Hazard Survey for Port Houston – Expansion Channel Improvement Project – Amendment 6 Spilmans Island/Morgan's Point Geophysical Survey

Methodology Report | Harris County, Texas

1910781042 02 | September 15, 2020

Final

HDR

Document Control

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Client Information

Client	HDR
Client Address	4828 Loop Central Drive, Suite 800, Houston, TX 77081-2220
Client Contact	Scott Marr

Revision History

Issue	Date	Status	Comments on Content	Prepared By	Checked By	Approved By
01	20200915	For Review	Awaiting client comments	DLR/TJH	PHL/DLR	PHL
02	20201006	For Review	Updates: 2.2 Magnetometer Survey Appendix A - Drawings	TJH	PHL/DLR	DLR

Project Team

Initials	Name	Role
PHL	Paul Laverty, CH #321, PG	Service Line Manager - Coastal
DLR	Danielle Rung	Project Manager
TJH	Tyler Hebert	Field Geoscientist

Contents

Appendices

1. Executive Summary

Fugro USA Land, Inc. (Fugro) was contracted by HDR, Inc. (HDR) to provide geophysical surveying services in support of the Port Houston's (PH's) Expansion Channel Improvement Project (ECIP), located along Buffalo Bayou in Harris County, Texas.

HDR is involved in engineering design that will involve dredging the Houston Ship Channel for the purpose of channel expansion. The hazard survey in Spilmans Island and Morgan's Point serves the purpose of de-risking the dredging site by identifying potentially hazardous areas, such as remnant structures, buried infrastructure, and debris on the water bottom.

Field work commenced on August 12, 2020 and the data collection was completed on August 13, 2020. The following report details the methodology and results of the aforementioned surveys.

Fugro adhered to the coordinate system in Table 1.

Table 1: Project Coordinate System

Horizontal Datum	Projection	Vertical Datum	Units
NAD83	Texas South Central Zone	NAVD88 (G12B)	US Survey Feet

The survey data has been processed and compiled for submission in the following formats.

- Methodology Report
- Digital GIS Data (Electronic File)
- Planimetric Maps Indicating Hazard Areas

2. Survey Methodology

2.1 Satellite-based RTK Corrections

For the positioning of the hydrographic magnetometer, sidescan sonar, and sub-bottom seismic surveys, Fugro employed satellite-based corrections using Fugro MarineStar G2 Differential Corrections. These systems operate using a maintained network of ground-based stations, which model the effects of atmospheric interference and apply complex algorithms that refine the understanding of satellite timing and positioning. The corrections provided by these subscription services are applied during post-processing and improve the positioning accuracy to ~15 cm vertical and 5 cm horizontal.

2.2 Magnetometer Survey

Fugro performed a magnetometer survey to identify the locations of ferrous debris and plausible pipelines that may impact future project operations within the survey area. The survey commenced on August 12, 2020 and was completed on August 13, 2020. Magnetometer data were collected using a Geometrics cesium-vapor magnetometer. Sensor navigation was recorded using Differential GNSS satellite positioning with proprietary Fugro MarineStar corrections. The magnetometer data were used to identify the locations of ferrous objects by measuring deflections in the ambient earth magnetic field. The instrument was towed behind the surveying vessel and as close to the water bottom as safely possible using a fixed layback. Layback values and offsets were measured and recorded in the surveying field notes prior to the commencement of data collection. A total of ~15.5 surveying line miles were collected across 55 track-lines aboard a 24-foot surveying vessel, as well as an 18-foot flat bottom skiff for the shallower areas of Spilmans Island.

The magnetometer data was processed and interpreted using the SonarWiz geophysics software suite. Layback values were applied to all magnetometer data. A heat map of the magnetometer data was generated denoting the pertinent information for each magnetic anomaly and is viewable in Appendix A. This heat map was generated by applying a kriging interpolation algorithm to the raw magnetometer data. The color scale was then adjusted to highlight anomalous magnetic readings observed in the survey area. In the map depicted in Appendix A, positive deflections of the magnetic field are depicted in red, while negative deflections are depicted in blue. While these colors are not specifically indicative of anomaly source material, they highlight the locations where polarity changes, which are important indicators of the anomaly source location.

The differences observed in the interpreted anomalies within this report could be the result of several unique variables. The nomogram in Figure 1 provides a visual reference of the relationship between a ferrous object and the magnetic deflection generated by the object. The amplitude and signature width (duration) of a magnetic deflection are dependent on a variety of factors that include object size and orientation, ferrous content, and distance from the sensor (Breiner 1999). Due to the multitude of variables producing the interpreted anomalies, reliable conclusions drawn from magnetometer data alone

can be limited. Extreme caution should always be taken when conducting operations in the vicinity of the locations of identified magnetic anomalies.

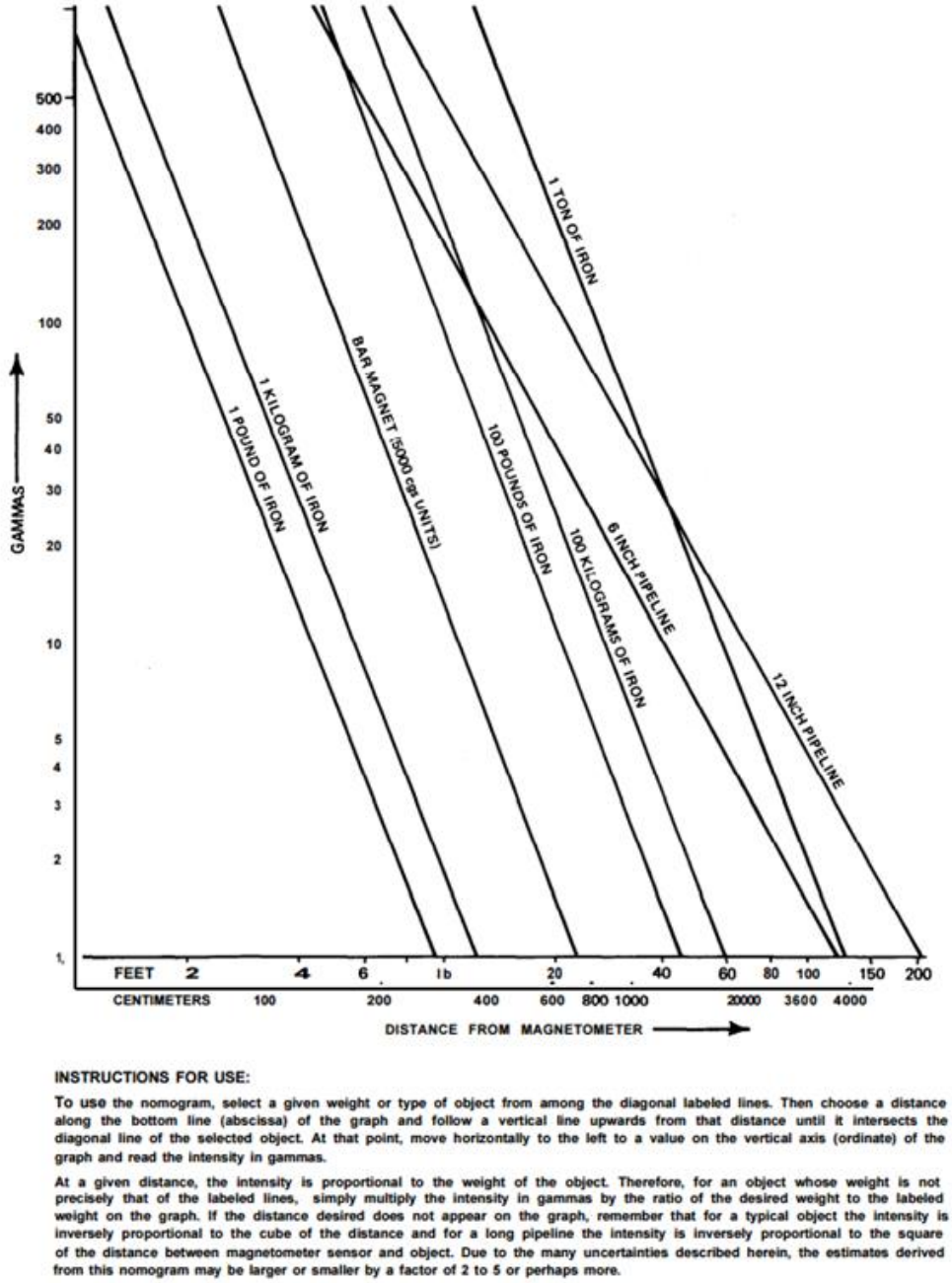

Figure 1: Nomogram taken from Brennan (1999).

2.3 Sub-bottom Seismic Survey

Fugro collected sub-bottom seismic profile data to describe the seismic stratigraphy of the proposed borrow areas. The sub-bottom seismic survey began on August 12, 2020 and was completed on August 13, 2020. Approximately 19.17 survey lines miles of sub-bottom seismic data were collected aboard a 24-foot surveying vessel, as well as an 18-foot flat bottom skiff for the shallower areas of Spilmans Island.

All sub-bottom data was collected using an Edgetech 3100 SB424 sub-bottom profiler operating at a swept frequency of 4-24 kHz and was positioned using DGPS with proprietary Fugro corrections.

The penetration depth of the sub-bottom profiler below the mudline approximated the water depth in which the instrument was deployed. This is largely due to the impact of the acoustic multiple on the acquired seismic record. As an example, if the instrument was recording in 25-foot water depths, the penetration below mudline would be approximately 25 feet. Detail within the dataset was inhibited by what is interpreted to be gaseous surface sediments and strong acoustic multiples in the seismic record. An acoustic multiple is essentially an echo of the originally transmitted acoustic energy pulse that repeatedly reflects between the water bottom and air-water interface and creates a repeated record. This repeated record then obscures all detail in the overall seismic record beyond the initial acoustic multiple.

All subsurface geophysical data was processed and interpreted by Fugro using the SonarWiz geophysical software suite. Data was initially inspected to ensure no errors in navigation were recorded during the survey. Acoustic gains were adjusted to optimize the seismic image for interpretation. Data was then examined for any contacts that may be interpreted to be hazardous or culturally significant.

2.4 Side Scan Sonar Survey

Fugro collected sidescan sonar imagery of the water bottom to assist in identifying obstructions that may impede construction within the project area. Side scan sonar data was collected concurrently with the magnetometer, sub-bottom profiler, and multibeam data. Side scan sonar provides an acoustic oblique image mosaic of the seafloor. The instrument operates by ensonifying a swath of seabed and assembling the amplitude of the back-scattered return signals into an acoustic image. Anomalous objects on the seabed may then be identified by the contrasting backscatter signal strength, which appear as color contrast in the composite image. Geometry and dimensions can also be inferred, and additional interpretations regarding seabed geomorphology can be identified.

For this project, Fugro collected acoustic imagery data using an Edgetech 4125 dual frequency sonar. Sensor navigation was recorded using Differential GNSS satellite positioning with proprietary Fugro MarineStar corrections. Data was imported into Chesapeake Technology's SonarWiz geophysical processing suite for processing and interpretation. Data were bottom-tracked to facilitate slant-range correction. Layback values, which indicate the towfish position relative to the positioning point, were applied based on settings recorded during acquisition. Gains were adjusted to optimize the visual appearance of the imagery. A mosaic image of the full dataset was generated and plotted in a chart as a deliverable. Sonar contacts, such as debris, submerged boulders, or pilings that were identified within the dataset were identified and mapped. A report of these contacts, along with a summary interpretation, is provided in Appendix B of this report.

2.5 Survey Site Observations

The navigation channel that provides maritime access to the Port of Houston, Texas presents hazards that are common to other related commercial navigation channels found along the Gulf Coast. These hazards include, but are not limited to steep banks, submerged areas with armored rip-rap, isolated debris along the water bottom, buried pipelines and cables, abandoned structures, shoals, geological hazards, and buried obstructions. The data volume collected during the hazard survey at Spilmans Island and Morgan's Point serves the purpose of de-risking the dredging site by identifying potentially hazardous areas, such as buried infrastructure. Several instances of such hazards were identified in this area.

An initial investigation of the geophysical data was completed with all datasets loaded into the interpretation software and compared in unison. During this stage, the dataset was scrutinized to observe for corroborations among the data indicative of infrastructure. The utility data collected during the previous efforts described were then plotted and incorporated into the geophysical interpretation software to assist in identifying areas most likely to contain infrastructure. In these areas, further signal analysis was conducted to ascertain more specific information concerning the location of the subject infrastructure. This included analyzing the magnetometer data in greater detail, reviewing the sidescan sonar data for evidence of erosion armoring or exposed pipelines, and reviewing the sub-bottom profiling data using various processed signal types.

Observations made while scrutinizing the sidescan acoustic imagery shows bright reflectors along the banks of Spilmans Island and Morgan's Point. These intense reflectors along with the texture is interpreted to be armored rip-rap. This aligns with observation from the survey vessel as well as aerial imagery of the location. Located at the tip of Morgan's Point and to the south there is also a sizeable debris field. The debris field is isolated from the rip-rap that lines the shoreline. The debris fields are interpreted to largely consist of unidentified industrial and shipping debris from passing vessels, as well as debris that over time has traveled from land into the channel such as pieces of rip-rap. These debris clusters also tend to exist near piling and dock structures. There is also what is interpreted to be an abandoned piece of dredge pipe on the northern bank that extends onto Spilmans Island. Outside of these clusters of debris the survey area is in an area with a lot of past and present infrastructure. There are multiple dock structures currently present in the area of Morgan's Point. Along with the dock structures, piling clusters may present challenges in dredging operations. The dredge pipe, debris clusters, and existing infrastructure is visible in the sidescan sonar mosaic in Appendix A in this report as annotated features. Other existing hazards can be found in the sidescan sonar contact report located in Appendix B. Fugro calls attention to these dense debris fields and contacts, as they may impact future dredging operations executed in the area covered by the survey.

The magnetometer data collected during this survey was analyzed in profile and plan view. To better understand the nature and horizontal extent of each signal, data was interpolated into a grid, which has been made viewable in Appendix A. This grid was plotted against the data garnered through background research. Interpreting the magnetometer data in profile view often helps improve the exactitude of the

horizontal positioning of anomalies. The quality of this interpretation depends on the amplitude of the signal, the signal to noise ratio, and the proximity of the sensor to the anomaly source. In reviewing this dataset in profile view, many areas were subject to magnetic interference from a variety of sources. This impeded the ability to process a distinct signal in the area of the survey. However, close attention was given to locations that indicated the high likelihood of infrastructure, and the interpreted signals were identified and mapped.

