



June 28, 2018

Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

Attention: Ms. Kimberly D. Bose, Secretary

Re: El Paso Natural Gas Company, L.L.C.;  
Docket No. CP18-332-000  
Responses to Data Request – OEP/DG2E/Gas Branch 4

Dear Ms. Bose:

On June 8, 2018, El Paso Natural Gas Company, L.L.C. ("EPNG") received a data request ("Data Request") from the Office of Energy Projects Regulation ("OEP") for environmental-related information pertaining to EPNG's South Mainline Expansion Project. EPNG is herein filing with the Federal Energy Regulatory Commission ("Commission") its response to the Data Request.

### **Description of Proceeding**

On April 27, 2018, EPNG submitted its application, pursuant to Section 7(c) of the Natural Gas Act requesting a certificate of public convenience and necessity for authorization to construct, own, and operate: 1) an approximate 17-mile 30" diameter loop line of its existing Line Nos. 1100 and 1103 between Hueco and El Paso, Texas; 2) the new Red Mountain Compressor Station in Luna County, New Mexico; and 3) the new Dragoon Compressor Station located in Cochise County, Arizona. This project is referred to as the South Mainline Expansion Project.

### **Description of Information Being Filed**

EPNG is hereby submitting responses to all questions that were part of the Data Request. Where appropriate, the materials submitted include attachments to questions posed in the Data Request.

### **Filing Information**

EPNG is e-Filing this letter and responses with the Commission's Secretary in accordance with the Commission's Order No. 703, *Filing Via the Internet*, guidelines issued on November 15, 2007 in Docket No. RM07-16-000.

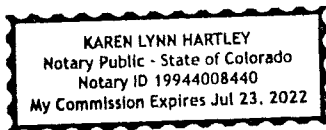


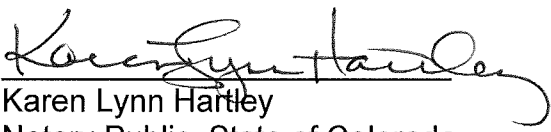
STATE OF COLORADO )  
 )  
COUNTY OF EL PASO )

FRANCISCO TARIN, being first duly sworn, on oath, says that he is the Director of the Regulatory Affairs Department of El Paso Natural Gas Company, L.L.C.; that he has read the Responses filed on June 28, 2018, to the Office of Energy Projects' Data Request dated June 8, 2018 in Docket No. CP18-332-000, and that he is familiar with the contents thereof; that, as such Director, he has executed the same on behalf of said Company with full power and authority to do so; and that the matters and facts set forth therein are true to the best of his information, knowledge and belief.

  
\_\_\_\_\_  
Francisco Tarin

SUBSCRIBED AND SWORN TO before me, in the county of El Paso, State of Colorado this 28<sup>th</sup> day of June, 2018.



  
\_\_\_\_\_  
Karen Lynn Hartley  
Notary Public, State of Colorado  
My Commission Expires: July 23, 2022

**Certificate of Service**

I hereby certify that I have this day caused a copy of the foregoing documents to be served upon each person designated on the official service list compiled by the Commission's Secretary in this proceeding in accordance with the requirements of Section 385.2010 of the Federal Energy Regulatory Commission's Rules of Practice and Procedure.

Dated at Colorado Springs, Colorado as of this 28<sup>th</sup> day of June, 2018.

        /s/        

Francisco Tarin

Two North Nevada Avenue  
Colorado Springs, Colorado 80903  
(719) 667-7517

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

**Location of Facilities (maps/project description):**

1. For the proposed new non-jurisdictional electric power and telephone lines (section 1.3.5) including any non-jurisdictional power line and pole structures that would supply electricity to MLV 23-3/4/pig trap and MLV 23/pig trap site (section 1.3.2), provide the following detailed information for each facility:
  - a. dimensions of required workspaces;
  - b. aerial alignment sheets showing locations;
  - c. any federal permits required and their status; and
  - d. status of any local and state permits required.

**Response:**

- 1a. The required workspaces for the installation of the non-jurisdictional power line and pole structures for both the Red Mountain and the Dragoon Compressor Stations are entirely within the temporary workspace already noted in the studies and drawings in the current FERC submittal. No additional workspace will be required for the installation of the power lines. Because there is electric power to the existing Line No. 1100 and Line No. 1103 facilities at MLV 20 (sic 23) -  $\frac{3}{4}$  and MLV 23, the existing electrical facilities will be used to service these MLV sites. No telephone lines are required at these two sites.
- 1b. No new power lines or pole structures are required for either of the MLV pig trap sites. Therefore, no new power or telephone lines were depicted on the aerial alignment sheets. EPNG is providing as part of this response under the Critical Energy Infrastructure Information section, revised plot plans highlighting the preliminary routes of the power lines at both the Dragoon Compressor Station and the Red Mountain Compressor Station. The plot plans are marked as “Contains CUI//CEII – Do Not Release”. At this time, EPNG is evaluating whether or not new telephone lines will be required at either proposed station since there is existing telephone service at both sites. All required work would be contained within the proposed facility sites in temporary workspaces already surveyed and included in the disturbance tables provided as part of the original application.
- 1c. There are no federal permits required for any of the proposed non-jurisdictional facilities.
- 1d. Any required local permits for the power lines at the two proposed compressor stations would be obtained by the electrical contractor, as necessary and would be obtained in a timely fashion, well in advance of initiating any construction activities. No permits are required for the MLV sites.

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

Response prepared by or under the supervision of:

Vickie Gibson and Steven Wells  
Kinder Morgan  
Project Managers  
719-520-4205  
719-520-4864

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
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2. Provide an aerial alignment or topographic overlay drawing illustrating the location and dimensions of the construction work areas within the proposed Red Mountain and Dragoon Compressor Station sites. Section 1.3.4.2, section 1.3.4.3, and table 1-1 indicate that the construction work areas would require large areas within the two sites (78.2 acres at Red Mountain and 61.2 acres at Dragoon) for construction of the new compressor units. Provide an explanation for why construction would require the disturbance of this much land.

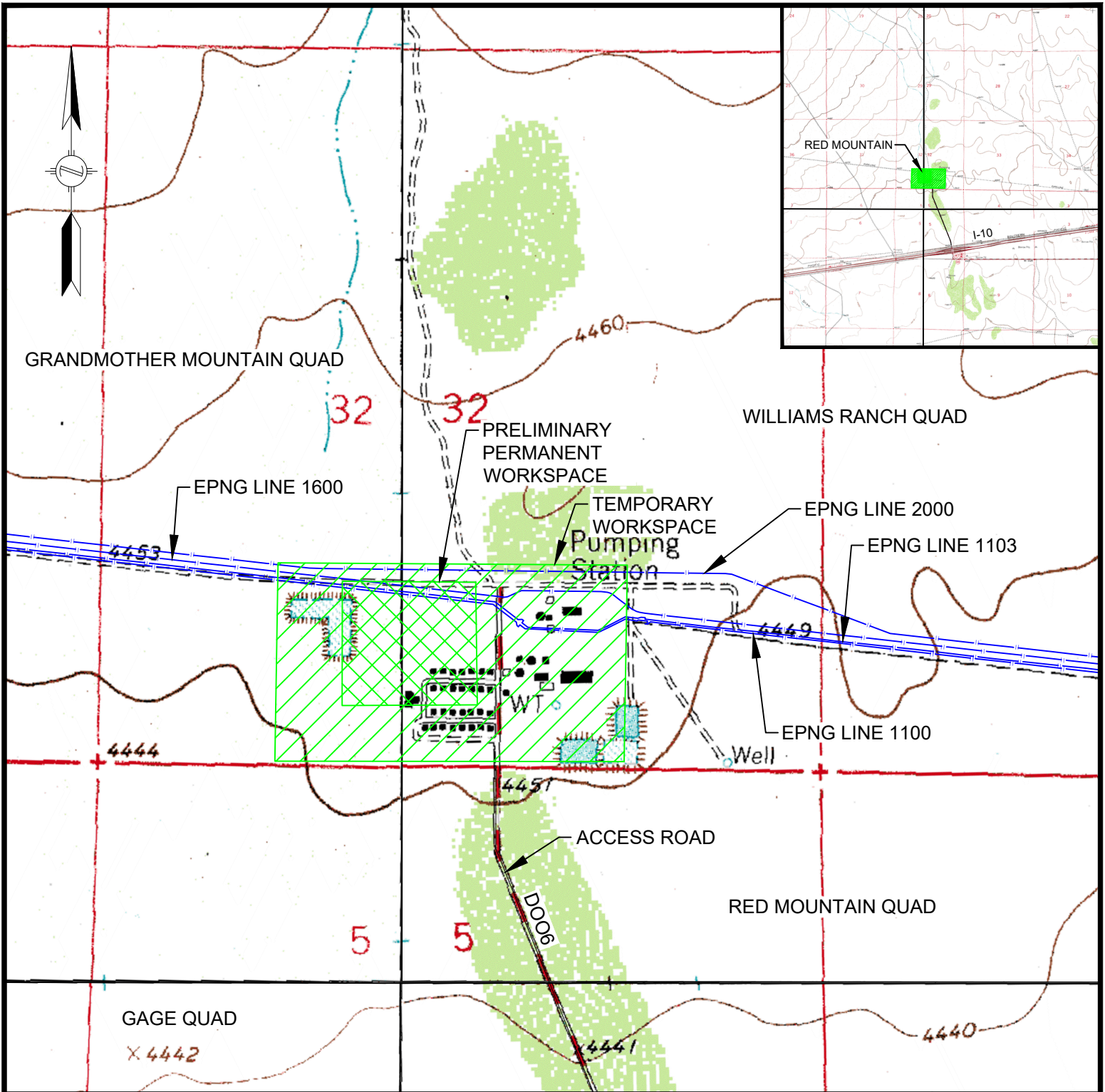
Response:

The topographic map for the Dragoon Compressor Station in the original FERC submittal correctly reflects the proposed temporary work space for that portion of the project. The topographic map for the Red Mountain Compressor Station has been revised due to some inconsistencies, and is submitted as part of this data request, such that the temporary workspace shown is consistent with that area defined in the remaining drawings and tables shown throughout EPNG's original FERC application. The entire temporary workspace acreages shown for the two compressor stations, in the original submittal and in the Red Mountain Compressor Station's corrected topographic drawing will not be affected. EPNG is proposing two construction work areas so that the contractors have the flexibility to set up their temporary construction spaces in any configuration that may be needed, without the need to request a variance. EPNG is seeking the larger workspaces recognizing that it currently owns the entire project areas identified in the filing and no new land acquisition is necessary at either of these two sites.

The revised topographic map for the Red Mountain Compressor Station is being provided behind this response.

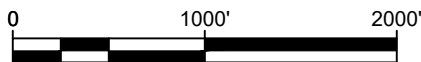
Response prepared by or under the supervision of:

Steven Wells  
Kinder Morgan  
Project Manager  
719-520-4864



**LEGEND**

- FOREIGN LINE
- PL APPROXIMATE PROPERTY/SITE BOUNDARY
- ===== UNIMPROVED ROAD
- LIGHT DUTY ROAD
- PRIMARY HIGHWAY
- SECONDARY HIGHWAY



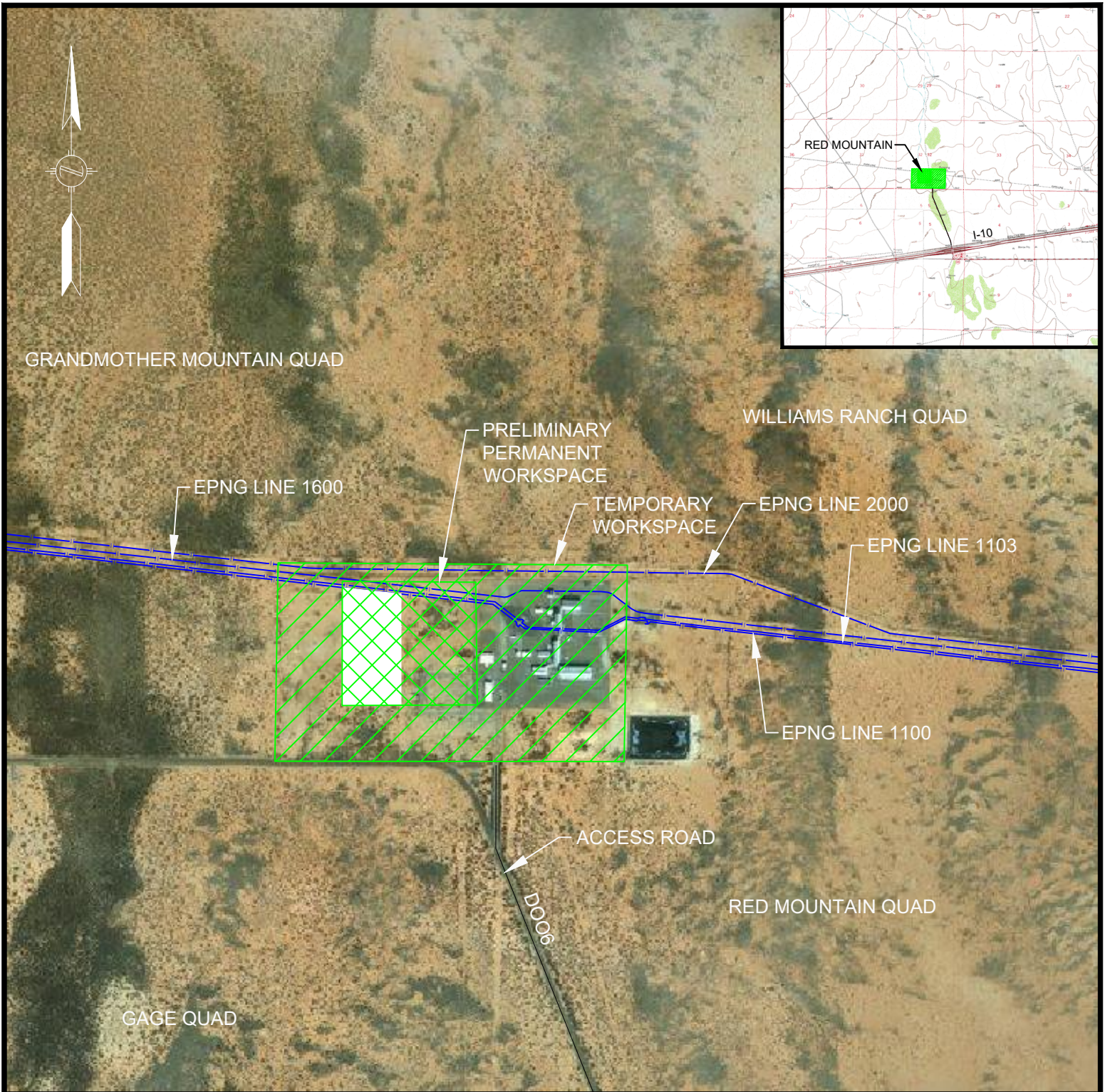
C	UPDATED PER CLIENT COMMENTS	61311	06/25/18
NO	Revision Description	Project ID	Date
:Reference Drawings			
RED MOUNTAIN STATION :Facility Name			

ENCOMPASS ENERGY SERVICES  
 350 INTERLOCKEN PKWY  
 SUITE 350  
 BROOMFIELD, CO 80021







EPNG SOUTH MAINLINE EXPANSION PROJECT  
 PROPOSED RED MOUNTAIN COMPRESSOR STATION  
 PROPOSED SITE  
 SECTION 32, TOWNSHIP 23 SOUTH  
 RANGE 11 WEST, 6TH P.M.

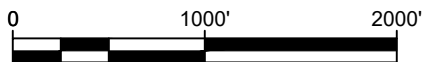
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State: NM	PIN No: AFE 209853
County: LUNA COUNTY	Scale: 1:1000
Category: QUAD MAP	
File Name: RED_MOUNTAIN_REV_E	
Drawing No:	1 OF 1
	Rev C







**LEGEND**

-  EPNG LINES
-  APPROXIMATE PROPERTY/SITE BOUNDARY
-  UNIMPROVED ROAD
-  LIGHT DUTY ROAD
-  PRIMARY HIGHWAY
-  SECONDARY HIGHWAY



E	UPDATED PER CLIENT COMMENTS	61311		06/25/18
	Revision Description	Project ID		Date
:Reference Drawings				
RED MOUNTAIN STATION :Facility Name				



**encompass**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN PKWY  
SUITE 350  
BROOMFIELD, CO 80021

EPNG SOUTH MAINLINE EXPANSION PROJECT  
PROPOSED RED MOUNTAIN COMPRESSOR STATION  
PROPOSED SITE  
SECTION 32, TOWNSHIP 23 SOUTH  
RANGE 11 WEST, 6TH P.M.

Status:	
State:	NM
County:	LUNA COUNTY
Category:	QUAD MAP
File Name:	RED_MOUNTAIN_REV_E_IMAGE
Drawing No:	1 OF 1
PIN No:	AFE 209853
Scale:	1:1000
Rev	D

EL PASO NATURAL GAS COMPANY, L.L.C.  
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Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

3. Section 1.3.4.1 states that between milepost 188.5 and milepost 189.2 the 17-mile loop line would have a new 100-foot-wide new permanent easement because of the sand dunes. Justify why the new permanent easement needs to be 100-feet in width.

Response:

EPNG requests a 100-foot wide permanent easement between milepost 188.5 and milepost 189.2 in order to have sufficient space to safely maintain and operate the proposed loop line. This proposed segment route crosses a sand dune area which during construction will require more work space to maintain safe stable conditions because of the risk of caving and the shifting nature of the sand dunes. In this area, the sand readily shifts under the weight of vehicles and pedestrians and is difficult to walk on. EPNG may need track mounted equipment in this area during construction. From a construction workspace standpoint, the loose sandy soils require more space for the stock pile, larger setback of equipment from the open trench, deeper excavation for the pipeline and less steep set back slopes. The stockpile slope could be 1.5 horizontal to 1 vertical and could be 40 feet or wider in width. Equipment may need to be set back 20 to 30 feet from the excavation to ensure safe working conditions. EPNG will install the pipeline at a minimum cover depth of 6 feet and a total excavation depth of 10 feet, the excavation slope would be 1.5 horizontal to 1 vertical or could be less steep to keep the slopes stable resulting in a minimum open trench width of 36 feet.

Further, for any future operational and maintenance activities, if the requested 100 foot permanent easement is not obtained, then EPNG will need to obtain temporary work space each time the pipeline needs to be accessed in the future, the additional time required to obtain temporary work space will make it more difficult for EPNG to access the pipeline in a timely manner.

Response prepared by or under the supervision of:

Vickie Gibson  
Kinder Morgan  
Project Manager  
719-520-4205

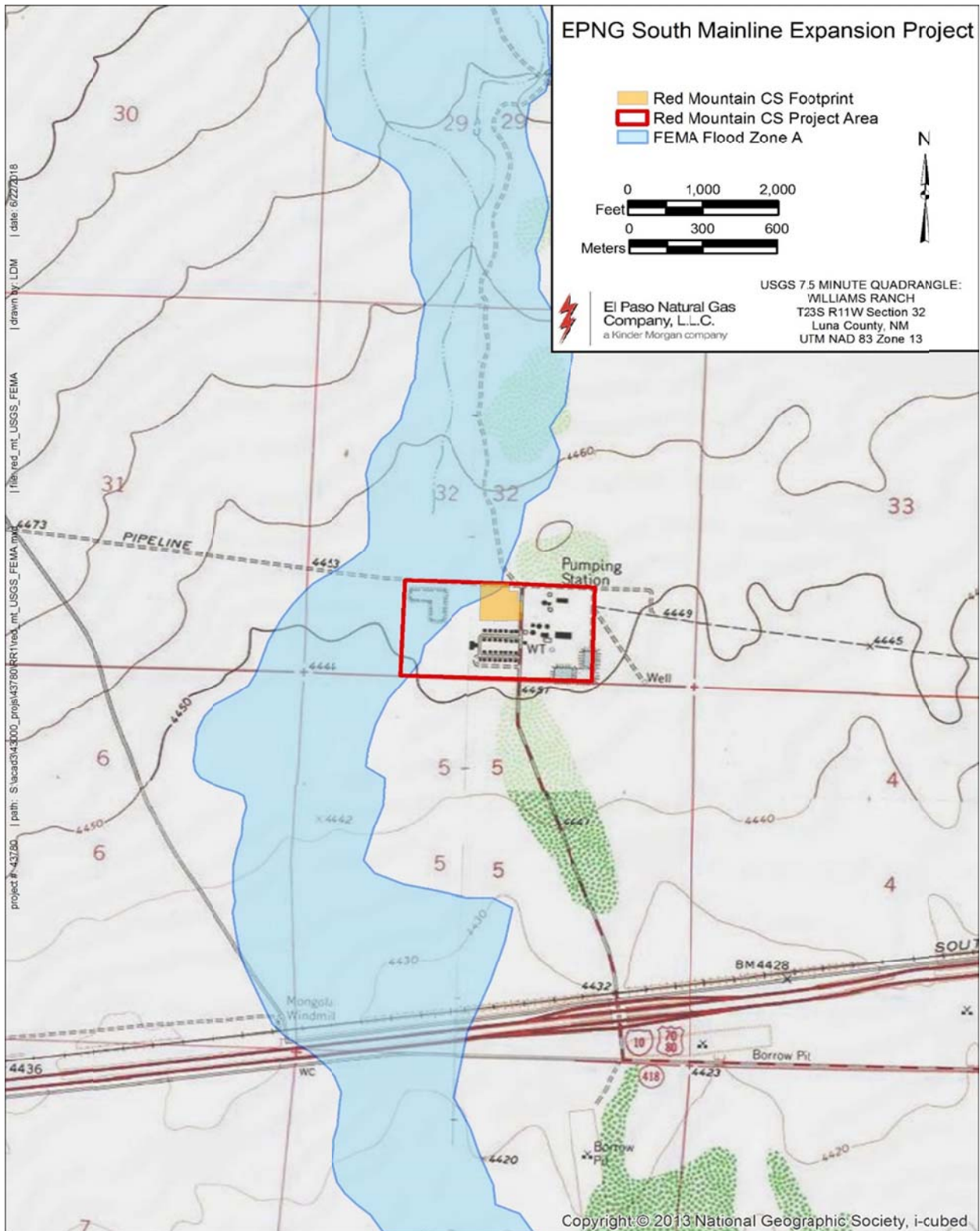
EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

4. For the Red Mountain Compressor Station, depict the 100-year floodplain on the aerial alignment or topographic overlay diagram. Describe whether any permanent structures would be built or fill placed within the floodplain area.

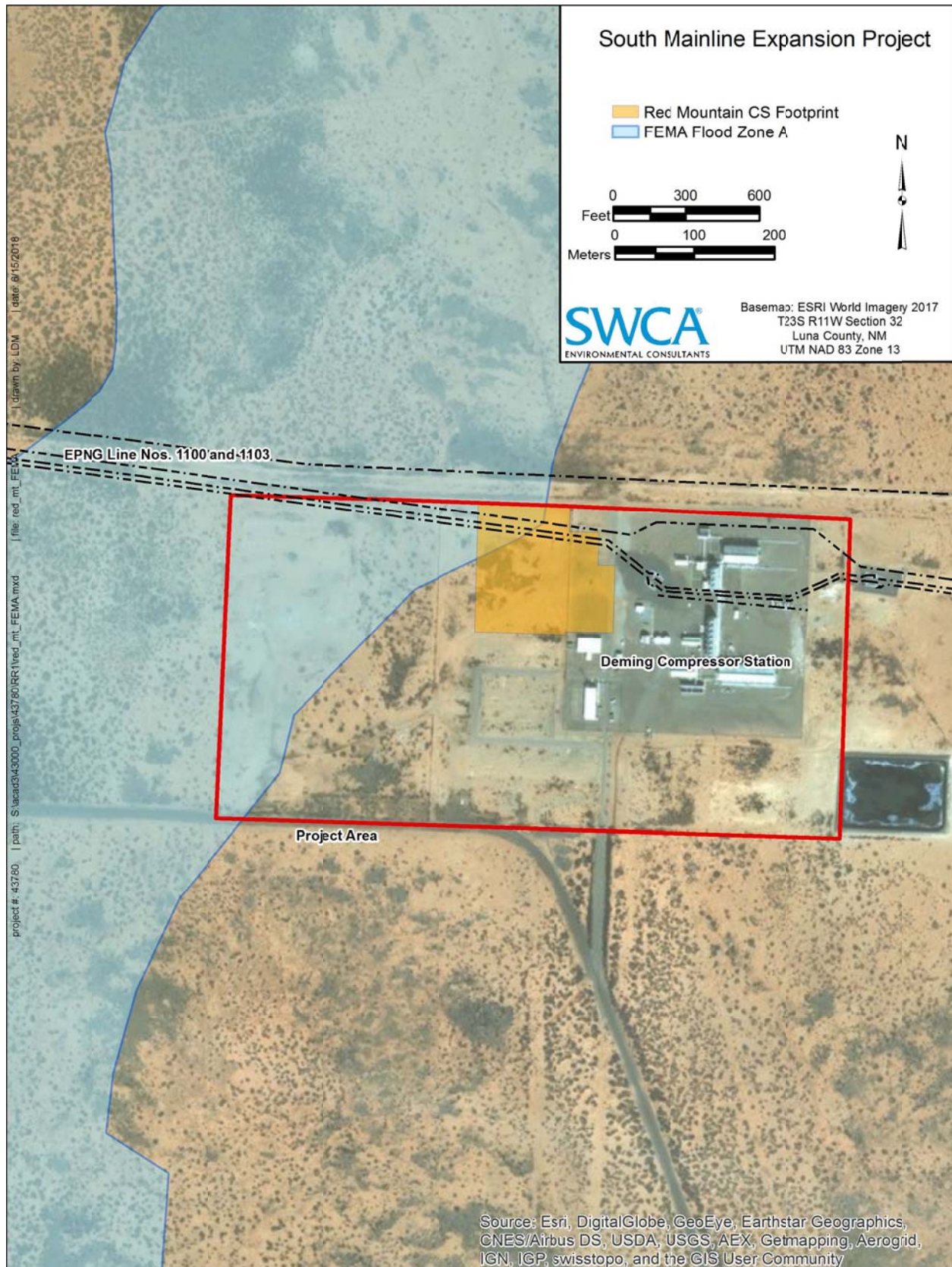
Response:

Overlay of the plot plan onto an aerial photograph and topographic map with the FEMA floodplain data indicates that there would be no above ground compressor station facilities located within the mapped FEMA Zone A floodplain (i.e., the 100-year floodplain; see the below figures). Approximately 507 feet of security fence would be located within the FEMA mapped 100-year floodplain. Some fill associated with gravel substrate will also likely be placed within the floodplain area within an approximately 0.98-acre area. This proposed fill would be outside any ephemeral drainage channels associated with the floodplain and would not require a Clean Water Act Section 404 permit.

**EL PASO NATURAL GAS COMPANY, L.L.C.**  
**Responses to Data Request – OEP/DG2E/Gas Branch 4**  
**Dated June 8, 2018 in Docket No. CP18-332-000**  
**South Mainline Expansion Project**



EL PASO NATURAL GAS COMPANY, L.L.C.  
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South Mainline Expansion Project



EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4929

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
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South Mainline Expansion Project

5. Provide an updated version of the aerial photo base alignment sheets with corrected numbers in the labels.

Response:

EPNG has attached the revised alignment sheets behind this response showing the corrected numbers in the labels.

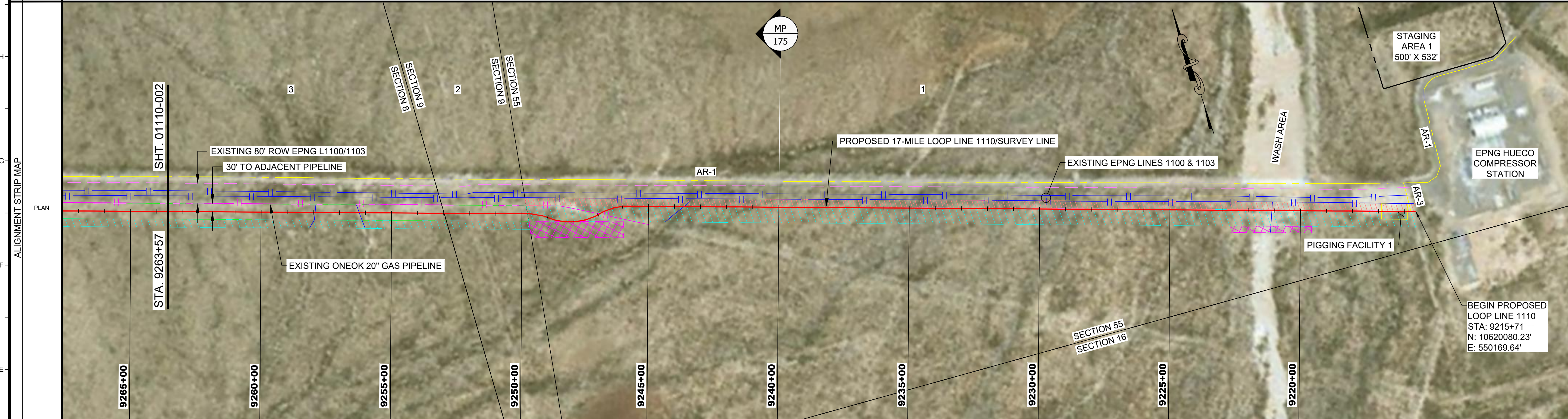
Response prepared by or under the supervision of:

Vickie Gibson  
Kinder Morgan  
Project Manager  
719-520-4205

LAND	PROTECTION EASEMENT															
	LAND PLAT		0003.000.00.00-HU-TX		0002.000.00.00-HU-TX				0001.000.00.00-HU-TX							
PIPELINE STATIONING	CROSSINGS															
	STATION	9263+57		9252+98	9249+78									9215+57		

**LEGEND**

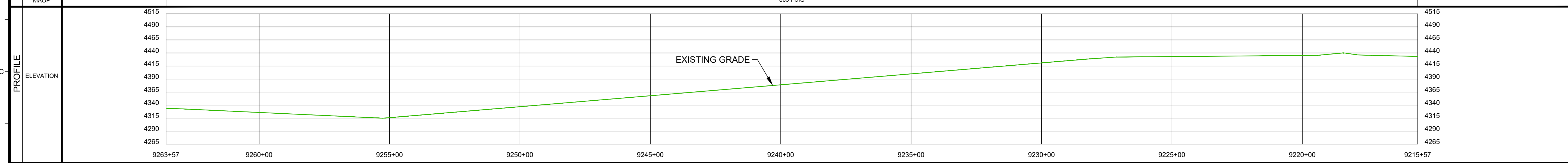
- EDGE OF ROAD
- FOREIGN LINE
- EXISTING EPNG LINES 1100 & 1103
- FENCE
- TOP OF BANK
- TOE OF BANK
- SECTION/PROPERTY LINE
- ACCESS ROAD
- CENTER LINE PIPE
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- EXISTING EASEMENT
- ENTRY/EXIT BORE
- EXISTING ROW WORK AREA (ERWA)
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)
- TEMPORARY WORKSPACE (TWS)
- STAGING AREA



PIPELINE	MATERIAL	4800'
	COATING	
	DESIGN FACTOR	0.72
	CLASS	CLASS 1
D	LOCATION	809 PSIG
	MAOP	

**PIPE SUMMARY**

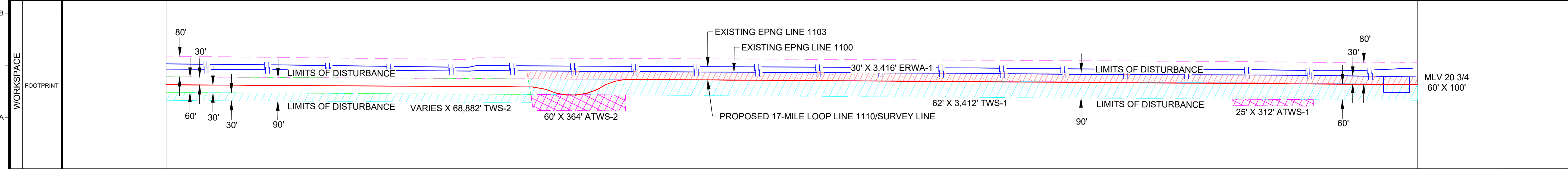
1	4800' 30" O.D., 0.260" WT MIN, X65, ERW, 12-14MIL FBE
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**SCALE & PROJECTION**

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017



Revision Description	Project ID	Date
I UPDATED SHEET NUMBERS	61311	06/22/18
H ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G UPDATED PER CLIENT COMMENTS	61311	04/09/18
F REVISED FOOTPRINT	61311	03/31/18
E REVISED EXISTING EASEMENT	61311	03/16/18

**Notes:**

Reference Drawings	Facility Name
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**El Paso Natural Gas Company**  
a Kinder Morgan company

**encompass**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 9215+57 TO STA: 9263+57

**ISSUED FOR REVIEW**

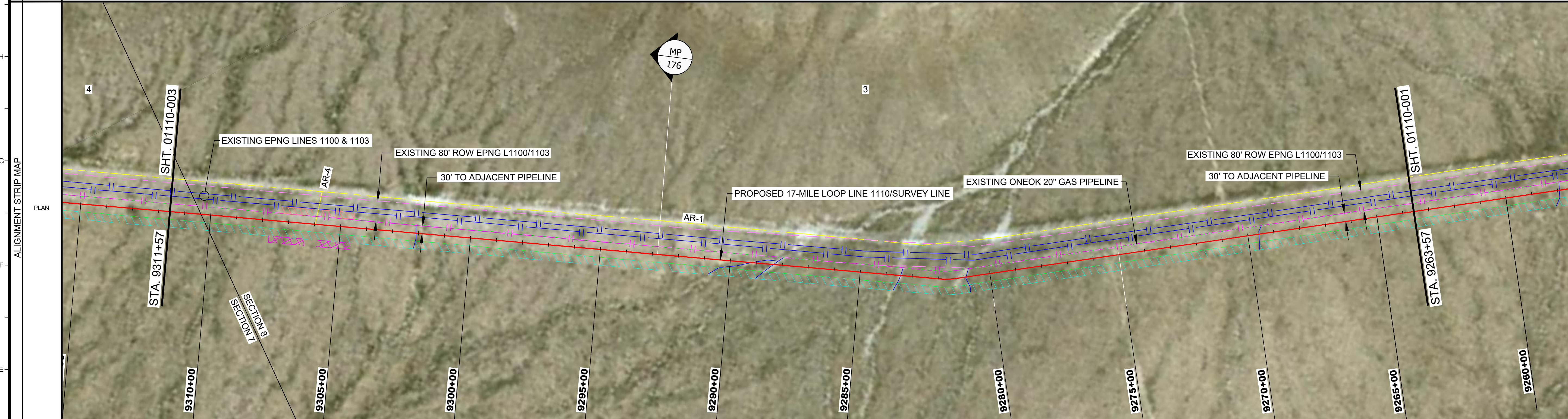
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County: HUDSPETH Scale: 200'  
Category: ISSUED FOR REVIEW  
File Name: 61311 - ALIGNMENT SHEETS\_REV1  
Drawing No: SHT. 01110-001



LAND	PROTECTION EASEMENT															
	LAND PLAT		0004.000.00.00-HU-TX													
	RODS															
	STATION		9311+57	9310+00	9305+00	9300+00	9295+00	9290+00	9285+00	9280+00	9275+00	9270+00	9265+00	9263+57		
PIPELINE STATIONING	CROSSINGS		9310+00 SECTION LINE	9306+32 EDGE OF ROAD	9305+75 EDGE OF ROAD	9302+10 CIL WASH 8		9288+17 CIL WASH 7	9288+33 CIL WASH 7	9283+44 CIL WASH 6	9281+75 P.I. - 47°56'41" RT	9280+92 CIL WASH 6		9268+57 CIL WASH 5		9261+42 P.I. - 51°18'58" RT

**LEGEND**

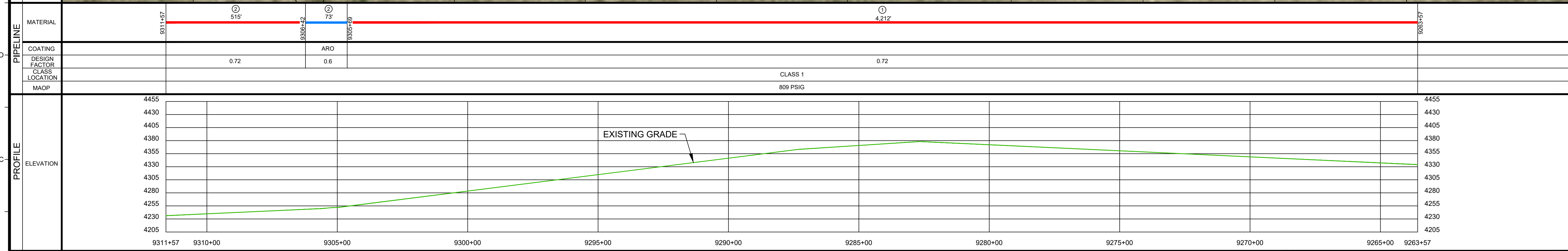
- EDGE OF ROAD
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- FENCE
- TOP OF BANK
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- CENTER LINE PIPE
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- EXISTING EASEMENT
- ENTRY/EXIT BORE
- EXISTING ROW WORK AREA (ERWA)
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)
- TEMPORARY WORKSPACE (TWS)
- STAGING AREA



- GENERAL NOTES**
- CONTRACTOR TO VERIFY DEPTHS OF COVER FOR ALL PIPELINE CROSSINGS PRIOR TO EXCAVATION.
  - THE MINIMUM PIPELINE DEPTH OF COVER IS 18" IN CONSOLIDATED ROCK.
  - THE MINIMUM PIPELINE DEPTH OF COVER IS 30" IN SOIL UNLESS NOTED OTHERWISE.

