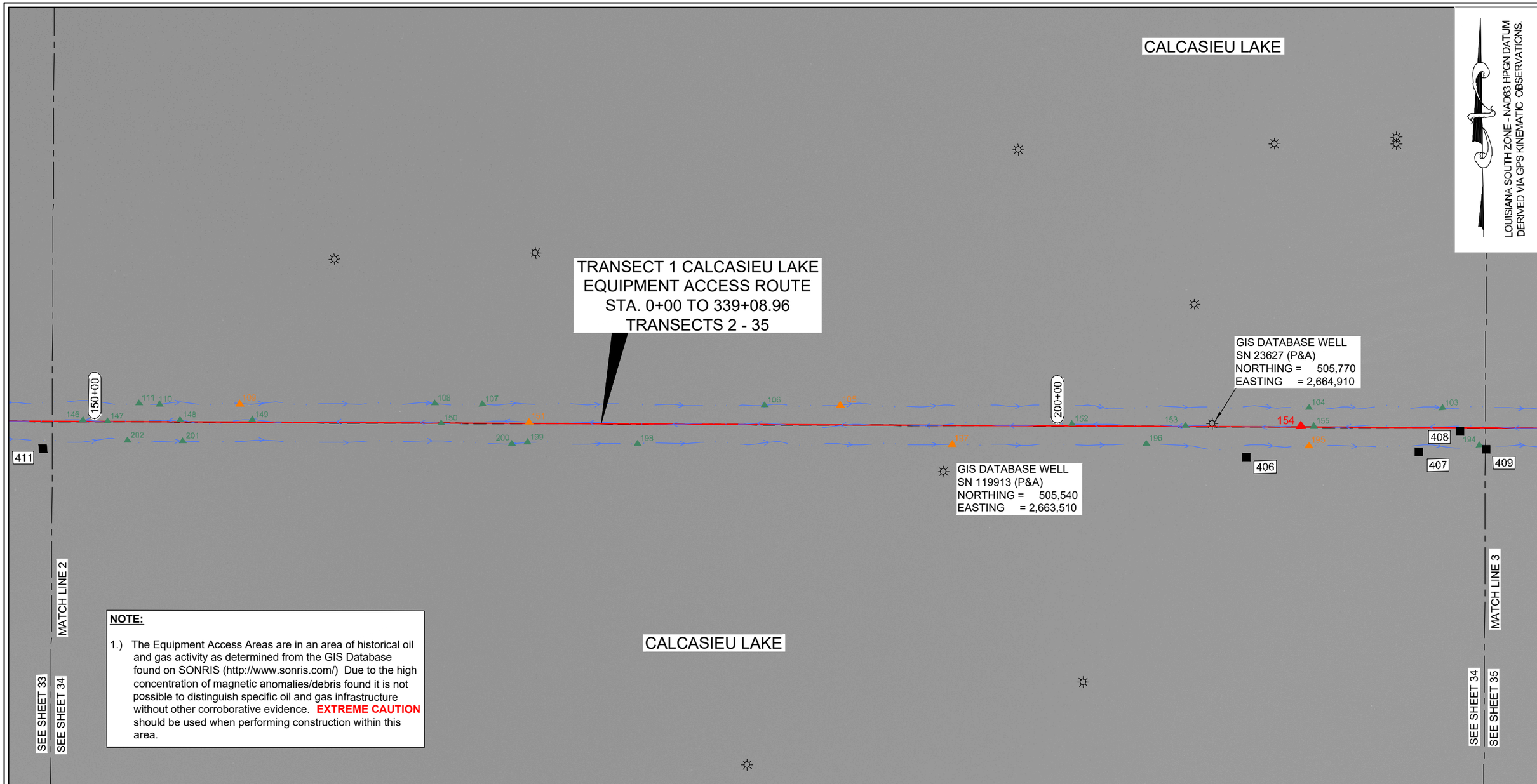
DREDGE ACCESS - PIPELINE CORRIDORS

MAGNETOMETER SURVEY PLAN VIEW
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PLAN.dwg

SHEET: 33 OF 39



NOTE:

1.) The Equipment Access Areas are in an area of historical oil and gas activity as determined from the GIS Database found on SONRIS (http://www.sonris.com/) Due to the high concentration of magnetic anomalies/debris found it is not possible to distinguish specific oil and gas infrastructure without other corroborative evidence. **EXTREME CAUTION** should be used when performing construction within this area.

STATE OF LOUISIANA
KEITH J. LOVETTS
PLS 4994
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

MAG LEGEND	
1-50 GAMMAS	
51-100 GAMMAS	
101-500 GAMMAS	
501-1000 GAMMAS	
> 1001 GAMMAS	

LEGEND	
	PROJECT BASELINE/ALIGNMENT (EQUIPMENT ACCESS ROUTE)
	EQUIPMENT ACCESS ROUTE
	MAGNETOMETER SURVEY LINES
SN 35739	GIS DATABASE OIL/GAS WELL AND SERIAL NUMBER SEE SONRIS (http://www.sonris.com/)
(P&A)	PLUGGED AND ABANDONED
PL	PIPELINE TAKEN FROM CONSTRUCTION DRAWINGS
	PIPELINE INTERPRETED FROM MAGNETOMTER DATA
400	SIDE SCAN TARGET AND NUMBER

REVISED BY:	DATE:

HORIZONTAL SCALE

500' 0' 250' 500'

DATE: 11/29/2017 JOB# 2171030

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

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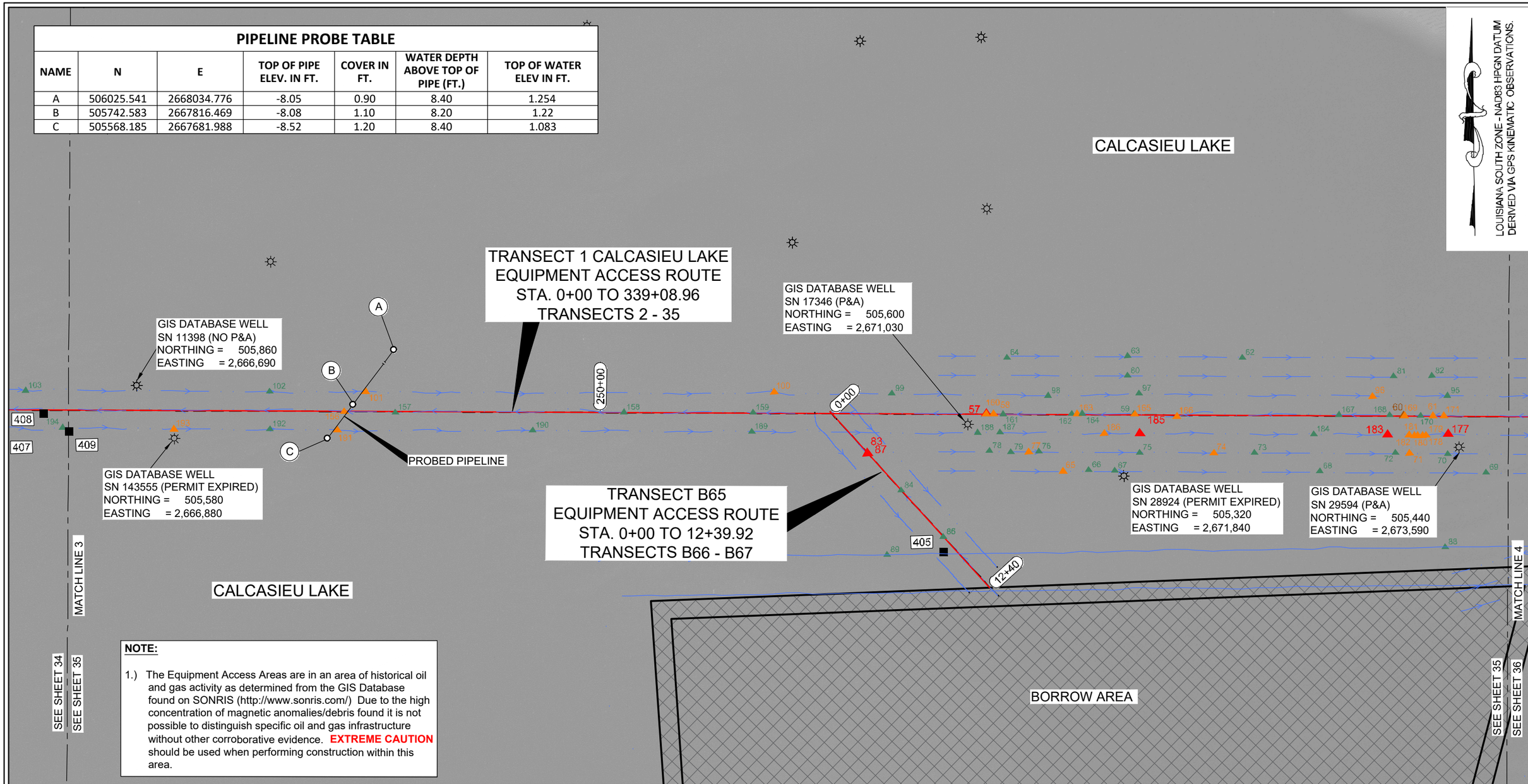
PIPELINE PROBE TABLE

NAME	N	E	TOP OF PIPE ELEV. IN FT.	COVER IN FT.	WATER DEPTH ABOVE TOP OF PIPE (FT.)	TOP OF WATER ELEV IN FT.
A	506025.541	2668034.776	-8.05	0.90	8.40	1.254
B	505742.583	2667816.469	-8.08	1.10	8.20	1.22
C	505568.185	2667681.988	-8.52	1.20	8.40	1.083



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STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

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LEGEND
PROJECT BASELINE/ALIGNMENT (EQUIPMENT ACCESS ROUTE)
EQUIPMENT ACCESS ROUTE
MAGNETOMETER SURVEY LINES
SN 35739 GIS DATABASE OIL/GAS WELL AND SERIAL NUMBER SEE SONRIS (http://www.sonris.com/)
(P&A) PLUGGED AND ABANDONED
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GRAND BAYOU MARSH CREATION (CS-54)

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CAMERON PARISH, LA.