While interpreting the magnetometer data, there is a distinct anomaly on the southeastern portion of Spilmans Island. These anomalies do not correlate to any hazards seen in the sidescan sonar data; however, when plotted in plan-view with mapped locations of pre-existing structures, the anomalies appear to geospatially align with old infrastructure that is visible in historical aerial imagery. However, these magnetometer anomalies are the only evidence that aligns with old infrastructure. In many areas where structures are documented in historical imagery, new and unique structures are shown to have replaced them throughout the time elapsing between their initial construction and the present. The remaining magnetometer anomalies seem to align with existing infrastructures such as docks, bulkheads, piling clusters, etc.

Upon completing the previously described research and geophysical interpretations, all data was cross-referenced to the sub-bottom profiler data to determine if the anomalies or debris correlated to any subsurface structures. Fugro employed a “chirp” sub bottom system for this survey to support with imaging seismic anomalies related to buried infrastructure. Several environmental factors specific to this survey area impacted the success of ascertaining quality data that penetrated the channel bottom. These factors include the relatively high degree of ground disturbance observed in the area and the presence of unconsolidated sediments that imparted significant attenuation on the seismic signal. Additionally, Fugro was unable to distinguish seismic anomalies in the imagery that were visibly isolated from the surrounding stratigraphy in the areas where infrastructure previously existed. Therefore, the seismic data volume collected during this effort was minimally used.

In summary, Fugro used a variety of data assimilated through background research and in-situ acquisition to determine the likely locations of hazards that would impart an impact on future dredging operations. These areas of concern are outlined in the associated drawings located in the appendices of this report.

3. QHSSE

Fugro adhered to the implemented Quality, Occupational Health & Safety, and Environmental Management System to satisfy the needs of its customers, employees, all the shareholders and the community at large to continually improve performance of the company in the areas of Quality, Health, Safety, Security and Environment (QHSSE).

The QHSSE Management Systems implemented by Fugro comply with the requirements of the following recognized international standards:

ISO 9001:2015 ▪ ISO 14001:2015 ▪ OHSAS 18001:2007

The QHSSE strategy of Fugro is based on the following principles:

Take responsibility for our own and each other's safety
Plan our work to prevent unsafe situation
Improve by learning from our experiences
Suppliers and Subcontractors support our vision and principles
We are all empowered to stop unsafe acts

Fugro also strives to prevent wasteful and inefficient operations, avoid damage to property and equipment, show respect for the environment, and, foremost, to protect the safety and well-being of all employees. Fugro employees will acquire all safety training as specified in the contract.

The schedule of safety meetings and drills for this project will include but is not limited to
Pre-job safety meetings
Pre-job vessel health, safety, and environmental orientation
Job Hazard Analysis (JHA)
Daily tailgate safety meetings prior to each day's operations
When a new procedure or piece of equipment is introduced, including a written Task Risk Assessment (TRA)
Document a Near Miss accident or Injury

Fugro ensures compliance with all applicable rules, regulations, orders, standards and interpretations promulgated under the Occupational Safety and Health Act (1997) and all other applicable laws, ordinances, rules, regulations and orders of anybody having jurisdiction over safety and health of persons or property or the protection of same to protect them from injury, illness, damage or loss.

Fugro ensures that Personal Protective Equipment (PPE) will be utilized and maintained in accordance with the written PPE program. Training in the proper use, maintenance and inspection of PPE is provided to all Fugro employees prior to beginning work. Fugro will supply all required PPE required at the work site.

4. Contact Information

By use of these specific contact points, Fugro ensures quality control and prompt action with respect to all project-related issues.

Paul Laverty, CH #321, PG: For all corporate, legal, and contractual issues, geophysical interpretations, bathymetric survey, and final project responsibility.

David Cormier, PLS: For all operational QA/QC issues related to positioning and land survey.

Fugro USA Land, Inc. **226 Dulles Drive** **Lafayette, LA 70506**			
Service Line Manager	Paul Laverty	337.268.3133	p.laverty@fugro.com
Technical and Business Development Manager	David Cormier, PLS	337.268.3293	d.cormier@fugro.com
Project Manager	Danielle Rung	337.354.4544	drung@fugro.com

Appendices

Appendix A

Drawings

Galveston Bay

Relative Intensity (nT)
1000
900
800
700
600
500
400
300
200
100
0
-100
-200
-300
-400
-500
-600
-700
-800
-900
-1000

Prj Mgr: PHL

HDR ENGINEERING, INC.

HAZARD SURVEY - SPILMAN
MAGNETOMETER INTENSITY FIELD MAP
GALVESTON BAY AREA
HARRIS COUNTY, TEXAS

FUGRO USA LAND, INC.
226 DULLES DR. SUITE 110 LAFAYETTE, LA 70506

Coordinate System:
NAD 1983 StatePlane Texas South Central FIPS 4204 Feet
Projection: Lambert Conformal Conic
Units: Foot US

0 500
1 inch = 500 feet

Job Number: 04.10781042	Date: 10/6/2020	Drwn: AXG	Page 1 of 3

Path: L:\2019\04.10781042\4000 Processing\4300 CAD\ArcMap\HDR-HSC\H0410781042_MAG_SPILMAN.mxd

Galveston Bay

Relative Intensity (nT)
1000
900
800
700
600
500
400
300
200
100
0
-100
-200
-300
-400
-500
-600
-700
-800
-900
-1000

Legend

- Dock Anomaly
- Piling Anomaly
- Unidentified Anomaly

Prj Mgr: PHL

HDR ENGINEERING, INC.

HAZARD SURVEY - SPILMAN
MAGNETOMETER INTENSITY FIELD MAP
GALVESTON BAY AREA
HARRIS COUNTY, TEXAS

FUGRO USA LAND, INC.
226 DULLES DR. SUITE 110 LAFAYETTE, LA 70506

Coordinate System:
NAD 1983 StatePlane Texas South Central FIPS 4204 Feet
Projection: Lambert Conformal Conic
Units: Foot US

0 500
1 inch = 500 feet

Job Number: 04.10781042	Date: 10/6/2020	Drwn: AXG	Page 2 of 3

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Galveston Bay

SONAR CONTACTS

NUMBER	X COORDINATE	Y COORDINATE
41	3,238,174.17'	13,817,546.43'
42	3,238,915.16'	13,817,619.95'
43	3,241,482.03'	13,819,483.68'
44	3,242,128.07'	13,817,180.80'
45	3,242,334.11'	13,817,144.48'
46	3,242,310.01'	13,819,717.65'
47	3,242,584.77'	13,817,222.93'
48	3,242,598.95'	13,817,165.16'
49	3,242,634.72'	13,817,218.91'
50	3,242,655.80'	13,817,178.02'
51	3,242,669.11'	13,817,196.21'
52	3,242,673.39'	13,817,221.15'
53	3,242,685.16'	13,817,174.76'
54	3,243,152.35'	13,817,809.91'
55	3,243,234.38'	13,817,663.29'
56	3,243,230.73'	13,817,811.48'
57	3,243,331.42'	13,817,288.83'
58	3,243,336.74'	13,817,283.92'
59	3,243,395.17'	13,817,310.35'
60	3,243,411.93'	13,817,331.06'
61	3,243,418.58'	13,817,496.39'
62	3,243,649.13'	13,817,754.76'
63	3,243,968.50'	13,816,904.27'

LEGEND

- Debris Cluster
- Dock Structure
- New Dock
- Pilings
- Rip Rap
- Unidentified Debris
- Possible Dredge Pipe
- Sonar Contacts

Prj Mgr: PHL

HDR ENGINEERING, INC.

HAZARD SURVEY - SPILMAN
SIDE SCAN SONAR MAP
GALVESTON BAY AREA
HARRIS COUNTY, TEXAS

FUGRO USA LAND, INC.
226 DULLES DR. SUITE 110 LAFAYETTE, LA 70506

Coordinate System:
NAD 1983 StatePlane Texas South FIPS 4205 Feet
Projection: Lambert Conformal Conic
Units: Foot US

0 500
1 inch = 500 feet

Job Number: 04.10781042 | Date: 10/6/2020 | Drwn: AXG | Page 3 of 3

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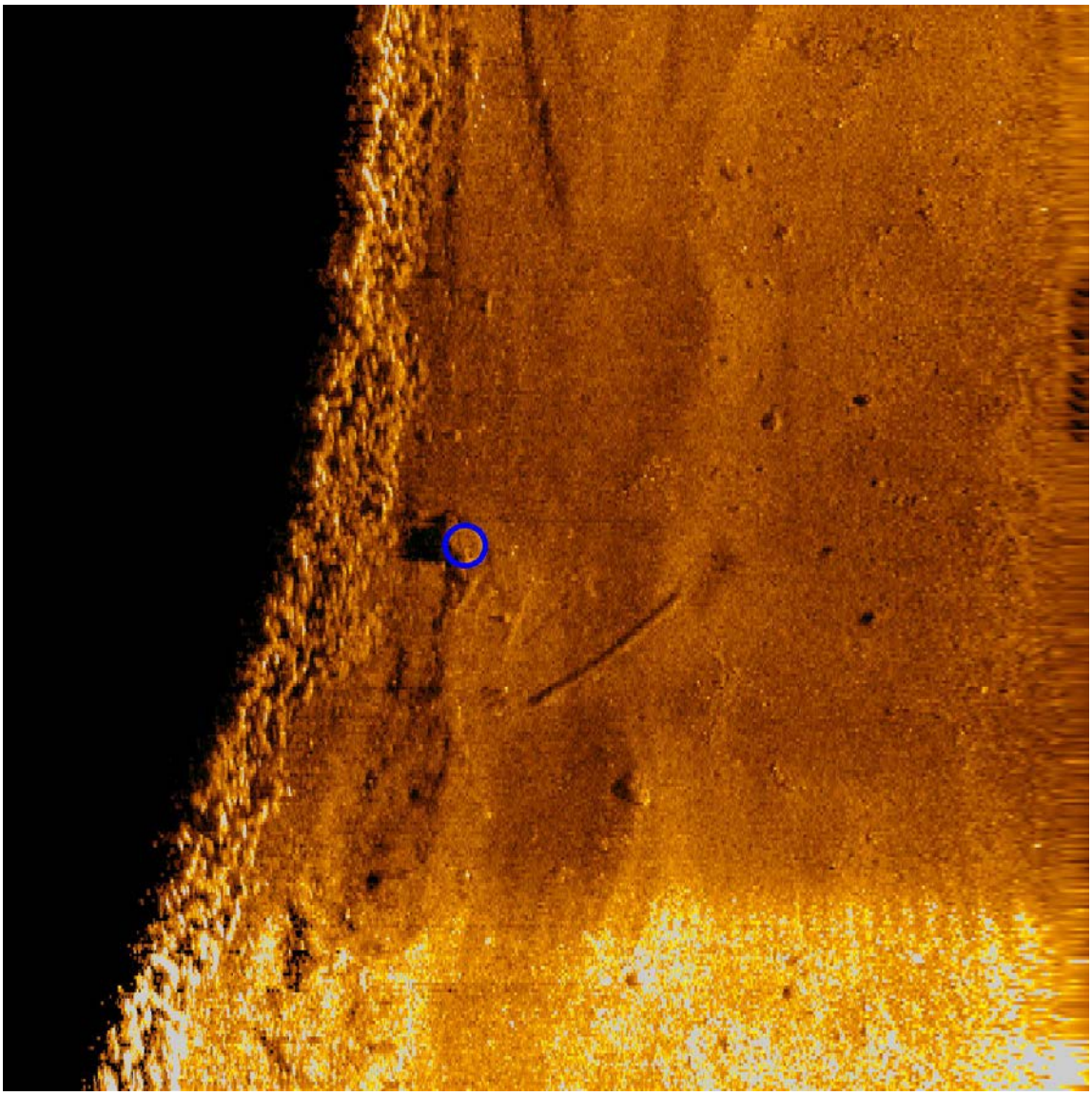
Appendix B

Side Scan Sonar Plates/Report



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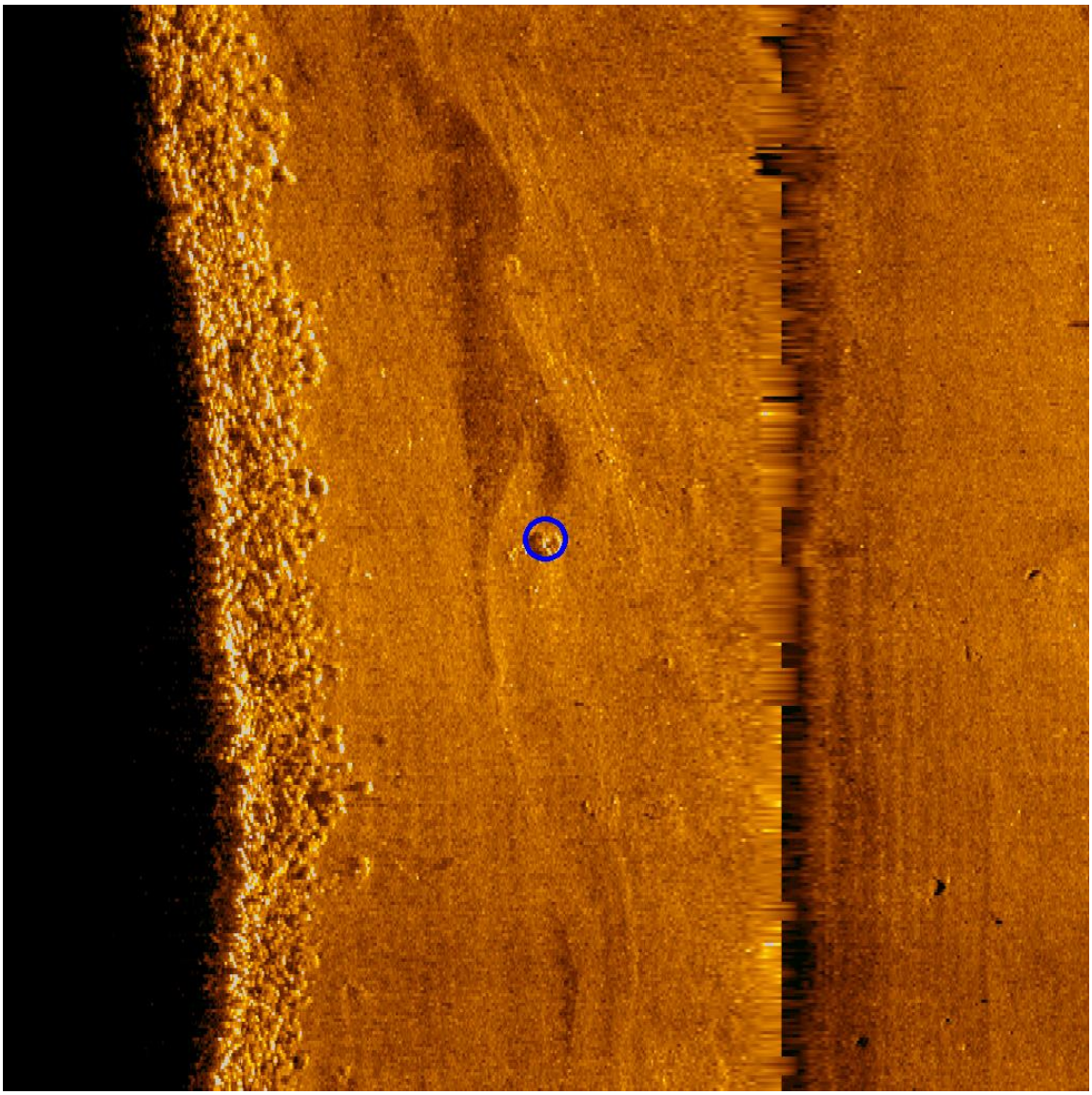

