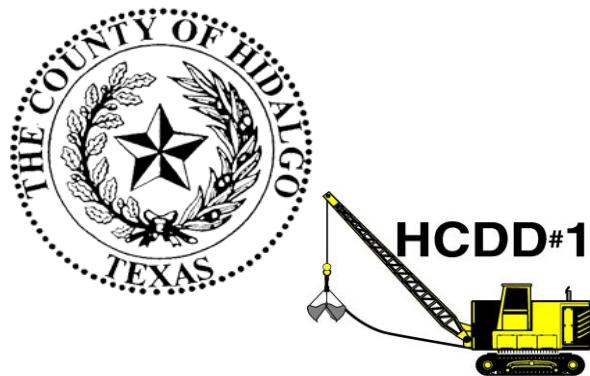

**RAYMONDVILLE DRAIN PROJECT
REAL ESTATE APPENDIX A4**

**ATTACHMENT C
HIDALGO COUNTY UTILITIES REPORT**

Raymondville Drain Flood Control Project

Proposed Diversion Ditch

UTILITIES ENGINEERING REPORT



Prepared for
Hidalgo County Drainage District # 1

Prepared by



Texas Firm No. F-1582

McAllen, TX

27 April 2016

Released Under the Authority of:
Charlotte Lynne Teague, PE, Project Manager
Texas PE #62160

Table of Contents

1. INTRODUCTION.....	1
2. EXECUTIVE SUMMARY.....	1
3. POTENTIAL CONFLICTS	
a. Segment 1.....	2
b. Segment 2.....	6
c. Segment 3.....	8
d. Segment 4.....	10
e. Segment 5.....	10
f. Segment 6.....	13
4. MAPS.....	17

1. Introduction

The purpose of this report is to provide an engineer's opinion of probable utility conflicts for the *North Main Drain Diversion Channel* (NMD-DC). As previously mentioned, the NMD-DC is within Section 1 of the Raymondville Drain Project. **Section 1 is subsequently divided into seven segments** (as shown in **Figure 1 – North Main Drain Diversion Channel (NMD-DC) Segment Map** on page 9); a brief description of each is outlined below:

- **Segment 1:** From Edinburg Lake to the Burns South Property Line 6,834.19 feet
- **Segment 2:** From the Burns South Property Line to Vernon Neuhaus South Property Line 11,781.40 feet
- **Segment 3:** From the Vernon Neuhaus South Property Line to US 281 8,449.36 feet
- **Segment 4:** From US 281 to 0.8 miles East 4,173.48 feet
- **Segment 5:** From 0.8 miles East of US 281 to 13,100 feet East (South of Airport) 13,107.49 feet
- **Segment 6:** From 3.3 miles East of US 281 to DLID Lateral L-5 29,319.28 feet

2. Executive Summary

In accordance with the Scope of Work, S&B Infrastructure took measures to identify the preliminary utility conflicts by means of:

- a. Topographic Survey prepared by other engineering firms.
- b. Railroad Commission Website
- c. Delta Lake Irrigation Map
- d. Santa Cruz Irrigation Map
- e. Google Earth
- f. Employing previously completed engineering reports.

3. Potential Conflict Locations

Each segment of the drain project contains potential utility conflicts which may include the following:

- a. Gas Lines
- b. Gas Wells
- c. Gas Dry Holes
- d. Telephone Lines
- e. Power Poles
- f. Power Lines
- g. Irrigation Lines
- h. Irrigation Stand Pipes

Below is a list of potential utilities for each segment along with their proposed relocation measures. Coordination was done with the utility companies to verify that such utilities exist and develop a relationship to begin the relocation process. The rough estimates provided are not final and are subject to change once actual relocation of the utility conflict begins.

Segment 1

ID	1
TYPE	Concrete Lined Canal
PROPOSED RELOCATION	SBI will design a structure which will offset the concrete canal and include culverts that will divert the drainage ditch
METHOD	
PROS	Pumps will not be required to divert the concrete canal under the proposed drainage ditch
CONS	The concrete canal will need to be shut down to make the connection to the diverted section
ESTIMATE	\$2,422,945.00
ID	2
TYPE	Overhead Power Line
PROPOSED RELOCATION	The overhead power lines will not affect the proposed drainage ditch
METHOD	
PROS	The power lines run along the east ROW line away from the ditch opening
CONS	
ESTIMATE	Relocation is not necessary
ID	3
TYPE	Telephone line
PROPOSED RELOCATION	Horizontal Directional Drill to clear the bottom of the ditch
METHOD	
PROS	Telephone lines will not obstruct the area above the ditch
CONS	
ESTIMATE	\$16,826.81
ID	4
TYPE	Telephone line
PROPOSED RELOCATION	Horizontal Directional Drill to clear the bottom of the ditch
METHOD	
PROS	Telephone lines will not obstruct the area above the ditch
CONS	Telephone line will need to be relocated to the south side of the road via Horizontal Directional Drill method
ESTIMATE	Is included in conflict ID 3

ID	5
TYPE	Telephone Pedestal
PROPOSED RELOCATION	Telephone pedestal will not be in conflict
METHOD	with the ditch opening
PROS	No relocation will be required
CONS	
ESTIMATE	Is included in conflict ID 3
ID	6
TYPE	Overhead Power Line
PROPOSED RELOCATION	Remove the power line and power poles
METHOD	that provide service to the building which will be removed
PROS	The overhead power line is an obstruction within the proposed drainage ditch ROW
CONS	
ESTIMATE	\$742.59
ID	7
TYPE	Water Well
PROPOSED RELOCATION	Remove the water well that services the building which will be removed
METHOD	
PROS	The water well is an obstruction within the proposed drainage ditch ROW
CONS	
ESTIMATE	\$1,971.00
ID	8
TYPE	Irrigation Line
PROPOSED RELOCATION	Remove the section of irrigation line that interferes with the drainage ditch ROW
METHOD	
PROS	The irrigation line is no longer in use
CONS	
ESTIMATE	\$6,330.00
ID	9
TYPE	Irrigation Line
PROPOSED RELOCATION	Remove the section of irrigation line that interferes with the drainage ditch ROW
METHOD	
PROS	The irrigation line is no longer in use
CONS	
ESTIMATE	\$5,486.00

ID	10
TYPE	24" Standpipe and Irrigation Line
PROPOSED RELOCATION	Remove the standpipe and section of irrigation line that interferes with the drainage ditch ROW
METHOD	
PROS	The standpipe and irrigation line are no longer in use
CONS	
ESTIMATE	\$532.20
ID	11
TYPE	24" Standpipe
PROPOSED RELOCATION	Remove the standpipe that interferes with the drainage ditch ROW
METHOD	
PROS	The standpipe is no longer in use
CONS	
ESTIMATE	\$108.20
ID	12
TYPE	Irrigation Line
PROPOSED RELOCATION	Remove the section of irrigation line that interferes with the drainage ditch ROW
METHOD	
PROS	The irrigation line is no longer in use
CONS	
ESTIMATE	\$3,798.00
ID	13
TYPE	24" Standpipe
PROPOSED RELOCATION	Remove the standpipe that interferes with the drainage ditch ROW
METHOD	
PROS	The standpipe is no longer in use
CONS	
ESTIMATE	\$108.20
ID	14
TYPE	Overhead Power Line
PROPOSED RELOCATION	Verify that the clearance from natural ground to the bottom of the power line is sufficient
METHOD	
PROS	Power poles do not affect the drainage ditch opening
CONS	
ESTIMATE	\$13,893.00 (if relocation is required)

ID	15
TYPE	8" Gas Pipeline
PROPOSED RELOCATION	Horizontal Directional Drill a new section of gas line at the conflict location
METHOD	
PROS	The gas line will be out of the way for both interim and ultimate build of the drainage ditch
CONS	
ESTIMATE	\$850,000.00

ID	16
TYPE	8" Gas Pipeline
PROPOSED RELOCATION	Horizontal Directional Drill a new section of gas line at the conflict location
METHOD	
PROS	The gas line will be out of the way for both interim and ultimate build of the drainage ditch
CONS	
ESTIMATE	\$400,000.00

Segment 2

ID	17
TYPE	Irrigation Line
PROPOSED RELOCATION	Irrigation line will be relocated to cross the ditch aerial since it is a gravity line
METHOD	
PROS	Pumps will not be needed to pump the water under the ditch to the other side
CONS	Irrigation line will be exposed in the ditch
ESTIMATE	\$3,262.50
ID	18
TYPE	Standpipe
PROPOSED RELOCATION	Standpipe will be removed and relocated with the relocation of the irrigation line
METHOD	
PROS	
CONS	
ESTIMATE	\$844.00
ID	19
TYPE	Irrigation Line
PROPOSED RELOCATION	Irrigation line will be relocated to cross the ditch aerial since it is a gravity line
METHOD	
PROS	Pumps will not be needed to pump the water under the ditch to the other side
CONS	Irrigation line will be exposed in the ditch
ESTIMATE	\$3,262.50
ID	20
TYPE	Overhead Power Line
PROPOSED RELOCATION	Power poles will be relocated to clear the ditch top opening
METHOD	
PROS	Less expensive than converting to underground service
CONS	
ESTIMATE	\$13,893.00
ID	21
TYPE	High Voltage Power Line
PROPOSED RELOCATION	Power poles will be relocated to clear the ditch top opening
METHOD	
PROS	
CONS	High Voltage Current might incur higher cost when relocating
ESTIMATE	\$65,905.00

