

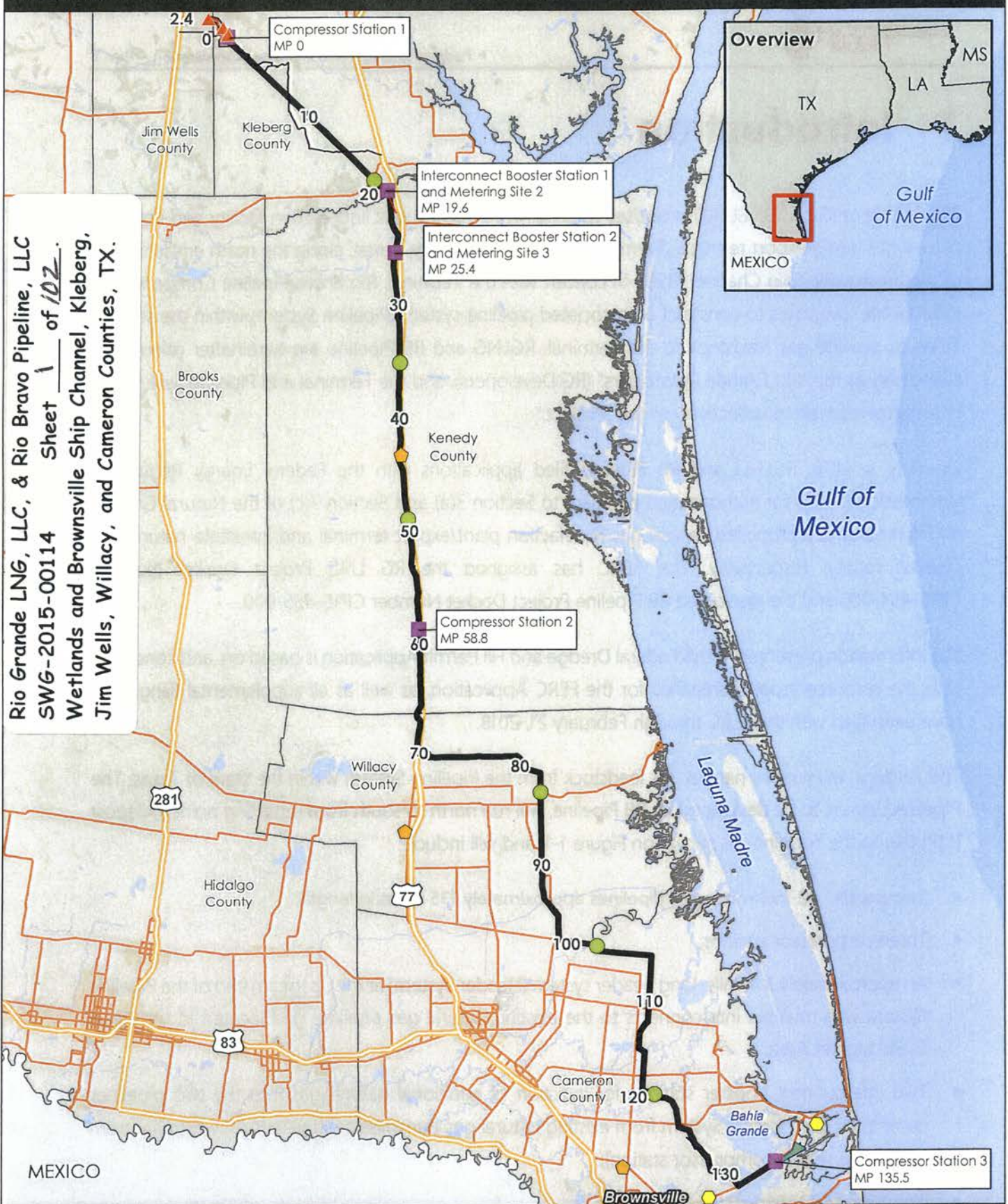
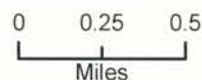


FIGURE 1-1
PROJECT LOCATION
RB PIPELINE SYSTEM
PROJECT

[illegible]

- ### Legend
- | | | | |
|---|--|---|--------------------------------|
|  | Milepost |  | Proposed Header System |
|  | Meter Station |  | Proposed Rio Bravo Pipeline |
|  | Mainline Valve |  | Permanent Access Road |
|  | Interconnect Booster and Meter Station |  | Temporary Access Road |
|  | Contractor Yard |  | Proposed Terminal LNG Boundary |
|  | Storage Yard |  | LNG Terminal Site |
|  | Compressor Station |  | County Boundary |
| | |  | USGS 7.5 min. quadrangle |



Scale: 1:35,000

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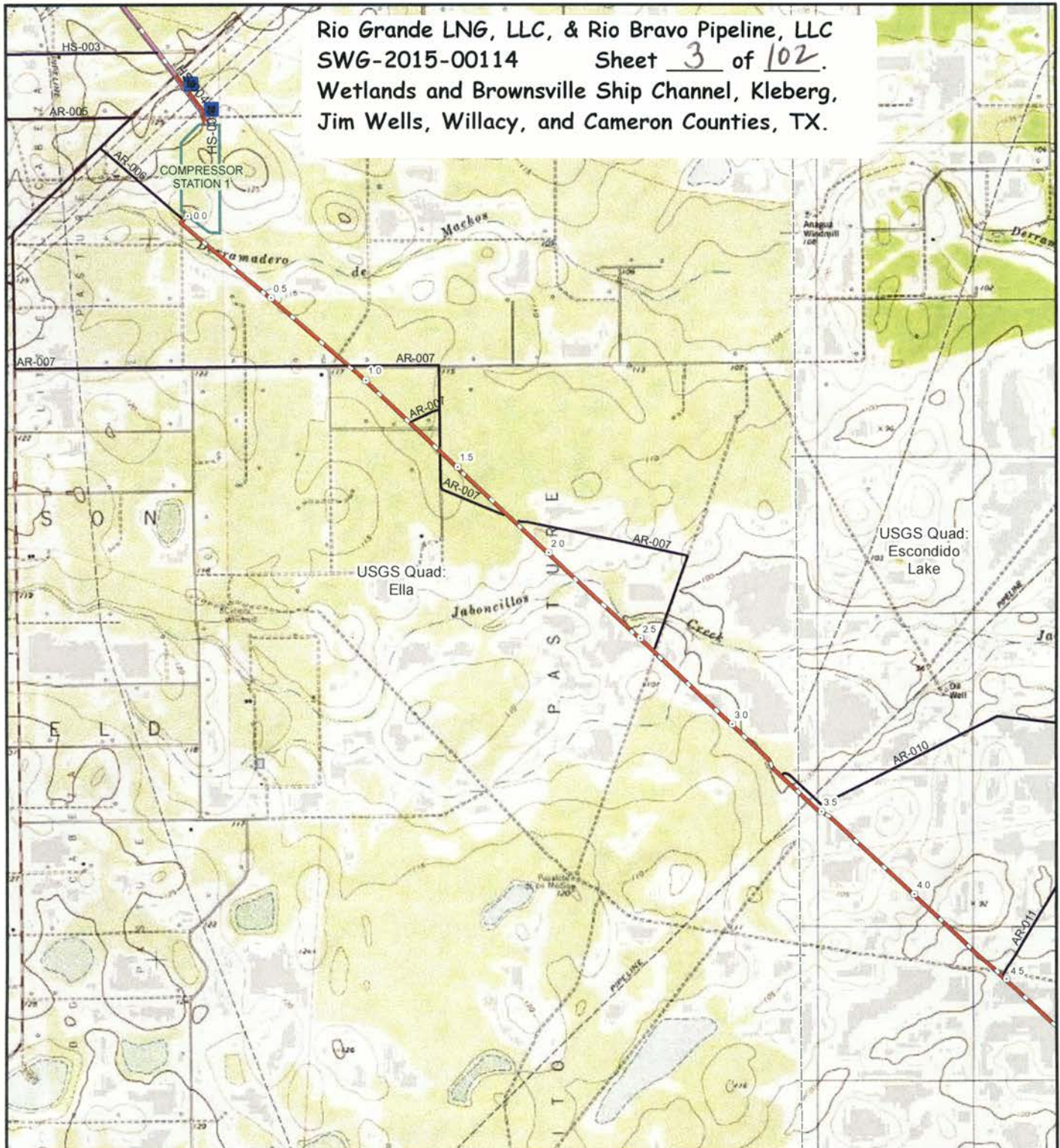
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Rio Grande LNG Project

Topographic Map

Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 3 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend

- | | |
|--|----------------------------------|
| ○ Milepost | — Proposed Header System |
| ■ Meter Station | — Proposed Rio Bravo Pipeline |
| ■ Mainline Valve | — Permanent Access Road |
| □ Interconnect Booster and Meter Station | — Temporary Access Road |
| □ Contractor Yard | □ Proposed Terminal LNG Boundary |
| □ Storage Yard | □ LNG Terminal Site |
| □ Compressor Station | □ County Boundary |
| | □ USGS 7.5 min. quadrangle |

0 0.25 0.5
Miles



Scale: 1:35,000

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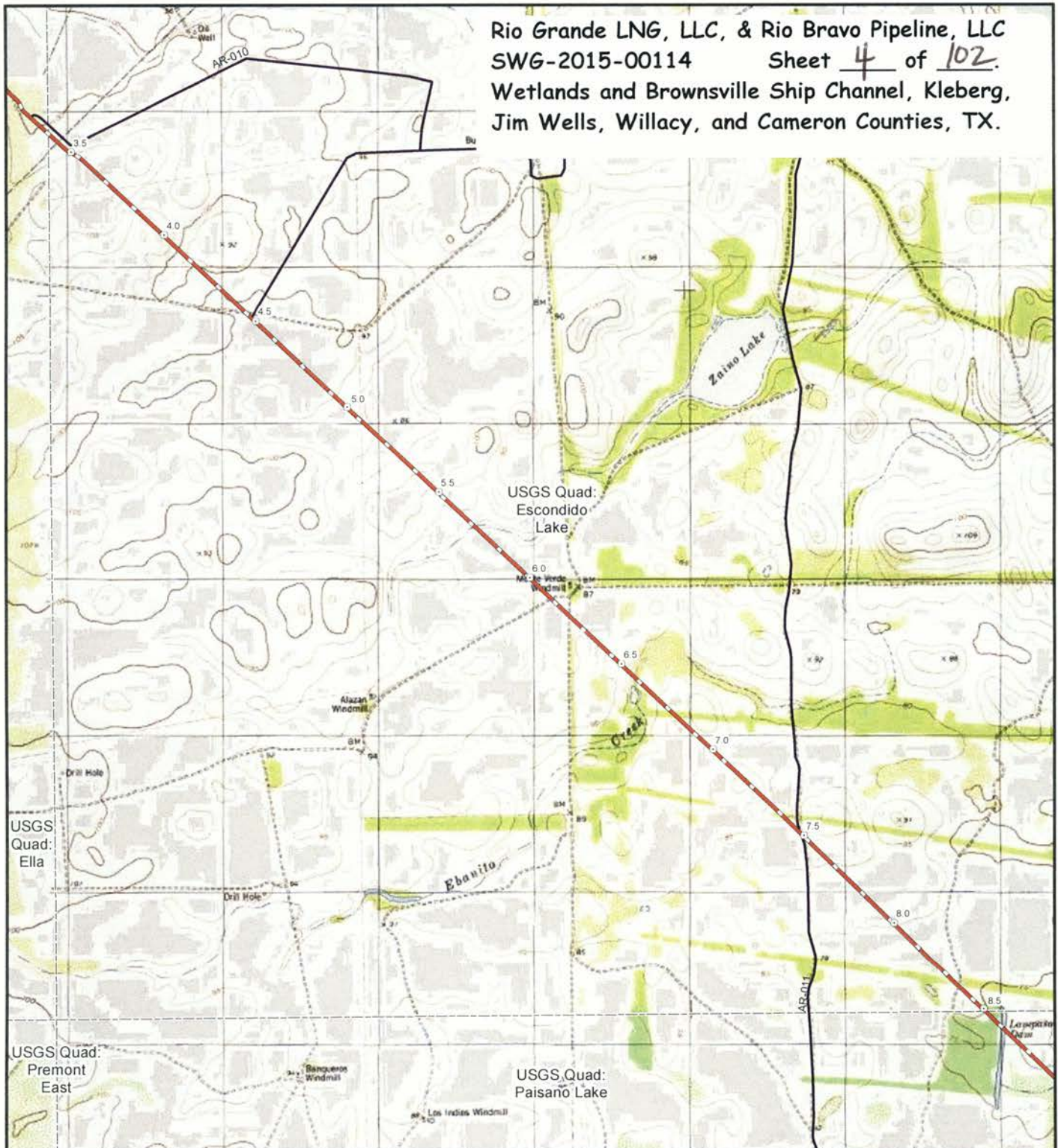
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Rio Grande LNG Project

Topographic Map

Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 4 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend

- | | |
|--|----------------------------------|
| ○ Milepost | — Proposed Header System |
| ■ Meter Station | — Proposed Rio Bravo Pipeline |
| ■ Mainline Valve | — Permanent Access Road |
| □ Interconnect Booster and Meter Station | — Temporary Access Road |
| □ Contractor Yard | □ Proposed Terminal LNG Boundary |
| □ Storage Yard | □ LNG Terminal Site |
| □ Compressor Station | □ County Boundary |
| | □ USGS 7.5 min. quadrangle |

0 0.25 0.5
Miles



Scale: 1:35,000

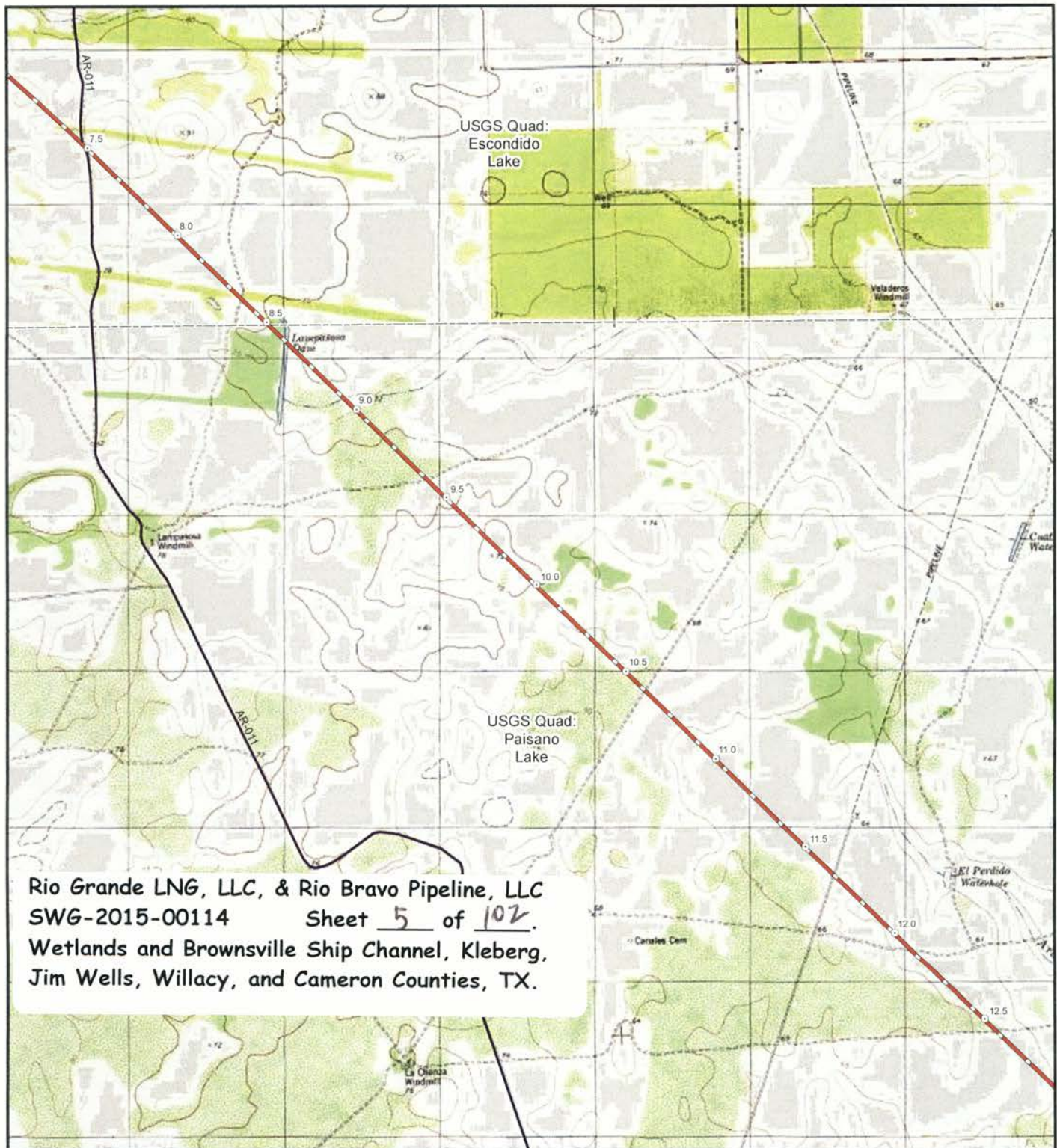
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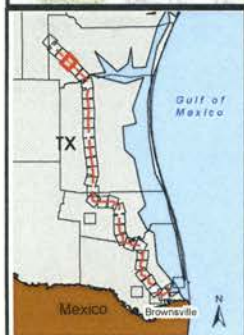
Rio Grande LNG Project

Topographic Map

Appendix B



Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 5 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend

- | | |
|--|----------------------------------|
| ○ Milepost | — Proposed Header System |
| ■ Meter Station | — Proposed Rio Bravo Pipeline |
| ▼ Mainline Valve | — Permanent Access Road |
| □ Interconnect Booster and Meter Station | — Temporary Access Road |
| □ Contractor Yard | □ Proposed Terminal LNG Boundary |
| □ Storage Yard | □ LNG Terminal Site |
| □ Compressor Station | □ County Boundary |
| | □ USGS 7.5 min. quadrangle |

0 0.25 0.5
Miles



Scale: 1:35,000

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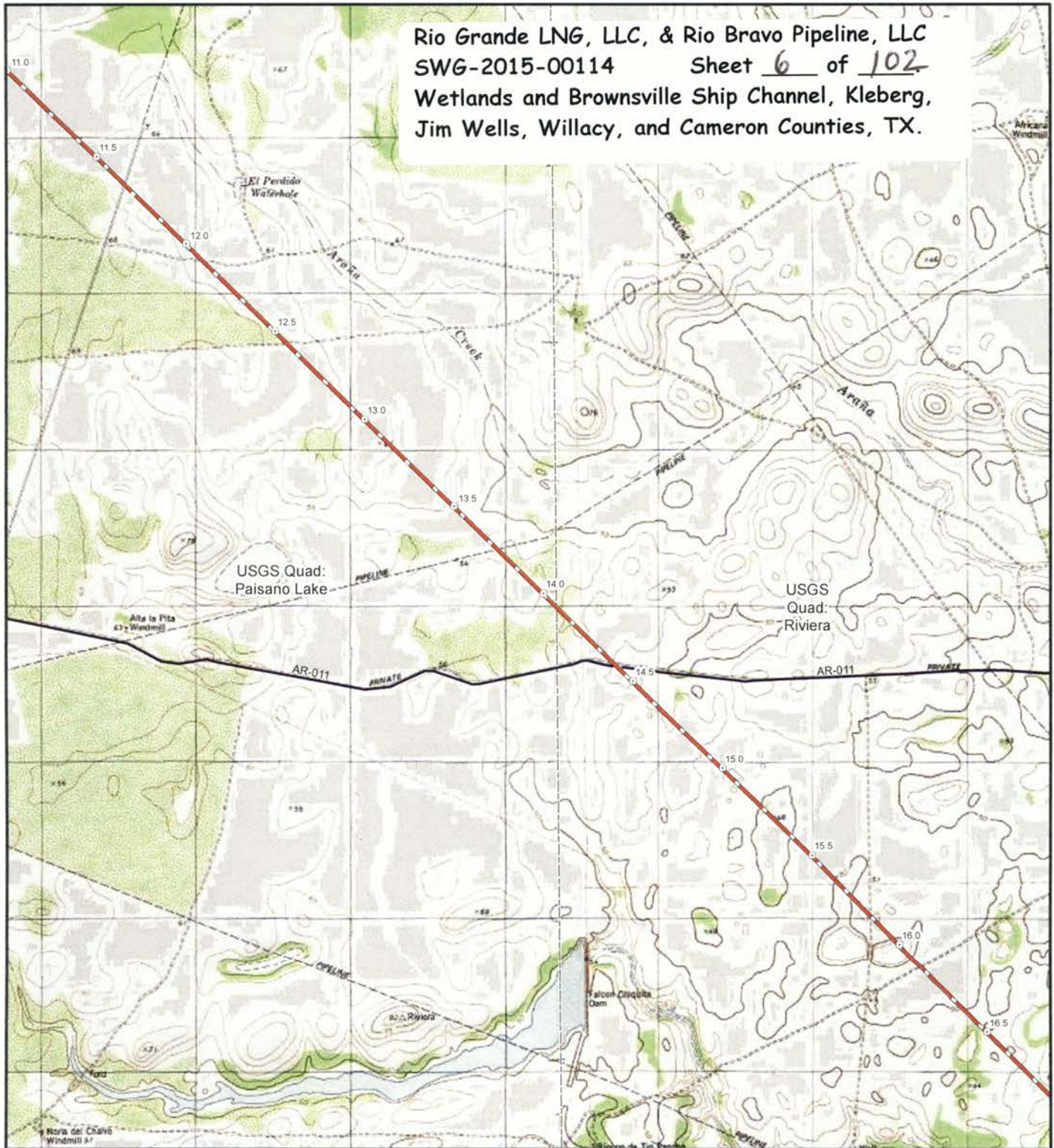
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Rio Grande LNG Project

Topographic Map

Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 6 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
	Milepost
	Meter Station
	Mainline Valve
	Interconnect Booster and Meter Station
	Contractor Yard
	Storage Yard
	Compressor Station
	Proposed Header System
	Proposed Rio Bravo Pipeline
	Permanent Access Road
	Temporary Access Road
	Proposed Terminal LNG Boundary
	LNG Terminal Site
	County Boundary
	USGS 7.5 min. quadrangle

0 0.25 0.5
Miles

N

Scale: 1:35,000

Service Layer Credits:
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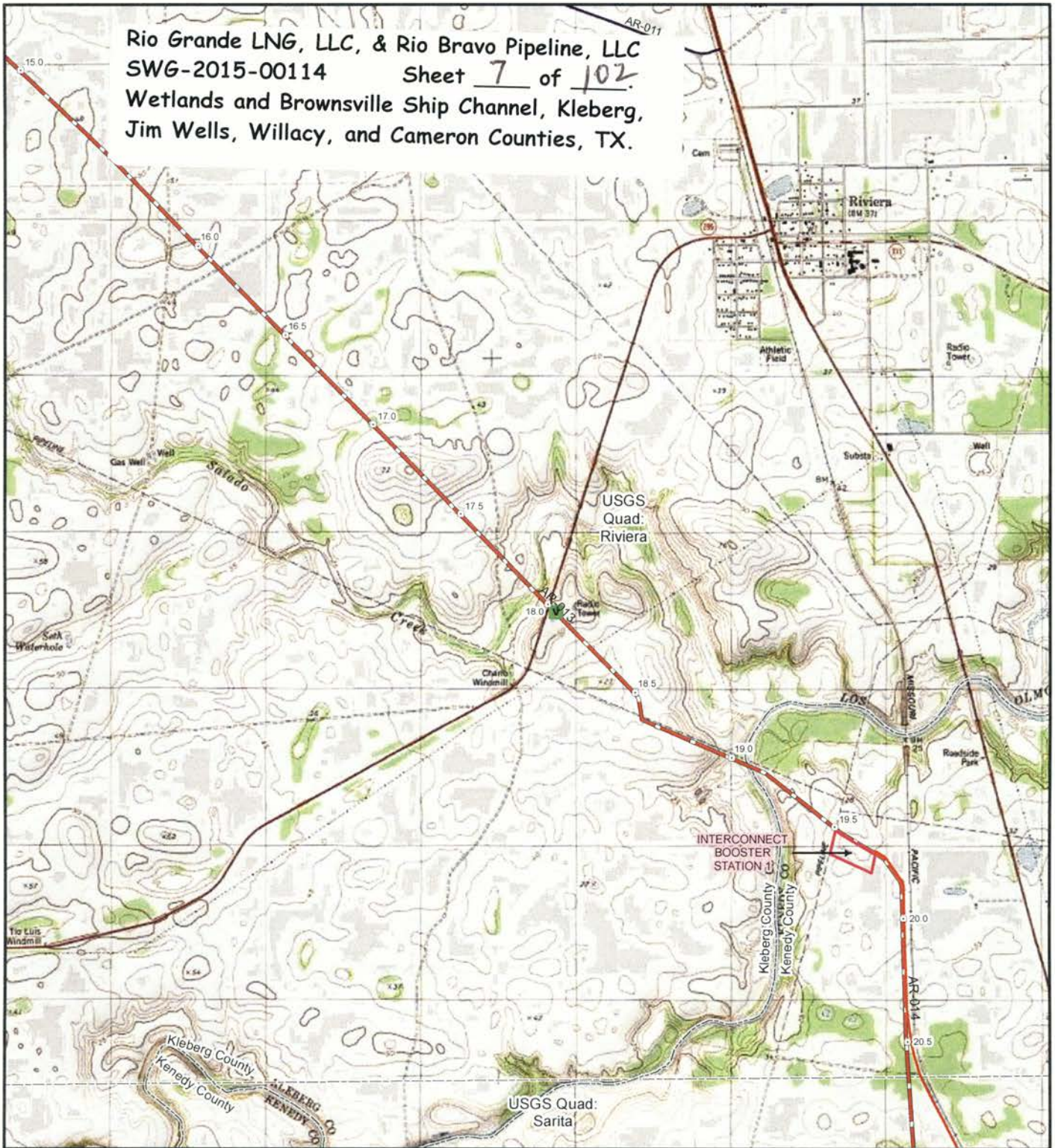
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Rio Grande LNG Project

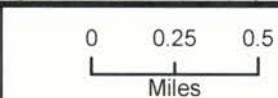
Topographic Map

Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 7 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
	Milepost
	Meter Station
	Mainline Valve
	Interconnect Booster and Meter Station
	Contractor Yard
	Storage Yard
	Compressor Station
	Proposed Header System
	Proposed Rio Bravo Pipeline
	Permanent Access Road
	Temporary Access Road
	Proposed Terminal LNG Boundary
	LNG Terminal Site
	County Boundary
	USGS 7.5 min. quadrangle