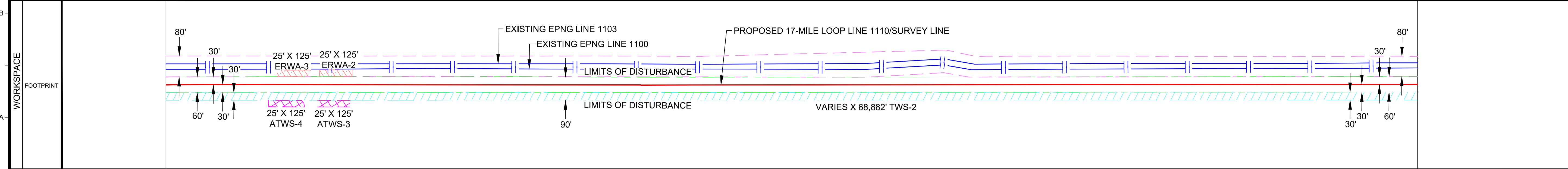
**OWNERSHIP TABLE**

0003.000.00.00-HU-TX	STATE OF TEXAS
0004.000.00.00-HU-TX	STATE OF TEXAS



**PIPE SUMMARY**

1	4.727' 30" O.D., 0.260" WT MIN, X65 MIN, ERW, 12-14MIL FBE
2	73' 30" O.D., 0.312" WT MIN, X65 MIN, ERW, 12-14MIL FBE, 30-40MIL ARO



**SCALE & PROJECTION**

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017

Revision Description	Project ID	Date
I UPDATED SHEET NUMBERS	61311	06/22/18
H ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G UPDATED PER CLIENT COMMENTS	61311	04/09/18
F REVISED FOOTPRINT	61311	03/31/18
E REVISED EXISTING EASEMENT	61311	03/16/18

**Notes:**

**El Paso Natural Gas Company**  
a Kinder Morgan company

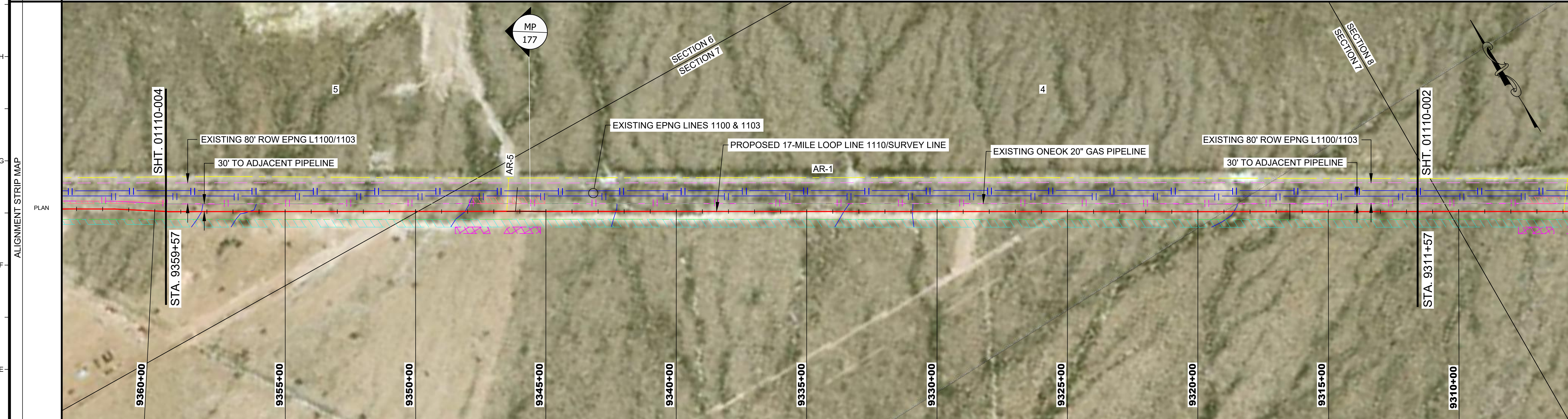
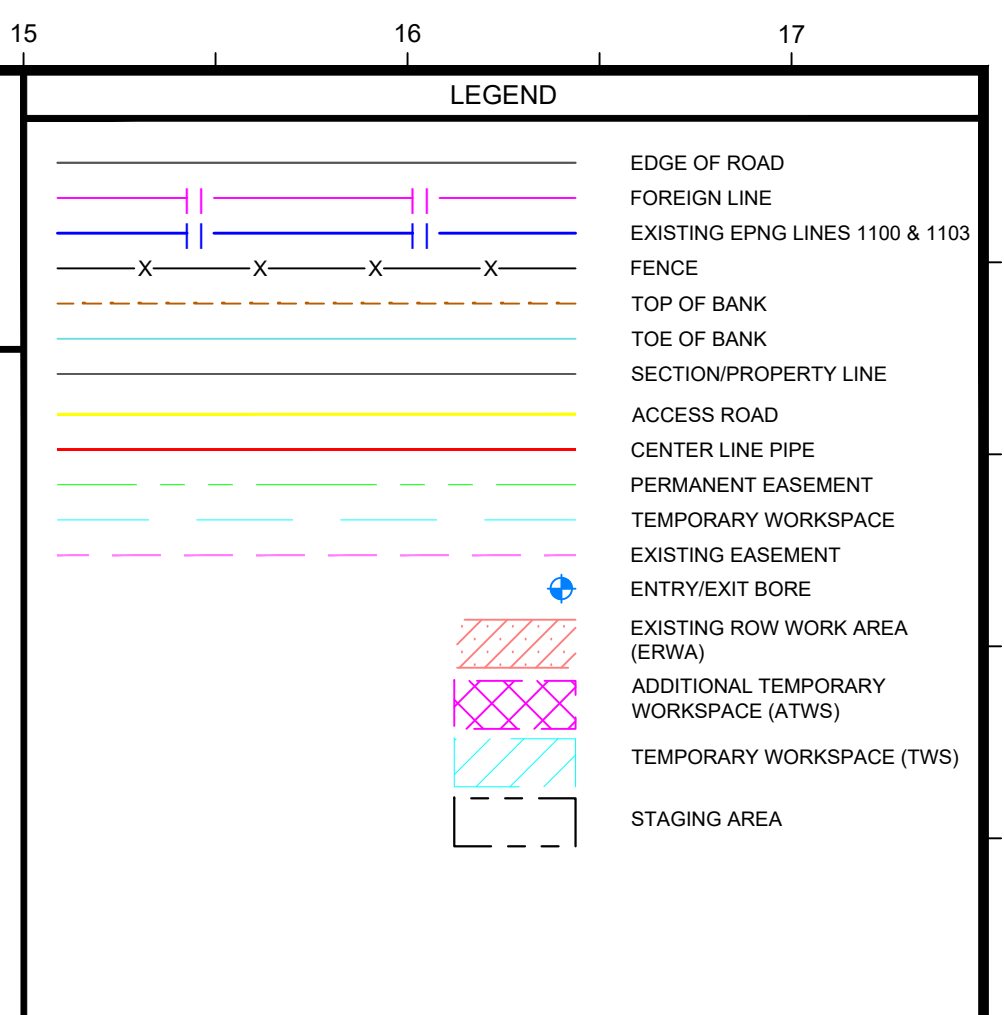
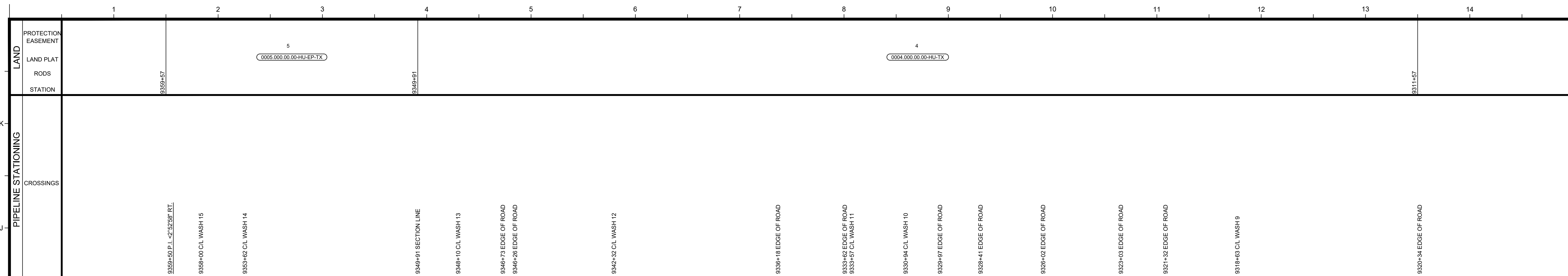
**encompass**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 9263+57 TO STA: 9311+57

**ISSUED FOR REVIEW**

State:	TEXAS	PIN No:	61311
County:	HUDSPETH	Scale:	200'
Category:	ISSUED FOR REVIEW		
File Name:	61311 - ALIGNMENT SHEETS_REVI		
Drawing No:	SHT. 01110-002		



- GENERAL NOTES**
- CONTRACTOR TO VERIFY DEPTHS OF COVER FOR ALL PIPELINE CROSSINGS PRIOR TO EXCAVATION
  - INDIVIDUAL TRACTS HAVE A MINIMUM OF 48" UNLESS OTHERWISE SPECIFIED.
  - 30" MINIMUM DEPTH IN NORMAL SOIL, 18" MINIMUM DEPTH IN CONSOLIDATED ROCK AND 6" MINIMUM DEPTH IN SAND DUNES. THE MINIMUM PIPELINE DEPTH OF COVER IS 72" IN SAND DUNE AREA.

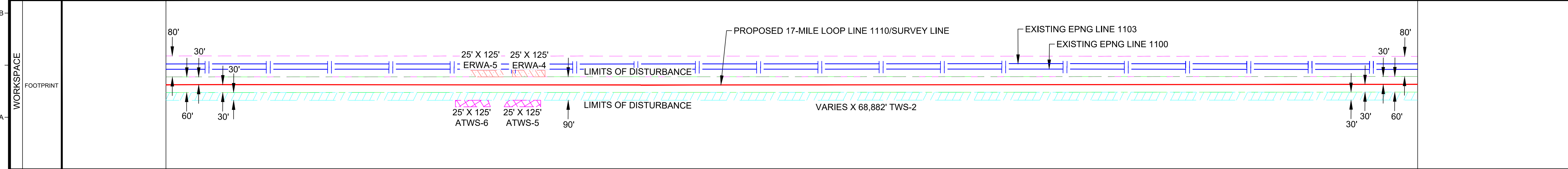
**OWNERSHIP TABLE**

0004.000.00.00-HU-TX	STATE OF TEXAS
0005.000.00.00-HU-EP-TX	WEST TEXAS SAND, LLC



**PIPE SUMMARY**

1	4,733' 30" O.D., 0.260" WT MIN, X65 MIN, ERW, 12-14MIL FBE
2	67' 30" O.D., 0.312" WT MIN, X65 MIN, ERW, 12-14MIL FBE, 30-40MIL ARO



**SCALE & PROJECTION**

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017

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E REVISED EXISTING EASEMENT	61311	03/16/18

**Notes:**

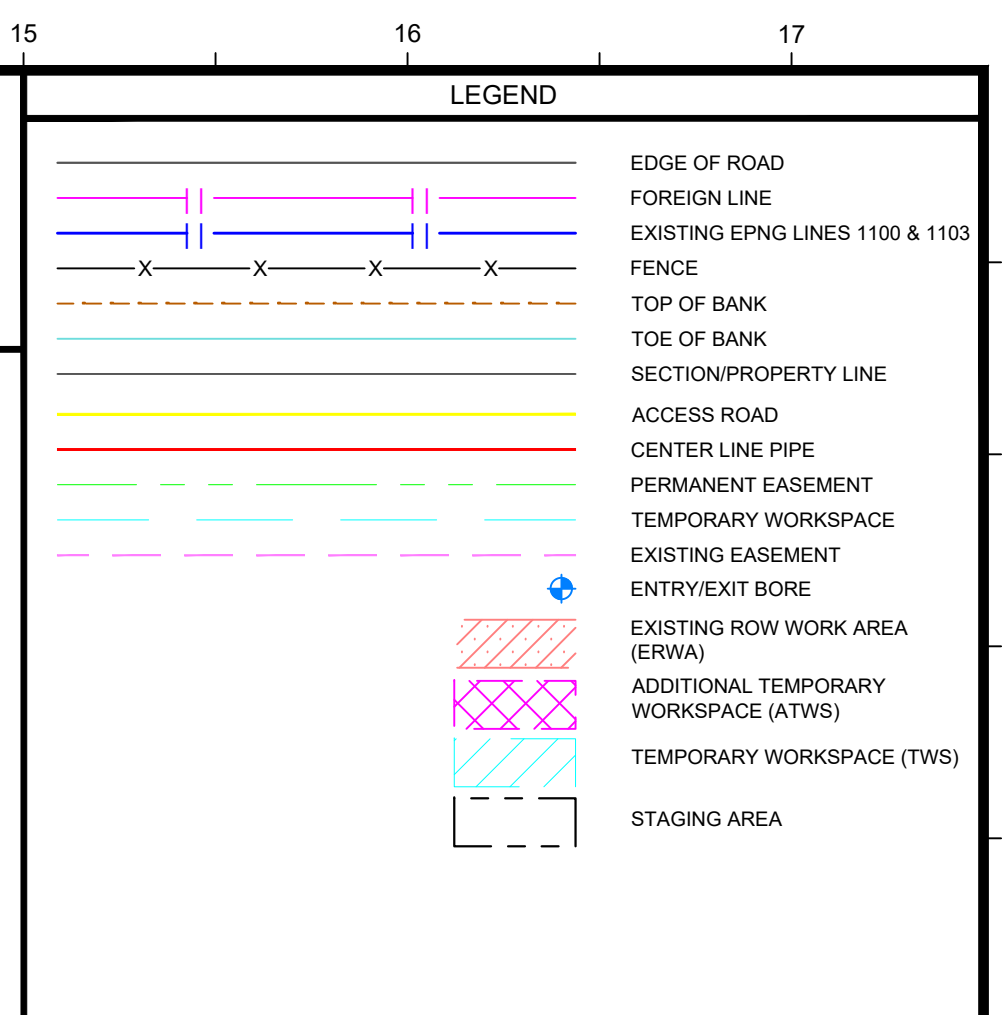
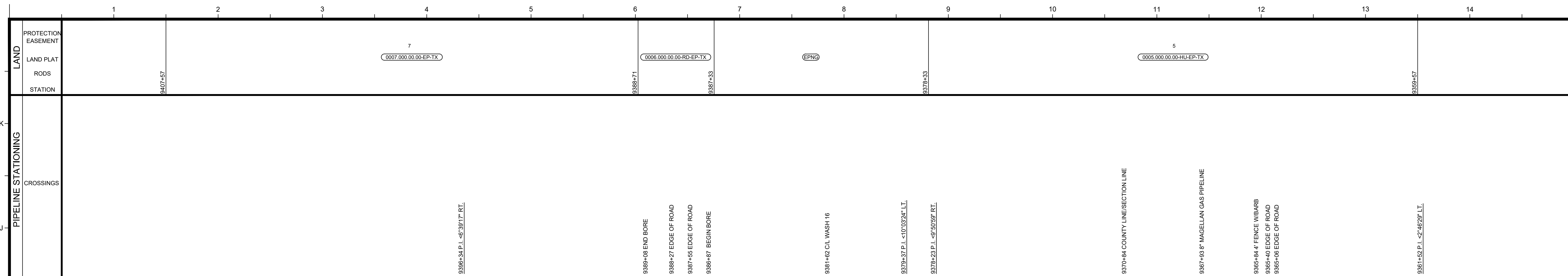
Reference Drawings	Facility Name
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ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
**PROPOSED 17-MILE LOOP LINE 1110**  
 STA: 9311+57 TO STA: 9359+57

**STATUS: ISSUED FOR REVIEW**

State:	TEXAS	PIN No:	61311
County:	HUDSPETH	Scale:	200'
Category:	ISSUED FOR REVIEW		
File Name:	61311 - ALIGNMENT SHEETS_REV1		
Drawing No:	SHT. 01110-003		

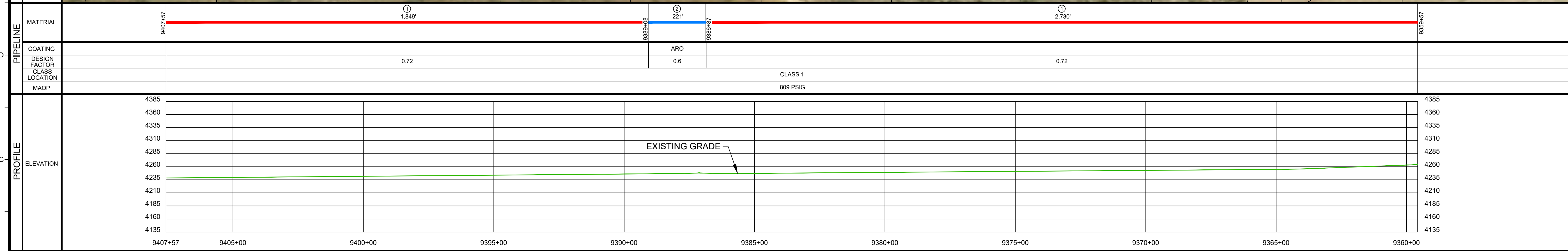


**GENERAL NOTES**

- CONTRACTOR TO VERIFY DEPTHS OF COVER FOR ALL PIPELINE CROSSINGS PRIOR TO EXCAVATION
- INDIVIDUAL TRACTS HAVE A MINIMUM OF 48" UNLESS OTHERWISE SPECIFIED.
- 30" MINIMUM DEPTH IN NORMAL SOIL, 18" MINIMUM DEPTH IN CONSOLIDATED ROCK AND 6" MINIMUM DEPTH IN SAND DUNES. THE MINIMUM PIPELINE DEPTH OF COVER IS 72" IN SAND DUNE AREA.

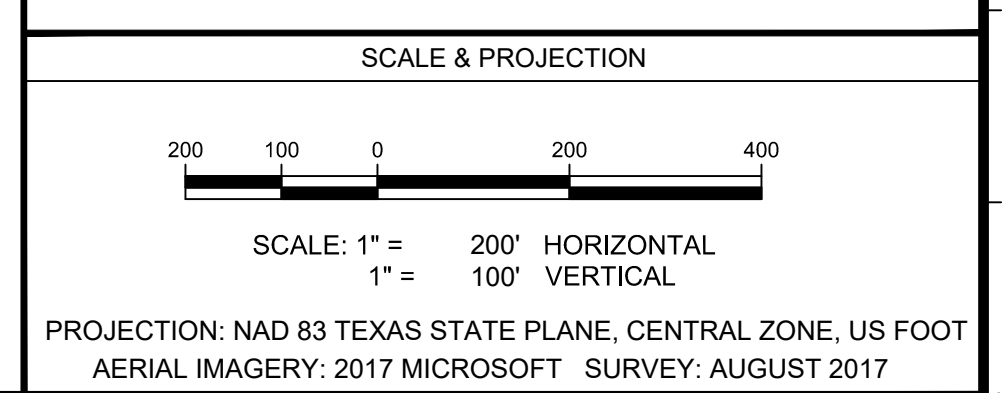
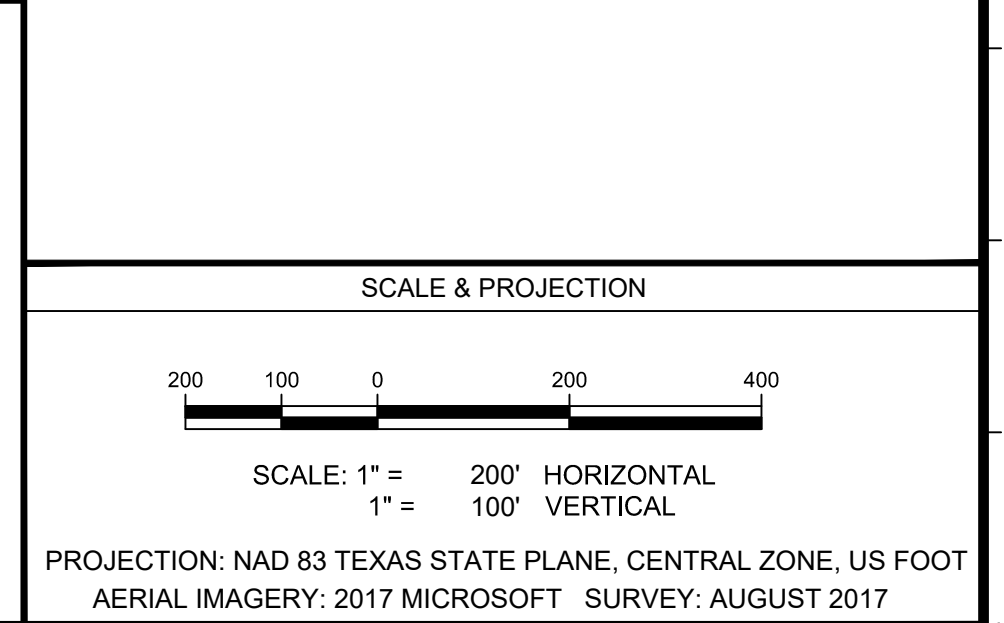
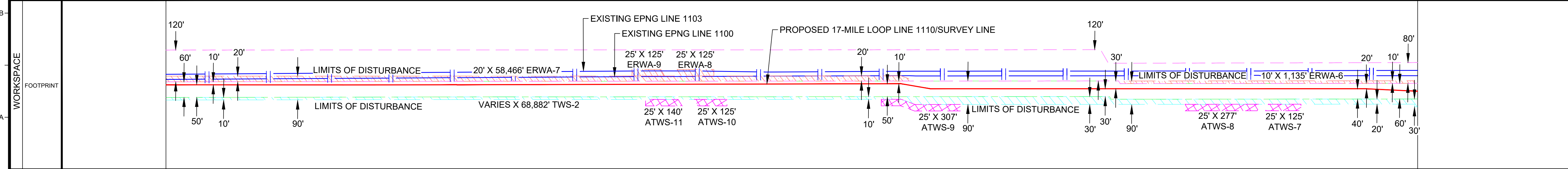
**OWNERSHIP TABLE**

0005.000.00.00-HU-EP-TX	WEST TEXAS SAND LLC
0006.000.00.00-RD-EP-TX	EL PASO NATURAL GAS CO. EASEMENT
0007.000.00.00-EP-TX	BLACKBUTTE DRIVE MESQUITE PROPERTIES, L.P.



**PIPE SUMMARY**

1	4.579' 30" O.D., 0.260" WT MIN, X65 MIN, ERW, 12-14MIL FBE
2	221' 30" O.D., 0.312" WT MIN, X65 MIN, ERW, 12-14MIL FBE, 30-40MIL ARO



Rev	Revision Description	Project ID	Date
I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

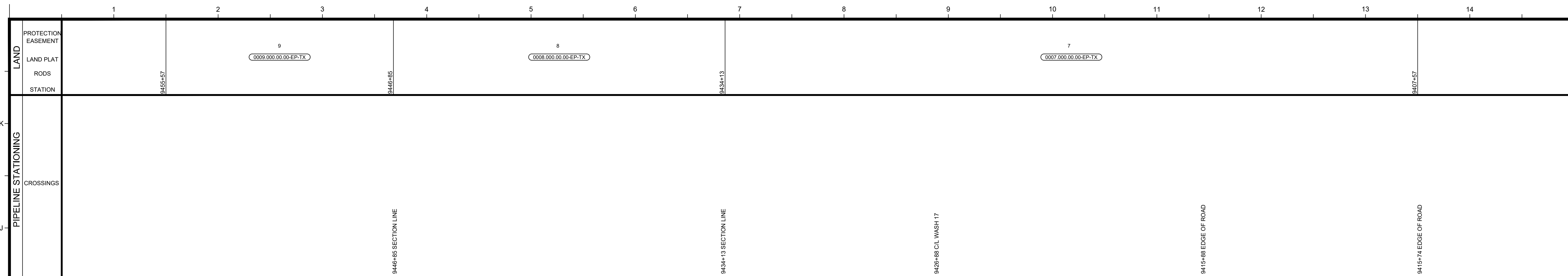
**Notes:**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 9359+57 TO STA: 9407+57

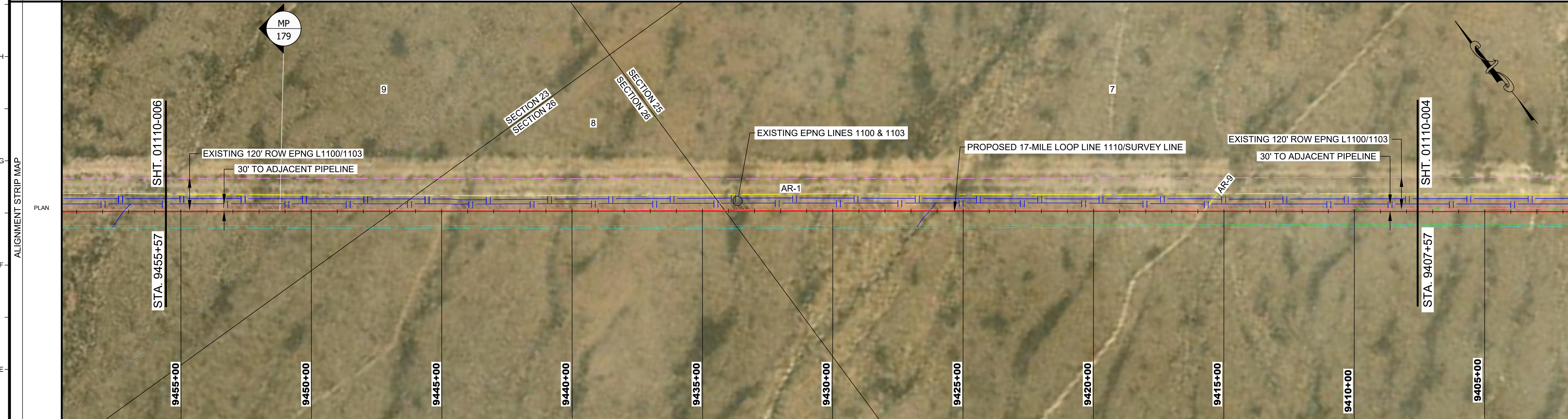
**Status: ISSUED FOR REVIEW**

State:	TEXAS	PIN No:	61311
County:	HUDSPETH/EL PASO	Scale:	200'
Category:	ISSUED FOR REVIEW		
File Name:	61311 - ALIGNMENT SHEETS_REVI		
Drawing No:	SHT. 01110-004		



**LEGEND**

- EDGE OF ROAD
- FOREIGN LINE
- EXISTING EPNG LINES 1100 & 1103
- FENCE
- TOP OF BANK
- TOE OF BANK
- SECTION/PROPERTY LINE
- ACCESS ROAD
- CENTER LINE PIPE
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- EXISTING EASEMENT
- ENTRY/EXIT BORE
- EXISTING ROW WORK AREA (ERWA)
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)
- TEMPORARY WORKSPACE (TWS)
- STAGING AREA



- GENERAL NOTES**
- CONTRACTOR TO VERIFY DEPTHS OF COVER FOR ALL PIPELINE CROSSINGS PRIOR TO EXCAVATION.
  - INDIVIDUAL TRACTS HAVE A MINIMUM OF 48" UNLESS OTHERWISE SPECIFIED.
  - 30" MINIMUM DEPTH IN NORMAL SOIL, 18" MINIMUM DEPTH IN CONSOLIDATED ROCK AND 6" MINIMUM DEPTH IN SAND DUNES. THE MINIMUM PIPELINE DEPTH OF COVER IS 72" IN SAND DUNE AREA.

**OWNERSHIP TABLE**

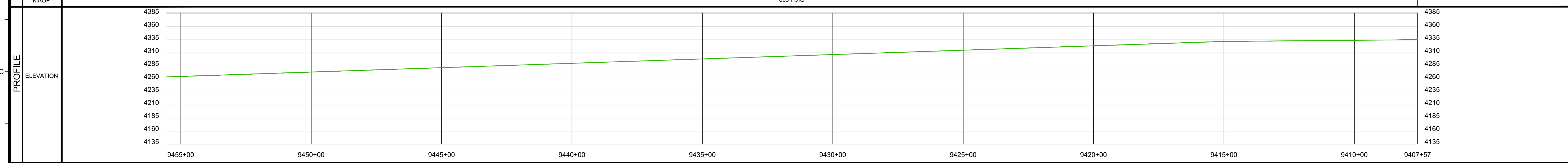
0007.000.00.00-EP-TX	MESQUITE PROPERTIES, L.P.
0008.000.00.00-EP-TX	MESQUITE PROPERTIES, L.P.
0009.000.00.00-EP-TX	MESQUITE PROPERTIES, L.P.

**PIPELINE**

MATERIAL	4.800'
COATING	
DESIGN FACTOR	0.72
CLASS	CLASS 1
LOCATION	809 PSIG
MAOP	

**PIPE SUMMARY**

1	4.800' 30" O.D., 0.260" WT MIN, X65 MIN, ERW, 12-14MIL FBE
---	--



**SCALE & PROJECTION**

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017

I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

**STATUS: ISSUED FOR REVIEW**

State: TEXAS PIN No: 61311  
County: EL PASO Scale: 200'  
Category: ISSUED FOR REVIEW  
File Name: 61311 - ALIGNMENT SHEETS\_REV1  
Drawing No: SHT. 01110-005

Revision Description	Project ID	Date
I	61311	06/22/18
H	61311	04/16/18
G	61311	04/09/18
F	61311	03/31/18
E	61311	03/16/18

Notes:

**El Paso Natural Gas Company**  
a Kinder Morgan company

**encompass**

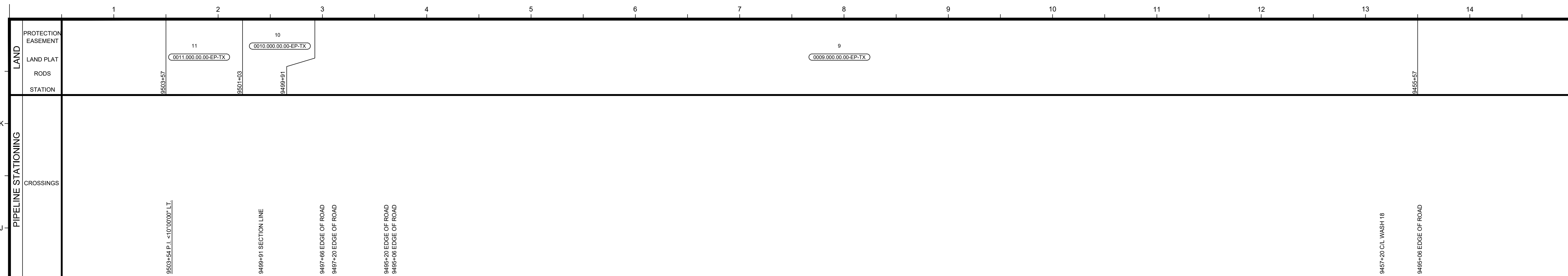
ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

EPNG SOUTH MAINLINE EXPANSION PROJECT  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 9407+57 TO STA: 9455+57

Reference Drawings

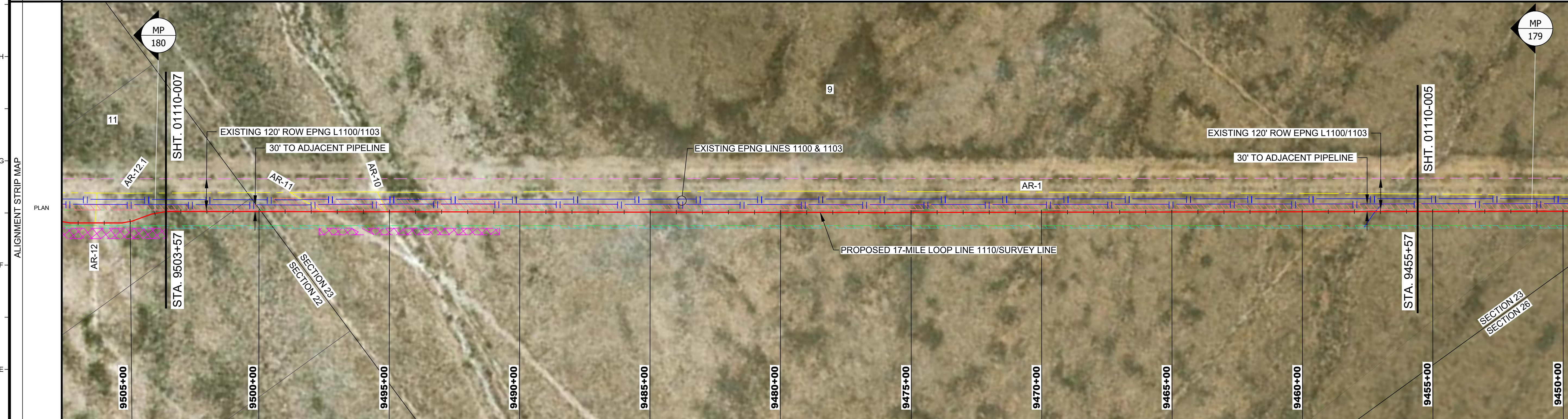
Facility Name

Rev: 1



**LEGEND**

- EDGE OF ROAD
- FOREIGN LINE
- EXISTING EPNG LINES 1100 & 1103
- FENCE
- TOP OF BANK
- TOE OF BANK
- SECTION/PROPERTY LINE
- ACCESS ROAD
- CENTER LINE PIPE
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- EXISTING EASEMENT
- ENTRY/EXIT BORE
- EXISTING ROW WORK AREA (ERWA)
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)
- TEMPORARY WORKSPACE (TWS)
- STAGING AREA



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**OWNERSHIP TABLE**

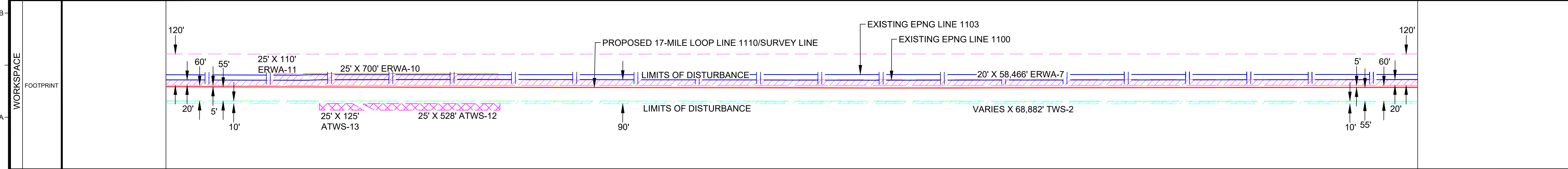
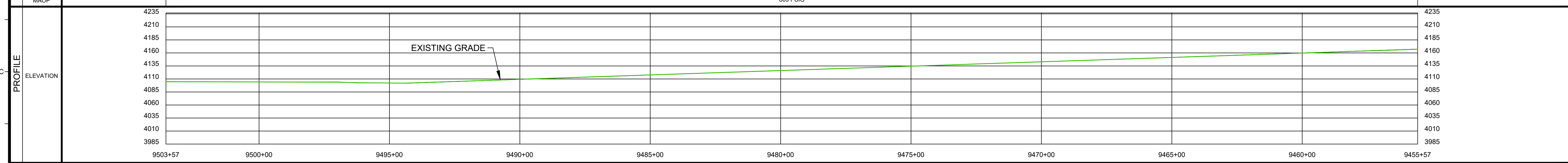
0009.000.00.00-EP-TX	MESQUITE PROPERTIES, L.P.
0010.000.00.00-EP-TX	LEE GEORGE BODEN
0011.000.00.00-EP-TX	MARY ELLEN BODEN

**PIPELINE**

MATERIAL	88" 4.153'
COATING	ARO
DESIGN FACTOR	0.72
CLASS	CLASS 1
LOCATION	809 PSIG
MAOP	

**PIPE SUMMARY**

1	4.734'	30" O.D.	0.260" WT MIN.	X65 MIN.	ERW.	12-14MIL	FBE
2	66'	30" O.D.	0.312" WT MIN.	X65 MIN.	ERW.	12-14MIL	FBE, 30-40MIL ARO



**SCALE & PROJECTION**

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017

Rev	Revision Description	Project ID	Date
I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

**Notes:**

**El Paso Natural Gas Company**  
a Kinder Morgan company

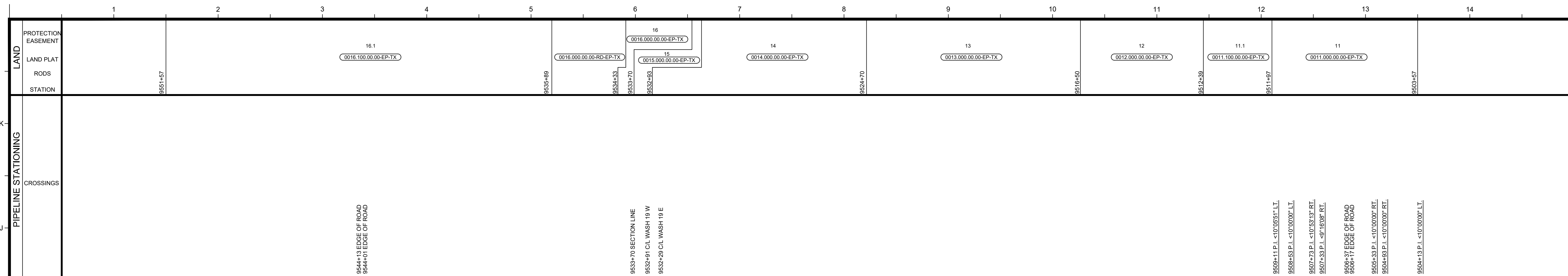
**encompass**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 9455+57 TO STA: 9503+57

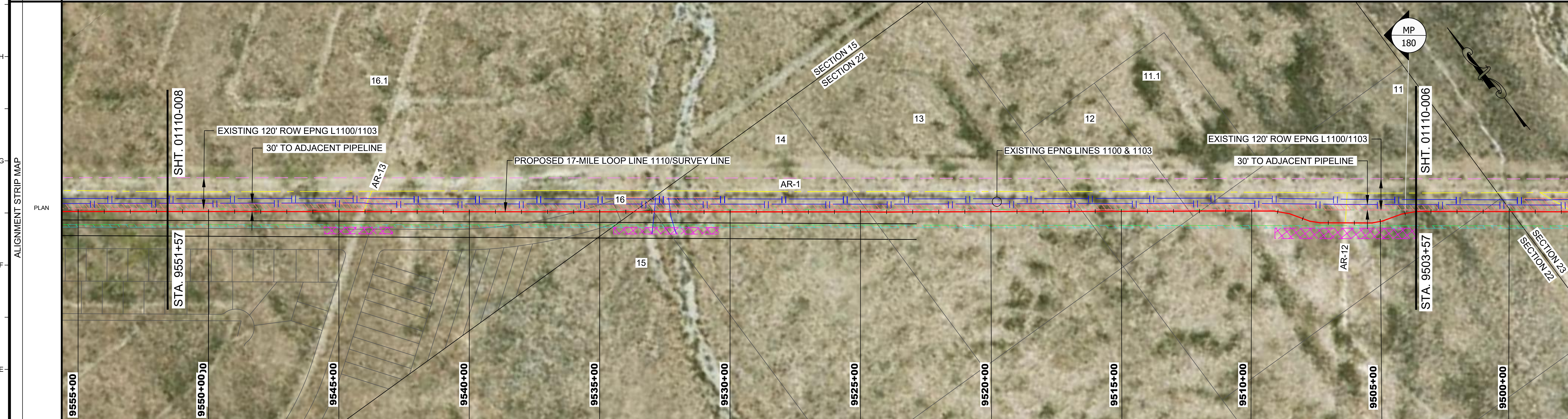
**ISSUED FOR REVIEW**

State: TEXAS PIN No: 61311  
County: EL PASO Scale: 200'  
Category: ISSUED FOR REVIEW  
File Name: 61311 - ALIGNMENT SHEETS\_REV1  
Drawing No: SHT. 01110-006



**LEGEND**

- EDGE OF ROAD
- FOREIGN LINE
- EXISTING EPNG LINES 1100 & 1103
- FENCE
- TOP OF BANK
- TOE OF BANK
- SECTION/PROPERTY LINE
- ACCESS ROAD
- CENTER LINE PIPE
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- EXISTING EASEMENT
- ENTRY/EXIT BORE
- EXISTING ROW WORK AREA (ERWA)
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)
- TEMPORARY WORKSPACE (TWS)
- STAGING AREA



- GENERAL NOTES**
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**OWNERSHIP TABLE**

