

# Dredge Technologies to Improve Safety

Session 4C: Underwater Pipeline and  
Utility Coordination and Removal

## PROJECT 11

WEDA Dredging Summit & Expo 2022  
Wednesday, July 27, 2022

Visit: [www.expandthehoustonsipchannel.com](http://www.expandthehoustonsipchannel.com)





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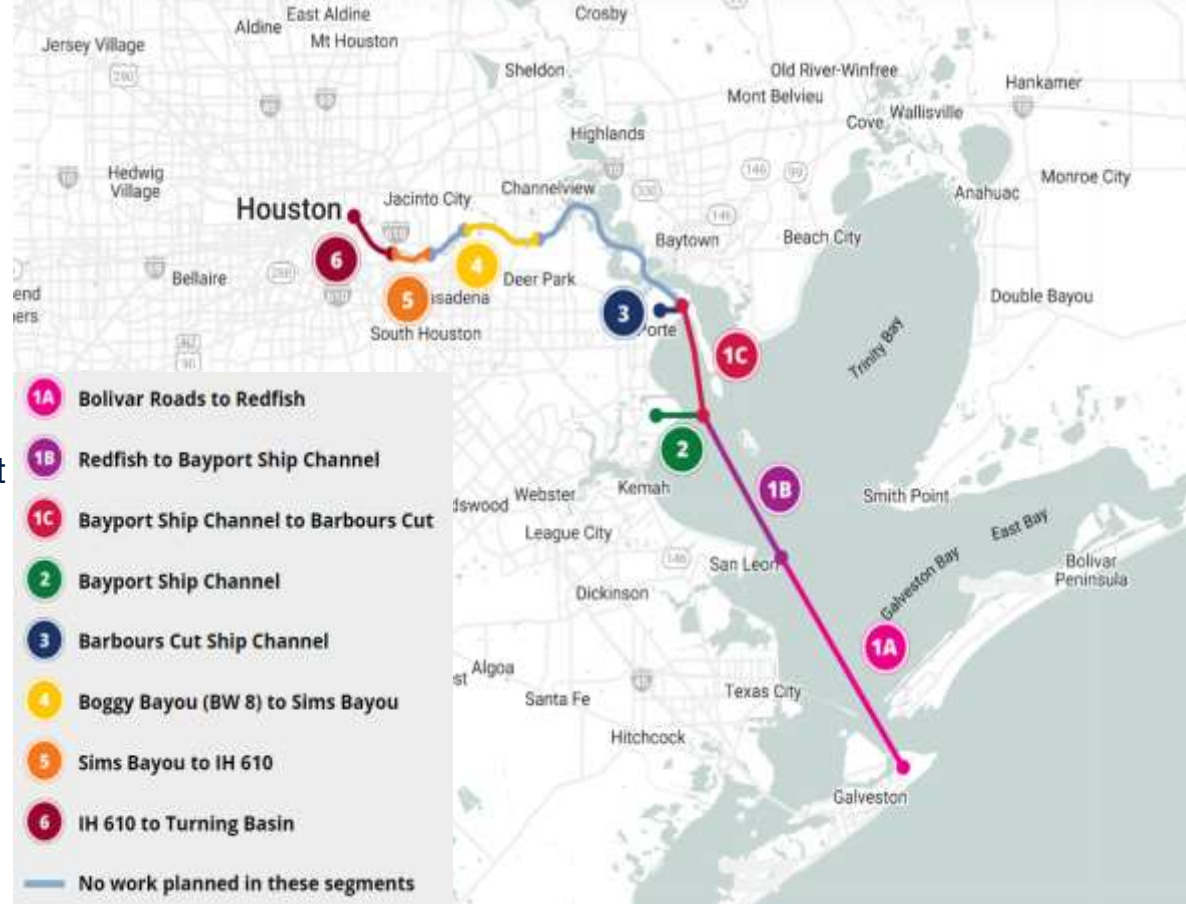
# Agenda

- Project Limits
- Project II Considerations
- Pipeline Research
- FOIA Request & Permit Reviews
- Utility Coordination
- Field Investigations
- Pipeline Removals & Relocations
- Pipeline Summary
- Lessons Learned



# Project Limits

- Bay Reach
  - Segment 1 (A/B/C) Bolivar Roads to Barbours Cut - 24.8 miles, widen 700 ft
  - Segment 2 Bayport Ship Channel - 4 miles, widen to 455 feet
  - Long Bird Island - ~28 acres
  - Three Bird Island Marsh - ~336 acres
  - Marsh Cells 7/8/9, 10, and 11 - ~1,106 acres
  - Dollar Reef and San Leon Oyster Pads - ~375 acres
- Bayou Reach
  - Segment 3 Barbours Cut Ship Channel - 1.4 miles, widen to 455 feet
  - Segment 4 Boggy Bayou to Sims Bayou, 4.9 miles, widen to 530 feet, deepen from 41 feet to 46.5 feet
  - Marsh Cell 12 - ~275 acres
  - Beltway 8 placement area - ~300 acres
  - East 2 Clinton - ~70 acres