ID	22
TYPE	24" Gas Line
PROPOSED RELOCATION	Gas line will be relocated to clear the
METHOD	bottom of the ditch
PROS	
CONS	
ESTIMATE	\$1,400,000.00

Segment 3

ID	23
TYPE	8" Gas Line
PROPOSED RELOCATION	Horizontal Directional Drill a new section
METHOD	of gas line at the conflict location
PROS	
CONS	
ESTIMATE	\$500,000.00
ID	24
TYPE	Water Line
PROPOSED RELOCATION	Relocate the water line before construction
METHOD	of the ditch.
PROS	
CONS	
ESTIMATE	\$17,760.00
ID	25
TYPE	Overhead Power Line
PROPOSED RELOCATION	Power poles will be relocated to clear the
METHOD	ditch top opening
PROS	
CONS	
ESTIMATE	\$13,893.00
ID	26
TYPE	Telephone Line
PROPOSED RELOCATION	Horizontal Directional Drill to clear the
METHOD	bottom of the ditch
PROS	Telephone lines will not obstruct the area
CONS	above the ditch
ESTIMATE	
ID	27
TYPE	Water Line
PROPOSED RELOCATION	Relocate the water line before construction
METHOD	of the ditch.
PROS	
CONS	
ESTIMATE	\$17,760.00

ID	28
TYPE	Telephone Line
PROPOSED RELOCATION	Horizontal Directional Drill to clear the
METHOD	bottom of the ditch
PROS	Telephone lines will not obstruct the area above the ditch
CONS	
ESTIMATE	

ID	29
TYPE	Overhead Power Line
PROPOSED RELOCATION	Power poles will be relocated to clear the
METHOD	ditch top opening
PROS	
CONS	
ESTIMATE	\$13,893.00

Segment 4

No potential utility conflicts exist.

Segment 5

ID	30
TYPE	Plugged Gas Well
PROPOSED RELOCATION	The plugged well will not have to be plugged deeper than existing
METHOD	
PROS	
CONS	The plugged well will be outside of the detention area
ESTIMATE	
ID	31
TYPE	Dry Hole
PROPOSED RELOCATION	The dry hole might have to be plugged deeper than existing
METHOD	
PROS	
CONS	The dry hole will be within the detention area
ESTIMATE	\$75,000*
ID	32
TYPE	Plugged Gas Well
PROPOSED RELOCATION	The plugged well might have to be plugged deeper than existing
METHOD	
PROS	
CONS	The plugged well will be within the detention area
ESTIMATE	\$75,000*
ID	33
TYPE	2" Gas Line
PROPOSED RELOCATION	The gas line is proposed to be relocated to the north side of the proposed drainage ditch
METHOD	
PROS	
CONS	
ESTIMATE	\$1,500,000.00

ID	34
TYPE	Gas Well
PROPOSED RELOCATION	Gas company insists gas well must stay operational
METHOD	
PROS	Gas well will be able to remain operational
CONS	Gas well is encroaching about 75 feet from the north ROW
ESTIMATE	\$75,000*
ID	35
TYPE	Plugged Gas Well
PROPOSED RELOCATION	The plugged well might have to be plugged deeper than existing
METHOD	
PROS	
CONS	The plugged well will be within the detention area
ESTIMATE	\$75,000*
ID	36
TYPE	Plugged Gas Well
PROPOSED RELOCATION	The plugged well might have to be plugged deeper than existing
METHOD	
PROS	
CONS	The plugged well will be within the detention area
ESTIMATE	\$75,000*
ID	37
TYPE	2" Gas Line
PROPOSED RELOCATION	Horizontal Directional Drill a new section of gas line at the conflict location before excavation of the ditch
METHOD	
PROS	Gas line will not be a conflict once ditch is excavated
CONS	
ESTIMATE	\$1,500,000.00

ID	38
TYPE	Gas Line
PROPOSED RELOCATION	
METHOD	Gas line has been abandoned and is no longer in use. Verification of existence needs to be determined
PROS	Relocation will not be necessary
CONS	Removal of abandoned line will need to be coordinated
ESTIMATE	\$1,500,000.00

ID	39
TYPE	Gas Line
PROPOSED RELOCATION	
METHOD	Gas line has been abandoned and is no longer in use. Verification of existence needs to be determined
PROS	Relocation will not be necessary
CONS	Removal of abandoned line will need to be coordinated
ESTIMATE	\$1,500,000.00

ID	40
TYPE	Gas Line
PROPOSED RELOCATION	
METHOD	Horizontal Directional Drill a new section of gas line at the conflict location before excavation of the ditch
PROS	Gas line will not be a conflict once ditch is excavated
CONS	
ESTIMATE	\$1,500,000.00

Segment 6

ID	41
TYPE	16" Gas Line
PROPOSED RELOCATION	
METHOD	Horizontal Directional Drill a new section of gas line at the conflict location before excavation of the ditch
PROS	Gas line will not be a conflict once ditch is excavated
CONS	
ESTIMATE	\$1,500,000.00
ID	42
TYPE	26" Gas Line
PROPOSED RELOCATION	
METHOD	Horizontal Directional Drill a new section of gas line at the conflict location before excavation of the ditch
PROS	Gas line will not be a conflict once ditch is excavated
CONS	
ESTIMATE	\$2,000,000.00
ID	43
TYPE	Gas Well
PROPOSED RELOCATION	
METHOD	No relocation required
PROS	Gas well should not interfere with the ROW of the drainage ditch
CONS	
ESTIMATE	
ID	44
TYPE	Overhead Power Line
PROPOSED RELOCATION	
METHOD	Power poles will be relocated to clear the ditch top opening
PROS	Less expensive than converting to underground service
CONS	
ESTIMATE	\$13,893.00

ID	45
TYPE	Overhead Power Line
PROPOSED RELOCATION	Power poles will be relocated to clear the ditch top opening
METHOD	
PROS	Less expensive than converting to underground service
CONS	
ESTIMATE	\$13,893.00
ID	46
TYPE	Irrigation Line
PROPOSED RELOCATION	Irrigation line will be relocated to cross the ditch aerial since it is a gravity line
METHOD	
PROS	Pumps will not be needed to pump the water under the ditch to the other side
CONS	Irrigation line will be exposed in the ditch
ESTIMATE	\$1,893.00
ID	47
TYPE	Telephone Line
PROPOSED RELOCATION	Telephone company proposed to
METHOD	Horizontal Directional Drill the conflicting segment of telephone line
PROS	
CONS	
ESTIMATE	\$23,503.00
ID	48
TYPE	Irrigation Line
PROPOSED RELOCATION	Irrigation line will be relocated to cross the ditch aerial since it is a gravity line
METHOD	
PROS	Pumps will not be needed to pump the water under the ditch to the other side
CONS	Irrigation line will be exposed in the ditch
ESTIMATE	\$1,893.00
ID	49
TYPE	Overhead Power Line
PROPOSED RELOCATION	Power poles will be relocated to clear the ditch top opening
METHOD	
PROS	Less expensive than converting to underground service
CONS	
ESTIMATE	\$13,893.00

ID	50
TYPE	12" Gas Line
PROPOSED RELOCATION	Gas company will relocate the gas line to clear the bottom of the ditch
METHOD	
PROS	Gas line will not be a conflict once excavation begins
CONS	
ESTIMATE	\$1,500,000.00
ID	51
TYPE	Irrigation Line
PROPOSED RELOCATION	Irrigation line will be relocated to cross the ditch aerial since it is a gravity line
METHOD	
PROS	Pumps will not be needed to pump the water under the ditch to the other side
CONS	Irrigation line will be exposed in the ditch
ESTIMATE	\$1,893.00
ID	52
TYPE	Irrigation Line
PROPOSED RELOCATION	Irrigation line will be relocated to cross the ditch aerial since it is a gravity line
METHOD	
PROS	Pumps will not be needed to pump the water under the ditch to the other side
CONS	Irrigation line will be exposed in the ditch
ESTIMATE	\$1,893.00
ID	53
TYPE	Telephone Line
PROPOSED RELOCATION	Telephone company proposed to
METHOD	Horizontal Directional Drill the conflicting segment of telephone line
PROS	
CONS	
ESTIMATE	\$22,896.00
ID	54
TYPE	Overhead Power Line
PROPOSED RELOCATION	Power poles will be relocated to clear the ditch top opening
METHOD	
PROS	Less expensive than converting to underground service
CONS	
ESTIMATE	\$13,893.00

ID	55
TYPE	Irrigation Line
PROPOSED RELOCATION	Irrigation line will be relocated to cross the ditch aerial since it is a gravity line
METHOD	
PROS	Pumps will not be needed to pump the water under the ditch to the other side
CONS	Irrigation line will be exposed in the ditch
ESTIMATE	\$1,893.00

ID	56
TYPE	30" Gas Line
PROPOSED RELOCATION	Gas line would need to be relocated if the ditch flow line needs to be deeper than existing
METHOD	
PROS	
CONS	The size of the gas line would affect the cost significantly if it were to be relocated
ESTIMATE	