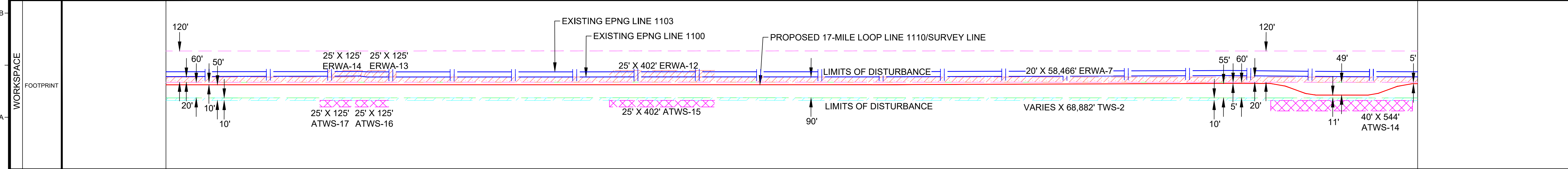
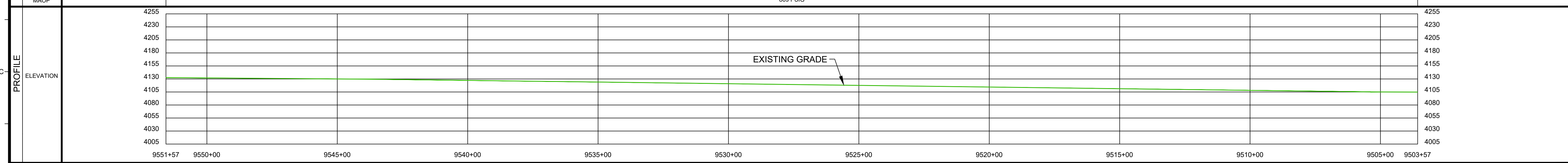
0011.000.00-EP-TX	MARY ELLEN BODEN
0011.100.00-EP-TX	JOANNE J. BRAZELTON
0012.000.00-EP-TX	JOANNE J. BRAZELTON
0013.000.00-EP-TX	JAMES GEORGE BODEN
0014.000.00-EP-TX	DIANE ROSE BODEN
0015.000.00-EP-TX	PATRICIA QUINN
0016.000.00-EP-TX	HORIZON COMMUNITIES IMPROVEMENT ASSOC.
0016.000.00-RD-EP-TX	UNKNOWN
0016.100.00-EP-TX	UNKNOWN

**PIPELINE**

MATERIAL	734'	3,744'	46'	28'
COATING	ARO	ARO	ARO	ARO
DESIGN FACTOR	0.72	0.6	0.72	0.6
CLASS	CLASS 1			
LOCATION	809 PSIG			
MAOP	809 PSIG			

**PIPE SUMMARY**

1	4,728'	30" O.D.	0.260" WT MIN.	X65 MIN.	ERW, 12-14MIL	FBE
2	72'	30" O.D.	0.312" WT MIN.	X65 MIN.	ERW, 12-14MIL	FBE, 30-40MIL ARO



**SCALE & PROJECTION**

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017

Rev	Revision Description	Project ID	Date
I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

**Notes:**

**El Paso Natural Gas Company**  
a Kinder Morgan company

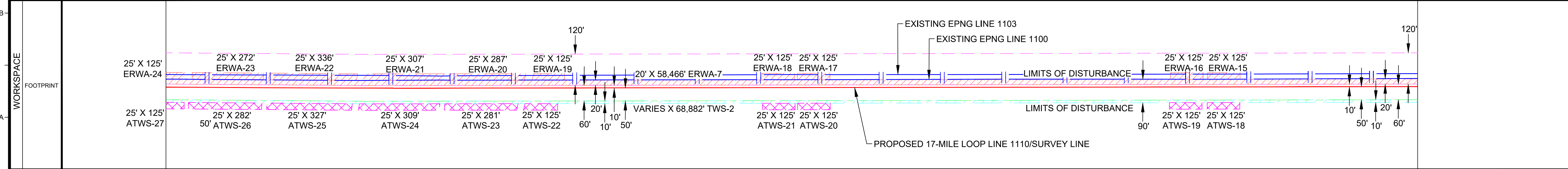
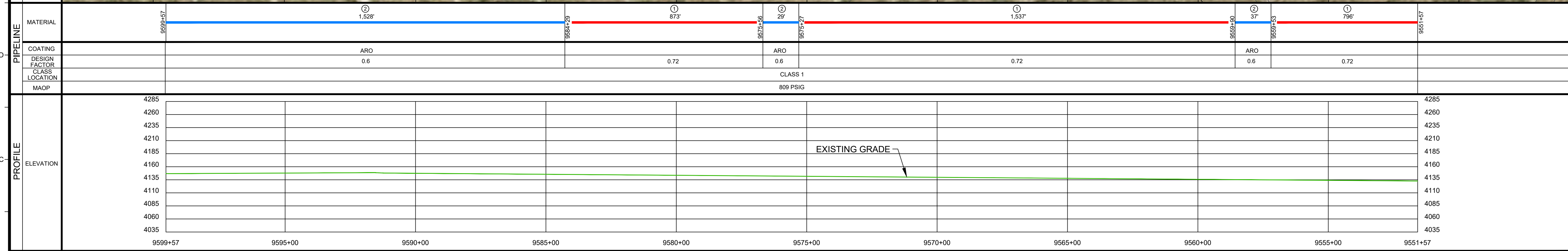
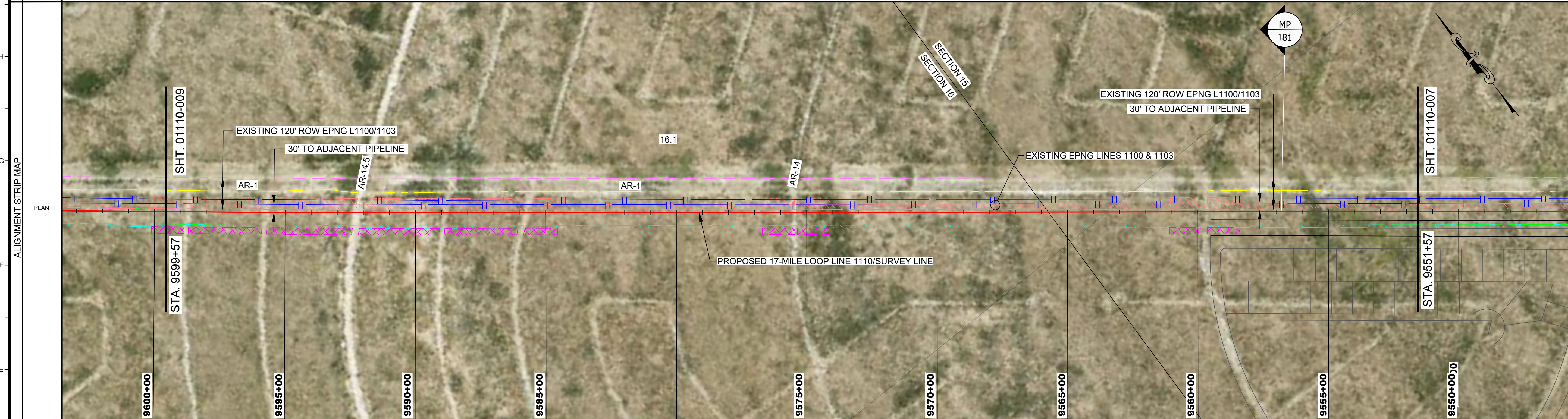
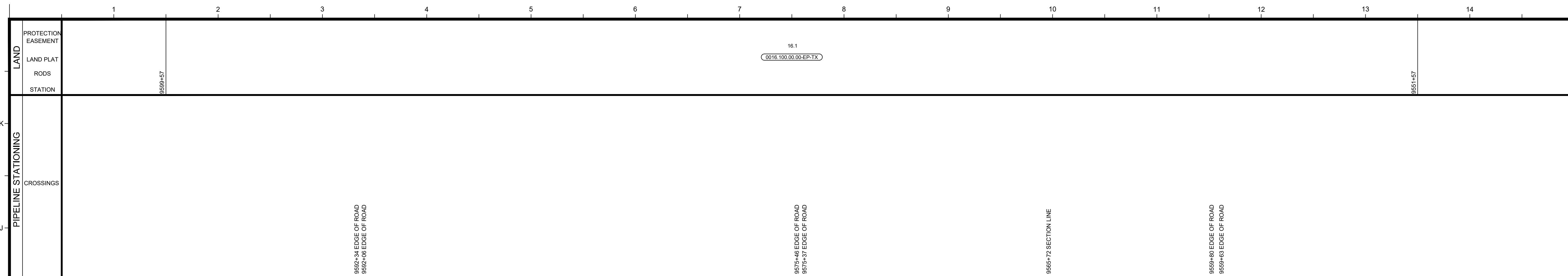
**encompass**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
PROPOSED 17-MILE LOOP LINE 1110  
STA:9503+57 TO STA: 9551+57

**ISSUED FOR REVIEW**

State: TEXAS PIN No: 61311  
County: EL PASO Scale: 200'  
Category: ISSUED FOR REVIEW  
File Name: 61311 - ALIGNMENT SHEETS\_REV1  
Drawing No: SHT. 01110-007



**LEGEND**

- EDGE OF ROAD
- FOREIGN LINE
- EXISTING EPNG LINES 1100 & 1103
- FENCE
- TOP OF BANK
- TOE OF BANK
- SECTION/PROPERTY LINE
- ACCESS ROAD
- CENTER LINE PIPE
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- EXISTING EASEMENT
- ENTRY/EXIT BORE
- EXISTING ROW WORK AREA (ERWA)
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)
- TEMPORARY WORKSPACE (TWS)
- STAGING AREA

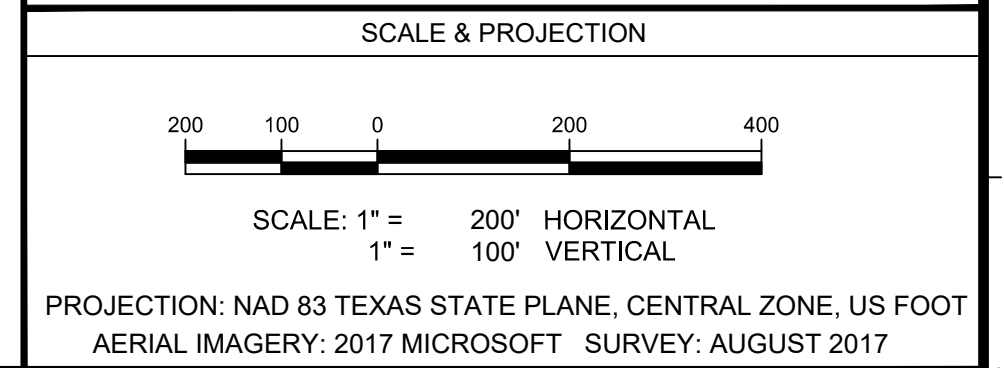
- GENERAL NOTES**
- CONTRACTOR TO VERIFY DEPTHS OF COVER FOR ALL PIPELINE CROSSINGS PRIOR TO EXCAVATION
  - INDIVIDUAL TRACTS HAVE A MINIMUM OF 48" UNLESS OTHERWISE SPECIFIED.
  - 30" MINIMUM DEPTH IN NORMAL SOIL, 18" MINIMUM DEPTH IN CONSOLIDATED ROCK AND 6" MINIMUM DEPTH IN SAND DUNES. THE MINIMUM PIPELINE DEPTH OF COVER IS 72" IN SAND DUNE AREA.

**OWNERSHIP TABLE**

0016.100.00.00-EP-TX	UNKNOWN
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**PIPE SUMMARY**

1	3.206"	30" O.D.	0.260" WT MIN.	X65 MIN.	ERW.	12-14MIL FBE
2	1.594"	30" O.D.	0.312" WT MIN.	X65 MIN.	ERW.	12-14MIL FBE, 30-40MIL ARO



Rev	Revision Description	Project ID	Date
I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

**Notes:**

I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

**El Paso Natural Gas Company**  
a Kinder Morgan company

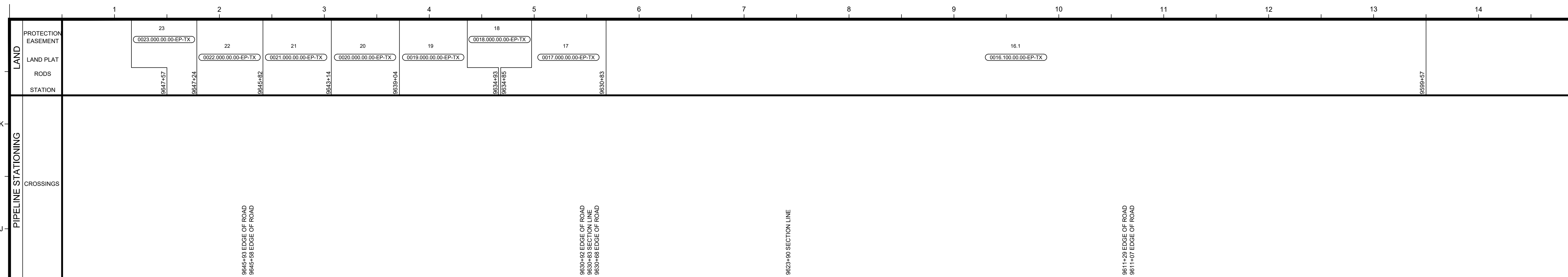
**encompass**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 9551+57 TO STA: 9599+57

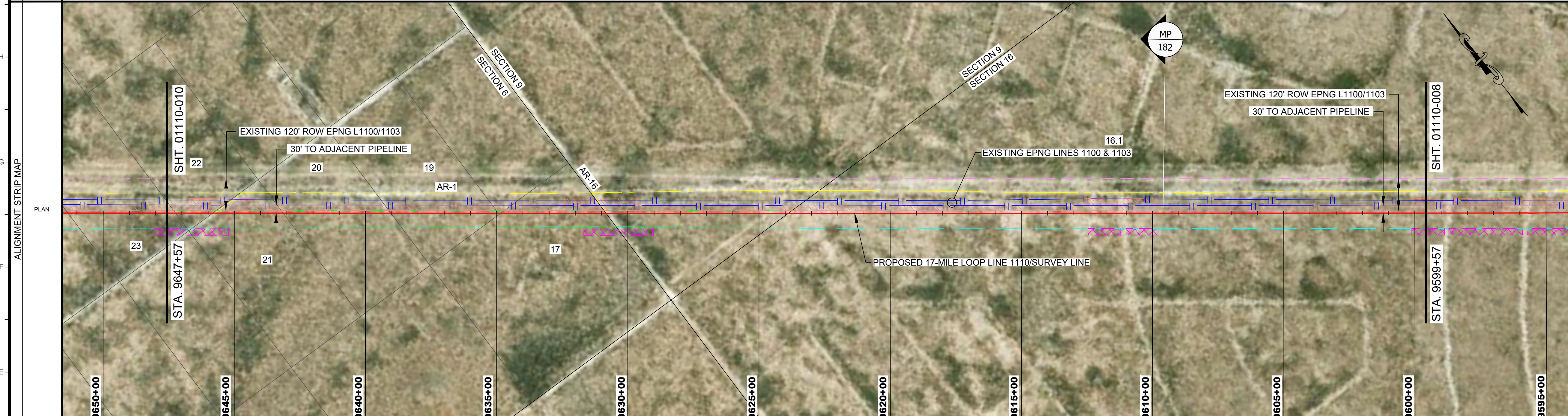
**Status: ISSUED FOR REVIEW**

State:	TEXAS	PIN No:	61311
County:	EL PASO	Scale:	200'
Category:	ISSUED FOR REVIEW		
File Name:	61311 - ALIGNMENT SHEETS_REV1		
Drawing No:	SHT. 01110-008		



**LEGEND**

- EDGE OF ROAD
- FOREIGN LINE
- EXISTING EPNG LINES 1100 & 1103
- FENCE
- TOP OF BANK
- TOE OF BANK
- SECTION/PROPERTY LINE
- ACCESS ROAD
- CENTER LINE PIPE
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- EXISTING EASEMENT
- ENTRY/EXIT BORE
- EXISTING ROW WORK AREA (ERWA)
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)
- TEMPORARY WORKSPACE (TWS)
- STAGING AREA

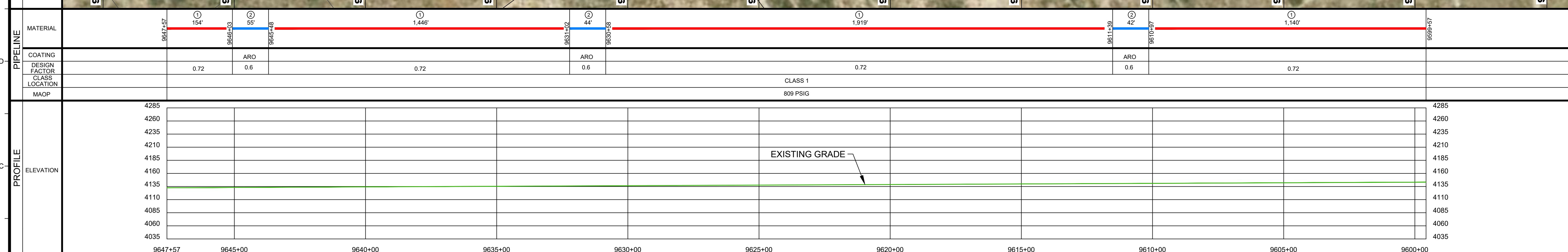


**GENERAL NOTES**

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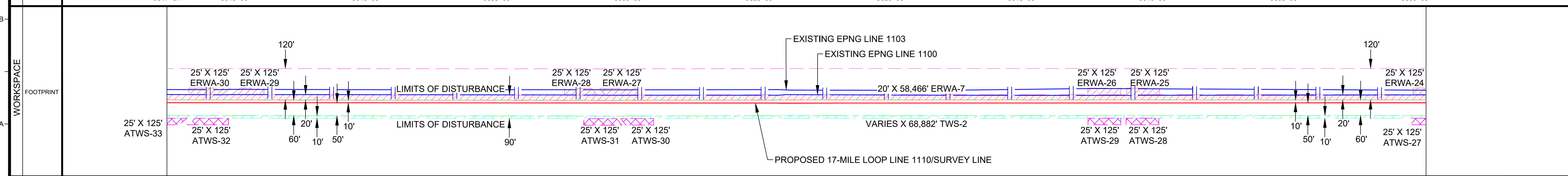
**OWNERSHIP TABLE**

0016.100.00.00-EP-TX	UNKNOWN
0017.000.00.00-EP-TX	DENNIS NEEDHAM
0018.000.00.00-EP-TX	ELIZABETH LEDON
0019.000.00.00-EP-TX	VIRGINIA L. ELDER
0020.000.00.00-EP-TX	EUGENE F. & LORENE K. KRUCKEBERG
0021.000.00.00-EP-TX	ALAN R. & MARTHA J. TOLLEFSON
0022.000.00.00-EP-TX	WILLIAM C. & DOROTHY B. PERRY
0023.000.00.00-EP-TX	PHILLIP BISHOP CHARBONNEAU



**PIPE SUMMARY**

1	4.659'	30" O.D.	0.260" WT MIN, X65 MIN, ERW, 12-14MIL FBE
2	141'	30" O.D.	0.312" WT MIN, X65 MIN, ERW, 12-14MIL FBE, 30-40MIL ARO



**SCALE & PROJECTION**

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017

Revision	Description	Project ID	Date
I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

**Notes:**

61311	06/22/18
61311	04/16/18
61311	04/09/18
61311	03/31/18
61311	03/16/18

**El Paso Natural Gas Company**  
a Kinder Morgan company

**encompass**

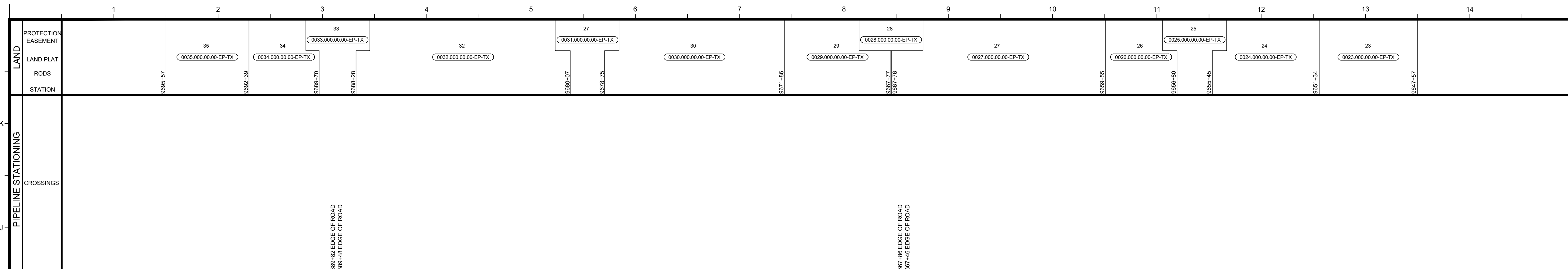
ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 9599+57 TO STA: 9647+57

**ISSUED FOR REVIEW**

State: TEXAS PIN No: 61311  
County: EL PASO Scale: 200'  
Category: ISSUED FOR REVIEW  
File Name: 61311 - ALIGNMENT SHEETS\_REVI  
Drawing No: SHT. 01110-009





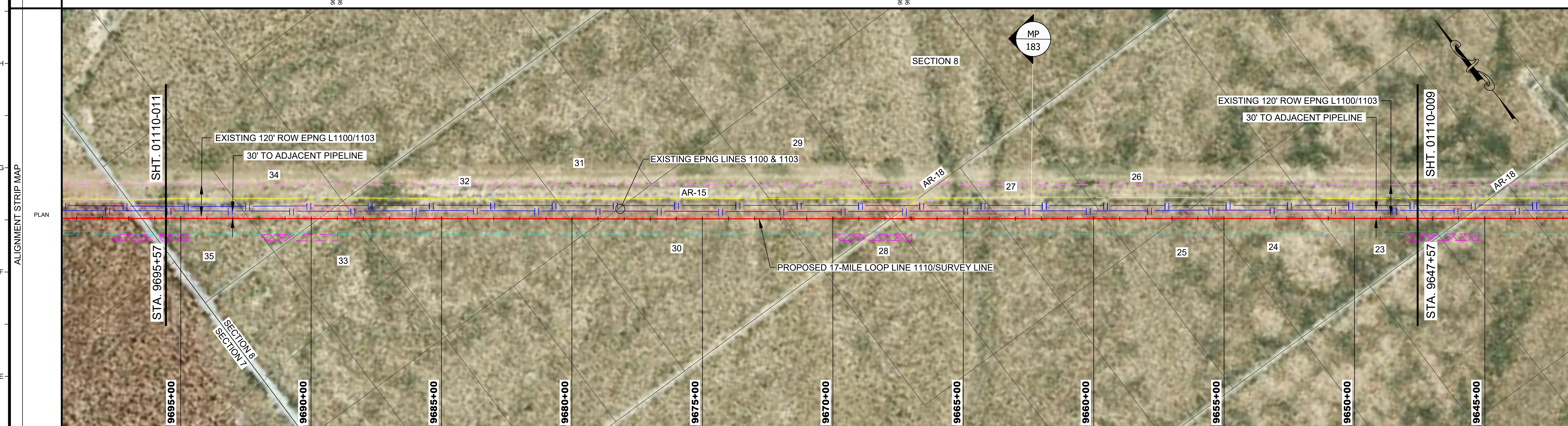
**LEGEND**

- EDGE OF ROAD
- FOREIGN LINE
- EXISTING EPNG LINES 1100 & 1103
- FENCE
- TOP OF BANK
- TOE OF BANK
- SECTION/PROPERTY LINE
- ACCESS ROAD
- CENTER LINE PIPE
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- EXISTING EASEMENT
- ENTRY/EXIT BORE
- EXISTING ROW WORK AREA (ERWA)
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)
- TEMPORARY WORKSPACE (TWS)
- STAGING AREA

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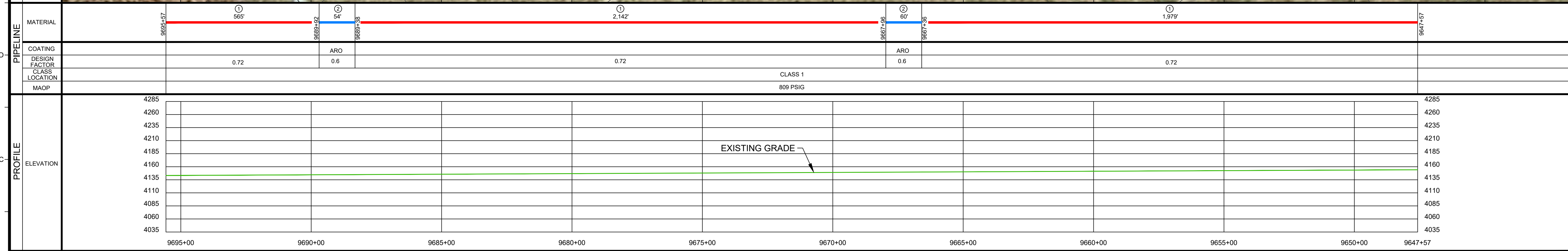
**OWNERSHIP TABLE**

0023.000.00.00-EP-TX	PHILLIP BISHOP CHARBONNEAU WDE, INC.
0024.000.00.00-EP-TX	PATRICK J. & MARIE COSGROVE
0025.000.00.00-EP-TX	RAYMOND W. MASON, JR.
0026.000.00.00-EP-TX	BOUSHEK FAMILY TRUST
0027.000.00.00-EP-TX	GASTON E. ROY & ANTHONY TSITOS
0028.000.00.00-EP-TX	HAROLD L. & DOLORES A. BARNDT
0029.000.00.00-EP-TX	GRANT B. BORTNEM
0030.000.00.00-EP-TX	GERALD M. SCHULTZ
0031.000.00.00-EP-TX	ETHEL & ROBERT G. NATIONS
0032.000.00.00-EP-TX	STANLEY E. GRETT, JR.
0033.000.00.00-EP-TX	WILFRED O. MCDOWEL
0034.000.00.00-EP-TX	THE HADLEY FAMILY TRUST AGREEMENT
0035.000.00.00-EP-TX	



**PIPE SUMMARY**

1	4,686'	30" O.D.	0.260" WT MIN, X65 MIN, ERW, 12-14MIL FBE
2	114'	30" O.D.	0.312" WT, X65, ERW, 12-14MIL FBE, 30-40MIL ARO



**SCALE & PROJECTION**

Revision Description	Project ID	Date
I	61311	06/22/18
H	61311	04/16/18
G	61311	04/09/18
F	61311	03/31/18
E	61311	03/16/18

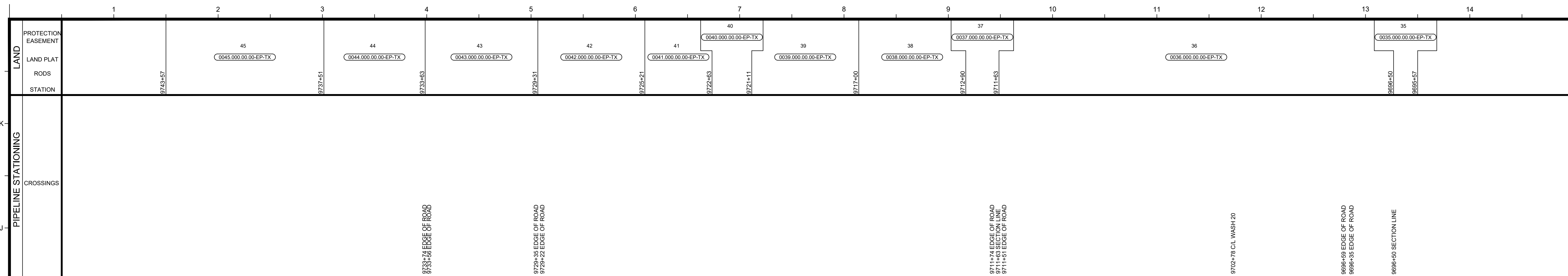
Revision Description	Project ID	Date
I	61311	06/22/18
H	61311	04/16/18
G	61311	04/09/18
F	61311	03/31/18
E	61311	03/16/18

**Notes:**

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
**PROPOSED 17-MILE LOOP LINE 1110**  
 STA: 9647+57 TO STA: 9695+57

**STATUS: ISSUED FOR REVIEW**

State:	TEXAS	PIN No:	61311
County:	EL PASO	Scale:	200'
Category:	ISSUED FOR REVIEW		
File Name:	61311 - ALIGNMENT SHEETS_REV1		
Drawing No:	SHT. 01110-010		



**LEGEND**

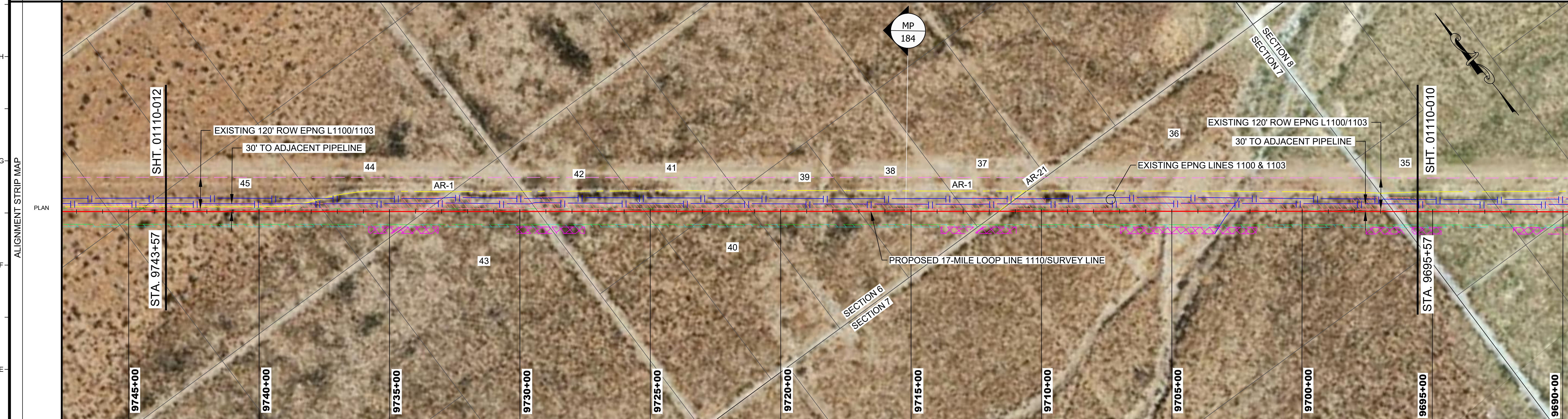
- EDGE OF ROAD
- FOREIGN LINE
- EXISTING EPNG LINES 1100 & 1103
- FENCE
- TOP OF BANK
- TOE OF BANK
- SECTION/PROPERTY LINE
- ACCESS ROAD
- CENTER LINE PIPE
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- EXISTING EASEMENT
- ENTRY/EXIT BORE
- EXISTING ROW WORK AREA (ERWA)
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)
- TEMPORARY WORKSPACE (TWS)
- STAGING AREA

**GENERAL NOTES**

- CONTRACTOR TO VERIFY DEPTHS OF COVER FOR ALL PIPELINE CROSSINGS PRIOR TO EXCAVATION
- INDIVIDUAL TRACTS HAVE A MINIMUM OF 48" UNLESS OTHERWISE SPECIFIED.
- 30" MINIMUM DEPTH IN NORMAL SOIL, 18" MINIMUM DEPTH IN CONSOLIDATED ROCK AND 6" MINIMUM DEPTH IN SAND DUNES. THE MINIMUM PIPELINE DEPTH OF COVER IS 72" IN SAND DUNE AREA.

**OWNERSHIP TABLE**

0035.000.00.00-EP-TX	THE HADLEY FAMILY TRUST AGREEMENT
0036.000.00.00-EP-TX	SANDRA ESQUEDA INC.
0037.000.00.00-EP-TX	RICHARD L. GEDELL, ET AL
0038.000.00.00-EP-TX	THOMAS H. EVANS, JR. & EDNA C. EVANS
0039.000.00.00-EP-TX	HAMID R. & BRENDA H. AKHTARI
0040.000.00.00-EP-TX	DAVID & GLORIA LEJEUNE
0041.000.00.00-EP-TX	TED N. & BETTY S. WELCH
0042.000.00.00-EP-TX	RICHARD L. THURM
0043.000.00.00-EP-TX	HAROLD L. & DORIS C. SKINNER
0044.000.00.00-EP-TX	JOHN M. DYER, JR.
0045.000.00.00-EP-TX	ALBERT E. BLOMMAERT



**PIPE SUMMARY**

1	4.642'	30" O.D.	0.260" WT MIN.	X65 MIN. ERW.	12-14MIL FBE
2	158'	30" O.D.	0.312" WT.	X65, ERW.	12-14MIL FBE, 30-40MIL ARO

**SCALE & PROJECTION**

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017



**WORKSPACE**

FOOTPRINT

25' X 125' ERWA-43  
25' X 125' ERWA-42  
25' X 125' ERWA-41  
25' X 125' ERWA-40  
25' X 125' ATWS-46  
25' X 125' ATWS-45  
25' X 125' ATWS-44  
25' X 125' ATWS-43  
20' X 58.466' ERWA-7  
25' X 125' ERWA-39  
25' X 125' ERWA-38  
25' X 621' ERWA-37  
25' X 125' ERWA-36  
25' X 125' ATWS-39  
25' X 125' ATWS-38  
VARIES X 68,882' TWS-2  
25' X 522' ATWS-40

Revision	Description	Project ID	Date
I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

**Notes:**

**El Paso Natural Gas Company**  
a Kinder Morgan company

**encompass**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 9695+57 TO STA: 9743+57

**ISSUED FOR REVIEW**

State: TEXAS PIN No: 61311  
County: EL PASO Scale: 200'  
Category: ISSUED FOR REVIEW  
File Name: 61311 - ALIGNMENT SHEETS\_REV1  
Drawing No: SHT. 01110-011

Revision	Description	Project ID	Date
I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

**Notes:**

**El Paso Natural Gas Company**  
a Kinder Morgan company

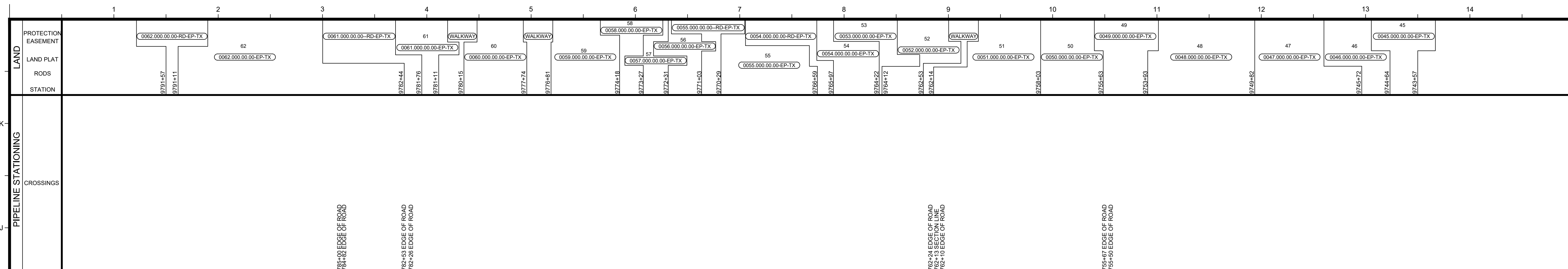
**encompass**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 9695+57 TO STA: 9743+57

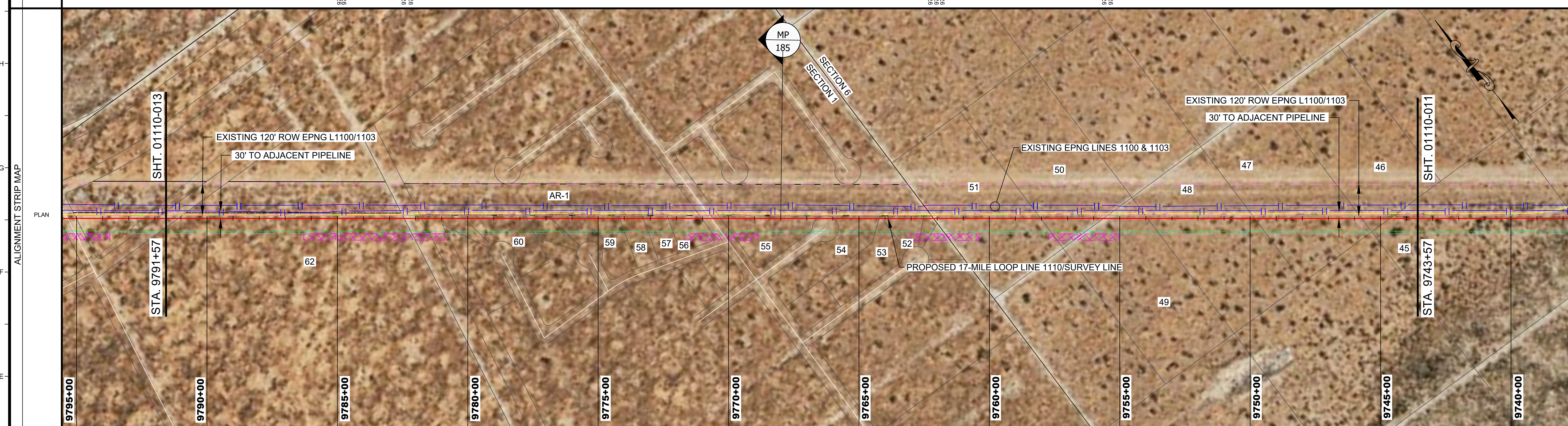
**ISSUED FOR REVIEW**

State: TEXAS PIN No: 61311  
County: EL PASO Scale: 200'  
Category: ISSUED FOR REVIEW  
File Name: 61311 - ALIGNMENT SHEETS\_REV1  
Drawing No: SHT. 01110-011



**LEGEND**

- EDGE OF ROAD
- FOREIGN LINE
- EXISTING EPNG LINES 1100 & 1103
- FENCE
- TOP OF BANK
- TOE OF BANK
- SECTION/PROPERTY LINE
- ACCESS ROAD
- CENTER LINE PIPE
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- EXISTING EASEMENT
- ENTRY/EXIT BORE
- EXISTING ROW WORK AREA (ERWA)
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)
- TEMPORARY WORKSPACE (TWS)
- STAGING AREA



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**OWNERSHIP TABLE**

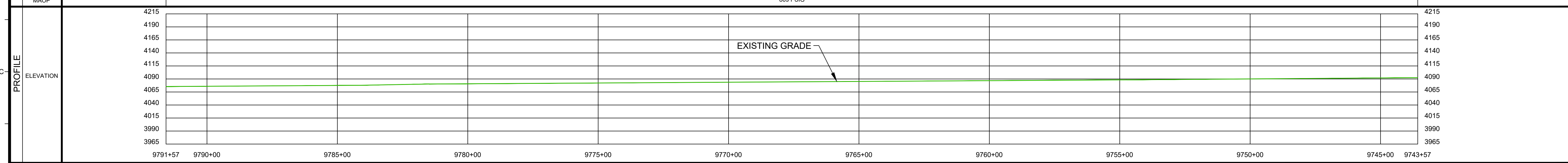
0045.000.00.00-EP-TX	ALBERT E. BLOMMAERT
0046.000.00.00-EP-TX	DAVID N. FUNK, ET AL
0047.000.00.00-EP-TX	DAVID N. FUNK, ET AL
0048.000.00.00-EP-TX	UNKNOWN
0049.000.00.00-EP-TX	LEO C. & MARIAN S. CASSELL
0050.000.00.00-EP-TX	NORMA JEAN S. GROSS
0051.000.00.00-EP-TX	THOMAS A. BACHELIER
0052.000.00.00-EP-TX	PEDESTRIAN WALKWAY
0053.000.00.00-EP-TX	ARTHUR E. & EMILY A. MORGAN
0054.000.00.00-EP-TX	COUNTY OF EL PASO
0055.000.00.00-EP-TX	COUNTY OF EL PASO
0056.000.00.00-EP-TX	ATTAPULGUS DRIVE
0057.000.00.00-EP-TX	JAMES R. & RENATE E. JORDAN
0058.000.00.00-EP-TX	DONNES DRIVE
0059.000.00.00-EP-TX	UNKNOWN
0060.000.00.00-EP-TX	THE ESTATE OF ROBERT L. SYDOW
0061.000.00.00-EP-TX	WILHELMINE I. MORRIS
0062.000.00.00-EP-TX	BRONISLAWA B. WOJEWODZKA
0063.000.00.00-EP-TX	PEDESTRIAN WALKWAY
0064.000.00.00-EP-TX	COUNTY OF EL PASO
0065.000.00.00-EP-TX	PEDESTRIAN WALKWAY
0066.000.00.00-EP-TX	UNKNOWN
0067.000.00.00-EP-TX	KIMBERLY DRIVE
0068.000.00.00-EP-TX	CLINT INDEPENDENT SCHOOL DISTRICT
0069.000.00.00-EP-TX	CURRYFORD DRIVE