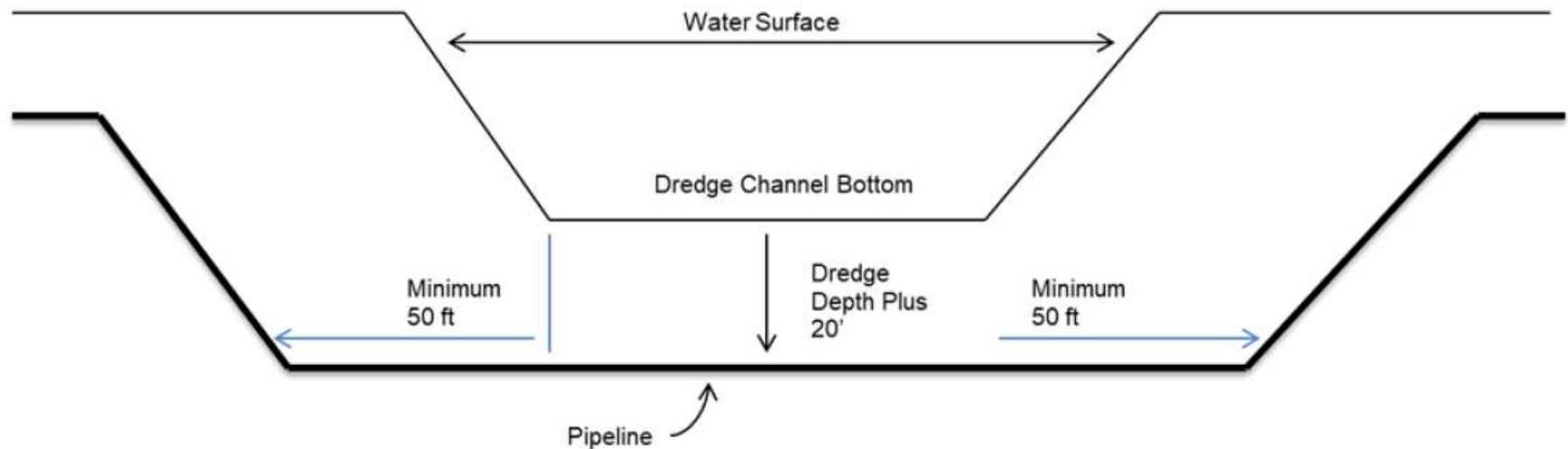


35.1 Miles  
2,490 Acres  
of coverage



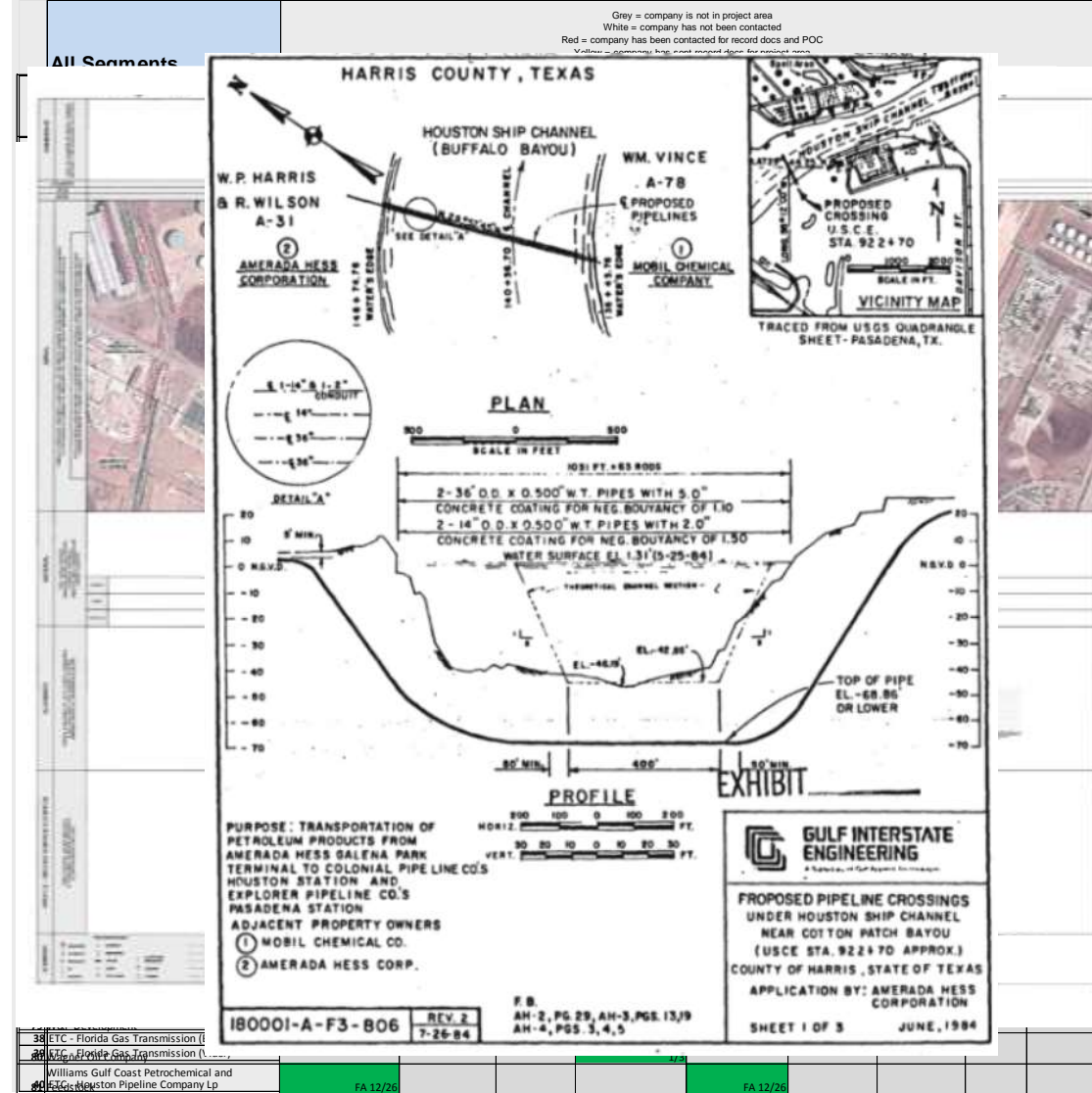
# Project 11 Considerations

USACE Galveston District Guidelines for pipeline installment underneath deep draft channels, provided in the Regional General Permit SWG-1998-02143, require 20 feet of vertical clearance and 50 feet of horizontal clearance from channel side slopes