4. Maps

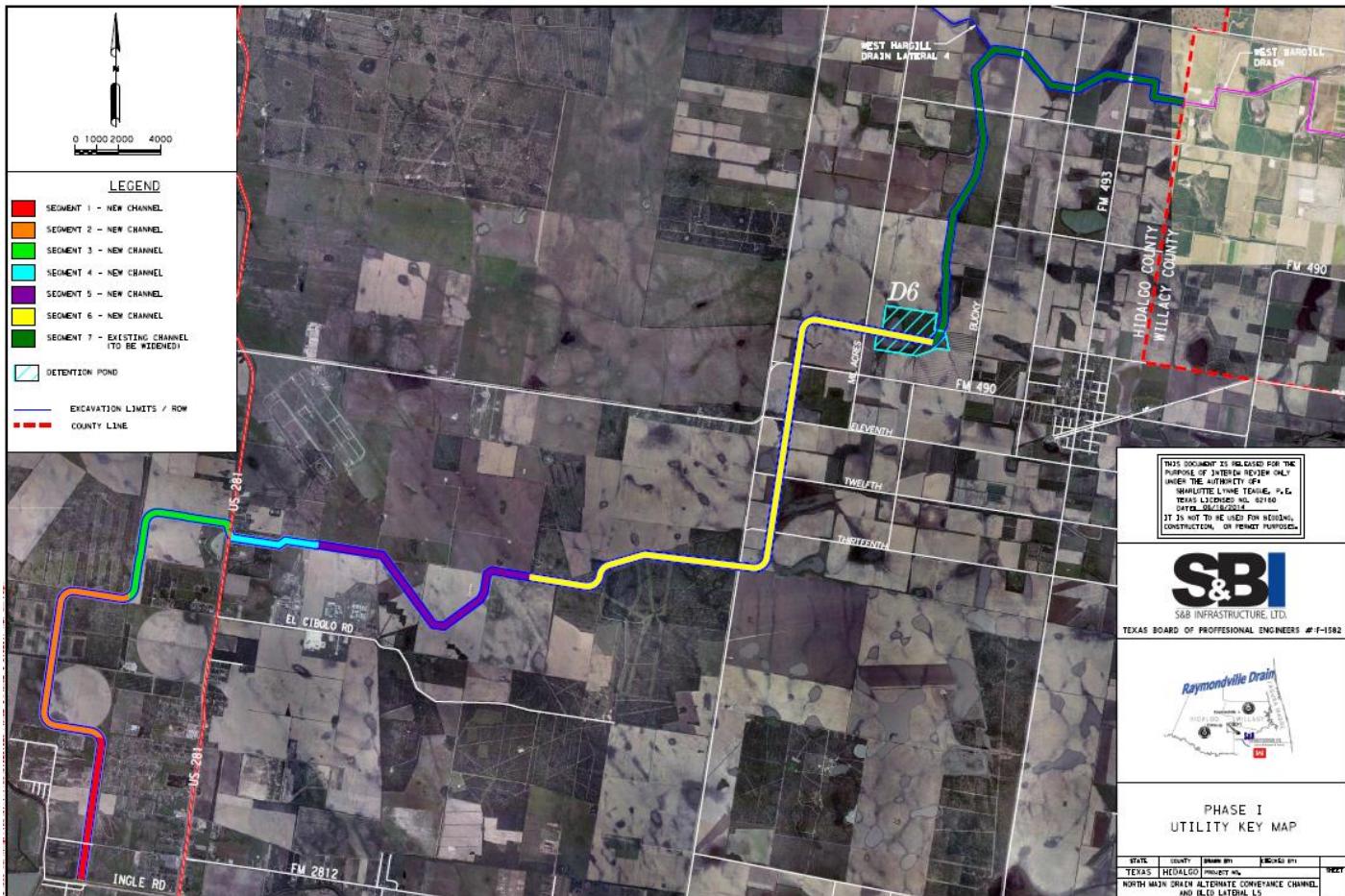


Figure 1: North Main Drain Diversion Channel (NMD-DC) Segment Map

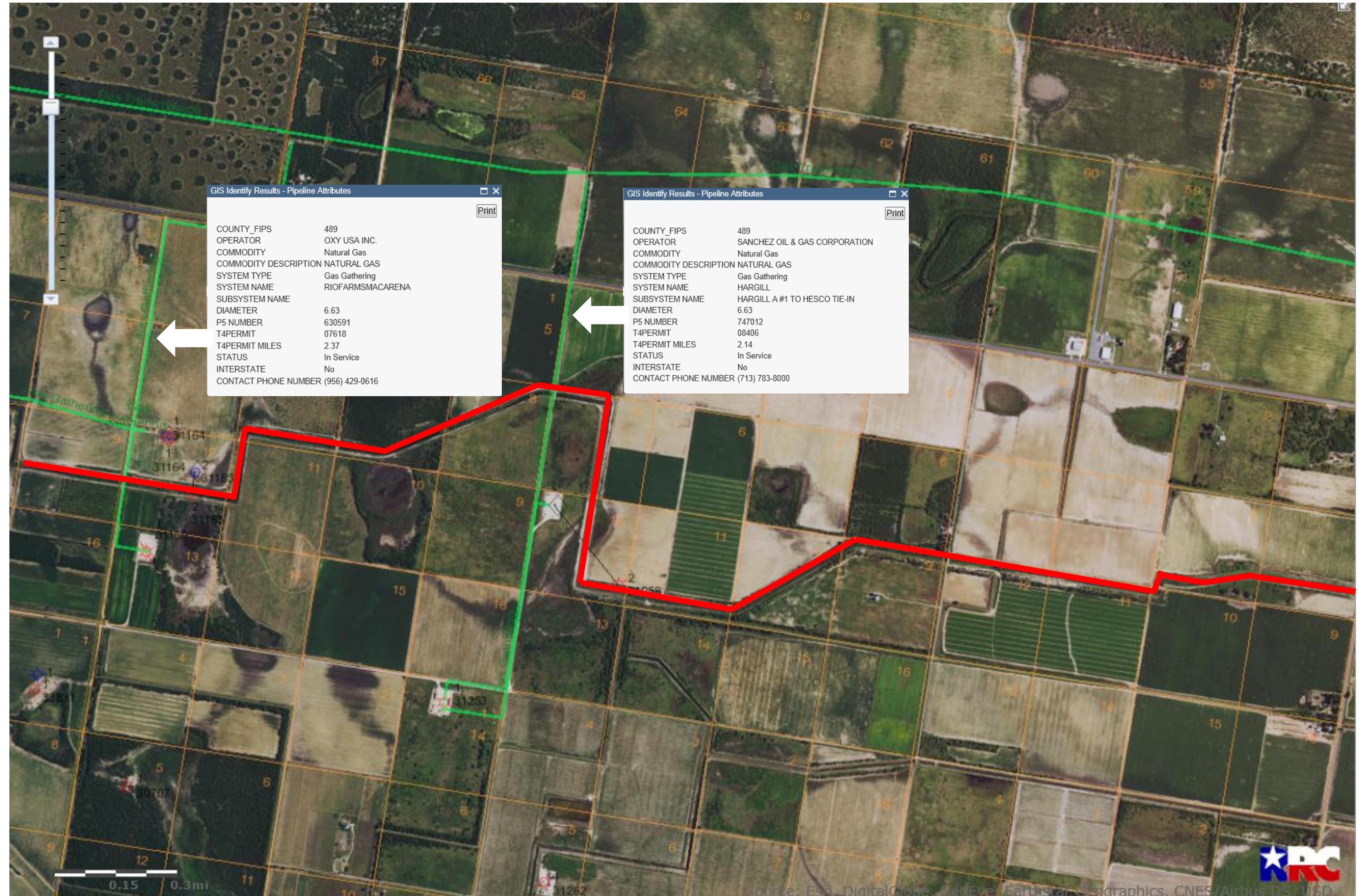
*Price is a ballpark average of \$9/ft at a depth of 8,600 ft.