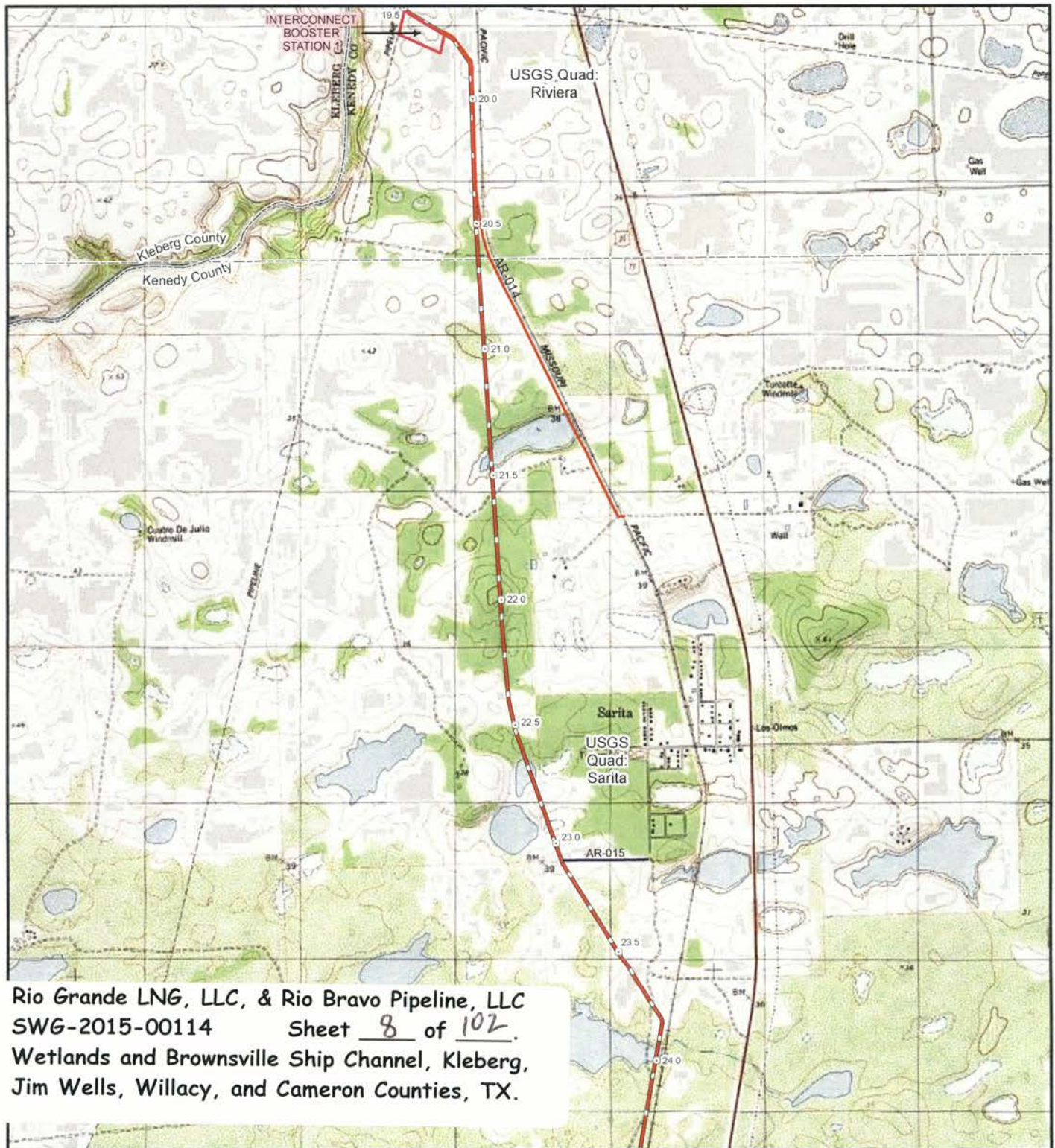
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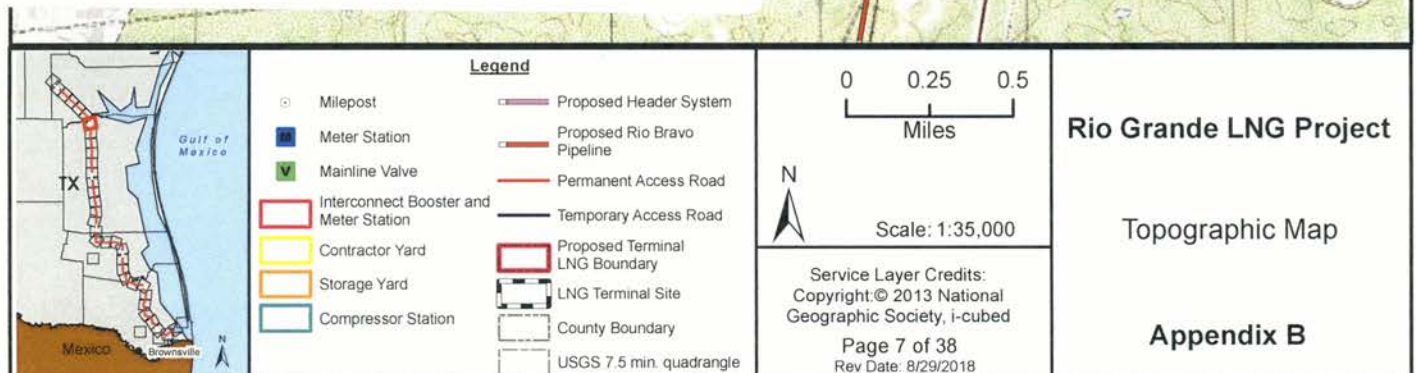
Rio Grande LNG Project

Topographic Map

Appendix B



Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 8 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



AUG 29 2018

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 9 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
	Milepost
	Meter Station
	Mainline Valve
	Interconnect Booster and Meter Station
	Contractor Yard
	Storage Yard
	Compressor Station
	Proposed Header System
	Proposed Rio Bravo Pipeline
	Permanent Access Road
	Temporary Access Road
	Proposed Terminal LNG Boundary
	LNG Terminal Site
	County Boundary
	USGS 7.5 min. quadrangle

0 0.25 0.5
Miles

N

Scale: 1:35,000

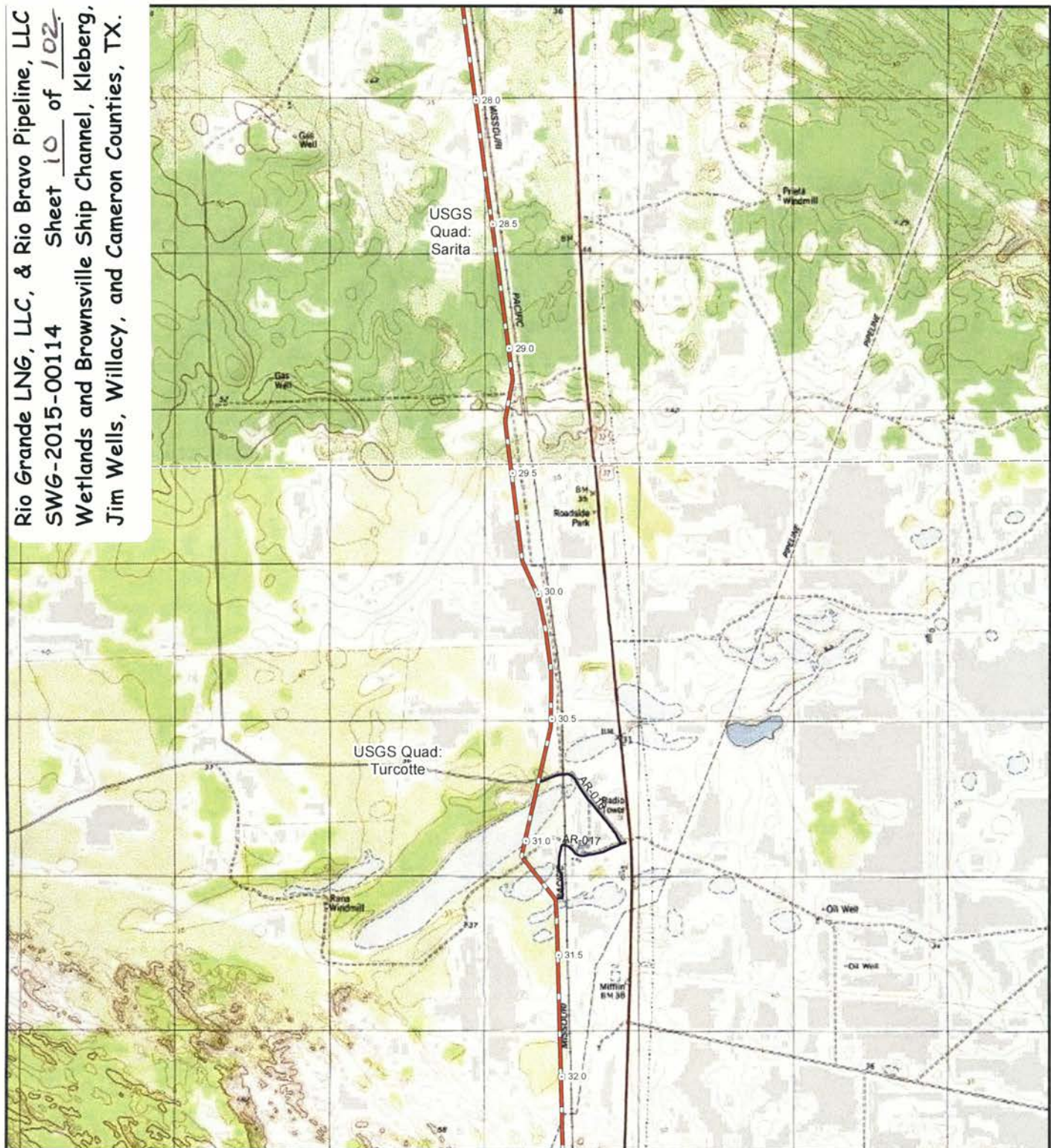
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Rio Grande LNG Project

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Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 10 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend

- | | |
|--|----------------------------------|
| ○ Milepost | — Proposed Header System |
| ■ Meter Station | — Proposed Rio Bravo Pipeline |
| ▼ Mainline Valve | — Permanent Access Road |
| □ Interconnect Booster and Meter Station | — Temporary Access Road |
| □ Contractor Yard | □ Proposed Terminal LNG Boundary |
| □ Storage Yard | □ LNG Terminal Site |
| □ Compressor Station | □ County Boundary |
| | □ USGS 7.5 min. quadrangle |

0 0.25 0.5
Miles



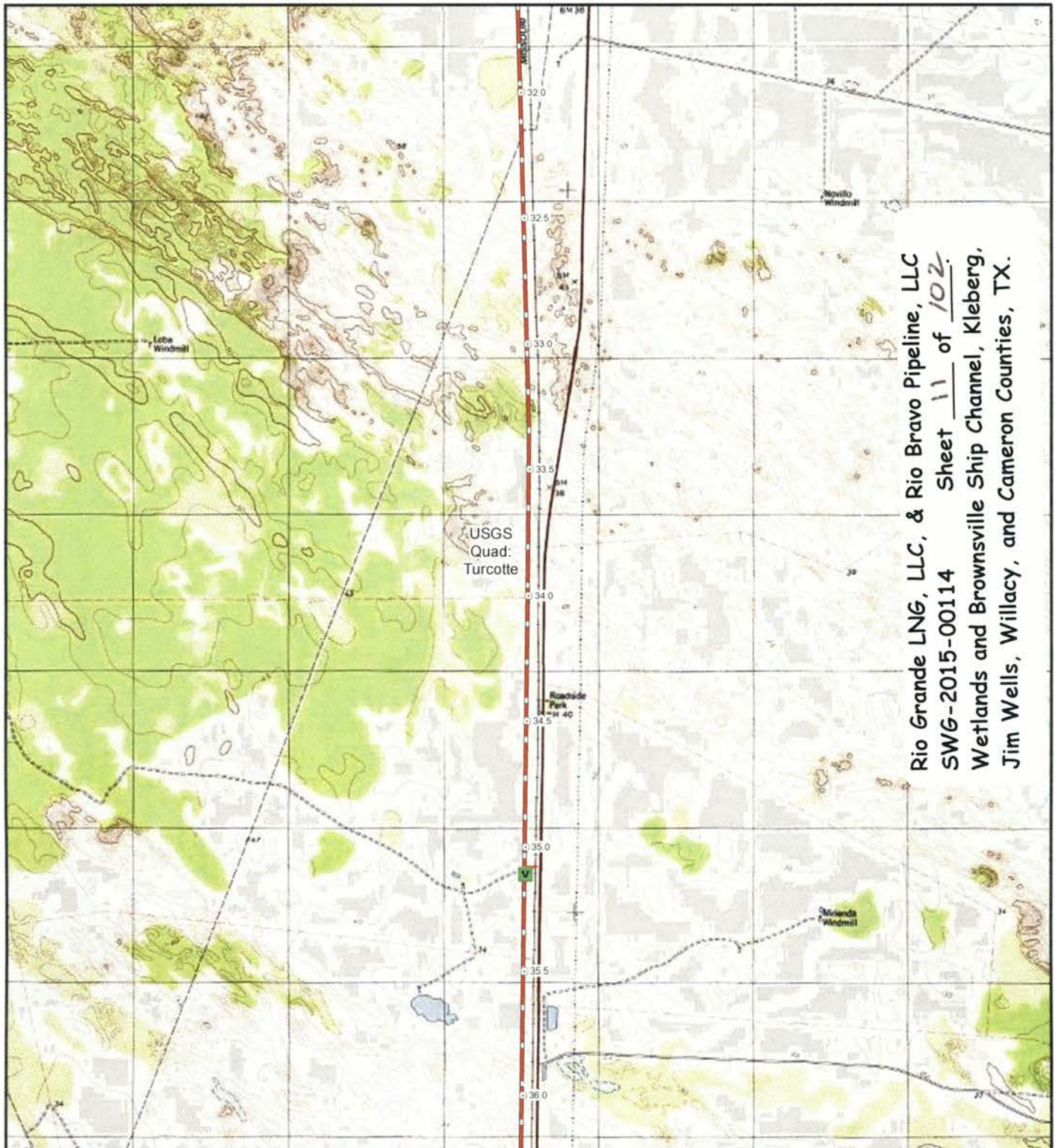
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Rio Grande LNG Project

Topographic Map

Appendix B



Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 11 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
Milepost	Proposed Header System
Meter Station	Proposed Rio Bravo Pipeline
Mainline Valve	Permanent Access Road
Interconnect Booster and Meter Station	Temporary Access Road
Contractor Yard	Proposed Terminal LNG Boundary
Storage Yard	LNG Terminal Site
Compressor Station	County Boundary
	USGS 7.5 min. quadrangle

0 0.25 0.5
Miles

N

Scale: 1:35,000

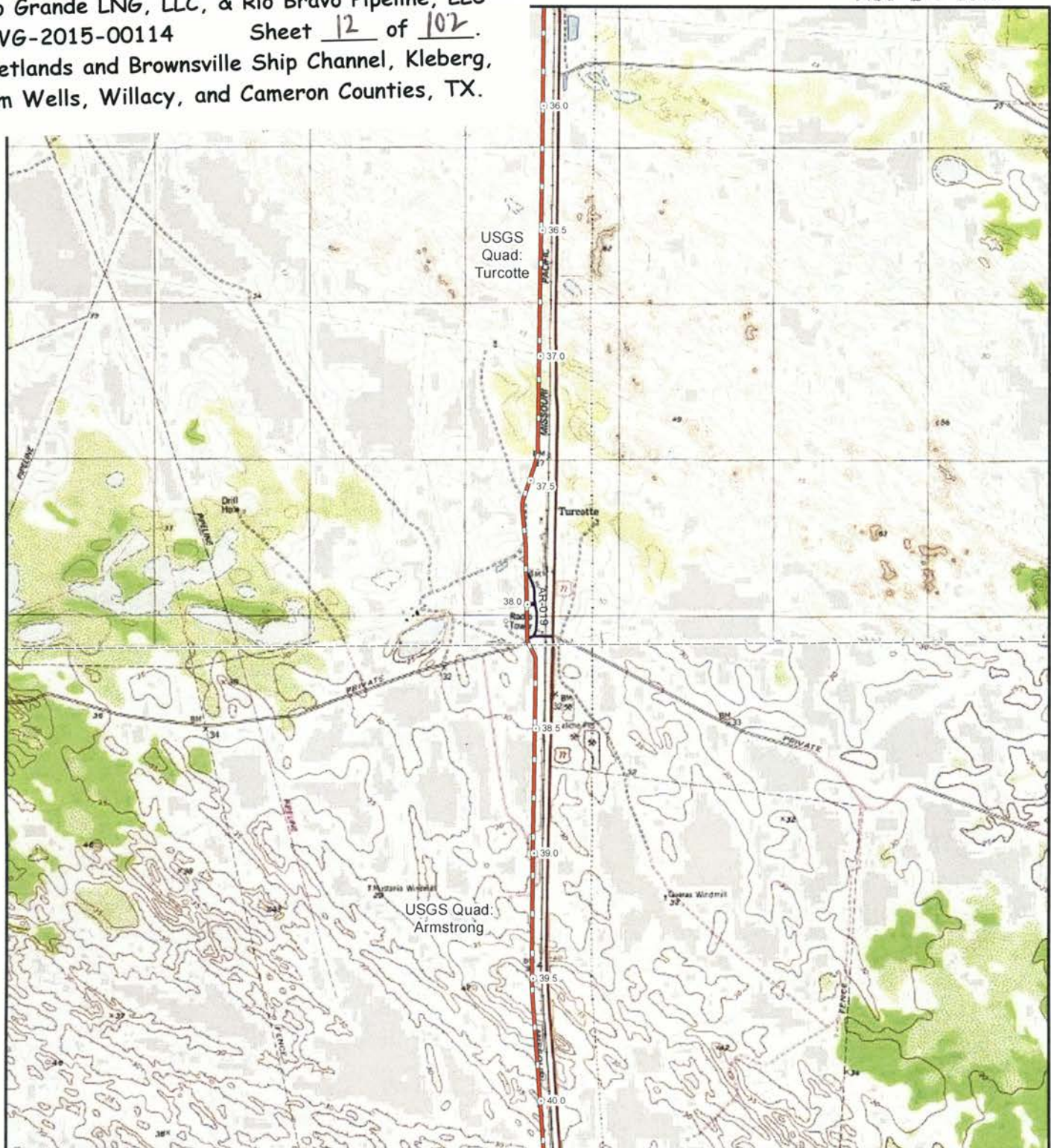
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Rio Grande LNG Project

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Appendix B



Legend	
	Milepost
	Meter Station
	Mainline Valve
	Interconnect Booster and Meter Station
	Contractor Yard
	Storage Yard
	Compressor Station
	Proposed Header System
	Proposed Rio Bravo Pipeline
	Permanent Access Road
	Temporary Access Road
	Proposed Terminal LNG Boundary
	LNG Terminal Site
	County Boundary
	USGS 7.5 min. quadrangle

0 0.25 0.5
Miles

N

Scale: 1:35,000

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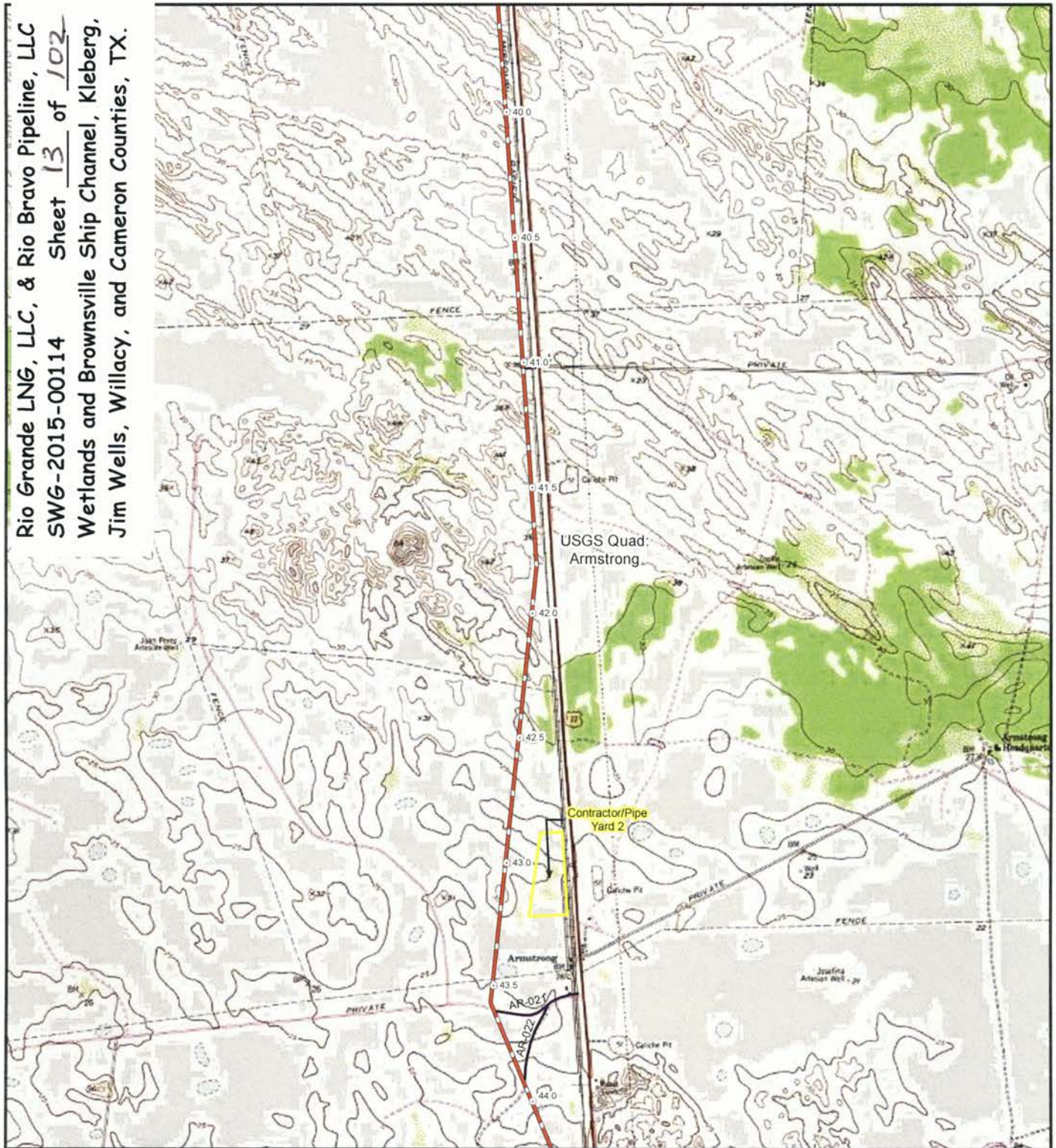
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Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 13 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend

- | | |
|--|----------------------------------|
| ○ Milepost | — Proposed Header System |
| ■ Meter Station | — Proposed Rio Bravo Pipeline |
| ■ Mainline Valve | — Permanent Access Road |
| □ Interconnect Booster and Meter Station | — Temporary Access Road |
| □ Contractor Yard | □ Proposed Terminal LNG Boundary |
| □ Storage Yard | □ LNG Terminal Site |
| □ Compressor Station | □ County Boundary |
| | □ USGS 7.5 min. quadrangle |

0 0.25 0.5
Miles



Scale: 1:35,000

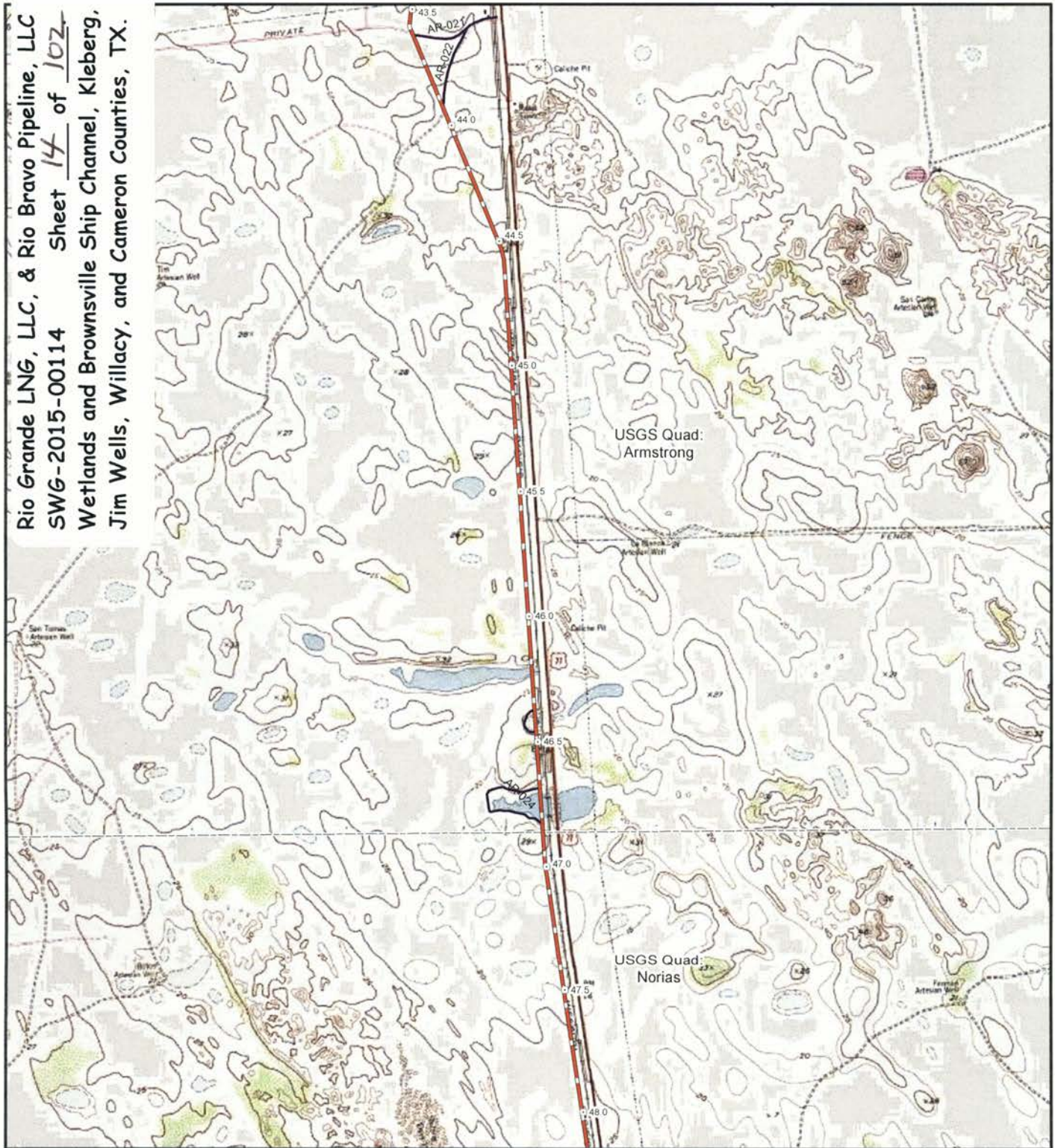
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Rio Grande LNG Project

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Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 14 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
	Milepost
	Meter Station
	Mainline Valve
	Interconnect Booster and Meter Station
	Contractor Yard
	Storage Yard
	Compressor Station
	Proposed Header System
	Proposed Rio Bravo Pipeline
	Permanent Access Road
	Temporary Access Road
	Proposed Terminal LNG Boundary
	LNG Terminal Site
	County Boundary
	USGS 7.5 min. quadrangle

0 0.25 0.5
Miles

N

Scale: 1:35,000

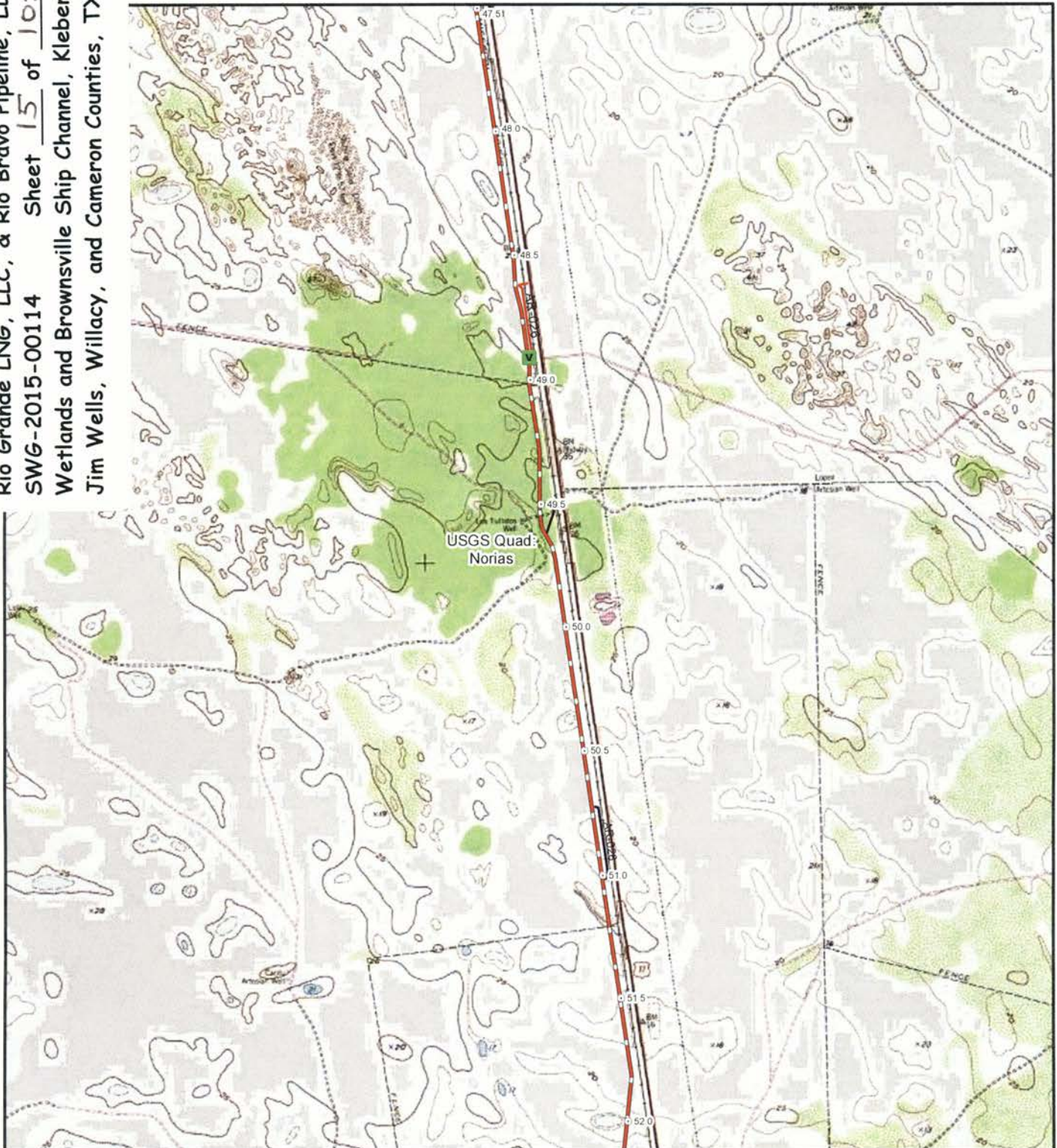
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Topographic Map

Appendix B



Legend	
Milepost	Proposed Header System
Meter Station	Proposed Rio Bravo Pipeline
Mainline Valve	Permanent Access Road
Interconnect Booster and Meter Station	Temporary Access Road
Contractor Yard	Proposed Terminal LNG Boundary
Storage Yard	LNG Terminal Site
Compressor Station	County Boundary
	USGS 7.5 min. quadrangle