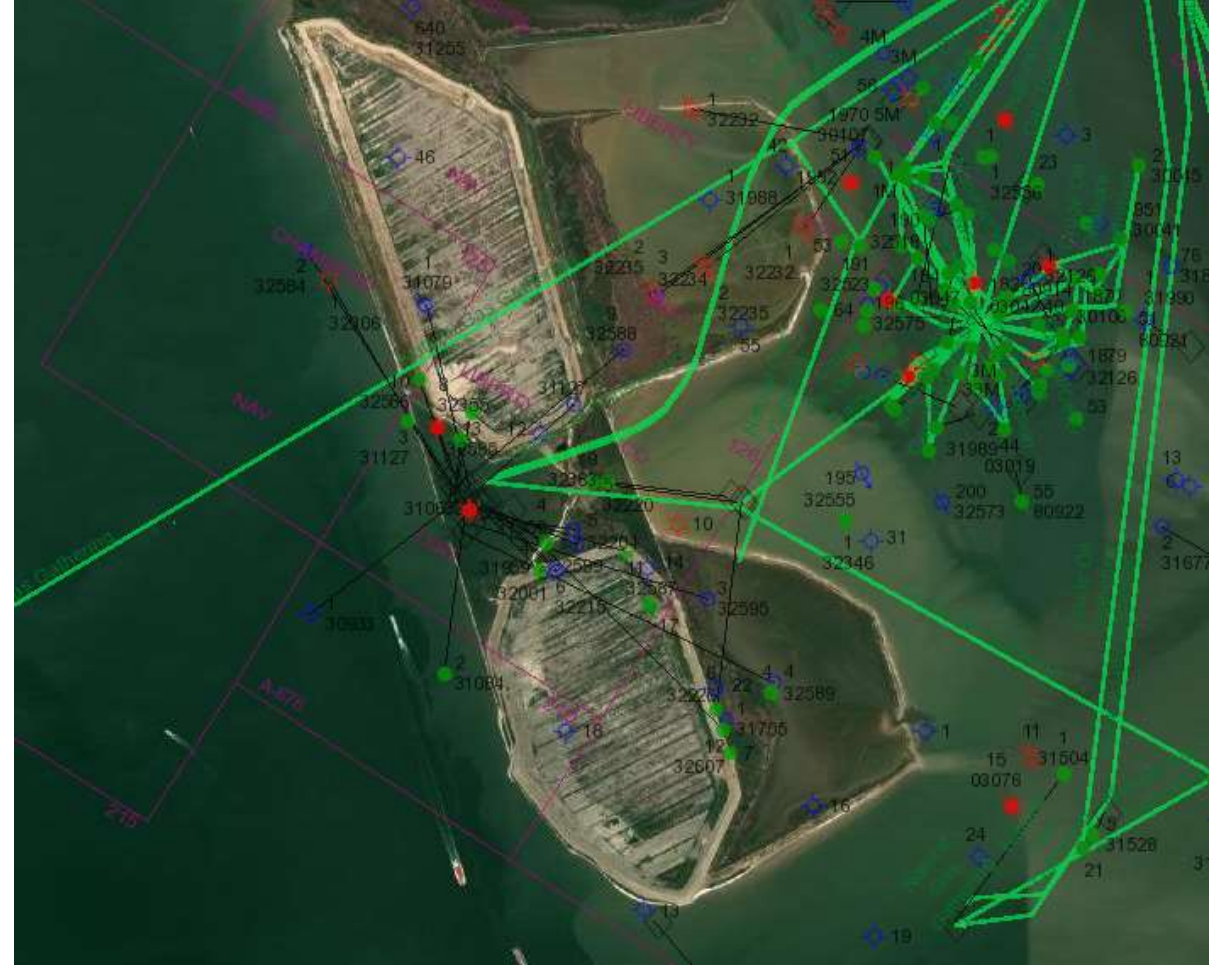
# Pipeline Research

- **October 2019:**
  - PHA provided database of:
    - Installation Permits
    - As-builts included after installation
    - Texas Railroad Commission Info.
- **November 2019:**
  - Texas One-Call complete to identify utility owners for each segment
    - Utility Owner Total = 81
    - Gas, Electric, and Telecomm,



# Pipeline Research Cont'd

- **November-December 2019:**
  - Public GIS Databases
    - **Texas Railroad Commission**
    - Public GIS Viewer (shown right)  
<https://www.rrc.texas.gov/resource-center/research/gis-viewer/>
    - **Texas General Land Office**
    - Land and Lease Mapping Viewer  
<https://www.glo.texas.gov/land/land-management/gis/>



# Pipeline Research Cont'd

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GIS Identify Results - Well Location Attributes

Number of identify results: 1 Print

Result #1	
API	07130279
GIS WELL NUMBER	1874L
GIS SYMBOL DESCRIPTION	Oil/Gas Well
GIS LOCATION SOURCE	Operator reported location - Distances and Plat
GIS LAT (NAD27)	29.636063
GIS LONG (NAD27)	-94.932799
GIS LAT (NAD83)	29.636291
GIS LONG (NAD83)	-94.933002

[Well Logs](#) [Drilling Permits](#) [Disposal Permits](#)

GIS Identify Results - Pipeline Attributes

Print

COUNTY_FIPS	071
OPERATOR	TORRENT OIL LLC
COMMODITY DESCRIPTION	CRUDE OIL OFFSHORE, GATHERING
SYSTEM NAME	ATKINSON ISLAND CRUDE SYSTEM
SUBSYSTEM NAME	ATKINSON ISLAND CRUDE SYSTEM
DIAMETER	8.63
P5 NUMBER	862645
T4PERMIT	03434
T4PERMIT MILES	1.7
STATUS	In Service
INTERSTATE	No
CONTACT PHONE NUMBER	(936) 447-6100