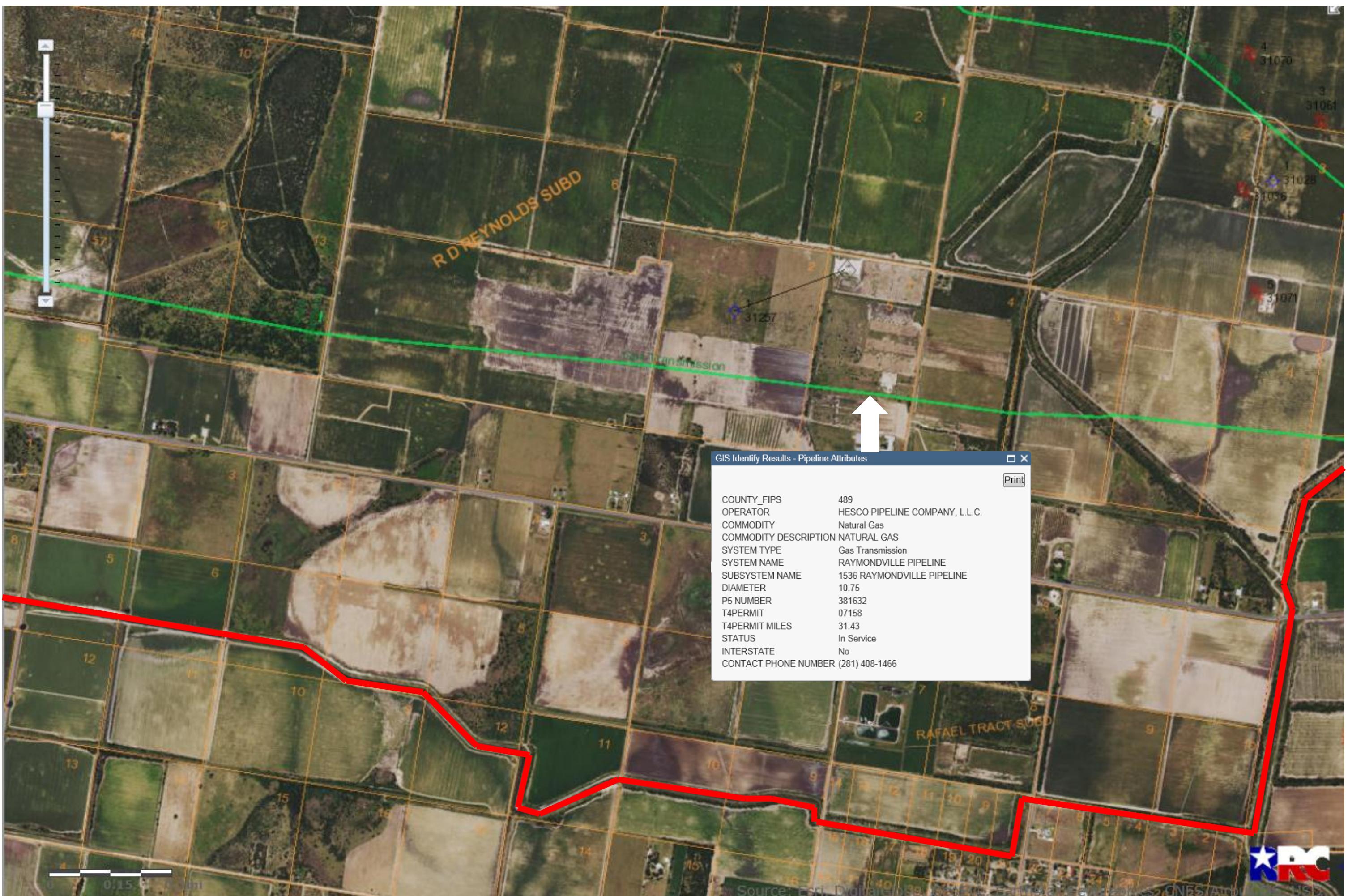
PHASE	STATION	CONFLICT		UTILITY COMPANY	CONTACT NAME	CONTACT PHONE NUMBER	ADDRESS	ACTION	ESTIMATE	NOTES
		ID	TYPE							
PHASE 3	990+50		7" Gas Line	OXY USA INC.		(956) 429-0616				
	1034+00		24" Standpipe							
	1054+00		Power Line							
	1054+20		7" Gas Line	Sanchez Oil & Gas Corporation		(713) 783-8000				
	1091+00		18" Irrigation Line							
	1091-1105		Concrete lined canal							
	1105+00		18" Irrigation Line							
	1107+50		18" Irrigation Line							
	1134+00		Power Line	Magic Valley Electric Cooperative						
	1140+75		24" Irrigation Line & Concrete lined canal							
	1189+00		Power Line	Magic Valley Electric Cooperative						
	1202+25		Irrigation Canal							
	1257+30		24" Irrigation Line & Concrete lined canal							
	1265+25		60" Standpipe							
	1265+50		18" Irrigation Line							
	1308+20		36" Standpipe							
	1308+30		18" Irrigation Line							
	1315+75		24" Standpipe							
	1319+50		18" Standpipe							
	1319+50		18" Irrigation Line							
	1334+00		Power Line	Magic Valley Electric Cooperative						
	1376+00		18" Standpipe							
	1375.5-1386		Irrigation Canal							
	1383+75		(2) 18" Standpipe							
	1398+00		Power Line	Magic Valley Electric Cooperative						
	1398+60		18" Water Line							
	1399+80		24" Water Line							

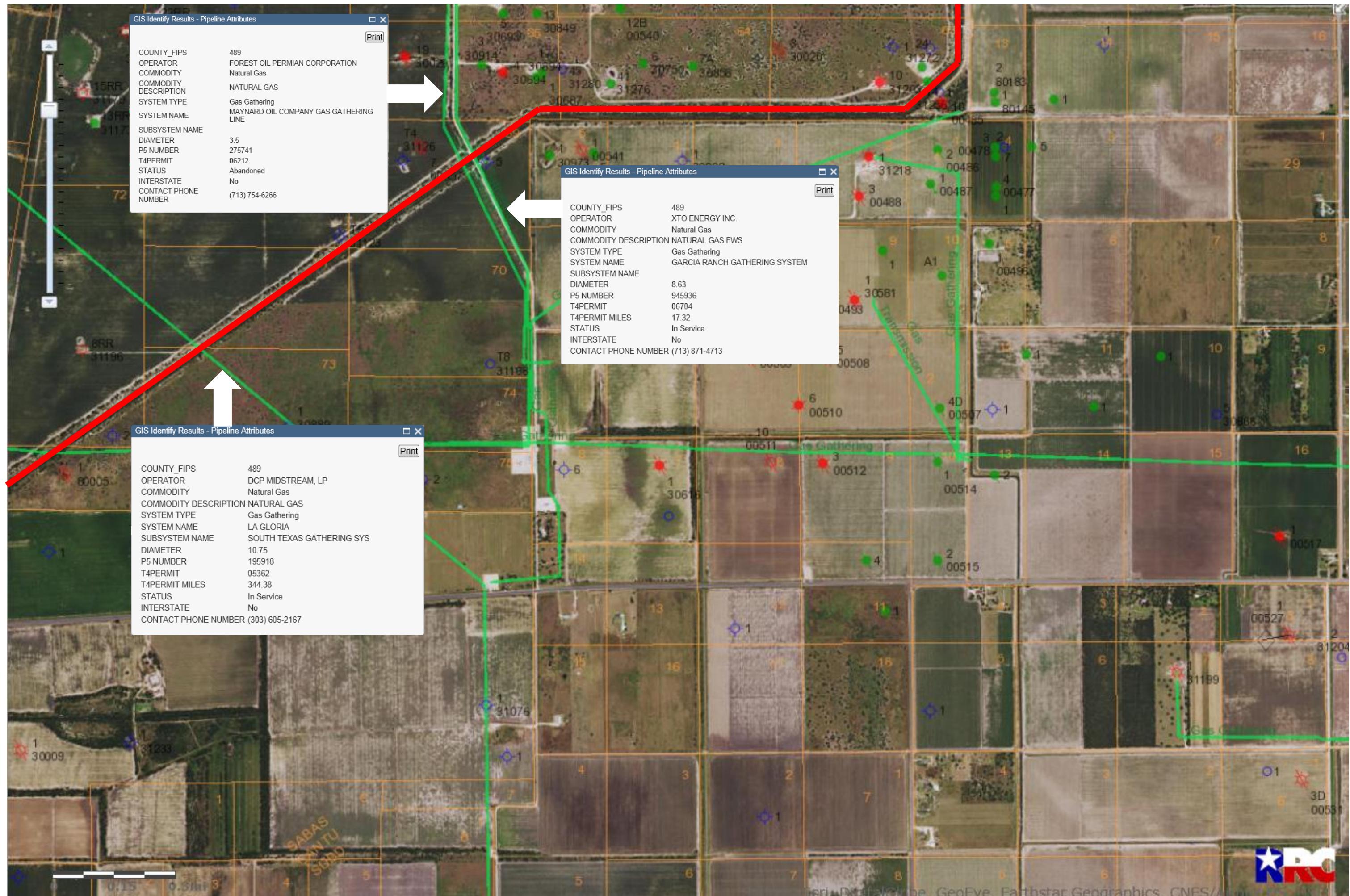
PHASE	STATION	CONFLICT		UTILITY COMPANY	CONTACT NAME	CONTACT PHONE NUMBER	ADDRESS	ACTION	ESTIMATE	NOTES
		ID	TYPE							
PHASE 6	1408+00		24" Standpipe							
	1408+60		18" Irrigation Line							
	1408+75		Concrete lined canal							
	1426+00		11" Gas Line	HESCO Pipeline Company, L.L.C.		(284) 408-1466				
	1449+00		11" Gas Line	DCP Midstream, LP		(303) 605-2167				Gas Line is exposed through ditch opening
	1490+00		3.5" Gas Line	Forest Oil Permian Corporation		(713) 754-6266				
	1491+00		Power Line	Magic Valley Electric Cooperative						
	1492+00		8.63" Gas Line	XTO Energy Inc.		(713) 871-4713				
	1680+00		Power Line	Magic Valley Electric Cooperative						
	1720-1764		Power Line	Magic Valley Electric Cooperative						
	1764+00		Power Line	Magic Valley Electric Cooperative						
	1765+30		24" Standpipe							
	1803+50		3.5" Gas Line	Tennessee Gas Pipeline Co. L.L.C.		(713) 369-9000				
	1816+00		Power Line	Magic Valley Electric Cooperative						
	1858+25		18" Irrigation Line							
	1858+30		24" Standpipe							
	1858+50		Concrete lined canal							
	1884+20		18" Irrigation Line							
	1884+20		24" Standpipe & 36" Standpipe							
	1884+50-1908		Irrigation canal							
	1884+70		12.75" Gas Line	DCP Texas Intrastate PL. LLC.		(303) 605-2167				
	1911+00		Power Line	Magic Valley Electric Cooperative						
	1949+50		6.63" Gas Line	HESCO Pipeline Company, L.L.C.		(281) 408-1466				Gas Line is exposed through ditch opening
	1935+60		18" Irrigation Line							
	1961+60		24" Irrigation Line							
	1961+60		Concrete lined canal							