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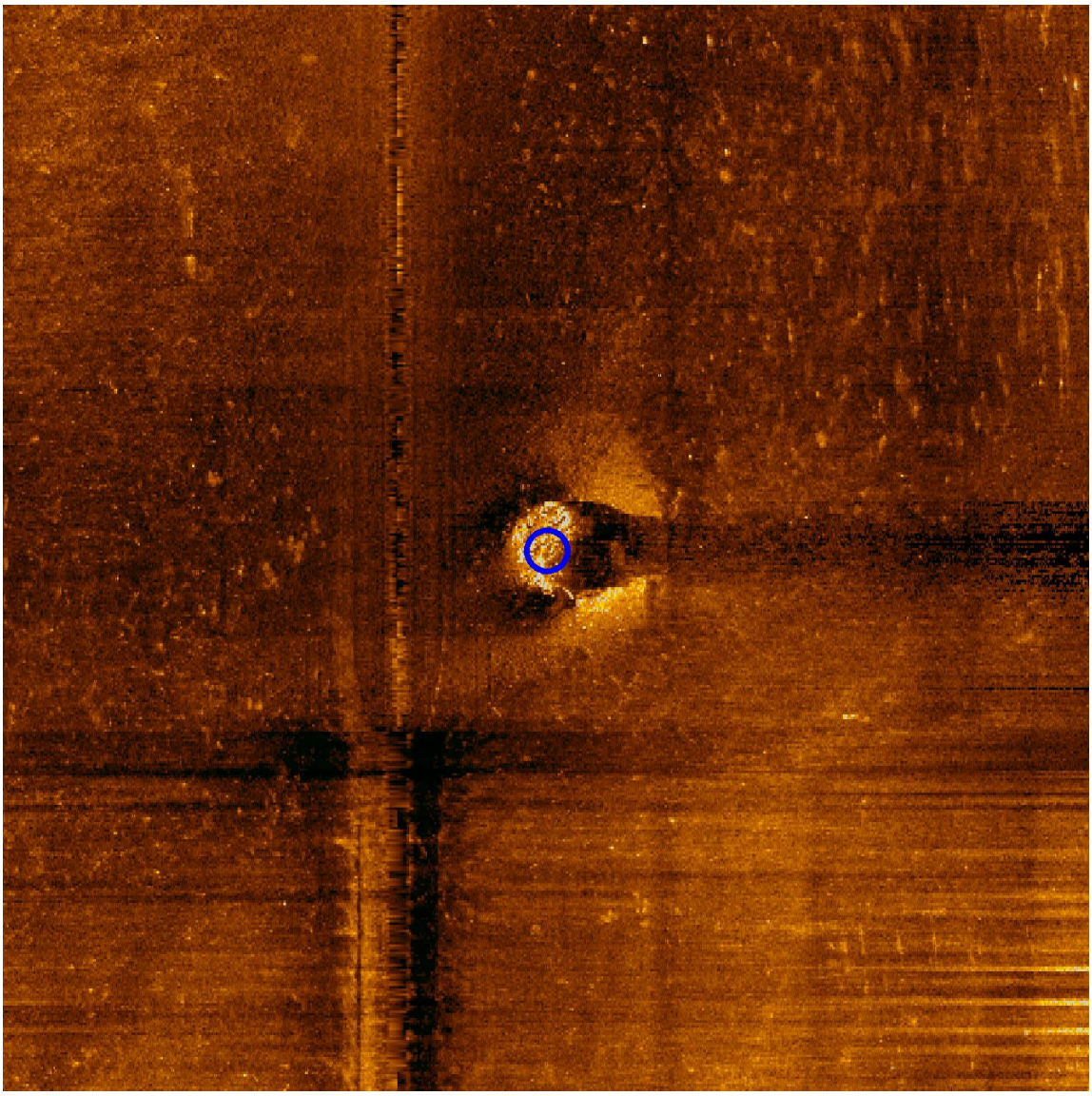

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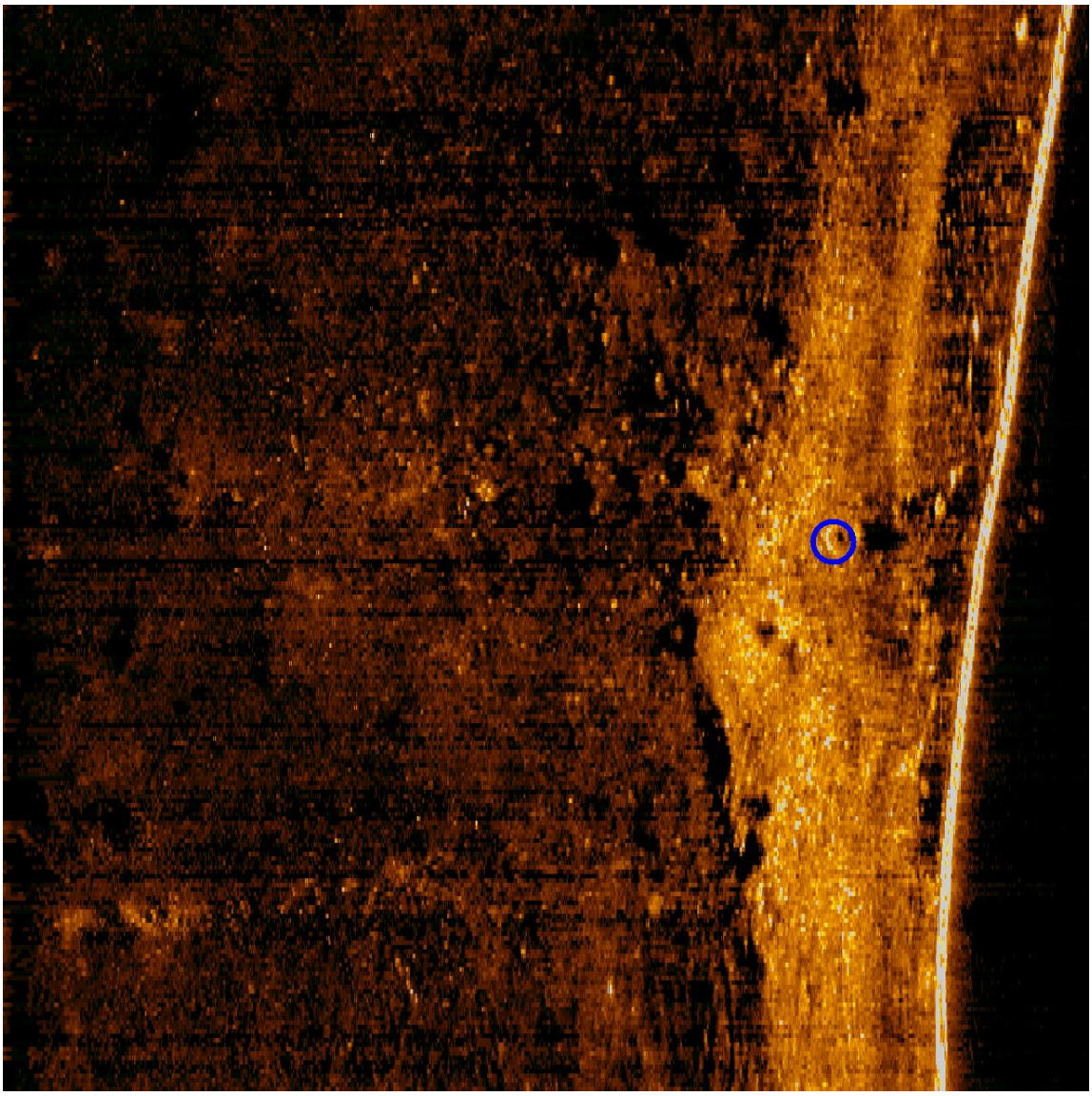

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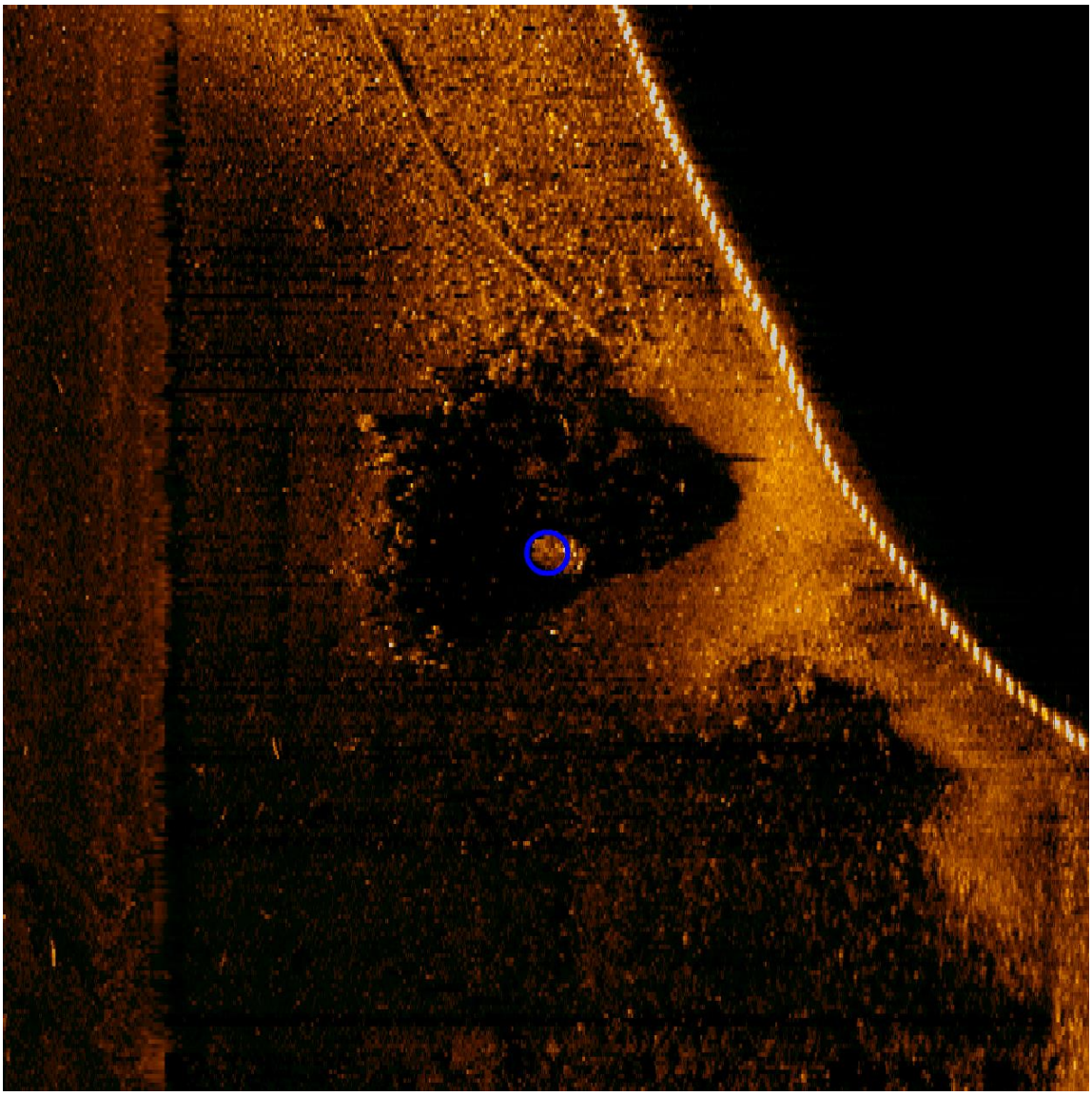

Contact 45

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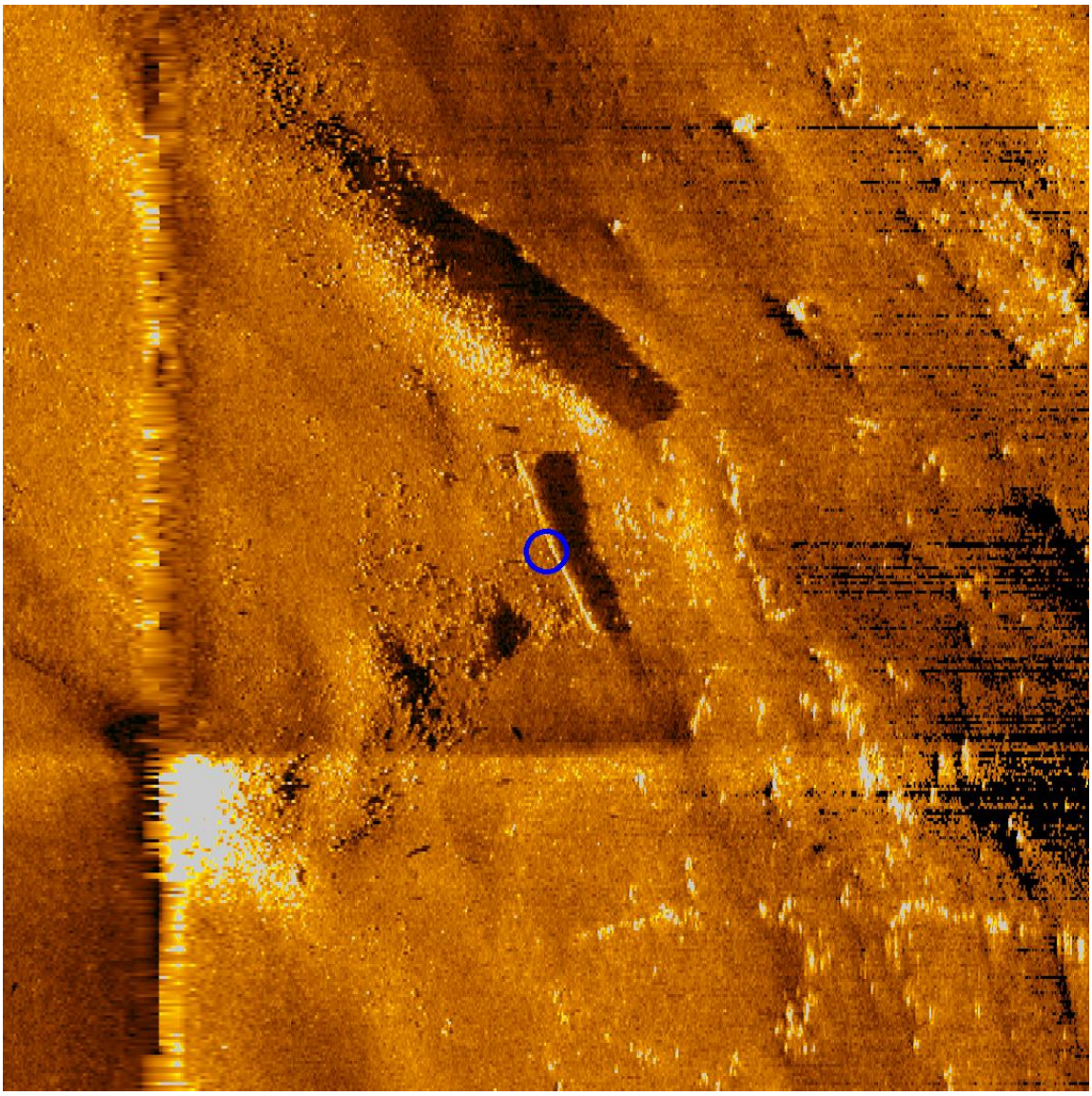