# FOIA Request & Permit Reviews

- June 2020 – January 2021
- Freedom of Information Act (FOIA) Request
- HDR ROW Team completed reviews of:
  - Segment 1: Layton Pipeline
  - Segment 1: Houston Oil & Mineral Corp.
  - Segment 4: Dual 6-in pipelines



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August 31, 2020

**RE: Ownership of dual 6-inch pipelines under the Port of Houston waterway**

The goal of this research effort by HDR Engineering, Inc. (HDR) is to review available public records in order to identify parties of interest to be notified and engaged in relations to the upcoming Port of Houston Authority (PHA) dredging project. The subject pipelines being researched are more fully identified as two six-inch pipelines under the Port of Houston waterway and part of US Army Corps of Engineers permit number 9437. The PHA and HDR understand this research effort is not to be considered a full title opinion, and the parties are limited to available online public data given traditional public records resources are not fully available due to the COVID-19 pandemic.

Documents recorded at the Harris County Courthouse, Texas and accessed via the Real Property Document Search Portal confirm Jim Harrell at OXY's findings that the westerly six-inch pipeline, originally permitted by National Gas Pipeline Company of America, appears to have been conveyed to Specified Fuels & Chemicals (Specified).

The following pages outline the conveyances, as found online in the Harris County recorder of deeds of records. The subject pipeline from the Port of Houston Authority and the State of Texas to the following entities:

National Gas Pipeline Company of America (NGPCA) obtained the right to construct two six-inch pipelines across the waterway. The westerly of which was sold to Petromax, which sold to SLD Holdings, which sold to Howell Corporation, which sold to Specified Fuels & Chemicals, which changed its name to Haltermann Products, LLC. The westerly pipeline is frequently conveyed in an attached exhibit, which is referenced in the body of conveyances. The easterly pipeline does not appear to have been sold out of NGPCA, which is now owned by Kinder Morgan, Inc. (KM). According to KM's website, NGPCA is currently jointly owned by Kinder Morgan, Inc. and Brookfield Infrastructure Partner L. P., and NGPCA has a dedicated management team which is operated by Kinder Morgan, Inc.

Additionally, a Freedom of Information Act Request was filed by HDR on behalf of the Port of Houston Authority. Documents received from the U.S. Army Corps of Engineers (USACE), Galveston District show the western pipeline vested in Houston Fuel Oil Terminal Company. No conveyance from Haltermann







# Utility Coordination

- **October 2019 to March 2020**
  - Coordinated with utility owners to gather as-builts, record documents, GIS coordinates and identify current owner of the pipelines
- **September 2020 to May 2021**
  - Hosted meetings with utility owners to review:
    - Pipeline Research
    - Proposed Scope of Work
    - Clearance Guidelines using Regional General Permit: SWG-1998-02413 Standard
      - If pipeline met clearance, then issued a Clearance Letter, signed by the utility owner certifying that pipeline is not in conflict with proposed work
      - If pipeline did not meet clearance, issued Letter of No Objection (LOND), relocation, removal, or exception to policy to USACE

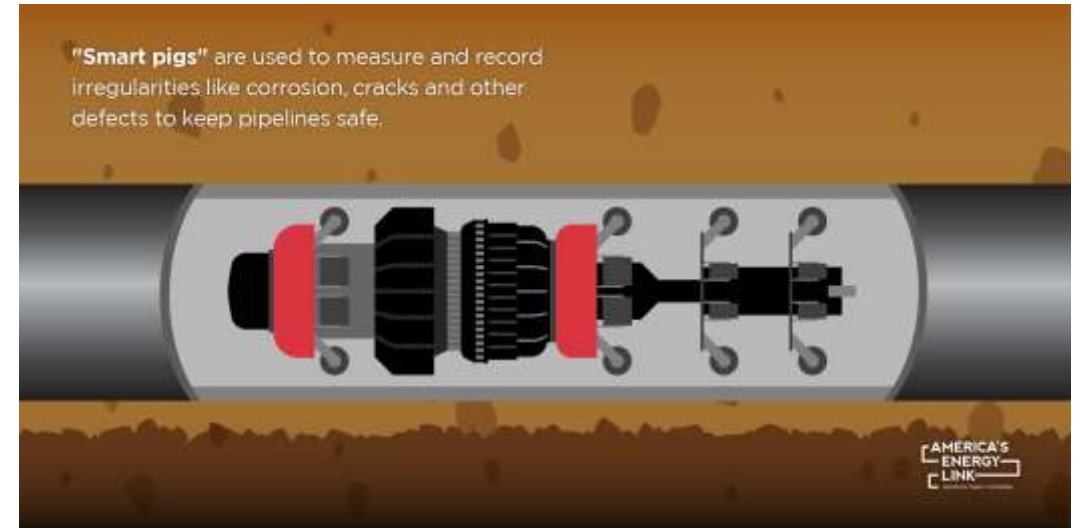
# Field Investigations

- **Port Conducted Investigations**

- Bathymetric surveys (GBA)
- Magnetometer surveys (TBS)
- Sub bottom profile surveys (FUGRO)
- Field Probing