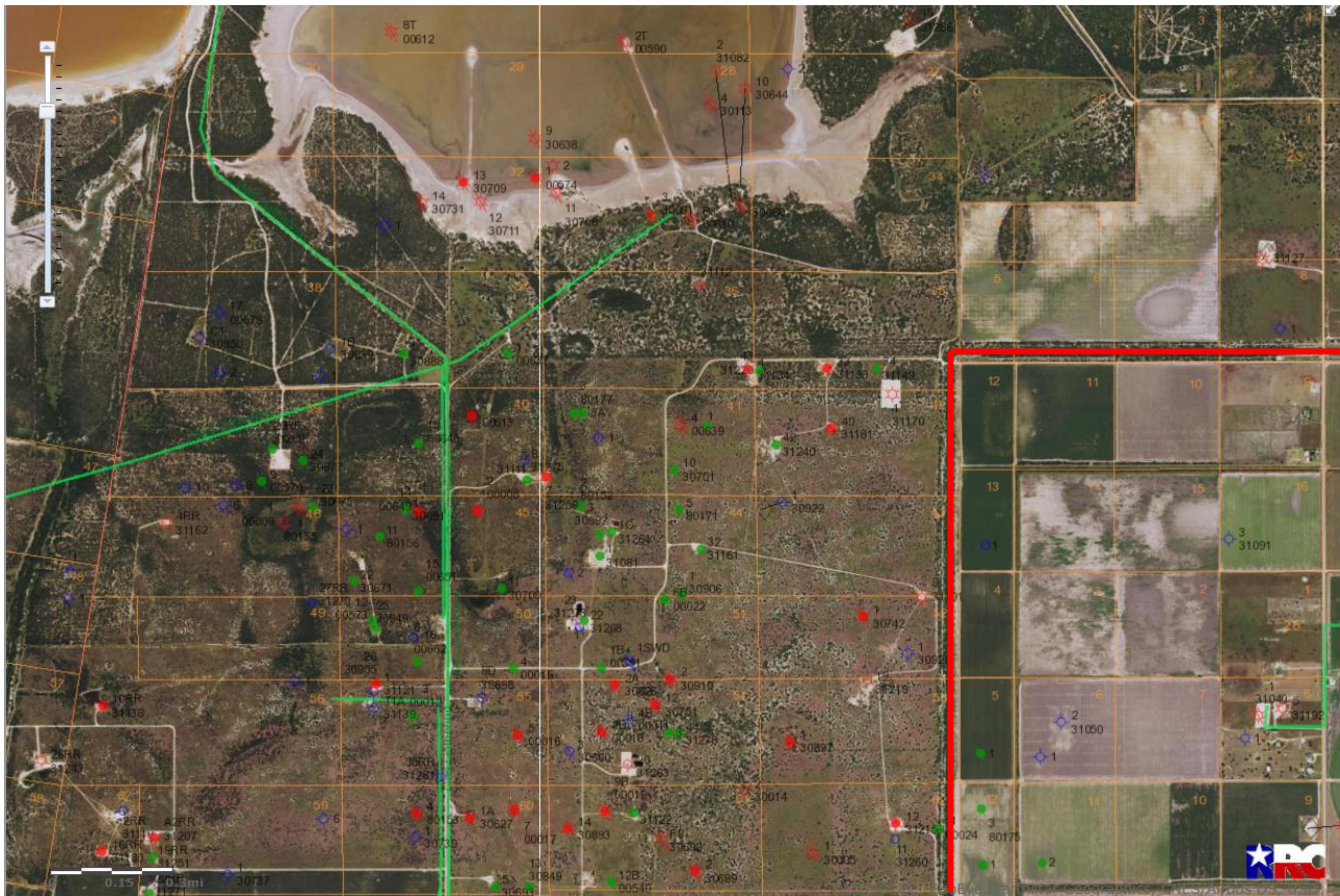
PHASE	STATION	CONFLICT		UTILITY COMPANY	CONTACT NAME	CONTACT PHONE NUMBER	ADDRESS	ACTION	ESTIMATE	NOTES
		ID	TYPE							
PHASE 5	1968+00		Power Line	Magic Valley Electric Cooperative						
	1980+00		Power Line	Magic Valley Electric Cooperative						
	2038+50		6.63" Gas Line	Seadrift Pipeline Corporation		(979) 238-0361				
	2051+00		Power Line	AEP Texas						
	2205+50		12.75" Gas Line	DCP Texas Intrastate PL. LLC.		(303) 605-2167				
	2263+00		Power Line	Magic Valley Electric Cooperative						
	2444+75		12" Water Line							
	2445+00		Power Line	Magic Valley Electric Cooperative						

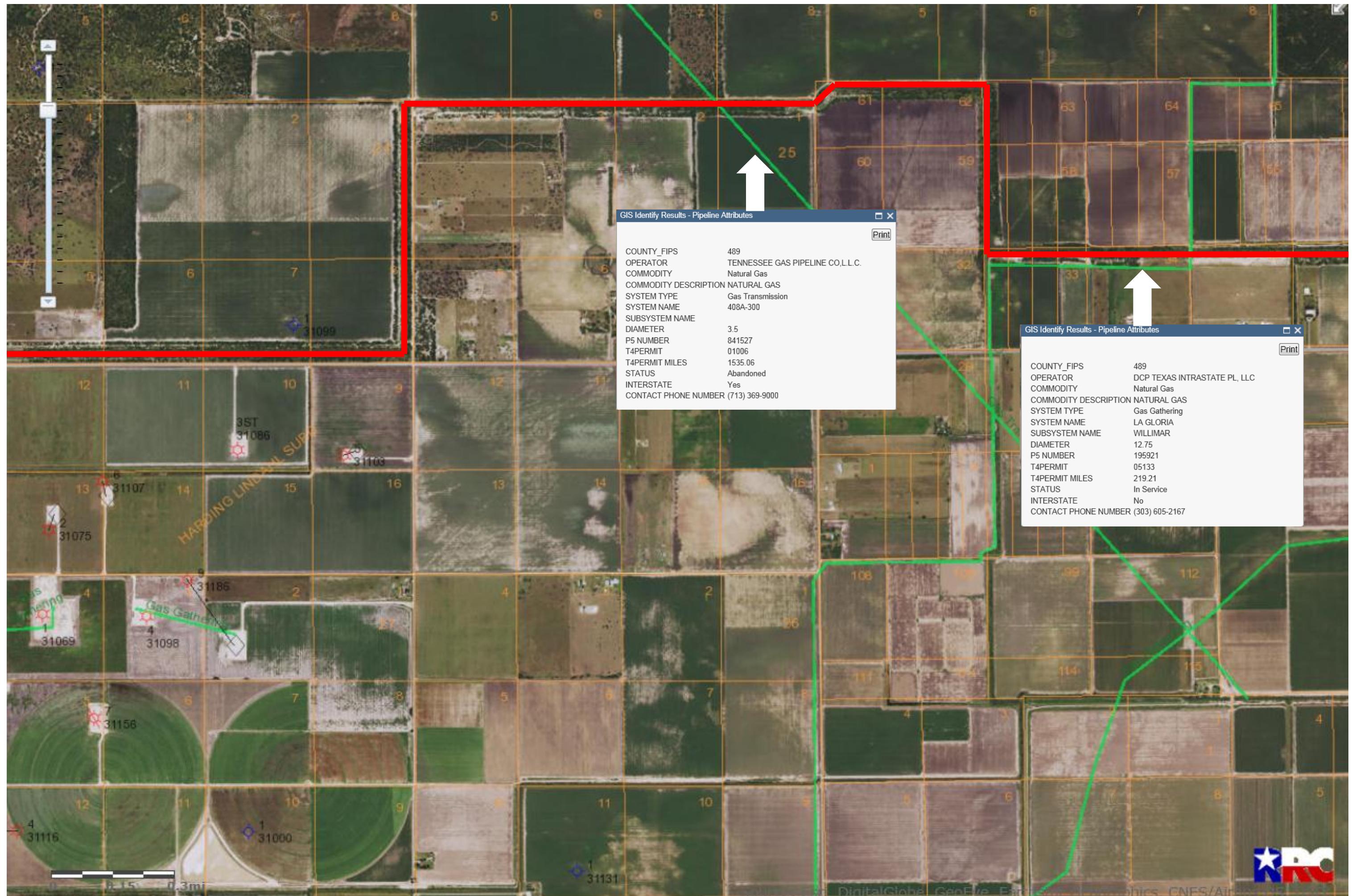
PHASE 4			Power Line							Company needs to be verified
	2576+00			AEP Texas						
	2657+00		Power Line	AEP Texas						
	2659+00		Power Line	AEP Texas						