0 0.25 0.5
Miles

N

Scale: 1:35,000

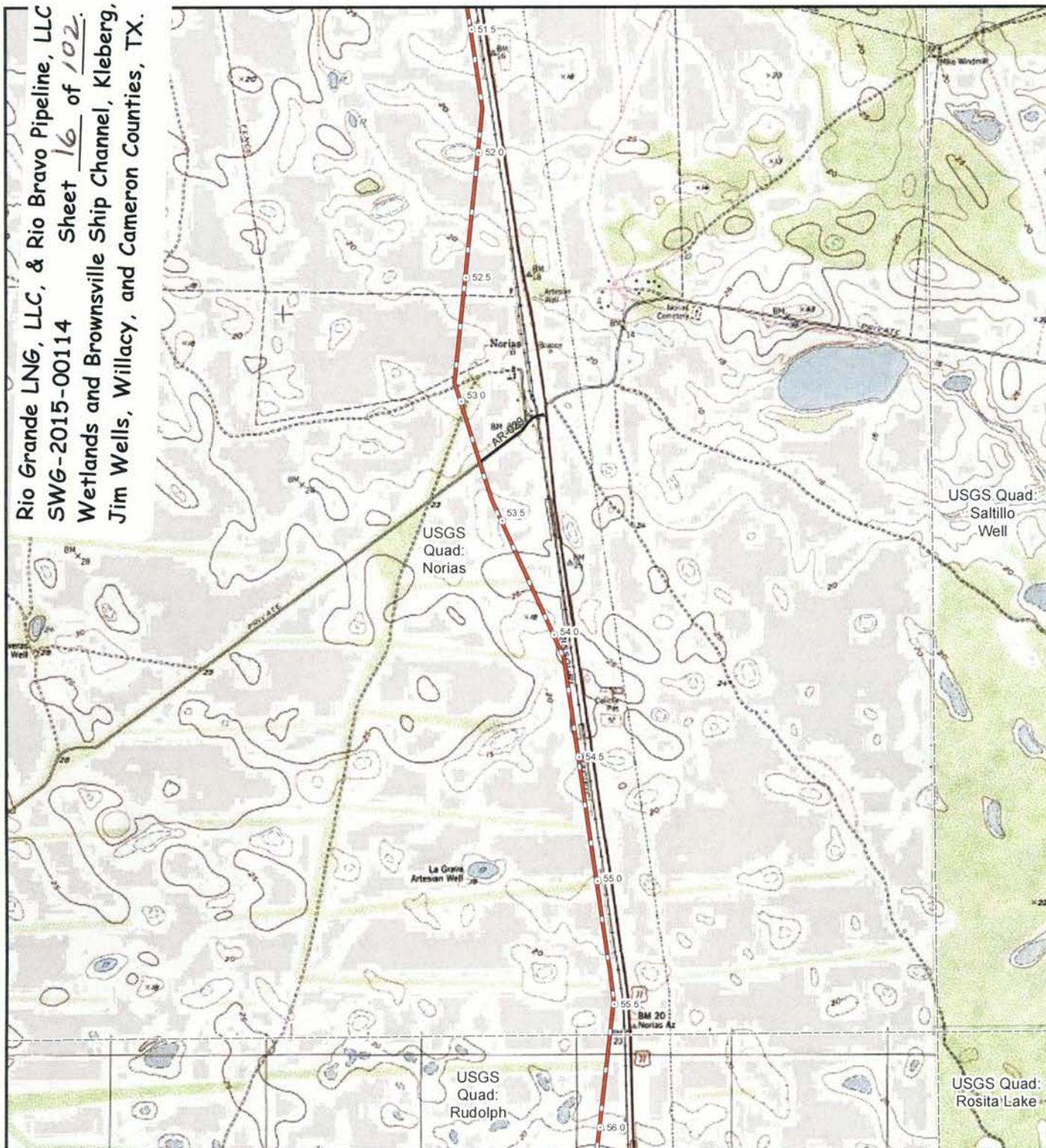
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Rio Grande LNG Project

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Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 16 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
	Milepost
	Meter Station
	Mainline Valve
	Interconnect Booster and Meter Station
	Contractor Yard
	Storage Yard
	Compressor Station
	Proposed Header System
	Proposed Rio Bravo Pipeline
	Permanent Access Road
	Temporary Access Road
	Proposed Terminal LNG Boundary
	LNG Terminal Site
	County Boundary
	USGS 7.5 min. quadrangle

0 0.25 0.5
Miles

N

Scale: 1:35,000

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Rio Grande LNG Project

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Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 17 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend

- | | |
|--|----------------------------------|
| ○ Milepost | — Proposed Header System |
| ■ Meter Station | — Proposed Rio Bravo Pipeline |
| ■ Mainline Valve | — Permanent Access Road |
| □ Interconnect Booster and Meter Station | — Temporary Access Road |
| □ Contractor Yard | — Proposed Terminal LNG Boundary |
| □ Storage Yard | □ LNG Terminal Site |
| □ Compressor Station | □ County Boundary |
| | □ USGS 7.5 min. quadrangle |

0 0.25 0.5
Miles



Scale: 1:35,000

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Rio Grande LNG Project

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Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 18 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend

- | | |
|--|----------------------------------|
| ○ Milepost | — Proposed Header System |
| ■ Meter Station | — Proposed Rio Bravo Pipeline |
| ■ Mainline Valve | — Permanent Access Road |
| □ Interconnect Booster and Meter Station | — Temporary Access Road |
| □ Contractor Yard | — Proposed Terminal LNG Boundary |
| □ Storage Yard | — LNG Terminal Site |
| □ Compressor Station | — County Boundary |
| | — USGS 7.5 min. quadrangle |

0 0.25 0.5
Miles



Scale: 1:35,000

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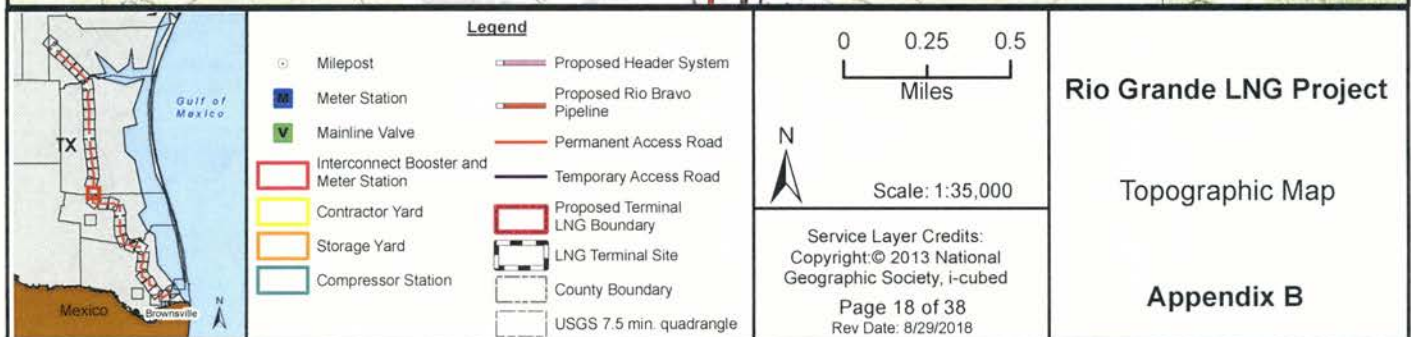
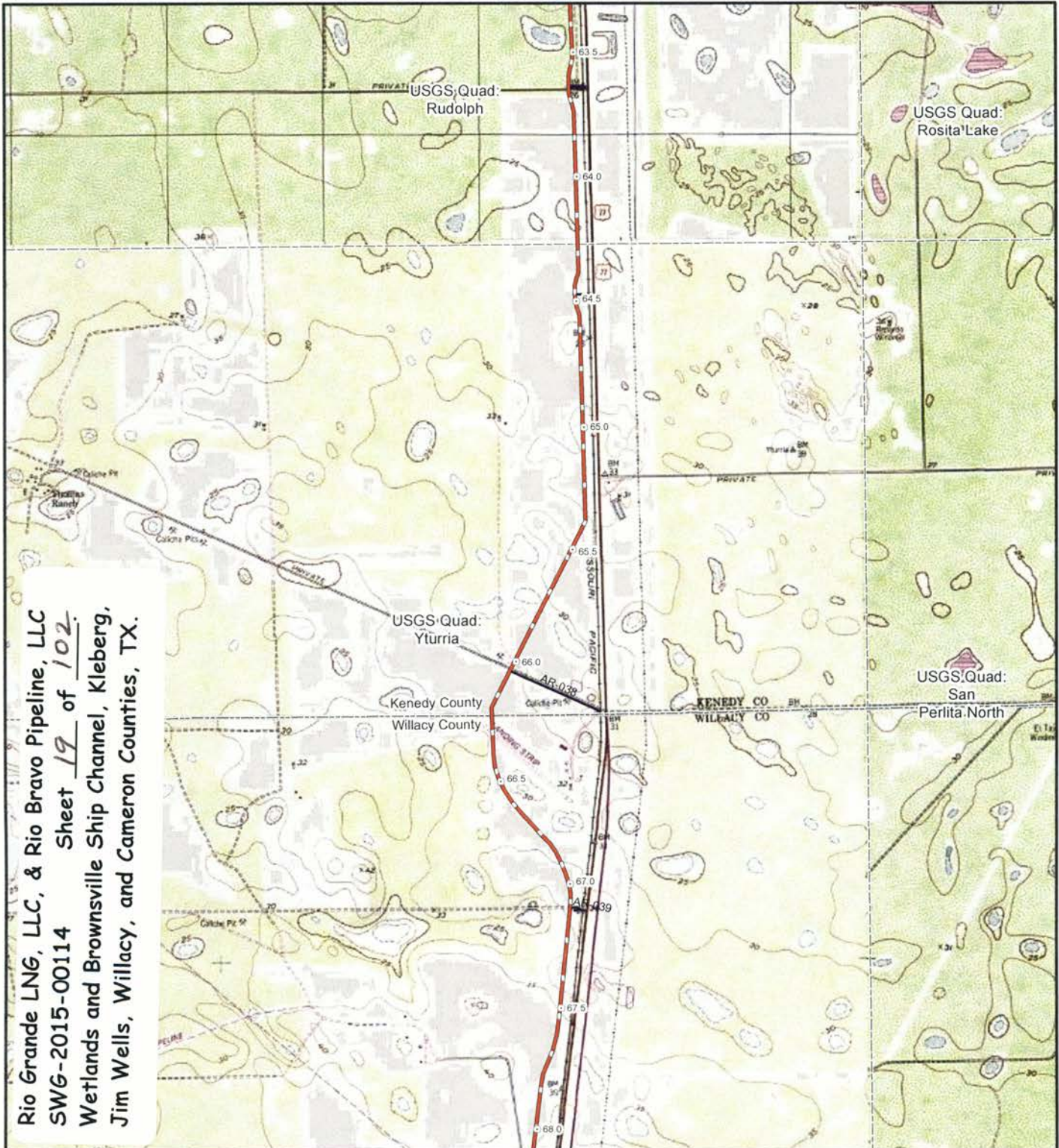
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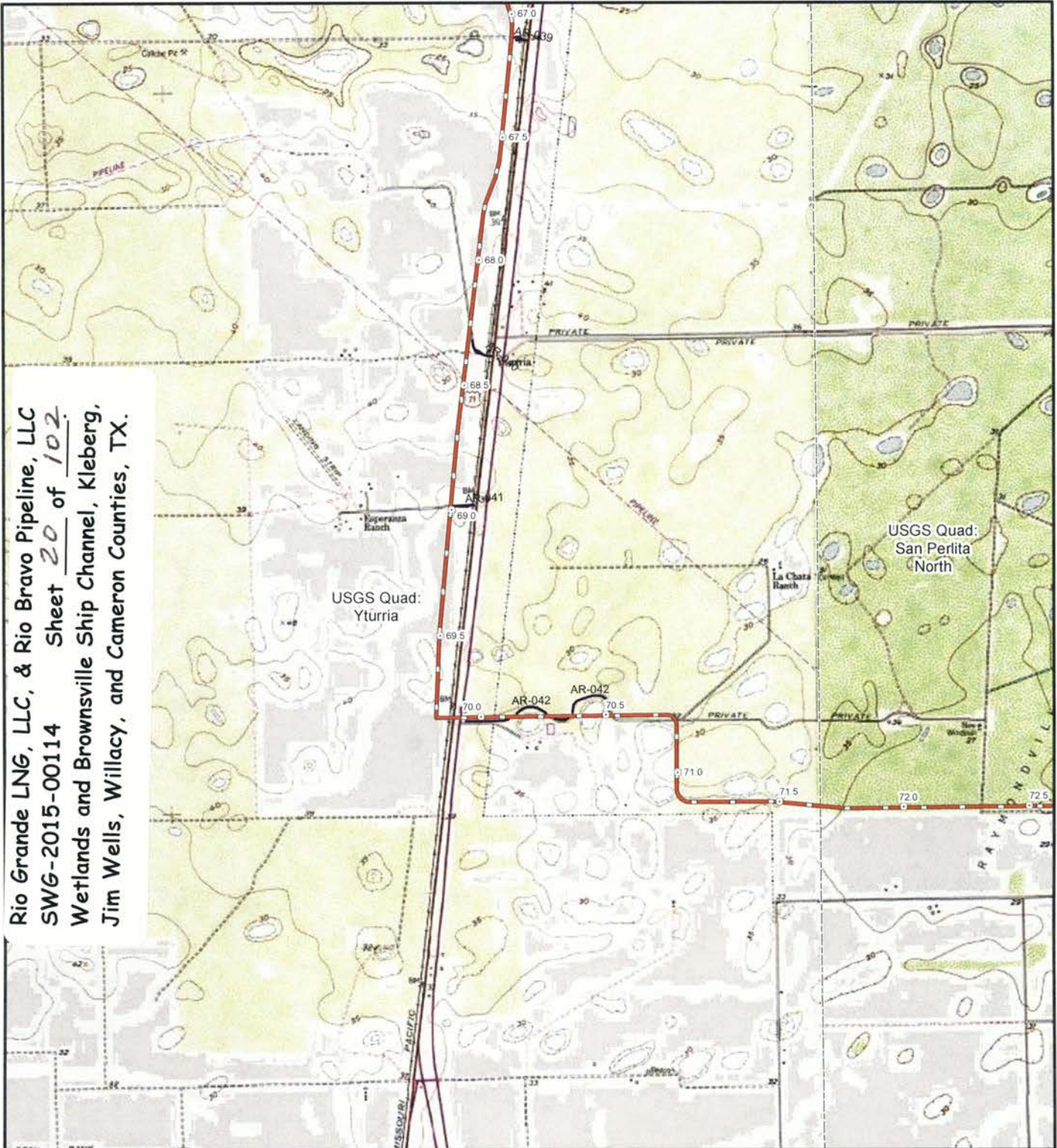
Topographic Map

Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 19 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 20 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
	Milepost
	Meter Station
	Mainline Valve
	Interconnect Booster and Meter Station
	Contractor Yard
	Storage Yard
	Compressor Station
	Proposed Header System
	Proposed Rio Bravo Pipeline
	Permanent Access Road
	Temporary Access Road
	Proposed Terminal LNG Boundary
	LNG Terminal Site
	County Boundary
	USGS 7.5 min. quadrangle

0 0.25 0.5
Miles

N

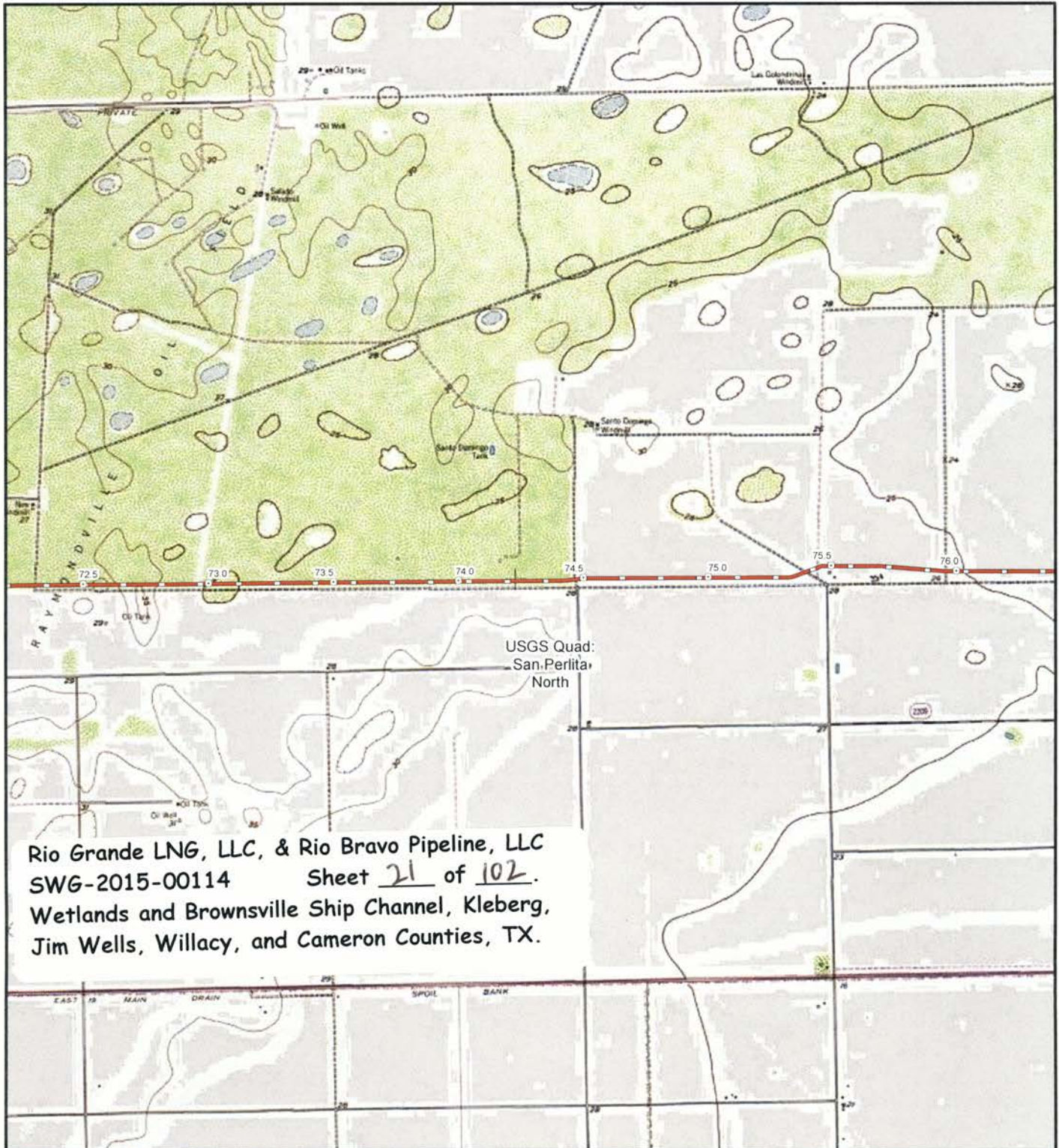
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Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 21 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
○ Milepost	— Proposed Header System
■ Meter Station	— Proposed Rio Bravo Pipeline
▼ Mainline Valve	— Permanent Access Road
□ Interconnect Booster and Meter Station	— Temporary Access Road
□ Contractor Yard	□ Proposed Terminal LNG Boundary
□ Storage Yard	□ LNG Terminal Site
□ Compressor Station	□ County Boundary
	□ USGS 7.5 min. quadrangle

0 0.25 0.5
Miles



Scale: 1:35,000

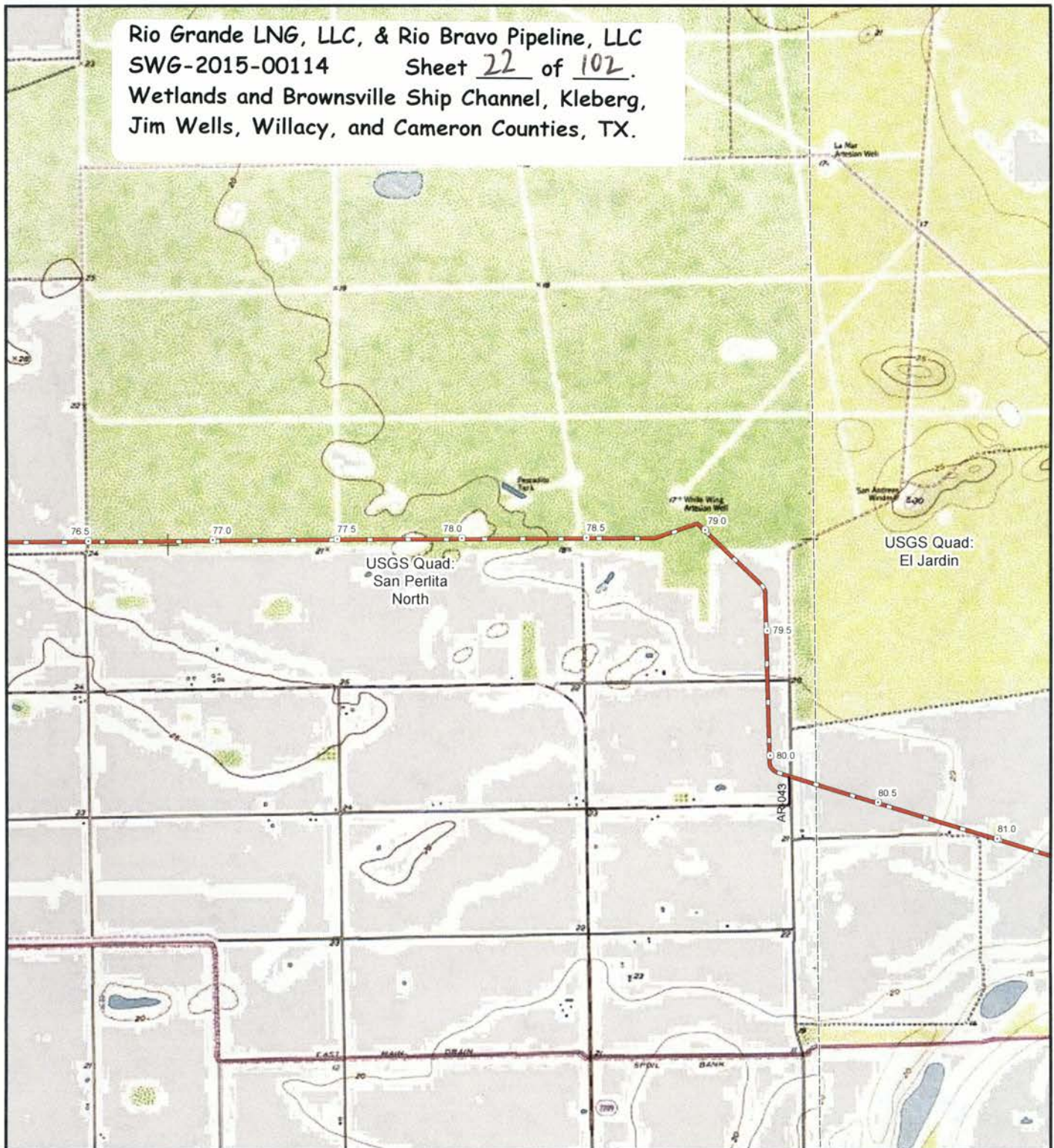
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Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 22 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
	Milepost
	Meter Station
	Mainline Valve
	Interconnect Booster and Meter Station
	Contractor Yard
	Storage Yard
	Compressor Station
	Proposed Header System
	Proposed Rio Bravo Pipeline
	Permanent Access Road
	Temporary Access Road
	Proposed Terminal LNG Boundary
	LNG Terminal Site
	County Boundary
	USGS 7.5 min. quadrangle

0 0.25 0.5
Miles

N

Scale: 1:35,000

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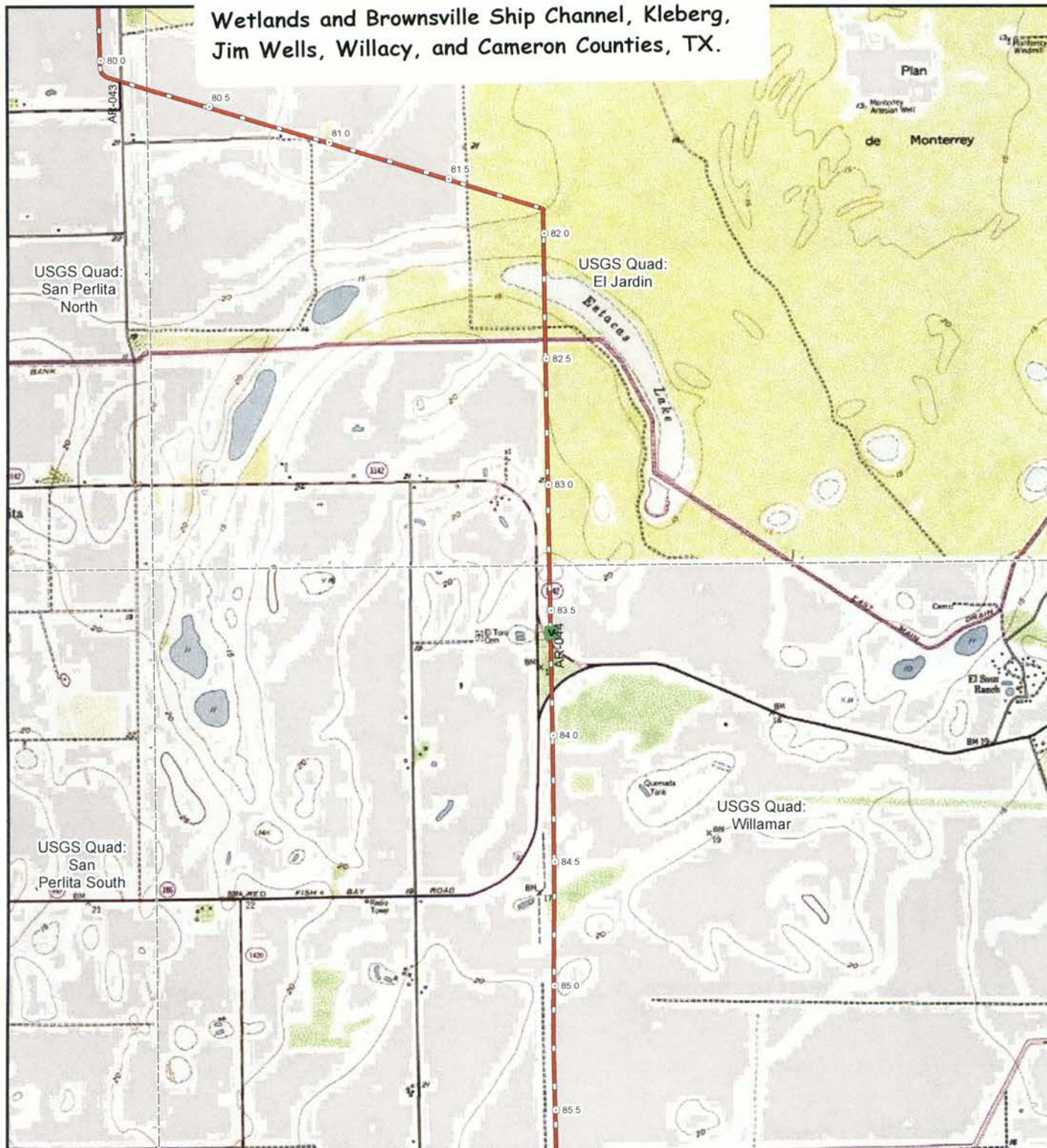
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Appendix B

Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
Milepost	Proposed Header System
Meter Station	Proposed Rio Bravo Pipeline
Mainline Valve	Permanent Access Road
Interconnect Booster and Meter Station	Temporary Access Road
Contractor Yard	Proposed Terminal LNG Boundary
Storage Yard	LNG Terminal Site
Compressor Station	County Boundary
	USGS 7.5 min. quadrangle