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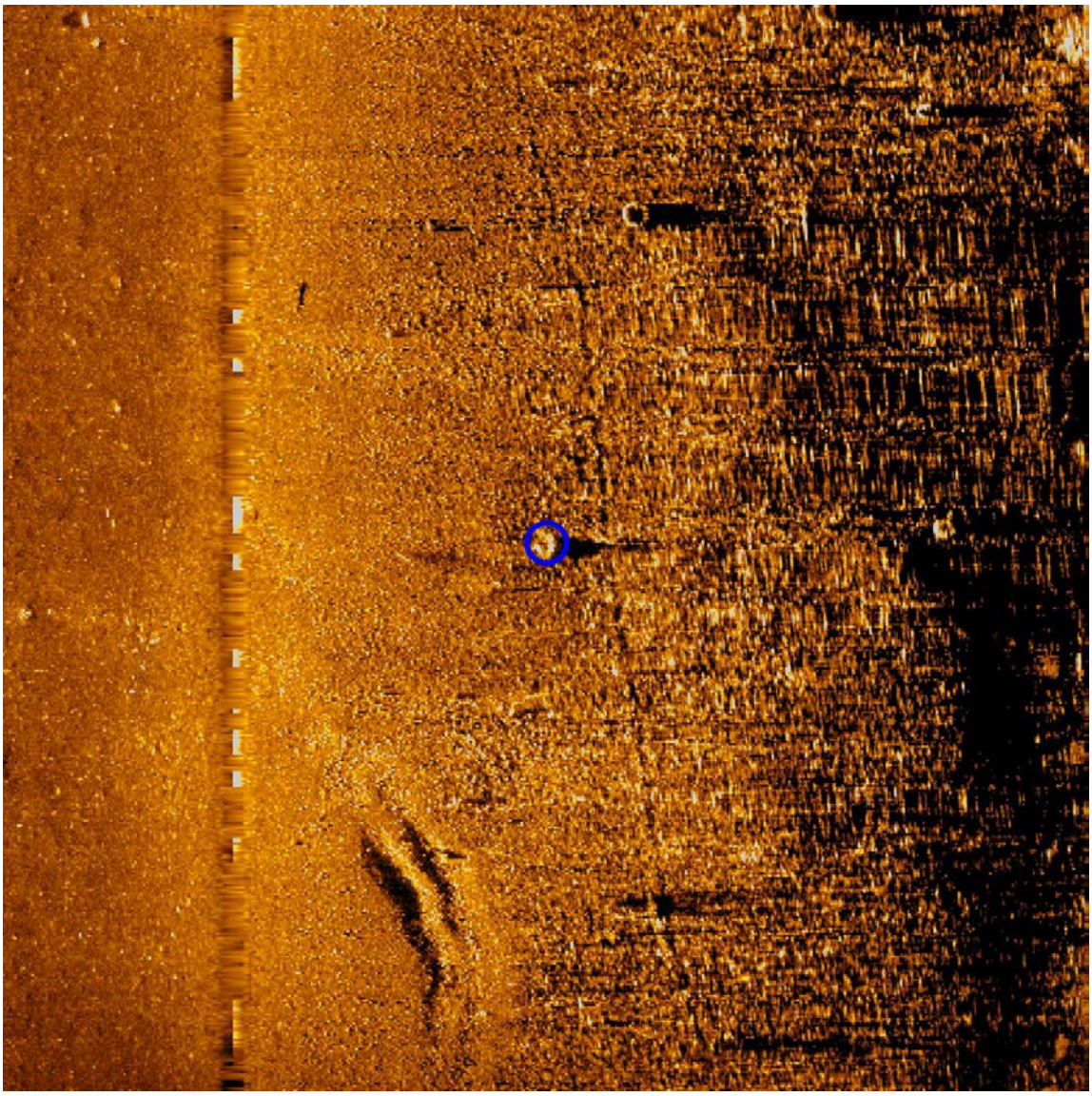

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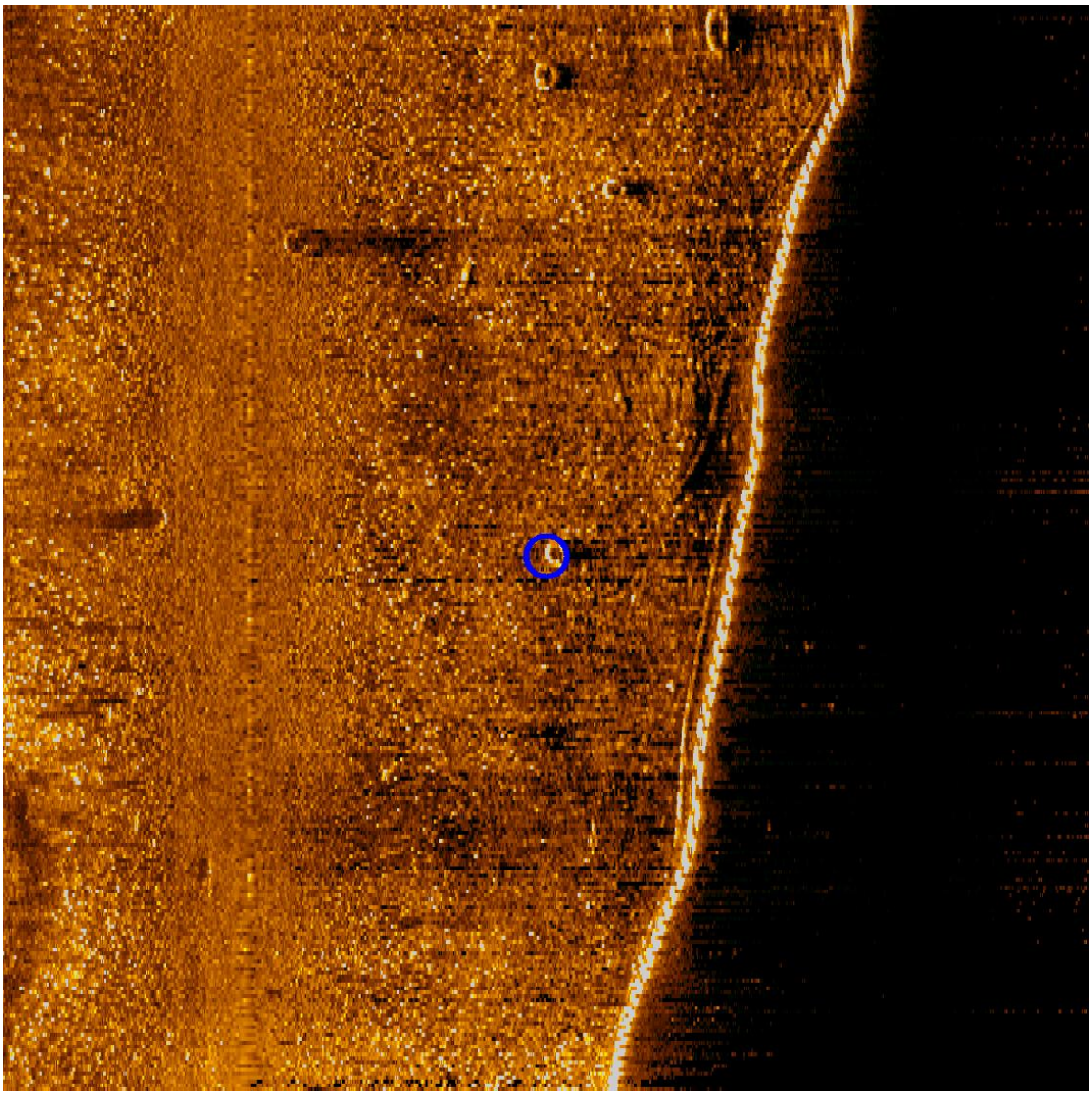

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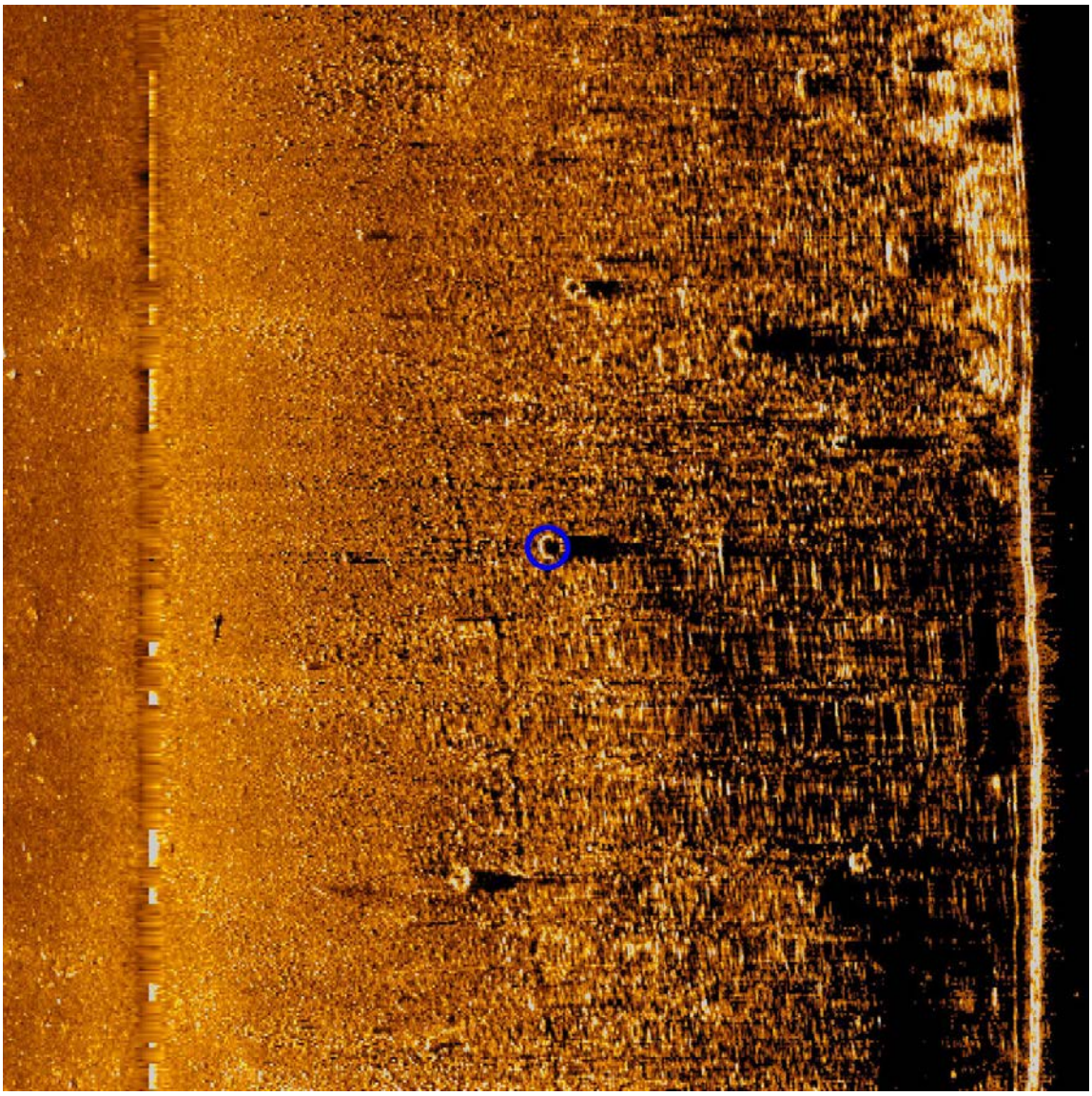