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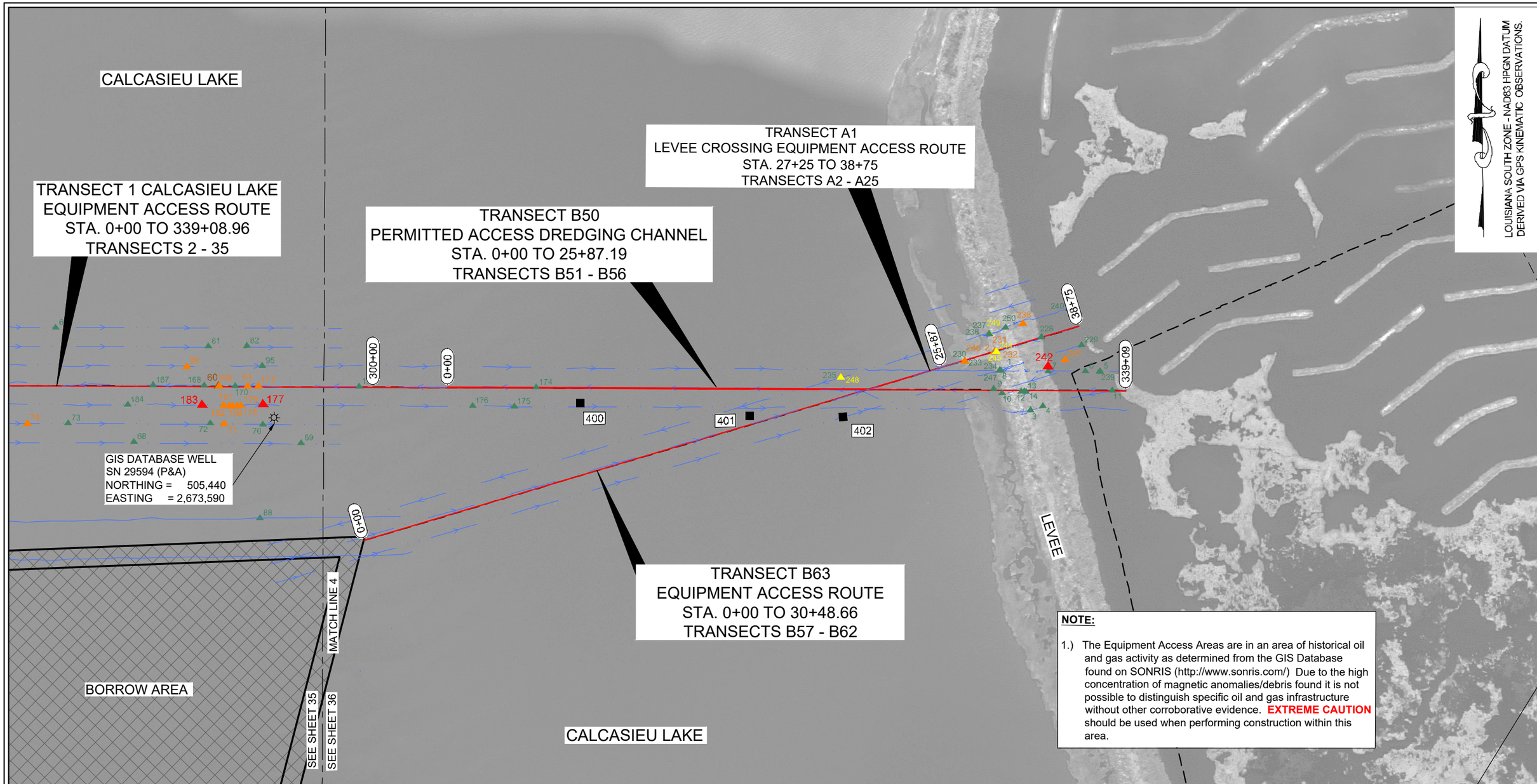
FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PLAN.dwg

SHEET: 35 OF 39



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STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

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> 1001 GAMMAS

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	EQUIPMENT ACCESS ROUTE
	MAGNETOMETER SURVEY LINES
SN 35739	GIS DATABASE OIL/GAS WELL AND SERIAL NUMBER SEE SONRIS (http://www.sonris.com/)
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	PIPELINE INTERPRETED FROM MAGNETOMTER DATA
400	SIDE SCAN TARGET AND NUMBER

REVISED BY:	DATE:

HORIZONTAL SCALE

500' 0' 250' 500'

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HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

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CAMERON - CREOLE WATERSHED GRAND BAYOU MARSH CREATION (CS-54)

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DREDGE ACCESS - PIPELINE CORRIDORS

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CAMERON PARISH, LA.

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FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PLAN.dwg

SHEET: 36 OF 39

MAGNETOMETER ANOMALIES TABLE

NAME	X	Y	SIGNATURE AMPLITUDE	SIGNATURE WIDTH	SIGNATURE TYPE	DESCRIPTION
1	2677371.2	505640.2	52.3	158.9	MONOPOLE	ANOMALY
2	2677339.4	505741.3	131.3	88.7	DIPOLE	ANOMALY
3	2677522.4	505432.9	78.9	24.5	MONOPOLE	ANOMALY
4	2677586.0	505452.7	55.1	87.4	MONOPOLE	ANOMALY
5	2677884.1	505630.7	98.3	173.9	MONOPOLE	ANOMALY
6	2677808.5	505631.5	71.2	73.3	DIPOLE	ANOMALY
7	2677615.9	505633.7	48.8	143.4	MONOPOLE	ANOMALY
8	2677368.5	505640.1	55.0	159.9	MONOPOLE	ANOMALY
9	2677330.8	505545.5	25.0	25.3	MONOPOLE	ANOMALY
10	2677374.3	505522.9	15.1	18.2	MONOPOLE	ANOMALY
11	2677948.4	505529.4	26.0	49.3	DIPOLE	ANOMALY
12	2677474.4	505530.9	49.0	21.0	DIPOLE	ANOMALY
13	2677492.1	505531.5	36.1	47.8	DIPOLE	ANOMALY
14	2677500.0	505529.7	44.1	23.3	DIPOLE	ANOMALY
15	2645670.9	505795.3	29.7	77.7	MONOPOLE	ANOMALY
16	2645696.8	505796.2	423.9	83.3	DIPOLE	ANOMALY
17	2645696.8	505796.2	423.9	83.3	DIPOLE	ANOMALY
18	2645176.1	505803.7	14.8	35.2	DIPOLE	ANOMALY
19	2644652.6	505817.1	236.2	89.7	DIPOLE	ANOMALY
20	2645513.5	505798.3	1683.7	275.9	DIPOLE	PIPELINE
21	2645471.7	505799.3	75.7	193.7	MONOPOLE	ANOMALY
22	2644652.6	505817.1	236.2	93.3	DIPOLE	ANOMALY
23	2645472.6	505799.3	74.2	190.2	MONOPOLE	ANOMALY
24	2645513.5	505798.3	1683.7	187.6	DIPOLE	PIPELINE
25	2644192.5	505920.4	20.7	123.8	DIPOLE	ANOMALY
26	2644533.9	505915.0	29.1	142.0	DIPOLE	ANOMALY
27	2644744.6	505911.0	40.6	69.2	MONOPOLE	ANOMALY
28	2645631.3	505900.1	46.8	304.8	MONOPOLE	ANOMALY
29	2645660.1	505899.5	317.6	245.4	DIPOLE	PIPELINE
30	2645729.1	505898.0	28.6	96.7	MONOPOLE	ANOMALY
31	2645288.3	505900.7	1418.2	158.3	DIPOLE	ANOMALY
32	2647121.0	506268.2	166.1	122.5	MONOPOLE	ANOMALY
33	2646893.3	506273.2	54.4	94.4	DIPOLE	ANOMALY
34	2646538.0	506280.2	59.0	181.1	MONOPOLE	ANOMALY
35	2646480.4	506281.5	704.8	389.2	DIPOLE	PIPELINE
36	2646126.0	506288.0	32.0	429.9	MONOPOLE	ANOMALY
37	2644731.7	506311.3	52.8	127.4	DIPOLE	ANOMALY
38	2644553.1	506313.3	75.5	105.1	DIPOLE	ANOMALY
39	2644355.2	506316.0	13.8	93.7	DIPOLE	ANOMALY
40	2644286.9	506320.9	104.1	138.8	DIPOLE	ANOMALY
41	2644163.1	506322.0	40.6	178.2	DIPOLE	ANOMALY
42	2647433.1	506260.9	1082.5	272.4	MONOPOLE	ANOMALY
43	2644451.1	506418.5	53.7	145.7	DIPOLE	ANOMALY
44	2644451.1	506418.5	53.7	145.7	DIPOLE	ANOMALY
45	2644535.1	506417.7	8.1	117.8	MONOPOLE	ANOMALY
46	2645037.4	506407.9	20.4	111.9	DIPOLE	ANOMALY
47	2645940.8	506389.1	27.8	153.9	MONOPOLE	ANOMALY
48	2646014.3	506394.0	14.0	96.7	MONOPOLE	ANOMALY
49	2644834.0	506410.3	167.0	354.3	DIPOLE	ANOMALY
50	2648045.5	506353.8	75.0	87.5	MONOPOLE	ANOMALY

MAGNETOMETER ANOMALIES TABLE

NAME	X	Y	SIGNATURE AMPLITUDE	SIGNATURE WIDTH	SIGNATURE TYPE	DESCRIPTION
51	2646653.2	506376.8	1925.6	465.2	DIPOLE	PIPELINE
52	2657708.8	505588.4	674.4	348.1	MONOPOLE	ANOMALY
53	2657685.5	505590.0	720.1	260.3	MONOPOLE	PIPELINE
54	2657658.9	505687.6	5743.7	258.9	MONOPOLE	PIPELINE
55	2657678.0	506088.0	869.5	346.0	MONOPOLE	PIPELINE
56	2657639.7	506186.5	1461.1	154.2	MONOPOLE	PIPELINE
57	2671126.8	505653.0	1190.2	162.2	DIPOLE	ANOMALY
58	2671163.2	505652.1	115.7	75.1	MONOPOLE	ANOMALY
59	2671897.1	505640.0	96.8	416.6	MONOPOLE	ANOMALY
60	2673304.4	505616.3	769.7	117.4	DIPOLE	ANOMALY
61	2673459.0	505613.3	107.6	241.6	DIPOLE	ANOMALY
62	2672465.9	505927.6	3.9	70.3	DIPOLE	ANOMALY
63	2671867.9	505943.7	3.1	121.8	MONOPOLE	ANOMALY
64	2671236.7	505943.9	6.3	72.9	MONOPOLE	ANOMALY
65	2671521.7	505348.6	134.3	98.7	MONOPOLE	ANOMALY
66	2671656.9	505351.6	24.4	73.1	MONOPOLE	ANOMALY
67	2671792.1	505345.6	13.3	90.1	MONOPOLE	ANOMALY
68	2672864.1	505329.7	15.6	115.2	MONOPOLE	ANOMALY
69	2673732.0	505311.5	57.3	83.1	MONOPOLE	ANOMALY
70	2673533.7	505410.5	95.1	743.5	MONOPOLE	ANOMALY
71	2673332.2	505419.0	135.8	120.7	DIPOLE	ANOMALY
72	2673260.7	505420.2	18.6	60.5	MONOPOLE	ANOMALY
73	2672523.8	505430.3	5.6	42.5	DIPOLE	ANOMALY
74	2672312.2	505432.5	457.3	135.2	DIPOLE	ANOMALY
75	2671923.1	505438.3	35.5	650.0	MONOPOLE	ANOMALY
76	2671396.8	505451.0	16.9	50.8	MONOPOLE	ANOMALY
77	2671343.1	505451.4	148.0	140.4	MONOPOLE	ANOMALY
78	2671139.4	505457.8	13.8	57.1	DIPOLE	ANOMALY
79	2671251.4	505450.0	21.8	57.8	MONOPOLE	ANOMALY
80	2671865.4	505840.7	12.7	2803.3	MONOPOLE	ANOMALY
81	2673255.8	505819.5	6.7	78.7	MONOPOLE	ANOMALY
82	2673455.9	505819.6	13.7	2231.7	MONOPOLE	ANOMALY
83	2670501.5	505453.4	3025.6	121.4	DIPOLE	ANOMALY
84	2670675.9	505257.0	36.5	89.8	MONOPOLE	ANOMALY
85	2670892.3	505011.9	31.4	38.8	DIPOLE	ANOMALY
86	2670892.3	505011.9	31.4	34.9	DIPOLE	ANOMALY
87	2670501.5	505453.4	3025.6	51.0	DIPOLE	ANOMALY
88	2673513.0	504925.1	12.8	111.3	MONOPOLE	ANOMALY
89	2670598.3	504922.4	23.2	542.4	MONOPOLE	ANOMALY
90	2644750.7	506112.0	68.4	49.2	MONOPOLE	ANOMALY
91	2644968.3	506102.4	36.2	85.2	DIPOLE	ANOMALY
92	2646027.6	506088.9	935.9	357.1	DIPOLE	PIPELINE
93	2646163.7	506088.5	743.5	89.7	DIPOLE	ANOMALY
94	2646304.0	506095.2	89.8	32.4	MONOPOLE	ANOMALY
95	2673535.9	505714.8	39.3	1673.1	MONOPOLE	ANOMALY
96	2673143.5	505718.0	141.6	181.2	DIPOLE	ANOMALY
97	2671924.8	505747.8	31.2	1663.8	MONOPOLE	ANOMALY
98	2671449.9	505742.0	13.1	76.7	MONOPOLE	ANOMALY
99	2670634.1	505764.2	13.3	173.8	MONOPOLE	ANOMALY
100	2670017.8	505781.6	247.7	131.6	DIPOLE	ANOMALY

STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

REVISED BY:	DATE:

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LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

MAGNETOMETER ANOMALIES TABLE
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

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MAGNETOMETER ANOMALIES TABLE

NAME	X	Y	SIGNATURE AMPLITUDE	SIGNATURE WIDTH	SIGNATURE TYPE	DESCRIPTION
101	2667885.2	505812.2	389.2	485.4	MONOPOLE	PIPELINE
102	2667384.0	505817.1	19.2	451.9	MONOPOLE	ANOMALY
103	2666109.9	505838.6	36.7	122.7	DIPOLE	ANOMALY
104	2665417.3	505849.0	96.5	1026.0	MONOPOLE	ANOMALY
105	2662982.6	505894.9	397.2	363.5	MONOPOLE	ANOMALY
106	2662591.5	505898.4	51.6	100.4	DIPOLE	ANOMALY
107	2661125.2	505923.6	48.9	142.6	MONOPOLE	ANOMALY
108	2660877.7	505931.0	92.3	85.4	MONOPOLE	ANOMALY
109	2659865.8	505943.2	104.5	250.1	DIPOLE	ANOMALY
110	2659448.0	505944.9	15.5	59.0	MONOPOLE	ANOMALY
111	2659341.5	505952.2	10.6	84.9	MONOPOLE	ANOMALY
112	2658102.1	505970.5	103.4	88.3	DIPOLE	ANOMALY
113	2657681.5	505991.5	4400.1	896.2	MONOPOLE	PIPELINE
114	2656776.7	506003.4	20.2	104.2	MONOPOLE	ANOMALY
115	2655692.1	506021.8	264.7	156.1	DIPOLE	ANOMALY
116	2651052.5	506108.0	45.5	75.3	MONOPOLE	ANOMALY
117	2650030.1	506119.6	27.8	293.2	MONOPOLE	ANOMALY
118	2648512.0	506143.2	714.3	111.9	MONOPOLE	ANOMALY
119	2647738.4	506156.7	30.7	80.2	DIPOLE	ANOMALY
120	2647503.8	506155.4	21.7	115.4	MONOPOLE	ANOMALY
121	2647361.4	506158.5	136.6	118.1	DIPOLE	ANOMALY
122	2646673.0	506177.2	17.5	116.7	MONOPOLE	ANOMALY
123	2646674.4	506177.2	16.6	109.5	MONOPOLE	ANOMALY
124	2646349.6	506179.7	20.5	290.3	MONOPOLE	ANOMALY
125	2646245.9	506181.0	895.1	259.7	DIPOLE	PIPELINE
126	2646144.2	506183.3	124.0	67.3	DIPOLE	ANOMALY
127	2645774.6	506192.3	51.5	117.5	DIPOLE	ANOMALY
128	2645462.6	506195.3	26.3	66.2	DIPOLE	ANOMALY
129	2644741.6	506205.3	46.4	117.9	DIPOLE	ANOMALY
130	2644680.4	506207.8	136.8	75.9	DIPOLE	ANOMALY
131	2644594.4	506205.4	77.3	91.4	MULTIPLE COMPONENT	ANOMALY
132	2644559.8	506206.6	18.7	45.6	MONOPOLE	ANOMALY
133	2644542.7	506207.9	26.2	60.5	DIPOLE	ANOMALY
134	2644411.6	506213.6	126.6	61.9	DIPOLE	ANOMALY
135	2644162.6	506224.0	205.6	119.6	MONOPOLE	ANOMALY
136	2644372.7	506116.8	7905.6	247.6	MULTIPLE COMPONENT	ANOMALY
137	2644502.0	506116.0	1076.6	242.5	MONOPOLE	ANOMALY
138	2646304.0	506095.2	91.5	55.7	MONOPOLE	ANOMALY
139	2650527.8	506017.6	14.8	116.5	DIPOLE	ANOMALY
140	2648779.4	506041.7	15.7	152.9	MONOPOLE	ANOMALY
141	2651270.7	505999.4	1634.4	120.9	DIPOLE	ANOMALY
142	2654453.2	505948.0	85.8	99.0	MONOPOLE	ANOMALY
143	2656630.2	505914.2	12.7	145.5	MONOPOLE	ANOMALY
144	2657355.9	505889.4	10.4	109.3	DIPOLE	ANOMALY
145	2657653.3	505888.2	7640.9	1020.6	MONOPOLE	PIPELINE
146	2659049.9	505869.0	6.2	49.1	MONOPOLE	ANOMALY
147	2659178.2	505859.6	14.2	70.6	MONOPOLE	ANOMALY
148	2659555.2	505861.5	39.7	76.0	MONOPOLE	ANOMALY
149	2659928.6	505858.4	10.1	48.0	DIPOLE	ANOMALY
150	2660911.0	505827.8	38.2	73.9	DIPOLE	ANOMALY

MAGNETOMETER ANOMALIES TABLE

NAME	X	Y	SIGNATURE AMPLITUDE	SIGNATURE WIDTH	SIGNATURE TYPE	DESCRIPTION
151	2661365.9	505828.1	174.0	84.3	DIPOLE	ANOMALY
152	2664186.1	505780.7	43.1	134.9	MONOPOLE	ANOMALY
153	2664774.5	505763.3	37.4	187.8	MONOPOLE	ANOMALY
154	2665371.9	505756.1	17534.6	485.6	DIPOLE	ANOMALY
155	2665440.1	505753.6	43.3	225.1	MONOPOLE	ANOMALY
156	2667772.2	505708.4	466.7	329.5	MONOPOLE	PIPELINE
157	2668038.9	505699.4	13.1	249.9	MONOPOLE	ANOMALY
158	2669233.0	505684.2	85.6	135.4	MONOPOLE	ANOMALY
159	2669907.4	505673.4	92.1	125.8	MONOPOLE	ANOMALY
160	2671124.8	505651.8	315.4	250.4	DIPOLE	ANOMALY
161	2671213.2	505648.5	73.3	91.9	MULTIPLE COMPONENT	ANOMALY
162	2671571.5	505645.7	20.4	128.2	DIPOLE	ANOMALY
163	2671598.7	505646.6	167.5	61.7	MONOPOLE	ANOMALY
164	2671627.7	505646.4	22.3	69.5	DIPOLE	ANOMALY
165	2671900.8	505641.0	154.3	802.0	MONOPOLE	ANOMALY
166	2672120.8	505625.9	127.8	88.3	DIPOLE	ANOMALY
167	2672967.7	505622.4	50.2	72.7	DIPOLE	ANOMALY
168	2673232.0	505618.2	24.6	271.2	MONOPOLE	ANOMALY
169	2673310.8	505613.9	351.7	153.8	MONOPOLE	ANOMALY
170	2673394.3	505612.5	64.9	64.5	DIPOLE	ANOMALY
171	2673514.5	505612.2	138.5	665.9	MONOPOLE	ANOMALY
172	2674037.0	505600.6	33.5	131.2	DIPOLE	ANOMALY
173	2674037.0	505600.6	33.5	131.2	DIPOLE	ANOMALY
174	2674957.3	505584.3	18.2	78.3	MONOPOLE	ANOMALY
175	2674842.0	505486.2	25.1	73.1	MONOPOLE	ANOMALY
176	2674624.4	505493.0	70.5	47.7	MONOPOLE	ANOMALY
177	2673536.7	505514.2	2778.4	624.7	MONOPOLE	ANOMALY
178	2673421.0	505511.3	321.1	91.3	DIPOLE	ANOMALY
179	2673402.3	505510.2	115.2	37.0	MONOPOLE	ANOMALY
180	2673377.1	505510.1	471.6	39.6	MONOPOLE	ANOMALY
181	2673361.5	505511.0	175.0	66.6	MONOPOLE	ANOMALY
182	2673332.6	505513.3	259.6	92.2	MULTIPLE COMPONENT	ANOMALY
183	2673219.7	505515.8	4623.6	201.4	MONOPOLE	ANOMALY
184	2672834.9	505522.0	16.6	27.9	MONOPOLE	ANOMALY
185	2671925.7	505539.6	1505.6	590.2	MONOPOLE	ANOMALY
186	2671739.6	505542.7	172.8	117.9	MONOPOLE	ANOMALY
187	2671194.8	505553.8	42.0	101.4	DIPOLE	ANOMALY
188	2671080.2	505553.7	27.8	64.3	DIPOLE	ANOMALY
189	2669899.6	505575.0	27.4	244.9	MONOPOLE	ANOMALY
190	2668756.0	505595.7	13.5	122.4	MONOPOLE	ANOMALY
191	2667733.0	505612.7	173.4	242.2	MONOPOLE	PIPELINE
192	2667382.9	505620.7	30.1	88.3	DIPOLE	ANOMALY
193	2666880.2	505627.4	148.8	187.3	MULTIPLE COMPONENT	ANOMALY
194	2666300.0	505642.8	10.4	60.0	MONOPOLE	ANOMALY
195	2665414.1	505652.0	111.3	338.2	MULTIPLE COMPONENT	ANOMALY
196	2664570.2	505674.4	38.9	54.1	DIPOLE	ANOMALY
197	2663561.7	505684.5	126.5	147.0	MONOPOLE	ANOMALY
198	2661928.0	505708.1	10.6	72.0	MONOPOLE	ANOMALY
199	2661356.4	505723.3	8.9	90.1	MONOPOLE	ANOMALY
200	2661275.7	505716.8	41.3	133.0	MONOPOLE	ANOMALY

STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

REVISED BY:	DATE:

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

APOLLO® Environmental Strategies, Inc.

CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

MAGNETOMETER ANOMALIES TABLE
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PLAN.dwg | SHEET: 38 OF 39

MAGNETOMETER ANOMALIES TABLE

NAME	X	Y	SIGNATURE AMPLITUDE	SIGNATURE WIDTH	SIGNATURE TYPE	DESCRIPTION
201	2659566.6	505752.6	48.2	68.7	MONOPOLE	ANOMALY
202	2659279.4	505758.6	12.1	183.4	MONOPOLE	ANOMALY
203	2657693.0	505781.1	3347.9	756.2	MONOPOLE	PIPELINE
204	2656641.7	505798.3	14.4	409.1	MONOPOLE	ANOMALY
205	2653997.2	505853.3	102.8	124.6	DIPOLE	ANOMALY
206	2651739.2	505889.8	75.4	99.0	DIPOLE	ANOMALY
207	2650711.3	505903.5	7.9	93.9	MONOPOLE	ANOMALY
208	2650438.9	505919.9	8.6	71.8	MONOPOLE	ANOMALY
209	2648653.2	505937.6	499.8	100.0	MULTIPLE COMPONENT	ANOMALY
210	2648350.0	505947.0	18.6	68.5	MONOPOLE	ANOMALY
211	2648350.0	505947.0	19.1	82.0	MONOPOLE	ANOMALY
212	2647613.0	505974.0	19.5	64.6	MONOPOLE	ANOMALY
213	2645846.0	505999.0	2600.6	460.1	DIPOLE	PIPELINE
214	2645021.0	506006.0	126.7	46.3	MONOPOLE	ANOMALY
215	2644886.0	506003.0	7.8	27.9	DIPOLE	ANOMALY
216	2644791.0	506008.0	18.7	102.1	DIPOLE	ANOMALY
217	2644741.0	506009.0	13.5	55.4	DIPOLE	ANOMALY
218	2644695.0	506005.0	14.8	66.4	DIPOLE	ANOMALY
219	2644664.0	506004.0	36.1	56.3	DIPOLE	ANOMALY
220	2644615.0	506007.0	37.2	36.9	DIPOLE	ANOMALY
221	2644573.0	506008.0	81.4	23.8	DIPOLE	ANOMALY
222	2644489.0	506008.0	60.5	39.8	DIPOLE	ANOMALY
223	2644442.0	506008.0	107.8	51.6	DIPOLE	ANOMALY
224	2644283.0	506014.0	34.0	16.6	DIPOLE	ANOMALY
225	2644194.0	506011.0	30.1	29.3	DIPOLE	ANOMALY
226	2644120.0	506011.0	22.6	48.2	DIPOLE	ANOMALY
227	2644100.0	506006.0	63.8	42.2	DIPOLE	ANOMALY
228	2677583.3	505812.1	22.4	26.7	MONOPOLE	ANOMALY
229	2677790.5	505766.8	30.3	32.3	DIPOLE	ANOMALY
230	2677185.6	505693.1	76.5	89.1	DIPOLE	ANOMALY
231	2677348.9	505739.9	122.2	94.4	DIPOLE	ANOMALY
232	2677347.3	505739.9	122.2	93.6	DIPOLE	ANOMALY
233	2677183.7	505693.6	76.5	101.5	DIPOLE	ANOMALY
234	2677364.3	505642.4	99.4	46.2	MONOPOLE	ANOMALY
235	2676537.6	505615.1	66.4	98.1	MONOPOLE	ANOMALY
236	2677312.5	505832.4	79.3	29.3	DIPOLE	ANOMALY
237	2677397.4	505862.6	37.2	17.1	DIPOLE	ANOMALY
238	2677486.9	505884.3	139.3	68.3	MONOPOLE	ANOMALY
239	2677888.0	505627.0	63.1	308.7	MONOPOLE	ANOMALY
240	2677729.3	505955.4	38.4	73.7	DIPOLE	ANOMALY
241	2677704.6	505694.9	273.5	361.5	DIPOLE	ANOMALY
242	2677615.9	505657.8	3109.8	147.3	MONOPOLE	ANOMALY
243	2677185.6	505693.1	76.45	89.13	DIPOLE	ANOMALY
244	2677348.9	505739.9	122.22	94.35	DIPOLE	ANOMALY
245	2677347.3	505739.9	122.22	93.59	DIPOLE	ANOMALY
246	2677183.7	505693.6	76.45	101.54	DIPOLE	ANOMALY
247	2677364.3	505642.4	99.37	46.15	MONOPOLE	ANOMALY
248	2676537.6	505615.1	66.38	98.13	MONOPOLE	ANOMALY
249	2677312.5	505832.4	79.3	29.34	DIPOLE	ANOMALY
250	2677397.4	505862.6	37.2	17.1	DIPOLE	ANOMALY

SIDE SCAN TARGETS TABLE

PT NO.	X	Y	HEIGHT	LENGTH	WIDTH	DESCRIPTION
400	2675185.0	505501.0	0.8	2.9	3.1	Crab Trap
401	2676061.2	505422.3	1	2.5	2.6	Crab Trap
402	2676547.2	505411.2	0.5	4.1	2.1	Debris
403	2651223.6	506045.2	3.3	8.8	4.5	Debris
404	2654468.6	505939.9	0.9	4.6	4.9	Debris
405	2670891.7	504933.0	0.7	2.3	3.3	Debris
406	2665089.0	505597.4	1.1	4.3	2.4	Debris
407	2665983.2	505612.7	0.7	2.6	2.4	Debris
408	2666200.2	505716.7	0.9	6.1	3.4	Debris
409	2666333.2	505621.9	0.9	3.2	2.3	Debris
410	2654942.4	505907.3	1.4	4.8	3.3	Debris
411	2658839.9	505722.4	0.7	4	5.8	Debris
412	2653471.3	505876.9	0.9	2.7	3.1	Debris

NOTE: ALL UNITS ARE IN FEET

STATE OF LOUISIANA
KEITH J. ROBERTS
REGISTERED PROFESSIONAL LAND SURVEYOR
11/29/17

REVISED BY:	DATE:

HYDROTERRA TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

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CAMERON - CREOLE WATERSHED
GRAND BAYOU MARSH CREATION (CS-54)

PRE-CONSTRUCTION SURVEY

DREDGE ACCESS - PIPELINE CORRIDORS

MAGNETOMETER ANOMALIES TABLE & SIDE SCAN TARGETS TABLE
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

DATE: 11/29/2017 | JOB# 2171030 | FILE: GRAND BAYOU_PREC_DREDGE ACCESS_PL CORRDIDORS_PLAN.dwg | SHEET: 39 OF 39

ATTACHMENT C

"General Decision Number: LA20230004 04/14/2023

Superseded General Decision Number: LA20220004

State: Louisiana

Construction Type: Heavy

Counties: Allen, Assumption, Avoyelles, Beauregard, Bienville, Caldwell, Cameron, Catahoula, Claiborne, Concordia, De Soto, East Carroll, East Feliciana, Evangeline, Franklin, Grant, Iberia, Iberville, Jackson, Jefferson Davis, La Salle, Lincoln, Madison, Morehouse, Natchitoches, Pointe Coupee, Red River, Richland, Sabine, St Helena, St Mary, Tangipahoa, Tensas, Union, Vermilion, Vernon, Washington, West Carroll, West Feliciana and Winn Counties in Louisiana.

HEAVY CONSTRUCTION PROJECTS (includes water wells, water & sewer lines, and flood control; excludes elevated storage tanks)

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on

	that contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2023
1	01/13/2023
2	03/31/2023
3	04/14/2023

ELEC0130-007 12/05/2022

ASSUMPTION AND ST. MARY (Northeast of Atchafalaya River) PARISHES

	Rates	Fringes
ELECTRICIAN	$ 32.75	14.51

ELEC0194-006 09/05/2022

BIENVILLE, CLAIBORNE, DE SOTO, NATCHITOCHES (Northeast of the Red River), and RED RIVER PARISHES

	Rates	Fringes
ELECTRICIAN	$ 31.25	14.34

ELEC0446-004 03/01/2023

CALDWELL, EAST CARROLL, FRANKLIN, JACKSON, LINCOLN, MADISON, MOREHOUSE, RICHLAND, TENSAS, UNION, and WEST CARROLL PARISHES

	Rates	Fringes
ELECTRICIAN	$ 26.95	2%+13.11

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* ELEC0576-002 03/01/2023

AVOYELLES, CATAHOULA, CONCORDIA, EVANGELINE, GRANT, LA SALLE,

NATCHITOCHES (Southwest of Red River), SABINE, VERNON, AND WINN PARISHES

	Rates	Fringes
ELECTRICIAN.....	$ 26.90	4.25%+9.90

ELEC0861-004 09/01/2022

ALLEN, BEAUREGARD, CAMERON, IBERIA, JEFFERSON DAVIS, ST. MARY (Southwest of Atchafalaya River), AND VERMILION PARISHES

	Rates	Fringes
ELECTRICIAN.....	$ 29.53	4.34%+13.05

ELEC0995-002 01/01/2023

EAST FELICIANA, IBERVILLE, POINTE COUPEE, ST. HELENA, AND WEST FELICIANA PARISHES

	Rates	Fringes
ELECTRICIAN.....	$ 27.49	12.66

ELEC1077-005 12/05/2022

TANGIPAHOA and WASHINGTON PARISHES

	Rates	Fringes
ELECTRICIAN.....	$ 27.39	3%+9.42

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* SULA2004-008 05/19/2004

	Rates	Fringes
CARPENTER (including formsetting/formbuilding).....	$ 14.75 **	0.00
Laborers:		
Common.....	$ 7.60 **	0.00
Pipelayer.....	$ 8.47 **	0.00
PIPEFITTER (excluding pipelaying).....	$ 18.75	4.05
Power equipment operators:		
Backhoe/Excavator.....	$ 11.67 **	0.00
Boring Machine.....	$ 10.25 **	0.00
Bulldozer.....	$ 11.82 **	0.00

Crane	$ 13.60 **	0.00
Dragline	$ 13.12 **	0.00
Front End Loader	$ 9.93 **	0.00
Mechanic	$ 12.50 **	0.00
Trackhoe	$ 11.99 **	0.00
Tractor	$ 10.43 **	0.00
Water Well Driller	$ 10.73 **	2.01
Truck drivers:		
Dump	$ 10.00 **	0.00
Water	$ 8.00 **	0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($16.20) or 13658 ($12.15). Please see the Note at the top of the wage determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage

determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in

the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material,

etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

ATTACHMENT D

SCOPE OF WORK:

THESE PLANS ARE FOR THE STORM DAMAGE REPAIRS TO FEATURES OF THE CAMERON-CREOLE WATERSHED THAT WERE DAMAGED DURING HURRICANE LAURA.