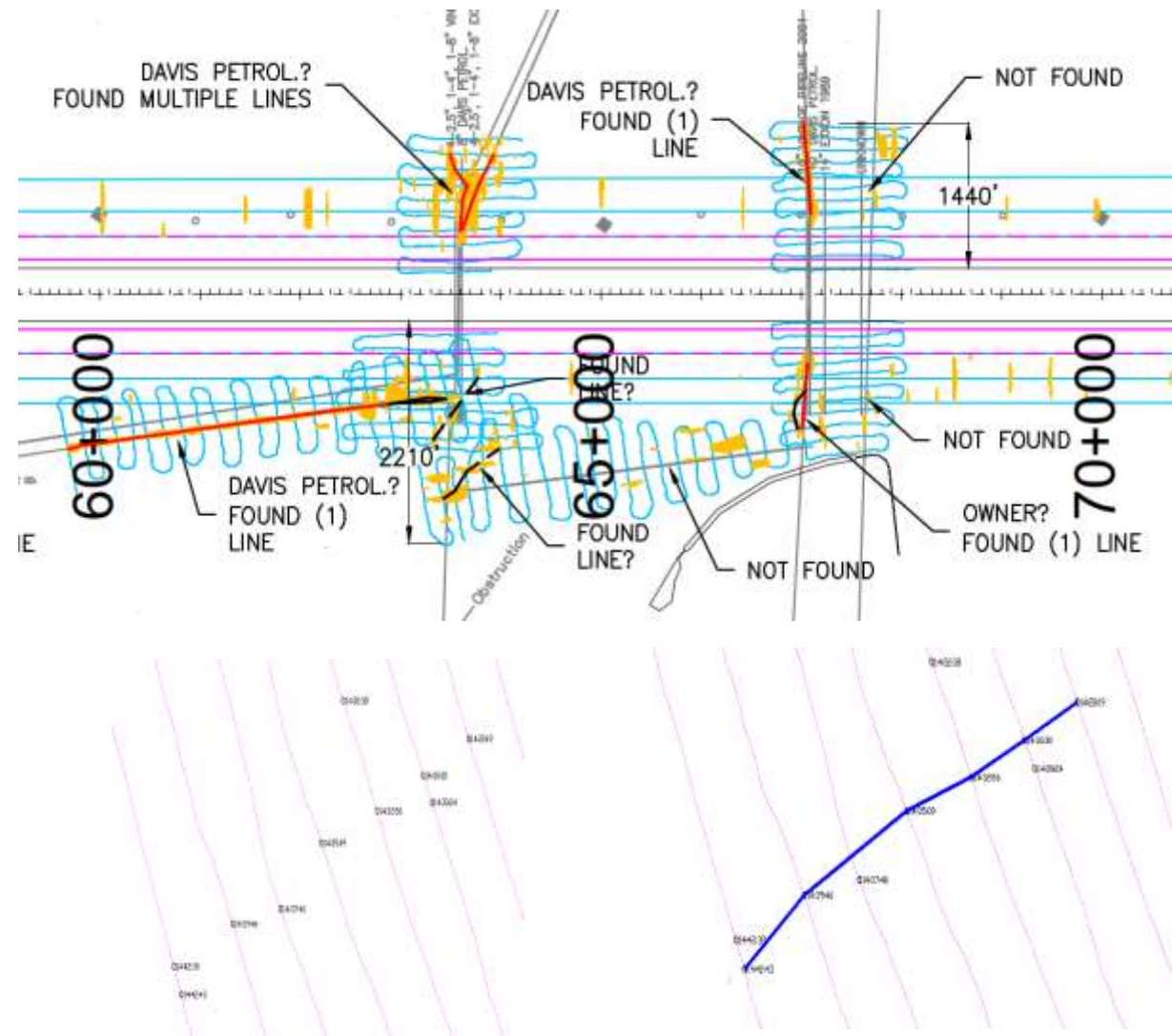
- **Utility Owner Investigations**

- Bathymetric surveys
- Field Probing
- Magnetometer surveys
- Smart Pigs (pipeline inspection tool)



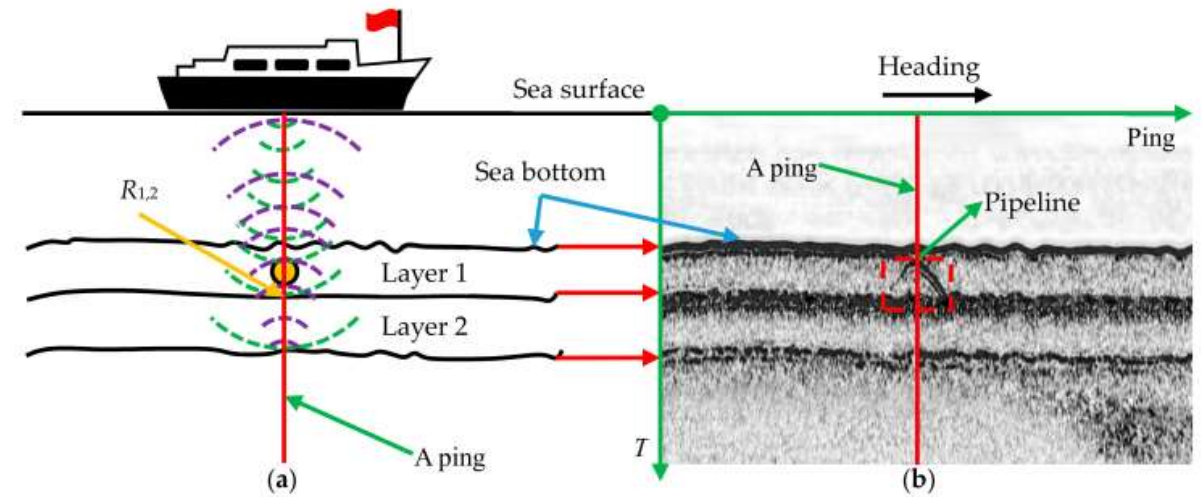
# Field Investigations Cont'd

- Magnetometer Surveys
  - Provide horizontal positions of ferrous objects
  - Underwater survey tool for detection of ferrous objects
  - Typically look at the gratio contours which provide the gamma values (unit for magnetic strength) above the background magnetic field in the area
  - Subject to interpretation of the processor
  - Sensitive to background noise (ports, harbors, vessels, ferrous rock, etc.)
  - Doesn't provide the vertical location of the potential pipelines compared to the PII channel template