0 0.25 0.5
Miles

N

Scale: 1:35,000

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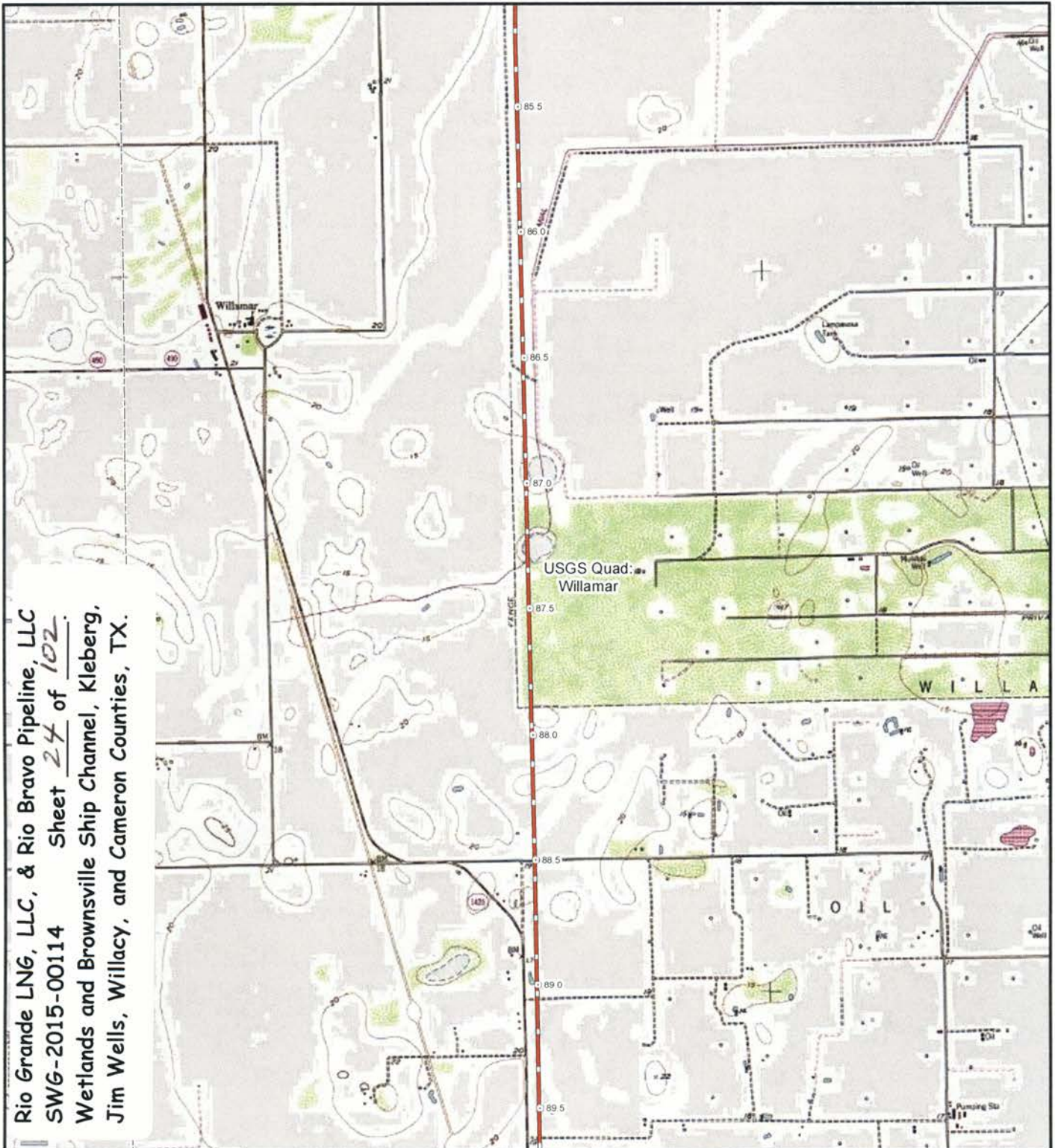
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Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 24 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
	Milepost
	Meter Station
	Mainline Valve
	Interconnect Booster and Meter Station
	Contractor Yard
	Storage Yard
	Compressor Station
	Proposed Header System
	Proposed Rio Bravo Pipeline
	Permanent Access Road
	Temporary Access Road
	Proposed Terminal LNG Boundary
	LNG Terminal Site
	County Boundary
	USGS 7.5 min. quadrangle

0 0.25 0.5
Miles

N

Scale: 1:35,000

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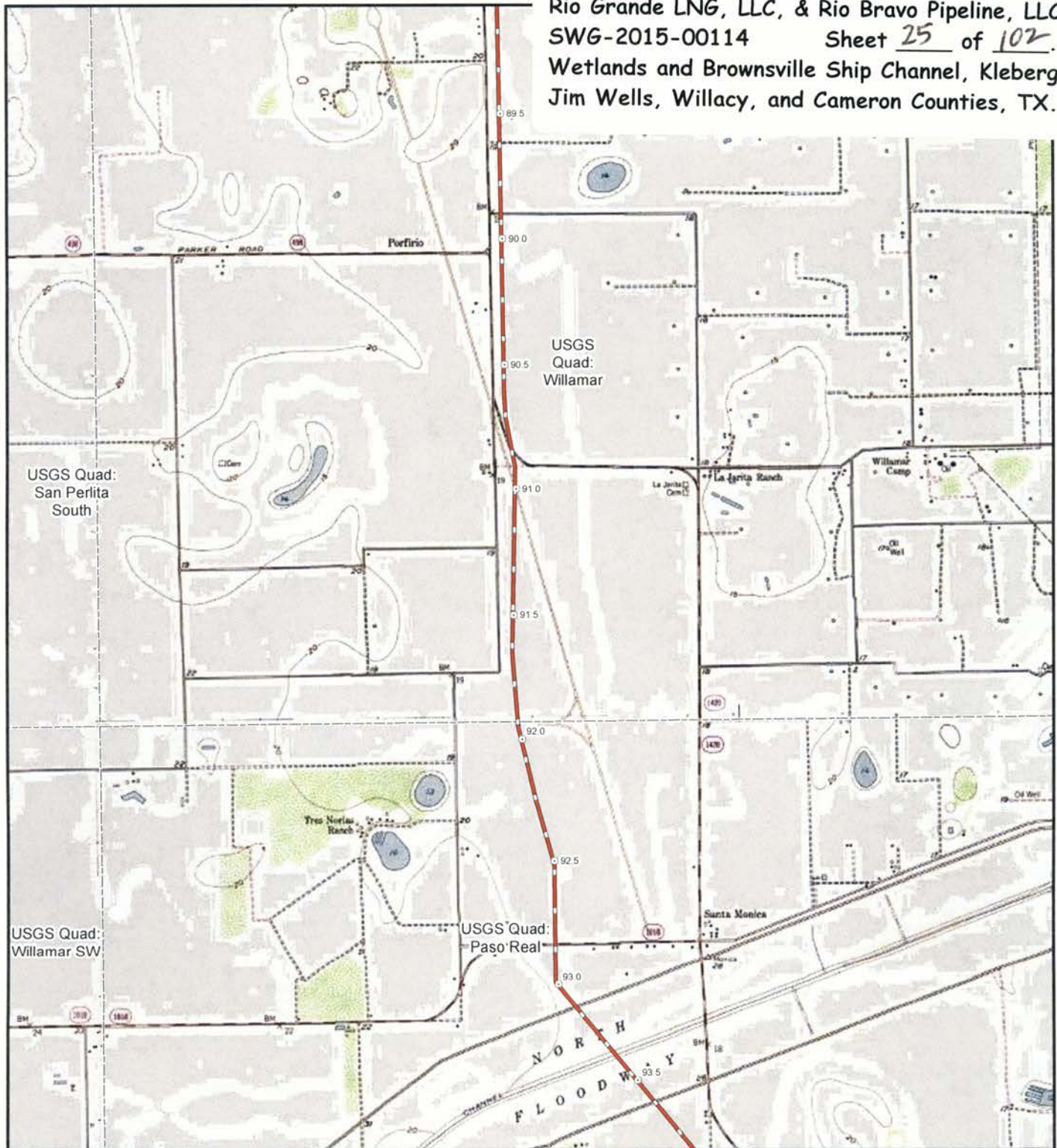
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Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 25 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend

- | | |
|--|----------------------------------|
| ○ Milepost | — Proposed Header System |
| ■ Meter Station | — Proposed Rio Bravo Pipeline |
| ■ Mainline Valve | — Permanent Access Road |
| □ Interconnect Booster and Meter Station | — Temporary Access Road |
| □ Contractor Yard | □ Proposed Terminal LNG Boundary |
| □ Storage Yard | □ LNG Terminal Site |
| □ Compressor Station | □ County Boundary |
| | □ USGS 7.5 min. quadrangle |

0 0.25 0.5
Miles



Scale: 1:35,000

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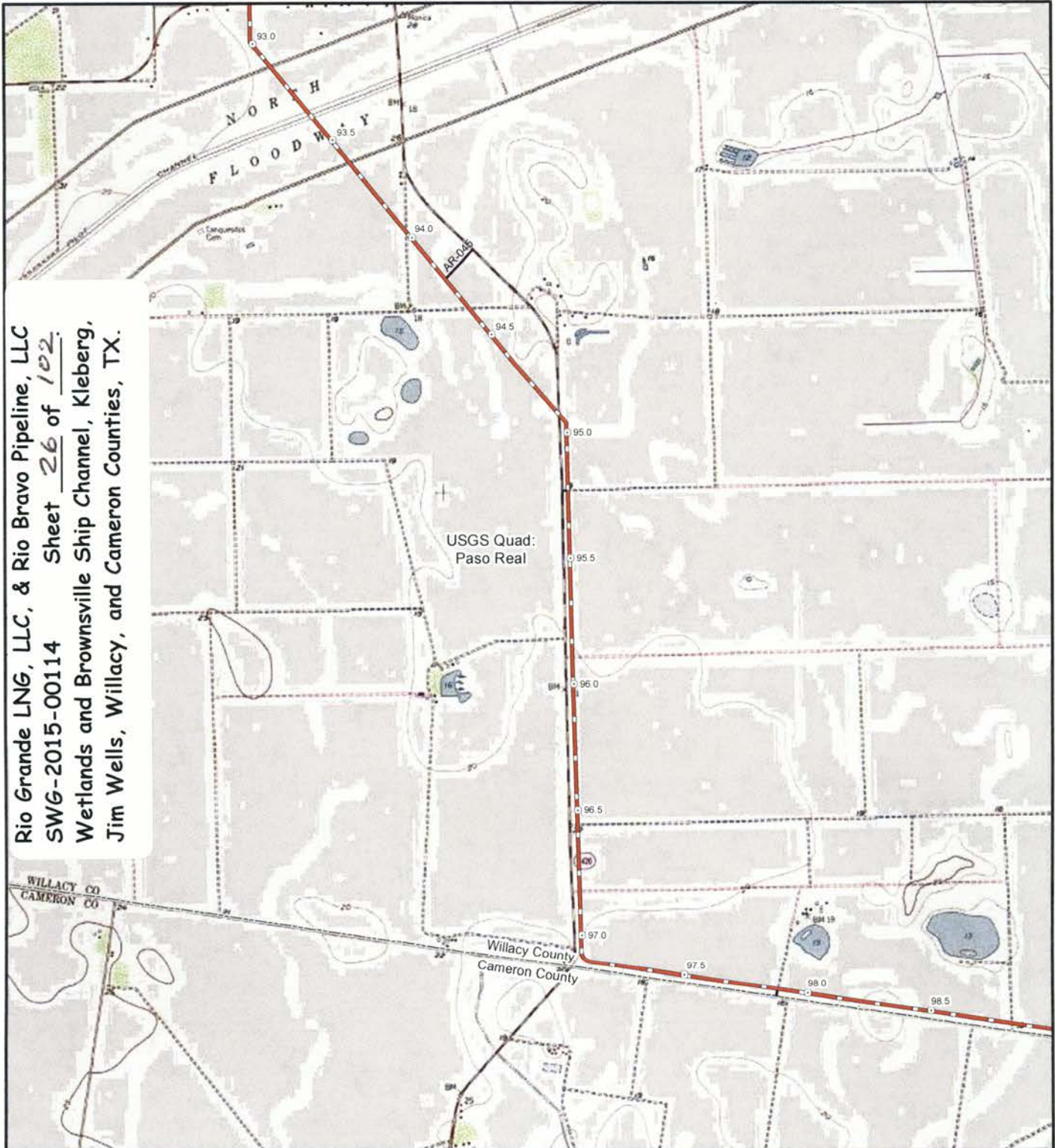
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Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 26 of 102:
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend

- | | |
|--|----------------------------------|
| ○ Milepost | — Proposed Header System |
| ■ Meter Station | — Proposed Rio Bravo Pipeline |
| ■ Mainline Valve | — Permanent Access Road |
| □ Interconnect Booster and Meter Station | — Temporary Access Road |
| □ Contractor Yard | — Proposed Terminal LNG Boundary |
| □ Storage Yard | — LNG Terminal Site |
| □ Compressor Station | — County Boundary |
| | — USGS 7.5 min. quadrangle |

0 0.25 0.5
Miles



Scale: 1:35,000

Service Layer Credits:
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 Geographic Society, i-cubed

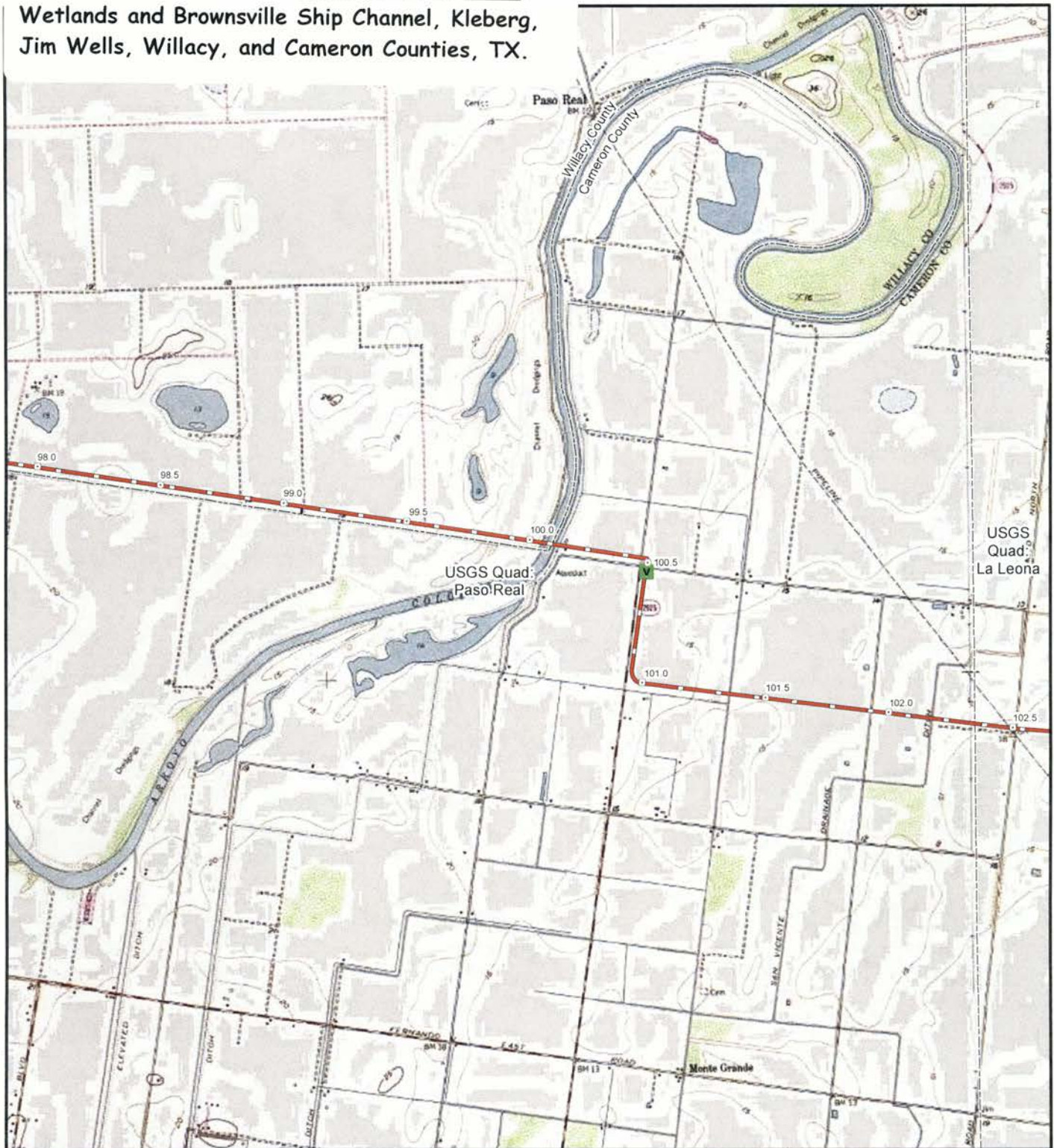
Page 25 of 38
 Rev Date: 8/29/2018

Rio Grande LNG Project

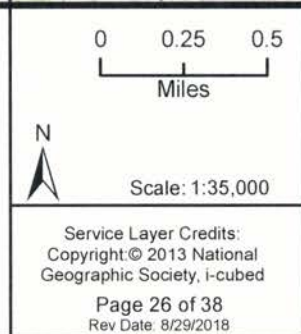
Topographic Map

Appendix B

Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
	Milepost
	Meter Station
	Mainline Valve
	Interconnect Booster and Meter Station
	Contractor Yard
	Storage Yard
	Compressor Station
	Proposed Header System
	Proposed Rio Bravo Pipeline
	Permanent Access Road
	Temporary Access Road
	Proposed Terminal LNG Boundary
	LNG Terminal Site
	County Boundary
	USGS 7.5 min. quadrangle

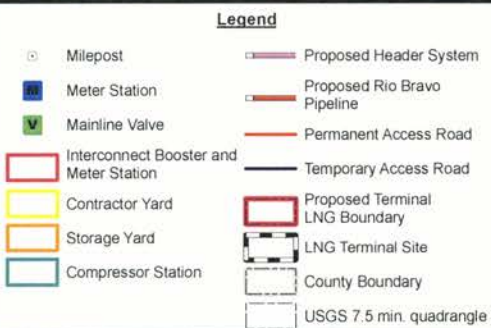


Rio Grande LNG Project

Topographic Map

Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 28 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



0 0.25 0.5
Miles



Scale: 1:35,000

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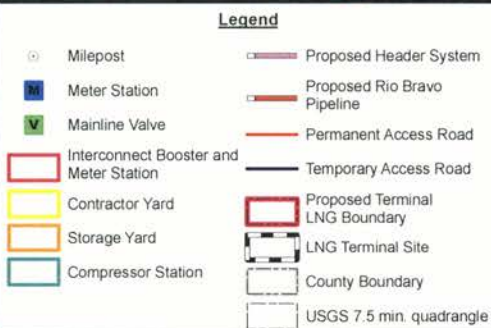
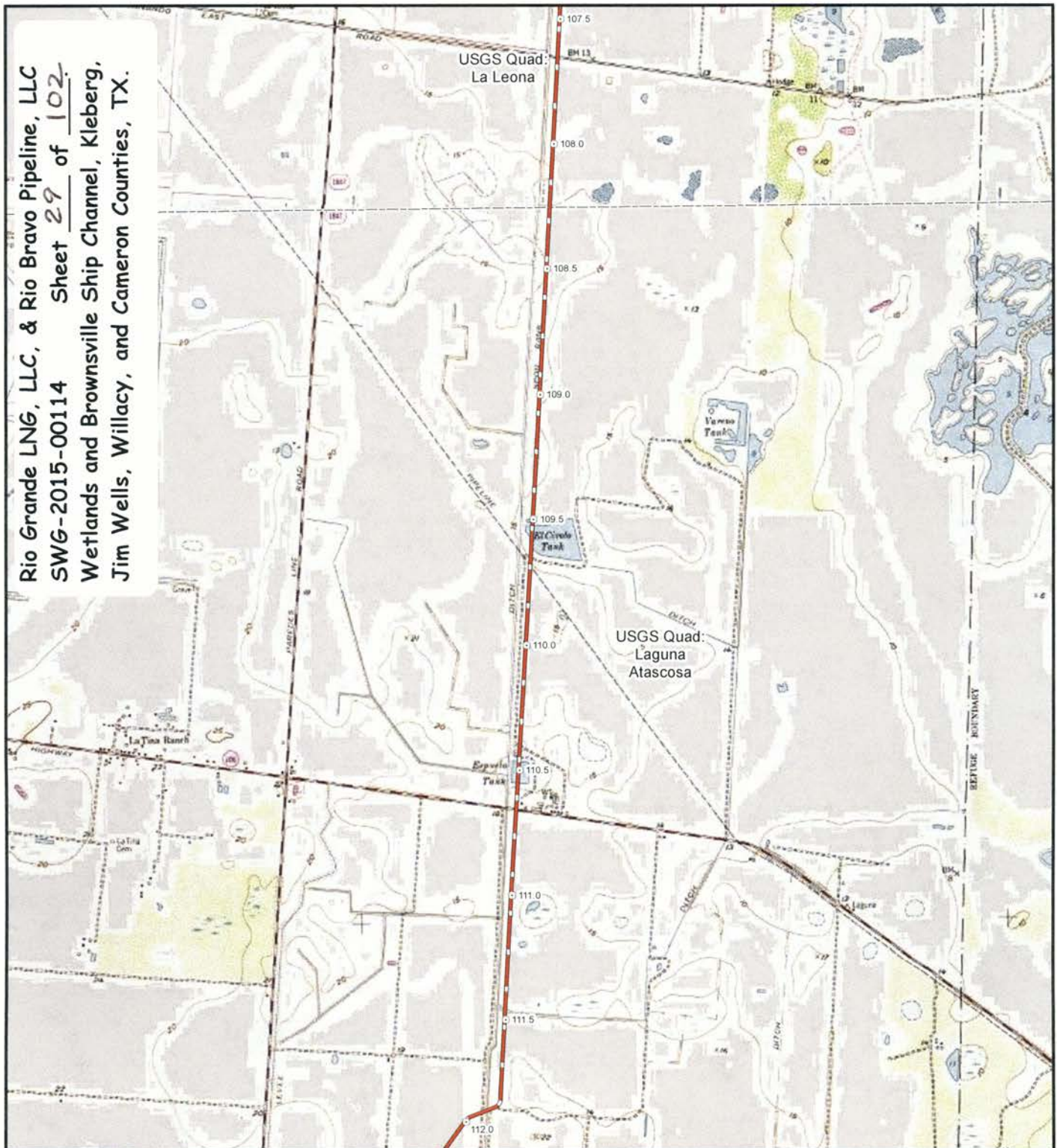
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 Rev Date: 8/29/2018

Rio Grande LNG Project

Topographic Map

Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 29 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



0 0.25 0.5
Miles



Scale: 1:35,000

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Rio Grande LNG Project

Topographic Map

Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 30 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend

- | | |
|--|----------------------------------|
| ○ Milepost | — Proposed Header System |
| ■ Meter Station | — Proposed Rio Bravo Pipeline |
| ▼ Mainline Valve | — Permanent Access Road |
| □ Interconnect Booster and Meter Station | — Temporary Access Road |
| □ Contractor Yard | — Proposed Terminal LNG Boundary |
| □ Storage Yard | — LNG Terminal Site |
| □ Compressor Station | — County Boundary |
| | — USGS 7.5 min. quadrangle |

0 0.25 0.5
Miles



Scale: 1:35,000

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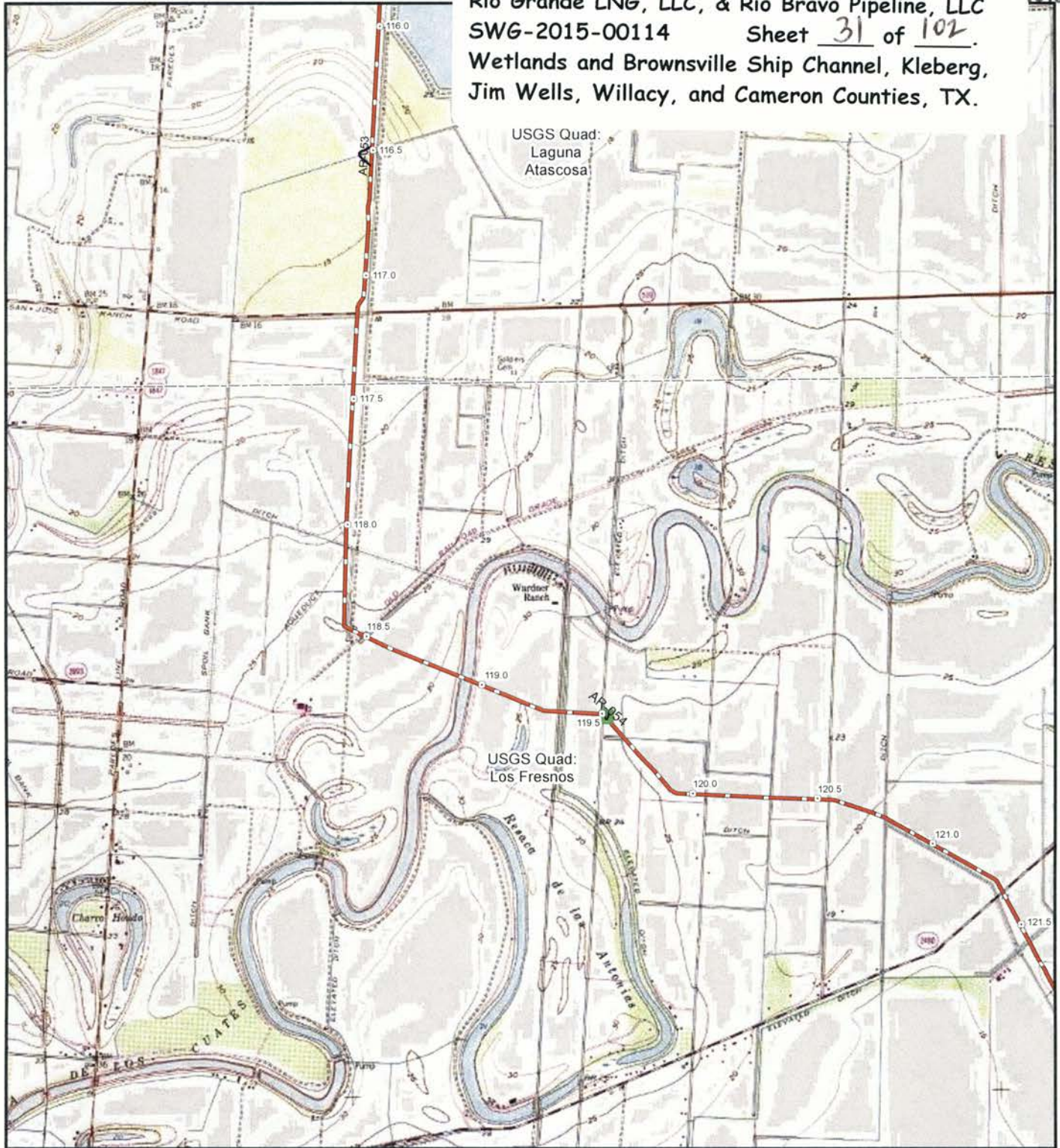
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 Rev Date: 8/29/2018

Rio Grande LNG Project

Topographic Map

Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
SWG-2015-00114 Sheet 31 of 102
Wetlands and Brownsville Ship Channel, Kleberg,
Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
Milepost	Proposed Header System
Meter Station	Proposed Rio Bravo Pipeline
Mainline Valve	Permanent Access Road
Interconnect Booster and Meter Station	Temporary Access Road
Contractor Yard	Proposed Terminal LNG Boundary
Storage Yard	LNG Terminal Site
Compressor Station	County Boundary
	USGS 7.5 min. quadrangle

0 0.25 0.5
Miles

N

Scale: 1:35,000

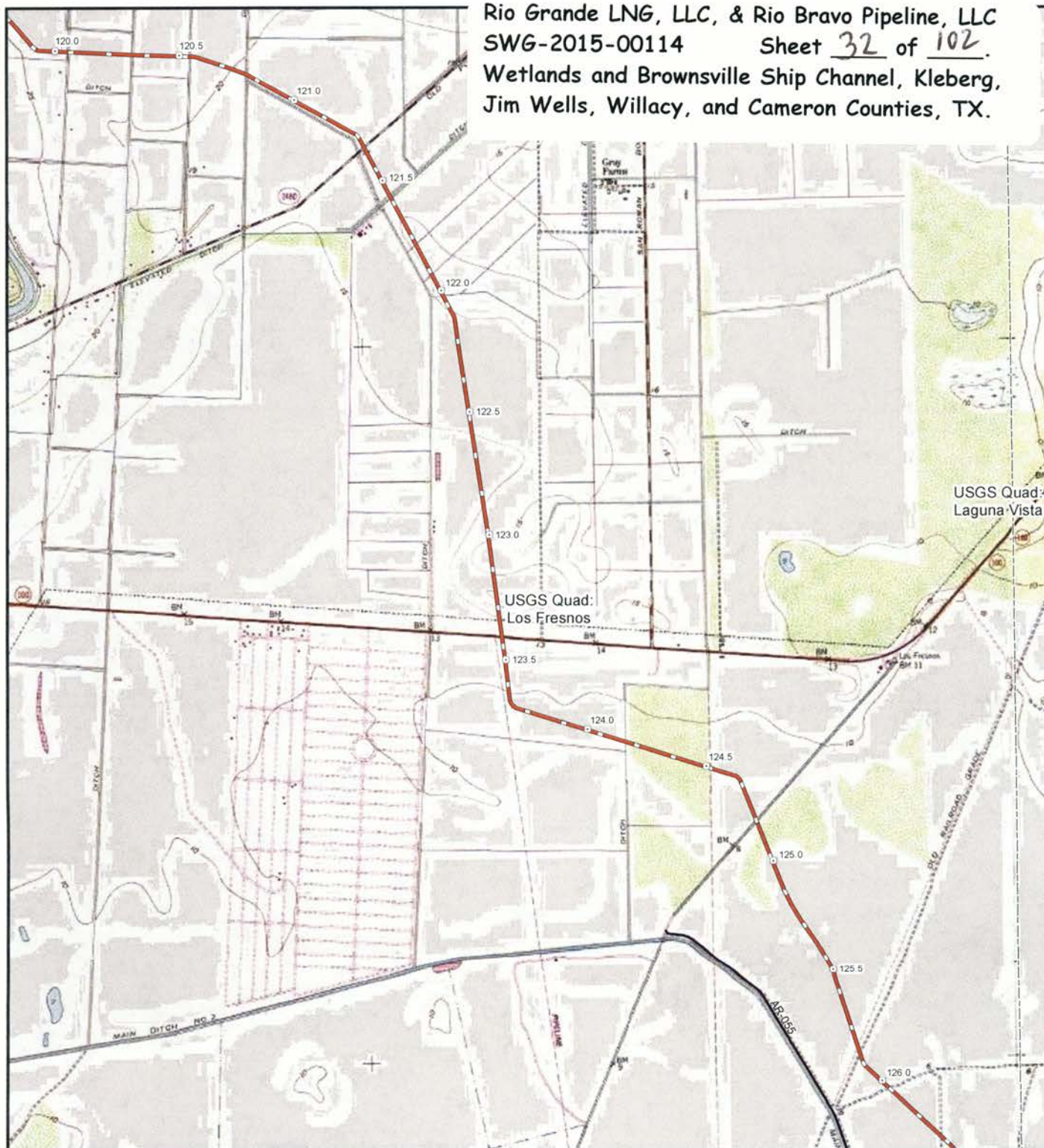
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Rio Grande LNG Project