CONTRACTOR WILL VISIT THE SITE OF EACH DAMAGED PROJECT FEATURE PRIOR TO BID AND REVIEW THE PLANS & SPECIFICATIONS OF THE WORK AT THE PROJECT SITE. THE DAMAGED PROJECT FEATURES INCLUDE FOUR WATER CONTROL STRUCTURES (MANGROVE BAYOU WCS, GRAND BAYOU WCS, LAMBERT BAYOU WCS, AND NO NAME BAYOU WCS), THREE LEVEE BREACH STRUCTURES (GRAND BAYOU BREACH, LAMBERT BAYOU BREACH, AND NO NAME BAYOU BREACH), AND TWO INTERIOR CANAL PLUGS (MANGROVE BAYOU PLUG AND GRAND BAYOU PLUG).

DESIGN NOTES:

DESIGN FOR THIS PROJECT IS BASED OFF OF THE TOPOGRAPHIC AND INFRASTRUCTURE SURVEY, CONDUCTED ON JUNE 28 - 29, 2022, AND JULY 6 - 7, 2022, BY T. BAKER SMITH, LLC.

MEAN HIGH WATER (MHW) ELEVATION OF 1.3' AND MEAN LOW WATER (MLW) ELEVATION OF 0.3' WERE CALCULATED FROM CRMS GAGES 0644, 1738, AND 1743 IN THE CAMERON-CREOLE WATERSHED.

DESIGN CRITERIA: ALL PROPOSED WORK SHOWN IN THE PLANS IS INTENDED TO PRODUCE A "LIKE-KIND" PRODUCT OF WHAT ONCE EXISTED PRIOR TO HURRICANE LAURA

GENERAL NOTES:

1. PLANS AND SPECIFICATIONS ARE COMPLEMENTARY; WHAT IS REQUIRED BY ONE IS BINDING AS IF REQUIRED BY ALL. CLARIFICATIONS AND INTERPRETATIONS OF, OR NOTIFICATIONS OF MINOR VARIATIONS AND DEVIATIONS IN THE CONTRACT DOCUMENTS, WILL BE ISSUED BY THE ENGINEER.
2. THESE NOTES ARE PART OF ALL DRAWINGS THAT REFER TO THEM AND SHALL GOVERN ALL CONSTRUCTION AND ASSOCIATED ACTIVITIES INCLUDING BUT NOT LIMITED TO THE SITE WORK AND RIP RAP, EXCAVATION & DEBRIS REMOVAL WORK, SHEETPILE AND PILE WORK, STEEL WORK, WELDING WORK, AND MECHANICAL REPAIR WORK FOR THE CAMERON-CREOLE MAINTENANCE PROJECT (CS-004-A) - STORM DAMAGE REPAIRS. IF THERE IS A CONFLICT BETWEEN THE DRAWINGS, THESE NOTES, AND THE PROJECT SPECIFICATIONS, THE DRAWINGS SHALL TAKE PRECEDENCE.
3. "ENGINEER" REFERS TO THE ENGINEER OF RECORD.
4. DRAWINGS MAY NOT REPRESENT ALL HAZARDS WITHIN PROJECT AREA.
5. CONTRACTOR SHALL PERFORM A PRECON SITE VISIT PRIOR TO THE START OF CONSTRUCTION. DURING THE PRECON SITE VISIT THE CONTRACTOR SHALL FIELD VERIFY THE SITE CONDITIONS AND ELEVATIONS AS WELL AS THE DIMENSIONS OF ALL EXISTING AND PROPOSED ITEMS RELATING TO THIS WORK AND THE PLANS. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING WORK, ORDERING AND/OR FABRICATING MATERIALS AND FEATURES, AND PREPARING SHOP DRAWINGS. FAILURE TO DO SO, OR ANY DEVIATION FROM THE DRAWINGS WITHOUT APPROVAL OF THE ENGINEER BECOMES THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6. ALL ELEVATIONS ARE GIVEN IN THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), GEOID12A, U.S. SURVEY FEET. ALL HORIZONTAL COORDINATES ARE GIVEN IN THE NORTH AMERICAN DATUM OF 1983 (NAD83) LOUISIANA STATE PLANE SOUTH ZONE U.S. FEET.
7. CONTRACTOR SHALL ACCESS PROJECT SITE FROM A NAVIGABLE WATER BODY.
8. ACCESS ROUTES ILLUSTRATED IN THE DRAWINGS ARE PROPOSED ONLY. DISTURBANCE OF WATER BOTTOMS, INCLUDING BUT NOT LIMITED TO EXISTING OYSTER REEFS, IS NOT PERMITTED ALONG ANY ROUTE THE CONTRACTOR CHOOSES TO USE FOR ACCESS TO THE PROJECT SITE. CONTRACTOR IS REQUIRED TO VERIFY THAT WATER DEPTHS ALONG ANY ACCESS ROUTES THEY CHOOSE TO USE FOR THIS PROJECT, WHETHER PROPOSED IN THE DRAWINGS OR NOT, ARE ADEQUATE IN ORDER TO AVOID ANY WATER BOTTOM DISTURBANCE DURING MOBILIZATION/DEMOBILIZATION OF MATERIALS AND EQUIPMENT, AND DURING INTERMITTENT TRAVEL TO AND FROM THE SITE. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY WATER BOTTOM DISTURBANCE THAT OCCURS OUTSIDE OF THE AREAS PERMITTED FOR EXCAVATION AND FILL ACTIVITIES AS ILLUSTRATED AND STATED IN THE DRAWINGS.
9. LAKE CALCASIEU AND CAMERON-CREOLE WATERSHED WATER SURFACES VARY WITH METEOROLOGICAL AND TIDAL CONDITIONS. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH VARYING TIDAL CONDITIONS AND ACCOUNT FOR SUCH WORK IN A WORK PLAN.
10. WHEEL WASHING/PROP WASHING SHALL NOT BE PERMITTED.
11. ANY DAMAGE TO EXISTING U.S. COAST GUARD NAVIGATION AIDS OR PRIVATE NAVIGATION AIDS SHALL BE REPAIRED BY THE CONTRACTOR TO U.S. COAST GUARD STANDARDS AT THE EXPENSE OF THE CONTRACTOR.
12. PROJECT IS WITHIN AND ADJACENT TO ENVIRONMENTALLY SENSITIVE AREAS. CONTRACTOR SHALL AVOID/MINIMIZE IMPACTS TO THESE AREAS DURING THE COURSE OF WORK. OWNER RESERVES THE RIGHT TO SUSPEND WORK AT ANY TIME IF IMPACTS OCCUR UNTIL SATISFACTORY CORRECTIVE MEASURES ARE IMPLEMENTED BY CONTRACTOR TO THE SATISFACTION OF REGULATORY AGENCIES AND/OR CAMERON PARISH.
13. CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS FOR,
    - OBTAINING ANY/ALL ACCESS/CONSTRUCTION PERMITS, AND PAY ALL ASSOCIATED FEES REQUIRED TO PERFORM CONSTRUCTION AND ASSOCIATED ACTIVITIES ON APPLICAPBLE NATIONAL WILDLIFE REFUGE PROPERTIES.
    - OBTAINING PERMISSIONS FROM APPLICABLE PROPERTY OWNERS, AND PAY ALL ASSOCIATED FEES FOR STAGING, FABRICATION, AND LOADING BARGES ON PRIVATE PROPERTY.

    UPON SIGNING CONSTRUCTION CONTRACT, CONTRACTOR ACCEPTS RESPONSIBILITY FOR ACQUISITION OF ALL PERMISSIONS, AUTHORIZATIONS, EASEMENTS, AND/OR ACCESS AGREEMENTS NECESSARY FOR CONSTRUCTION OF THIS PROJECT.
14. REGULATORY AUTHORIZATIONS OBTAINED BY THE OWNER ARE INCLUDED IN APPENDIX F OF THE SPECIFICATIONS. ANY DISCREPANCIES BETWEEN THESE DOCUMENTS AND THE CONSTRUCTION DOCUMENTS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER. ALL OTHER REGULATORY AUTHORIZATIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
15. STRUCTURES ARE DESIGNED FOR "IN PLACE" LOADS. THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING DURING CONSTRUCTION AND EQUIPMENT ERECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES INCURRED PRIOR TO COMPLETION.
16. ALL NECESSARY MATERIALS FOR COMPLETION OF THIS PROJECT TO BE FURNISHED BY THE CONTRACTOR.
17. CONTRACTOR SHALL TAKE PRECAUTIONS, SECURE EQUIPMENT, AND PROTECT THE WORK AND RELATED MATERIALS AGAINST ADVERSE WEATHER CONDITIONS REGARDLESS OF MARINE CONDITIONS.
18. ITEMS OR FEATURES NOTED AS "EXISTING" ON DRAWINGS MAY OR MAY NOT BE EXISTING.
19. OWNER RESERVES THE RIGHT TO ACCESS AND INSPECT ALL WORK.
20. CONTRACTOR MUST STAY WITHIN FOOTPRINT OF THE WORK SITE. NO EQUIPMENT OR CONSTRUCTION MATERIAL WILL BE ALLOWED OUTSIDE OF THE PROJECT SITE AT ANY TIME. AVOID IMPACT TO EXISTING VEGETATION.
21. CONSTRUCTION DEBRIS MUST BE REMOVED FROM THE PROJECT SITE BY THE CONTRACTOR AT NO DIRECT PAYMENT.
22. CONTRACTOR SHALL IDENTIFY AND MARK THE CONSTRUCTION AREA ACCORDING TO THE LINES AND GRADES AS SET FORTH IN THE PLANS. ONLY AFTER FINAL ACCEPTANCE OF THE WORK PERFORMED SHALL THE CONTRACTOR REMOVE THE STAKES. CONSTRUCTION LAYOUT SHALL BE PERFORMED AT NO DIRECT PAYMENT.

UTILITIES

23. CONTRACTOR SHALL PERFORM A HAZARD SURVEY AND LOCATE ALL UTILITIES AND OBSTRUCTIONS PRIOR TO COMMENCING WORK.
24. CONTRACTOR SHALL CONTACT LOUISIANA ONE CALL AT 1-800-272-3020 AT LEAST 5 WORKING DAYS PRIOR TO START OF CONSTRUCTION TO LOCATE EXISTING UTILITIES AT THE PROJECT SITE. LIMITS OF WORK SHALL BE PRE-MARKED FOR THE UTILITY LOCATORS.
25. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES BEFORE STARTING CONSTRUCTION.
26. CONTRACTOR SHALL CONTACT OWNER OF ALL AFFECTED UTILITY COMPANIES AT LEAST THREE (3) WORKING DAYS PRIOR TO BEGINNING OF CONSTRUCTION AROUND THEIR RESPECTIVE UTILITIES.
27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION, SCHEDULING, AND NOTICES TO UTILITY OWNERS.
28. CONTRACTOR SHALL PROTECT EXISTING UTILITIES AT ALL TIMES DURING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE DRAWINGS OR NOT, SHALL BE IMMEDIATELY REPORTED TO THE UTILITY ENTITIES AND WILL BE REPAIRED AT THE CONTRACTORS EXPENSE.
29. ALL WORK CONDUCTED NEAR HIGH VOLTAGE POWER LINES SHALL BE IN ACCORDANCE WITH EM385-1-1, OSHA AND ELECTRIC UTILITY REQUIREMENTS.
30. LOUISIANA LAW (LRS 45:141-146) PROHIBITS UNAUTHORIZED PERSONS FROM WORKING, INCLUDING MOVING EQUIPMENT, WITHIN 10 FEET OF ANY HIGH VOLTAGE OVERHEAD ELECTRIC UTILITY LINE, UNLESS THE FOLLOWING REQUIREMENTS ARE MET:
    - BEFORE ANY UNAUTHORIZED PERSON WORKS WITHIN 10 FEET OF ANY HIGH VOLTAGE OVERHEAD UTILITY LINE, THE PERSON RESPONSIBLE FOR THE WORK TO BE DONE MUST NOTIFY THE OWNER OR OPERATOR OF THE HIGH VOLTAGE OVERHEAD ELECTRIC UTILITY LINE NOT LESS THAN FORTY-EIGHT HOURS PRIOR TO COMMENCING WORK.
    - WORK SHALL BE PERFORMED ONLY AFTER SATISFACTORY MUTUAL AGREEMENTS HAVE BEEN COMPLETED BETWEEN THE OWNER OR OPERATOR OF THE HIGH VOLTAGE OVERHEAD ELECTRIC UTILITY LINE AND THE PERSON RESPONSIBLE FOR THE WORK TO BE DONE.
    - TO NOTIFY JEFF DAVIS ELECTRIC CO-OP PRIOR TO WORKING WITHIN 10 FEET OF A HIGH VOLTAGE OVERHEAD ELECTRIC UTILITY LINE OWNED OR OPERATED BY IT, CALL (337) 824-4330.