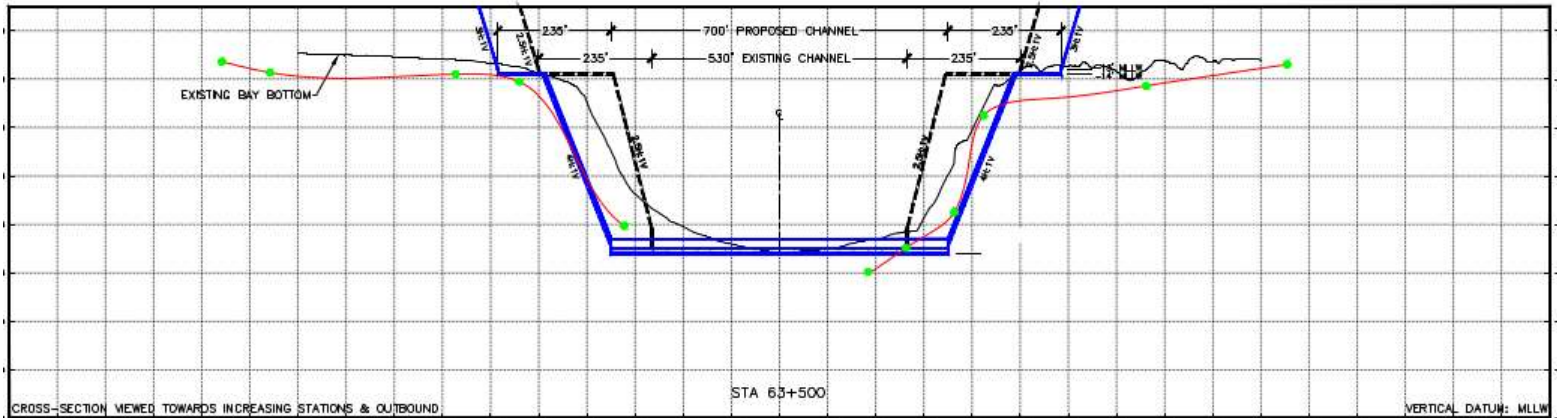
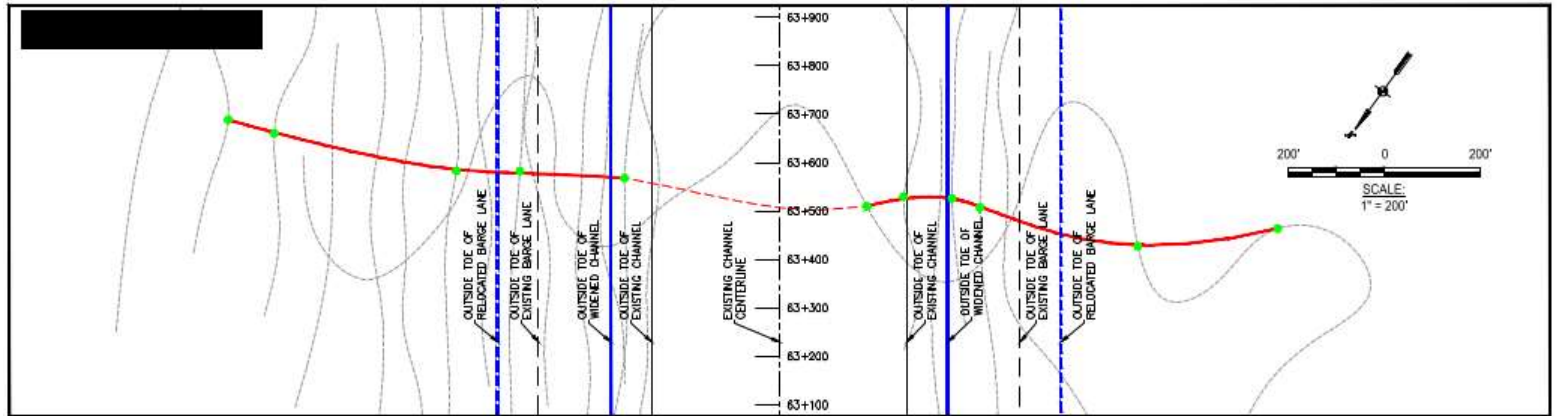
# Field Investigations Cont'd

- Sub-bottom Profiler Surveys
  - Provides vertical position of pipelines.
  - Areas identified in the magnetometer surveys were further investigated with the sub-bottom profiler.
  - Transmit sound energy towards the seabed. The energy is reflected back from the seabed and sub-surface sediment layers, or in our case underwater pipelines.
  - Pipelines can be visible once processed due to their density difference compared to the surrounding sediment.



(Zheng 2021)