**PIPELINE**

MATERIAL	847'	1.882'	1.183'
COATING			
DESIGN FACTOR	0.72	0.6	0.72
CLASS			
LOCATION			
MAOP			

**PIPE SUMMARY**

1	4.644'	30" O.D.	0.260" WT MIN.	X65 MIN.	ERW.	12-14MIL FBE
2	156'	30" O.D.	0.312" WT.	X65.	ERW.	12-14MIL FBE, 30-40MIL ARO



**SCALE & PROJECTION**

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017

Rev	Revision Description	Project ID	Date
I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

**Notes:**

Reference Drawings

Facility Name

**El Paso Natural Gas Company**  
a Kinder Morgan company

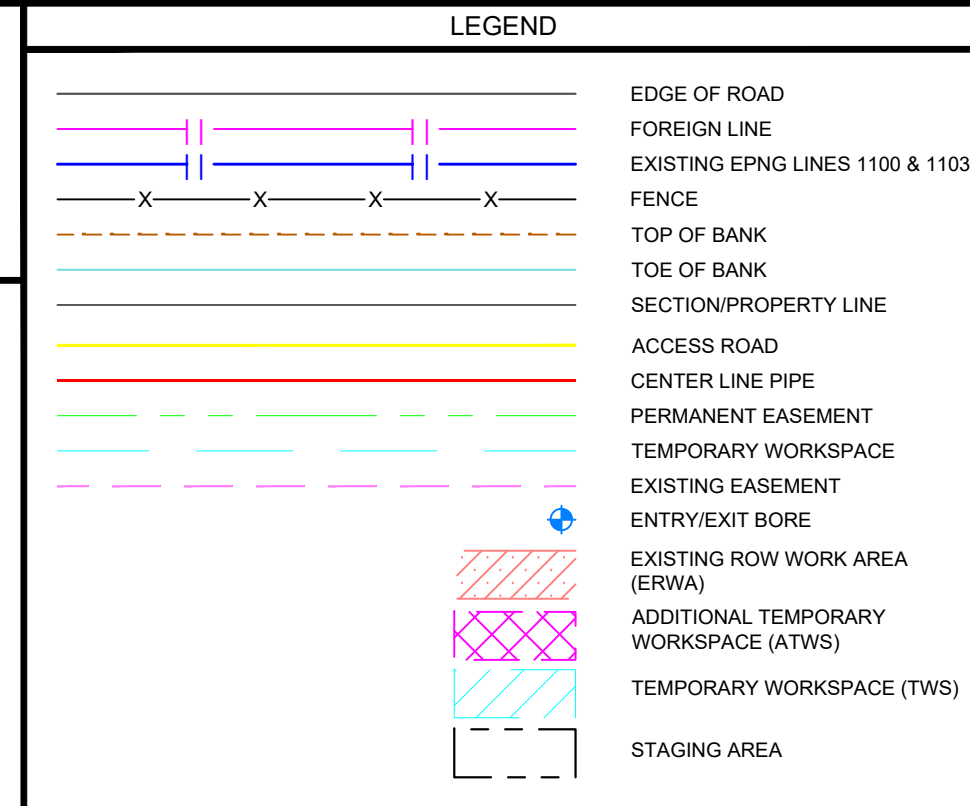
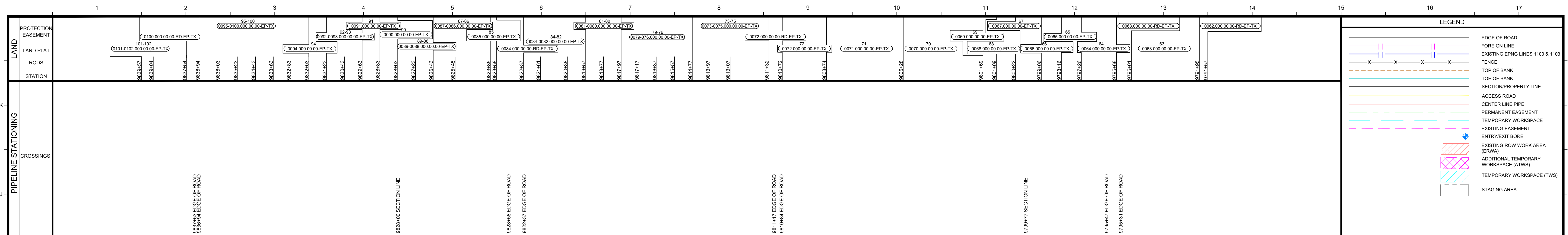
**encompass**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 9743+57 TO STA: 9791+57

Status: **ISSUED FOR REVIEW**

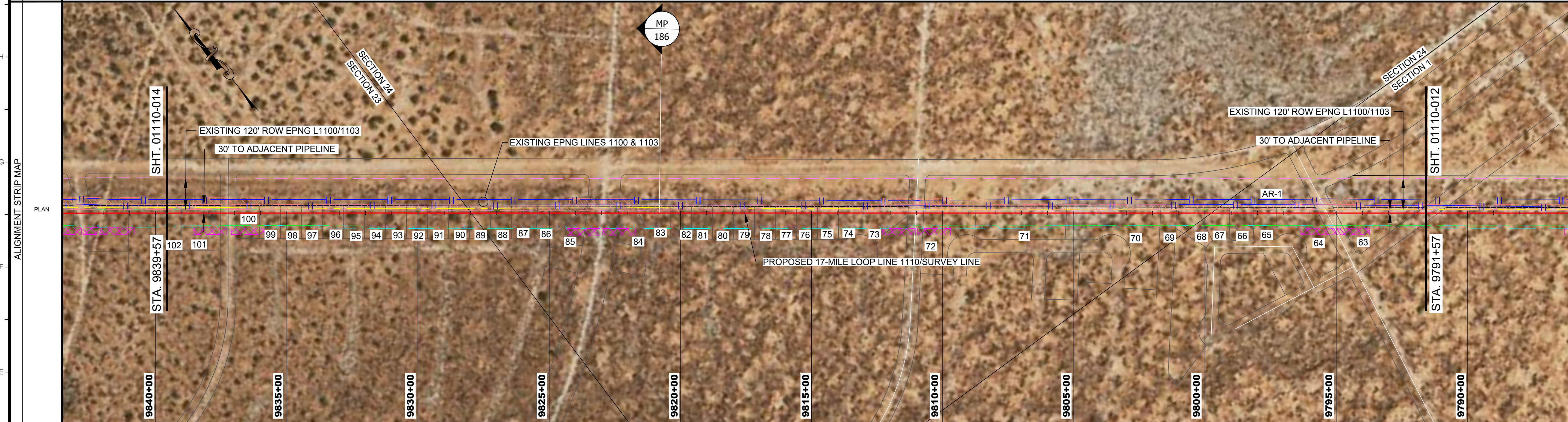
State: TEXAS PIN No: 61311  
County: EL PASO Scale: 200'  
Category: ISSUED FOR REVIEW  
File Name: 61311 - ALIGNMENT SHEETS\_REVI  
Drawing No: SHT. 01110-012



- GENERAL NOTES**
- CONTRACTOR TO VERIFY DEPTHS OF COVER FOR ALL PIPELINE CROSSINGS PRIOR TO EXCAVATION
  - INDIVIDUAL TRACTS HAVE A MINIMUM OF 48" UNLESS OTHERWISE SPECIFIED
  - 30" MINIMUM DEPTH IN NORMAL SOIL, 18" MINIMUM DEPTH IN CONSOLIDATED ROCK AND 6" MINIMUM DEPTH IN SAND DUNES. THE MINIMUM PIPELINE DEPTH OF COVER IS 72" IN SAND DUNE AREA.

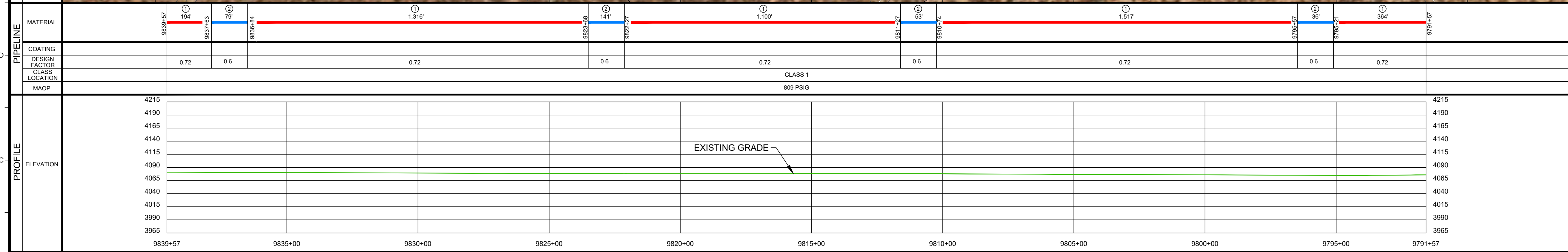
**OWNERSHIP TABLE**

Stationing	Owner
0002.000.00.00-RD-EP-TX	CURRYFORD DRIVE
0003.000.00.00-RD-EP-TX	JOHN MC DANIEL
0004.000.00.00-RD-EP-TX	BRUNSVILLE DRIVE
0005.000.00.00-RD-EP-TX	BEVERLY BANK
0006.000.00.00-RD-EP-TX	WILLIAM F. & MARGARET L. LARSEN
0007.000.00.00-RD-EP-TX	WILLIAM F. & AGNES L. GREENE
0008.000.00.00-RD-EP-TX	BEVERLY BANK
0009.000.00.00-RD-EP-TX	ANTONIO S. CARMEN H. MALDONADO
0010.000.00.00-RD-EP-TX	UNKNOWN
0011.000.00.00-RD-EP-TX	BEVERLY BANK
0012.000.00.00-RD-EP-TX	UNKNOWN
0013.000.00.00-RD-EP-TX	CHARLES SHOWS
0014.000.00.00-RD-EP-TX	GAUDUR DRIVE
0015.000.00.00-RD-EP-TX	H.C.I.A.
0016.000.00.00-RD-EP-TX	H.C.I.A.
0017.000.00.00-RD-EP-TX	JOBE MATERIALS, L.P.
0018.000.00.00-RD-EP-TX	JOBE MATERIALS, L.P.
0019.000.00.00-RD-EP-TX	JOBE MATERIALS, L.P.
0020.000.00.00-RD-EP-TX	H.C.I.A.
0021.000.00.00-RD-EP-TX	H.C.I.A.
0022.000.00.00-RD-EP-TX	JOBE MATERIALS, L.P.
0023.000.00.00-RD-EP-TX	JOBE MATERIALS, L.P.
0024.000.00.00-RD-EP-TX	JOBE MATERIALS, L.P.
0025.000.00.00-RD-EP-TX	LA JOYA DRIVE
0026.000.00.00-RD-EP-TX	WILLIAM RICHNER & JANE E. CALDWELL
0027.000.00.00-RD-EP-TX	JOBE MATERIALS, L.P.
0028.000.00.00-RD-EP-TX	H.C.I.A.
0029.000.00.00-RD-EP-TX	H.C.I.A.
0030.000.00.00-RD-EP-TX	MORRIS & SHIRLEY BERK
0031.000.00.00-RD-EP-TX	MORRIS L. SACHINDRISRI
0032.000.00.00-RD-EP-TX	BILLY A. OHL, JR.
0033.000.00.00-RD-EP-TX	BILLY A. OHL, JR.
0034.000.00.00-RD-EP-TX	RICHARD E. DAY
0035.000.00.00-RD-EP-TX	H.C.I.A.
0036.000.00.00-RD-EP-TX	H.C.I.A.
0037.000.00.00-RD-EP-TX	H.C.I.A.
0038.000.00.00-RD-EP-TX	H.C.I.A.
0039.000.00.00-RD-EP-TX	H.C.I.A.
0040.000.00.00-RD-EP-TX	H.C.I.A.
0041.000.00.00-RD-EP-TX	UNKNOWN ROAD
0042.000.00.00-RD-EP-TX	JOBE MATERIALS, L.P.
0043.000.00.00-RD-EP-TX	JOBE MATERIALS, L.P.



**PIPE SUMMARY**

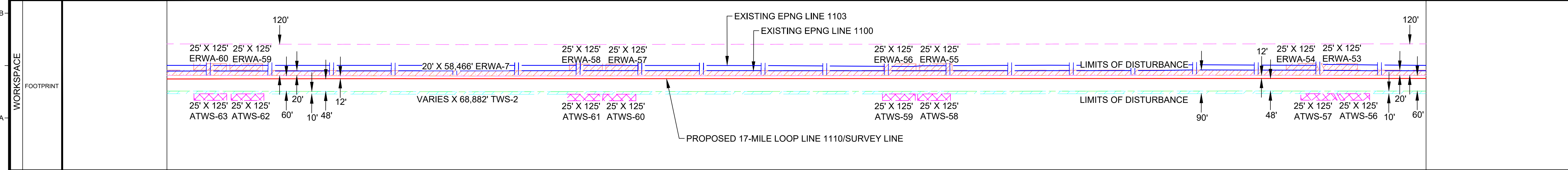
Stationing	Material	Coating	Design Factor	Class	Location	MAOP
9839+57	194"	79	0.72	0.6	0.72	0.6
9835+00	141"	141	0.72	0.6	0.72	0.6
9830+00	1,316"		0.72	0.6	0.72	0.6
9825+00	1,100"		0.72	0.6	0.72	0.6
9820+00	1,517"		0.72	0.6	0.72	0.6
9815+00	364"		0.72	0.6	0.72	0.6
9810+00			0.72	0.6	0.72	0.6
9805+00			0.72	0.6	0.72	0.6
9800+00			0.72	0.6	0.72	0.6
9795+00			0.72	0.6	0.72	0.6
9791+57			0.72	0.6	0.72	0.6



**SCALE & PROJECTION**

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017



Rev	Revision Description	Project ID	Date
I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

**Notes:**

Notes	Project ID	Date
	61311	06/22/18

**El Paso Natural Gas Company**  
a Kinder Morgan company

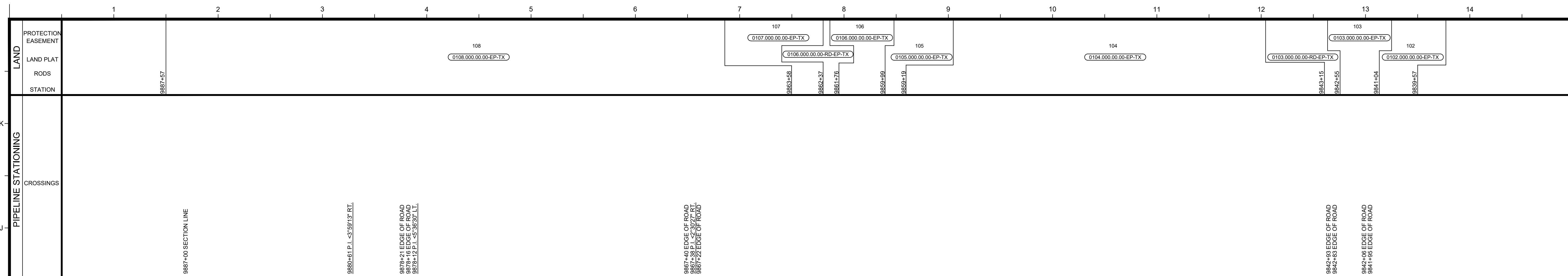
**encompass**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

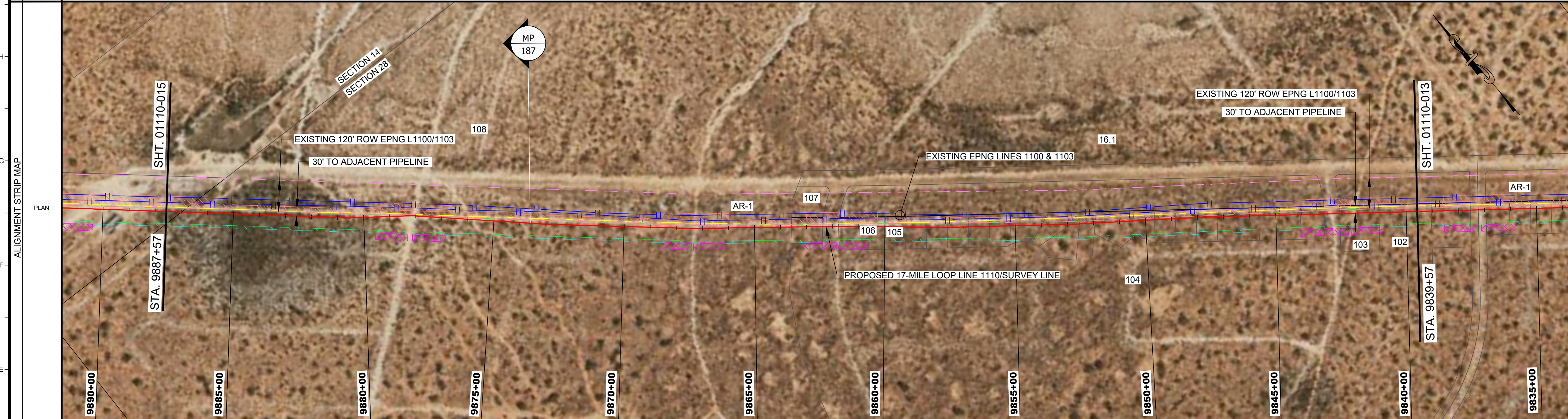
EPNG SOUTH MAINLINE EXPANSION PROJECT  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 9791+57 TO STA: 9839+57

Status: **ISSUED FOR REVIEW**

State: TEXAS PIN No: 61311  
County: EL PASO Scale: 200'  
Category: ISSUED FOR REVIEW  
File Name: 61311 - ALIGNMENT SHEETS\_REV1  
Drawing No: SHT. 01110-013



LEGEND	
	EDGE OF ROAD
	FOREIGN LINE
	EXISTING EPNG LINES 1100 & 1103
	FENCE
	TOP OF BANK
	TOE OF BANK
	SECTION/PROPERTY LINE
	ACCESS ROAD
	CENTER LINE PIPE
	PERMANENT EASEMENT
	TEMPORARY WORKSPACE
	EXISTING EASEMENT
	ENTRY/EXIT BORE
	EXISTING ROW WORK AREA (ERWA)
	ADDITIONAL TEMPORARY WORKSPACE (ATWS)
	TEMPORARY WORKSPACE (TWS)
	STAGING AREA

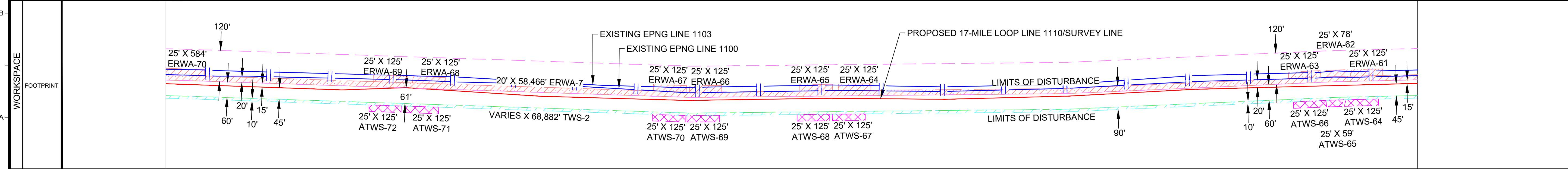


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OWNERSHIP TABLE	
0102.000.00.00-EP-TX	JOBE MATERIALS, L.P.
0103.000.00.00-EP-TX	H.C.I.A.
0103.000.00.00-RD-EP-TX	BONIFAY DRIVE
0104.000.00.00-EP-TX	HORIZON CITY ESTATES
0105.000.00.00-EP-TX	H.C.I.A.
0106.000.00.00-EP-TX	KAMLA I. JUMAN
0106.000.00.00-RD-EP-TX	BONIFAY DRIVE
0107.000.00.00-EP-TX	RONALD D. & LINDA C. WATSON
0108.000.00.00-EP-TX	UNKNOWN



PIPE SUMMARY	
1	4,619' 30" O.D., 0.260" WT MIN, X65 MIN, ERW, 12-14MIL FBE
2	181' 30" O.D., 0.312" WT, X65, ERW, 12-14MIL FBE, 30-40MIL ARO



SCALE & PROJECTION	
SCALE: 1" = 200' HORIZONTAL 1" = 100' VERTICAL	
PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017	

Rev	Revision Description	Project ID	Date
I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
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E	REVISED EXISTING EASEMENT	61311	03/16/18

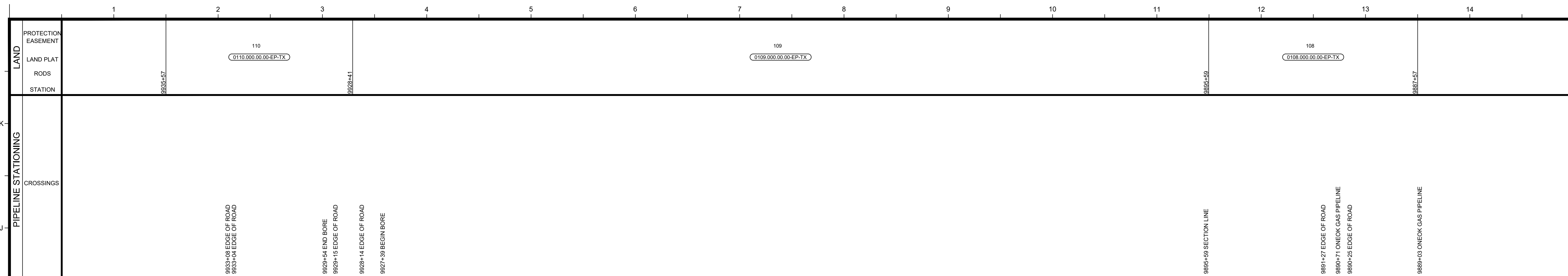
Notes:	

**El Paso**  
Natural Gas Company  
a Kinder Morgan company

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

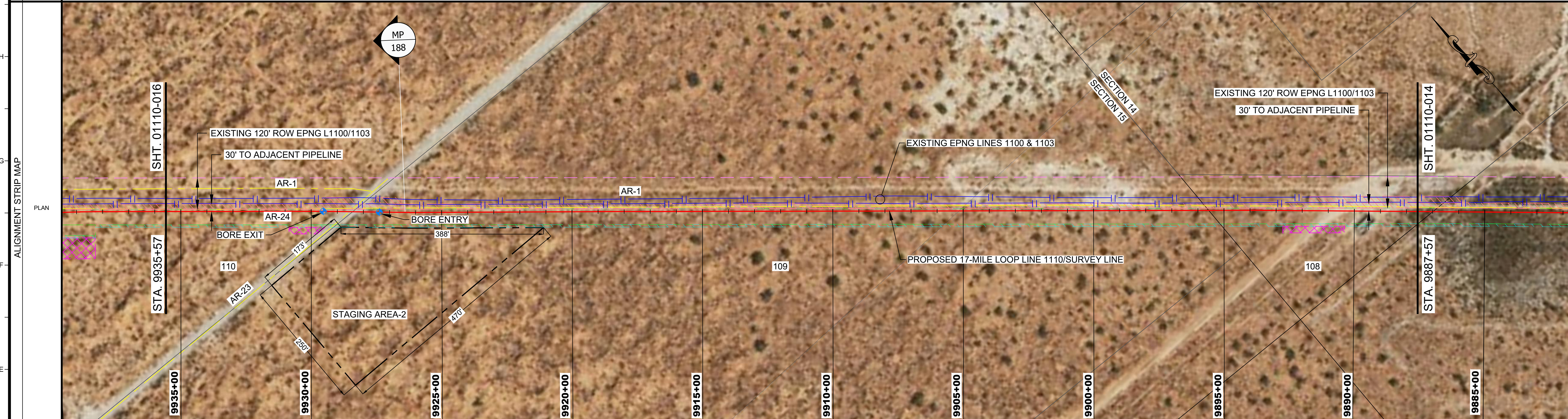
EPNG SOUTH MAINLINE EXPANSION PROJECT  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 9839+57 TO STA: 9887+57

Status: ISSUED FOR REVIEW	
State: TEXAS	PIN No: 61311
County: EL PASO	Scale: 200'
Category: ISSUED FOR REVIEW	
File Name: 61311 - ALIGNMENT SHEETS_REV1	
Drawing No:	Rev
<b>SHT. 01110-014</b>	



**LEGEND**

- EDGE OF ROAD
- FOREIGN LINE
- EXISTING EPNG LINES 1100 & 1103
- FENCE
- TOP OF BANK
- TOE OF BANK
- SECTION/PROPERTY LINE
- ACCESS ROAD
- CENTER LINE PIPE
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
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  - THE MINIMUM PIPELINE DEPTH OF COVER IS 72" IN SAND DUNE AREA.

**OWNERSHIP TABLE**

0108.000.00.00-EP-TX	UNKNOWN
0109.000.00.00-EP-TX	JOHN ELIAS, ET AL
0110.000.00.00-EP-TX	GCC SUN CITY MATERIALS, LLC

**PIPELINE**

MATERIAL	809	215	3,802'	12"	258'
COATING		ARO		ARO	
DESIGN FACTOR	0.72	0.6	0.72	0.6	0.72
CLASS	CLASS 1				
LOCATION	809 PSIG				
MAOP					

**PIPE SUMMARY**

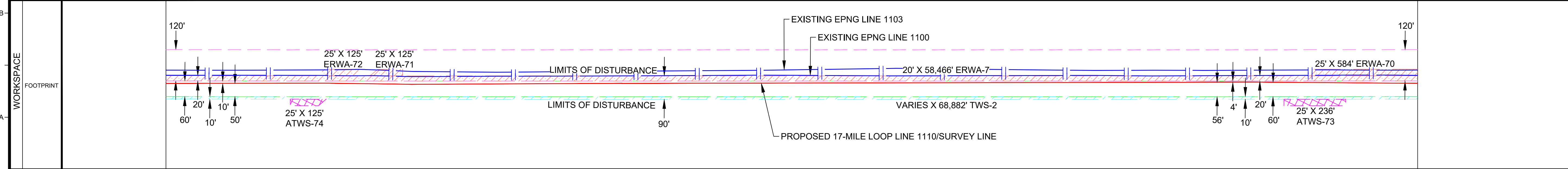
1	4,463'	30" O.D., 0.260" WT MIN, X65 MIN, ERW, 12-14MIL FBE
2	337'	30" O.D., 0.312" WT MIN, X65 MIN, ERW, 12-14MIL FBE, 30-40MIL ARO



**SCALE & PROJECTION**

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017



Revision	Description	Project ID	Date
I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

**Notes:**

**El Paso Natural Gas Company**  
a Kinder Morgan company

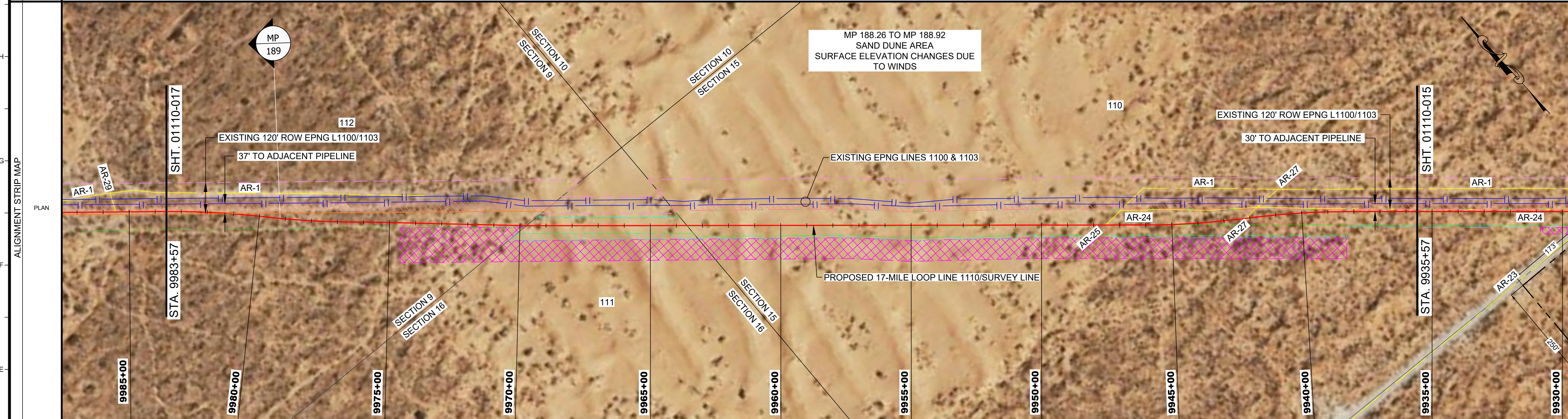
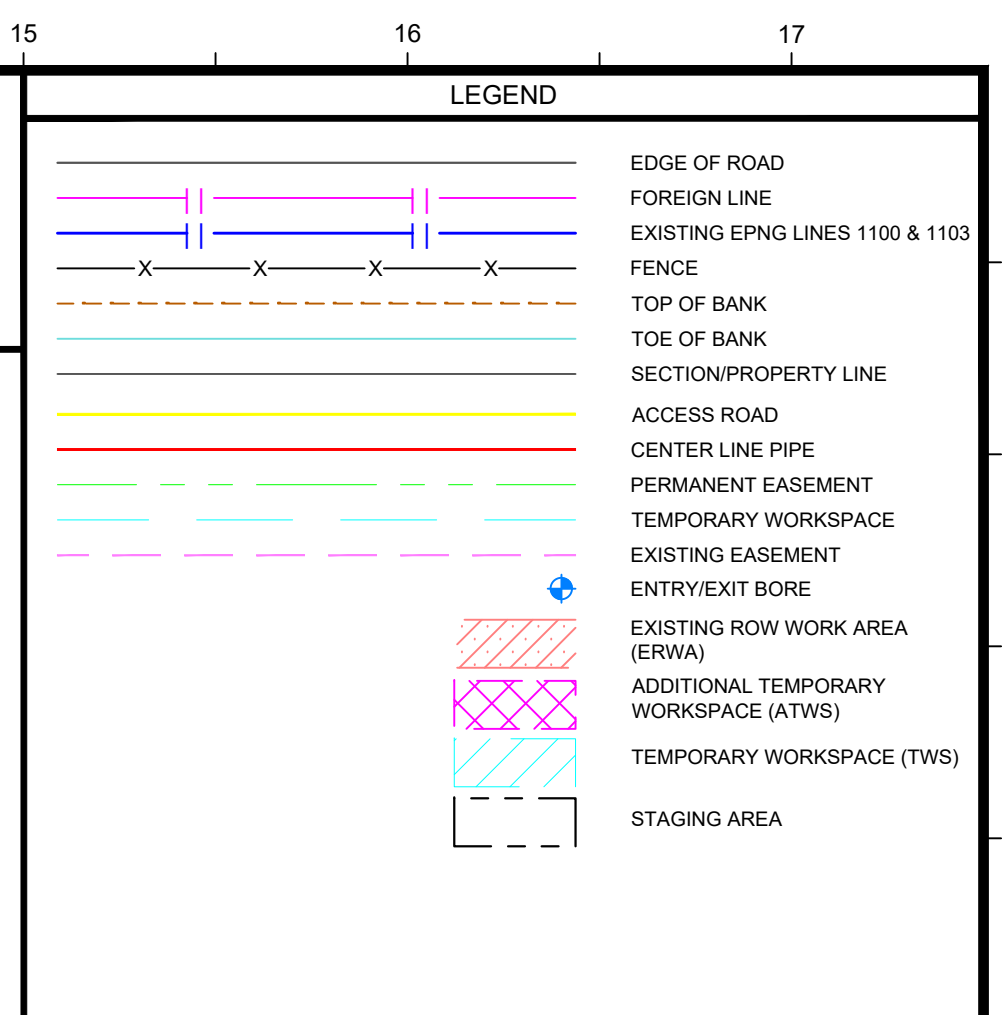
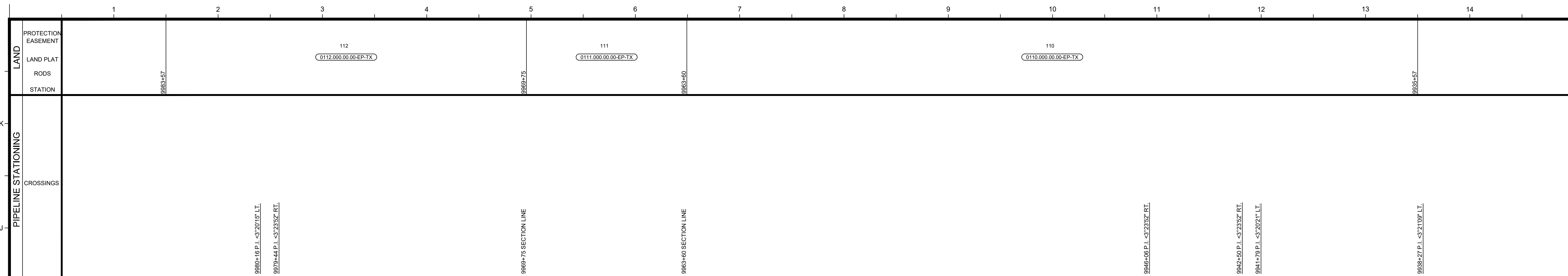
**encompass**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 9887+57 TO STA: 9935+57

**ISSUED FOR REVIEW**

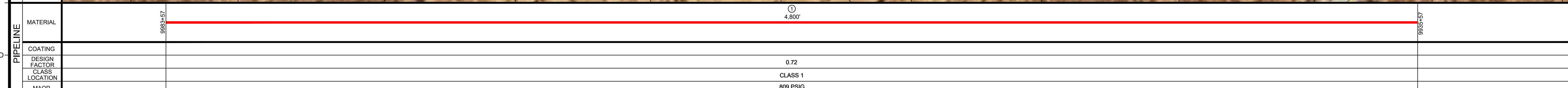
State: TEXAS PIN No: 61311  
County: EL PASO Scale: 200'  
Category: ISSUED FOR REVIEW  
File Name: 61311 - ALIGNMENT SHEETS\_REVI  
Drawing No: SHT. 01110-015



- GENERAL NOTES
- CONTRACTOR TO VERIFY DEPTHS OF COVER FOR ALL PIPELINE CROSSINGS PRIOR TO EXCAVATION
  - INDIVIDUAL TRACTS HAVE A MINIMUM OF 48" UNLESS OTHERWISE SPECIFIED.
  - 30" MINIMUM DEPTH IN NORMAL SOIL, 18" MINIMUM DEPTH IN CONSOLIDATED ROCK AND 6" MINIMUM DEPTH IN SAND DUNES. THE MINIMUM PIPELINE DEPTH OF COVER IS 72" IN SAND DUNE AREA.