SURVEYS:

31. SURVEYING ACTIVITIES INCLUDING PRE-CONSTRUCTION, PROCESS, AND AS-BUILT SURVEYING SHALL BE PERFORMED AT THE PROJECT FEATURES NAMED AND IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS, SECTION TS-210 "SURVEYS".
32. ALL COSTS ASSOCIATED WITH THE PERFORMANCE OF SURVEYS SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR BID ITEM No. 2 "SURVEYS (TS-210)".
33. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SURVEY(S) REQUIRED FOR PROJECT DIMENSION CONTROL.
34. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAYING OUT THE WORK AND VERIFYING ALL MEASUREMENTS AND GRADES PRIOR TO BEGINNING OF CONSTRUCTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE PROJECT CENTERLINE AND OFFICIAL TEMPORARY BENCH MARKS FOR CONSTRUCTION PURPOSES.
35. THE LINES AND GRADES SHOWN ON THE PLANS MAY BE VARIED SLIGHTLY BY THE ENGINEER IN THE FIELD, INCLUDING BUT NOT LIMITED TO THE ALIGNMENT OF THE RIP RAP INSTALLATIONS AND DREDGING EXTENTS, IF CONDITIONS JUSTIFY SUCH A VARIATION OR IF THE RESULTS OF THE CONTRACTOR'S INITIAL SURVEY REFLECT CHANGES IN FIELD CONDITIONS. THE CONTRACTOR SHALL NOT BE ENTITLED TO EXTRA PAYMENT OTHER THAN WHATEVER INCREASE IN CONTRACT QUANTITIES IS INVOLVED
36. DIMENSIONS AND/OR ELEVATIONS CALLED OUT IN THE PLANS ARE APPROXIMATE. CONTRACTOR SHALL VERIFY ACTUAL DIMENSIONS AND/OR ELEVATIONS IN THE FIELD.
37. DIMENSIONS AND/OR ELEVATIONS MARKED THUS (N.T.S.) ARE NOT SHOWN TO SCALE.
38. CONTRACTOR SHALL BE FAMILIAR WITH EXISTING SOFT SOIL CONDITIONS AT THE WORK SITE. SOIL BORING LOCATIONS AND GEOTECHNICAL INFORMATION ARE PROVIDED IN APPENDIX J OF THE SPECIFICATIONS.
39. THE CONTRACTOR SHALL MAKE HIS OWN INTERPRETATION OF THE CHARACTER AND CONDITION OF THE MATERIALS WHICH WILL BE ENCOUNTERED ELSEWHERE FROM THE BORING AND CONE PENETROMETER TESTS (CPT) LOCATIONS THAT ARE PROVIDED IN APPENDIX J. THE CONTRACTOR, AT HIS OWN EXPENSE, MAY PERFORM ADDITIONAL INVESTIGATIONS, INCLUDING SURVEYS AND CPTs, AS HE DEEMS NECESSARY TO DETERMINE CONDITIONS WHICH AFFECT THE PERFORMANCE OF THE WORK.

EXCAVATIONS, DREDGING, AND DEBRIS REMOVAL

40. EXCAVATIONS INDICATED ON THE DRAWINGS SHALL CONFORM TO THE TECHNICAL SPECIFICATIONS SECTION TS-370 "EXCAVATION".
41. ALL COSTS ASSOCIATED WITH EXCAVATIONS, DREDGING, AND DEBRIS REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE FOR BID ITEM No. 3 "EXCAVATION (TS-370)".
42. A MAGNETOMETER SURVEY SHALL BE DONE BY THE CONTRACTOR PRIOR TO ANY DREDGING OR EXCAVATION TAKING PLACE.
43. THE CONTRACTOR SHALL EXCAVATE SOILS AND VEGETATIVE DEBRIS TO THE LINES AND GRADES SPECIFIED ON THE PLANS. THE CONTRACTOR MUST GAIN ACCEPTANCE FROM THE ENGINEER BEFORE THE WORK WILL BE CONSIDERED COMPLETED.
44. THE CONTRACTOR SHALL DESIGN AND PROVIDE FOR ENGINEER REVIEW ANY EXCAVATIONS, COFFERDAMS, AND DEWATERING SYSTEMS NOT PROPOSED IN THE PLANS BY THE ENGINEER.

GRADED RIP RAP & WOVEN GEOTEXTILE NOTES:

45. RIP RAP INSTALLATION INDICATED ON THE DRAWINGS SHALL CONFORM TO THE TECHNICAL SPECIFICATIONS SECTION TS-700 "RIP RAP".
46. ALL COSTS ASSOCIATED WITH THE PROCUREMENT AND INSTALLATION OF RIP RAP SHALL BE INCLUDED IN THE UNIT PRICE FOR BID ITEM No. 4, 6, 8, 11, 15, 20, AND 23, "RIP RAP (TS-700)".
47. GRADED RIP RAP PLACEMENT SHALL MAXIMIZE CONTACT BETWEEN INDIVIDUAL STONES ON ALL SIDES WITH EACH STONE HAVING AT LEAST THREE POINTS OF CONTACT WITH OTHER STONES.
48. CONTRACTOR'S WORK PLAN SHALL INCLUDE QA/QC METHODS/PROCEDURES TO ENSURE THICKNESS OF THE ARMOR STONE IS PLACED WITHIN THE SPECIFIED LIMITS. IF REQUESTED BY ENGINEER, CONTRACTOR SHALL FIELD DEMONSTRATE THE PROPOSED METHOD/PROCEDURES.
49. WOVEN GEOTEXTILE FABRIC TO EXTEND 3' BEYOND PROPOSED FOOTPRINT OF THE RIP RAP BEFORE RIP RAP INSTALLED. NO PAY INCLUDED FOR OVERLAP OF GEOTEXTILE.
50. WOVEN GEOTEXTILE MATERIALS AND INSTALLATION INDICATED ON THE DRAWINGS SHALL CONFORM TO THE TECHNICAL SPECIFICATIONS SECTION TS-601 "WOVEN GEOTEXTILE FABRIC".
51. ALL COSTS ASSOCIATED WITH THE PROCUREMENT AND INSTALLATION OF WOVEN GEOTEXTILE FABRIC SHALL BE INCLUDED IN THE UNIT PRICE FOR BID ITEM No. 5, 7, 9, 12, 16, 21, AND 24, "WOVEN GEOTEXTILE FABRIC (TS-601)".
52. EXISTING BOTTOM CONSISTS OF SOFT SOILS. SOIL DISPLACEMENT MAY OCCUR UPON PLACEMENT OF GRADED RIP RAP. CONTRACTOR SHALL UTILIZE DROP HEIGHTS OF NO GREATER THAN ONE FOOT AND EMPLOY OTHER PLACEMENT TECHNIQUES TO HELP MINIMIZE SOIL DISPLACEMENT AND DAMAGE TO UNDERLYING GEOTEXTILES. UNDERLYING GEOTEXTILES SHALL EXTEND A MINIMUM OF 3 FT BEYOND EDGE OF GRADED RIP RAP PRIOR TO SETTLEMENT. CONTRACTOR SHALL CONSIDER OTHER METHODS OF MINIMIZING SOIL DISPLACEMENT SUCH AS TACKING THE EDGES OF THE GEOTEXTILE FABRIC AND GEOGRID WITH GRADED RIP RAP PRIOR TO LOADING CENTRAL PORTIONS.

STEEL NOTES:

53. ALL STRUCTURAL STEEL SHALL BE ASTM A36 UNLESS OTHERWISE NOTED.
    - W SHAPES - ASTM A992, Fy-50 ksi.
    - CHANNELS, ANGLES, AND PLATES; UNLESS NOTED OTHERWISE = ASTM A36, Fy=36ksi.
54. BOLTS IN STRUCTURAL STEEL CONNECTIONS SHALL CONFORM TO ASTM A325, UNLESS NOTED OTHERWISE.
55. PIPE 12" DIAMETER OR SMALLER SHALL BE ASTM A53 GRADE B, Fy=35ksi
56. DIMENSIONS SHOWN OR CALLED FOR ARE FINAL DIMENSIONS: ALLOWANCES MUST BE MADE FOR MACHINING.
57. TO PREVENT CORROSION BY MOISTURE BETWEEN STEEL SURFACES IN CONTACT, ALL SUCH CONTACTS SHALL BE SEALED WATER-TIGHT BY RUNNING A CONTINUOUS 3/8" FILLET WELD ALONG ALL EDGES OF THE CONTACT, UNLESS OTHERWISE NOTED. (DOES NOT INCLUDE PLATED EDGES OR MEMBER ENDS).
58. STEEL PIPES, SHEET PILES, PLATES, OR ANY STEEL MATERIAL (FABRICATED OR NON-FABRICATED) IS TO BE STORED AND HANDLED IN SUCH A MANNER THAT SAGGING OR BENDING IS AVOIDED. ALL STEEL MATERIALS TO BE STORED ON THE GROUND SHALL BE STACKED AND BLOCKED IN SUCH A WAY THAT ALL STEEL MATERIAL WILL HAVE A UNIFORM SUPPORT ALONG ITS ENTIRE LENGTH.
59. ALL WELDING SHALL BE ELECTRIC WELDING, WORKMANSHIP AND TECHNIQUE, WHERE APPLICABLE, SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODES AWS D1.1 AND AWS D3.6 OR LATEST VERSION THEREOF, UNLESS OTHERWISE NOTED.
60. WELDING SYMBOLS SHOWN ARE THOSE ADOPTED BY THE AMERICAN WELDING SOCIETY AND INDICATE ONLY SIZE AND TYPE OF WELDS REQUIRED. DETAILED INFORMATION SHALL BE SHOWN ON THE SHOP DRAWINGS AND SUBMITTED TO THE CONTRACTOR FOR APPROVAL.
61. STRUCTURAL STEEL FABRICATION AND ERECTION SHALL CONFORM TO THE A.I.S.C. MANUAL OF STEEL CONSTRUCTION 13TH EDITION AND API RP2A-WSD. UNLESS OTHERWISE NOTED.
62. ALL MISCELLANEOUS HARDWARE WHICH IS SPECIFIED TO BE GALVANIZED SHALL BE COATED IN ACCORDANCE WITH ASTM A-153, AFTER FABRICATION. DAMAGED GALVANIZED COATS THAT ARE NOT TO BE EMBEDDED IN MORE THAN THREE (3) INCHES OF CONCRETE SHALL BE REPAIRED WITH COLD APPLIED, ZINC RICH, ORGANIC PAINT, OR OTHER APPROVED METHOD OF REPAIR.