# Field Investigations Cont'd



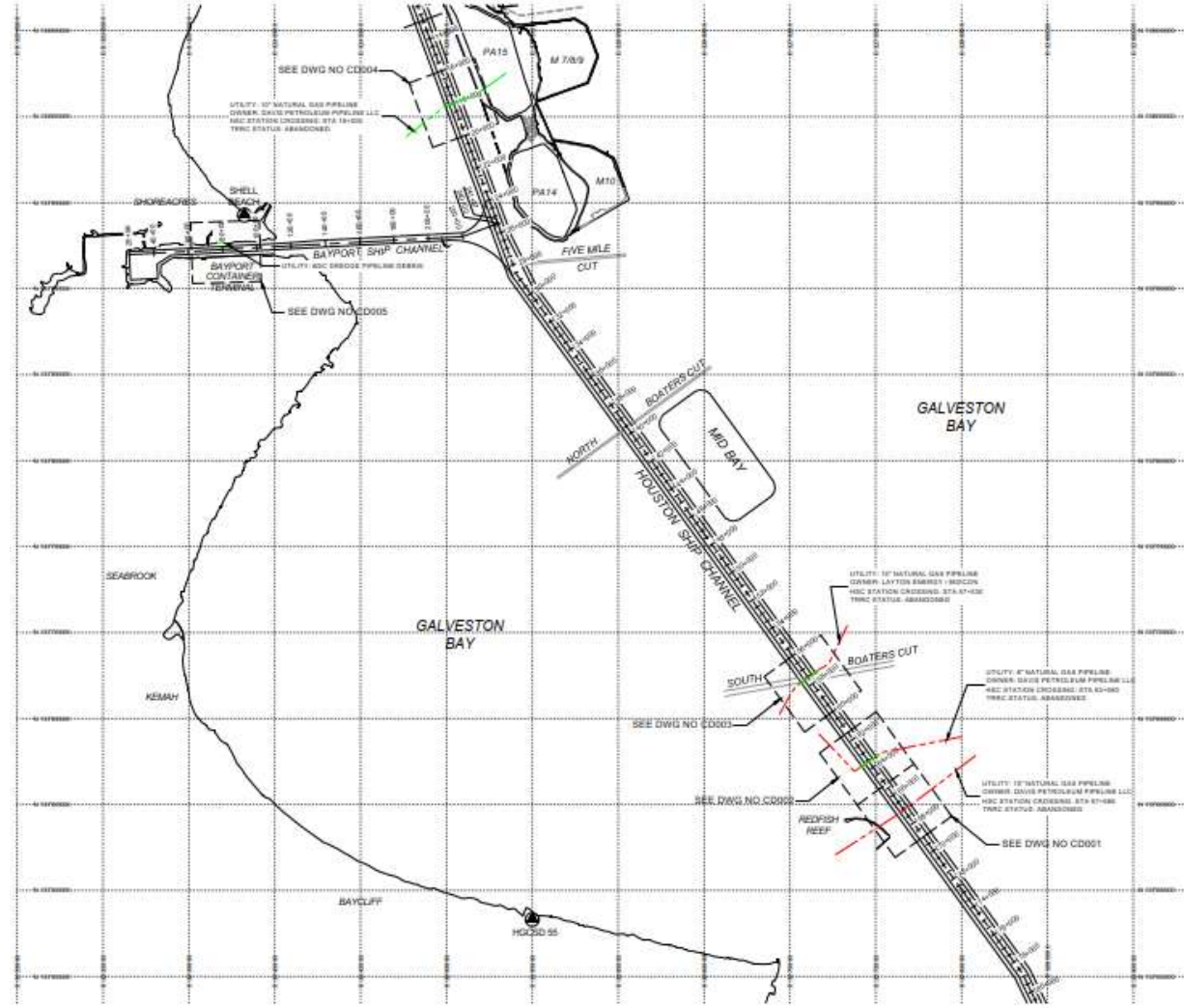
SCALE:  
 HORIZONTAL: 1" = 200'  
 VERTICAL: 1" = 20'

LEGEND:

- PROPOSED CHANNEL WIDENING/ NEW WORK DREDGE TEMPLATE
- EXISTING CHANNEL TEMPLATE
- INTERPOLATED PIPELINE
- - - NO PIPELINE DATA
- SUB BOTTOM PROFILER CONTACT
- TRACK LINE

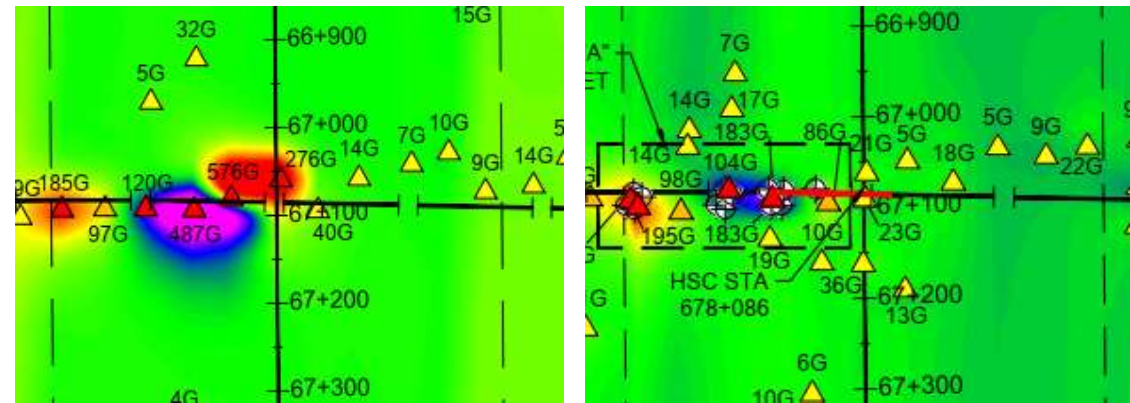
# Pipeline Removals

- **Bay Reach**
  - 0 pipelines with active owners required removal
  - 6 pipelines without owners required removal
  - 1 abandoned dredge pipeline in the BSC required removal
- **Bayou Reach**
  - 1 pipeline with active owner required removal due to abandonment
  - 1 pipeline unknown. Potential for PHA removal



# Pipeline Removal Cont'd

- **Port of Houston Abandoned Pipeline Removal Contract**
  - Awarded October 2021 to Orion and NTP issued January 2022
  - Contract completion scheduled for July 2022
  - Removal of up to 6 abandoned industry pipelines and removal of 1 section of abandoned dredge pipeline along the north shoreline of Bayport Ship Channel.