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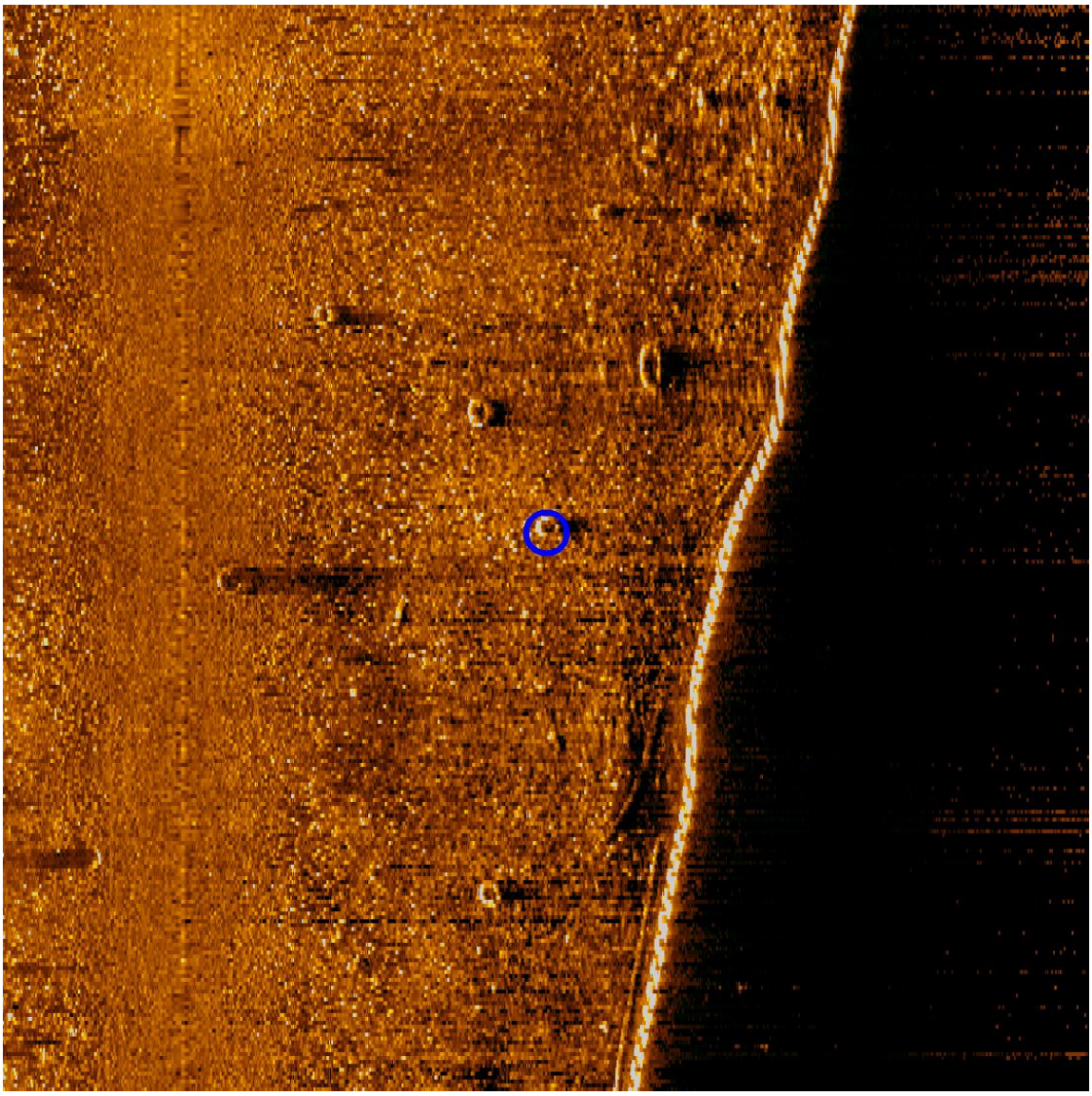

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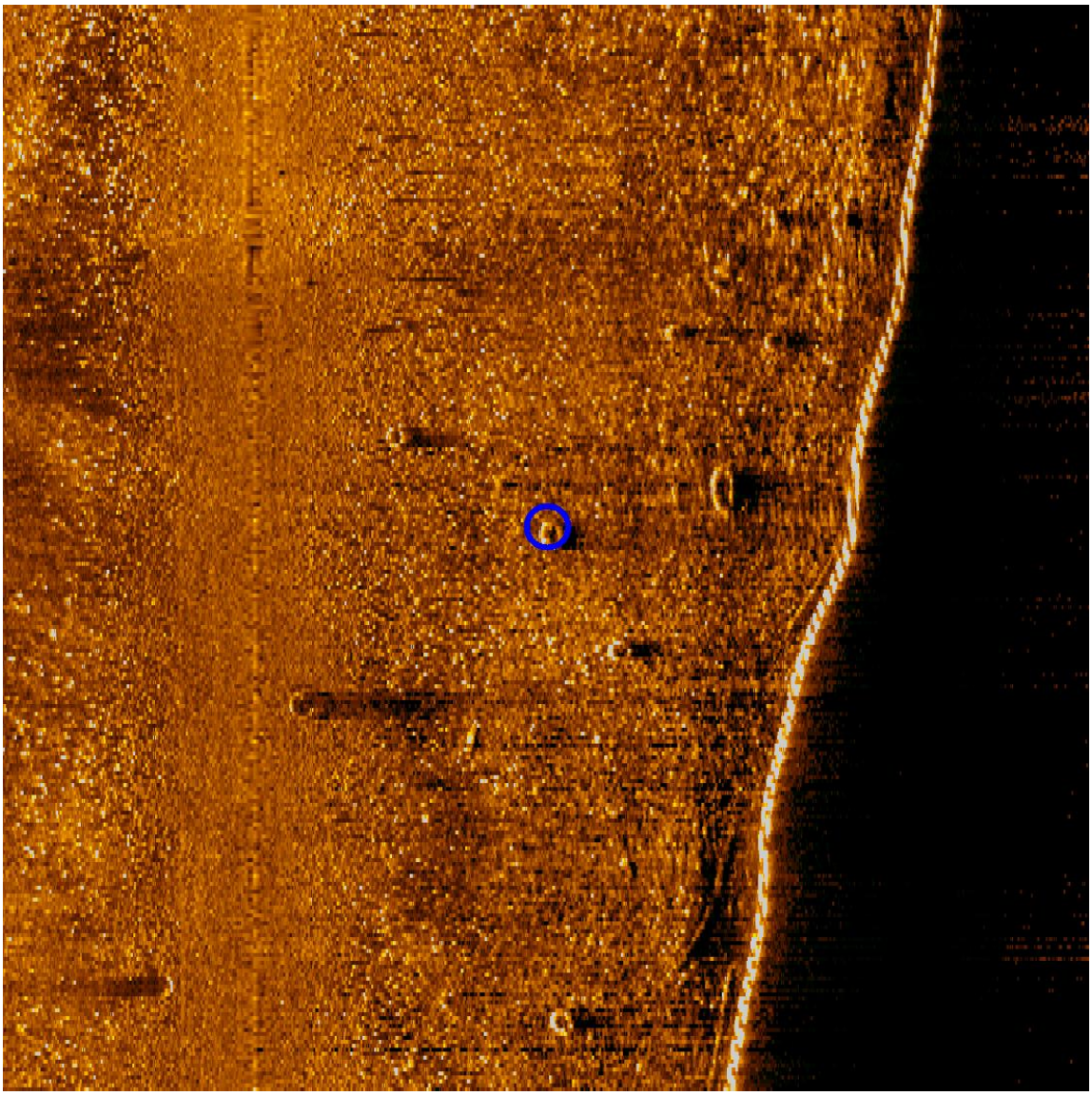
  29.6814353347 -94.9864253893 (WGS84)
  29.6812076052 -94.9862201140 (NAD27LL)
  29.6814353347 -94.9864253893 (LocalLL)
  (X) 3242655.80 (Y) 13817178.02 (Projected Coordinates)
- Map Projection: TX83-SCF

Dimensions and attributes

- Target Width: 2.43 US ft
- Target Length: 2.73 US ft
- Description: Possible Tire

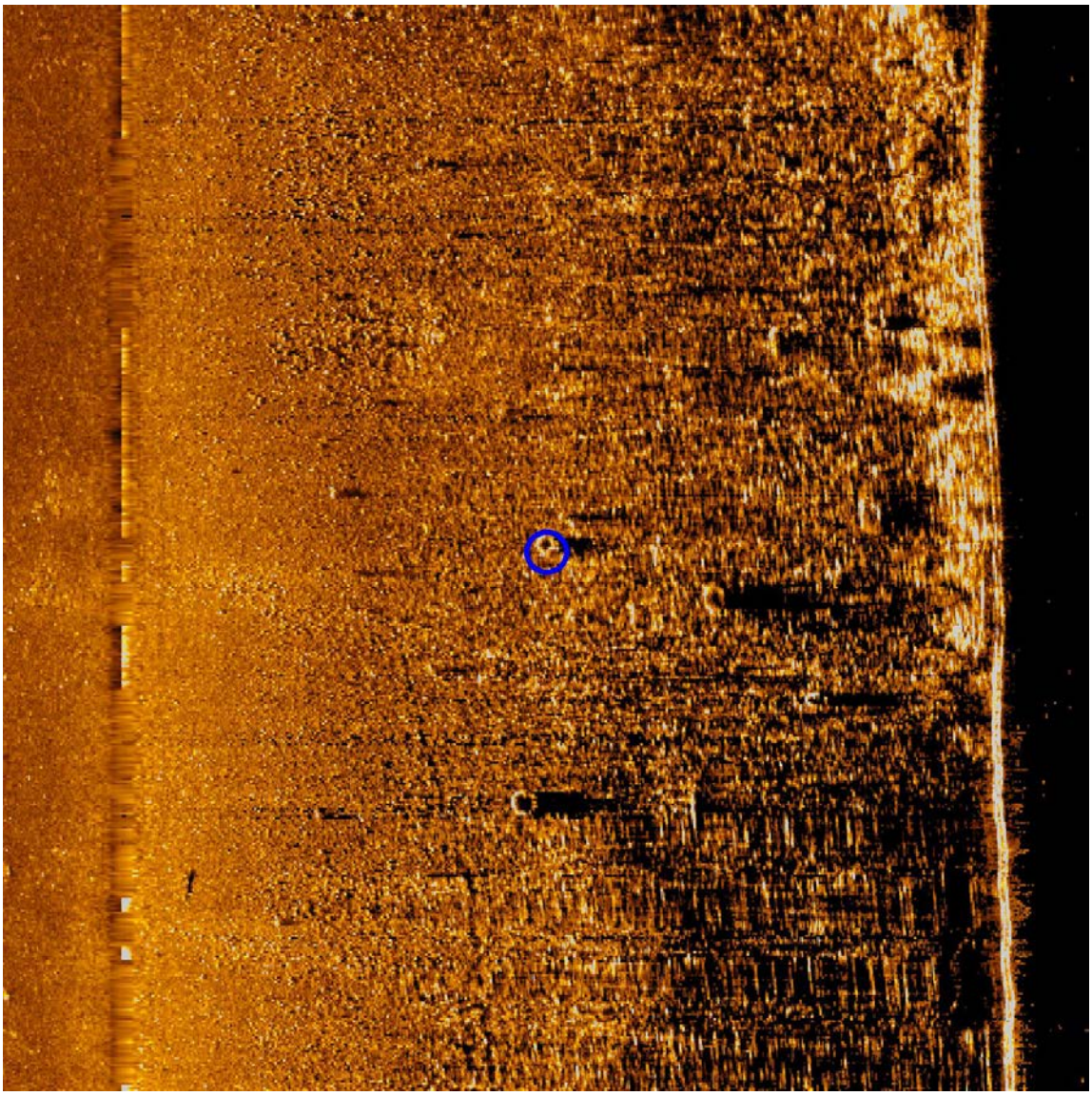


Contact 51

- Click Position
  29.6814840809 -94.9863815199 (WGS84)
  29.6812563524 -94.9861762458 (NAD27LL)
  29.6814840809 -94.9863815199 (LocalLL)
  (X) 3242669.11 (Y) 13817196.21 (Projected Coordinates)
- Map Projection: TX83-SCF

Dimensions and attributes

- Target Width: 2.81 US ft
- Target Length: 3.74 US ft
- Description: Possible Tire

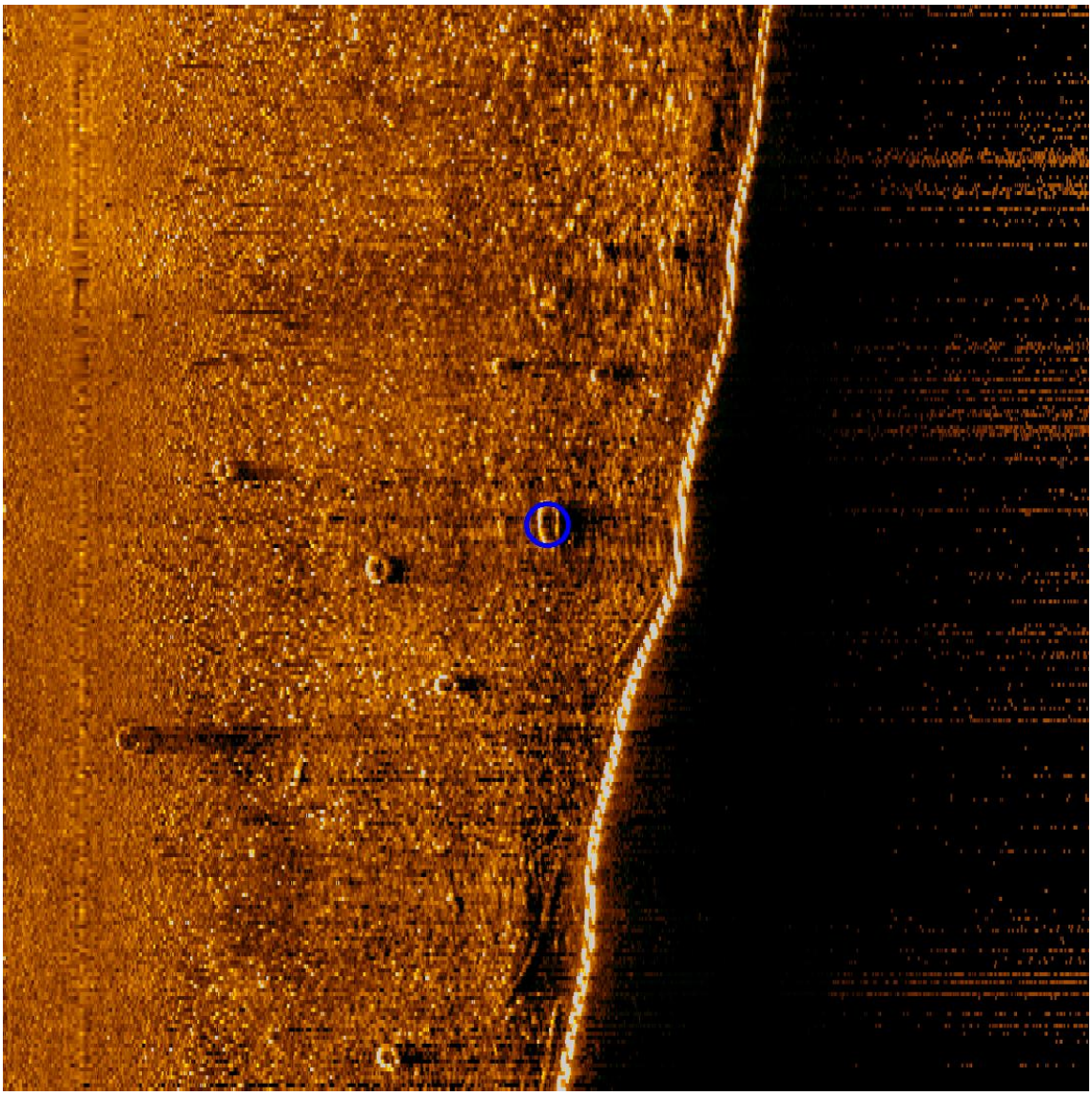


Contact 52

- Click Position
  29.6815522089 -94.9863653675 (WGS84)
  29.6813244814 -94.9861600937 (NAD27LL)
  29.6815522089 -94.9863653675 (LocalLL)
  (X) 3242673.39 (Y) 13817221.15 (Projected Coordinates)
- Map Projection: TX83-SCF