STATE OF LOUISIANA
BEAU J. TATE
License No. 30990
5/11/23
PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	BY
2	01/27/23	Final Design Drawings and Construction Plans	BB
1	11/07/22	Preliminary Design Drawings	BB

ROYAL engineeringpossibilities
1231 Camellia Boulevard
Lafayette, Louisiana 70508

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

GENERAL NOTES

DESIGNED BY: BB
APPROVED BY: BT

CAMERON CREOLE MAINTENANCE PROJECT STORM DAMAGE REPAIRS

STATE PROJECT NUMBER: CS-004-A
DRAWN BY: REC

DATE: NOV. 07, 2022

SITEWORK MATERIAL QUANTITIES PER PROJECT FEATURE

	Mangrove Bayou		Grand Bayou			Lambert Bayou	No Name Bayou		Cumulative
	WCS Outlet Canal	Int. Canal Plug	WCS	Levee Breach	Int. Canal Plug	WCS & Levee Breach	WCS	Levee Breach	
Excavated & Hauled Offsite (CY)	4,000								**4,000**
Rock - rip rap (TONS)		490	170	3,200	715	2,500	925	240	**8,240**
Woven Geotextile Fabric (SY)		590	120	1,215	695	1,410	560	230	**4,820**
Steel Sheetpiles (SF)				4,800		3,375			**8,175**
W18 x 55 Steel Beam (LF)				80		75			**155**
Steel Batter Piles (LF)				700		600			**1,300**

BID ITEM No. 10 - SCOPE OF WORK: MECHANICAL REPAIRS TO GRAND BAYOU WCS

ACTION	QUANTITY	ITEM DESCRIPTION
1. Remove & Replace	(32) EACH	Treated timber board for lower gate -- 10.6 FT long x 6 IN wide x 3 IN thick
2. Replace	(1) EACH	Rodney Hunt FV-T treated timber flap gate (three hinge connections) OR APPROVED EQUAL -- 108 IN long x 60 IN wide
3. Inspect/Document/Photograph	(12) EACH	Lake-side Flap Gate Hinges.
4. Remove & Replace	(4) EACH	Hand/guard-rails --Galvanized steel pipe with posts -- 2 IN dia. schedule 40 & 2 IN dia. schedule 80 (fabricated lengths will vary)
5. Remove & Replace	(8) EACH	Anchor bracket for guard rail
6. Replace	(6) EACH	Jim Buoy Mo. 4418 Industrial Float -- Industrial floating buoys connected by steel cable
7. Replace	(2) EACH	Jim Buoy Mo. 3000 Regulatory Buoy/Channel Marker w/ Concrete Buoy Anchor (steel cable connection) -- Industrial floating buoys connected by steel cable

BID ITEM No. 17 - SCOPE OF WORK: MECHANICAL REPAIRS TO LAMBERT BAYOU WCS

ACTION	QUANTITY	ITEM DESCRIPTION
1. Remove & Replace	(8) EACH	Hand/guard-rails --Galvanized steel pipe with posts -- 2 IN dia. schedule 40 & 2 IN dia. schedule 80 (fabricated lengths will vary)
2. Remove & Replace	(16) EACH	Anchor bracket for guard rail
3. Remove & Replace	(1) EACH	LAPEYRE Aternating Tread Stairs (68 Degree) OR APPROVED EQUAL -- Aluminum alternating tread stair w/ standard handrail --108 IN high

BID ITEM No. 22 - SCOPE OF WORK: MECHANICAL REPAIRS TO NO NAME BAYOU WCS

ACTION	QUANTITY	ITEM DESCRIPTION
1. Remove & Replace	(504) LF	Galvanized pipe (framework of the fence including top plus bottom rail and vertical posts) -- 2 IN dia.
2. Remove & Replace	(196) LF	Galvanized fence (surrounds structure) -- 6 FT height w/ a chain link swing gate at each end (2 gates)
5. Remove & Replace	(16) EACH	Anchor bracket for vertical fence posts
4. Remove & Replace	(3) EACH	Hand/guard-rails --Galvanized steel pipe with posts -- 2 IN dia. schedule 40 & 2 IN dia. schedule 80 (fabricated lengths will vary)
5. Remove & Replace	(6) EACH	Anchor bracket for guard rail

NOTES:

1. THE QUANTITIES SHOWN IN THE DRAWINGS ARE FOR BID PURPOSES ONLY.
2. THE BID QUANTITIES OF EXCAVATION AND FILL IS BASED ON SURVEY DATA COLLECTED BY T. BAKER SMITH DURING JUNE AND JULY OF 2022.

STATE OF LOUISIANA
BEAU J. TATE
License No. 30990
5/17/23
PROFESSIONAL ENGINEER

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ROYAL engineeringpossibilities.
1231 Camellia Boulevard
Lafayette, Louisiana 70508

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

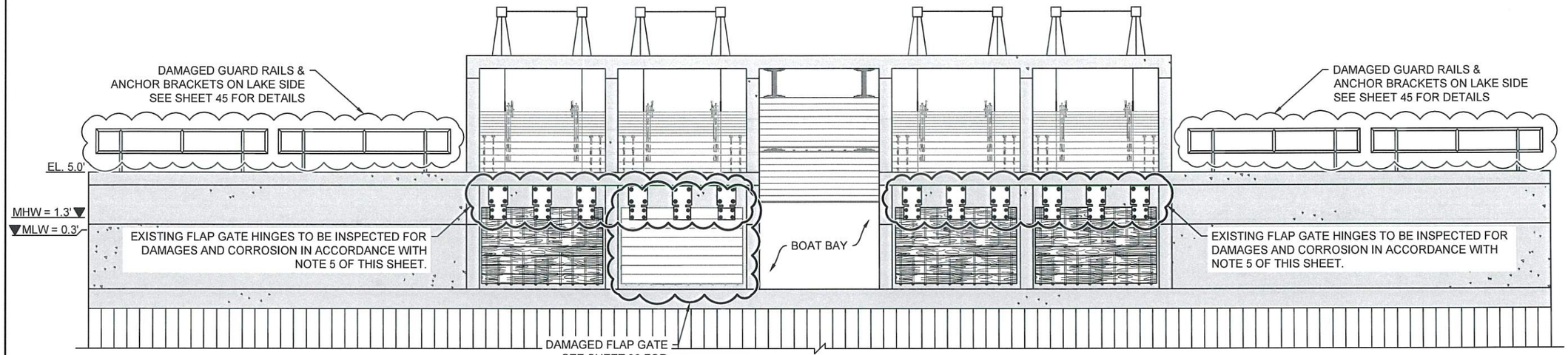
PROJECT SCOPE OF WORK AND ESTIMATED PROJECT QUANTITIES

DESIGNED BY: BB
APPROVED BY: BT

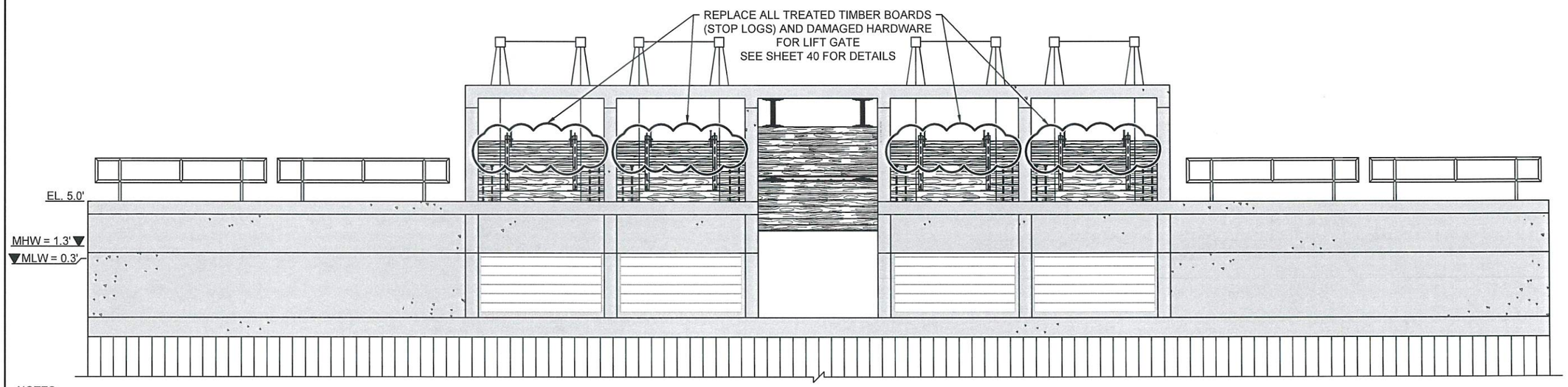
CAMERON CREOLE MAINTENANCE PROJECT STORM DAMAGE REPAIRS

STATE PROJECT NUMBER: CS-004-A
DRAWN BY: REC

DATE: NOV. 07, 2022



GRAND BAYOU WCS
LAKE SIDE VIEW
NTS



GRAND BAYOU WCS
MARSH SIDE VIEW
NTS

NOTES:

1. PROPOSED WORK ON SHEETS 23 & 24 SHOULD CONSTITUTE ALL OF THE WORK INCLUDED IN BID ITEM NO. 10 "MECHANICAL REPAIRS TO GRAND BAYOU WCS".
2. MECHANICAL REPAIRS TO GRAND BAYOU WCS SHALL BE PERFORMED IN CONFORMANCE WITH TECHNICAL SPECIFICATIONS SECTIONS TS-520 "GATES", TS-802 "FLOATING BUOYS", TS-951 "RAILING", AND TS-980 "METALS".
3. GUARD RAIL AND ASSOCIATED GUARD RAIL ANCHOR BRACKET REPLACEMENT TO BE PERFORMED ON THE FOUR LAKE SIDE GUARD RAILS, AS CALLED OUT IN THE LAKE SIDE PROFILE VIEW, ONLY.
4. CONTRACTOR SHALL FIELD CHECK EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
5. INSPECTION SHALL INCLUDE DETAILED DOCUMENTATION OF FINDINGS WITH PHOTOGRAPHS FOR EACH FLAP GATE HINGE TO BE SUBMITTED TO THE ENGINEER. IF THE ENGINEER DETERMINES THAT ADDITIONAL WORK TO THE EXISTING FLAP GATE HINGES IS NECESSARY, THE CONTRACTOR MAY SUBMIT A CLAIM FOR EXTRA COSTS IN COMPLIANCE WITH GP-42.
6. CONTRACTOR SHALL FIELD VERIFY THE PRE-EXISTING ANCHOR POST LOCATIONS AND SPACING DIMENSIONS FOR GUARD RAIL AND/OR FENCE ANCHORING POINTS PRIOR TO BEGINNING WORK, ORDERING AND/OR FABRICATING ITEMS, AND PREPARING SHOP DRAWINGS.