Topographic Map

Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 32 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
Milepost	Proposed Header System
Meter Station	Proposed Rio Bravo Pipeline
Mainline Valve	Permanent Access Road
Interconnect Booster and Meter Station	Temporary Access Road
Contractor Yard	Proposed Terminal LNG Boundary
Storage Yard	LNG Terminal Site
Compressor Station	County Boundary
	USGS 7.5 min. quadrangle

0 0.25 0.5
Miles

N

Scale: 1:35,000

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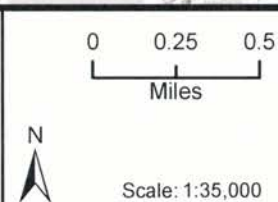
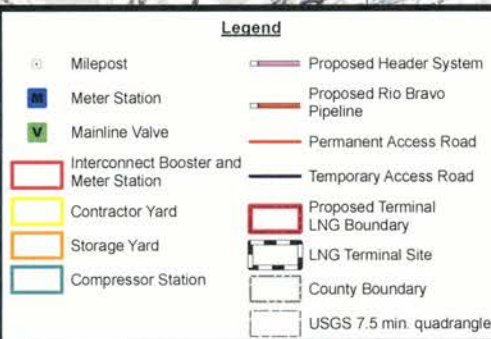
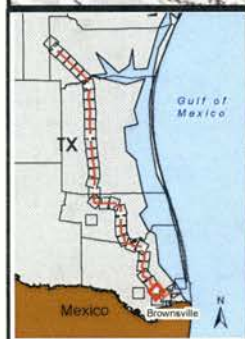
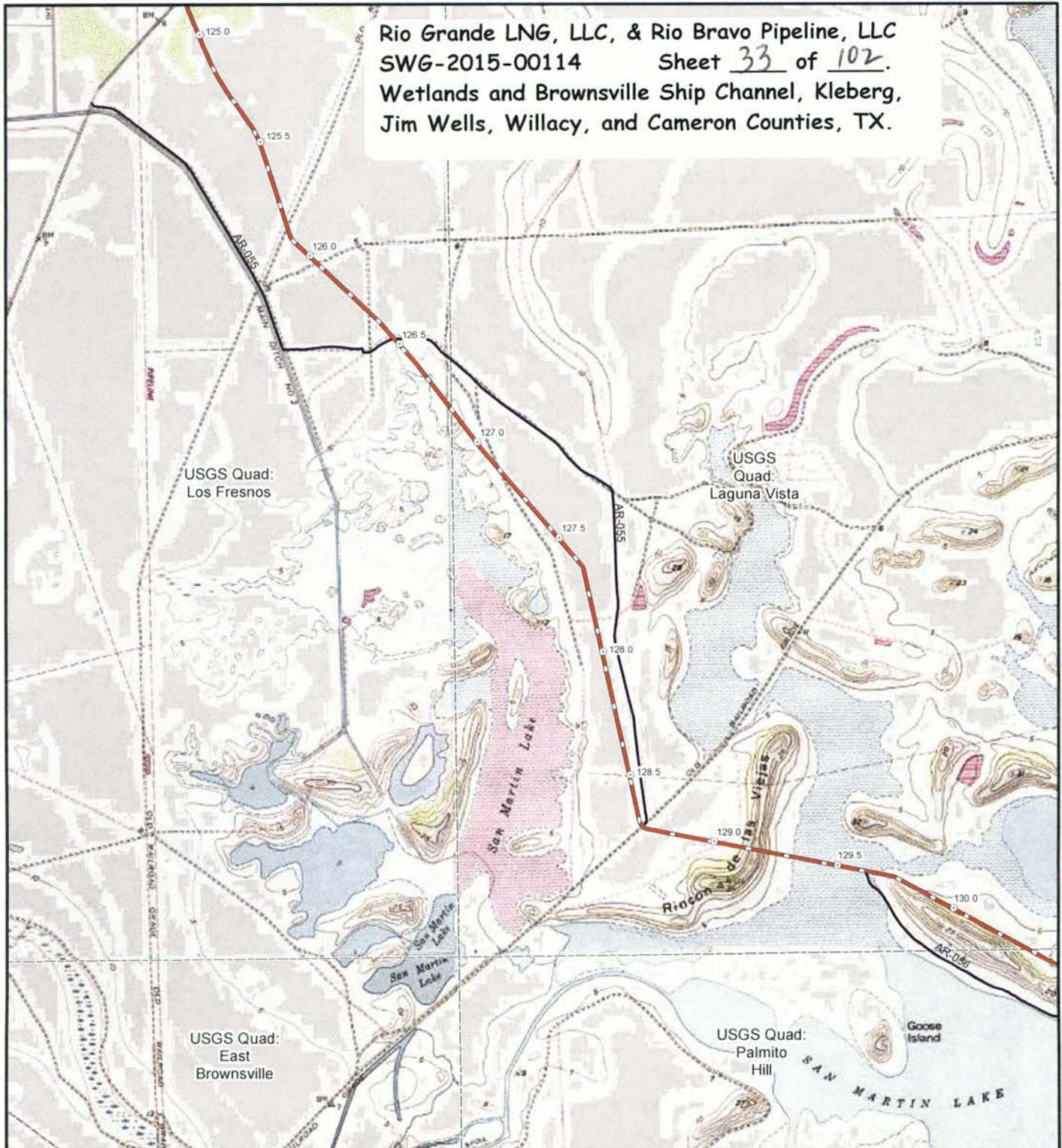
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Rio Grande LNG Project

Topographic Map

Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 33 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.

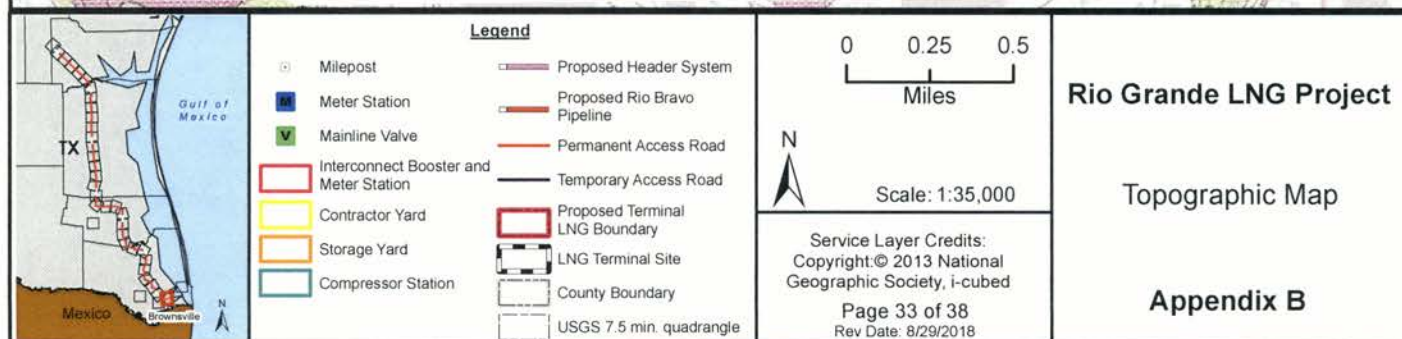


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 Rev Date: 8/29/2018

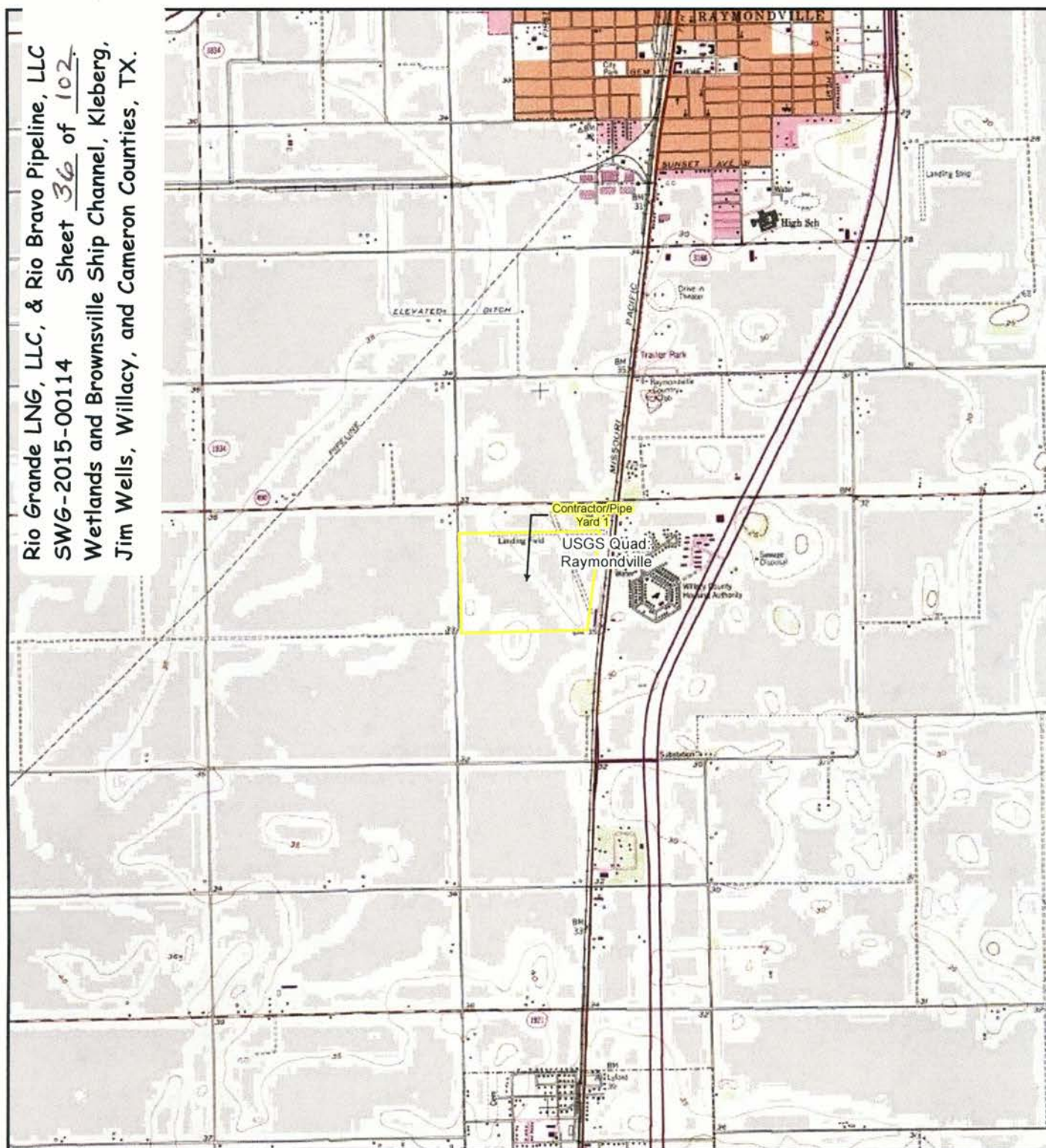
Rio Grande LNG Project

Topographic Map

Appendix B



Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 36 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend	
Milepost	Proposed Header System
Meter Station	Proposed Rio Bravo Pipeline
Mainline Valve	Permanent Access Road
Interconnect Booster and Meter Station	Temporary Access Road
Contractor Yard	Proposed Terminal LNG Boundary
Storage Yard	LNG Terminal Site
Compressor Station	County Boundary
	USGS 7.5 min. quadrangle

0 0.25 0.5
Miles



Scale: 1:35,000

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Rio Grande LNG Project

Topographic Map

Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 31 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend

- | | |
|--|----------------------------------|
| ○ Milepost | — Proposed Header System |
| ■ Meter Station | — Proposed Rio Bravo Pipeline |
| ■ Mainline Valve | — Permanent Access Road |
| □ Interconnect Booster and Meter Station | — Temporary Access Road |
| □ Contractor Yard | — Proposed Terminal LNG Boundary |
| □ Storage Yard | ■ LNG Terminal Site |
| □ Compressor Station | — County Boundary |
| | — USGS 7.5 min. quadrangle |

0 0.25 0.5
Miles



Scale: 1:35,000

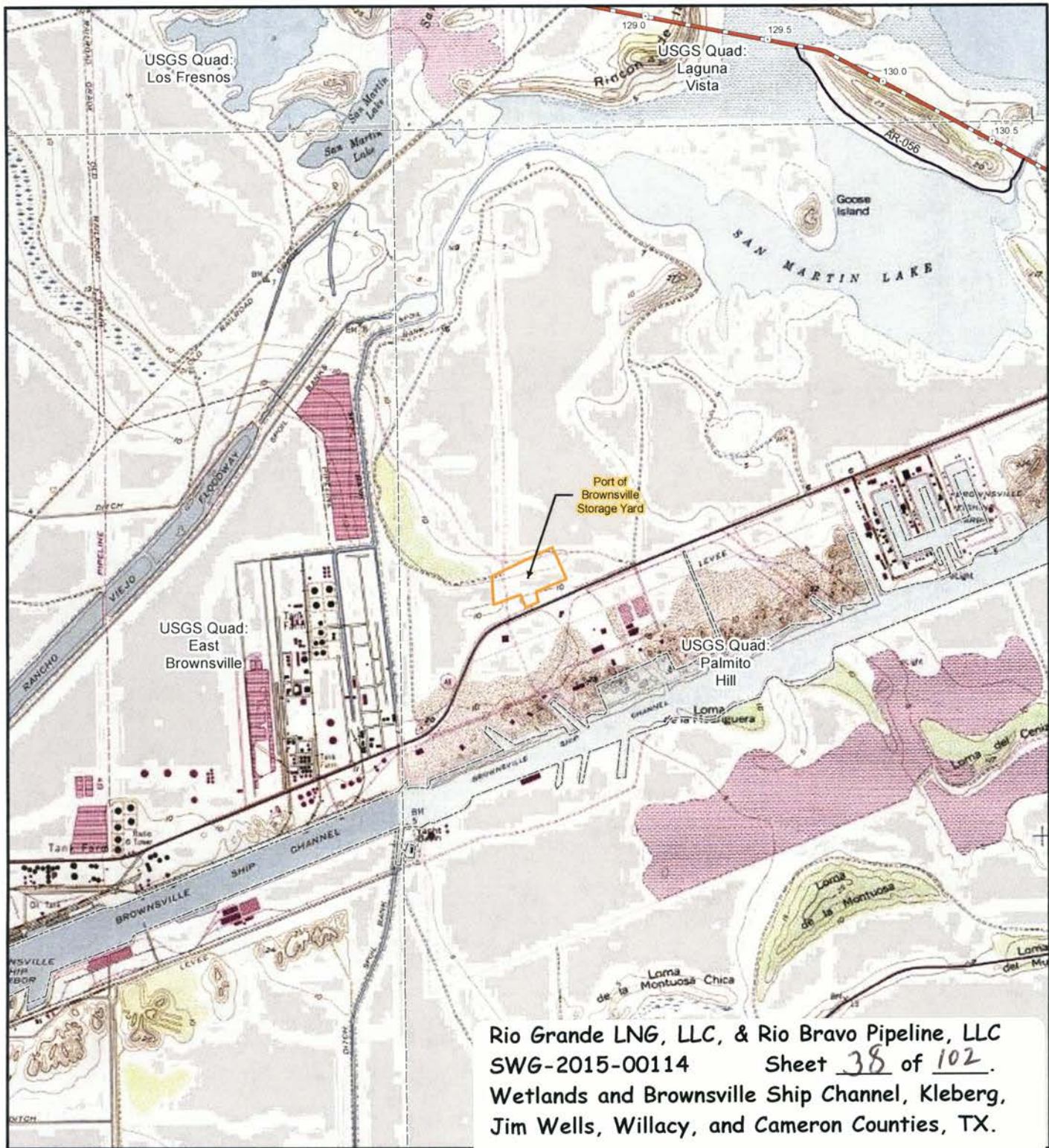
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 Rev Date: 8/29/2018

Rio Grande LNG Project

Topographic Map

Appendix B



Legend

- | | |
|--|----------------------------------|
| ○ Milepost | — Proposed Header System |
| ■ Meter Station | — Proposed Rio Bravo Pipeline |
| ■ Mainline Valve | — Permanent Access Road |
| □ Interconnect Booster and Meter Station | — Temporary Access Road |
| □ Contractor Yard | — Proposed Terminal LNG Boundary |
| □ Storage Yard | — LNG Terminal Site |
| □ Compressor Station | — County Boundary |
| | — USGS 7.5 min. quadrangle |

0 0.25 0.5
Miles



Scale: 1:35,000

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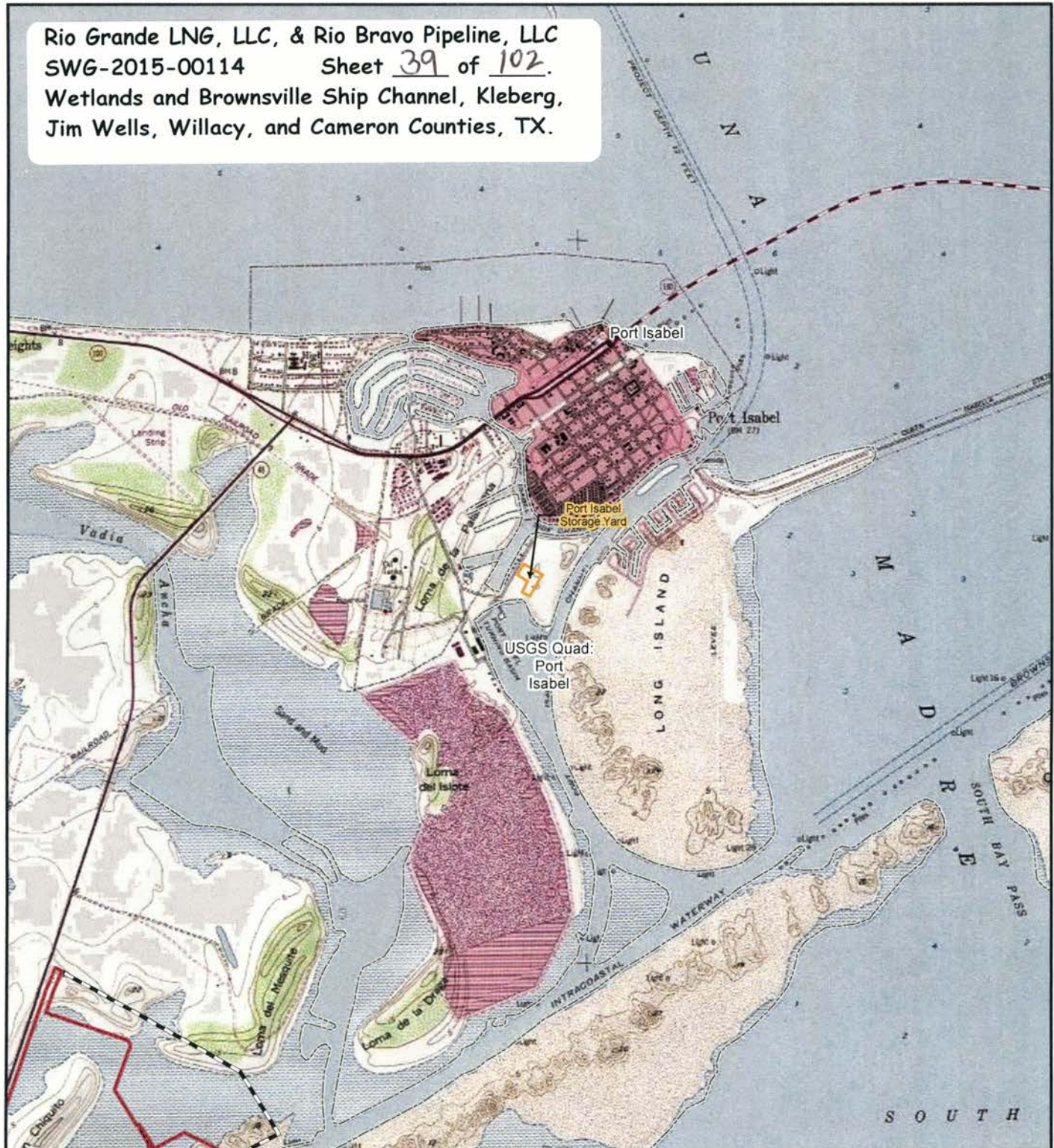
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Rev Date: 8/29/2018

Rio Grande LNG Project

Topographic Map

Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 39 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



Legend

- | | |
|--|----------------------------------|
| ○ Milepost | — Proposed Header System |
| ■ Meter Station | — Proposed Rio Bravo Pipeline |
| ■ Mainline Valve | — Permanent Access Road |
| □ Interconnect Booster and Meter Station | — Temporary Access Road |
| □ Contractor Yard | □ Proposed Terminal LNG Boundary |
| □ Storage Yard | □ LNG Terminal Site |
| □ Compressor Station | □ County Boundary |
| | □ USGS 7.5 min. quadrangle |

0 0.25 0.5
Miles



Scale: 1:35,000

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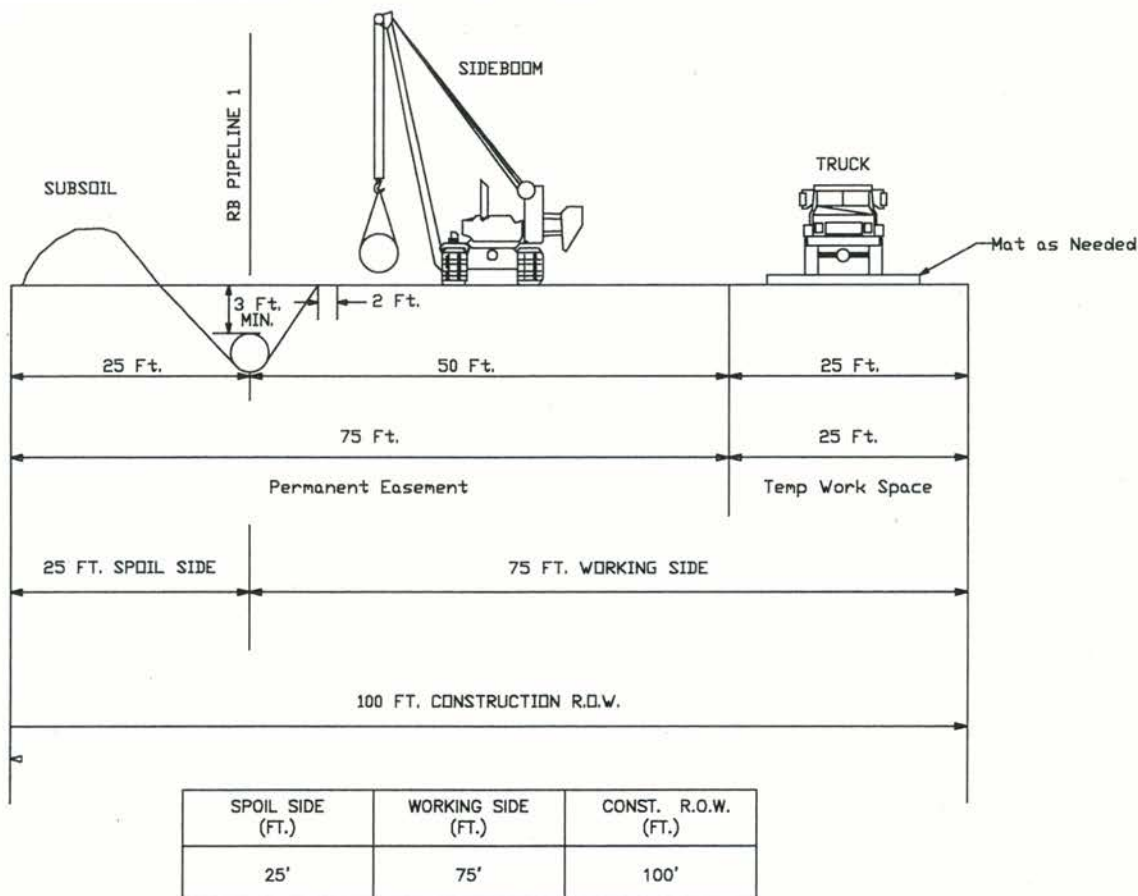
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Rio Grande LNG Project

Topographic Map

Appendix B

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 40 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



NOTES:

- ALTHOUGH THE DIMENSIONS SHOWN IN THE ABOVE SKETCH AND TABLE ARE TYPICAL, SOME VARIATIONS MAY EXIST DUE TO SITE SPECIFIC CONDITIONS THAT MAY INCLUDE ATWS WHICH ARE SHOWN ON THE ALIGNMENT SHEETS AND NOTED IN THE ATWS TABLES.
- TOPSOIL AND SUBSOIL SHALL BE SEGREGATED FOR THE WIDTH OF THE DITCH LINE ONLY. DOES NOT APPLY TO SATURATED SOILS AND/OR AREAS OF FREESTANDING WATER.
- EQUIPMENT TO WORK ON MATS OR ACCEPTED SUBSTRATE AS REQUIRED.
- ADDITIONAL WIDTH IN LONG WETLANDS TO PROVIDE SAFE USE OF TRAVEL LANE WHILE PIPE IS BEING MANEUVERED AND LOWERED INTO DITCH

REV.	DATE	BY	DESCRIPTION	CHK.

PROJECT NO. 108642



WOOD GROUP USA, INC.

TEXAS REGISTERED ENGINEERING FIRM F-2999

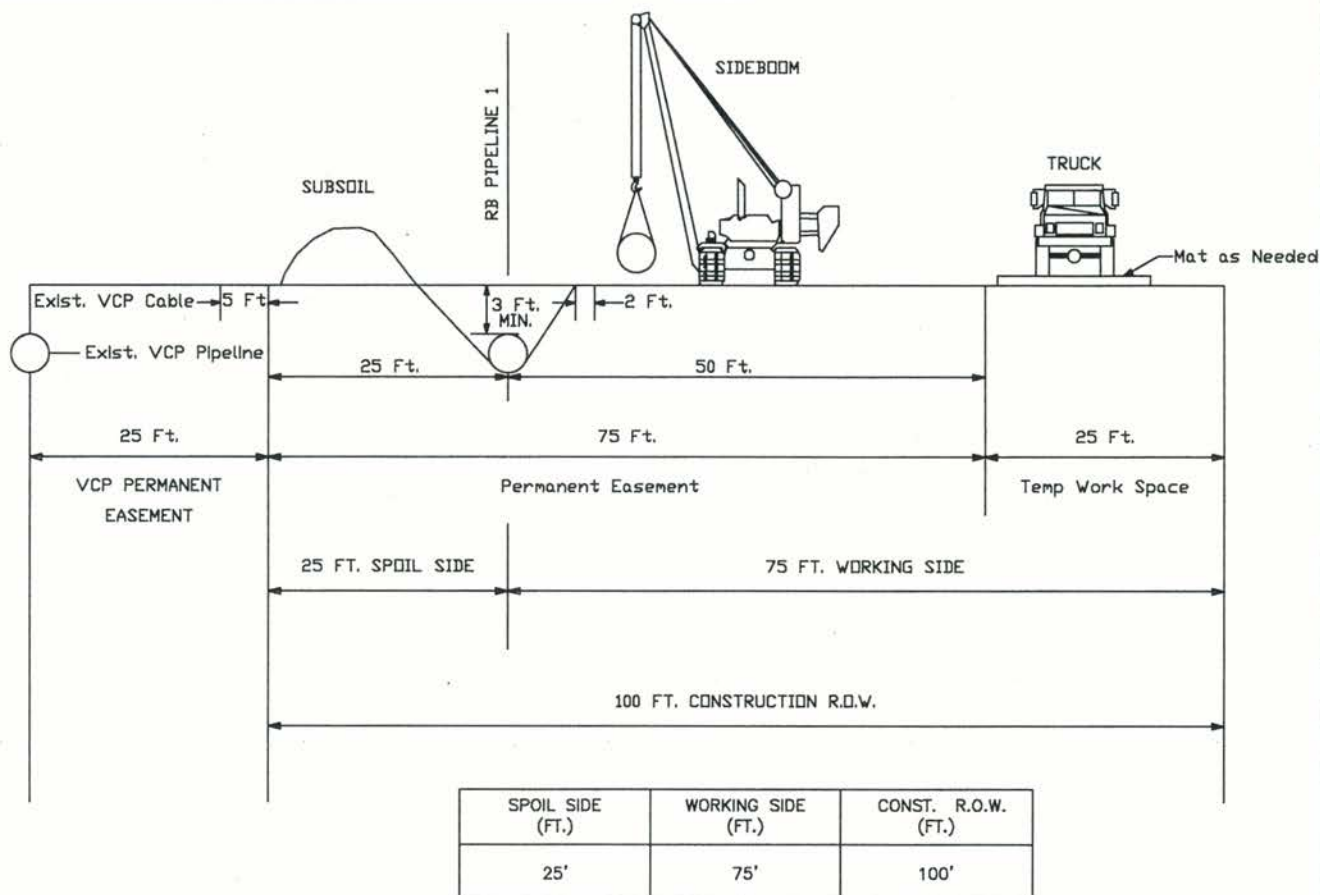
RIO BRAVO
PIPELINE

TYPICAL WETLAND CONSTRUCTION P1
 (WETLAND CROSSINGS LONGER THAN 1,000 FEET)

TEXAS

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CHECKED BY: JRK	DATE: 10/13/17	108642-99-006	1
SCALE: N.T.S.	APP.: JEA		

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 41 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



NOTES:

- ALTHOUGH THE DIMENSIONS SHOWN IN THE ABOVE SKETCH AND TABLE ARE TYPICAL, SOME VARIATIONS MAY EXIST DUE TO SITE SPECIFIC CONDITIONS THAT MAY INCLUDE ATWS WHICH ARE SHOWN ON THE ALIGNMENT SHEETS AND NOTED IN THE ATWS TABLES.
- TOPSOIL AND SUBSOIL SHALL BE SEGREGATED FOR THE WIDTH OF THE DITCH LINE ONLY. DOES NOT APPLY TO SATURATED SOILS AND/OR AREAS OF FREESTANDING WATER.
- EQUIPMENT TO WORK ON MATS OR ACCEPTED SUBSTRATE AS REQUIRED.
- ADDITIONAL WIDTH IN LONG WETLANDS TO PROVIDE SAFE USE OF TRAVEL LANE WHILE PIPE IS BEING MANEUVERED AND LOWERED INTO DITCH

REV.	DATE	BY	DESCRIPTION	CHK.