Dimensions and attributes

- Target Width: 2.68 US ft
- Target Length: 2.69 US ft
- Description: Possible Tire

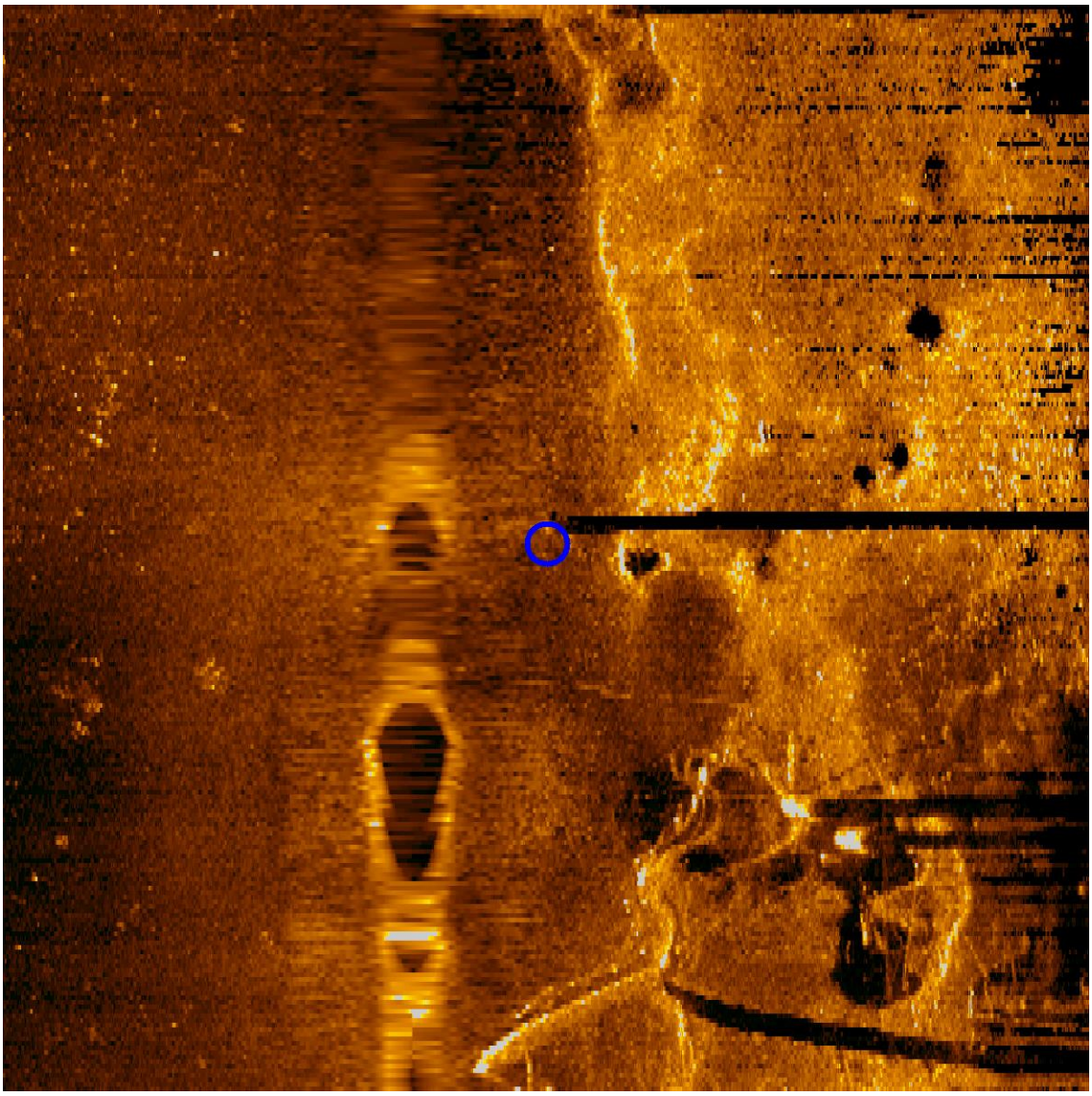


Contact 53

- Click Position
  29.6814236058 -94.9863333135 (WGS84)
  29.6811958771 -94.9861280413 (NAD27LL)
  29.6814236058 -94.9863333135 (LocalLL)
  (X) 3242685.16 (Y) 13817174.76 (Projected Coordinates)
- Map Projection: TX83-SCF

Dimensions and attributes

- Target Width: 2.82 US ft
- Target Length: 6.32 US ft
- Description: Possible Tire

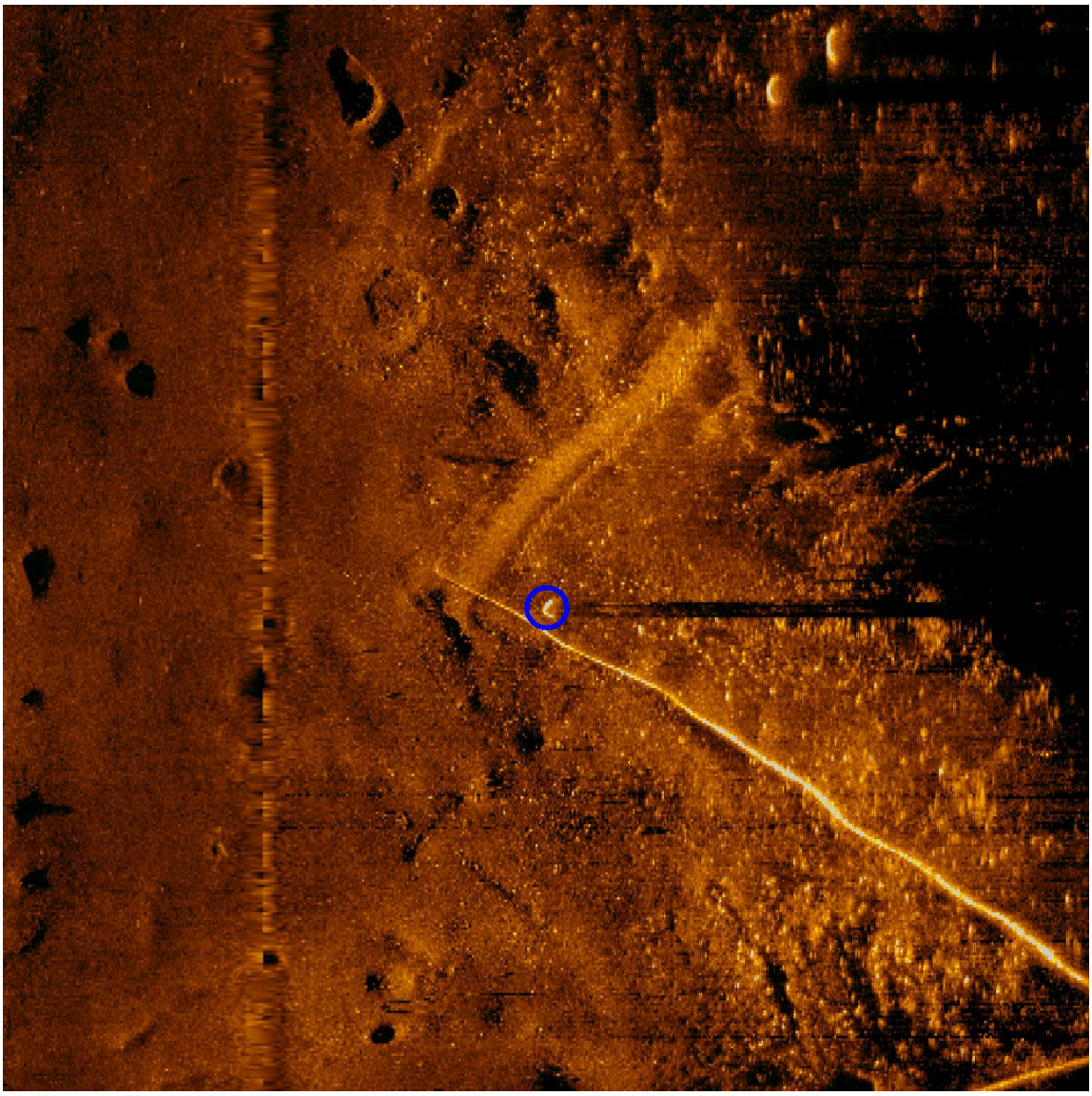


Contact 54

- Click Position
  29.6831251847 -94.9847941877 (WGS84)
  29.6828974941 -94.9845889607 (NAD27LL)
  29.6831251847 -94.9847941877 (LocalLL)
  (X) 3243152.35 (Y) 13817809.91 (Projected Coordinates)
- Map Projection: TX83-SCF

Dimensions and attributes

- Target Width: 2.96 US ft
- Target Length: 2.87 US ft
- Description: Possible Piling, possibly ferrous due to alignment with magnetometer anomaly.

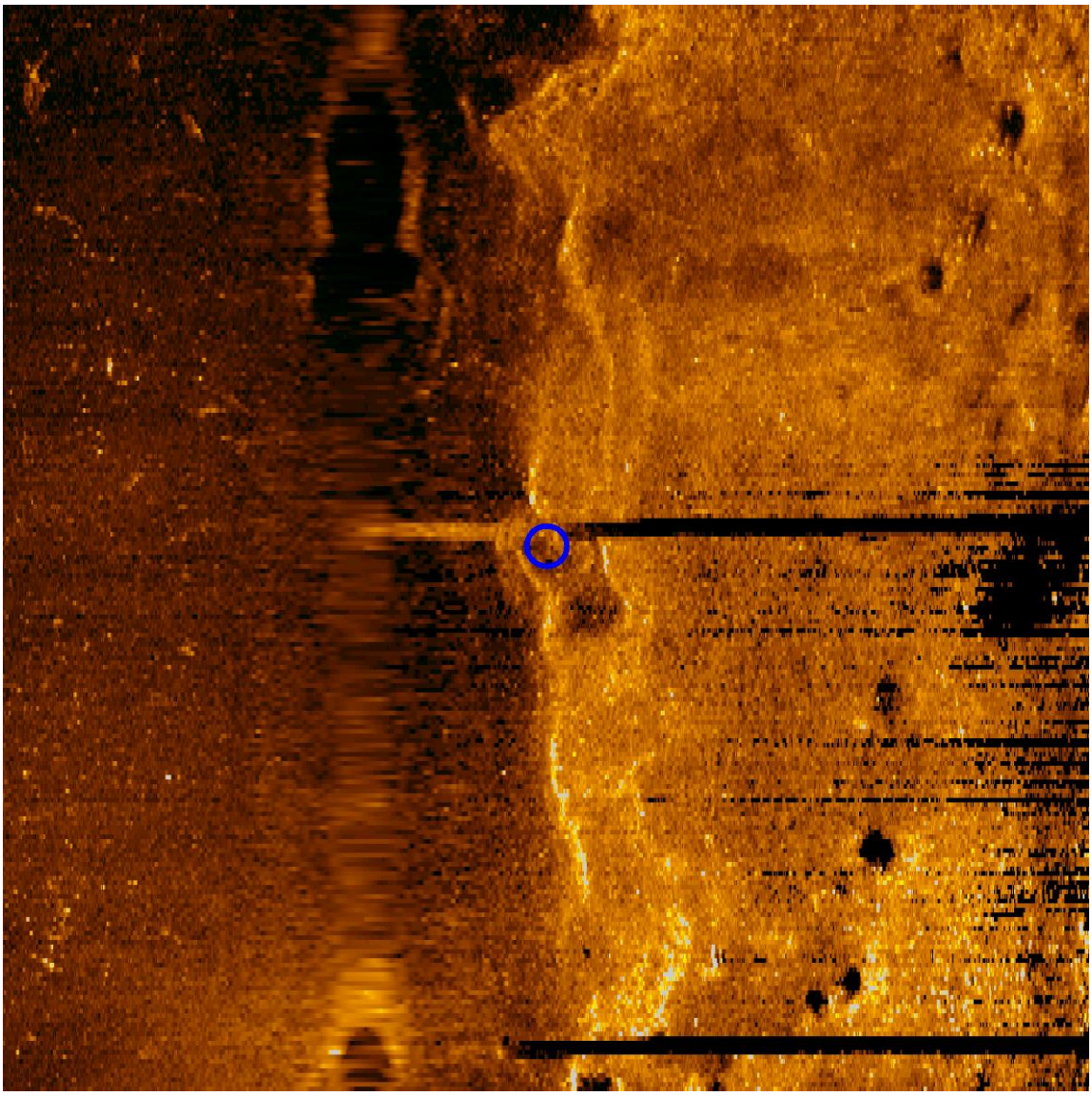


Contact 55

- Click Position
  29.6827144749 -94.9845518331 (WGS84)
  29.6824867822 -94.9843466157 (NAD27LL)
  29.6827144749 -94.9845518331 (LocalLL)
  (X) 3243234.38 (Y) 13817663.29 (Projected Coordinates)
- Map Projection: TX83-SCF

Dimensions and attributes

- Target Width: 1.66 US ft
- Target Length: 2.57 US ft
- Description: Possible Piling