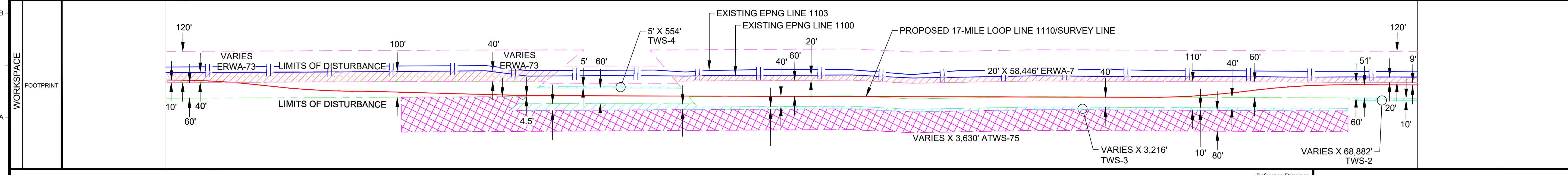
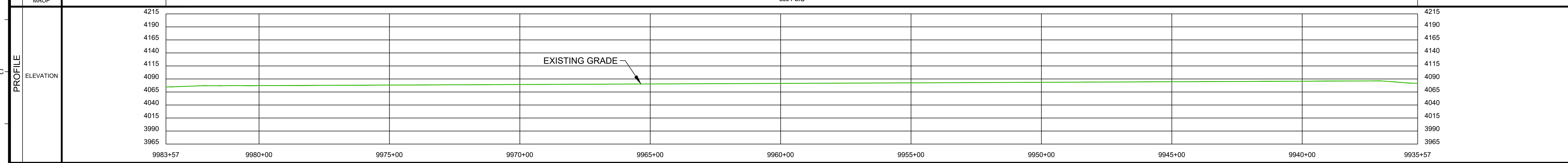
OWNERSHIP TABLE

0110.000.00.00-EP-TX	GCC SUN CITY MATERIALS, LLC
0111.000.00.00-EP-TX	UNKNOWN
0112.000.00.00-EP-TX	162 EAST RANCHO GRANDE, LLC



PIPE SUMMARY

1	4.800" 30" O.D., 0.260" WT MIN, X65 MIN, ERW, 12-14MIL FBE
---	--



SCALE & PROJECTION

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017

Revision Description	Project ID	Date
I UPDATED SHEET NUMBERS	61311	06/22/18
H ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G UPDATED PER CLIENT COMMENTS	61311	04/09/18
F REVISED FOOTPRINT	61311	03/31/18
E REVISED EXISTING EASEMENT	61311	03/16/18

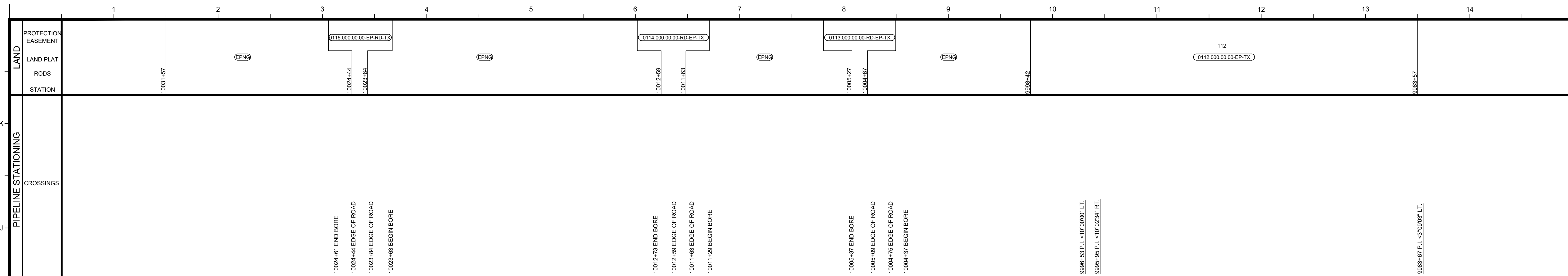
Notes:

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

EPNG SOUTH MAINLINE EXPANSION PROJECT  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 9935+57 TO STA: 9983+57

Status: **ISSUED FOR REVIEW**

State: TEXAS PIN No: 61311  
County: EL PASO Scale: 200'  
Category: ISSUED FOR REVIEW  
File Name: 61311 - ALIGNMENT SHEETS\_REV1  
Drawing No: SHT. 01110-016



**LEGEND**

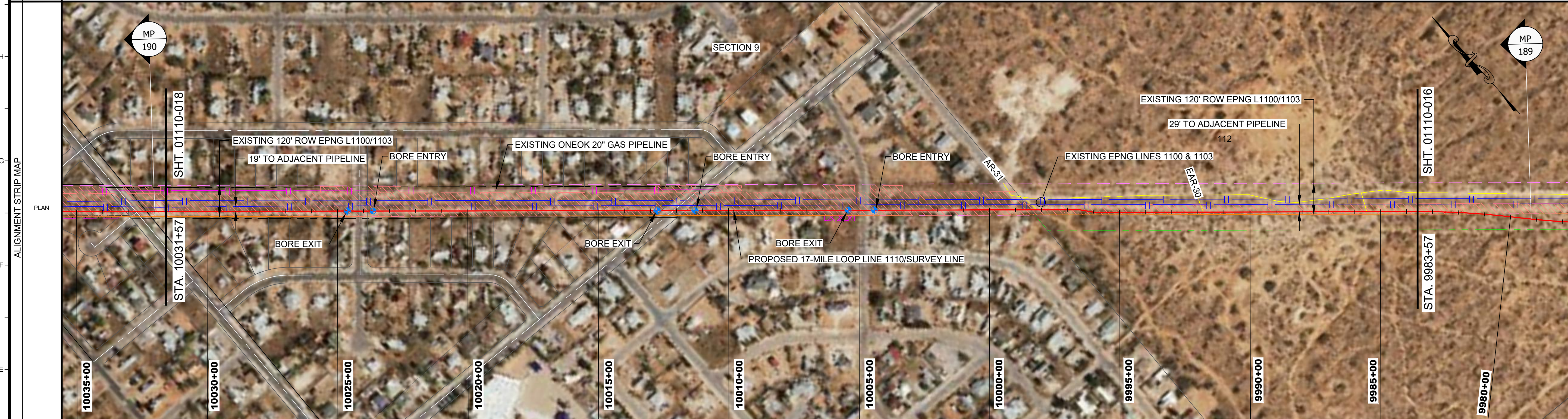
- EDGE OF ROAD
- FOREIGN LINE
- EXISTING EPNG LINES 1100 & 1103
- FENCE
- TOP OF BANK
- TOE OF BANK
- SECTION/PROPERTY LINE
- ACCESS ROAD
- CENTER LINE PIPE
- PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- EXISTING EASEMENT
- ENTRY/EXIT BORE
- EXISTING ROW WORK AREA (ERWA)
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)
- TEMPORARY WORKSPACE (TWS)
- STAGING AREA

**GENERAL NOTES**

- CONTRACTOR TO VERIFY DEPTHS OF COVER FOR ALL PIPELINE CROSSINGS PRIOR TO EXCAVATION
- INDIVIDUAL TRACTS HAVE A MINIMUM OF 48" UNLESS OTHERWISE SPECIFIED
- 30" MINIMUM DEPTH IN NORMAL SOIL, 18" MINIMUM DEPTH IN CONSOLIDATED ROCK AND 6" MINIMUM DEPTH IN SAND DUNES. THE MINIMUM PIPELINE DEPTH OF COVER IS 72" IN SAND DUNE AREA.

**OWNERSHIP TABLE**

0112.000.00.00-EP-TX	162 EAST RANCHO GRANDE, LLC
0113.000.00.00-RD-EP-TX	EL PASO NATURAL GAS CO. EASEMENT DEERFIELD PARK DRIVE
0114.000.00.00-RD-EP-TX	EL PASO NATURAL GAS CO. EASEMENT STACY ANN LANE
0115.000.00.00-RD-EP-TX	EL PASO NATURAL GAS CO. EASEMENT MERIBETH LANE
	EL PASO NATURAL GAS CO. EASEMENT



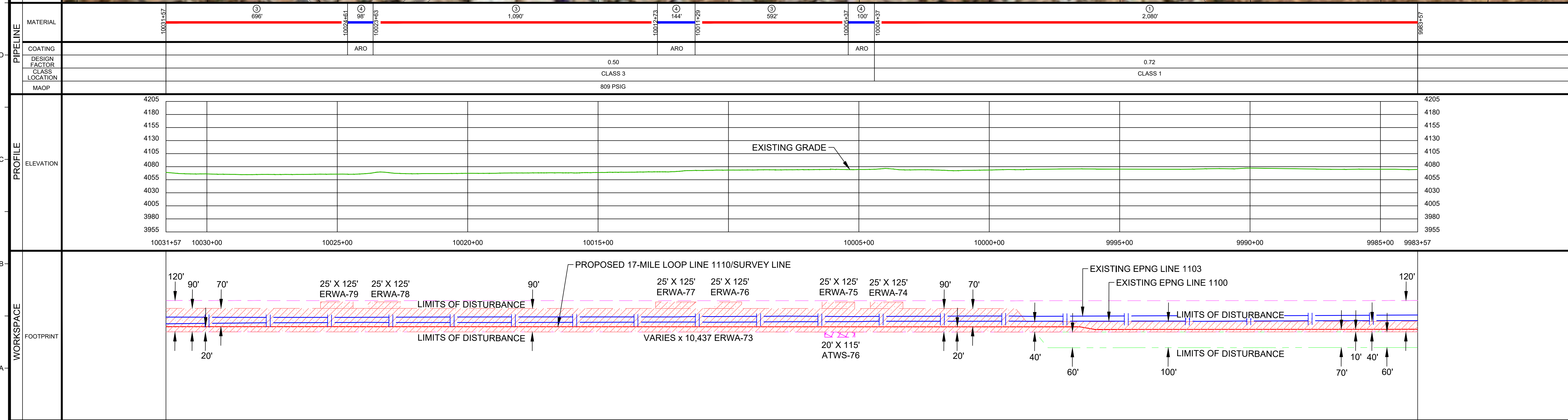
**PIPE SUMMARY**

1	2,080' 30" O.D., 0.260" WT MIN, X65 MIN, ERW, 12-14MIL FBE
3	2,378' 30" O.D., 0.347" WT MIN, X70 MIN, ERW, 12-14MIL FBE
4	342' 30" O.D., 0.347" WT MIN, X70 MIN, ERW, 12-14MIL FBE, 30-40MIL ARO

**SCALE & PROJECTION**

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017



**SCALE & PROJECTION**

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017

Revision	Description	Project ID	Date
I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

**Notes:**

1	UPDATED SHEET NUMBERS	61311	06/22/18
2	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
3	UPDATED PER CLIENT COMMENTS	61311	04/09/18
4	REVISED FOOTPRINT	61311	03/31/18
5	REVISED EXISTING EASEMENT	61311	03/16/18

**El Paso Natural Gas Company**  
a Kinder Morgan company

**encompass**

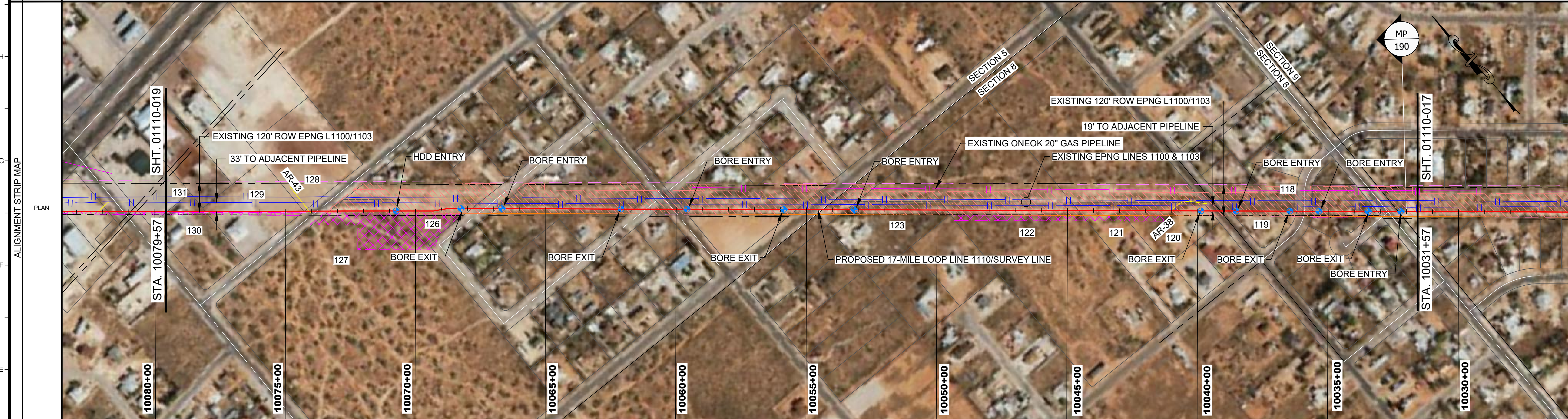
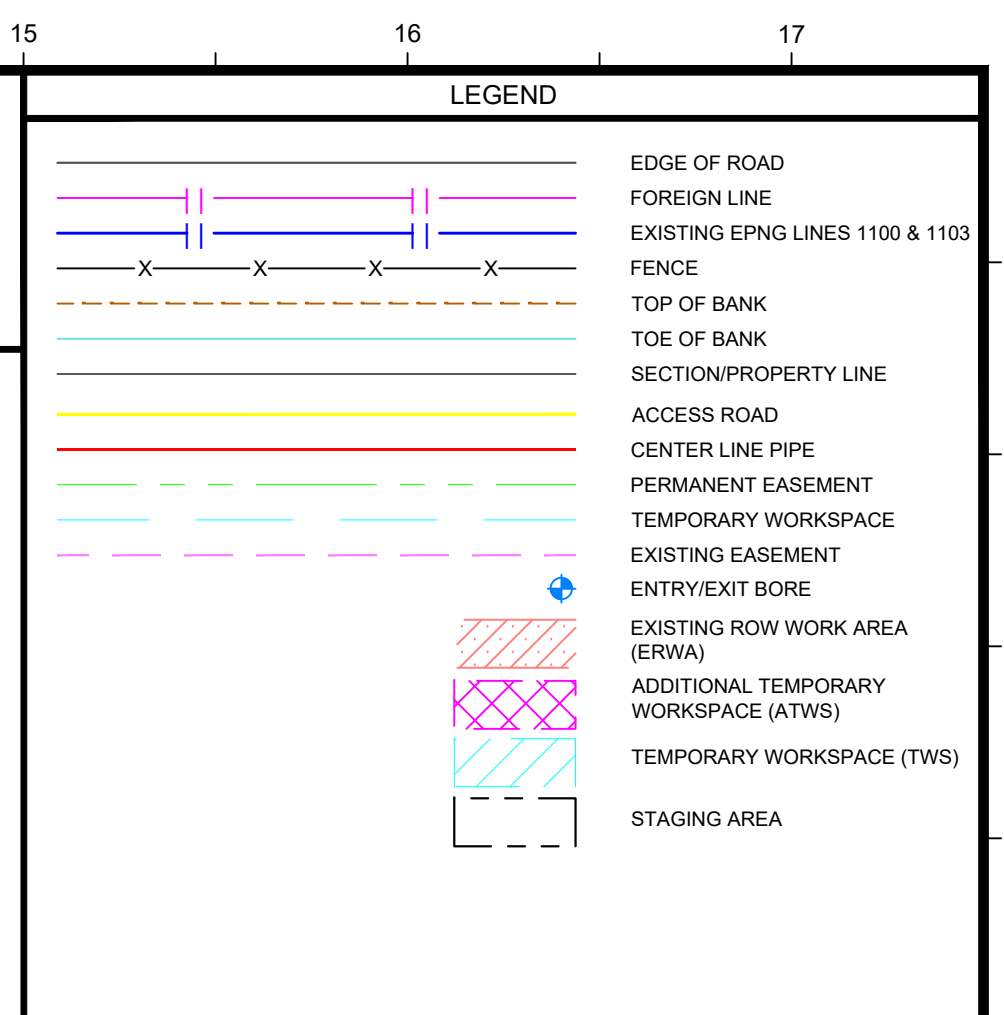
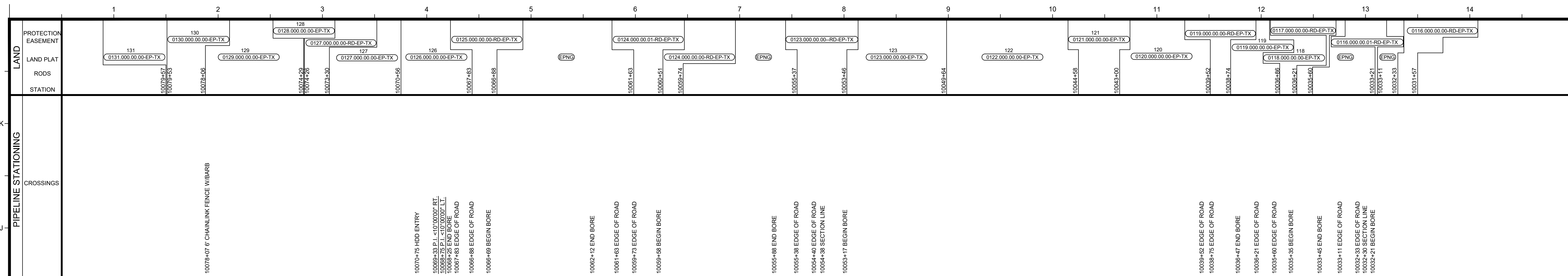
ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 92971+71 TO STA: 92923+71

**ISSUED FOR REVIEW**

State: TEXAS PIN No: 61311  
County: EL PASO Scale: 200'  
Category: ISSUED FOR REVIEW  
File Name: 61311 - ALIGNMENT SHEETS\_REV1  
Drawing No: SHT. 01110-017



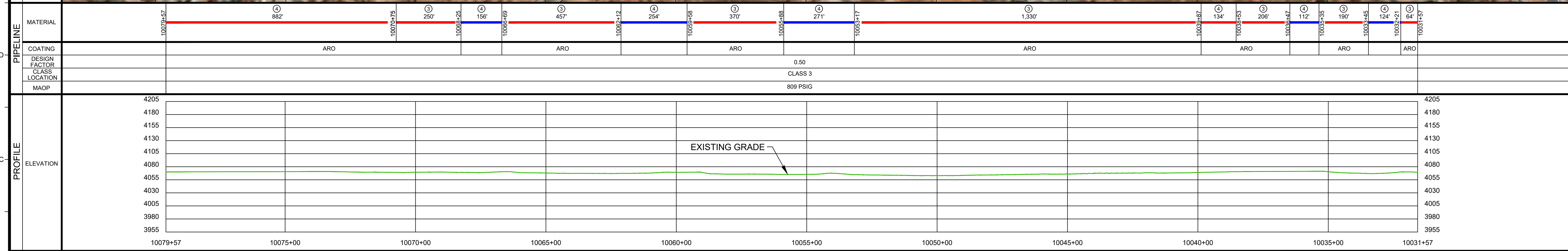


- GENERAL NOTES
- CONTRACTOR TO VERIFY DEPTHS OF COVER FOR ALL PIPELINE CROSSINGS PRIOR TO EXCAVATION. INDIVIDUAL TRACTS HAVE A MINIMUM OF 48" UNLESS OTHERWISE SPECIFIED.
  - 30" MINIMUM DEPTH IN NORMAL SOIL, 18" MINIMUM DEPTH IN CONSOLIDATED ROCK AND 6" MINIMUM DEPTH IN SAND DUNES. THE MINIMUM PIPELINE DEPTH OF COVER IS 72" IN SAND DUNE AREA.

OWNERSHIP TABLE

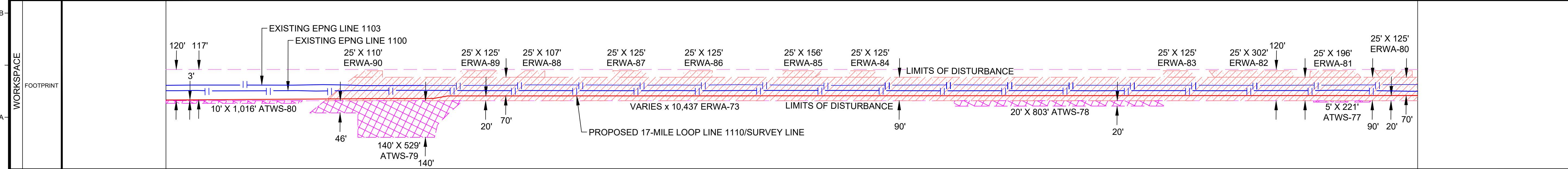
EL PASO NATURAL GAS CO. EASEMENT

0116.000.00.00-RD-EP-TX	MARK JASON DRIVE
0116.000.00.01-RD-EP-TX	GLEN COVE
0117.000.00.00-RD-EP-TX	EL PASO NATURAL GAS CO. EASEMENT
0118.000.00.00-EP-TX	BUFFALO BILL DRIVE
0119.000.00.00-EP-TX	SILVIA RENTERIA
0119.000.00.00-RD-EP-TX	JOSE N. MA. ELENA SANDATE
0120.000.00.00-EP-TX	DESERT MEADOWS
0121.000.00.00-EP-TX	ISMAEL & RAMONA REYES
0122.000.00.00-EP-TX	JOSE ANGEL ET AL
0123.000.00.00-EP-TX	CHRISTINA VARGAS
0123.000.00.00-EP-TX	JESUS & MARIA FELIX
0123.000.00.00-RD-EP-TX	MARVIN LANE
0124.000.00.00-RD-EP-TX	EL PASO NATURAL GAS CO. EASEMENT
0124.000.00.01-RD-EP-TX	UNKNOWN
0125.000.00.00-RD-EP-TX	SHELLY LANE
0126.000.00.00-RD-EP-TX	EL PASO NATURAL GAS CO. EASEMENT
0127.000.00.00-EP-TX	JULIE LANE
0127.000.00.00-EP-TX	JOSE R & MARGARITA YBARRA
0127.000.00.00-RD-EP-TX	KARL MAUTZ & WAYNE MAUTZ, JR.
0128.000.00.00-EP-TX	VAN LANE
0129.000.00.00-EP-TX	CATHOLIC PROPERTIES/ BLESSED JUAN DIEGO PARISH
0130.000.00.00-EP-TX	CATHOLIC PROPERTIES/ BLESSED JUAN DIEGO PARISH
0131.000.00.00-EP-TX	OSWALDO PAVIA
0131.000.00.00-EP-TX	SPANISH BAPTIST CHURCH
	MONTANA VISTA



PIPE SUMMARY

3	2,867' 30" O.D., 0.347" WT MIN, X70 MIN, ERW, 12-14MIL FBE
4	1,933' 30" O.D., 0.347" WT MIN, X70 MIN, ERW, 12-14MIL FBE, 30-40MIL ARO



SCALE & PROJECTION

SCALE: 1" = 200' HORIZONTAL  
1" = 100' VERTICAL

PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT  
AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017

Rev	Revision Description	Project ID	Date
I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

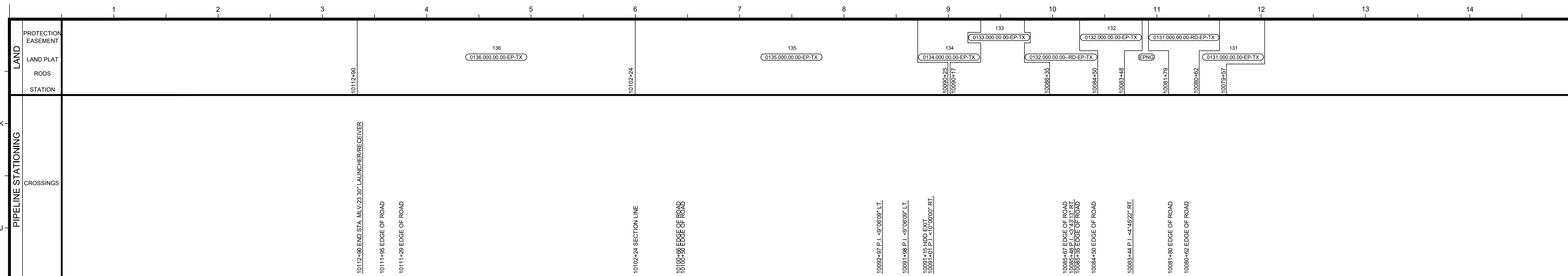
Notes:

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

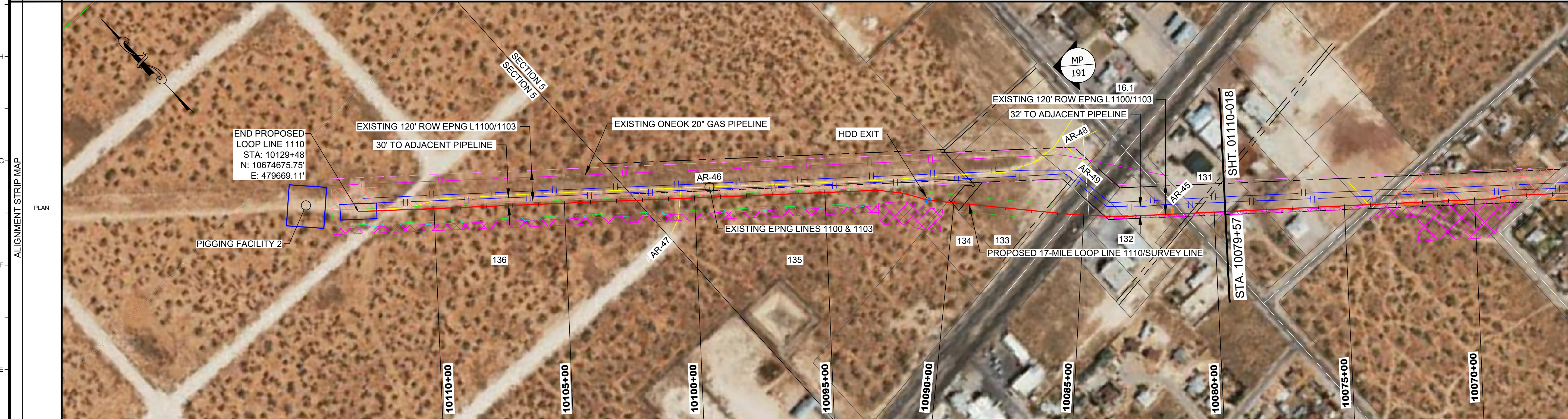
EPNG SOUTH MAINLINE EXPANSION PROJECT  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 10031+57 TO STA: 10079+57

Status: **ISSUED FOR REVIEW**

State:	TEXAS	PIN No:	61311
County:	EL PASO	Scale:	200'
Category:	ISSUED FOR REVIEW		
File Name:	61311 - ALIGNMENT SHEETS_REV1		
Drawing No:	SHT. 01110-018		



LEGEND	
	EDGE OF ROAD
	FOREIGN LINE
	EXISTING EPNG LINES 1100 & 1103
	FENCE
	TOP OF BANK
	TOE OF BANK
	SECTION/PROPERTY LINE
	ACCESS ROAD
	CENTER LINE PIPE
	PERMANENT EASEMENT
	TEMPORARY WORKSPACE
	EXISTING EASEMENT
	ENTRY/EXIT BORE
	EXISTING ROW WORK AREA (ERWA)
	ADDITIONAL TEMPORARY WORKSPACE (ATWS)
	TEMPORARY WORKSPACE (TWS)
	STAGING AREA

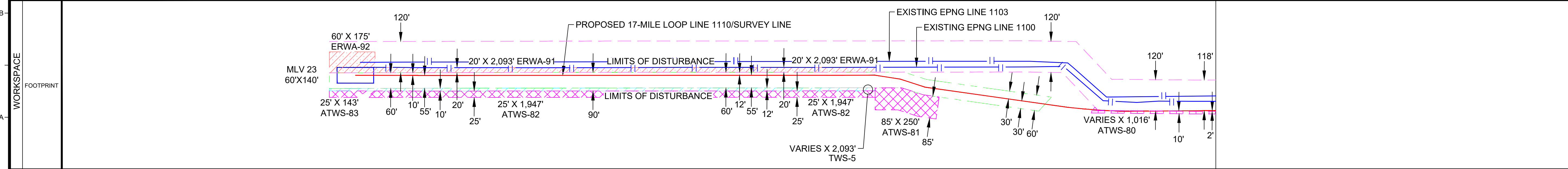
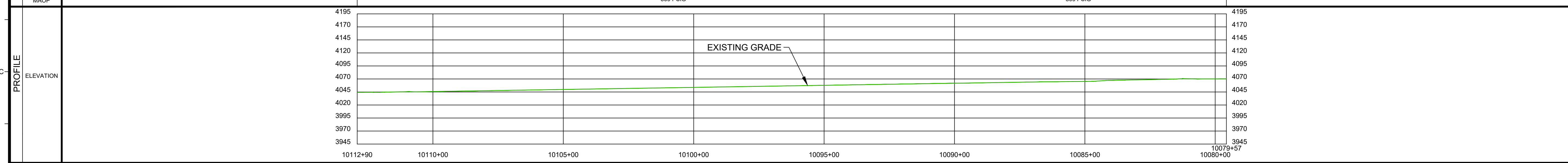


- GENERAL NOTES
- CONTRACTOR TO VERIFY DEPTHS OF COVER FOR ALL PIPELINE CROSSINGS PRIOR TO EXCAVATION.
  - INDIVIDUAL TRACTS HAVE A MINIMUM OF 48" UNLESS OTHERWISE SPECIFIED.
  - 30" MINIMUM DEPTH IN NORMAL SOIL, 18" MINIMUM DEPTH IN CONSOLIDATED ROCK AND 6" MINIMUM DEPTH IN SAND DUNE AREA.
  - THE MINIMUM PIPELINE DEPTH OF COVER IS 72" IN SAND DUNE AREA.

OWNERSHIP TABLE	
0131.000.00.00-EP-TX	SPANISH BAPTIST CHURCH MONTANA VISTA
0131.000.00.00-RD-EP-TX	KRAG STREET EL PASO NATURAL GAS CO. EASEMENT
0132.000.00.00-EP-TX	O'REILLY AUTO ENTERPRISES, LLC
0132.000.00.00-RD-EP-TX	MONTANA AVENUE/U.S. HWY. 61-180
0133.000.00.00-EP-TX	CAR-PASO PARTNERS, L.P.
0134.000.00.00-EP-TX	CAR PASO PARTNERS, L.P.
0135.000.00.00-EP-TX	FUEL DEPOT, L.L.C.
0136.000.00.00-EP-TX	ABDOLKARIM SAADATKHAH

PIPELINE	
MATERIAL	10112+90 to 10111+95: 2.026" 10111+95 to 10111+28: 2.026" 10111+28 to 10090+00: 2.026" 10090+00 to 10079+57: 1.144"
COATING	10111+95 to 10111+28: ARO 10111+28 to 10090+00: ARO 10090+00 to 10079+57: ARO
DESIGN FACTOR	0.72, 0.6, 0.72, 0.50
CLASS	CLASS 1, CLASS 3
LOCATION	809 PSIG, 809 PSIG
MAOP	809 PSIG, 809 PSIG

PIPE SUMMARY	
1	2.123' 30" O.D., 0.260" WT MIN, X65 MIN, ERW, 12-14MIL FBE
2	66' 30" O.D., 0.312" WT MIN, X65 MIN, ERW, 12-14MIL FBE
4	1.144' 30" O.D., 0.347" WT MIN, X70 MIN, ERW, 12-14MIL FBE, 30-40MIL ARO



SCALE & PROJECTION	
SCALE: 1" = 200' HORIZONTAL 1" = 100' VERTICAL	
PROJECTION: NAD 83 TEXAS STATE PLANE, CENTRAL ZONE, US FOOT AERIAL IMAGERY: 2017 MICROSOFT SURVEY: AUGUST 2017	

Revision	Revision Description	Project ID	Date
I	UPDATED SHEET NUMBERS	61311	06/22/18
H	ADD EXISTING EPNG LINES TO WORKSPACE	61311	04/16/18
G	UPDATED PER CLIENT COMMENTS	61311	04/09/18
F	REVISED FOOTPRINT	61311	03/31/18
E	REVISED EXISTING EASEMENT	61311	03/16/18

Notes:

**El Paso**  
Natural Gas Company  
a Kinder Morgan company

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

Reference Drawings

Facility Name

EPNG SOUTH MAINLINE EXPANSION PROJECT  
PROPOSED 17-MILE LOOP LINE 1110  
STA: 10079+57 TO STA: 10112+90

STATUS: ISSUED FOR REVIEW	
State: TEXAS	PIN No: 61311
County: EL PASO	Scale: 200'
Category: ISSUED FOR REVIEW	
File Name: 61311 - ALIGNMENT SHEETS_REV1	
Drawing No:	Rev
<b>SHT. 01110-019</b>	

EL PASO NATURAL GAS COMPANY, L.L.C.  
 Responses to Data Request – OEP/DG2E/Gas Branch 4  
 Dated June 8, 2018 in Docket No. CP18-332-000  
 South Mainline Expansion Project

6. Clarify the width and acreage of any new easement or temporary workspace that would be required along the south side of the existing easement between mileposts 189.2 and 191.5.

Response

Per Alignment Sheets 01110-017, 01110-018, 01110-019 and Table 8-3, there are no new easements proposed between mileposts 189.2 and 191.5. Temporary work space areas ATWS-76, ATWS-77, ATWS-78, ATWS-79, ATWS-80, ATWS 81 and ATWS are located in this same milepost section along the south side of the existing easement as shown on the above referenced alignment sheets and Table 8-3. The width of ATWS - 80 as shown in Table 8-3 should be changed from “22’ ” to “10” to be consistent with Alignment Sheet 01110-018 and 019. The calculated area in acres is correctly shown for each of the identified ATWS. EPNG has included a revised Table 8-3 below with the corrected width of ATWS-80 highlighted in yellow.

In the same manner, Section 1.3.4.1 states “From MP 189.2 to 191 within platted subdivisions, the proposed loop line would be constructed in existing EPNG ROW and would be located 20 feet south of the existing L1100.” This sentence should be modified as follows: “From MP 189.2 to 191.5 within platted subdivisions, the proposed loop line would be constructed in existing EPNG ROW *and temporary work space totaling 3.52 acres* and would be located 20 feet south of the existing L1100.” to be consistent with the information shown on the above referenced alignment sheets and Table 8-3.

**TABLE 8-3 17-MILE LOOP LINE ADDITIONAL TEMPORARY WORK SPACES, CONTRACTOR YARDS, AND LAYDOWN AREAS**

Facility ID	County, State	Milepost at Midpoint	Dimensions	Reason Needed	Area (Acres)	Existing Land Use
ATWS-1	Hudspeth, TEXAS	174.61	25' X 311'	WASH AREA	0.18	Shrub/Scrub
ATWS-2	Hudspeth, TEXAS	175.11	61' X 364'	PIPELINE CROSSING/PI WORK SPACE/WASH	0.51	Shrub/Scrub
ATWS-3	Hudspeth, TEXAS	176.22	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-4	Hudspeth, TEXAS	176.26	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-5	Hudspeth, TEXAS	176.99	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-6	Hudspeth, TEXAS	177.03	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-7	Hudspeth, TEXAS	177.35	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-8	Hudspeth, TEXAS	177.38	25' X 277'	ROAD CROSSING	0.16	Barren Land (Rocks/Sand/Clay)

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

Facility ID	County, State	Milepost at Midpoint	Dimensions	Reason Needed	Area (Acres)	Existing Land Use
ATWS-9	Hudspeth, TEXAS	177.62	25' X 307'	WASH AREA	0.18	Shrub/Scrub
ATWS-10	Hudspeth, TEXAS	177.77	25' X 110'	ROAD BORE/ACCESS ROW	0.07	Barren Land (Rocks/Sand/Clay)
ATWS-11	Hudspeth, TEXAS	177.80	25' X 140'	ROAD BORE/ACCESS ROW	0.08	Barren Land (Rocks/Sand/Clay)
ATWS-12	EL PASO, TEXAS	179.80	25' X 528'	ROAD BORE/ACCESS ROW/WASH	0.29	Barren Land (Rocks/Sand/Clay)
ATWS-13	EL PASO, TEXAS	179.88	25' X 125'	ROAD CROSSING	0.07	shrub/Scrub
ATWS-14	EL PASO, TEXAS	179.99	40' X 544'	PI'S/ROAD CROSSING	0.50	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-15	EL PASO, TEXAS	180.50	25' X 402'	WASH AREAS	0.23	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-16	EL PASO, TEXAS	180.74	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-17	EL PASO, TEXAS	180.76	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-18	EL PASO, TEXAS	181.03	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-19	EL PASO, TEXAS	181.06	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-20	EL PASO, TEXAS	181.33	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-21	EL PASO, TEXAS	181.35	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-22	EL PASO, TEXAS	181.53	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-23	EL PASO, TEXAS	181.55	25' X 281'	ROAD CROSSING	0.16	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-24	EL PASO, TEXAS	181.61	25' X 309'	ROAD CROSSING	0.18	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-25	EL PASO, TEXAS	181.67	25' X 327'	ROAD CROSSING	0.19	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-26	EL PASO, TEXAS	181.74	25' X 282'	ROAD CROSSING	0.16	Barren Land (Rocks/Sand/Clay), Shrub/Scrub

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
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Facility ID	County, State	Milepost at Midpoint	Dimensions	Reason Needed	Area (Acres)	Existing Land Use
ATWS-27	EL PASO, TEXAS	181.80	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-28	EL PASO, TEXAS	182.00	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-29	EL PASO, TEXAS	182.03	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-30	EL PASO, TEXAS	182.37	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-31	EL PASO, TEXAS	182.39	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-32	EL PASO, TEXAS	182.67	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-33	EL PASO, TEXAS	182.70	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-34	EL PASO, TEXAS	183.09	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-35	EL PASO, TEXAS	183.12	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-36	EL PASO, TEXAS	183.50	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-37	EL PASO, TEXAS	183.54	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-38	EL PASO, TEXAS	183.61	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-39	EL PASO, TEXAS	183.64	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-40	EL PASO, TEXAS	183.82	25' X 522'	WASH AREA	0.30	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-41	EL PASO, TEXAS	183.92	25' X 125'	ROAD CROSSING	0.08	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-42	EL PASO, TEXAS	183.95	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-43	EL PASO, TEXAS	184.23	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay),

EL PASO NATURAL GAS COMPANY, L.L.C.  
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Facility ID	County, State	Milepost at Midpoint	Dimensions	Reason Needed	Area (Acres)	Existing Land Use
						Shrub/Scrub
ATWS-44	EL PASO, TEXAS	184.26	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-45	EL PASO, TEXAS	184.34	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-46	EL PASO, TEXAS	184.37	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-47	EL PASO, TEXAS	184.75	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-48	EL PASO, TEXAS	184.78	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-49	EL PASO, TEXAS	184.86	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-50	EL PASO, TEXAS	184.88	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-51	EL PASO, TEXAS	185.02	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-52	EL PASO, TEXAS	185.05	25' X 125'	ROAD CROSSING	0.07	Grassland/Herbaceous
ATWS-53	EL PASO, TEXAS	185.24	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-54	EL PASO, TEXAS	185.27	25' X 272'	ROAD CROSSING	0.16	Shrub/Scrub, Grassland/Herbaceous
ATWS-55	EL PASO, TEXAS	185.32	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-56	EL PASO, TEXAS	185.49	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-57	EL PASO, TEXAS	185.51	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-58	EL PASO, TEXAS	185.79	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-59	EL PASO, TEXAS	185.92	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-60	EL PASO, TEXAS	186.02	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-61	EL PASO, TEXAS	186.04	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-62	EL PASO, TEXAS	186.29	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-63	EL PASO, TEXAS	186.31	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-64	EL PASO, TEXAS	186.38	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-65	EL PASO, TEXAS	186.40	25' X 59'	ROAD CROSSING	0.03	Shrub/Scrub
ATWS-66	EL PASO, TEXAS	186.42	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-67	EL PASO, TEXAS	186.75	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub

EL PASO NATURAL GAS COMPANY, L.L.C.  
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South Mainline Expansion Project

Facility ID	County, State	Milepost at Midpoint	Dimensions	Reason Needed	Area (Acres)	Existing Land Use
ATWS-68	EL PASO, TEXAS	186.78	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-69	EL PASO, TEXAS	186.86	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-70	EL PASO, TEXAS	186.88	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-71	EL PASO, TEXAS	187.06	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-72	EL PASO, TEXAS	187.09	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-73	EL PASO, TEXAS	187.32	25' X 236	PIPELINE CROSSINGS	0.14	Shrub/Scrub, Grassland/Herbaceous
ATWS-74	EL PASO, TEXAS	188.06	25' X 125'	ROAD BORE/ACCESS ROW	0.07	Shrub/Scrub
ATWS-75	EL PASO, TEXAS	188.57	134' X 3,630'	EXTRA SPACE FOR SAND DUNE AREA	7.22	Shrub/Scrub
ATWS-76	EL PASO, TEXAS	189.49	20' X 115'	ROAD BORE/ACCESS ROW	0.05	Shrub/Scrub
ATWS-77	EL PASO, TEXAS	190.02	5' X 221'	TEMPORARY WORKSPACE/SPOIL DIRT	0.03	Shrub/Scrub
ATWS-78	EL PASO, TEXAS	190.25	20' X 803'	TEMPORARY WORKSPACE/SPOIL DIRT	0.38	Developed (Low Intensity), Developed (Open Space), Shrub/Scrub
ATWS-79	EL PASO, TEXAS	190.73	140' X 529'	ROAD BORE/ACCESS ROW	1.24	Developed (Open Space), Shrub/Scrub
ATWS-80	EL PASO, TEXAS	190.89	10' X 1016'	ROAD BORE/ACCESS ROW	0.24	Shrub/Scrub
ATWS-81	EL PASO, TEXAS	191.11	85' X 250'	HDD BORE PIT AREA	0.48	Shrub/Scrub, Grassland/Herbaceous
ATWS-82	EL PASO, TEXAS	191.32	25' X 1947'	HDD PULL BACK	1.10	Barren Land (Rocks/Sand/Clay), Shrub/Scrub, Grassland/Herbaceous
ATWS-83	EL PASO, TEXAS	191.52	25' X 143'	ROAD CROSSING/ACCESS ROW	0.08	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
Contractor/Pipe Yard 1	El Paso, TX	N/A	344' x 520'	Pipe Storage Area	4.10	Developed (Open Space), Developed (Low Intensity), Barren Land (Rock/Sand/Clay), Shrub/Scrub, Grassland/Herbaceous
Contractor/Pipe Yard 2	El Paso, TX	N/A	345' x 644'	Pipe Storage Area	5.16	Shrub/Scrub
Contractor/Pipe Yard 3	El Paso, TX	N/A	317' x 693'	Pipe Storage Area	5.05	Shrub/Scrub, Grassland/Herbaceous
Contractor Yard/Pipe 4	El Paso, TX	N/A	315' x 639'	Pipe Storage Area	5.00	Shrub/Scrub, Grassland/Herbaceous

EL PASO NATURAL GAS COMPANY, L.L.C.  
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Facility ID	County, State	Milepost at Midpoint	Dimensions	Reason Needed	Area (Acres)	Existing Land Use
Contractor Yard 5	El Paso, TX	N/A	344' x 677'	Pipe Storage Area	5.34	Developed (Open Space), Developed (Low Intensity), Developed (Medium Intensity), Developed (High Intensity)
Staging Area 1	Hudspeth, TX	174.54	498' x 534'	Staging Area	6.10	Shrub/Scrub
Staging Area 2	El Paso, TX	187.95	424' x 857'	Staging Area	7.36	Shrub/Scrub, Grassland/Herbaceous

Response prepared by or under the supervision of:

Vickie Gibson  
Kinder Morgan  
Project Manager  
719-520-4205



EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
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7. Describe how the pipeline right-of-way would be maintained following completion of restoration including normal vegetation management frequency and average width of the maintained right-of-way.