PROJECT NO. 108642



WOOD GROUP USA, INC.

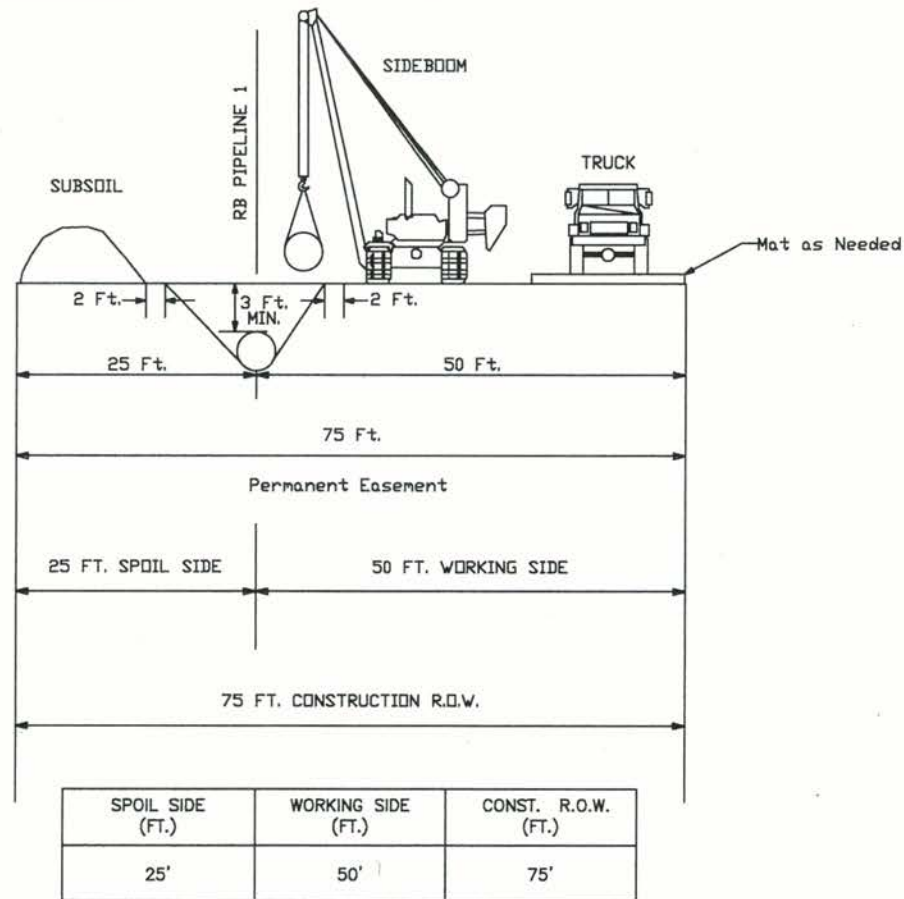
TEXAS REGISTERED ENGINEERING FIRM F-2999

RIO BRAVO
 PIPELINE

TYPICAL WETLAND CONSTRUCTION P1
 ADJACENT TO VALLEY CROSSING PIPELINE
 (WETLAND CROSSINGS LONGER THAN 1,000 FEET) TEXAS

DRAWN BY: MJV	DATE: 10/12/17	DWG. NO.	REV.
CHECKED BY: JRK	DATE: 10/13/17	108642-99-007	1
SCALE: N.T.S.	APP.: JEA		

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 42 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.

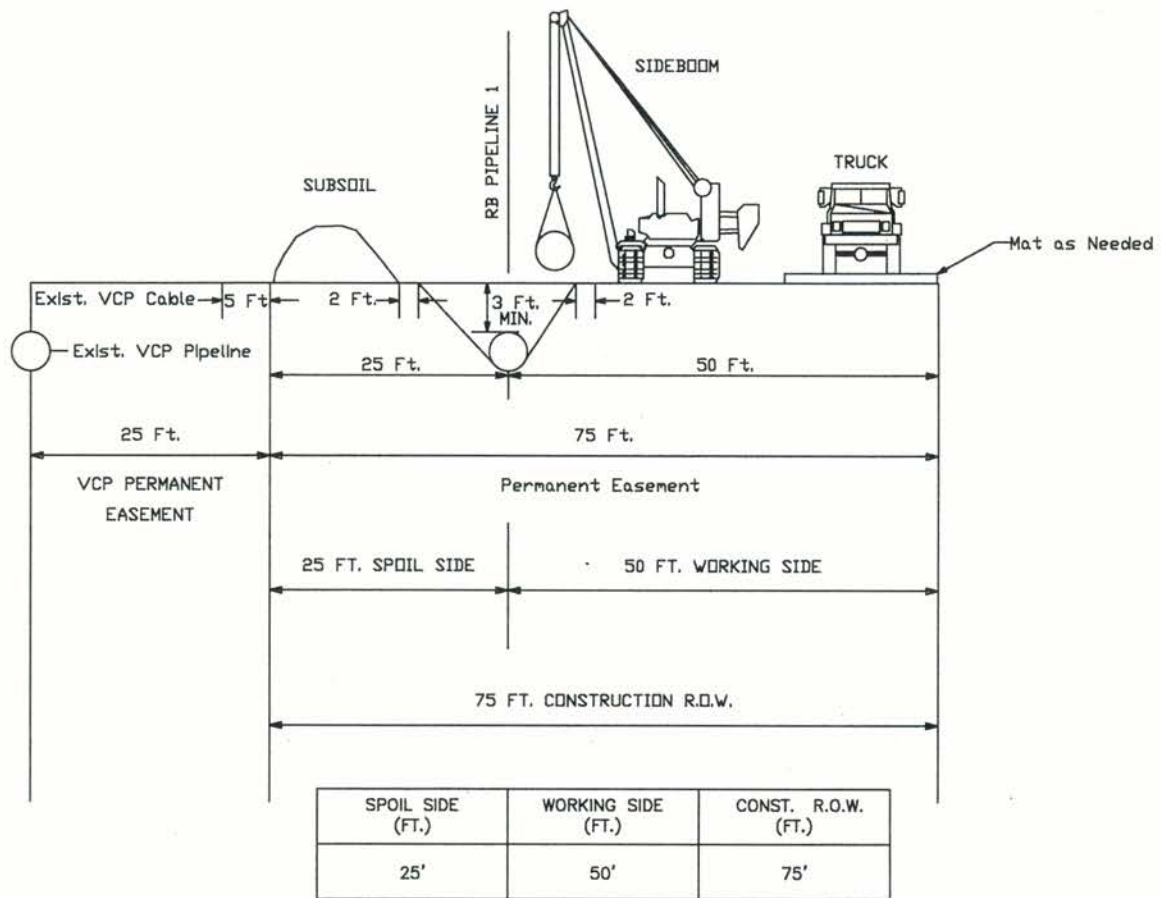


NOTES:

- ALTHOUGH THE DIMENSIONS SHOWN IN THE ABOVE SKETCH AND TABLE ARE TYPICAL, SOME VARIATIONS MAY EXIST DUE TO SITE SPECIFIC CONDITIONS THAT MAY INCLUDE ATWS WHICH ARE SHOWN ON THE ALIGNMENT SHEETS AND NOTED IN THE ATWS TABLES.
- TOPSOIL AND SUBSOIL SHALL BE SEGREGATED FOR THE WIDTH OF THE DITCH LINE ONLY. DOES NOT APPLY TO SATURATED SOILS AND/OR AREAS OF FREESTANDING WATER.
- EQUIPMENT TO WORK ON MATS OR ACCEPTED SUBSTRATE AS REQUIRED.

					RIO BRAVO PIPELINE 	
					TYPICAL WETLAND CONSTRUCTION P1	
					TEXAS	
REV.	DATE	BY	DESCRIPTION	CHK.		
PROJECT NO. 108642						
 WOOD GROUP USA, INC. TEXAS REGISTERED ENGINEERING FIRM F-2999					DRAWN BY: MJV CHECKED BY: JRK SCALE: N.T.S.	DATE: 10/12/17 DATE: 10/13/17 APP.: JEA
					DWG. NO. 108642-99-008	
					REV. 1	

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 43 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.

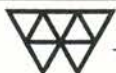


NOTES:

- ALTHOUGH THE DIMENSIONS SHOWN IN THE ABOVE SKETCH AND TABLE ARE TYPICAL, SOME VARIATIONS MAY EXIST DUE TO SITE SPECIFIC CONDITIONS THAT MAY INCLUDE ATWS WHICH ARE SHOWN ON THE ALIGNMENT SHEETS AND NOTED IN THE ATWS TABLES.
- TOPSOIL AND SUBSOIL SHALL BE SEGREGATED FOR THE WIDTH OF THE DITCH LINE ONLY. DOES NOT APPLY TO SATURATED SOILS AND/OR AREAS OF FREESTANDING WATER.
- EQUIPMENT TO WORK ON MATS OR ACCEPTED SUBSTRATE AS REQUIRED.

REV.	DATE	BY	DESCRIPTION	CHK.

PROJECT NO. 108642



WOOD GROUP USA, INC.

TEXAS REGISTERED ENGINEERING FIRM F-2999

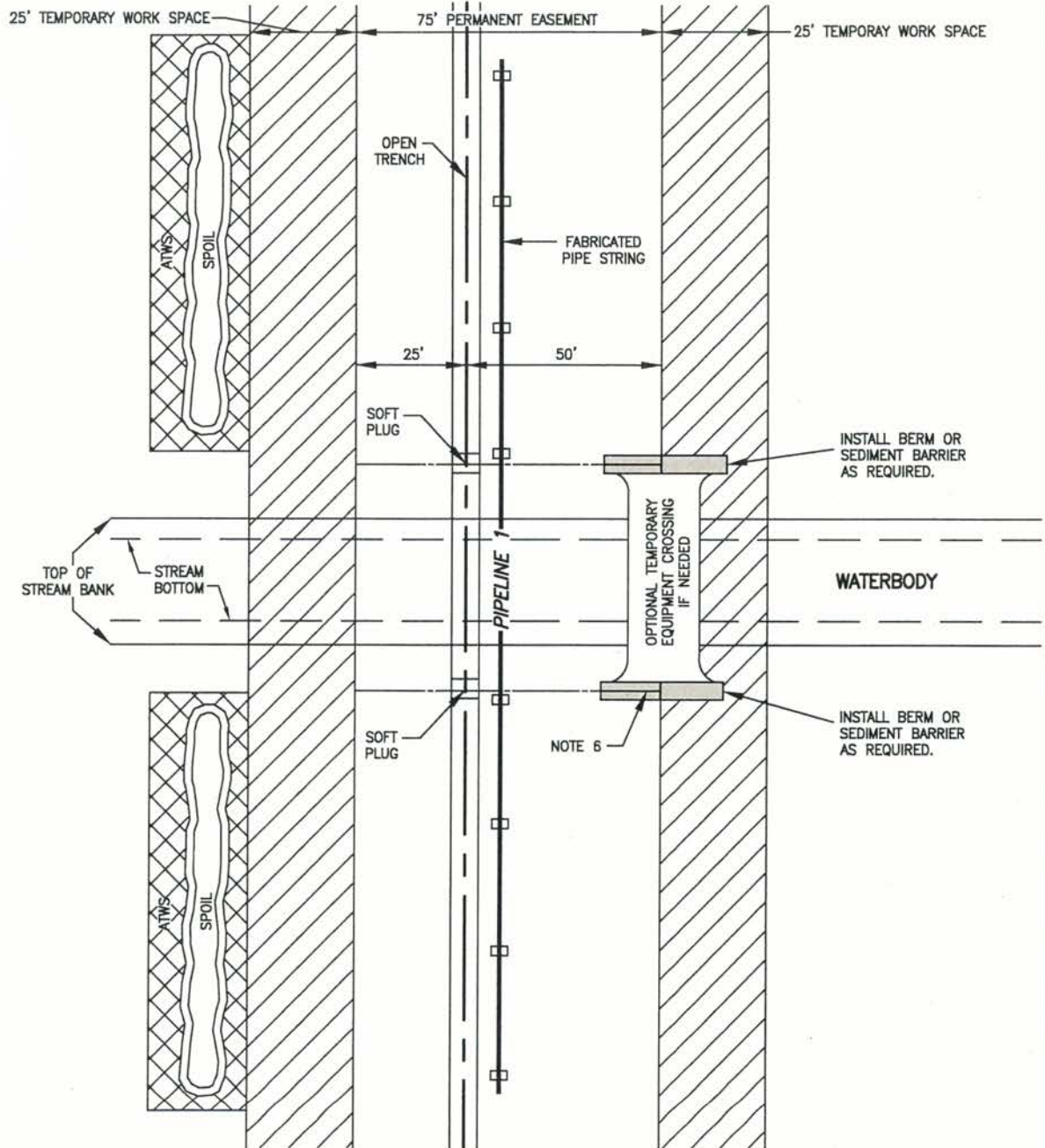
RIO BRAVO
 PIPELINE

TYPICAL WETLAND CONSTRUCTION P1
 ADJACENT TO VALLEY CROSSING PIPELINE

TEXAS

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CHECKED BY: JRK	DATE: 10/13/17	108642-99-009	1
SCALE: N.T.S.	APP.: JEA		

Rio Bravo LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 44 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



NOTES:

1. THIS METHOD APPLIES TO PONDS, DRY WASHES, SWALES, INCISED DRAINAGE AND DITCHES WITH NO PERCEPTIBLE FLOW AT TIME OF CROSSING.
2. INDICATED FOR ADJACENT UPLAND WHERE REQUIRED.
3. ADDITIONAL WORKSPACE SHOULD BE MIN. 50' FROM TOP OF BANK.
4. INSTALL SILT FENCE OR A BERM TO PREVENT RUNOFF FROM ROW TO ADJACENT UNDISTURBED DRAINAGE.
5. STOCK PILE TOPSOIL AND SPOIL SEPARATELY. TOPSOIL SHALL NOT BE STOCKPILED ACROSS THE DRAINAGE CHANNEL AND SHALL BE PLACED A MIN. OF 50 FEET FROM THE TOPBANK.
6. INSTALL TEMPORARY SLOPE BREAKERS WHERE REQUIRED.
7. TRENCH, STRING PIPE, AND BACKFILL USING STANDARD UPLAND CONSTRUCTION PROCEDURES.
8. RESTORE WATERCOURSE CHANNEL AND BANKS (EXCEPT TRAVEL LANE IF USED) TO APPROXIMATE PRE-CONSTRUCTION PROFILE IMMEDIATELY AFTER PIPE IS LOWERED IN AND BACKFILLED. INSTALL PERMANENT EROSION CONTROLS WHERE REQUIRED.
9. REMOVE ANY TEMPORARY CROSSING STRUCTURES AND/OR GRAVEL.

REV.	DATE	BY	DESCRIPTION	CHK.

PROJECT NO. 108642



WOOD GROUP USA, INC.

TEXAS REGISTERED ENGINEERING FIRM F-2999

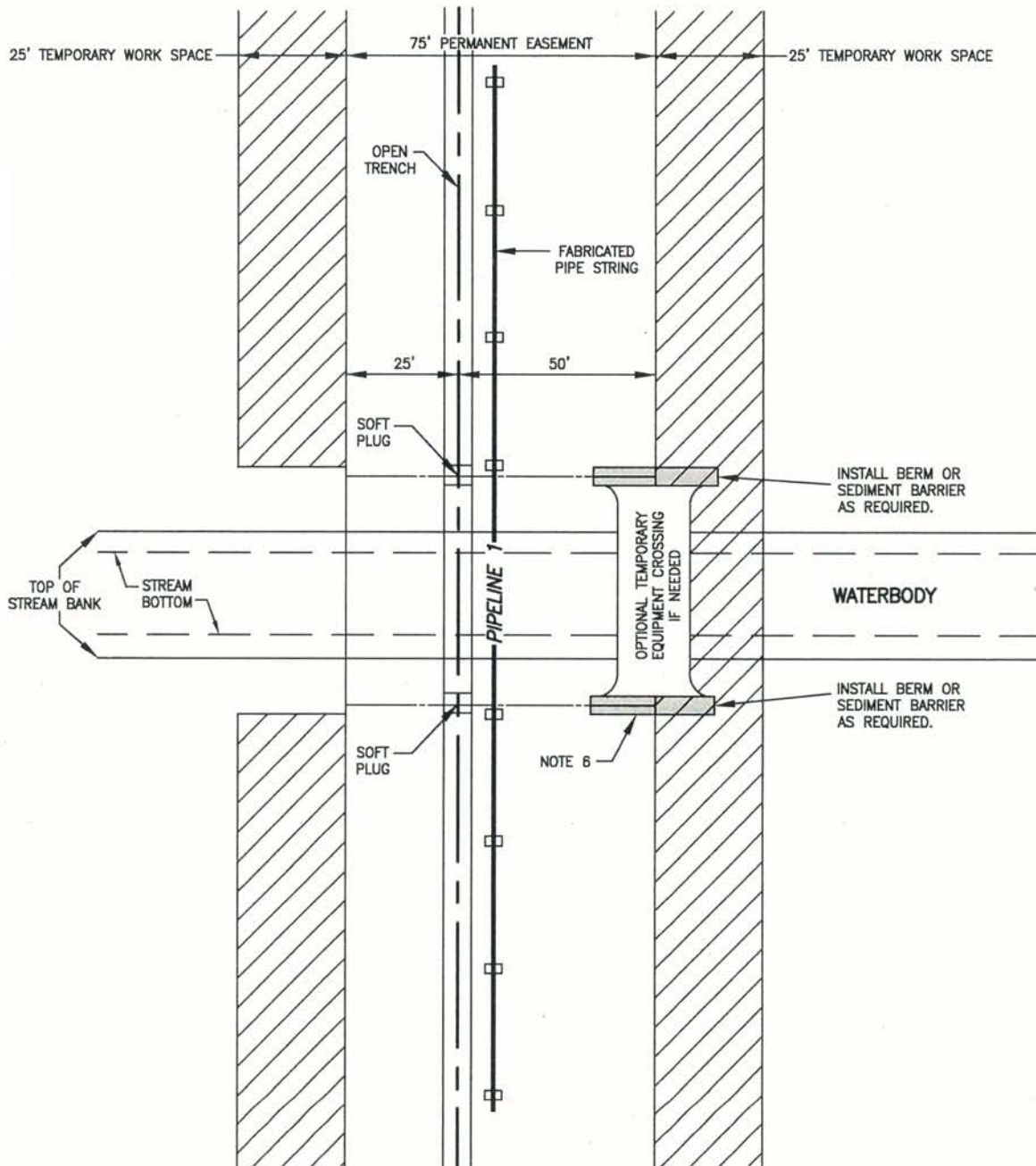
RIO BRAVO
PIPELINE

PIPELINE 1 OPEN CUT WET CROSSING METHOD
 WITH 125 FOOT CONSTRUCTION SPACE
 NON-FLOWING WATERBODY

TEXAS

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CHECKED BY: JRK	DATE: 10/24/17	108642-99-012	0
SCALE: N.T.S.	APP.: JEA		

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 45 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



NOTES:

1. THIS METHOD APPLIES TO PONDS, DRY WASHES, SWALES, INCISED DRAINAGE AND DITCHES WITH NO PERCEPTIBLE FLOW AT TIME OF CROSSING.
2. INDICATED FOR ADJACENT UPLAND WHERE REQUIRED.
3. ADDITIONAL WORKSPACE SHOULD BE MIN. 50' FROM TOP OF BANK.
4. INSTALL SILT FENCE OR A BERM TO PREVENT RUNOFF FROM ROW TO ADJACENT UNDISTURBED DRAINAGE.
5. STOCK PILE TOPSOIL AND SPOIL SEPARATELY. TOPSOIL SHALL NOT BE STOCKPILED ACROSS THE DRAINAGE CHANNEL AND SHALL BE PLACED A MIN. OF 50 FEET FROM THE TOPBANK.
6. INSTALL TEMPORARY SLOPE BREAKERS WHERE REQUIRED.
7. TRENCH, STRING PIPE, AND BACKFILL USING STANDARD UPLAND CONSTRUCTION PROCEDURES.
8. RESTORE WATERCOURSE CHANNEL AND BANKS (EXCEPT TRAVEL LANE IF USED) TO APPROXIMATE PRE-CONSTRUCTION PROFILE IMMEDIATELY AFTER PIPE IS LOWERED IN AND BACKFILLED. INSTALL PERMANENT EROSION CONTROLS WHERE REQUIRED.
9. REMOVE ANY TEMPORARY CROSSING STRUCTURES AND/OR GRAVEL.

REV.	DATE	BY	DESCRIPTION	CHK.

PROJECT NO. 108642



WOOD GROUP USA, INC.

TEXAS REGISTERED ENGINEERING FIRM F-2999

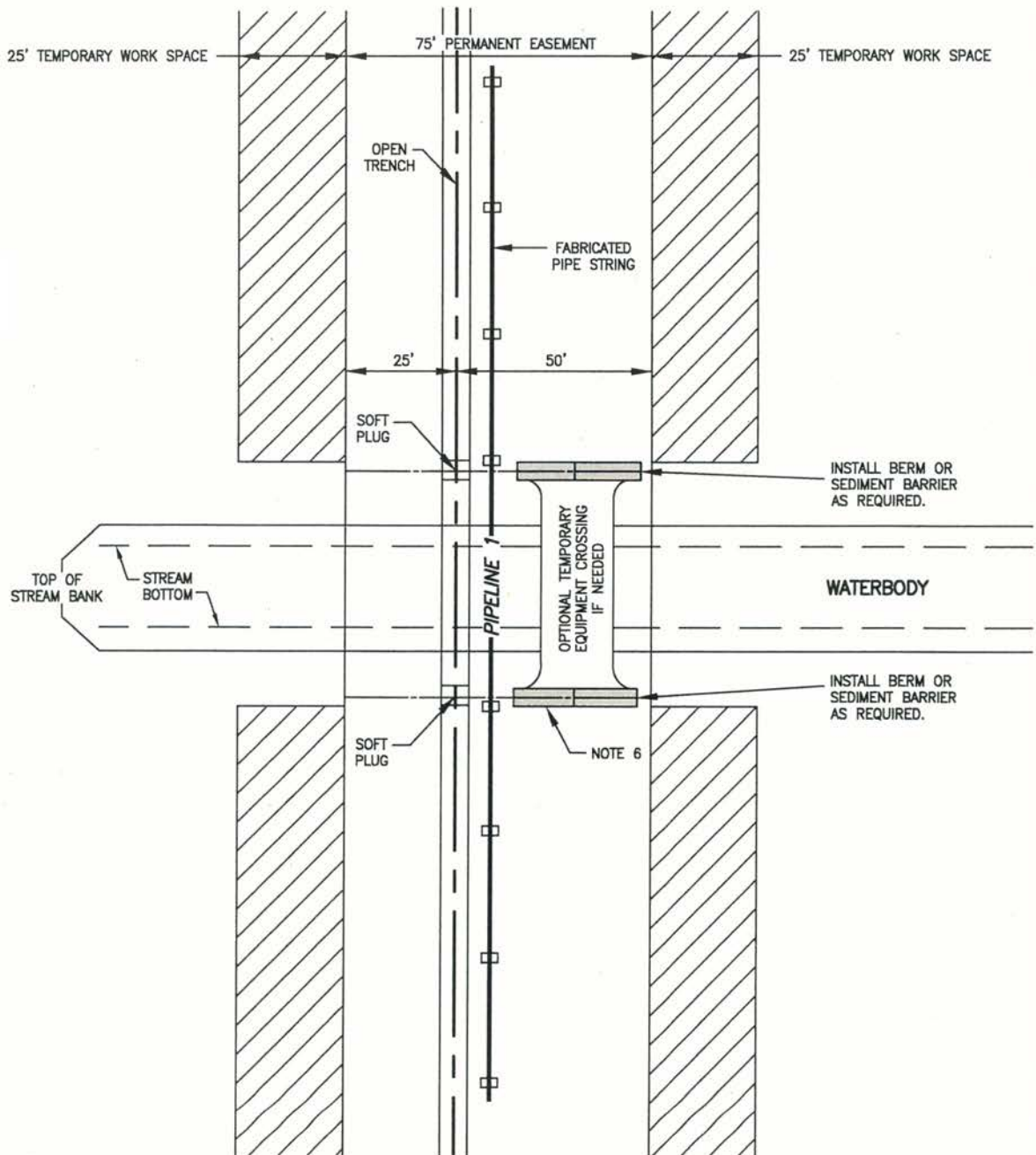
RIO BRAVO
 PIPELINE

PIPELINE 1 OPEN CUT WET CROSSING METHOD
 WITH 100 FOOT CONSTRUCTION SPACE
 NON-FLOWING WATERBODY

TEXAS

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CHECKED BY: JRK	DATE: 10/24/17	108642-99-013	0
SCALE: N.T.S.	APP.: JEA		

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 46 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



NOTES:

1. THIS METHOD APPLIES TO PONDS, DRY WASHES, SWALES, INCISED DRAINAGE AND DITCHES WITH NO PERCEPTIBLE FLOW AT TIME OF CROSSING.
2. INDICATED FOR ADJACENT UPLAND WHERE REQUIRED.
3. ADDITIONAL WORKSPACE SHOULD BE MIN. 50' FROM TOP OF BANK.
4. INSTALL SILT FENCE OR A BERM TO PREVENT RUNOFF FROM ROW TO ADJACENT UNDISTURBED DRAINAGE.
5. STOCKPILE TOPSOIL AND SPOIL SEPARATELY. TOPSOIL SHALL NOT BE STOCKPILED ACROSS THE DRAINAGE CHANNEL AND SHALL BE PLACED A MIN. OF 50 FEET FROM THE TOPBANK.
6. INSTALL TEMPORARY SLOPE BREAKERS WHERE REQUIRED.
7. TRENCH, STRING PIPE, AND BACKFILL USING STANDARD UPLAND CONSTRUCTION PROCEDURES.
8. RESTORE WATERCOURSE CHANNEL AND BANKS (EXCEPT TRAVEL LANE IF USED) TO APPROXIMATE PRE-CONSTRUCTION PROFILE IMMEDIATELY AFTER PIPE IS LOWERED IN AND BACKFILLED. INSTALL PERMANENT EROSION CONTROLS WHERE REQUIRED.
9. REMOVE ANY TEMPORARY CROSSING STRUCTURES AND/OR GRAVEL.

REV.	DATE	BY	DESCRIPTION	CHK.

PROJECT NO. 108642



WOOD GROUP USA, INC.