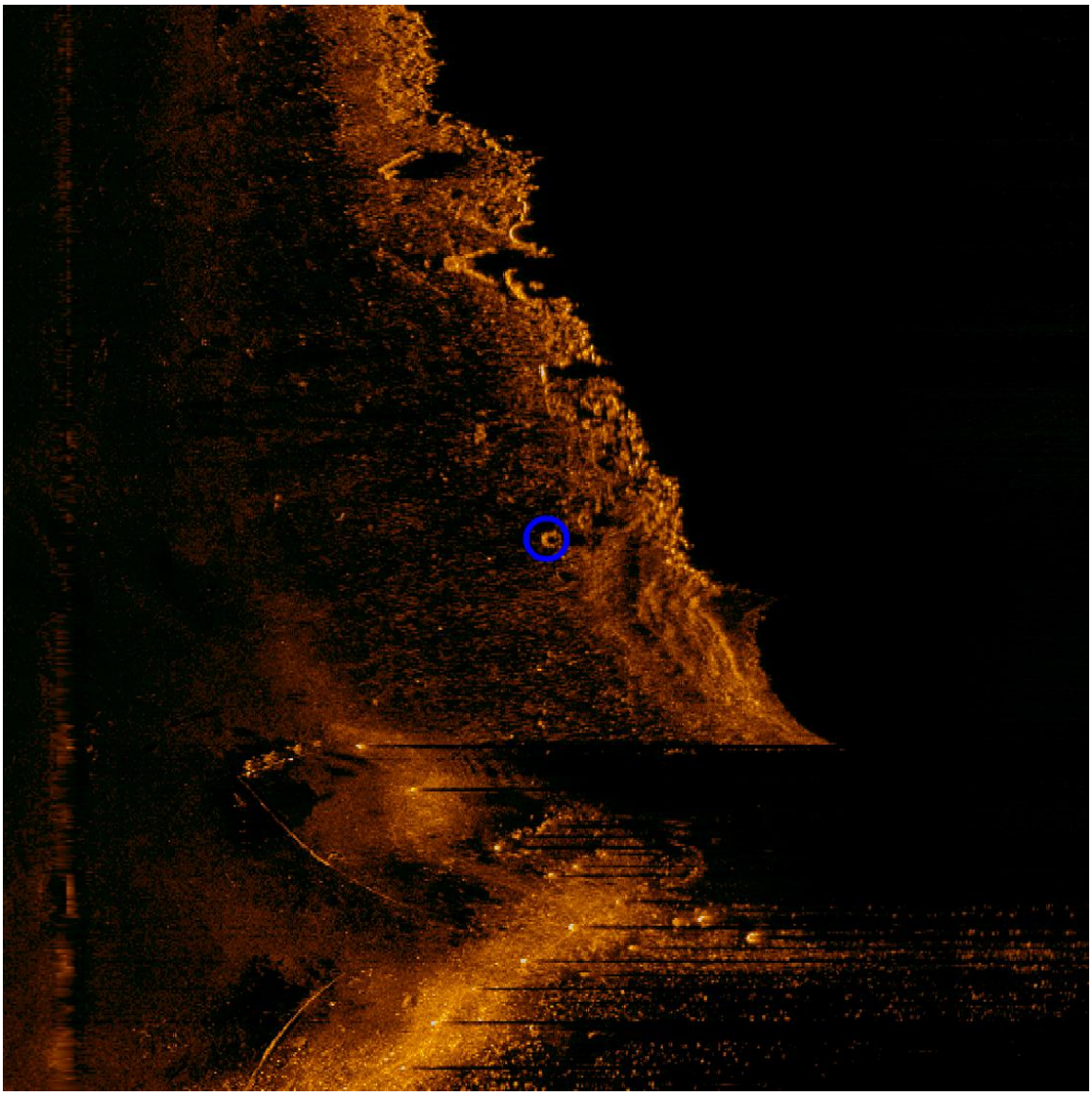


Contact 56

- Click Position
  29.6831220978 -94.9845472854 (WGS84)
  29.6828944099 -94.9843420667 (NAD27LL)
  29.6831220978 -94.9845472854 (LocalLL)
  (X) 3243230.73 (Y) 13817811.48 (Projected Coordinates)
- Map Projection: TX83-SCF

Dimensions and attributes

- Target Width: 1.80 US ft
- Target Length: 2.35 US ft
- Description: Possible Piling, possibly ferrous due to alignment with magnetometer anomaly.

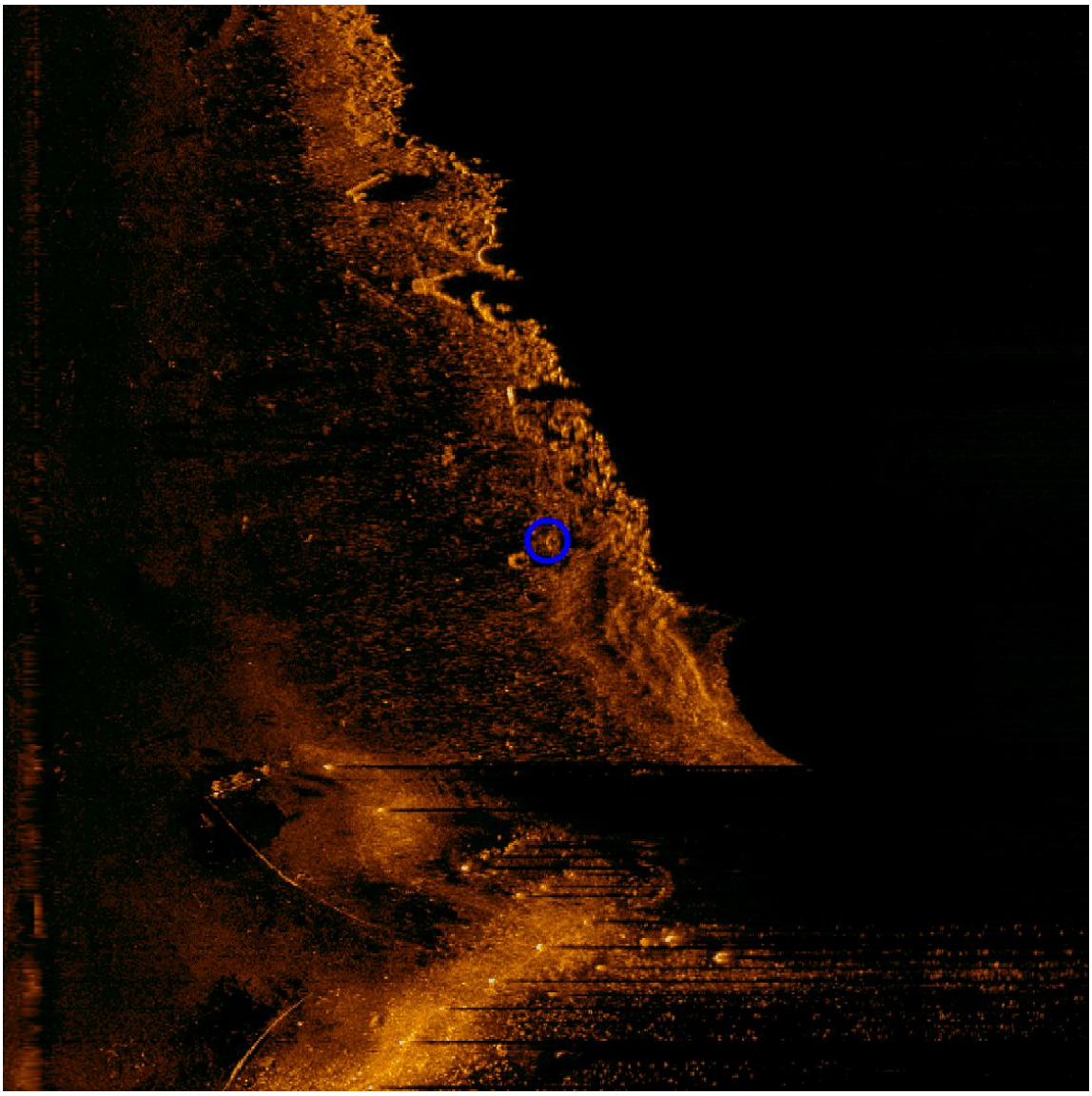


Contact 57

- Click Position
  29.6816761164 -94.9842868939 (WGS84)
  29.6814484142 -94.9840816893 (NAD27LL)
  29.6816761164 -94.9842868939 (LocalLL)
  (X) 3243331.42 (Y) 13817288.83 (Projected Coordinates)
- Map Projection: TX83-SCF

Dimensions and attributes

- Target Width: 2.82 US ft
- Target Length: 2.08 US ft
- Description: Possible Tire

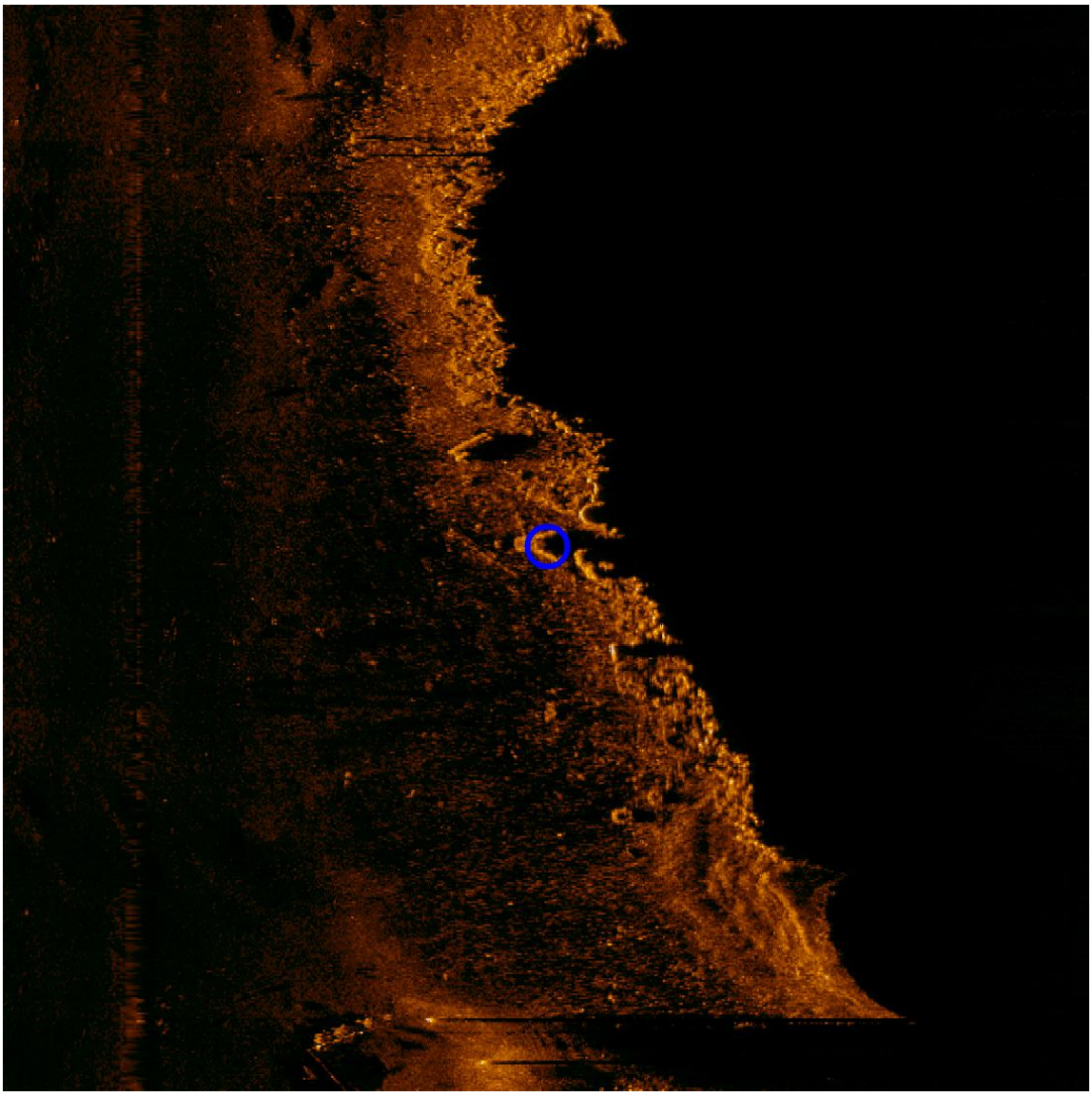


Contact 58

- Click Position
  29.6816621254 -94.9842706766 (WGS84)
  29.6814344233 -94.9840654726 (NAD27LL)
  29.6816621254 -94.9842706766 (LocalLL)
  (X) 3243336.74 (Y) 13817283.92 (Projected Coordinates)
- Map Projection: TX83-SCF

Dimensions and attributes

- Target Width: 1.74 US ft
- Target Length: 2.61 US ft
- Description: Possible Tire

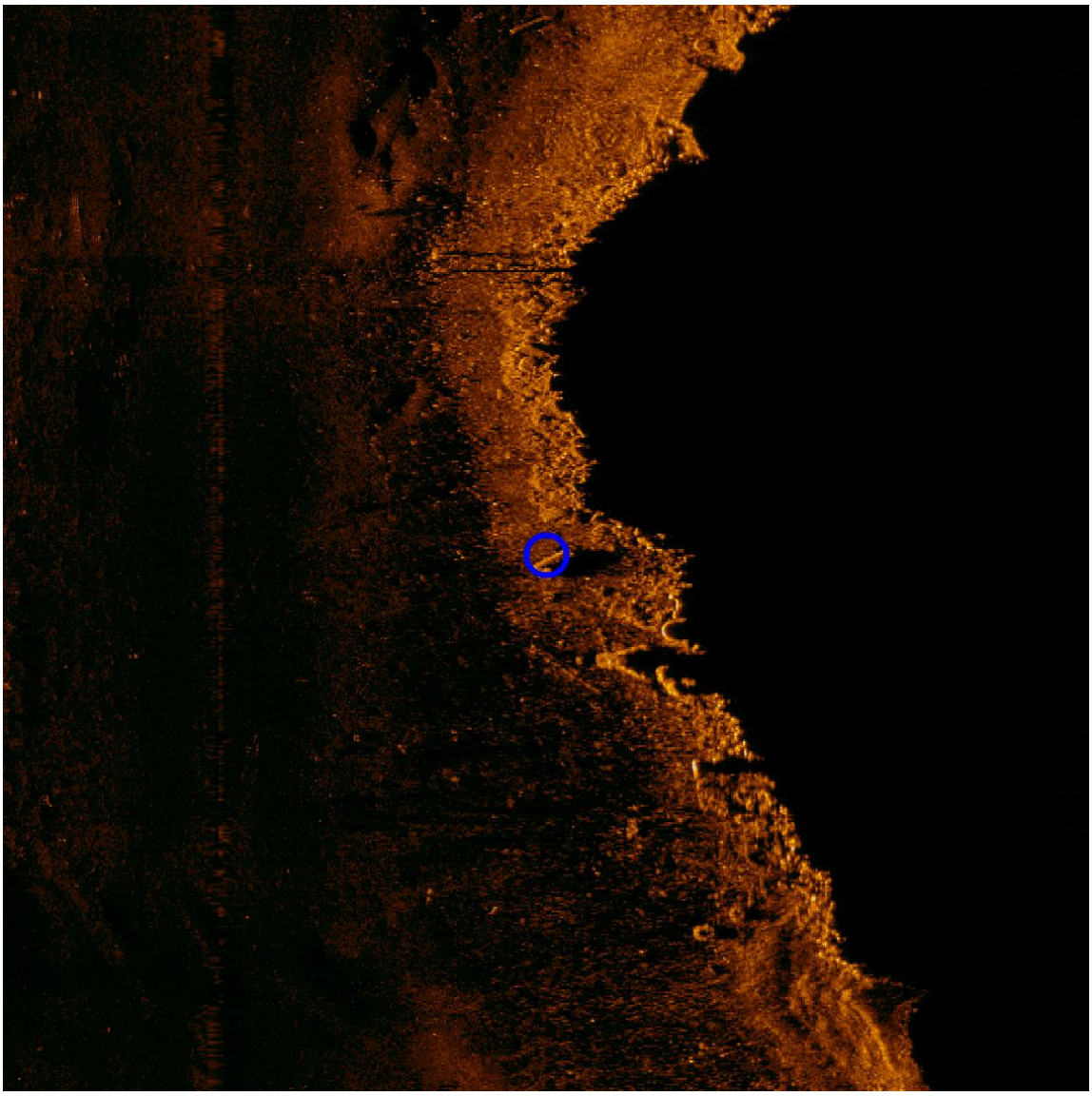


Contact 59

- Click Position
  29.6817292386 -94.9840838961 (WGS84)
  29.6815015394 -94.9838786981 (NAD27LL)
  29.6817292386 -94.9840838961 (LocalLL)
  (X) 3243395.17 (Y) 13817310.35 (Projected Coordinates)
- Map Projection: TX83-SCF