# Pipeline Relocations

- **December 2020 to Current**
  - Hosting mtgs with utility owners to:
    - Review reimbursement agreement status
    - Complete GC/HDD contractor list
    - Update schedule
    - Review design progress
    - Review permit status
    - Review relocation status



**Segment 4, Conflicts 9,10,17,18,20,21,23,24,25,26**

**Require Relocations**

# Pipeline Summary

- Pipeline Report

- Summarized each pipeline with history from PHA data through clearance letter/ LONO/ Removal/ Relocation / Exception
- All support documents saved in individual folder with reference to conflict ID
- Include as Appendices to dredging contracts

## 12. (Conflict 7)

- Pipeline owns one active 18" natural gas pipeline and partially removed abandoned pipeline at HSC STA 90+080
- Texas 811 One-Call System identified Kinder Morgan in Segment 1
- Pipeline is recognized on GLO GIS System
- Pipeline is recognized on TRRC GIS System
- TRRC has T-4 Permit 00774 with map overview from Pipeline in 12/2020
- Pipeline provided two screenshots from their internal GIS pipeline system, pipeline survey for 18" Chambers pipeline crossing dated 1991, and as-built for piping plan for 18" pipeline for Tejas Ship Channel LLC dated June 2001.
- HDR performed Utility Conflict Analysis using the as-built dated June 2001 and compared to the proposed 100% design cross section sheet. HDR used engineering judgement for the alignment of the center of the existing channel and scaled based on available data, true alignment (vertical and horizontal) may vary Based on the as-built, HDR found ~ 25' vertical clearance from bottom of proposed channel. The pipeline shows to be clear horizontally and vertically according to the USACE clearance guidelines.
- Magnetometer data picked up radio detection near the proposed barge lanes from the TRRC marked pipeline location and possible remnants of old abandoned line outside of the proposed channel.
- Fugro performed sub-bottom profiler at the Pipeline location. The pipeline was not able to be located under the channel due to the depth but did potentially pick up the pipeline under the proposed barge lane on the east side of the channel.
- In October 2020, PHA and HDR hosted a conference call with Pipeline to review the proposed project and existing active Pipeline pipeline. During the meeting, the PHA requested a signed clearance letter from Pipeline stating that after their review, the Pipeline pipeline is not in conflict with the proposed channel design.
- In January 2021, Pipeline provided a signed clearance letter for their active pipeline.
- In May 2021, after further review of the sub-bottom profiler data, it was noted that there was potentially insufficient clearance for 110' horizontally and 3.2' vertically under the proposed barge lanes.
- In June 2021, Pipeline completed a probing survey on the active pipeline, and based on Pipeline's review, the pipeline is clear of the proposed USACE clearance and signed clearance letter sent on January 8, 2021 confirmed clearance for their active pipeline.
- In June 2021, PHA/HDR/JV hosted a meeting with Pipeline to review the probing survey, and review if further investigation was complete on the potential abandoned pipeline.
- In June 2021, HDR requested Fugro review the sub-bottom data point in conflict, pending further investigation as of 6/30/2021.
- On 6/30/21 PHA/HDR/JV Team met with Fugro, Fugro to provided information on the anomaly on 07/01/2021 stating "After revisiting the seismic data from the KM crossing, I believe it is safe to assume the contact discussed is an anomaly unassociated with the pipeline in question. Possible explanations for the anomaly may include buried rocks at depth/other dense debris, sudden horizontal changes in sediment type, and motion artifacts related to sea state."
- In June 2021, Pipeline completed internal engineering review for 400' of abandoned pipeline outside of the proposed channel, and will issue a LONO, since the anomalies are outside the proposed dredging template and will not conflict with proposed channel.
- Pipeline communication tracking and meeting mins attached
- Pipeline completed probing survey on the active pipeline and distributed the data on 6/16/21, based on Pipeline's review the pipeline is clear of the proposed USACE clearance and signed clearance letter sent on January 8, 2021 confirmed clearance for their active pipeline. |

# Utility Coordination

SEGMENT	PIPELINES	PIPELINES REQUIRING CLEARANCE LETTER	PIPELINES REQUIRING LONO	PIPELINES REQUIRING REMOVAL	PIPELINES REQUIRING RELOCATION	PIPELINES REQUIRING EXCEPTION OR PHA AGREEMENT
SEGMENT 1 - BAY REACH	16	8	2	6	0	2 (also submitted LONO)
SEGMENT 1 - BIRD ISLANDS	11	1, other pipelines over 1000' from Island	0	0	0	0
SEGMENT 1 - OYSTER REEFS	11	0, design modified	0	0	0	0
SEGMENT 1 - ATKINSON MARSH ISLANDS	5	0, 1 line not detected in mag survey	4	0	0	0
SEGMENT 2 - BAYPORT SHIP CHANNEL	7	2, 4 unknowns	0	0	0	1
SEGMENT 3 - BARBOURS CUT CHANNEL	2	0	0	0	2	0
SEGMENT 4 - BOGGY BAYOU TO SIMS BAYOU	43 (44)	32	0	1 (2)	10	0
SEGMENT 4 - BELTWAY 8 PA	5	0	3	0	2	0
SEGMENT 4 - EAST 2 CLINTON PA	2	0	2	0	0	0

# Lessons Learned

- Start Coordination Early
  - Utility owners need time to complete internal engineering reviews, revise surveys, overlay designs, and provide any feedback on design for modifications
- Data on the public databases can be outdated and needs verification
- Additional Time is needed for field investigations, like sub-bottom profiler and probings
- Future channel and port expansion projects should be taken into consideration during pipeline removals and relocations
- Database needs to be stored after each project

# QUESTIONS?

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**Visit** the Project II Webpage

<https://www.expandthehoustonshipchannel.com/>

**Email** the Project II Team

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## **Contact**

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