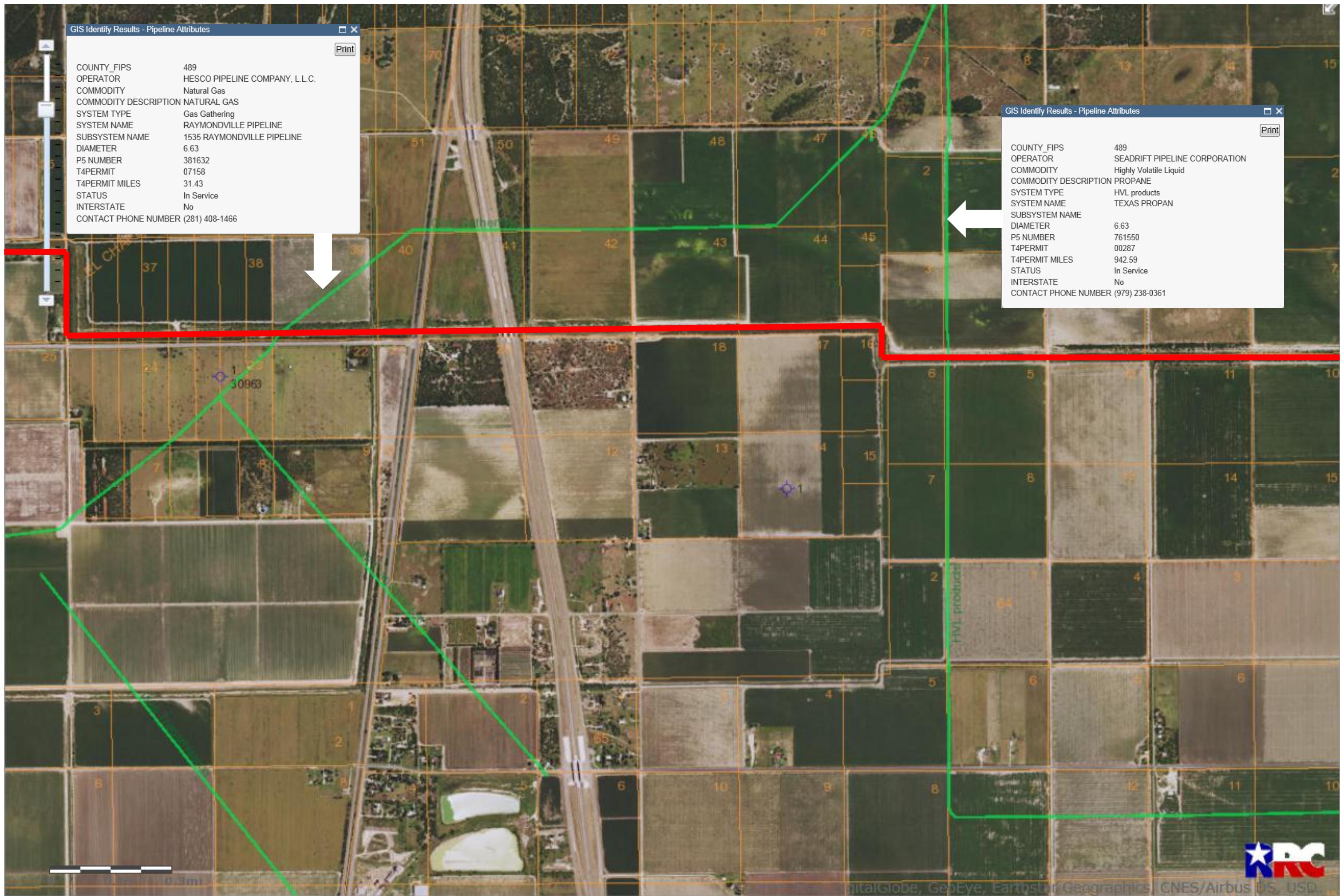


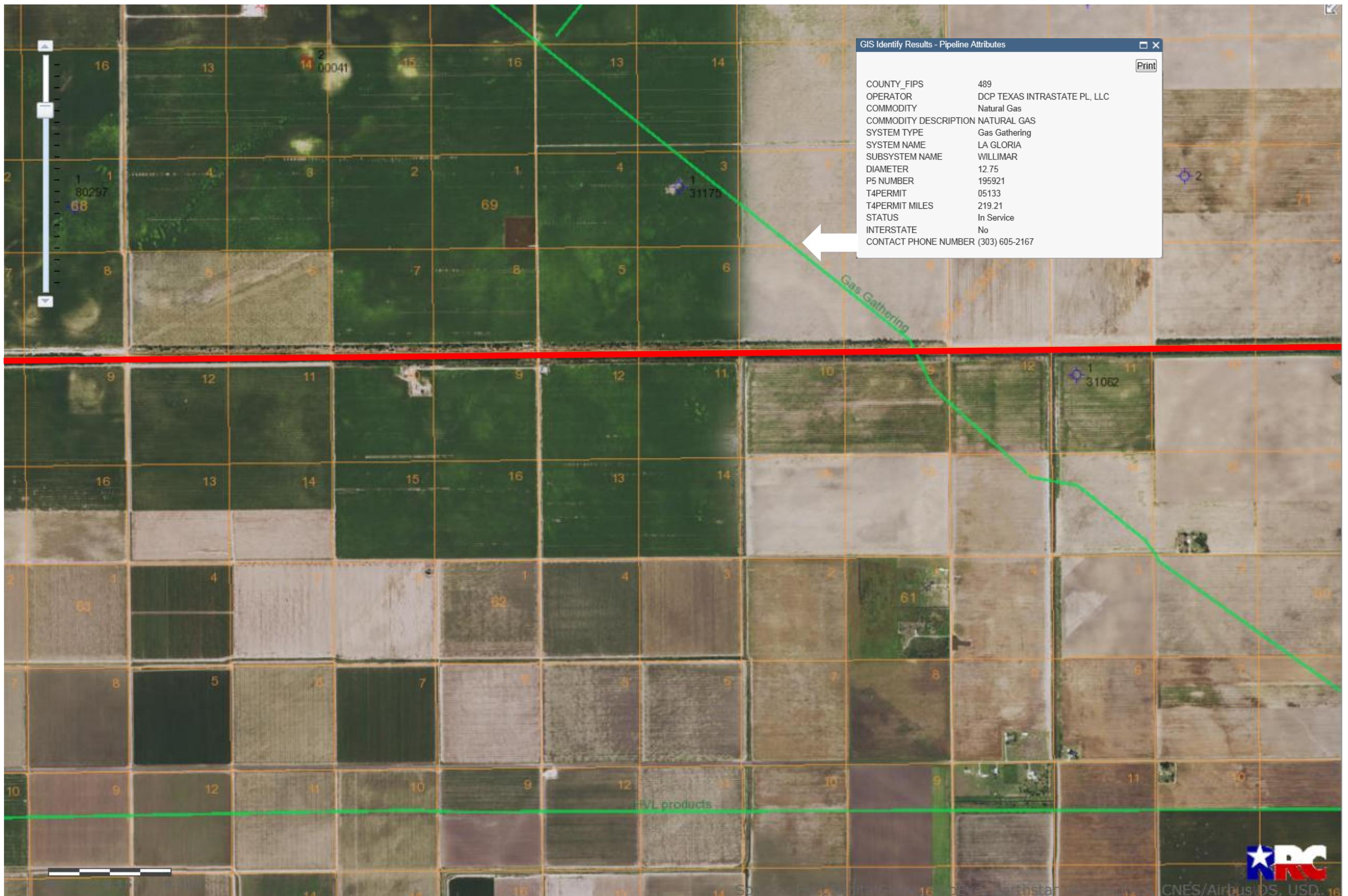


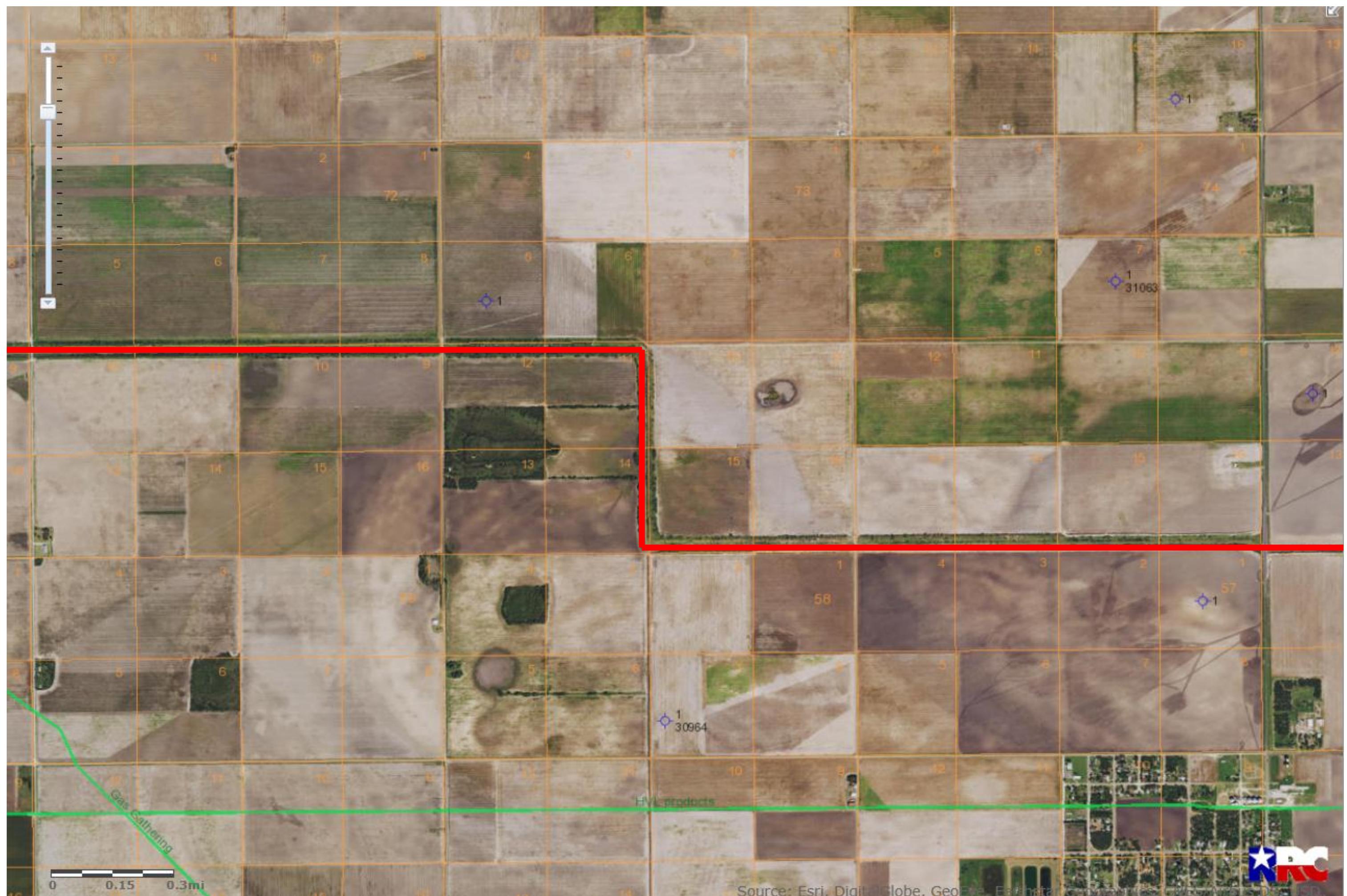