Response:

Based on the location of the project within the shrub-dominated Chihuahuah Desert and directly adjacent to an existing pipeline right-of-way, EPNG does not anticipate the need to conduct regularly scheduled vegetation removal, pruning, or mowing of the permanent 60-foot wide loop line ROW. Typical seed mixes used in this part of the southwest contain mainly grasses and forbs and are designed to achieve rapid ground cover to stabilize soils and reduce erosion from wind and water. ROW vegetation management in the arid southwest is generally conducted to remove deep-rooted plants that could provide a pathway for moisture or otherwise cause degradation of pipe coating. Therefore, it is unlikely that active management of vegetation post-construction would be necessary beyond that requested by landowners. The average width of the maintained ROW for the proposed loop line will be 60-feet wide.

Response prepared by or under the supervision of:

Mike Bonar  
EPNG Environmental Project Manager  
719-520-4817

EL PASO NATURAL GAS COMPANY, L.L.C.  
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**Residences**

8. For the EPNG-estimated 33 residences or buildings located within 50 feet of the construction work area please answer the following questions or provide the requested information.
- a. Would EPNG leave mature trees and landscaping within the edge of the construction work area, unless necessary for safe operation of construction equipment?
  - b. Would EPNG restore all lawn areas and landscaping within the construction work area consistent with the requirements of our Upland Erosion Control, Revegetation, and Maintenance Plan immediately after backfilling the trench?
  - c. Would EPNG fence the edge of the construction work area adjacent to the residence for a distance of 100 feet on either side of the residence to restrict public access to and ensure that construction equipment and materials, including the spoil pile, remain within the construction work area?
  - d. What work hours would construction be limited to in residential areas?
  - e. Would EPNG try to maintain a minimum distance of 25 feet between the residence and the edge of the construction work area?
  - f. For each residence closer than 25 feet to the construction work area (estimated by EPNG to be 16), provide;
    - (1) a description of construction techniques to be used (such as reduced pipeline separation, centerline adjustment, use of stove-pipe or drag-section techniques, working over existing pipelines, pipeline crossover, bore, etc.);
    - (2) revised appendix 8A dimensioned site plans for each structure that show the location of construction safety fencing per Plan section III.H;
    - (3) a description of how EPNG will ensure that the trench is not excavated until the pipe is ready for installation and that the trench is backfilled immediately after pipe installation;
    - (4) a commitment to consult with and/or obtain concurrence of landowners regarding the site-specific residential construction plan where the construction work area and fencing will be located within 10 feet of a residence; and
    - (5) a description of how EPNG would notify landowners of construction activities, provide access to residences during construction activities, maintain traffic flow, reduce hazard of open ditches when construction activities are not in progress, and minimize noise and fugitive dust from construction activities.

EL PASO NATURAL GAS COMPANY, L.L.C.  
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Response:

- a. Yes, EPNG would leave mature trees and landscaping within the edge of the construction work area, unless necessary for safe operation of construction equipment. Based on pedestrian surveys of the area, EPNG notes that there are native grasses in the existing pipeline corridor located within the residential area and no mature trees or landscaping.
- b. Yes, EPNG would restore all lawn areas and landscaping within the construction work area to preconstruction conditions consistent with the requirements of our Upland Erosion Control, Revegetation, and Maintenance Plan as soon as reasonably practical after all of the trenches in the residential subdivision have been backfilled. If seasonal or other weather conditions delay restoration, EPNG will maintain and monitor temporary erosion controls including sediment barriers and mulch until conditions allow completion of restoration.
- c. In the absence of existing minimum of 4 feet high walls and fences that are present along the boundary between the residences and the construction work areas, EPNG will fence the edge of the construction work area adjacent to any residences for a distance of 100 feet on either side of the residence in order to restrict public access and ensure that construction equipment and materials, including the spoil pile, remain within the construction work area.
- d. Construction work hours would be limited to daylight hours which are typically considered to be 7:00 am to 7:00 pm Monday-Saturday in residential areas except for hydrotesting activities or unanticipated special conditions that might occur during construction.
- e. Where feasible, EPNG will try to maintain a minimum distance of 25 feet between the residence and the edge of the construction work area, but there are 16 identified residences or structures that are closer than 25 feet to the construction boundaries as shown in Appendix 8A. As described below, EPNG would employ additional techniques for these situations.
- f. EPNG notes there are 13 residences shown on Drawing Nos. 1-13 in Appendix 8a.
  - (1) A description of the construction techniques are as follows: As shown in Appendix 1.E Preliminary Typical within Homestead Meadows, the proposed loop pipeline is located within the existing EPNG 120-foot ROW for the two existing pipelines. The separation between the proposed Line No. 1110 and the existing line 1100 is reduced to 20 feet and ditch spoil and topsoil would be placed over the existing pipelines.

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The contractor may choose to weld the pipeline on the spoil side as well because of the limited space on the working side. It is anticipated that the contractor will weld each pipe section before excavating the trench section. EPNG also expects that the contractor will choose to drag or a variation of drag and carry the pipe into the excavated area rather than undertake a stove pipe installation.

- (2) Revised Appendix 8A dimensioned site plans for each structure that show the location of construction safety fencing per Plan section III.H have been prepared as requested and are provided behind this response.
- (3) EPNG will specify in the construction documents that the trench will not be excavated until the pipe is ready for installation and the trench can be backfilled the same day. EPNG's constructor inspector will be responsible to ensure that the contractor does not excavate ahead of the pipe sections being welded together.
- (4) EPNG commits to consult with and/or obtain concurrence of landowners regarding the site-specific residential construction plan where the construction work area and fencing will be located within 10 feet of a residence; and
- (5) EPNG would notify landowners of construction activities via mail no less than 30 days prior to construction commencement. Additionally, EPNG will have a Land Agent on site during all construction activities that residents can contact during construction to address any concerns or issues. The Land Agent will work with the residents to resolve any concerns and issues that may arise.

EPNG will provide access to residences during construction activities by boring paved roads and only open cutting roads that El Paso County agrees do not provide sole access to a residence. EPNG will maintain traffic flow and will work with El Paso County to prepare and implement any traffic plans that may be needed.

EPNG will minimize the hazards of open trenches in residential areas when construction activities are not in progress by minimizing the time that a trench is open and minimizing the extent of the open trenches in the residential area. Any required open holes such as bell holes for tie ins, etc will be fenced with safety fencing. In addition, EPNG will have signage in both English and Spanish at the boundaries of the work site warning "Construction Area", "Unauthorized Persons- KEEP OUT".

EL PASO NATURAL GAS COMPANY, L.L.C.  
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Furthermore, EPNG will minimize noise impacts to residents by restricting work operations to daylight hours on Monday through Saturday. In addition, the residential area construction is considered a mini-spread and the contractor will have less pieces of equipment operating in this area.

EPNG will minimize fugitive dust from construction activities by using water trucks for dust suppression as more fully described in the response to Request No. 22.

Response prepared by or under the supervision of:

Vickie Gibson  
Kinder Morgan  
Project Manager  
719-520-4205

# 8A Diagrams of Residences and Buildings within 25 Feet of Construction Workspace

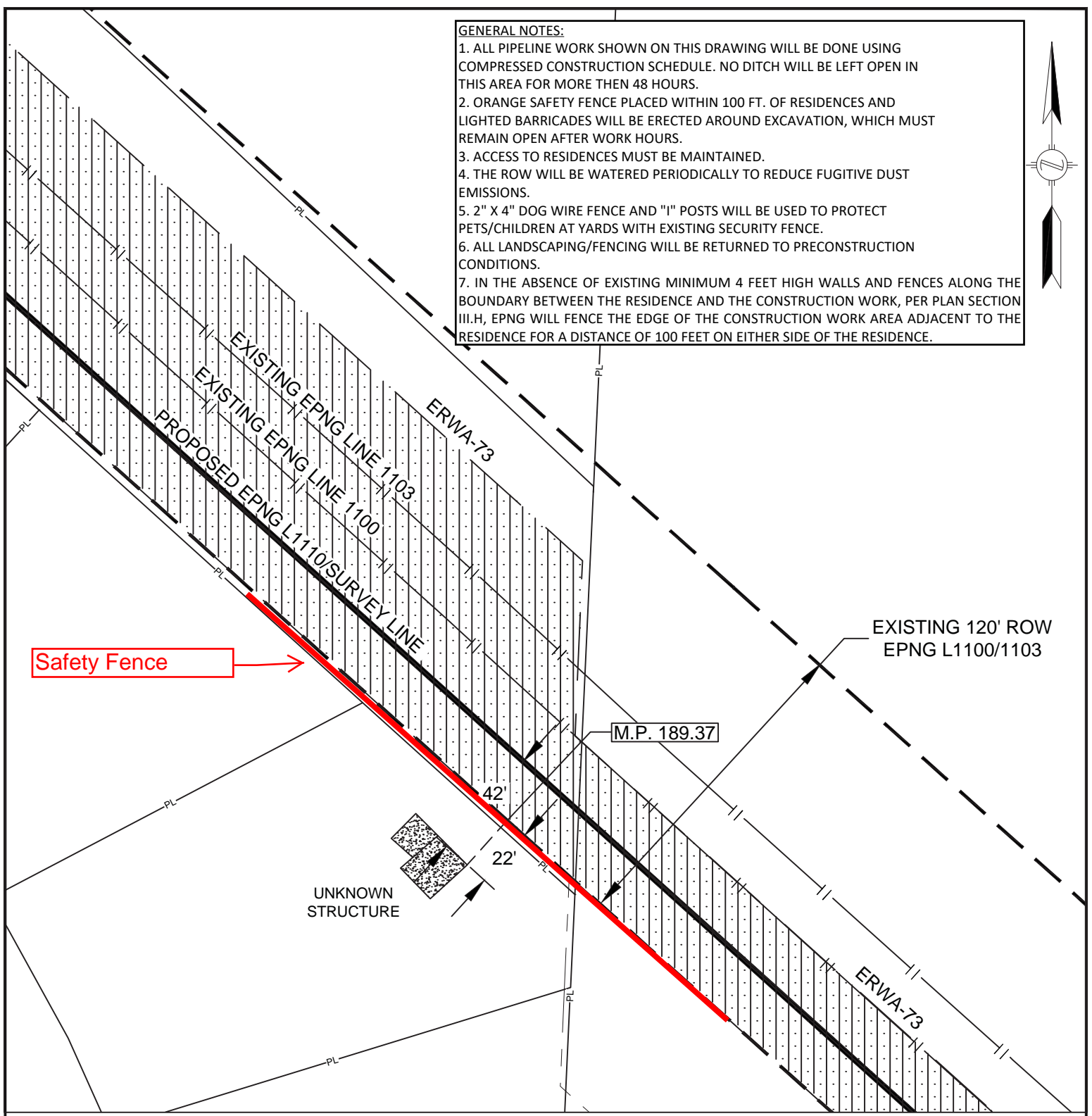
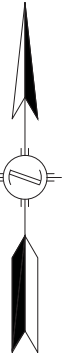
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The contents of this appendix include:

- 16 Drawing exhibits illustrating the location of the Project facilities in relation to residences and buildings within 25 feet of the Project workspace

**GENERAL NOTES:**

1. ALL PIPELINE WORK SHOWN ON THIS DRAWING WILL BE DONE USING COMPRESSED CONSTRUCTION SCHEDULE. NO DITCH WILL BE LEFT OPEN IN THIS AREA FOR MORE THEN 48 HOURS.
2. ORANGE SAFETY FENCE PLACED WITHIN 100 FT. OF RESIDENCES AND LIGHTED BARRICADES WILL BE ERECTED AROUND EXCAVATION, WHICH MUST REMAIN OPEN AFTER WORK HOURS.
3. ACCESS TO RESIDENCES MUST BE MAINTAINED.
4. THE ROW WILL BE WATERED PERIODICALLY TO REDUCE FUGITIVE DUST EMISSIONS.
5. 2" X 4" DOG WIRE FENCE AND "I" POSTS WILL BE USED TO PROTECT PETS/CHILDREN AT YARDS WITH EXISTING SECURITY FENCE.
6. ALL LANDSCAPING/FENCING WILL BE RETURNED TO PRECONSTRUCTION CONDITIONS.
7. IN THE ABSENCE OF EXISTING MINIMUM 4 FEET HIGH WALLS AND FENCES ALONG THE BOUNDARY BETWEEN THE RESIDENCE AND THE CONSTRUCTION WORK, PER PLAN SECTION III.H, EPNG WILL FENCE THE EDGE OF THE CONSTRUCTION WORK AREA ADJACENT TO THE RESIDENCE FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE.

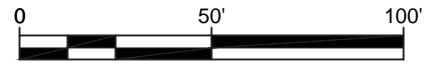


Safety Fence

EXISTING 120' ROW  
EPNG L1100/1103

M.P. 189.37

UNKNOWN  
STRUCTURE



**LEGEND**

- ADDITIONAL TEMPORARY WORKSPACE
- EXISTING R.O.W. WORK AREA

C	REVISED PER CLIENT COMMENTS	61311	04/16/18
	Revision Description	Project ID	Date
:Reference Drawings			
:Facility Name			

ENCOMPASS ENERGY SERVICES  
 350 INTERLOCKEN BLVD.  
 SUITE 350  
 BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**

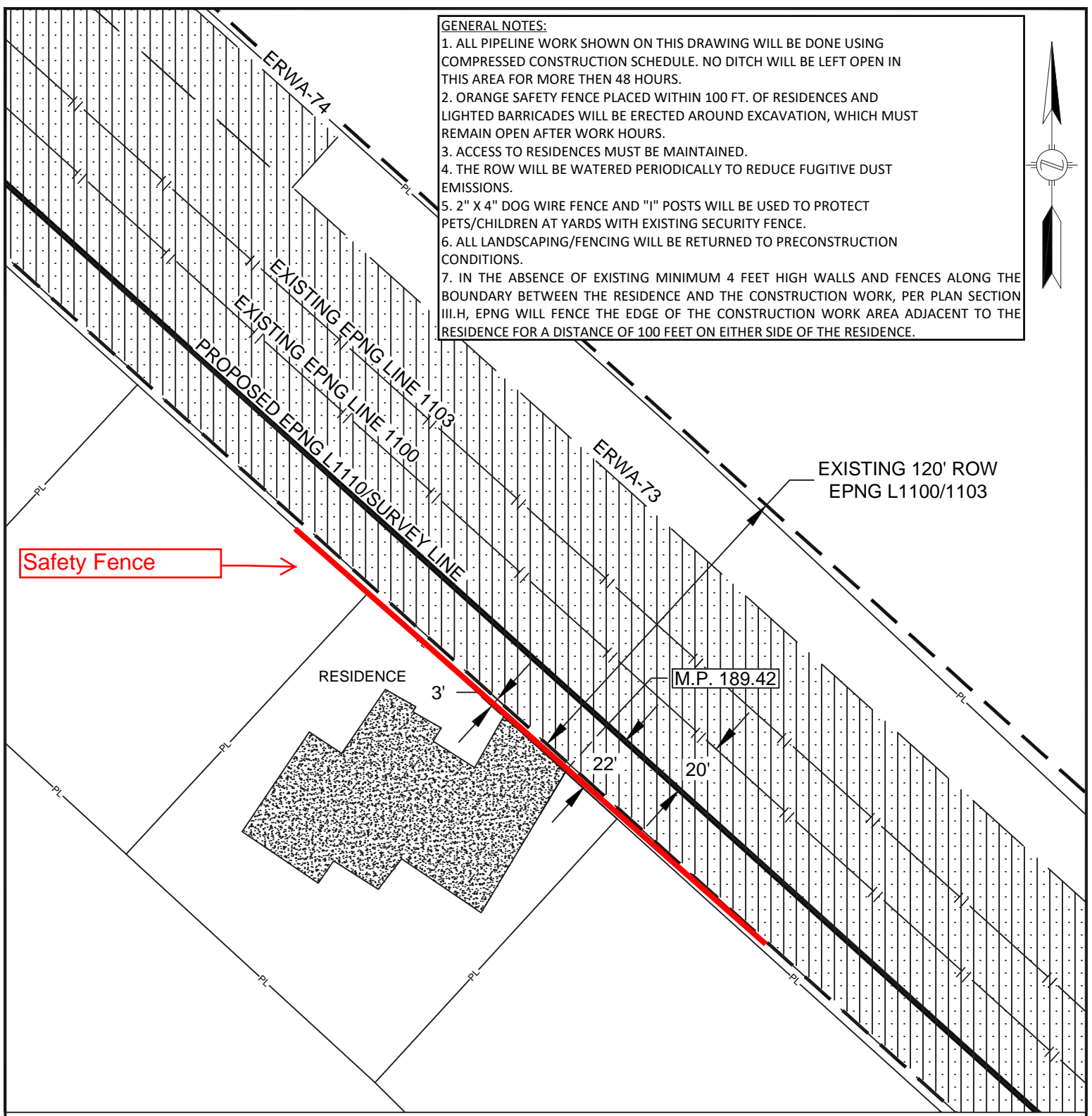
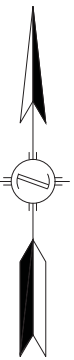
PROPOSED EPNG L1110/SURVEY LINE  
RESIDENTIAL CONSTRUCTION DETAIL

EL PASO COUNTY, TEXAS  
M.P. 189.37

Status:	
State: TX	PIN No:
County: EL PASO	Scale: 1"=50'
Category:	
File Name: 61311-RES-REVH	
Drawing No:	Rev
1 OF 16	C

**GENERAL NOTES:**

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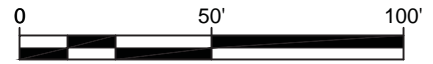
Safety Fence →

EXISTING 120' ROW  
EPNG L1100/1103

M.P. 189.42

**LEGEND**

- ADDITIONAL TEMPORARY WORKSPACE
- EXISTING R.O.W. WORK AREA



H	REVISED PER CLIENT COMMENTS	61311	04/16/18
	Revision Description	Project ID	Date
		:Reference Drawings	
		:Facility Name	

ENCOMPASS ENERGY SERVICES  
 350 INTERLOCKEN BLVD.  
 SUITE 350  
 BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**

PROPOSED EPNG L1100/SURVEY LINE  
RESIDENTIAL CONSTRUCTION DETAIL

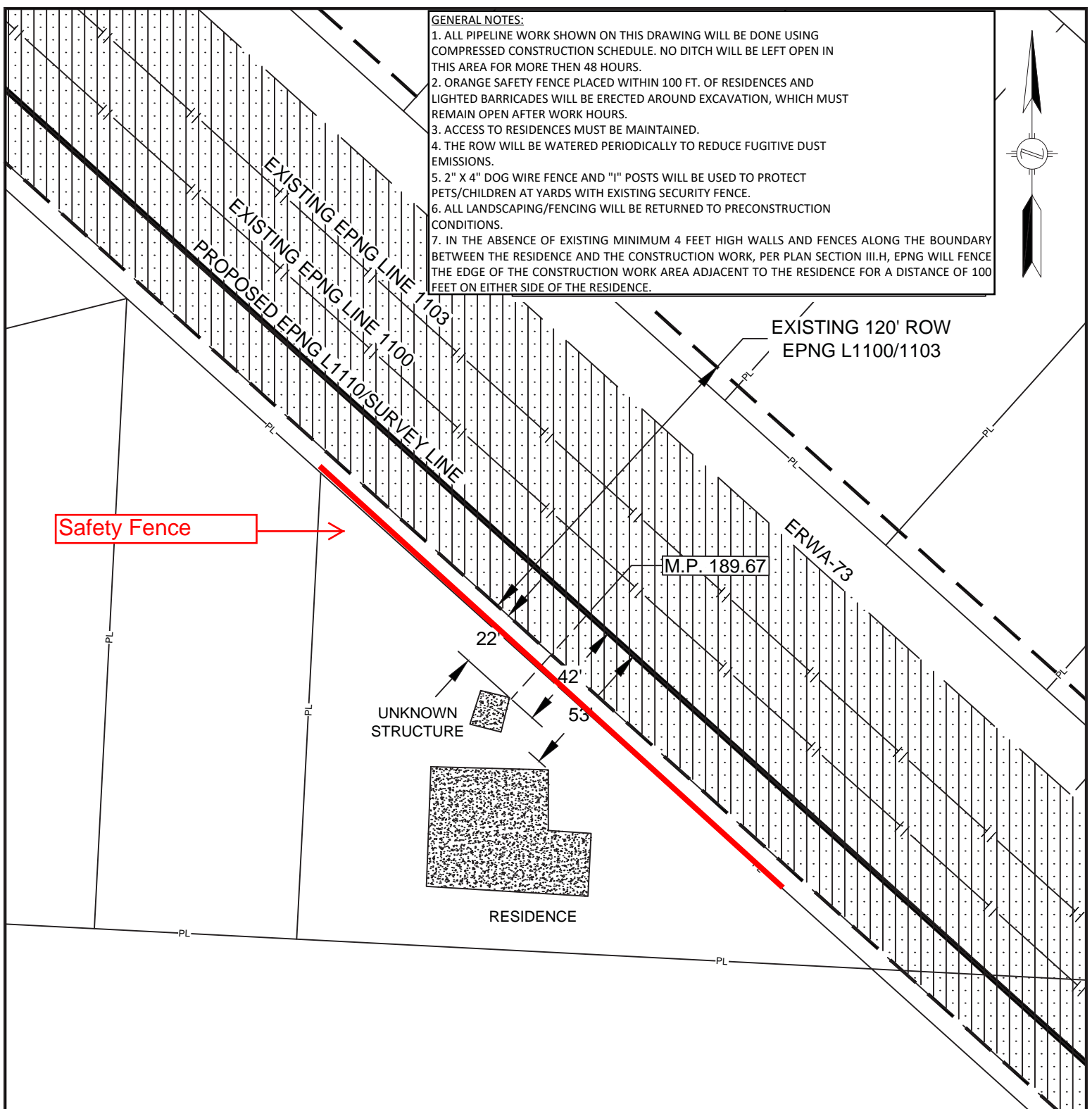
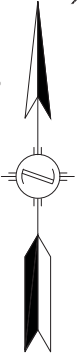
EL PASO COUNTY, TEXAS  
M.P. 189.42

Status:	
State: TX	PIN No:
County: EL PASO	Scale: 1"=50'
Category:	
File Name: 61311-RES-REVH	
Drawing No:	Rev
2 OF 16	H



**GENERAL NOTES:**

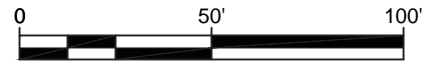
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Safety Fence →

**LEGEND**

- ADDITIONAL TEMPORARY WORKSPACE
- EXISTING R.O.W. WORK AREA



H	REVISED PER CLIENT COMMENTS	61311	04/16/18
	Revision Description	Project ID	Date
		:Reference Drawings	
		:Facility Name	

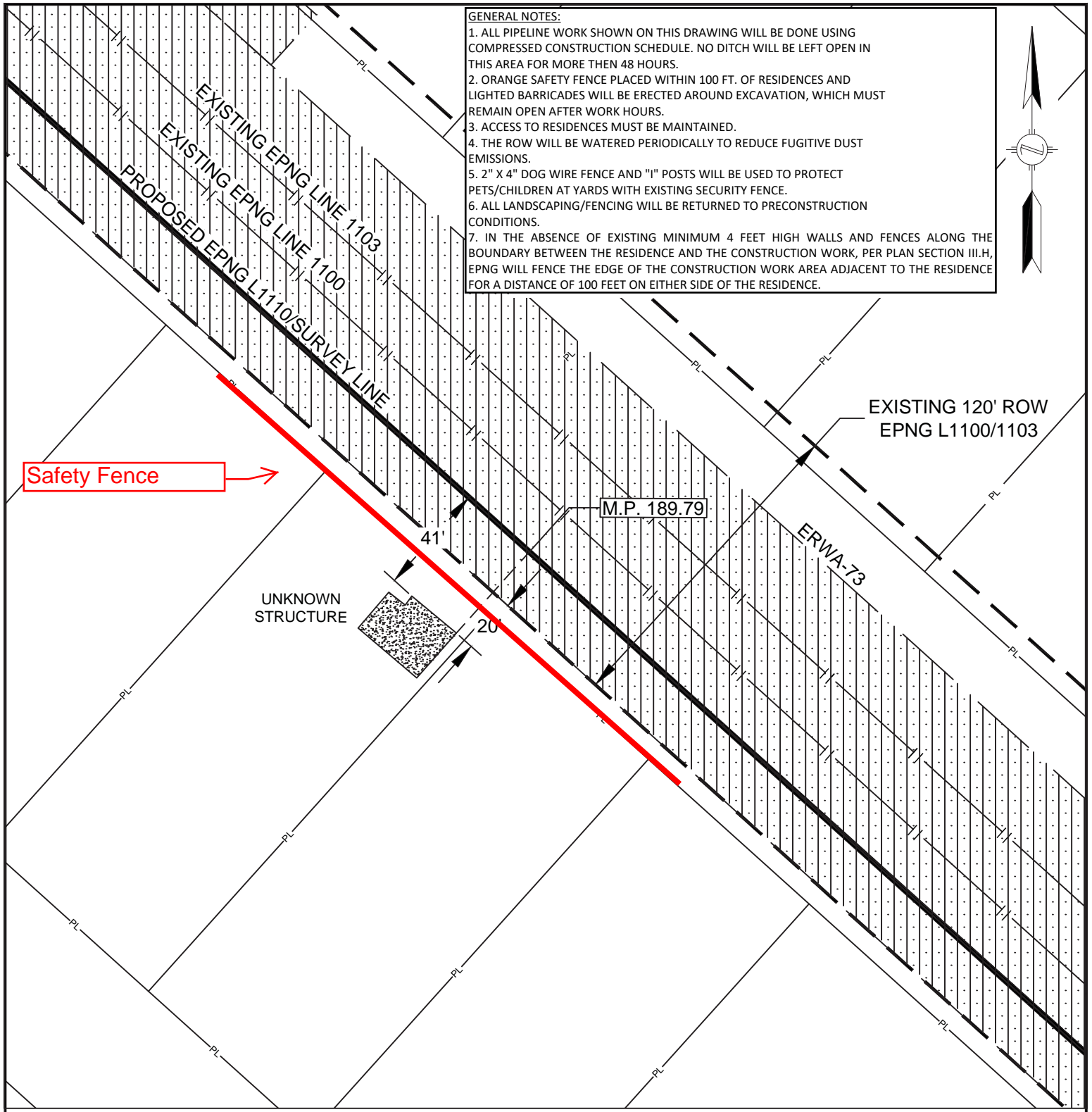
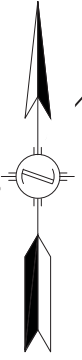


ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

<b>EPNG SOUTH MAINLINE EXPANSION PROJECT</b>		Status:	
PROPOSED EPNG L1110/SURVEY LINE RESIDENTIAL CONSTRUCTION DETAIL		State: TX	PIN No:
EL PASO COUNTY, TEXAS		County: EL PASO	Scale: 1"=50'
M.P. 189.67		Category:	File Name: 61311-RES-REVH
		Drawing No:	Rev H
		3 OF 16	

**GENERAL NOTES:**

1. ALL PIPELINE WORK SHOWN ON THIS DRAWING WILL BE DONE USING COMPRESSED CONSTRUCTION SCHEDULE. NO DITCH WILL BE LEFT OPEN IN THIS AREA FOR MORE THEN 48 HOURS.
2. ORANGE SAFETY FENCE PLACED WITHIN 100 FT. OF RESIDENCES AND LIGHTED BARRICADES WILL BE ERCTED AROUND EXCAVATION, WHICH MUST REMAIN OPEN AFTER WORK HOURS.
3. ACCESS TO RESIDENCES MUST BE MAINTAINED.
4. THE ROW WILL BE WATERED PERIODICALLY TO REDUCE FUGITIVE DUST EMISSIONS.
5. 2" X 4" DOG WIRE FENCE AND "I" POSTS WILL BE USED TO PROTECT PETS/CHILDREN AT YARDS WITH EXISTING SECURITY FENCE.
6. ALL LANDSCAPING/FENCING WILL BE RETURNED TO PRECONSTRUCTION CONDITIONS.
7. IN THE ABSENCE OF EXISTING MINIMUM 4 FEET HIGH WALLS AND FENCES ALONG THE BOUNDARY BETWEEN THE RESIDENCE AND THE CONSTRUCTION WORK, PER PLAN SECTION III.H, EPNG WILL FENCE THE EDGE OF THE CONSTRUCTION WORK AREA ADJACENT TO THE RESIDENCE FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE.



Safety Fence



UNKNOWN STRUCTURE

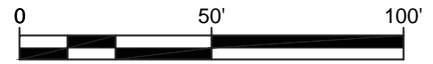
M.P. 189.79


EXISTING 120' ROW  
EPNG L1100/1103

ERWA-73

**LEGEND**

-  ADDITIONAL TEMPORARY WORKSPACE
-  EXISTING R.O.W. WORK AREA



H	REVISED PER CLIENT COMMENTS	61311	04/16/18
	Revision Description	Project ID	Date
		:Reference Drawings	
		:Facility Name	



**encompass**  
ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**

PROPOSED EPNG L1110/SURVEY LINE  
RESIDENTIAL CONSTRUCTION DETAIL

EL PASO COUNTY, TEXAS  
M.P. 189.79

Status:

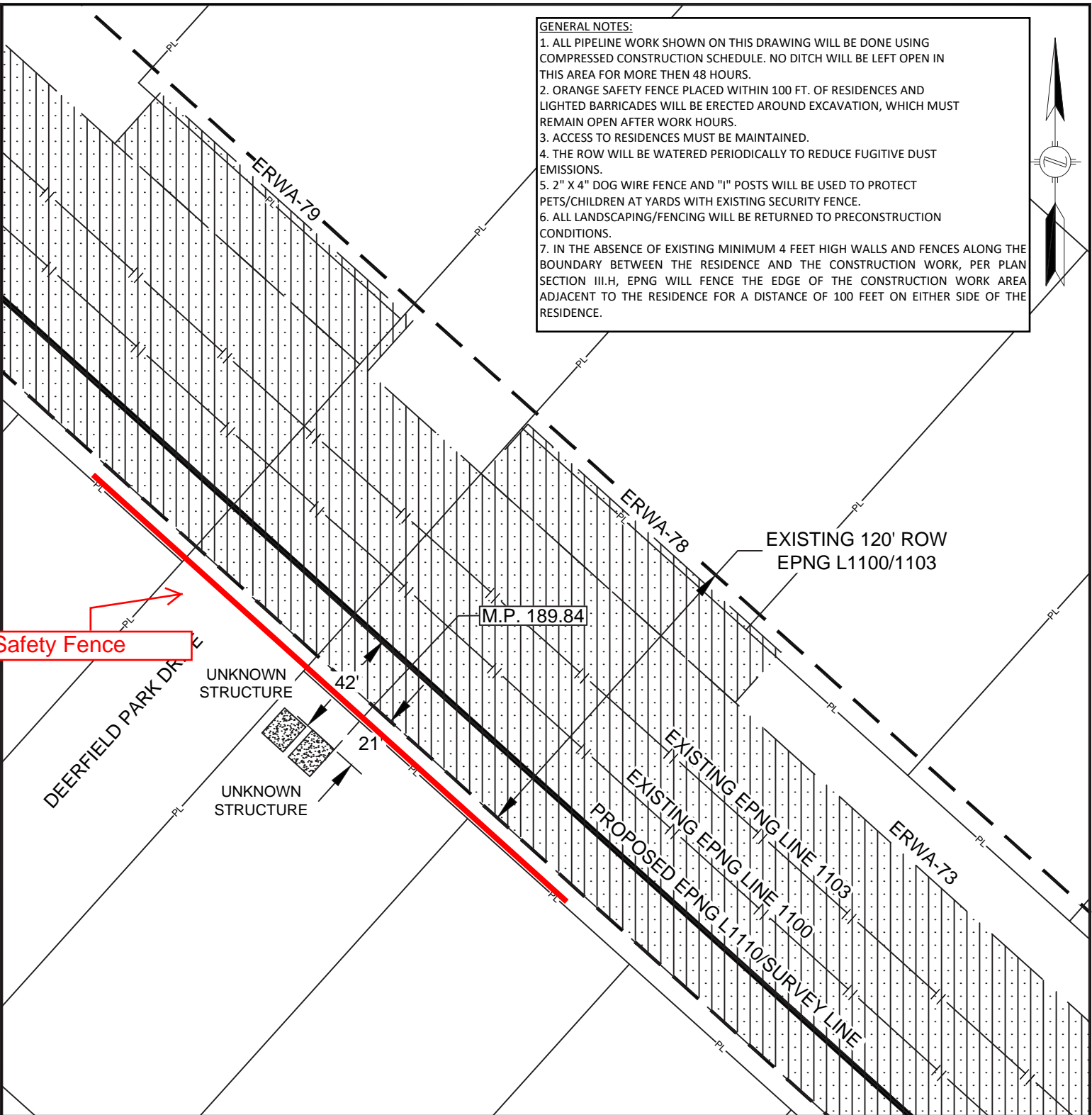
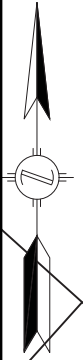
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County: EL PASO	Scale: 1"=50'
Category:	
File Name: 61311-RES-REVH	
Drawing No:	

4 OF 16

Rev H

**GENERAL NOTES:**

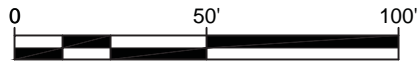
1. ALL PIPELINE WORK SHOWN ON THIS DRAWING WILL BE DONE USING COMPRESSED CONSTRUCTION SCHEDULE. NO DITCH WILL BE LEFT OPEN IN THIS AREA FOR MORE THEN 48 HOURS.
2. ORANGE SAFETY FENCE PLACED WITHIN 100 FT. OF RESIDENCES AND LIGHTED BARRICADES WILL BE ERECTED AROUND EXCAVATION, WHICH MUST REMAIN OPEN AFTER WORK HOURS.
3. ACCESS TO RESIDENCES MUST BE MAINTAINED.
4. THE ROW WILL BE WATERED PERIODICALLY TO REDUCE FUGITIVE DUST EMISSIONS.
5. 2" X 4" DOG WIRE FENCE AND "I" POSTS WILL BE USED TO PROTECT PETS/CHILDREN AT YARDS WITH EXISTING SECURITY FENCE.
6. ALL LANDSCAPING/FENCING WILL BE RETURNED TO PRECONSTRUCTION CONDITIONS.
7. IN THE ABSENCE OF EXISTING MINIMUM 4 FEET HIGH WALLS AND FENCES ALONG THE BOUNDARY BETWEEN THE RESIDENCE AND THE CONSTRUCTION WORK, PER PLAN SECTION III.H, EPNG WILL FENCE THE EDGE OF THE CONSTRUCTION WORK AREA ADJACENT TO THE RESIDENCE FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE.