TEXAS REGISTERED ENGINEERING FIRM F-2999

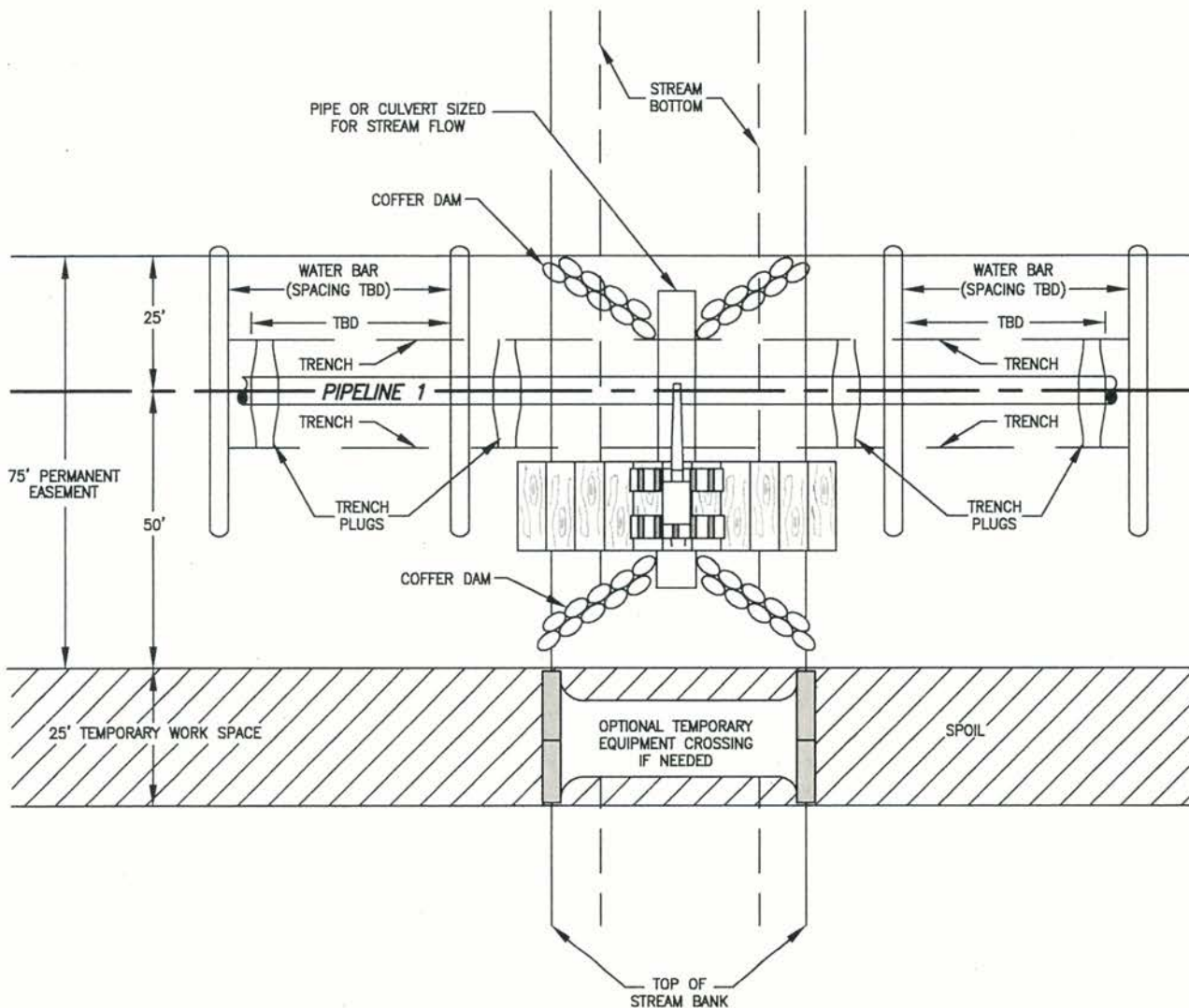
RIO BRAVO
PIPELINE

PIPELINE 1 OPEN CUT WET CROSSING METHOD
 WITH 75 FOOT CONSTRUCTION SPACE
 NON-FLOWING WATERBODY

TEXAS

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CHECKED BY: JRK	DATE: 10/24/17	108642-99-014	0
SCALE: N.T.S.	APP.: JEA		

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 47 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



NOTES:

1. SPOIL WILL BE PLACED IN THE CONSTRUCTION ROW AT LEAST 10 FEET FROM THE WATER'S EDGE OR IN THE ATWS AREAS.
2. ATWS WILL BE AT LEAST 50 FEET FROM THE WATERBODY UNLESS A SITE-SPECIFIC JUSTIFICATION HAS BEEN APPROVED.
3. SEDIMENT BARRIERS WILL BE USED TO PREVENT THE FLOW OF SPOIL OR SILT-LADEN WATER INTO ANY WATERBODY.

REV.	DATE	BY	DESCRIPTION	CHK.

PROJECT NO. 108642



WOOD GROUP USA, INC.

TEXAS REGISTERED ENGINEERING FIRM F-2999

RIO BRAVO
 PIPELINE 

PIPELINE 1
 FLOWING STREAM CROSSING
 WITH PIPE OR CULVERT

TEXAS

DRAWN BY: WT

DATE: 10/20/17

DWG. NO.

REV.

CHECKED BY: JRK

DATE: 10/24/17

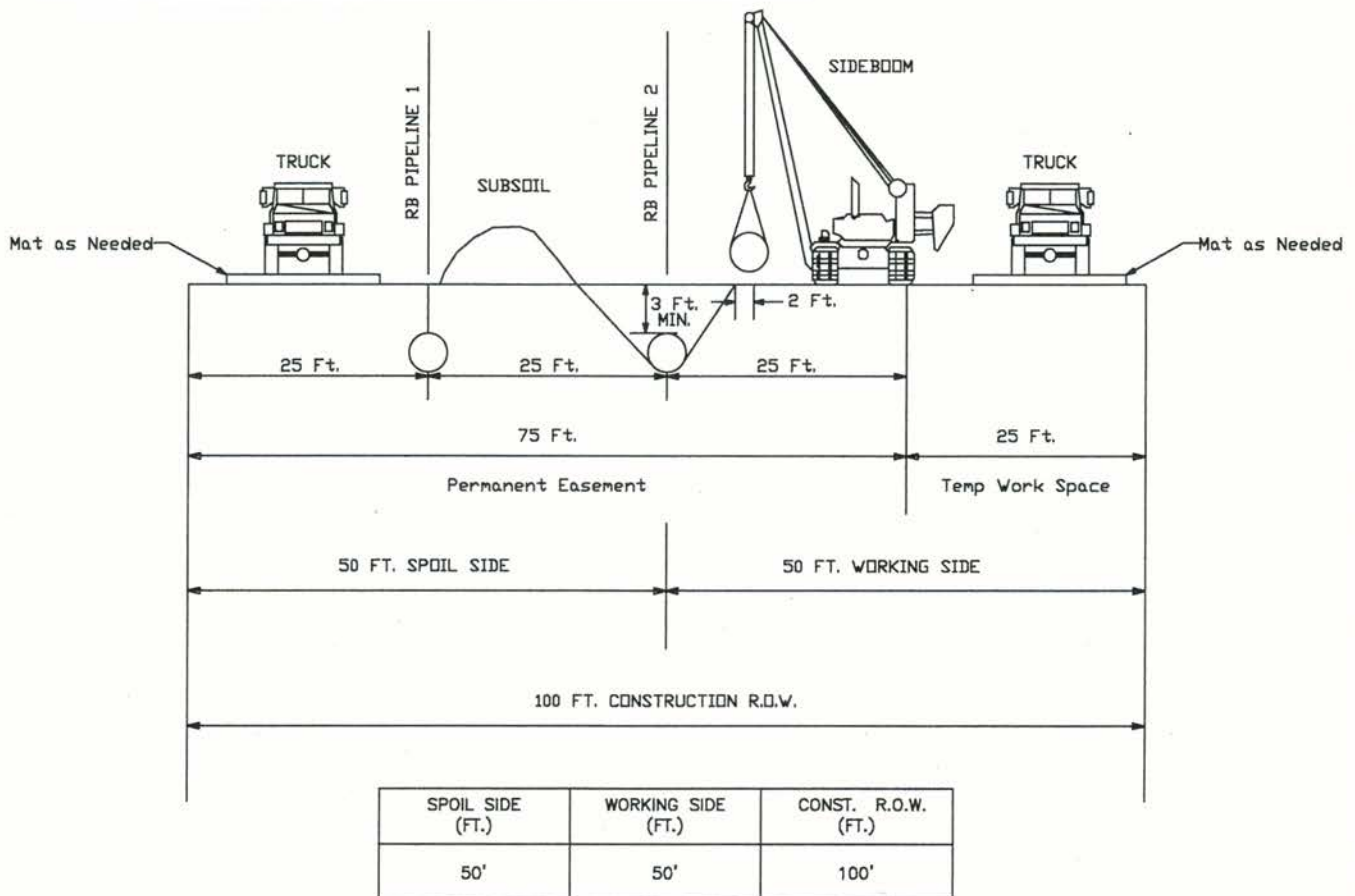
SCALE: N.T.S.

APP.: JEA

108642-99-015

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Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 48 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



NOTES:

- ALTHOUGH THE DIMENSIONS SHOWN IN THE ABOVE SKETCH AND TABLE ARE TYPICAL, SOME VARIATIONS MAY EXIST DUE TO SITE SPECIFIC CONDITIONS THAT MAY INCLUDE ATWS WHICH ARE SHOWN ON THE ALIGNMENT SHEETS AND NOTED IN THE ATWS TABLES.
- TOPSOIL AND SUBSOIL SHALL BE SEGREGATED FOR THE WIDTH OF THE DITCH LINE ONLY. DOES NOT APPLY TO SATURATED SOILS AND/OR AREAS OF FREESTANDING WATER.
- EQUIPMENT TO WORK ON MATS OR ACCEPTED SUBSTRATE AS REQUIRED.
- ADDITIONAL WIDTH IN LONG WETLANDS TO PROVIDE SAFE USE OF TRAVEL LANE WHILE PIPE IS BEING MANEUVERED AND LOWERED INTO DITCH

REV.	DATE	BY	DESCRIPTION	CHK.

PROJECT NO. 108642



WOOD GROUP USA, INC.

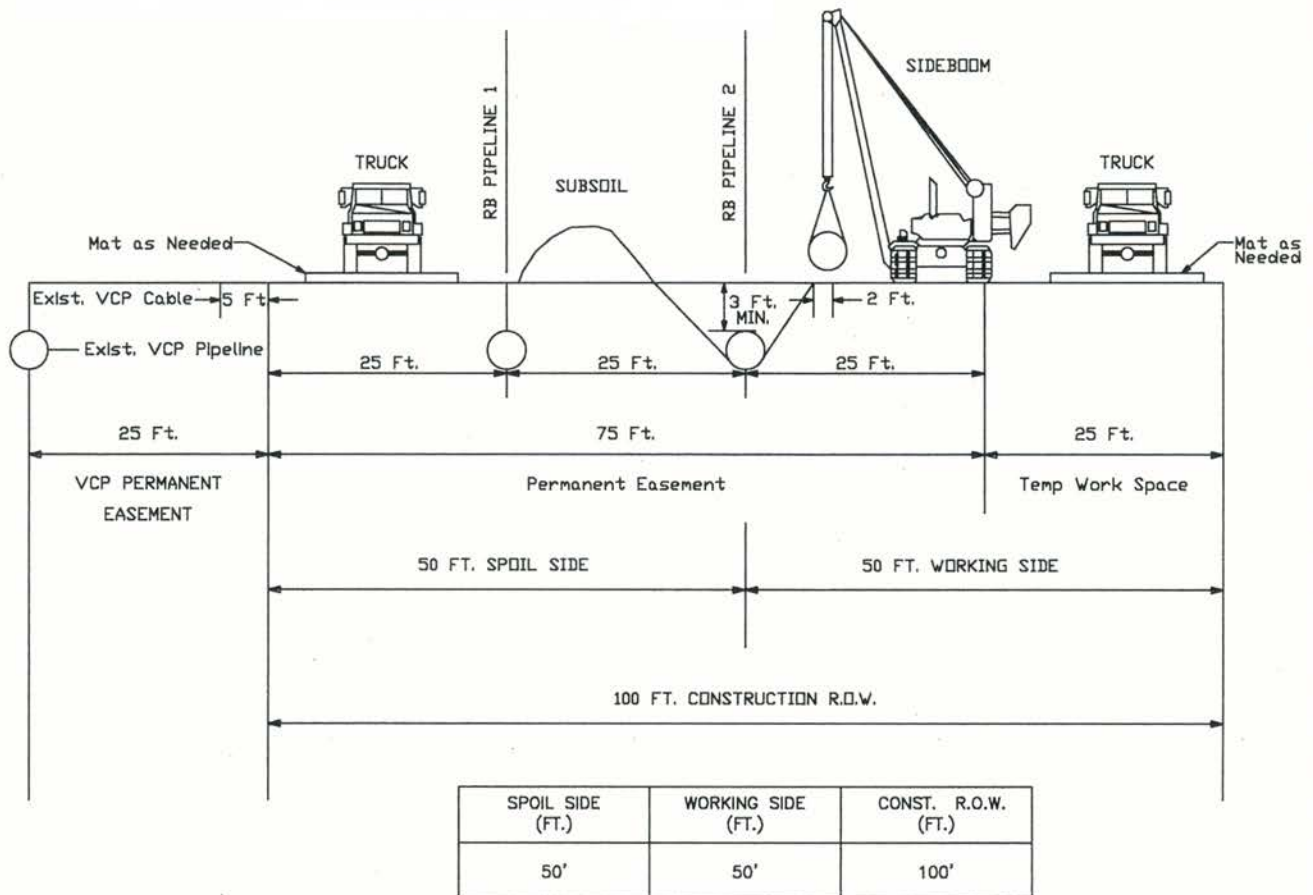
TEXAS REGISTERED ENGINEERING FIRM F-2999

RIO BRAVO
PIPELINE

TYPICAL WETLAND CONSTRUCTION P2
 (WETLAND CROSSINGS LONGER THAN 1,000 FEET) ^{TEXAS}

DRAWN BY: MJV	DATE: 10/12/17	DWG. NO.	REV.
CHECKED BY: JRK	DATE: 10/13/17	108642-99-018	1
SCALE: N.T.S.	APP.: JEA		

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 49 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



NOTES:

- ALTHOUGH THE DIMENSIONS SHOWN IN THE ABOVE SKETCH AND TABLE ARE TYPICAL, SOME VARIATIONS MAY EXIST DUE TO SITE SPECIFIC CONDITIONS THAT MAY INCLUDE ATWS WHICH ARE SHOWN ON THE ALIGNMENT SHEETS AND NOTED IN THE ATWS TABLES.
- TOPSOIL AND SUBSOIL SHALL BE SEGREGATED FOR THE WIDTH OF THE DITCH LINE ONLY. DOES NOT APPLY TO SATURATED SOILS AND/OR AREAS OF FREESTANDING WATER.
- EQUIPMENT TO WORK ON MATS OR ACCEPTED SUBSTRATE AS REQUIRED.
- ADDITIONAL WIDTH IN LONG WETLANDS TO PROVIDE SAFE USE OF TRAVEL LANE WHILE PIPE IS BEING MANEUVERED AND LOWERED INTO DITCH

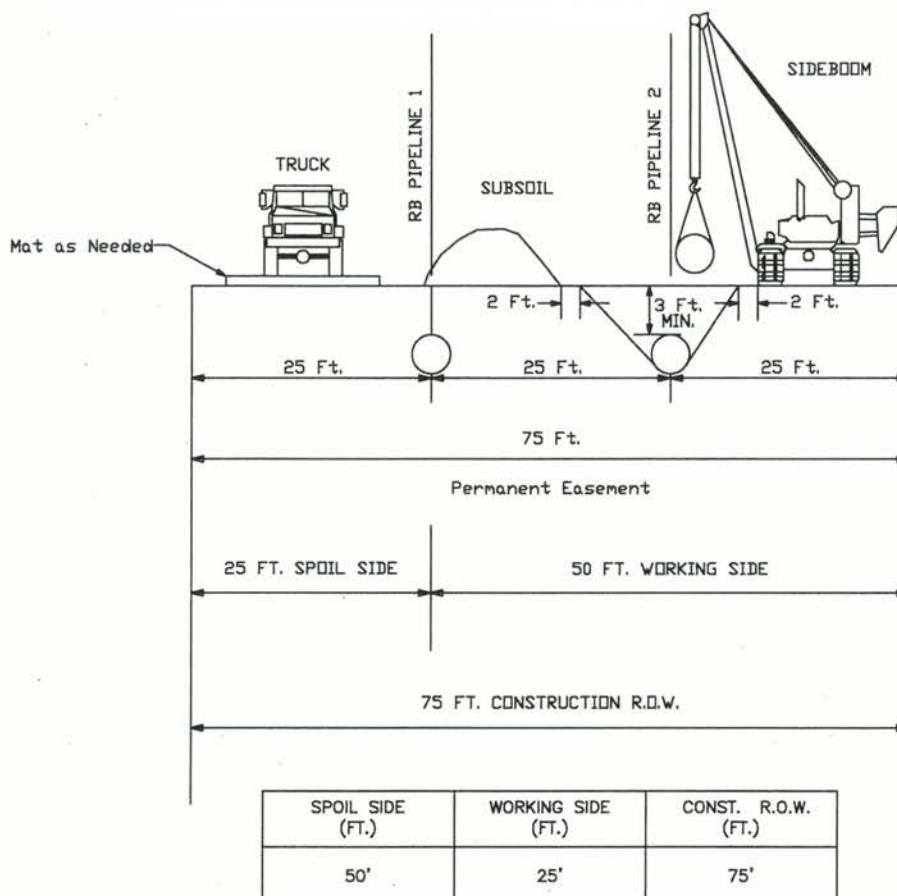
REV.	DATE	BY	DESCRIPTION	CHK.
PROJECT NO. 108642				
 WOOD GROUP USA, INC. TEXAS REGISTERED ENGINEERING FIRM F-2999				

RIO BRAVO
 PIPELINE 

**TYPICAL WETLAND CONSTRUCTION P2
 ADJACENT TO VALLEY CROSSING PIPELINE
 (WETLAND CROSSINGS LONGER THAN 1,000 FEET) TEXAS**

DRAWN BY: M/V	DATE: 10/12/17	DWG. NO.	REV.
CHECKED BY: JRK	DATE: 10/13/17	108642-99-019	1
SCALE: N.T.S.	APP.: JEA		

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 50 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



NOTES:

- ALTHOUGH THE DIMENSIONS SHOWN IN THE ABOVE SKETCH AND TABLE ARE TYPICAL, SOME VARIATIONS MAY EXIST DUE TO SITE SPECIFIC CONDITIONS THAT MAY INCLUDE ATWS WHICH ARE SHOWN ON THE ALIGNMENT SHEETS AND NOTED IN THE ATWS TABLES.
- TOPSOIL AND SUBSOIL SHALL BE SEGREGATED FOR THE WIDTH OF THE DITCH LINE ONLY. DOES NOT APPLY TO SATURATED SOILS AND/OR AREAS OF FREESTANDING WATER.
- EQUIPMENT TO WORK ON MATS OR ACCEPTED SUBSTRATE AS REQUIRED.

REV.	DATE	BY	DESCRIPTION	CHK.

PROJECT NO. 108642



WOOD GROUP USA, INC.
 TEXAS REGISTERED ENGINEERING FIRM F-2999

RIO BRAVO
 PIPELINE

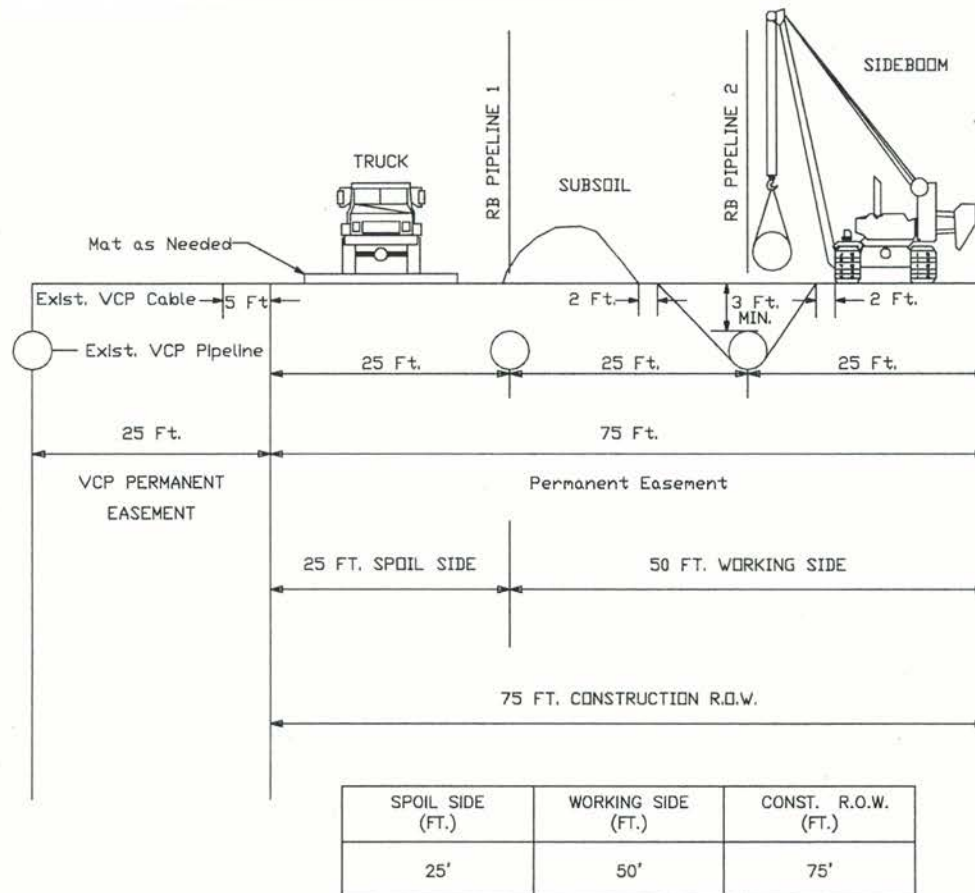


TYPICAL WETLAND CONSTRUCTION P2

TEXAS

DRAWN BY: MJV	DATE: 10/12/17	DWG. NO.	REV.
CHECKED BY: JRK	DATE: 10/13/17	108642-99-020	1
SCALE: N.T.S.	APP.: JEA		

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 51 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.

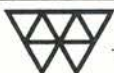


NOTES:

- ALTHOUGH THE DIMENSIONS SHOWN IN THE ABOVE SKETCH AND TABLE ARE TYPICAL, SOME VARIATIONS MAY EXIST DUE TO SITE SPECIFIC CONDITIONS THAT MAY INCLUDE ATWS WHICH ARE SHOWN ON THE ALIGNMENT SHEETS AND NOTED IN THE ATWS TABLES.
- TOPSOIL AND SUBSOIL SHALL BE SEGREGATED FOR THE WIDTH OF THE DITCH LINE ONLY. DOES NOT APPLY TO SATURATED SOILS AND/OR AREAS OF FREESTANDING WATER.
- EQUIPMENT TO WORK ON MATS OR ACCEPTED SUBSTRATE AS REQUIRED.

REV.	DATE	BY	DESCRIPTION	CHK.

PROJECT NO. 108642



WOOD GROUP USA, INC.

TEXAS REGISTERED ENGINEERING FIRM F-2999

RIO BRAVO
 PIPELINE

 TYPICAL WETLAND CONSTRUCTION P2
 ADJACENT TO VALLEY CROSSING PIPELINE

TEXAS

DRAWN BY: MJV

DATE: 10/12/17

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REV.

CHECKED BY: JRK

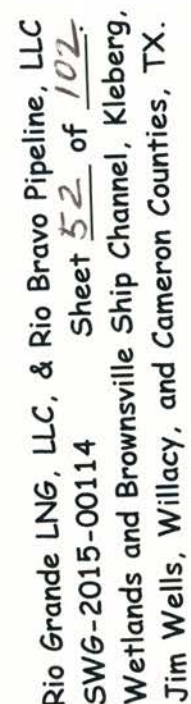
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SCALE: N.T.S.

APP.: JEA

108642-99-021

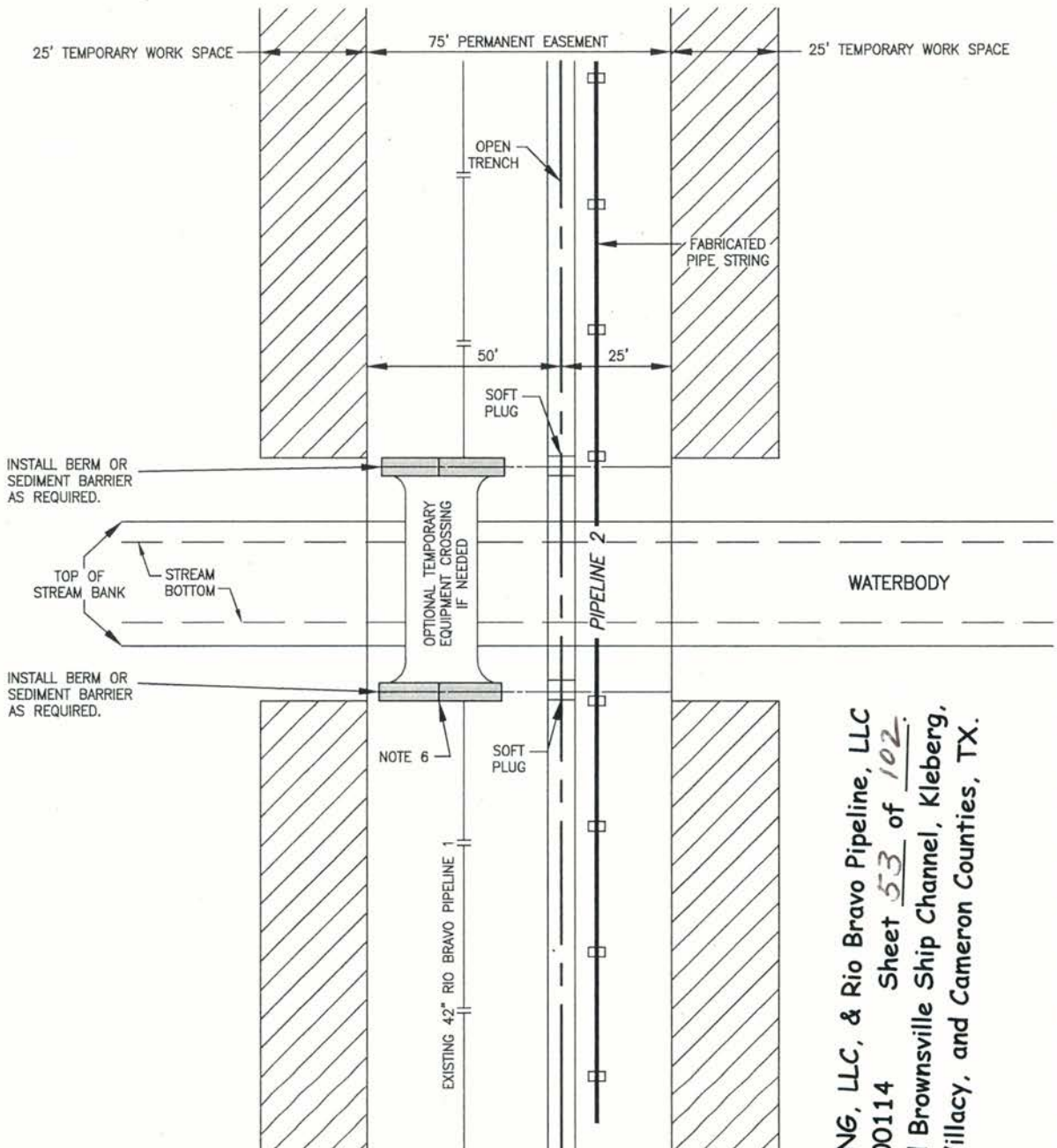
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1. THIS METHOD APPLIES TO PONDS, DRY WASHERS, SWALES, INCISED DRAINAGE AND DITCHES WITH NO PERCEPTIBLE FLOW AT TIME OF CROSSING.
2. INDICATED FOR ADJACENT UPLAND WHERE REQUIRED.
3. ADDITIONAL WORKSPACE SHOULD BE MIN. 50' FROM TOP OF BANK.
4. INSTALL SILT FENCE OR A BERM TO PREVENT RUNOFF FROM ROW TO ADJACENT UNDISTURBED DRAINAGE.
5. STOCK PILE TOPSOIL AND SPOIL SEPARATELY. TOPSOIL SHALL NOT BE STOCKPILED ACROSS THE DRAINAGE CHANNEL AND SHALL BE PLACED A MIN. OF 50 FEET FROM THE TOPBANK.
6. INSTALL TEMPORARY SLOPE BREAKERS WHERE REQUIRED.
7. TRENCH, STRING PIPE, AND BACKFILL USING STANDARD UPLAND CONSTRUCTION PROCEDURES.
8. RESTORE WATERCOURSE CHANNEL AND BANKS (EXCEPT TRAVEL LANE IF USED) TO APPROXIMATE PRE-CONSTRUCTION PROFILE IMMEDIATELY AFTER PIPE IS LOWERED IN AND BACKFILLED. INSTALL PERMANENT EROSION CONTROLS WHERE REQUIRED.
9. REMOVE ANY TEMPORARY CROSSING STRUCTURES AND/OR GRAVEL.