Dimensions and attributes

- Target Width: 7.53 US ft
- Target Length: 8.14 US ft
- Description: Unidentified Debris

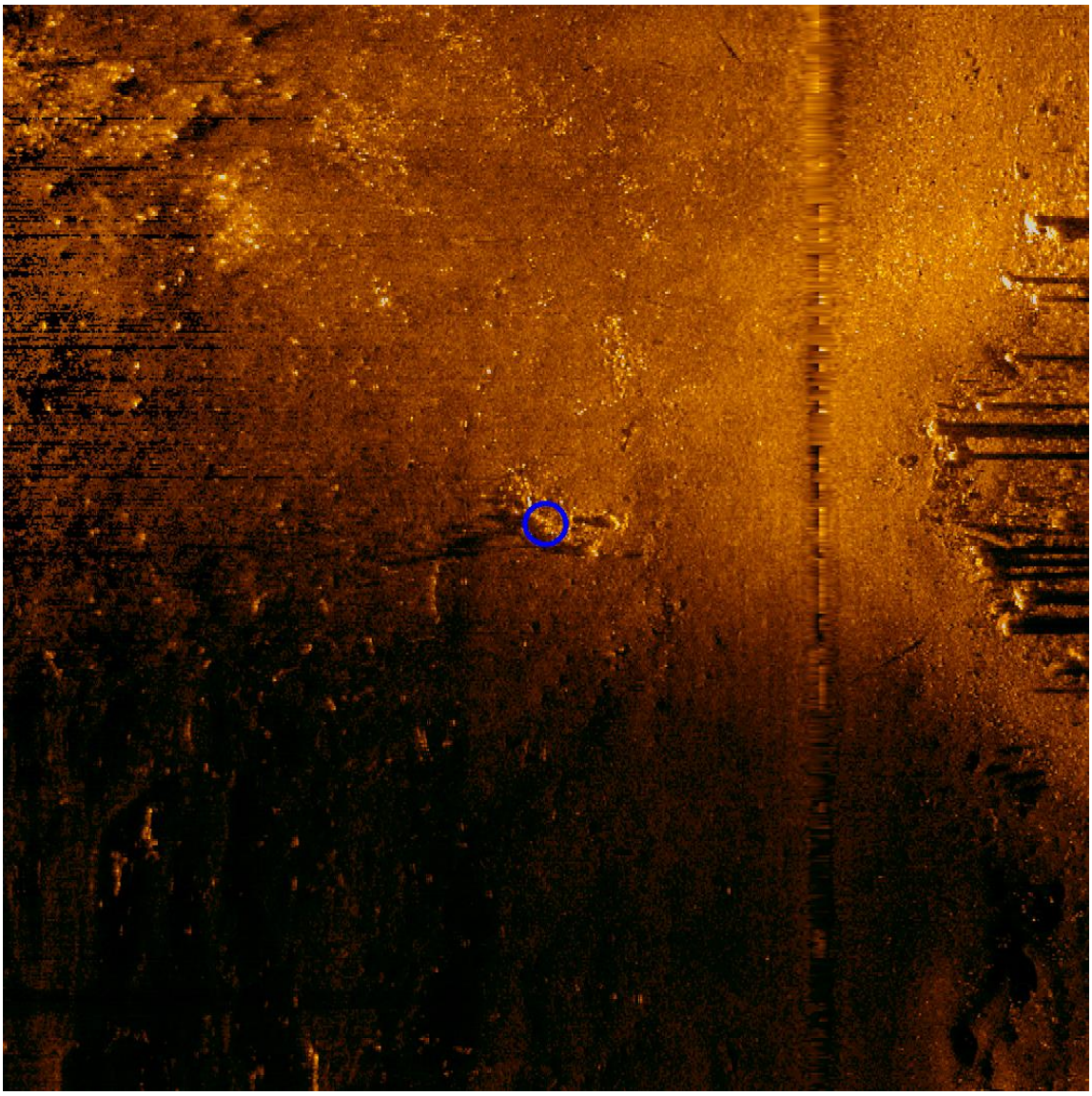


Contact 60

- Click Position
  29.6817845958 -94.9840289201 (WGS84)
  29.6815568979 -94.9838237237 (NAD27LL)
  29.6817845958 -94.9840289201 (LocalLL)
  (X) 3243411.93 (Y) 13817331.06 (Projected Coordinates)
- Map Projection: TX83-SCF

Dimensions and attributes

- Target Width: 2.97 US ft
- Target Length: 7.05 US ft
- Description: Unidentified Debris

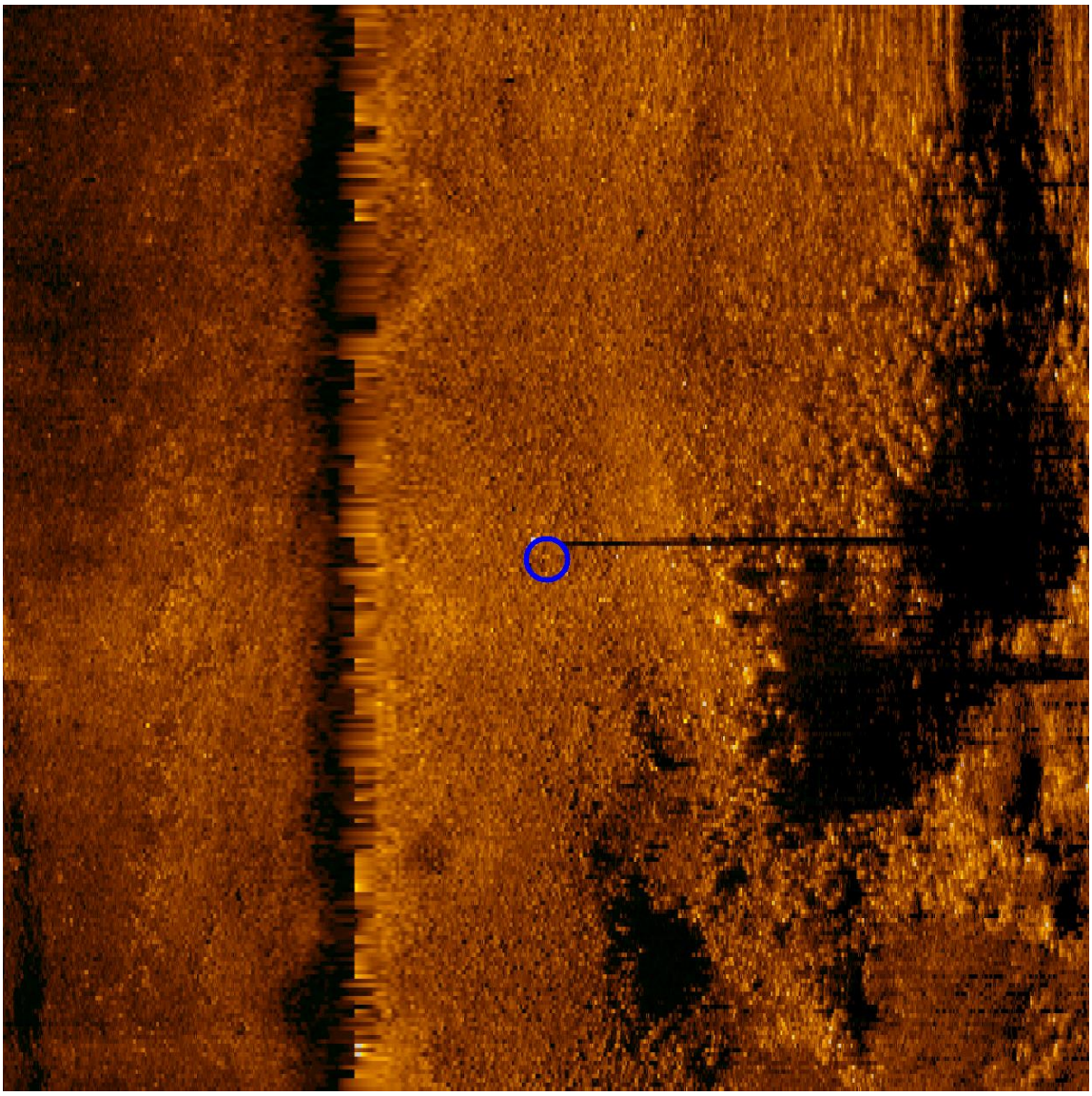


Contact 61

- Click Position
  29.6822380987 -94.9839901064 (WGS84)
  29.6820104067 -94.9837849096 (NAD27LL)
  29.6822380987 -94.9839901064 (LocalLL)
  (X) 3243418.58 (Y) 13817496.30 (Projected Coordinates)
- Map Projection: TX83-SCF

Dimensions and attributes

- Target Width: 8.71 US ft
- Target Length: 16.78 US ft
- Description: Unidentified Debris

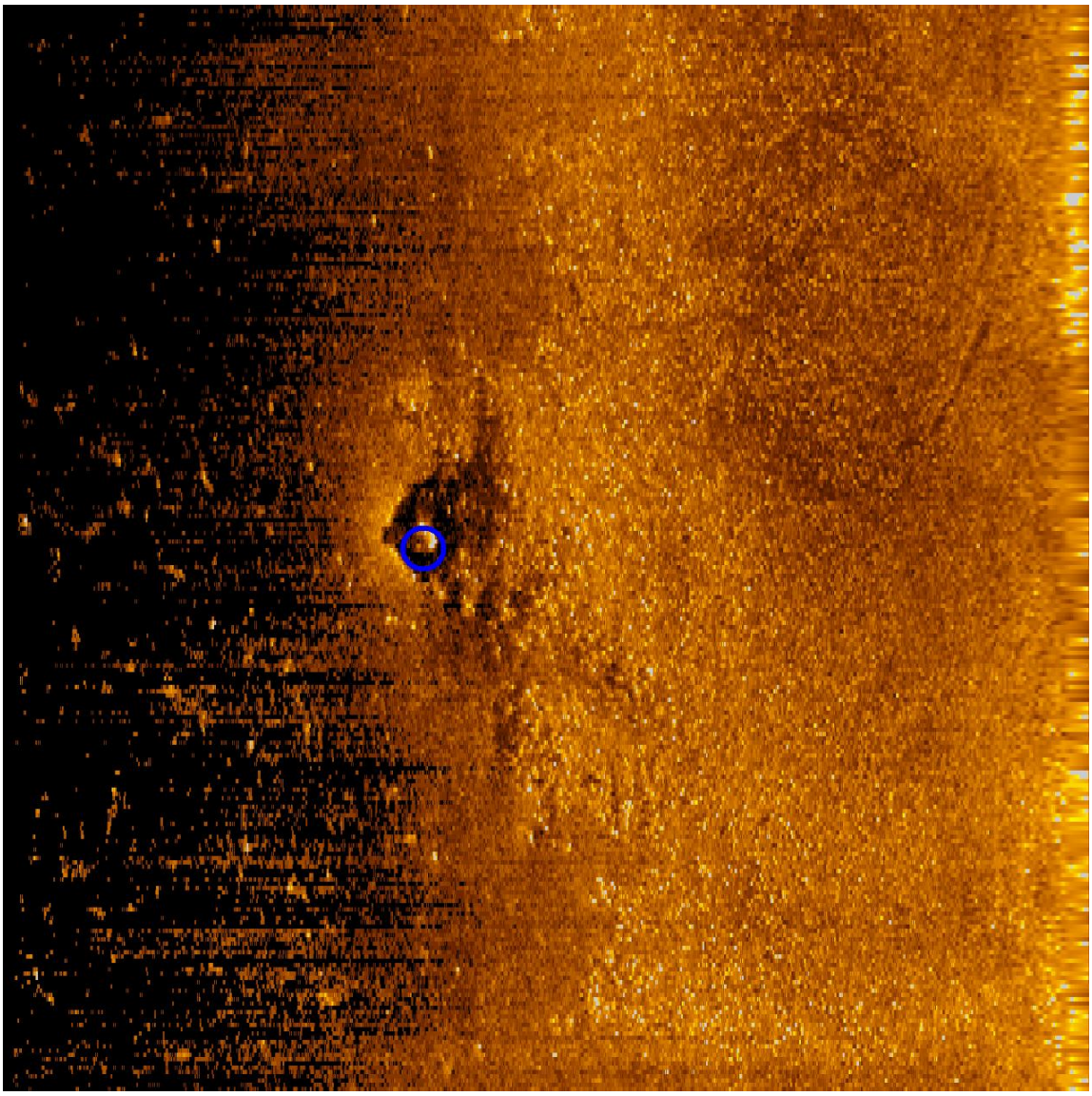


Contact 62

- Click Position
  29.6829267035 -94.9832365077 (WGS84)
  29.6826990285 -94.9830313336 (NAD27LL)
  29.6829267035 -94.9832365077 (LocalLL)
  (X) 3243649.13 (Y) 13817754.76 (Projected Coordinates)
- Map Projection: TX83-SCF

Dimensions and attributes

- Target Width: 1.69 US ft
- Target Length: 0.97 US ft
- Description: Possible Piling, possibly ferrous due to alignment with magnetometer anomaly.



Contact 63

- Click Position
  29.6805590106 -94.9823232458 (WGS84)
  29.6803313174 -94.9821181112 (NAD27LL)
  29.6805590106 -94.9823232458 (LocalLL)
  (X) 3243968.50 (Y) 13816904.27 (Projected Coordinates)
- Map Projection: TX83-SCF

Dimensions and attributes

- Target Width: 11.04 US ft
- Target Length: 14.05 US ft
- Description: Unidentified Debris