Safety Fence

**LEGEND**

- ADDITIONAL TEMPORARY WORKSPACE
- EXISTING R.O.W. WORK AREA



C	REVISED PER CLIENT COMMENTS	61311	04/16/18
	Revision Description	Project ID	Date
		:Reference Drawings	
		:Facility Name	

**KINDER MORGAN**

**encompass**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**

PROPOSED EPNG L1110/SURVEY LINE  
RESIDENTIAL CONSTRUCTION DETAIL

EL PASO COUNTY, TEXAS

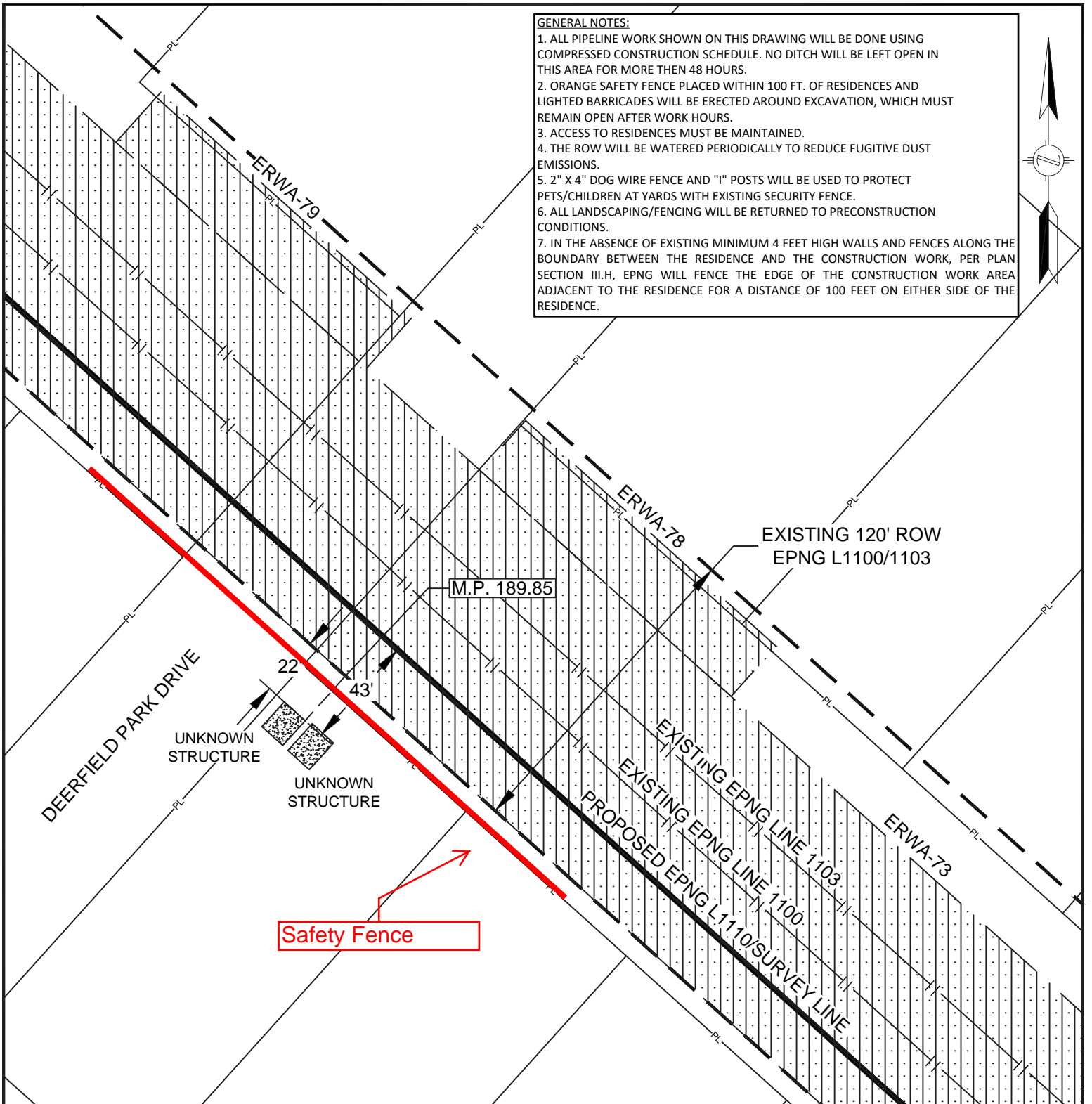
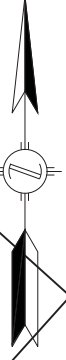
M.P. 189.84

Status:

State:	TX	PIN No:	
County:	EL PASO	Scale:	1"=50'
Category:			
File Name:	61311-RES-REVH		
Drawing No:	5 OF 16		Rev C

**GENERAL NOTES:**

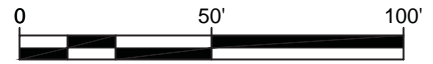
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Safety Fence

**LEGEND**

- ADDITIONAL TEMPORARY WORKSPACE
- EXISTING R.O.W. WORK AREA



C	REVISED PER CLIENT COMMENTS	61311	04/16/18
	Revision Description	Project ID	Date
		:Reference Drawings	
		:Facility Name	



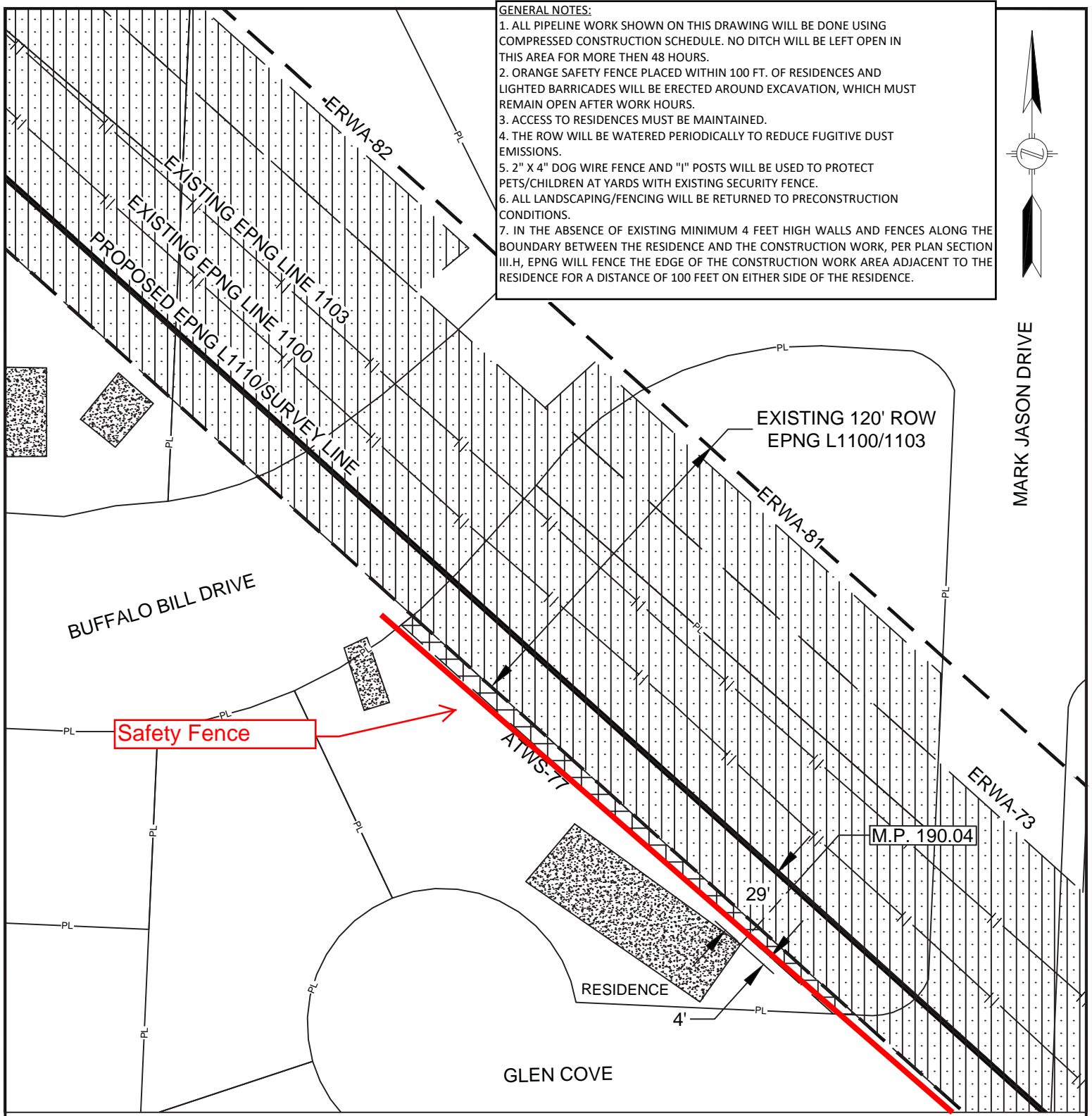
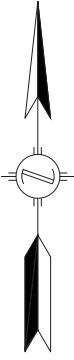
ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**  
  
 PROPOSED EPNG L1110/SURVEY LINE  
 RESIDENTIAL CONSTRUCTION DETAIL  
  
 EL PASO COUNTY, TEXAS  
  
 M.P. 189.85

Status:	
State: TX	PIN No:
County: EL PASO	Scale: 1"=50'
Category:	
File Name: 61311-RES-REVH	
Drawing No:	Rev
6 OF 16	C

**GENERAL NOTES:**

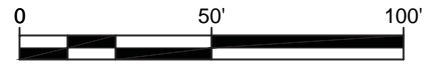
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Safety Fence

**LEGEND**

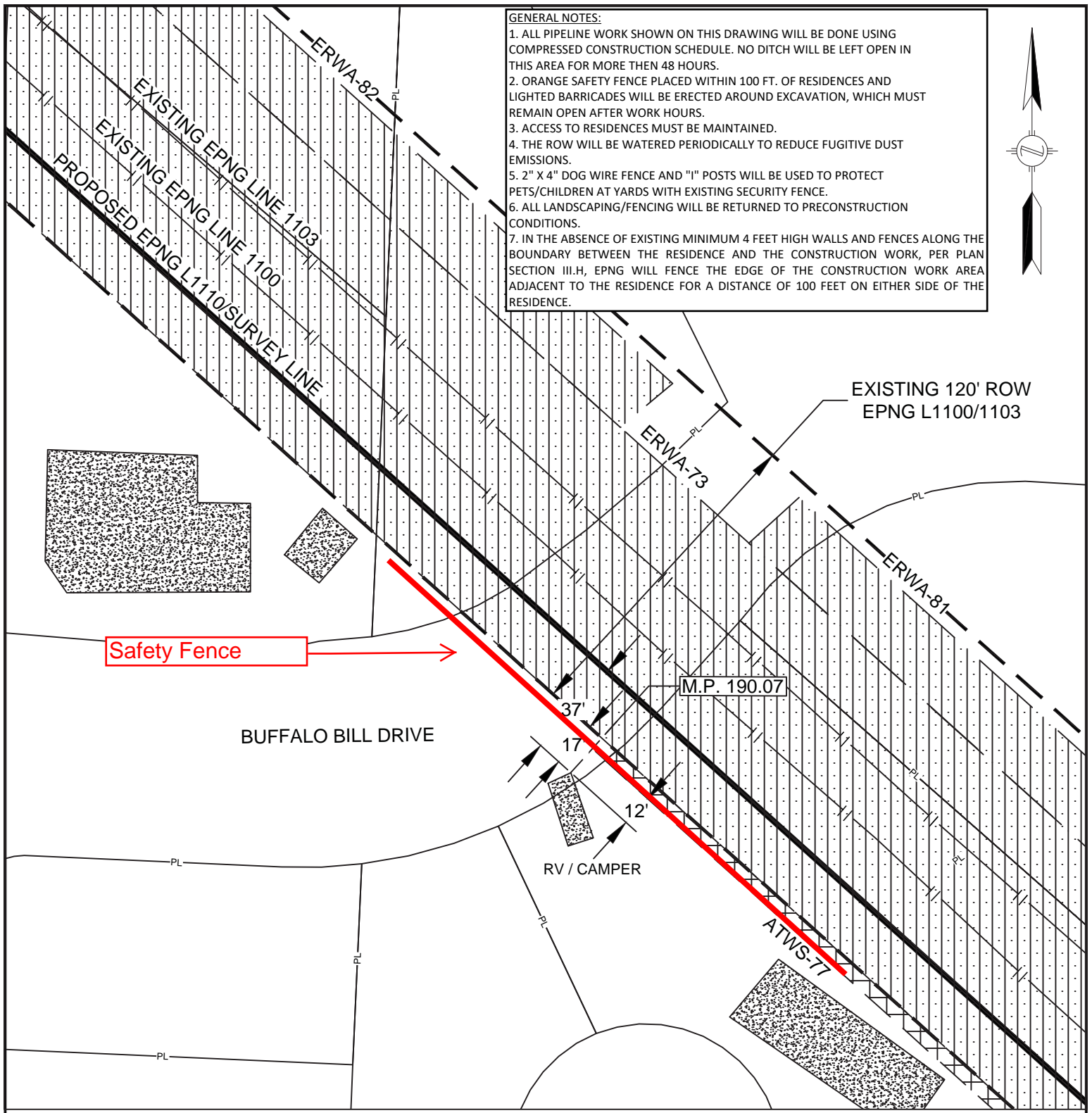
- ADDITIONAL TEMPORARY WORKSPACE
- EXISTING R.O.W. WORK AREA



H	REVISED PER CLIENT COMMENTS	61311	04/16/18
	Revision Description	Project ID	Date
		:Reference Drawings	
		:Facility Name	



<b>EPNG SOUTH MAINLINE EXPANSION PROJECT</b>		Status:	
PROPOSED EPNG L1110/SURVEY LINE RESIDENTIAL CONSTRUCTION DETAIL		State: TX	PIN No:
EL PASO COUNTY, TEXAS		County: EL PASO	Scale: 1"=50'
M.P. 190.04		Category:	File Name: 61311-RES-REVH
		Drawing No:	Rev H
		7 OF 16	



**GENERAL NOTES:**

1. ALL PIPELINE WORK SHOWN ON THIS DRAWING WILL BE DONE USING COMPRESSED CONSTRUCTION SCHEDULE. NO DITCH WILL BE LEFT OPEN IN THIS AREA FOR MORE THEN 48 HOURS.
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Safety Fence

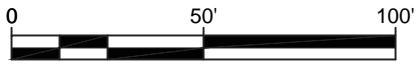
BUFFALO BILL DRIVE


RV / CAMPER

M.P. 190.07

**LEGEND**

-  ADDITIONAL TEMPORARY WORKSPACE
-  EXISTING R.O.W. WORK AREA



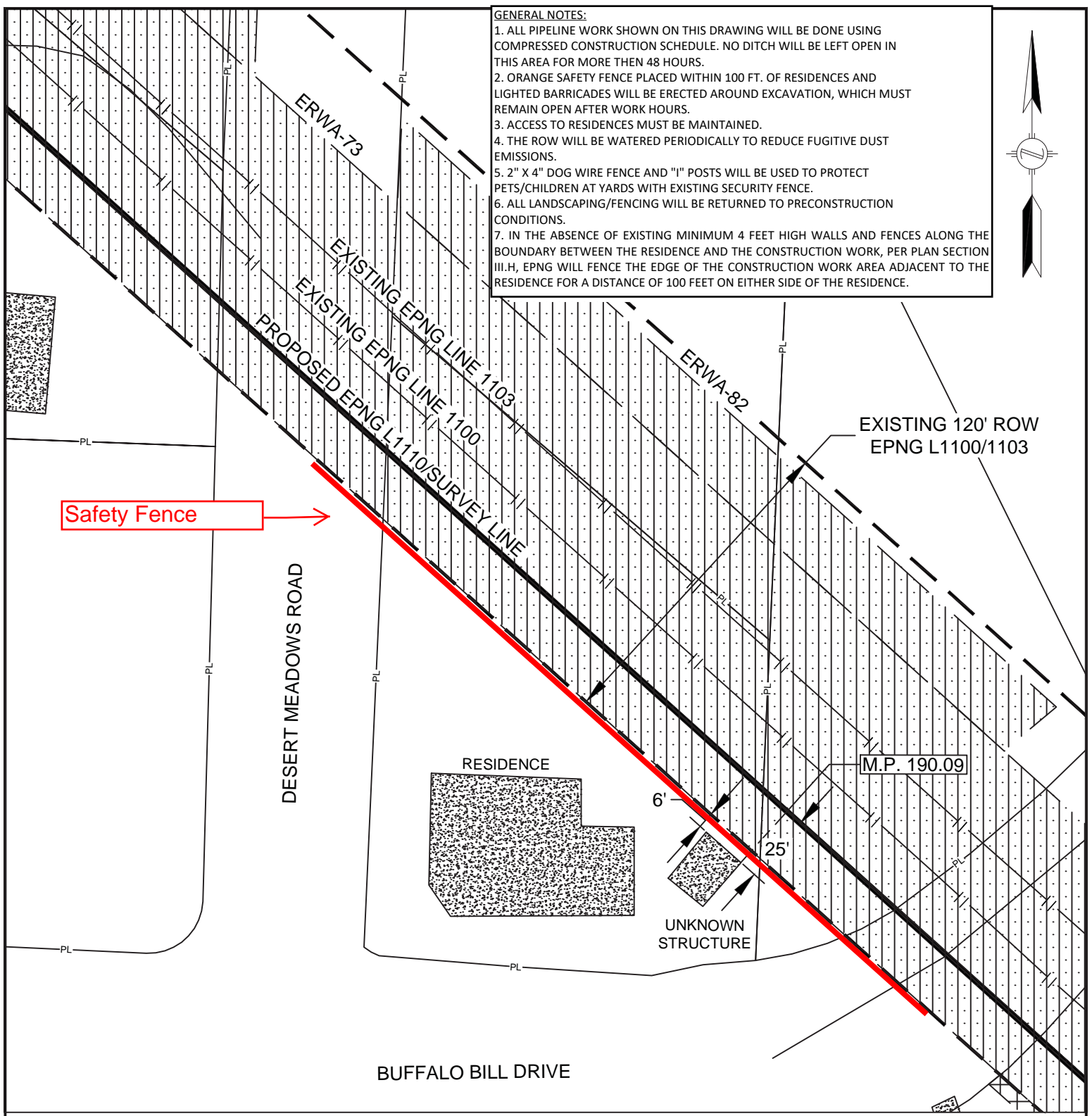
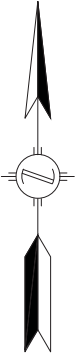
H	REVISED PER CLIENT COMMENTS	61311	04/16/18
	Revision Description	Project ID	Date
		:Reference Drawings	
		:Facility Name	



<b>EPNG SOUTH MAINLINE EXPANSION PROJECT</b>		Status:	
PROPOSED EPNG L1100/SURVEY LINE RESIDENTIAL CONSTRUCTION DETAIL		State: TX	PIN No:
EL PASO COUNTY, TEXAS		County: EL PASO	Scale: 1"=50'
M.P. 190.07		Category:	File Name: 61311-RES-REVH
		Drawing No:	Rev H
		8 OF 16	

**GENERAL NOTES:**

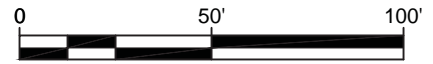
1. ALL PIPELINE WORK SHOWN ON THIS DRAWING WILL BE DONE USING COMPRESSED CONSTRUCTION SCHEDULE. NO DITCH WILL BE LEFT OPEN IN THIS AREA FOR MORE THEN 48 HOURS.
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Safety Fence →

**LEGEND**

- ADDITIONAL TEMPORARY WORKSPACE
- EXISTING R.O.W. WORK AREA



H	REVISED PER CLIENT COMMENTS	61311	04/16/18
NO	Revision Description	Project ID	Date
		:Reference Drawings	
		:Facility Name	

**KINDER MORGAN**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

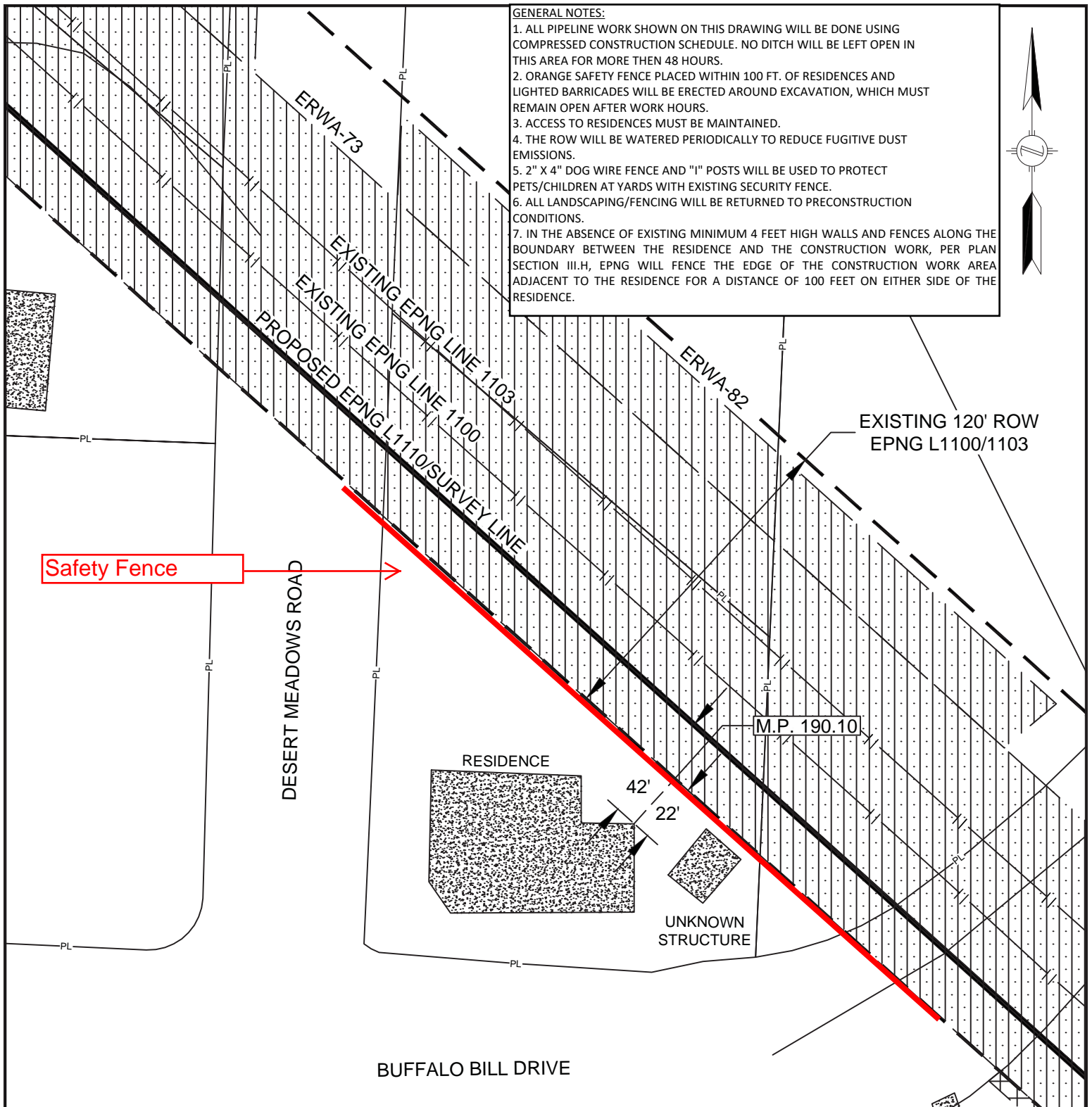
**EPNG SOUTH MAINLINE EXPANSION PROJECT**

PROPOSED EPNG L1110/SURVEY LINE  
RESIDENTIAL CONSTRUCTION DETAIL

EL PASO COUNTY, TEXAS

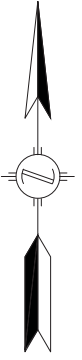
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Status:	
State: TX	PIN No:
County: EL PASO	Scale: 1"=50'
Category:	
File Name: 61311-RES-REVH	
Drawing No:	Rev
9 OF 16	H



**GENERAL NOTES:**

1. ALL PIPELINE WORK SHOWN ON THIS DRAWING WILL BE DONE USING COMPRESSED CONSTRUCTION SCHEDULE. NO DITCH WILL BE LEFT OPEN IN THIS AREA FOR MORE THEN 48 HOURS.
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Safety Fence

DESERT MEADOWS ROAD

BUFFALO BILL DRIVE

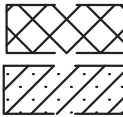
EXISTING 120' ROW  
EPNG L1100/1103

M.P. 190.10

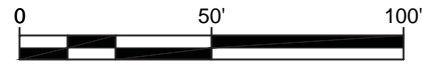
RESIDENCE

UNKNOWN  
STRUCTURE

**LEGEND**



ADDITIONAL TEMPORARY  
WORKSPACE  
EXISTING R.O.W. WORK  
AREA



C	REVISED PER CLIENT COMMENTS	61311	04/16/18
NO	Revision Description	Project ID	Date
		:Reference Drawings	
		:Facility Name	

**KINDER MORGAN**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**

PROPOSED EPNG L1110/SURVEY LINE  
RESIDENTIAL CONSTRUCTION DETAIL

EL PASO COUNTY, TEXAS

M.P. 190.10

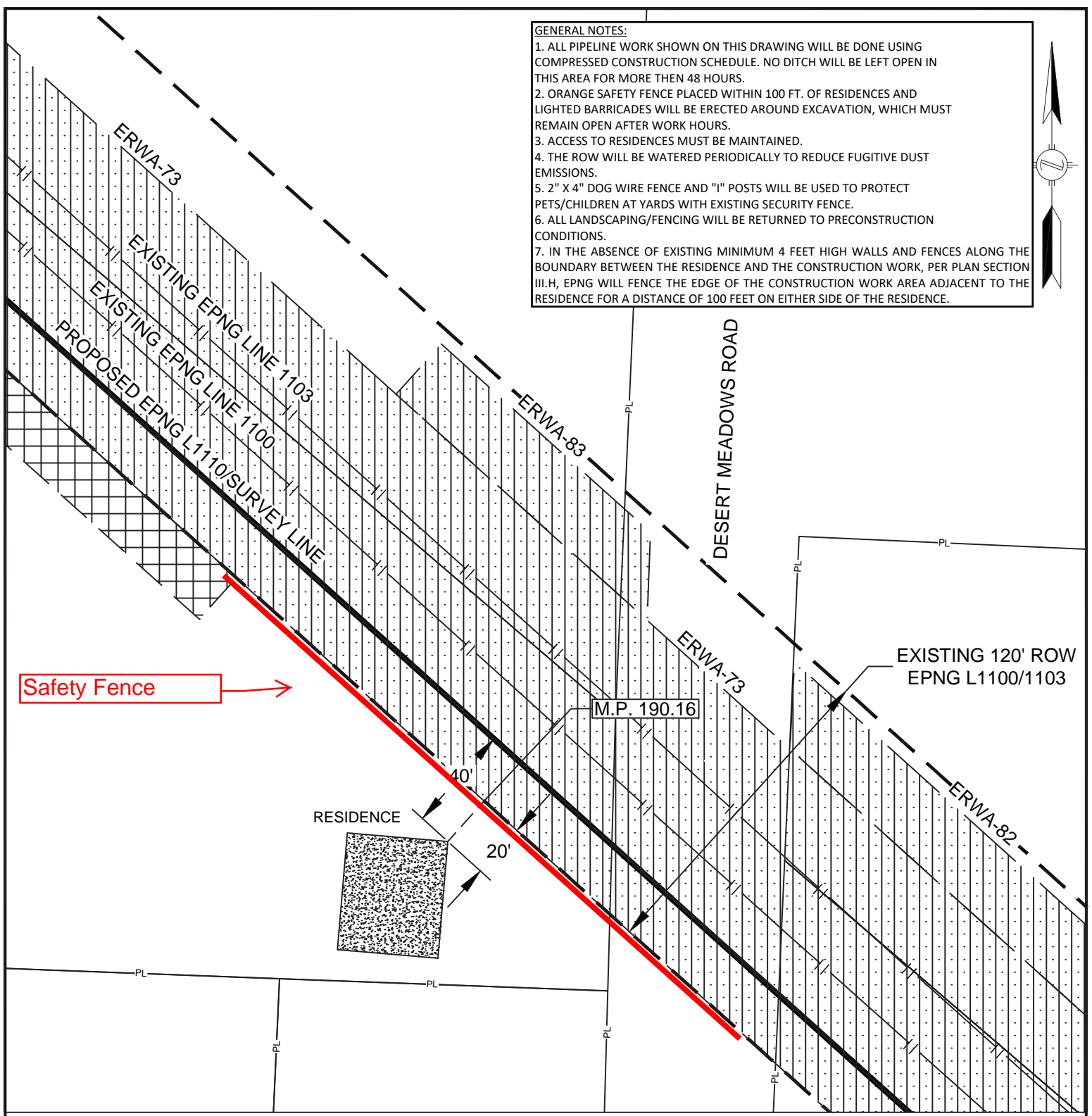
Status:

State:	TX	PIN No:	
County:	EL PASO	Scale:	1"=50'
Category:			
File Name:	61311-RES-REVH		
Drawing No:	10 OF 16	Rev	C

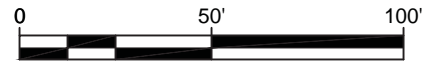


**GENERAL NOTES:**

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Safety Fence →



**LEGEND**

- ADDITIONAL TEMPORARY WORKSPACE
- EXISTING R.O.W. WORK AREA

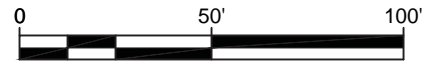
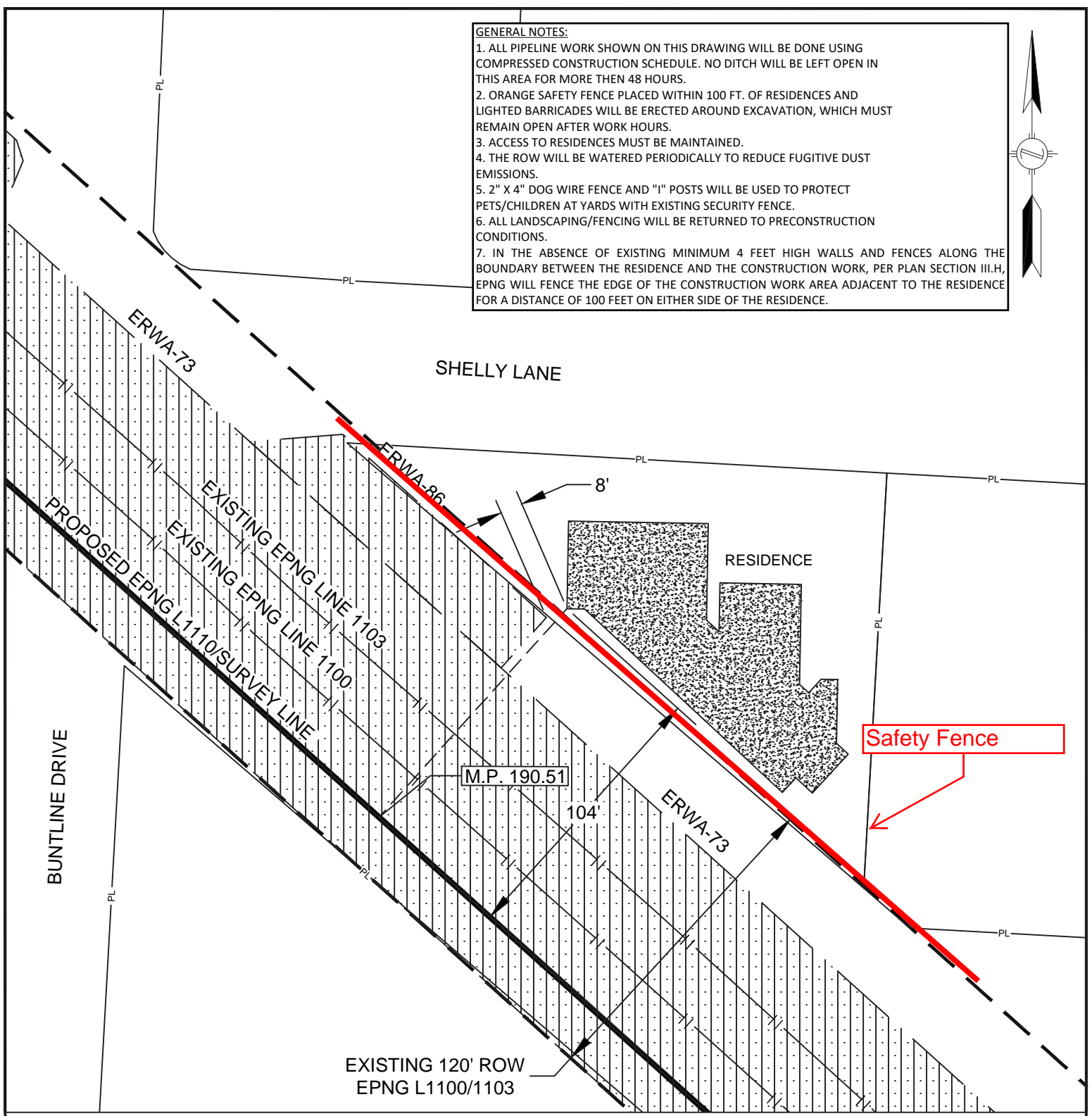
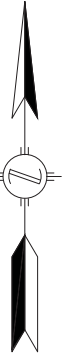
C	REVISED PER CLIENT COMMENTS	61311	04/16/18
	Revision Description	Project ID	Date
		:Reference Drawings	
		:Facility Name	

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

<b>EPNG SOUTH MAINLINE EXPANSION PROJECT</b>		Status:	
<b>PROPOSED EPNG L1110/SURVEY LINE RESIDENTIAL CONSTRUCTION DETAIL</b>		State: TX	PIN No:
<b>EL PASO COUNTY, TEXAS</b>		County: EL PASO	Scale: 1"=50'
<b>M.P. 190.16</b>		Category:	File Name: 61311-RES-REVH
		Drawing No:	Rev C
		<b>11 OF 16</b>	

**GENERAL NOTES:**

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**LEGEND**

- ADDITIONAL TEMPORARY WORKSPACE
- EXISTING R.O.W. WORK AREA

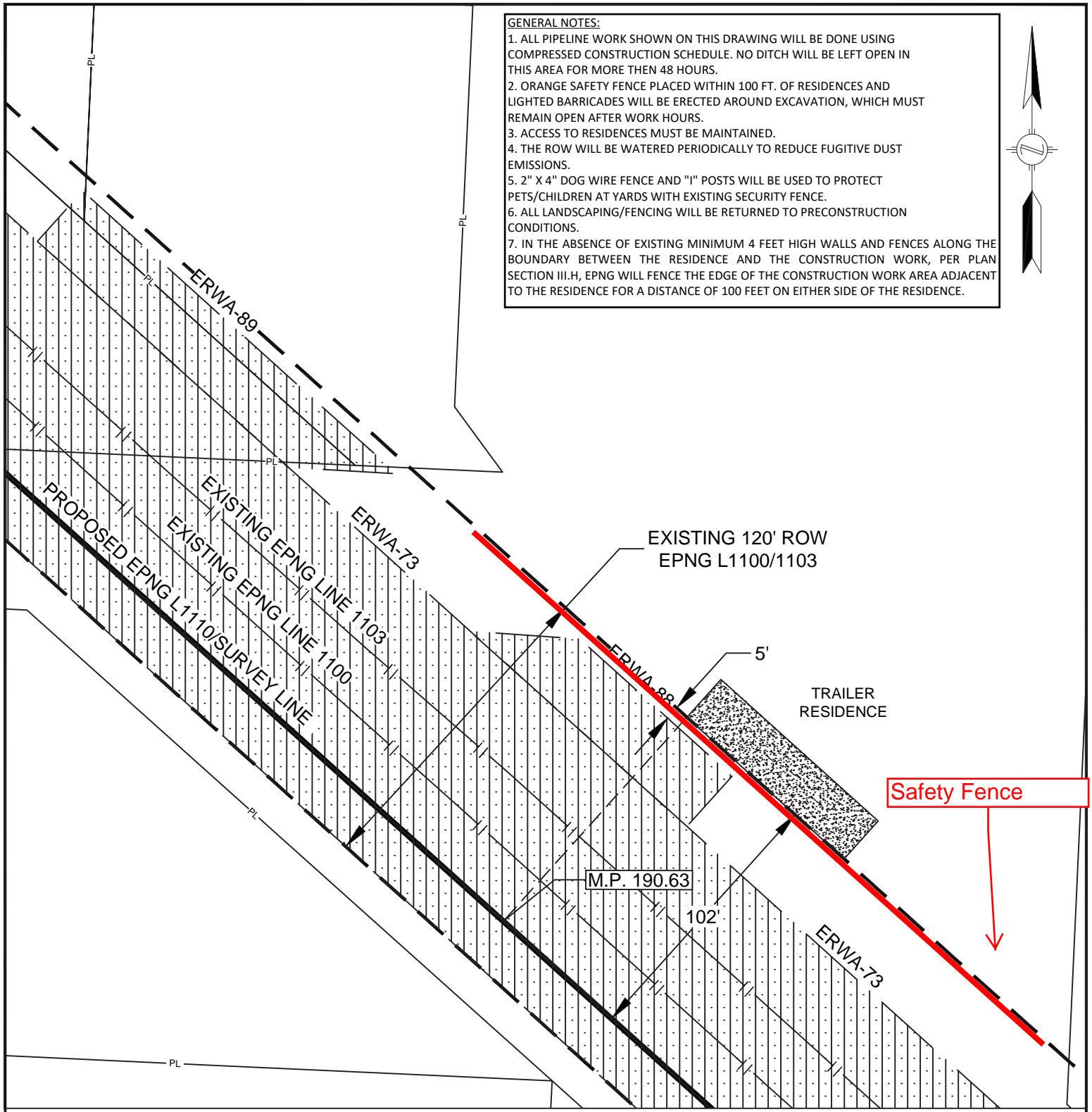
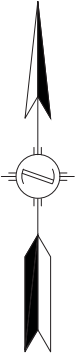
B	REVISED PER CLIENT COMMENTS	61311	04/16/18
	Revision Description	Project ID	Date
:Reference Drawings			
:Facility Name			

ENCOMPASS ENERGY SERVICES  
 350 INTERLOCKEN BLVD.  
 SUITE 350  
 BROOMFIELD, CO. 80021

<b>EPNG SOUTH MAINLINE EXPANSION PROJECT</b>		Status:	
PROPOSED EPNG L1110/SURVEY LINE RESIDENTIAL CONSTRUCTION DETAIL		State: TX	PIN No:
EL PASO COUNTY, TEXAS		County: EL PASO	Scale: 1"=50'
M.P. 190.51		Category:	File Name: 61311-RES-REVH
		Drawing No:	Rev B
		12 OF 16	

**GENERAL NOTES:**

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5. 2" X 4" DOG WIRE FENCE AND "I" POSTS WILL BE USED TO PROTECT PETS/CHILDREN AT YARDS WITH EXISTING SECURITY FENCE.
6. ALL LANDSCAPING/FENCING WILL BE RETURNED TO PRECONSTRUCTION CONDITIONS.
7. IN THE ABSENCE OF EXISTING MINIMUM 4 FEET HIGH WALLS AND FENCES ALONG THE BOUNDARY BETWEEN THE RESIDENCE AND THE CONSTRUCTION WORK, PER PLAN SECTION III.H, EPNG WILL FENCE THE EDGE OF THE CONSTRUCTION WORK AREA ADJACENT TO THE RESIDENCE FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE.



**LEGEND**

- ADDITIONAL TEMPORARY WORKSPACE
- EXISTING R.O.W. WORK AREA

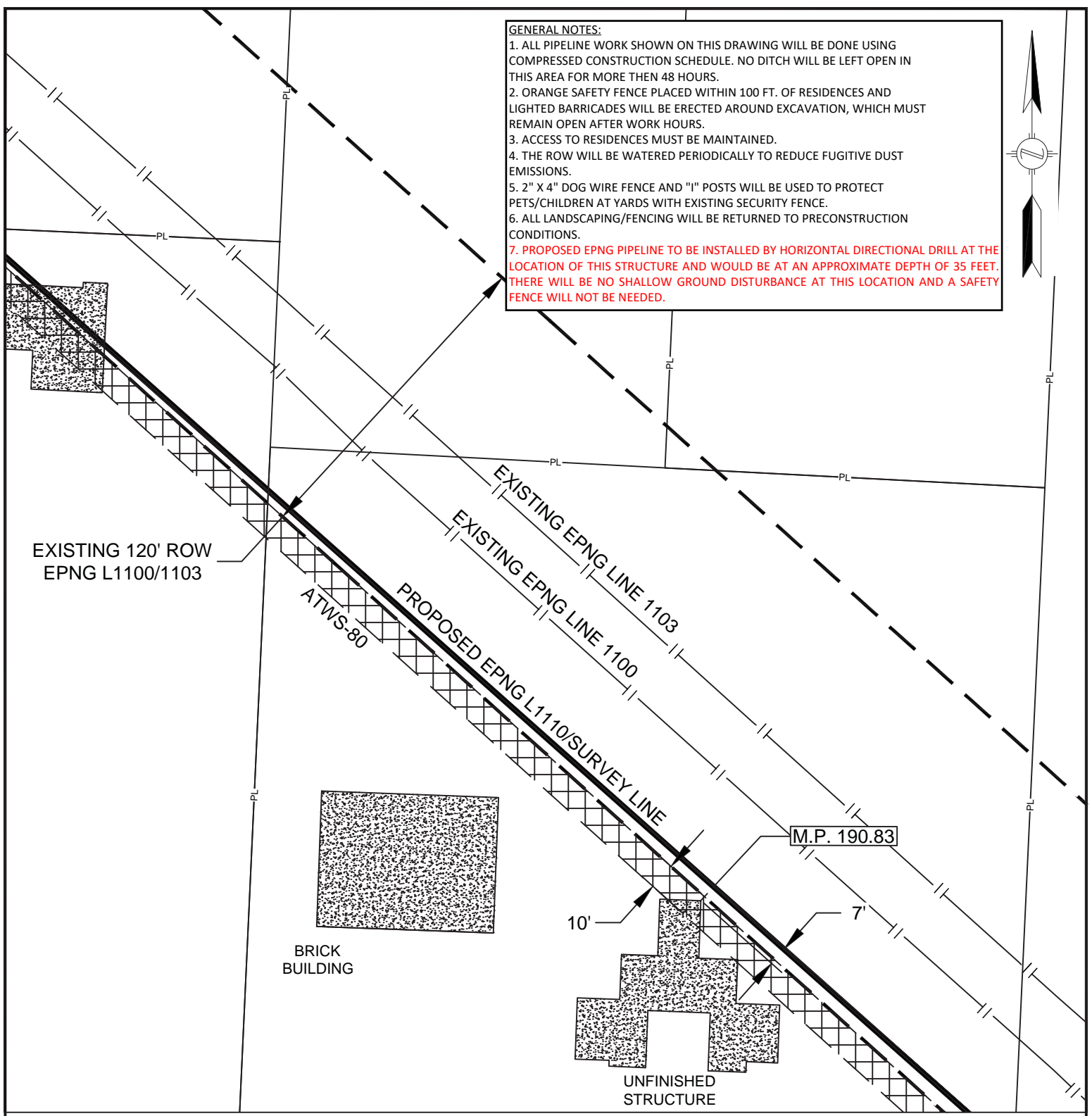
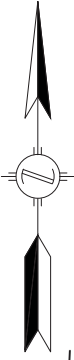
B	REVISED PER CLIENT COMMENTS	61311		04/16/18
	Revision Description	Project ID		Date
:Reference Drawings				
:Facility Name				



<b>EPNG SOUTH MAINLINE EXPANSION PROJECT</b>		Status:	
<b>PROPOSED EPNG L1110/SURVEY LINE RESIDENTIAL CONSTRUCTION DETAIL</b>		State: TX	PIN No:
<b>EL PASO COUNTY, TEXAS</b>		County: EL PASO	Scale: 1"=50'
<b>M.P. 190.63</b>		Category:	File Name: 61311-RES-REVH
		Drawing No:	Rev B
		13 OF 16	

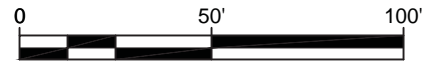
**GENERAL NOTES:**

1. ALL PIPELINE WORK SHOWN ON THIS DRAWING WILL BE DONE USING COMPRESSED CONSTRUCTION SCHEDULE. NO DITCH WILL BE LEFT OPEN IN THIS AREA FOR MORE THEN 48 HOURS.
2. ORANGE SAFETY FENCE PLACED WITHIN 100 FT. OF RESIDENCES AND LIGHTED BARRICADES WILL BE ERECTED AROUND EXCAVATION, WHICH MUST REMAIN OPEN AFTER WORK HOURS.
3. ACCESS TO RESIDENCES MUST BE MAINTAINED.
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6. ALL LANDSCAPING/FENCING WILL BE RETURNED TO PRECONSTRUCTION CONDITIONS.
7. PROPOSED EPNG PIPELINE TO BE INSTALLED BY HORIZONTAL DIRECTIONAL DRILL AT THE LOCATION OF THIS STRUCTURE AND WOULD BE AT AN APPROXIMATE DEPTH OF 35 FEET. THERE WILL BE NO SHALLOW GROUND DISTURBANCE AT THIS LOCATION AND A SAFETY FENCE WILL NOT BE NEEDED.