				RIO BRAVO PIPELINE			
				PIPELINE 2 OPEN CUT WET CROSSING METHOD WITH 125 FOOT CONSTRUCTION SPACE NON-FLOWING WATERBODY			
REV.	DATE	BY	DESCRIPTION	CHK.	TEXAS		
PROJECT NO. 108642							
WOOD GROUP USA, INC. TEXAS REGISTERED ENGINEERING FIRM F-2999				DRAWN BY: WT		DATE: 10/20/17	
				CHECKED BY: JRK		DATE: 10/24/17	
				SCALE: N.T.S.		APP.: JEA	
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				108642-99-024		0	

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NOTES:

1. THIS METHOD APPLIES TO PONDS, DRY WASHES, SWALES, INCISED DRAINAGE AND DITCHES WITH NO PERCEPTIBLE FLOW AT TIME OF CROSSING.
2. INDICATED FOR ADJACENT UPLAND WHERE REQUIRED.
3. ADDITIONAL WORKSPACE SHOULD BE MIN. 50' FROM TOP OF BANK.
4. INSTALL SILT FENCE OR A BERM TO PREVENT RUNOFF FROM ROW TO ADJACENT UNDISTURBED DRAINAGE.
5. STOCK PILE TOPSOIL AND SPOIL SEPARATELY. TOPSOIL SHALL NOT BE STOCKPILED ACROSS THE DRAINAGE CHANNEL AND SHALL BE PLACED A MIN. OF 50 FEET FROM THE TOPBANK.
6. INSTALL TEMPORARY SLOPE BREAKERS WHERE REQUIRED.
7. TRENCH, STRING PIPE, AND BACKFILL USING STANDARD UPLAND CONSTRUCTION PROCEDURES.
8. RESTORE WATERCOURSE CHANNEL AND BANKS (EXCEPT TRAVEL LANE IF USED) TO APPROXIMATE PRE-CONSTRUCTION PROFILE IMMEDIATELY AFTER PIPE IS LOWERED IN AND BACKFILLED. INSTALL PERMANENT EROSION CONTROLS WHERE REQUIRED.
9. REMOVE ANY TEMPORARY CROSSING STRUCTURES AND/OR GRAVEL.

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 53 of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.

REV.	DATE	BY	DESCRIPTION	CHK.

PROJECT NO. 108642



WOOD GROUP USA, INC.

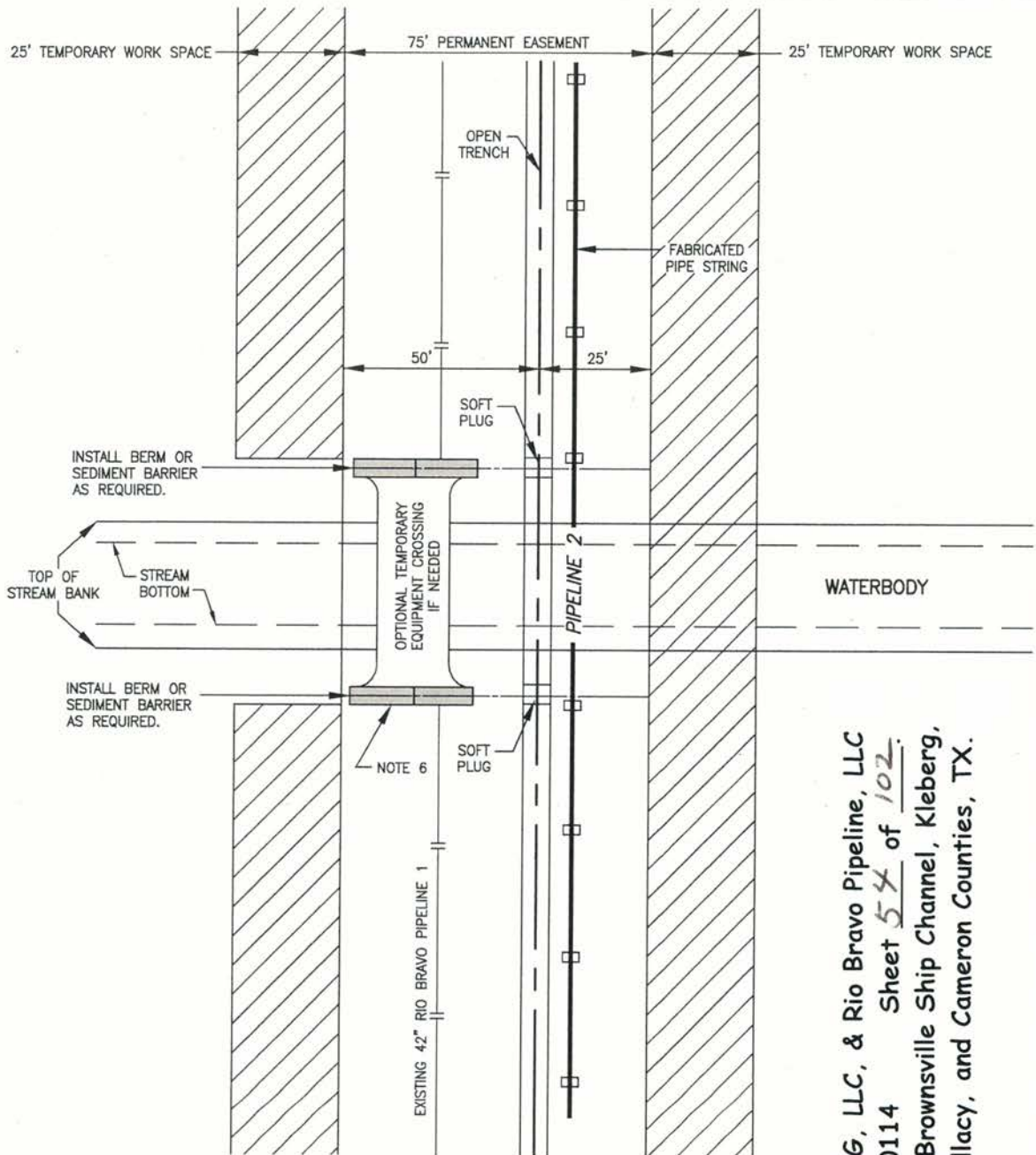
TEXAS REGISTERED ENGINEERING FIRM F-2999

RIO BRAVO
PIPELINE

**PIPELINE 2 OPEN CUT WET CROSSING METHOD
 WITH 100 FOOT CONSTRUCTION SPACE
 NON-FLOWING WATERBODY**

TEXAS

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CHECKED BY: JRK	DATE: 10/24/17	108642-99-025	0
SCALE: N.T.S.	APP.: JEA		



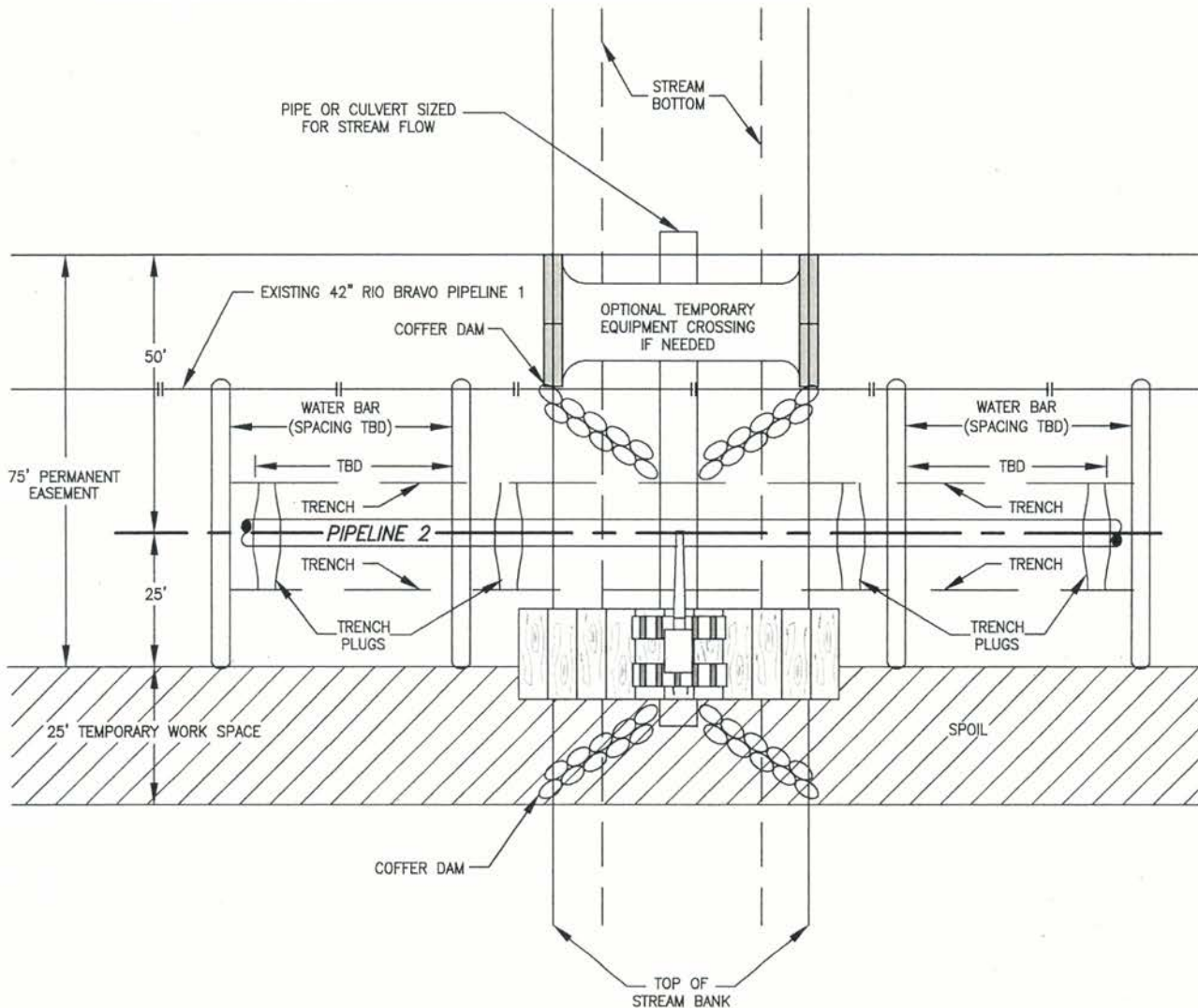
NOTES:

1. THIS METHOD APPLIES TO PONDS, DRY WASHES, SWALES, INCISED DRAINAGE AND DITCHES WITH NO PERCEPTIBLE FLOW AT TIME OF CROSSING.
2. INDICATED FOR ADJACENT UPLAND WHERE REQUIRED.
3. ADDITIONAL WORKSPACE SHOULD BE MIN. 50' FROM TOP OF BANK.
4. INSTALL SILT FENCE OR A BERM TO PREVENT RUNOFF FROM ROW TO ADJACENT UNDISTURBED DRAINAGE.
5. STOCK PILE TOPSOIL AND SPOIL SEPARATELY. TOPSOIL SHALL NOT BE STOCKPILED ACROSS THE DRAINAGE CHANNEL AND SHALL BE PLACED A MIN. OF 50 FEET FROM THE TOPBANK.
6. INSTALL TEMPORARY SLOPE BREAKERS WHERE REQUIRED.
7. TRENCH, STRING PIPE, AND BACKFILL USING STANDARD UPLAND CONSTRUCTION PROCEDURES.
8. RESTORE WATERCOURSE CHANNEL AND BANKS (EXCEPT TRAVEL LANE IF USED) TO APPROXIMATE PRE-CONSTRUCTION PROFILE IMMEDIATELY AFTER PIPE IS LOWERED IN AND BACKFILLED. INSTALL PERMANENT EROSION CONTROLS WHERE REQUIRED.
9. REMOVE ANY TEMPORARY CROSSING STRUCTURES AND/OR GRAVEL.

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet ~~54~~ of 102
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.

				RIO BRAVO PIPELINE 											
				PIPELINE 2 OPEN CUT WET CROSSING METHOD WITH 75 FOOT CONSTRUCTION SPACE NON-FLOWING WATERBODY											
PROJECT NO. 108642				TEXAS											
 WOOD GROUP USA, INC. TEXAS REGISTERED ENGINEERING FIRM F-2999				<table border="1"> <tr> <td>DRAWN BY: WT</td> <td>DATE: 10/20/17</td> <td>DWG. NO.</td> <td>REV.</td> </tr> <tr> <td>CHECKED BY: JRK</td> <td>DATE: 10/24/17</td> <td rowspan="2">108642-99-026</td> <td rowspan="2">0</td> </tr> <tr> <td>SCALE: N.T.S.</td> <td>APP.: JEA</td> </tr> </table>		DRAWN BY: WT	DATE: 10/20/17	DWG. NO.	REV.	CHECKED BY: JRK	DATE: 10/24/17	108642-99-026	0	SCALE: N.T.S.	APP.: JEA
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SCALE: N.T.S.	APP.: JEA														

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 55 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.

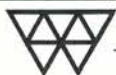


NOTES:

1. SPOIL WILL BE PLACED IN THE CONSTRUCTION ROW AT LEAST 10 FEET FROM THE WATER'S EDGE OR IN THE ATWS AREAS.
2. ATWS WILL BE AT LEAST 50 FEET FROM THE WATERBODY UNLESS A SITE-SPECIFIC JUSTIFICATION HAS BEEN APPROVED.
3. SEDIMENT BARRIERS WILL BE USED TO PREVENT THE FLOW OF SPOIL OR SILT-LADEN WATER INTO ANY WATERBODY.

REV.	DATE	BY	DESCRIPTION	CHK.

PROJECT NO. 108642



WOOD GROUP USA, INC.

TEXAS REGISTERED ENGINEERING FIRM F-2999

RIO BRAVO
PIPELINE

PIPELINE 2
 FLOWING STREAM CROSSING
 WITH PIPE OR CULVERT

TEXAS

DRAWN BY: WT

DATE: 10/20/17

DWG. NO.

REV.

CHECKED BY: JRK

DATE: 10/24/17

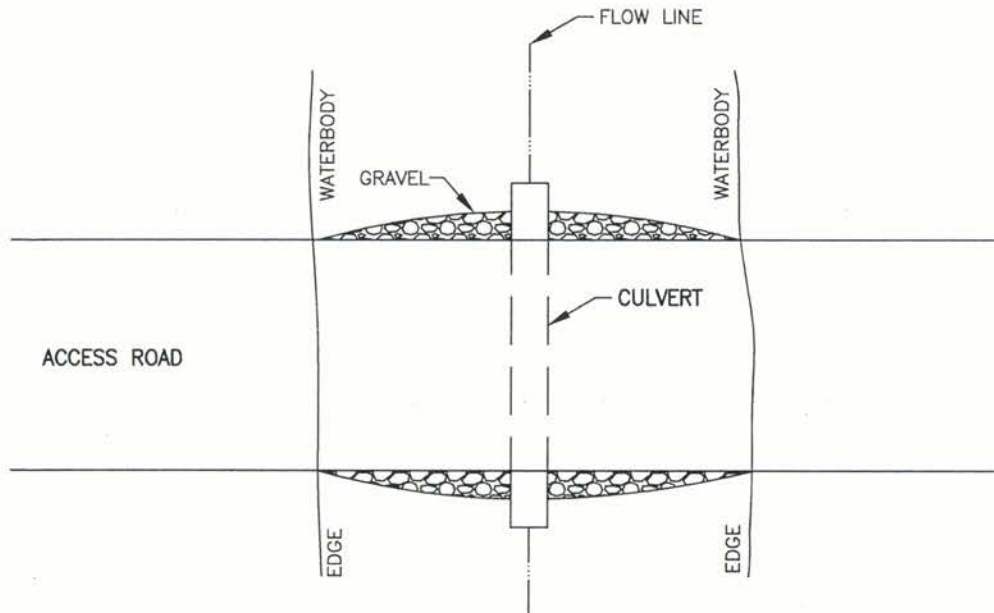
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APP.: JEA

108642-99-027

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Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



PLAN VIEW
 N.T.S.



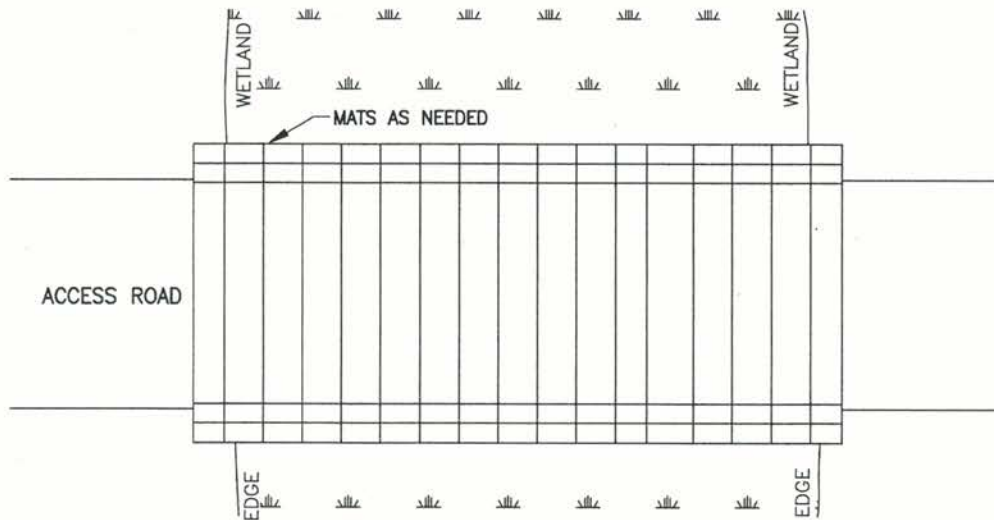
PROFILE
 N.T.S.

NOTES:

1. THE SIZE OF THE WATERBODY WILL DETERMINE WHETHER CULVERTS OR A BRIDGE WILL BE USED.
2. THE APPROPRIATE PIPE SIZE AND/OR NUMBER OF PIPES WILL BE USED SO AS TO NOT IMPEDE FLOW.
3. TEXTILE WILL BE LAID UNDER ALL GRAVEL THAT IS TO BE REMOVED.
4. PROPER EROSION CONTROL MEASURES WILL BE IMPLEMENTED ACCORDING TO APPLICABLE PERMITS AND REGS.
5. NECESSARY MATS WILL BE TEMPORARY AND REMOVED AT THE END OF CONSTRUCTION.
6. SILT FENCE WILL BE USED AS NEEDED.

				RIO BRAVO PIPELINE 	
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REV.	DATE	BY	DESCRIPTION	CHK.	
PROJECT NO. 108642				TYPICAL ACCESS ROAD CROSSING WATERBODY	
 WOOD GROUP USA, INC. TEXAS REGISTERED ENGINEERING FIRM F-2999				DRAWN BY: MM	DATE: 12/19/17
				CHECKED BY: JRK	DATE: 12/19/17
				SCALE: N.T.S.	APP.: JEA
				DWG. NO.	REV.
				108642-99-032	0

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 57 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



PLAN VIEW
 N.T.S.



PROFILE
 N.T.S.

NOTES:

1. MATS WILL BE TEMPORARY AND REMOVED AT THE END OF CONSTRUCTION.
2. INSTALL ADEQUATE EROSION AND SEDIMENT CONTROLS AT APPROACHES TO MATS TO PROMOTE A SMOOTH TRANSITION TO, AND MINIMIZE SEDIMENT TRACING ONTO MATS.
3. TIMBER MATS OR COMPARABLE COMPOSITE MATS WILL BE USED.
4. MATS SHOULD BE IN GOOD CONDITION TO ENSURE PROPER INSTALLATION, USE AND REMOVAL.
5. MATS WILL BE APPROPRIATE SIZE.
6. MATS WILL BE USED IN WET AREAS THAT ARE NOT FLOWING WATER.

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REV.	DATE	BY	DESCRIPTION	CHK.

PROJECT NO. 108642



WOOD GROUP USA, INC.

TEXAS REGISTERED ENGINEERING FIRM F-2999

RIO BRAVO
PIPELINE

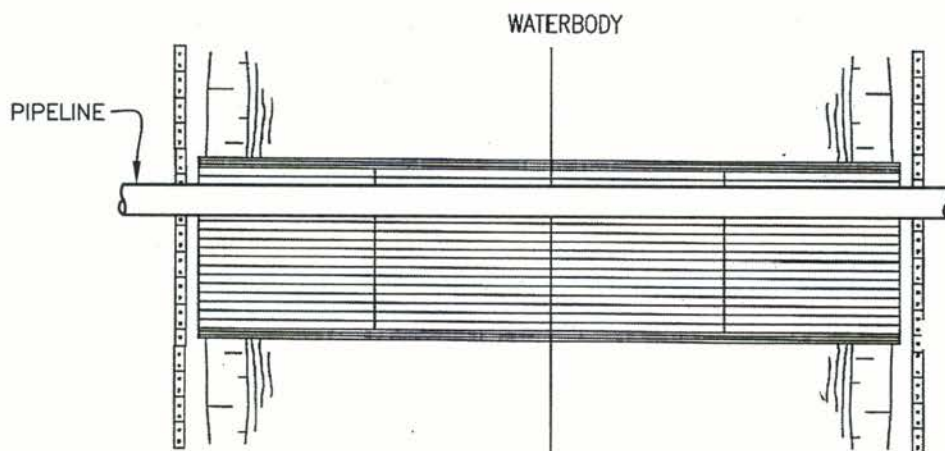


TYPICAL ACCESS ROAD CROSSING WETLAND

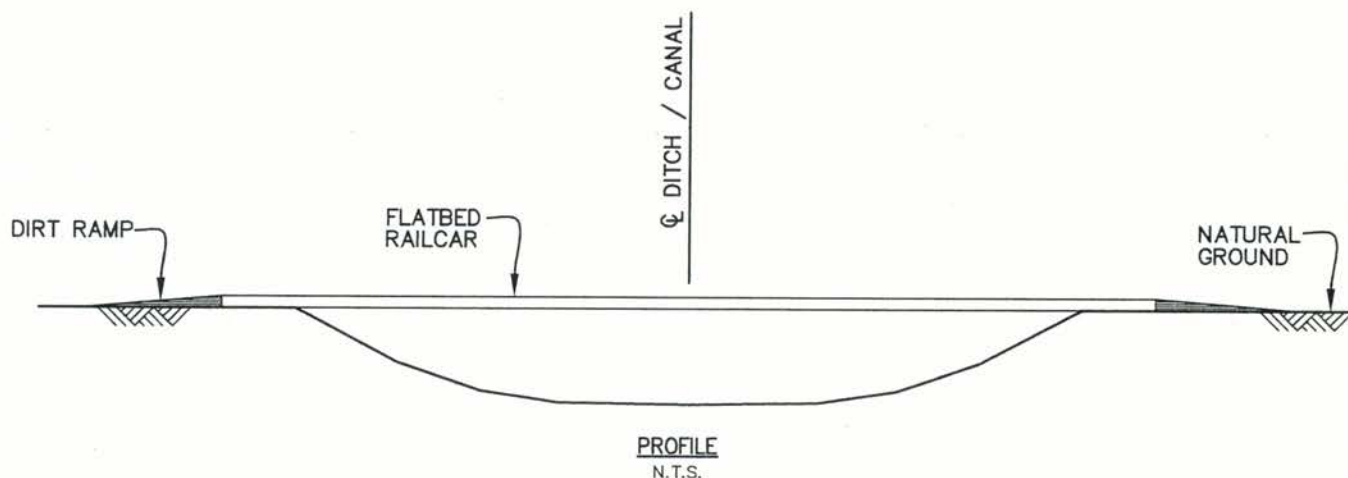
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SCALE: N.T.S.	APP.: JEA		

Rio Grande LNG, LLC, & Rio Bravo Pipeline, LLC
 SWG-2015-00114 Sheet 58 of 102.
 Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



PLAN VIEW
N.T.S.



NOTES:

1. BRIDGES WILL BE TEMPORARY AND REMOVED AT THE END OF CONSTRUCTION.
2. ADEQUATE EROSION AND SEDIMENT CONTROL WILL BE USED DURING CONSTRUCTION.
3. RAILROAD CARS WILL BE IN GOOD CONDITION TO ENSURE PROPER INSTALLATION, USE AND REMOVAL.

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REV.	DATE	BY	DESCRIPTION	CHK.	

PROJECT NO. 108642



WOOD GROUP USA, INC.

TEXAS REGISTERED ENGINEERING FIRM F-2999

RIO BRAVO
PIPELINE



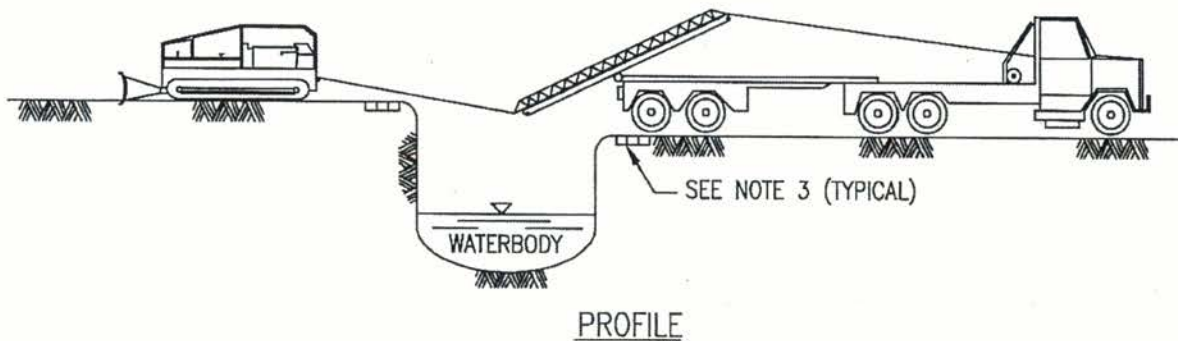
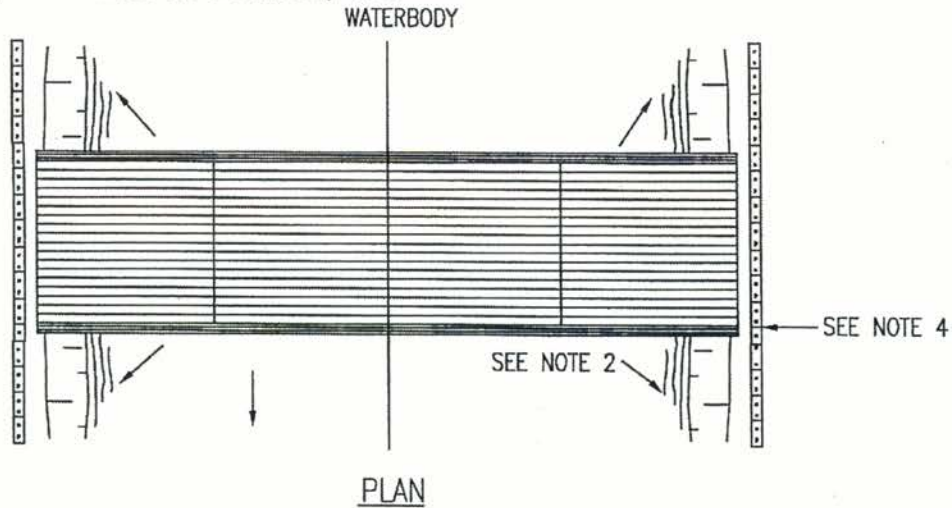
TYPICAL WATER BODY CROSSING USING RAILCAR

TEXAS

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CHECKED BY: JRK	DATE: 12/21/17	108642-99-034	0
SCALE: N.T.S.	APP.: JEA		

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Wetlands and Brownsville Ship Channel, Kleberg,
 Jim Wells, Willacy, and Cameron Counties, TX.



NOTES:

1. THIS TYPE OF BRIDGE GENERALLY USED ON NARROW, DEEP CROSSINGS.
2. BRIDGE ANCHORED AND/OR TIED OFF TO ANCHOR BLOCKS FOR STABILITY.
3. UTILIZE APPROACH FILLS OF CLEAN GRANULAR MATERIAL, SWAMP MATS, SKIDS OR OTHER SUITABLE MATERIALS TO AVOID CUTTING THE BANKS WHEREVER FEASIBLE. ENSURE ADEQUATE FREEBOARD. AS REQUIRED, ENSURE THAT FILL MATERIAL USED DOES NOT SPILL INTO WATERBODY.
4. CONSTRUCT SEDIMENT BARRIERS ACROSS THE ENTIRE CONSTRUCTION R.O.W. TO PREVENT SILT LADEN WATER AND SPOIL FROM FLOWING BACK INTO WATERBODY. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY. SILT FENCE, HAY BALES OR SAND BAGS MAY BE USED INTERCHANGEABLY.
5. REMOVE PORTABLE BRIDGES AS SOON AS POSSIBLE AFTER PERMANENT SEEDING UNLESS OTHERWISE DIRECTED BY COMPANY REPRESENTATIVE. THE STRUCTURE IS TO BE REMOVED IF THERE IS MORE THAN ONE MONTH BETWEEN FINAL GRADING AND SEEDING, AND ALTERNATIVE ACCESS TO THE CONSTRUCTION R.O.W. IS AVAILABLE.
6. DISPOSE OF ANY ROCK AS DIRECTED BY THE COMPANY REPRESENTATIVE.
7. RESTORE AND STABILIZE BED AND BANKS TO APPROXIMATE PRE-CONSTRUCTION CONDITIONS.

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REV.	DATE	BY	DESCRIPTION	CHK.

PROJECT NO. 108642



WOOD GROUP USA, INC.

TEXAS REGISTERED ENGINEERING FIRM F-2999

RIO BRAVO
 PIPELINE



TYPICAL BRIDGED WATERBODY CROSSING

TEXAS

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CHECKED BY: JRK	DATE: 12/21/17	108642-99-035	0
SCALE: N.T.S.	APP.: JEA		