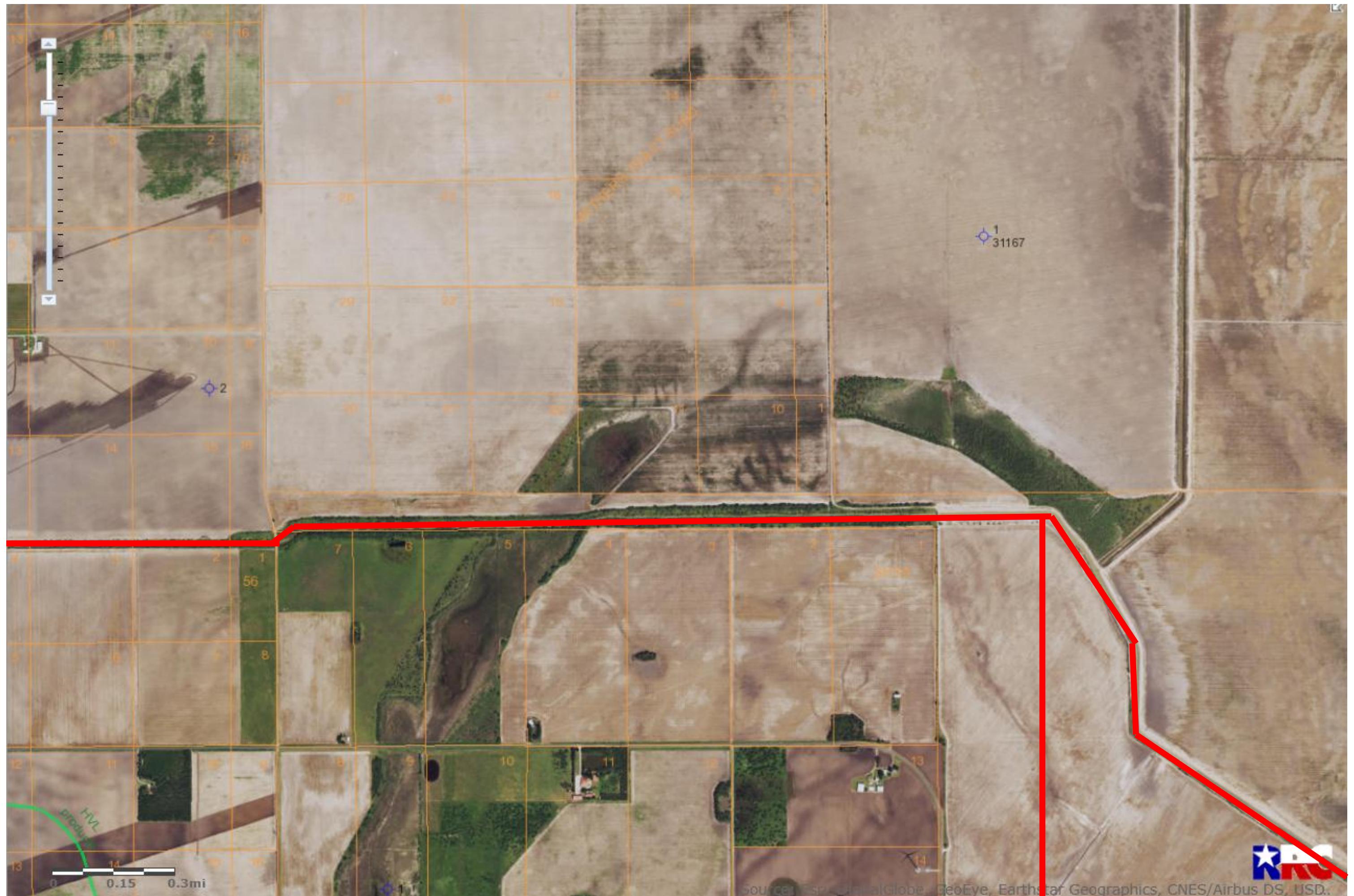


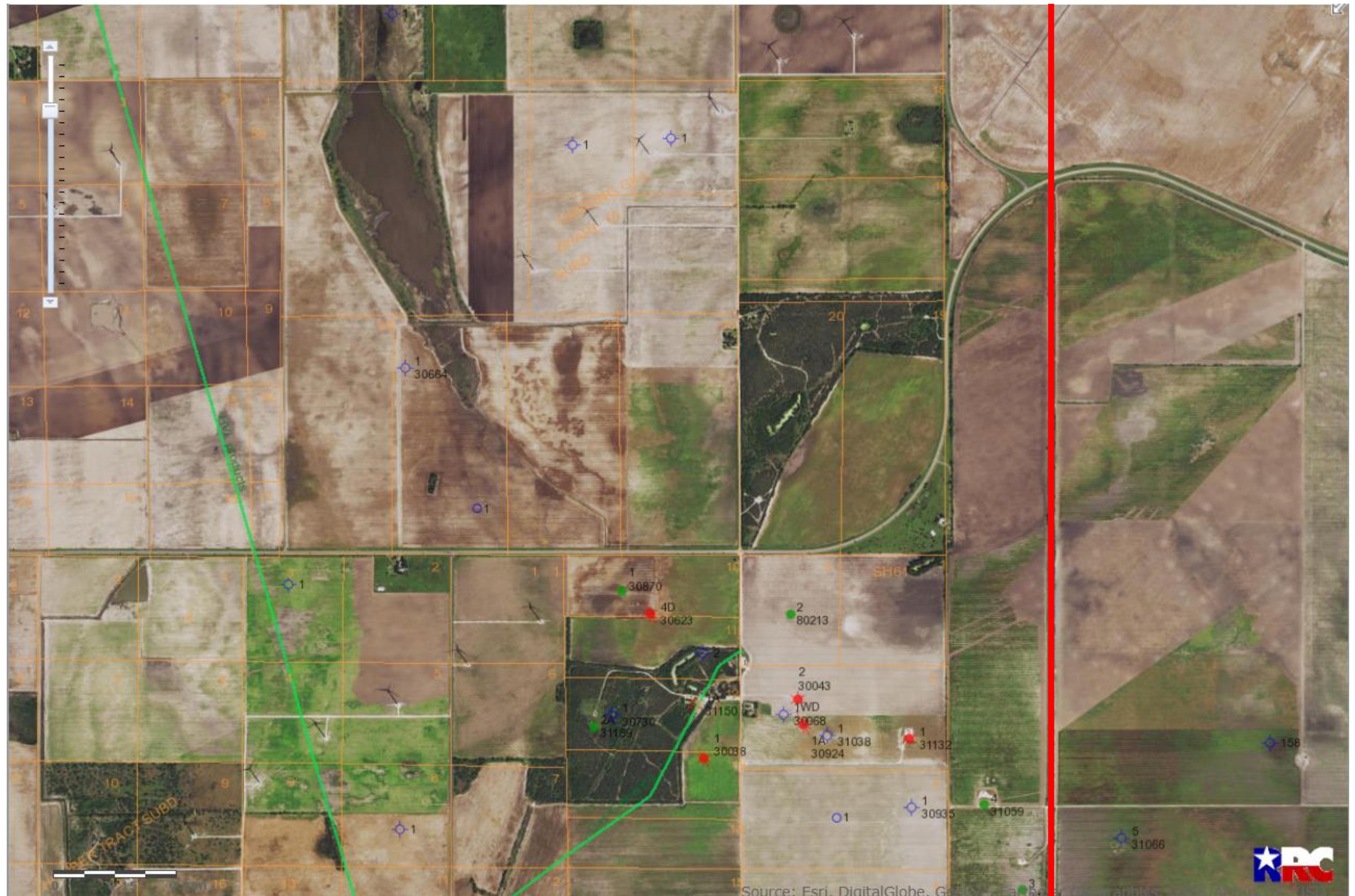


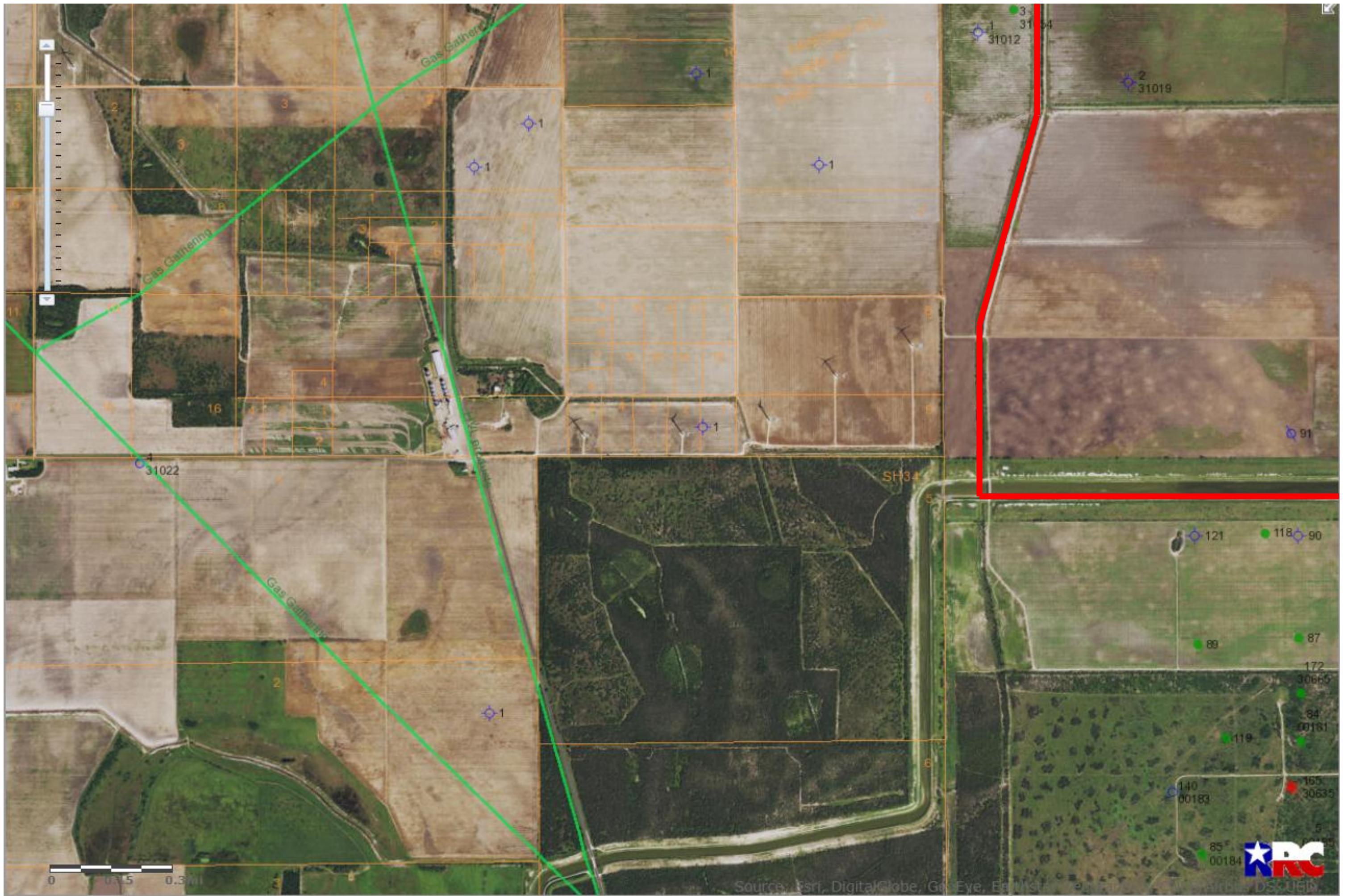