* SEE SHEET 24 FOR BUOY INSTALLATION DETAILS

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BID ITEM No. 10 - SCOPE OF WORK: MECHANICAL REPAIRS TO GRAND BAYOU WCS

ACTION	QUANTITY	ITEM DESCRIPTION
1. Remove & Replace	(32) EACH	Treated timber board for lower gate -- 10.6 FT long x 6 IN wide x 3 IN thick
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4. Remove & Replace	(4) EACH	Hand/guard-rails --Galvanized steel pipe with posts -- 2 IN dia. schedule 40 & 2 IN dia. schedule 80 (fabricated lengths will vary)
5. Remove & Replace	(8) EACH	Anchor bracket for guard rail
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COASTAL PROTECTION AND RESTORATION AUTHORITY
150 TERRACE AVENUE
BATON ROUGE, LOUISIANA 70802

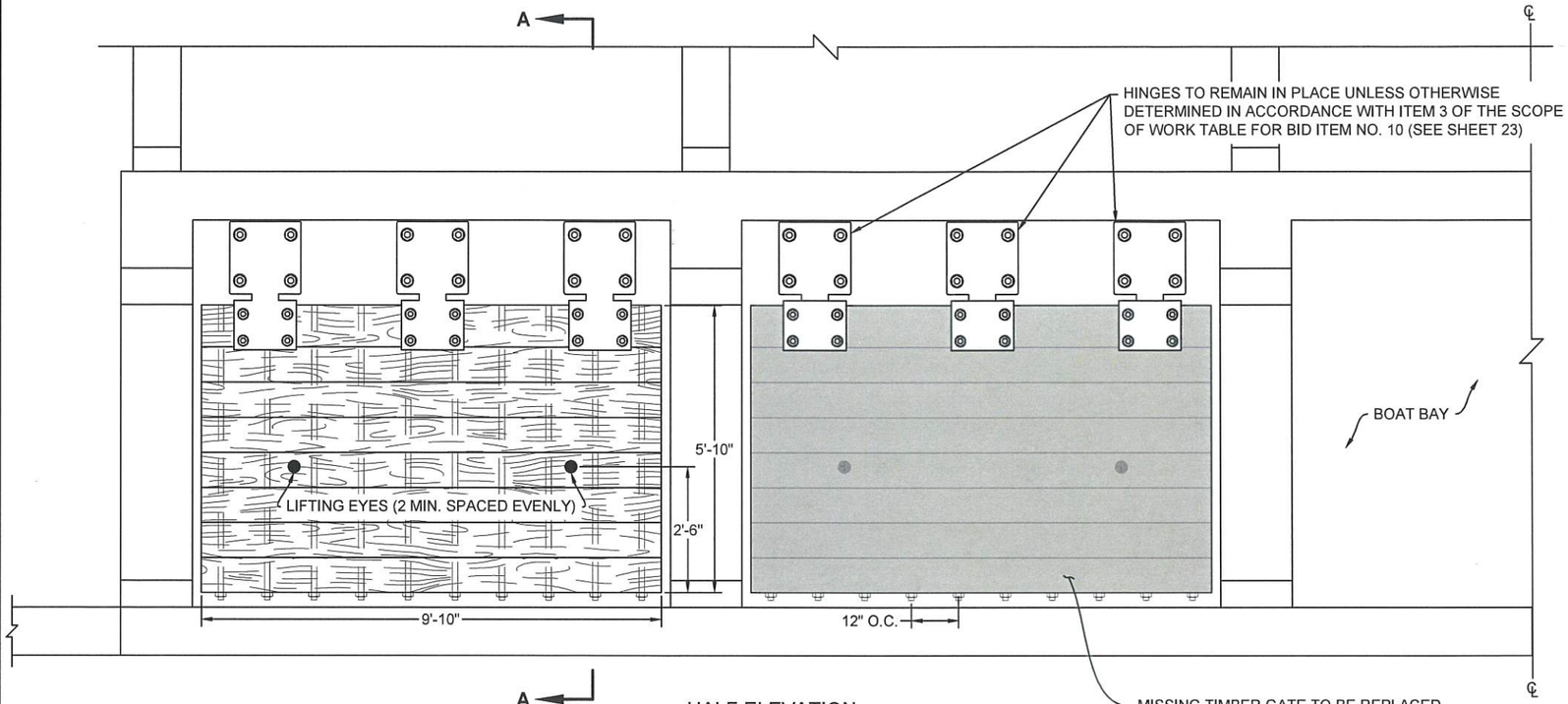
MECHANICAL REPAIRS TO GRAND BAYOU WCS ELEVATION VIEW

DESIGNED BY: BB
APPROVED BY: BT

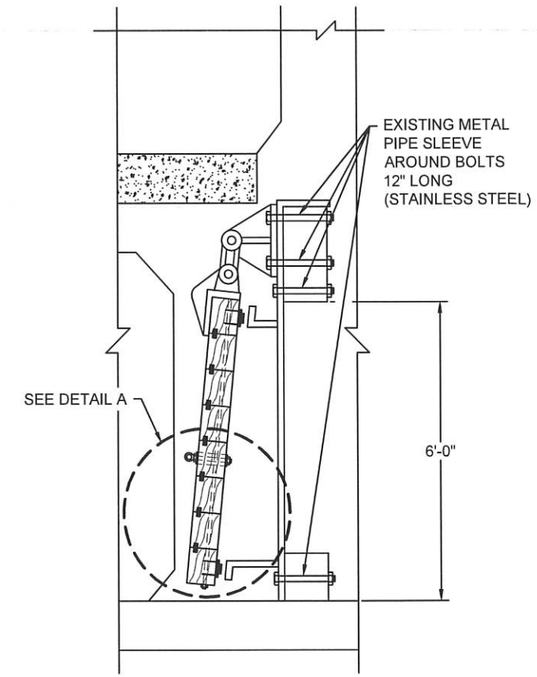
CAMERON CREOLE MAINTENANCE PROJECT STORM DAMAGE REPAIRS

STATE PROJECT NUMBER: CS-004-A
DRAWN BY: REC

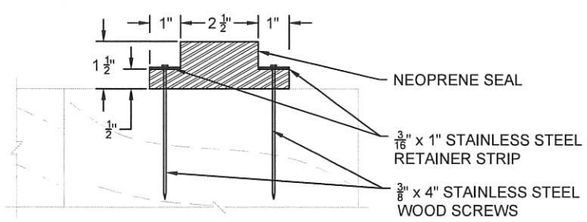
DATE: NOV. 07, 2022



HALF ELEVATION
LAKE SIDE
(SYMMETRICAL ABOUT ℄)
NTS



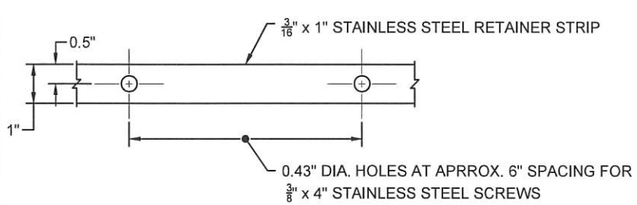
FLAP GATE - SECTION A-A
NTS



NEOPRENE SEAL AND RETAINER STRIP
NTS

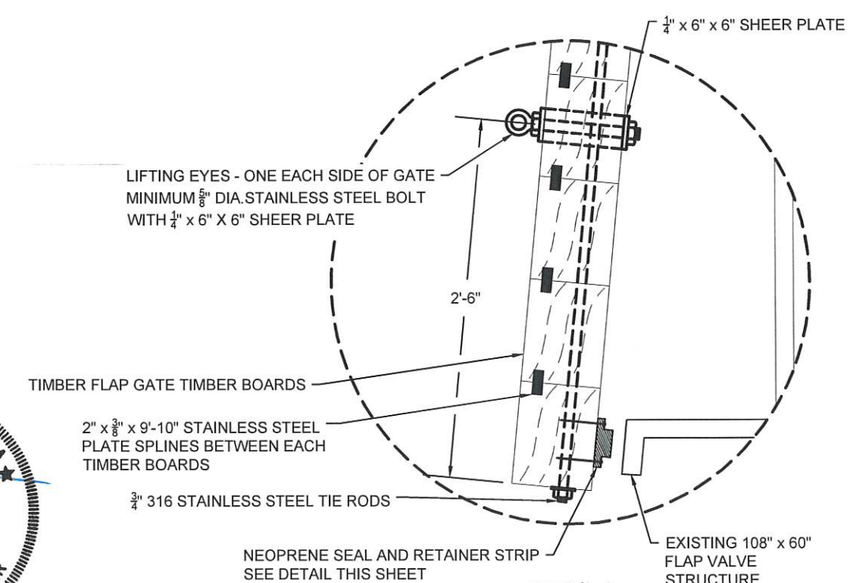
NOTES:

1. ONE MISSING TIMBER GATE (2ND FROM NORTH) REPLACEMENT REQUIRED FOR STRUCTURE.
2. GATE SHALL BE RODNEY HUNT TIMBER VALVE SERIES FV-T. (EXISTING FLAP VALVE OPENING IS 108" x 60".)
3. GATE SHALL BE FABRICATED FROM SOUTHERN YELLOW PINE, STRUCTURAL 65.
4. 4 SIDES GATE OPENING TO BE ROUNDED.
5. GATE SHALL HAVE A MIN. OF TWO LIFTING EYES AS SHOWN IN DETAIL SPACED EQUALLY.
6. CONTRACTOR TO REPLACE ANY DAMAGED OR CORRODED FASTENERS WITH TYPE 316 STAINLESS STEEL FASTENERS OF EQUIVALENT SIZE AND STRENGTH OF EXISTING.
7. SEAL TO COMPLETELY ENCIRCLE THE VALVE OPENING AND FASTENED TO THE TIMBER GATE WITH 3/16" x 1" STAINLESS STEEL RETAINER STRIPS AND 3/8" x 4" STAINLESS STEEL WOOD SCREWS AT 6" SPACING.
8. TIE RODS SHALL BE 3/4" TYPE 316 STAINLESS STEEL SPACED AT 12" CENTER TO CENTER.



RETAINER STRIP
NTS

STATE OF LOUISIANA
BEAU J. TATE
License No. 30990
5/17/23
PROFESSIONAL ENGINEER



DETAIL A
NTS

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1	11/07/22	Preliminary Design Drawings	BB

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1231 Camellia Boulevard
Lafayette, Louisiana 70508

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

GRAND BAYOU FLAP GATE REPAIR DETAILS

DESIGNED BY: BB
APPROVED BY: BT

CAMERON CREOLE MAINTENANCE PROJECT STORM DAMAGE REPAIRS

STATE PROJECT NUMBER: CS-004-A
DRAWN BY: REC

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