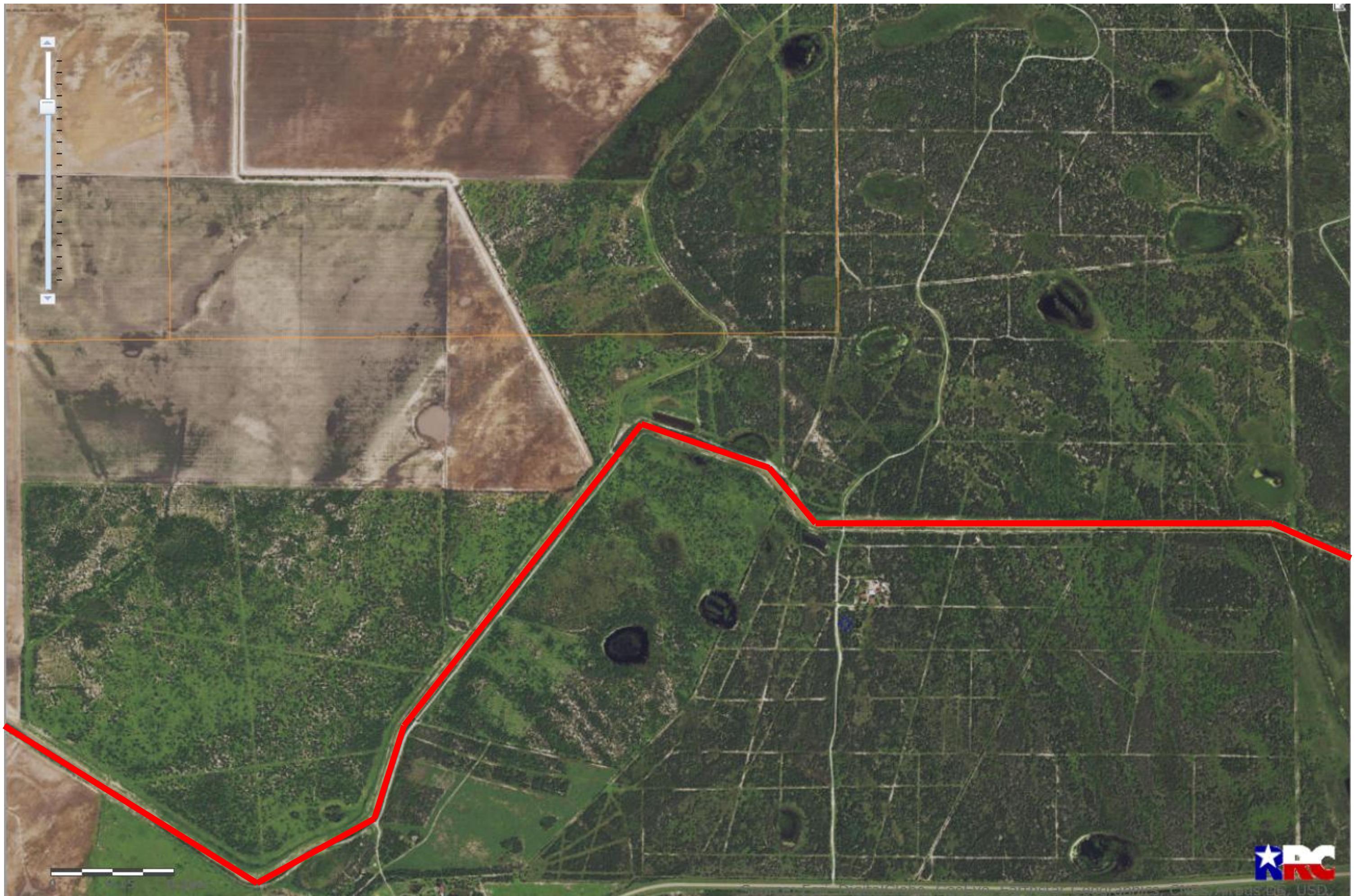












KRC

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