**LEGEND**

- ADDITIONAL TEMPORARY WORKSPACE
- EXISTING R.O.W. WORK AREA



B	REVISED PER CLIENT COMMENTS	61311		04/16/18
	Revision Description	Project ID		Date
:Reference Drawings				
:Facility Name				

**KINDER MORGAN**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**

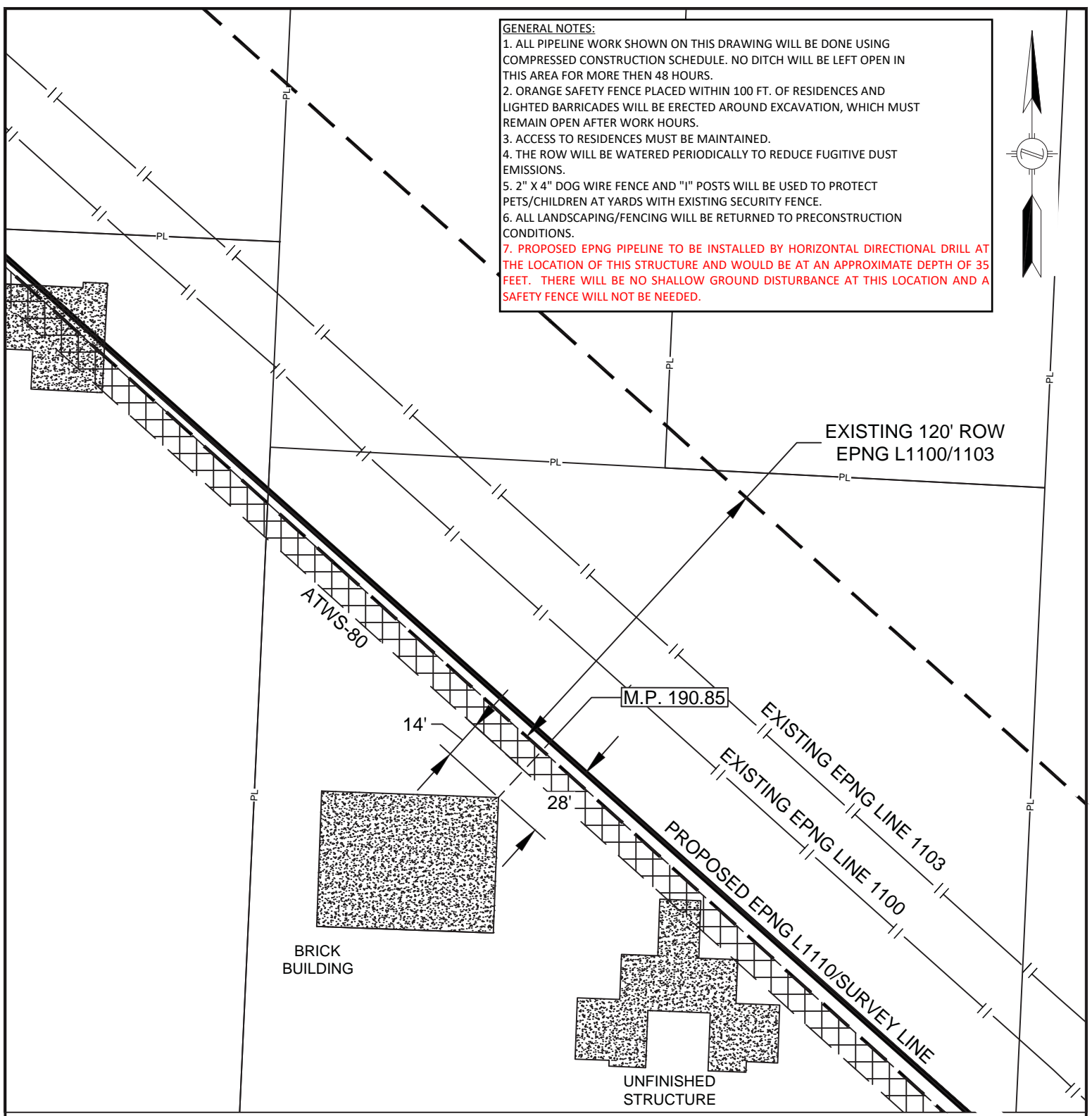
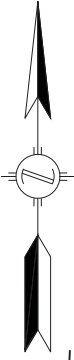
PROPOSED EPNG L1110/SURVEY LINE  
RESIDENTIAL CONSTRUCTION DETAIL

EL PASO COUNTY, TEXAS  
M.P. 190.83



Status:	
State: TX	PIN No:
County: EL PASO	Scale: 1"=50'
Category:	
File Name: 61311-RES-REVH	
Drawing No:	Rev B


**GENERAL NOTES:**


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**LEGEND**

-  ADDITIONAL TEMPORARY WORKSPACE
-  EXISTING R.O.W. WORK AREA

H	REVISED PER CLIENT COMMENTS	61311	04/16/18
	Revision Description	Project ID	Date
		:Reference Drawings	
		:Facility Name	



**encompass**

ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

**EPNG SOUTH MAINLINE EXPANSION PROJECT**

PROPOSED EPNG L1110/SURVEY LINE  
RESIDENTIAL CONSTRUCTION DETAIL

EL PASO COUNTY, TEXAS

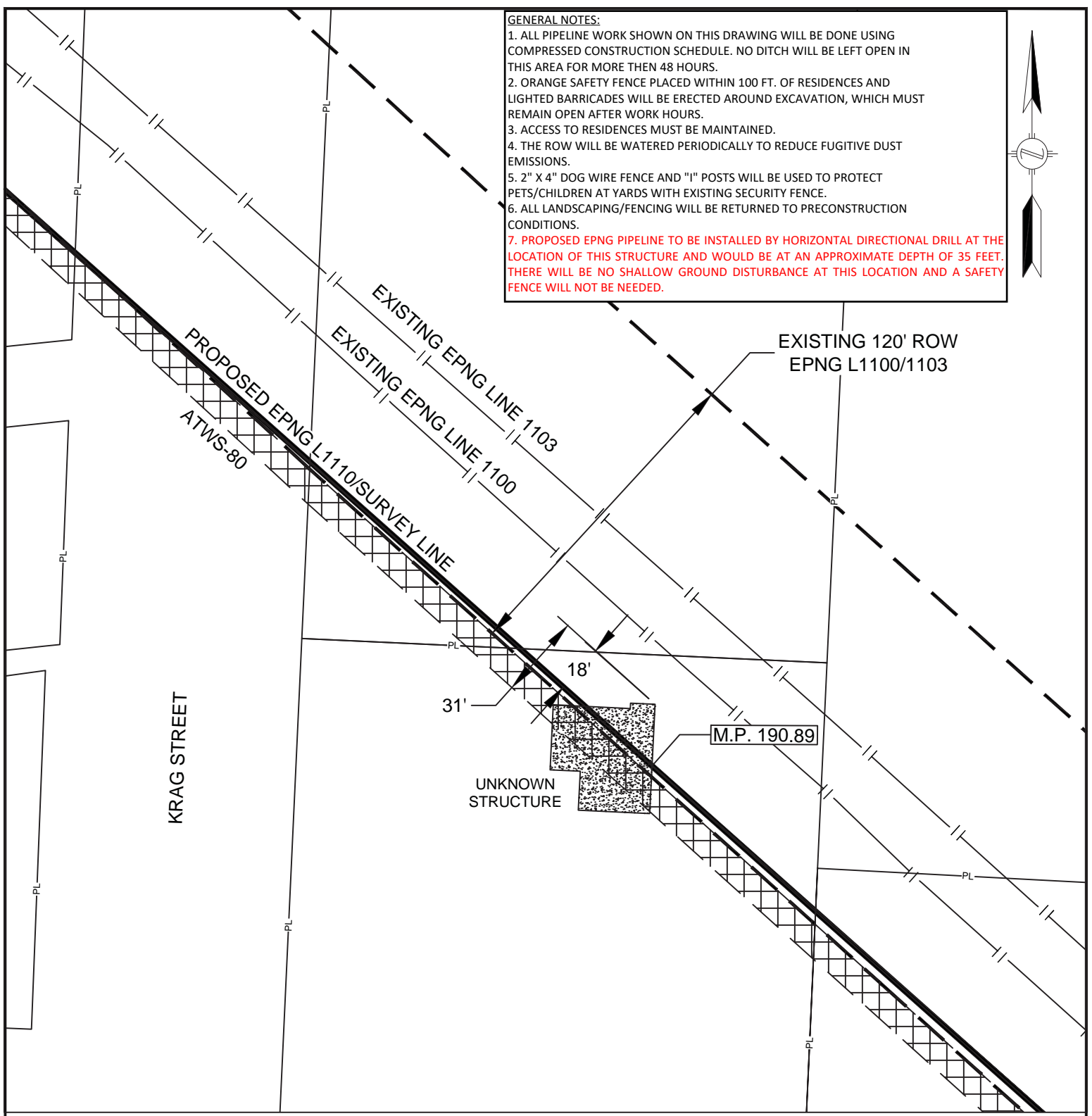
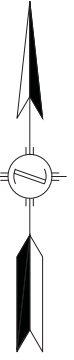
M.P. 190.85

Status:

State:	TX	PIN No:	
County:	EL PASO	Scale:	1"=50'
Category:			
File Name:	61311-RES-REVH		
Drawing No:	15 OF 16	Rev	H

**GENERAL NOTES:**

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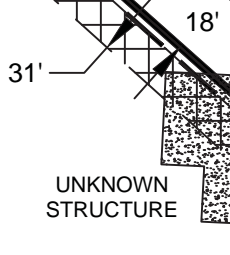


KRAG STREET

PROPOSED EPNG L1110/SURVEY LINE  
ATWS-80

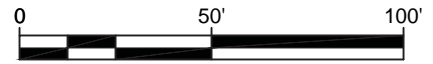
EXISTING EPNG LINE 1103  
EXISTING EPNG LINE 1100

EXISTING 120' ROW  
EPNG L1100/1103



UNKNOWN STRUCTURE

M.P. 190.89



**LEGEND**



ADDITIONAL TEMPORARY WORKSPACE



EXISTING R.O.W. WORK AREA

**encompass**  
ENCOMPASS ENERGY SERVICES  
350 INTERLOCKEN BLVD.  
SUITE 350  
BROOMFIELD, CO. 80021

H	REVISED PER CLIENT COMMENTS	61311	04/16/18
NO	Revision Description	Project ID	Date
		:Reference Drawings	
		:Facility Name	

<b>EPNG SOUTH MAINLINE EXPANSION PROJECT</b>		Status:	
PROPOSED EPNG L1110/SURVEY LINE RESIDENTIAL CONSTRUCTION DETAIL		State: TX	PIN No:
EL PASO COUNTY, TEXAS		County: EL PASO	Scale: 1"=50'
M.P. 190.89		Category:	File Name: 61311-RES-REVH
		Drawing No:	Rev H
		16 OF 16	

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

**Aboveground Facilities (compressor stations, meter stations)**

9. Identify the hours of construction at the two compressor facilities.

Response

The typical construction schedule at the compressor stations will be limited to only daylight hours or 7:00 am to 7:00 pm Monday through Saturday. Typically work would not occur on Sundays or federal holidays. If construction falls behind schedule, the contractor may be allowed to work on Sundays, but this is not preferred. Hydrotest-related activities may be conducted on Sundays or during nighttime hours (it is not uncommon for an 8 hour hydrotest to take 12 hours or more to set up and complete). Limited personnel would be on-site during a hydrotest and no construction equipment would be in operation within 100 feet of the hydrotest.

Response prepared by or under the supervision of:

Steven Wells  
Kinder Morgan  
Project Manager  
719-520-4864

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

10. List the residences near each compressor site, and:
- a. Identify the distance of each residence from the aboveground structures; and
  - b. Identify any screening there is between the structure and the residence.

Response:

- a) The distances from the compressor stations to each residence were identified in the respective noise studies (Appendix 9D). EPNG has included a table below depicting the distances of residences from the proposed Dagoon Compressor Station.

**Dagoon Compressor Station**

<b>Residence</b>	<b>Distance from Station (feet)</b>
NSA #1 (Residence)	2,320 (WSW)
NSA #2 (Residence)	3,160 (SW)
NSA #3 (Residences)	2,510 (SSW)
NSA #4 (Residence)	2,150 (S)
NSA #5 (Residence)	2,430 (E)

For the Red Mountain Compressor Station, no residences are located within 1 mile of the proposed site.

- b) EPNG intends to position the new compressor station facilities out of the viewshed of residences, scenic areas, and roadways to the extent feasible. At the Dagoon Compressor Station, EPNG does not anticipate the need to provide screening based on the existing natural vegetation that is located between the proposed facilities and specific NSAs listed above. EPNG notes the following existing screening that exists between the proposed Dagoon Compressor Station and each NSA listed above:
- Landscape and mature non-native trees and native shrubs and small trees (8 to 12 feet in height) are located between NSA 1 property and the Dagoon Compressor Station Site that would likely provide some screening. In addition, the existing Willcox Compressor Station buildings would partially screen the Dagoon Compressor Station from NSA 1.
  - Native shrubs and small trees (8 to 12 feet in height) are located between NSA 2 property and the Dagoon Compressor Station Site that would provide some screening. In addition, the existing Willcox Compressor Station buildings would partially or fully screen the Dagoon Facility from NSA 2.
  - Both NSAs 3 and 4 have native shrubs and small trees (8 to 12 feet in height) located between their locations and the Dagoon Compressor Station Site that would provide some screening.



EL PASO NATURAL GAS COMPANY, L.L.C.  
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- Native shrubs and small trees (8 to 12 feet in height) are located between NSA 5 property and the Dragoon Compressor Station Site that would provide some screening. In addition, NSA 5 has landscaping and mature trees within their own property that would likely provide some screening.

Response prepared by or under the supervision of:

Steven Wells  
Kinder Morgan  
Project Manager  
719-520-4864

EL PASO NATURAL GAS COMPANY, L.L.C.  
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Dated June 8, 2018 in Docket No. CP18-332-000  
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11. Describe how EPNG would minimize the visual impact of the two compressor facilities.

Response:

Both proposed new compressor stations will be constructed within existing active or abandoned EPNG compressor stations. EPNG will minimize visual impact of the compressor stations by:

- locating the new compressor station facilities out of the viewshed of residences, scenic areas, and roadways to the extent feasible;
- maintaining a vegetative buffer along the compressor station site boundaries to the extent feasible;
- replanting any disturbed temporary workspace with seed mixes typical for the respective area so as to reestablish the natural vegetation in any non-permanent disturbed areas; and
- ensuring buildings are painted a neutral color to blend in with the surroundings.

Each compressor station is discussed separately below.

The Red Mountain Compressor Station will be constructed on the property of and adjacent to the abandoned EPNG Deming Compressor Station, which is no longer operational. Other structures/facilities in the area include a gas station, land fill, water treatment facility, and Interstate Highway 10. No residences are near the compressor station site and no scenic roads/byways are in the area. As described in Resource Report 8, the proposed compressor station facilities will represent only an incremental, negligible impact on the viewshed and, as such, EPNG does not propose any additional mitigation measures to minimize visual impact at this station.

The Dragoon Compressor Station will be constructed on the property of and adjacent to the currently operating EPNG Willcox Compressor Station. The land use in the area is open with low desert grasses and shrubs and scattered individual mesquite trees. As described in Resource Report 8, because the Dragoon Compressor Station will be located at the site of an existing operational compressor station, it will represent only incremental negligible impact on the viewshed; therefore, EPNG does not propose any additional mitigation measures to minimize visual impact at this station.

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
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Response prepared by or under the supervision of:

Steven Wells  
Kinder Morgan  
Project Manager  
719-520-4864

EL PASO NATURAL GAS COMPANY, L.L.C.  
 Responses to Data Request – OEP/DG2E/Gas Branch 4  
 Dated June 8, 2018 in Docket No. CP18-332-000  
 South Mainline Expansion Project

12. Identify the wastewater volumes and disposal methods for wastewater discharges at the compressor stations.

Response:

Waste water quantities and disposal methods are outlined in the table below. EPNG has broken it down to the construction phase and after in-service.

Phase	Expected Quantity	Disposal Method
<b>Construction:</b>		
Dust Control	The amount of water to be used will vary based on site conditions and the required frequency of water application to minimize fugitive dust emissions. EPNG estimates that one 4,000 gallon water truck will be required every two days for 6 months during construction of the proposed compressor stations. Therefore, the maximum expected water quantity for dust control would range from 360,000 to 400,000 gallons.	N/A – Water will be pretested to ensure any necessary permit requirements are satisfied.
Hydrotest Discharge	Red Mountain Compressor Station 40,000 gallons.  Dragoon Compressor Station 120,000 gallons.	All hydrotest discharge water will be tested prior to discharge. If the water satisfies all Hydrostatic Test Discharge Permit requirements, the water will be discharged on-site in such a manner as to prevent erosion damage at discharge point. If the water does not satisfy the permit requirements, it will be taken to an approved off-site facility to be properly handled and disposed of, depending on what exceedances may be present.
<b>Operations:</b>		
Effluent from Bathroom	Variable based on infrequent use	Planned septic system and leach field.

EL PASO NATURAL GAS COMPANY, L.L.C.  
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Condensate from Instrument Air and/or Compression	Minimal – Some water may be gathered during the dehydration of instrument air and/or compression.	The amount expected is extremely minimal. EPNG has narrowed the disposal method down to two different approaches: 1) Hold/store any generated condensate in an on-site holding tank with the used oil and transport/dispose of at an approved off-site facility (this is the approach used at other compressor stations), or 2) Deposit the condensate in a small holding tank with a vent that will allow evaporation of the condensate due to the extremely dry climates. The final approach will be finalized during detailed design.
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Response prepared by or under the supervision of:

Steven Wells  
Kinder Morgan  
Project Manager  
719-520-4864

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

**Permits**

13. Provide an updated status of all required federal, state, and local government permit approvals. Include the agency and individual contacted, the date EPNG submitted the application (or a time table for the application's submission), or whether EPNG has received a permit. Provide an updated table 1-5 to include the current status of each permit acquisition.

Submit copies of all permits issued including conditions or stipulations attached to the permits received. Also provide all related written permit-related correspondence not previously filed with the Secretary of the Commission.

**Response:**

EPNG has updated Table 1-5 below to reflect any new federal, state and local permits. As of the date of this filing, no permits have been received for the project nor does EPNG have any updated written correspondence to provide. Air Permits for the operation of the Compressor Stations from New Mexico and Arizona are currently being processed and when issued, will be provided to the Commission. Similarly, other permits identified in Table 1-5 will be provided once received as the schedule identifies in Table 1-5.

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

**TABLE 1-5 PERMITS, APPROVALS, AND CONSULTATIONS REQUIRED**

Associated facility	Agency	Permit / Approval / Consultation	Actual Date (Anticipated)		Agency Contact
			Submittal	Approval	
<b>Federal</b>					
17-mile Loop Line Red Mountain CS Dragoon CS	Federal Energy Regulatory Commission	Natural Gas Act, Section 7(c) – Certificate of Public Convenience and Necessity	04/2018	(04/2019)	Division of Pipeline Certificates Office of Energy Projects 888 First Street, NE Washington, DC 20426
17-mile Loop Line Red Mountain CS Dragoon CS	United States Army Corps of Engineers	Clean Water Act, Section 404, Nationwide Permit 12 for utility line crossings (impacts below requirements for Agency Notification)	N/A	N/A	Richard Gatewood USACE Regulatory Program 200 E. Griggs Avenue Las Cruces, New Mexico 88001
17-mile Loop Line Red Mountain CS Dragoon CS	United States Fish and Wildlife Service	Consultations for impacts on federally listed threatened and endangered species and critical habitat under Section 7 of the Endangered Species Act, the Migratory Bird Treaty Act, the Bald and Gold Eagle Protection Act, and the Fish and Wildlife Coordination Act	01/23/18	05/10/18	Scott Richardson Tucson Field Office U.S. Fish and Wildlife Service 201 N. Bonita Avenue, suite 141 Tucson, AZ 87145 520-670-6150
<b>State of Texas</b>					
17-mile Loop Line	Texas Historical Commission State Historic Preservation Office	National Historic Preservation Act ("NHPA"), Section 106 Consultation	03/15/2018	04/17/18	Mark Wolfe Executive Director Texas Historical Commission P.O. Box 12276 Austin, Texas 78711"
17-mile Loop Line	Railroad Commission of Texas	Horizontal Directional Drilling permit rules and regulations	(3 <sup>rd</sup> quarter 2018)	(4 <sup>th</sup> Quarter 2018)	Engineering Unit 1701 N. Congress Austin Texas 78701
17-mile Loop Line	Railroad Commission of Texas	Clean Water Act, Section 402 National Pollutant Discharge Elimination System Water Pollution Control Permit and De Minimus permit for Hydrostatic Testing Water	(3 <sup>rd</sup> Quarter 2018)	(4 <sup>th</sup> Quarter 2018)	Grant Chambless Railroad Commission of Texas Oil and Gas Division 1701 North Congress, 11th Floor Austin, Texas 78701
17-mile Loop Line	Texas Department of Transportation, El Paso District	Encroachment Permit for horizontal directional drill of Montana Avenue	(3 <sup>rd</sup> Quarter 2018)	(4 <sup>th</sup> Quarter 2018)	Robert Bielek District Engineer 13301 Gateway West El Paso, TX 79928-5410

EL PASO NATURAL GAS COMPANY, L.L.C.  
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 South Mainline Expansion Project

Associated facility	Agency	Permit / Approval / Consultation	Actual Date (Anticipated)		Agency Contact
			Submittal	Approval	
<b>State of New Mexico</b>					
Red Mountain CS	New Mexico Environment Department	Air Quality Permit	0315/2018	(3 <sup>rd</sup> Quarter 2018)	Kathy Prim 525 Camino de los Marquez, Suite 1 Santa Fe, NM, 85705 505-476-4351
Red Mountain CS	New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division	NPDES Hydrostatic Test Water Discharge Permit	Prior to construction	TBD	David Catanach, Director 1220 S. St. Francis Drive Santa Fe, NM 87505 505-476-3441
Red Mountain CS	US EPA – Region 6	Section 402 Clean Water Act, National Pollutant Discharge Elimination System (NPDES) Construction General Permit for Stormwater Discharges and Notice of Intent	Prior to construction	TBD	EPA Region 6 Main Office 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202 800-887-6063
Red Mountain CS	New Mexico Department of Cultural Affairs, Historic Preservation Division	NHPA, Section 106 consultation	03/15/2018	03/28/18	Jeff Pappas State Historic Preservation Officer New Mexico Historic Preservation Division Department of Cultural Affairs 407 Galisteo Street, Suite 236 Santa Fe, New Mexico 87501
<b>State of Arizona</b>					
Dragoon CS	Arizona Department of Agriculture	Notice of Intent to Clear Land of Protected Native Plants	(1 <sup>st</sup> quarter 2019)	(30 days automatic)	Arizona Department of Agriculture Licensing and Registration Section 1688 West Adams Phoenix, Arizona 85007 602-542-6408



EL PASO NATURAL GAS COMPANY, L.L.C.  
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South Mainline Expansion Project

Associated facility	Agency	Permit / Approval / Consultation	Actual Date (Anticipated)		Agency Contact
			Submittal	Approval	
Dragoon CS	Arizona Department of Environmental Quality, Water Quality Division	Section 402 Clean Water Act, National Pollutant Discharge Elimination System (NPDES) Permit  Arizona Pollutant Discharge Elimination System (AZPDES) Construction General Permit for Stormwater Discharges and Notice of Intent	Prior to construction	TBD	Arizona Department of Environmental Quality Water Quality Division - Surface Water Section Stormwater and General Permits 1110 West Washington Street, 5415A-1 Phoenix, Arizona 85007 Attn: Christopher Henninger 602-771-4508 cph@azdeq.gov Attn: Lauri Sherrill (NOI)
Dragoon CS	Arizona Game and Fish Department	Special Status Species and Sensitive Communities Consultation/Project Evaluation	April 2018	(April 2018)	Arizona Game and Fish Department Project Evaluation Program, WMHB 5000 W. Carefree Highway Phoenix, Arizona 85086 Attn: Project Evaluation Program Supervisor 623-236-7602 pep@azgfd.gov
Dragoon CS	Arizona Department of Environmental Quality, Air Quality Division	Class I, Minor Modification air quality permit	April 2018	(4 <sup>th</sup> Quarter 2018)	Arizona Department of Environmental Quality 1110 West Washington Street Phoenix, Arizona 85007 Attn: Balaji Vaidyanathan Air Quality Permits Section Manager 602-771-4527 bv1@azdeq.gov
Dragoon CS	Arizona State Parks, State Historic Preservation Office	NHPA, Section 106 consultation	03/15/2018	04/12/18	Kathryn Leonard State Historic Preservation Officer Arizona State Parks 1100 West Washington Street Phoenix, Arizona 85007

EL PASO NATURAL GAS COMPANY, L.L.C.  
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Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

Associated facility	Agency	Permit / Approval / Consultation	Actual Date (Anticipated)		Agency Contact
			Submittal	Approval	
<b>Local Agencies</b>					
17-mile Loop Line	Hudspeth and El Paso Counties	Floodplain Management Department Development Permit	(3rd Quarter 2018)	(4th Quarter 2018)	William Zagorski 313 North Rachal Sinton, TX 78387 Mattie Atkinson 300 N. Rachal Ave. Sinton, TX 78387
17-mile Loop Line		Water Well Production Permit	(3rd Quarter 2018)	(4th Quarter 2018)	Lonnie Steward PO Box 531 Sinton, TX 78387
17-mile Loop Line	El Paso and Hudspeth Counties	Drainage/Floodplain Development Permit	(3 <sup>rd</sup> Quarter 2018)	(4th Quarter 2018)	Cindy J. Engelhardt Half Associates, Inc. 4030 West Braker Lane, Suite 450 Austin, TX 78759 Lori McLennan Environmental Services & Floodplain Administration 411 N. Wells, Room 130 Edna, Texas 77957
17-mile Loop Line	El Paso County Public Works Department, Road and Bridge Division	Encroachment Permit	Prior to construction	TBD	Pat D. Adauto Public Works Director Public Works Department 800 E. Overland, Suite 407 El Paso, Texas 79901
Dragoon CS	Cochise County, Development Services Department	Land Clearing Permit (fugitive dust)	Prior to construction	TBD	Jerry Stabley 1415 Melody Lane, Bldg E Bisbee, AZ 85603. 520-432-9240
Dragoon CS	Cochise County, Development Services Department	Commercial Use/Building Permit	Prior to construction	TBD	Jerry Stabley 1415 Melody Lane, Bldg E Bisbee, AZ 85603. 520-432-9240
Dragoon CS	Cochise County, Highway and Floodplain Department	Right-of-Way Permit (encroachment)	Prior to construction	TBD	Karen Riggs, Director 1415 Melody Lane, Bldg E Bisbee, AZ 85603. 520-432-9240

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
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South Mainline Expansion Project

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

14. Update status of USACE review of EPNG Preliminary Jurisdictional Determination Report.

Response:

EPNG completed the preliminary jurisdictional determination report provided in Resource Report 2 which identified no wetlands or FERC defined waterbodies within the South Mainline Project Areas. A total of 23 ephemeral “washes” cross the proposed 17-mile loop line route of the project. The preliminary jurisdictional determination report was not sent to the USACE pending the results of informal consultations with the US Fish and Wildlife Service (USFWS) and the Texas Historical Commission (THC).

Because agency consultations came back with a determination of no effect to any species listed under the Endangered Species Act (see USFWS correspondence letter dated May 10, 2018) and No Historic Properties Affected (see THC correspondence letter dated April 17, 2018), respectively, the project qualifies for nationwide permit 12, for utility line activities *without notification*, given that the impacts at each of the ephemeral wash crossings also will not result in a permanent loss of waters of the US, and temporary impacts would be less than 0.5 acre at each wash crossing.

Under guidance provided by the USACE nationwide permit program, the preliminary jurisdictional determination report and the supporting documentation (i.e., a pre-construction notification package) are not required to be submitted to obtain coverage under NWP 12. However, all of the general, regional, and permit-specific conditions of NWP 12 and the nationwide permit program will be complied with (as required under Section 404 of the Clean Water Act) and provided to the contractors prior to construction.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
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15. Identify whether and from which agency a permit would be required for the new access driveway at the Dragoon Compressor Station.

Response:

EPNG confirms that no permit will be required for the new access driveway at the Dragoon Compressor Station. Pursuant to Cochise County Development Services Department, since the driveway connection to the terminus of Arzberger Road is already in place, no additional permit will be required from Cochise County.

Response prepared by or under the supervision of:

Kelley Sims  
ROW Agent – Tucson Area  
520-663-4223

EL PASO NATURAL GAS COMPANY, L.L.C.  
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**Contaminated Groundwater**

16. The section 7.3 – Contaminated Soils subsection states that “no contaminated soils or sources of contamination have been identified or are known to exist within the project areas” and refers to Resource Report 12. However, no discussion of known or possible contaminated soils is included in Resource Report 12. In addition, section 2.2.2.4 does not detail the potential for contaminated groundwater in project areas. Provide the results of desktop reviews or environmental database searches detailing the potential for contaminated soils and groundwater in the project areas. Suggested sources include: EPA databases/websites, state/county databases/websites, and/or environmental database reports (e.g. Environmental Data Resources [EDR] or similar).

Response:

SWCA conducted an environmental regulatory review to establish the environmental history of the sites and surrounding areas to ascertain whether hazardous waste or hazardous material management, handling, treatment, or disposal activities have occurred on or near the subject property that could have resulted in potentially contaminated soil and/or groundwater in project areas. The sites include the proposed 17-mile loop corridor and an off-site contractor yard/four pipe storage yards in Texas, the proposed Red Mountain Compressor Station in New Mexico, and the proposed Dragon Compressor Station in Arizona.

EPNG conducted a federal and state environmental records search. Environmental database reports generated by Environmental Data Resources, Inc. (“EDR”), on December 5, 2017 (contractor yard and pipe yards), June 22, 2018, (compressor stations), and June 25, 2018 (17-mile loop) were used to access environmental records for the sites and the surrounding properties. The databases searched by EDR include those specified by ASTM Standard E 1527-13, as well as several additional federal and state databases and databases proprietary to EDR. ASTM’s standard search distances were followed, as detailed in Table 1. EDR updates its records in accordance with ASTM Standard E 1527-13 guidelines. Additional listed facilities that EDR has not identified may exist within a 1-mile radius.

**17-Mile Loop and Contractor Yard / Pipe Yards:**

SWCA also used the Texas Commission on Environmental Quality (TCEQ) Petroleum Storage Tank Geographic Information System (GIS) Map Viewer to search for nearby petroleum storage tanks, and the TCEQ list of all pending TCEQ enforcement actions. The Railroad Commission of Texas (RRCTX) Public GIS Map Viewer was used to search for oil and gas wells and pipeline data.

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**Red Mountain Compressor Station:**

For the Red Mountain Compressor Station, SWCA also reviewed supplemental records from state regulatory databases at the New Mexico Environment Department's (NMED's) Ground Water Quality Bureau Mapping Application, EGIS Mapping Application, Petroleum Tank Storage Bureau GoNM Mapping Application, and Source Water Protection Atlas Mapping Application; New Mexico Oil Conservation Division; the New Mexico Bureau of Geology and Mineral Resources Interactive Geographic Information System Mapping Application; and mapping from the New Mexico State Land Office and the New Mexico Oil Conservation Division to identify oil and gas wells on and near the site.

**Dragoon Compressor Station:**

For the Dragoon Compressor Station site, SWCA also reviewed supplemental records from state regulatory databases at the ADEQ's interactive GIS eMaps website, the ADEQ's List of Closed Solid Waste Landfills in Arizona, and the ADEQ's underground storage tank (UST) and leaking UST (LUST) databases.

Table 1: Approximate Minimum Search Distances

Record Sources	Approximate Minimum Search Distance (miles)
<b>Federal Databases</b>	
National Priority List (NPL)	1.0
Delisted NPL	0.5
Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)/CERCLIS No Further Remedial Action Planned (NFRAP) sites	0.5
Resource Conservation and Recovery Act (RCRA) Corrective Action Sites (CORRACTS) facilities	1.0
RCRA non-CORRACTS treatment storage and disposal facilities	0.5
RCRA generators list	Property and adjoining
Institutional control/engineering control registries	Property only
Emergency Response Notification System (ERNS)	Property only
<b>State and Tribal Databases</b>	
NPL	1.0
CERCLIS	0.5
Landfill and/or solid waste disposal site lists	0.5
Leaking storage tank lists	0.5
Registered storage tank lists	Property and adjoining
Institutional control/engineering control registries	Property only
Voluntary cleanup sites	0.5
State and tribal Brownfield sites	0.5

Source: ASTM (2013)

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**RESULTS OF ENVIRONMENTAL RECORDS SEARCHES:**

No facilities pertinent to identifying potential soil or groundwater contamination were identified in any of the searched databases for the three EPNG construction sites. However, the records search identified the following database listings for each site as summarized below.

**17-Mile Loop Line:**

- Quick Silver Exxon, 500 feet east-northeast of corridor Milepost 191.0, has several active underground storage tanks present. No indications of leaks, spills, or potential contamination are noted in conjunction with this listing. The site is also listed in the historical auto station database for the year 2014. A listing in this database does not indicate known contamination.
- Vega Radiators, 1,200 feet west of corridor Milepost 191.0, is listed in the historical auto station database as a repair shop from 1988 to 2005.

**Contractor Yard / Pipe Yards:**

- FALC Enterprises, located adjacent to the north of the subject property, has a 6,000-gallon diesel fuel aboveground storage tank (AST). No indications of leaks, spills, or potential contamination are noted in conjunction with this listing.
- Sure-Lock Composting is mapped at the northwest of pipe storage yard #4. The company is listed as a solid waste facility (SWF) / landfill, and as a solid waste recycling (SWRCY) facility. It is a Type 5RR SWF, a materials recovery facility. The SWRCY listing indicates it is a recycling and recovery facility. These types of listings correspond with its presumed use of composting organic materials. No indications of leaks, spills, or potential contamination are noted in conjunction with this listing.

**Red Mountain Compressor Station**

- The proposed Red Mountain Compressor Station site is listed as the Deming Compressor Station in the Integrated Compliance Information System (ICIS), Facility Index System (FINDS), Enforcement and Compliance History Online (ECHO), and Aerometric Information Retrieval System (AIRS) databases for air permit-related matters. None of these listings are indicative of potential contamination to soil and/or groundwater.

**Dragoon Compressor Station**

- The proposed Dragoon Compressor Station site has an active UST mapped in the developed area in the south of the site, with no history of leaks reported.
- The proposed site is listed as the Willcox Lateral Expansion, and had an Arizona National Pollutant Discharge Elimination System (AZPDES) general construction permit in 2012 and 2013.



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- The proposed site is listed the Willcox Compressor Station in the Resource Conservation and Recovery Act (RCRA) database as a Non-Generator of Hazardous Waste, No Longer Regulated. Non-Generators do not presently generate hazardous waste. The RCRA databases document generation, transportation, treatment, storage, and disposal of hazardous waste. No violations or indications of spills, leaks, or potential contamination were noted in conjunction with the RCRA listings.

**REFERENCES:**

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Arizona Department of Environmental Quality (ADEQ). 2018. Interactive Geographic Information System (GIS) eMaps website. Available at: <http://gisweb.azdeq.gov/arcgis/emaps/?topic=places>. Accessed June 2018.

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New Mexico Environment Department (NMED). 2018. Ground Water Quality Bureau Mapping Application. Available at: <https://gis.web.env.nm.gov/GWQB/>. Accessed June 2018.

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———. 2018. Petroleum Storage Tank Bureau GoNM Mapping Application. Available at: <https://gis.web.env.nm.gov/GoNM/>. Accessed June 2018.

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New Mexico Oil Conservation Division. 2018. Oil and Gas Mapping Application.  
Available at:

<http://nmemnrd.maps.arcgis.com/apps/webappviewer/index.html?id=4a821bdf94c448e68b86a77d0750e7cc>. Accessed June 2018.

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Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4929

EL PASO NATURAL GAS COMPANY, L.L.C.  
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**Water Supplies**

17. Provide estimated depths to groundwater/water table for all three project areas and detail any anticipated/possible dewatering activities and/or locations.

Response:

17-Mile loop line

Well number 4915517 (a public water source well identified within 150 feet of the project area, detailed in Table 2-1 in *Resource Report 2*) was drilled to 516 feet, and the water level was 390 feet in the most recent available well report on March 7, 1984.<sup>1</sup> More recent well reports were not available for this well. According to The Texas Water Development Board Water Data Interactive map,<sup>2</sup> the majority of the well depths within a mile of the 17-mile loop line range from 400-600 feet deep. A test well within a mile of the project area (well #4924202 owned by EPNG) was drilled to a depth of 276 feet, and records indicate it was dry at this depth.<sup>3</sup>

Because the water table is so far below ground-level near the project area, no portion of the proposed project is expected to require dewatering activities.

Red Mountain Compressor Station

Well number USFS 321520107594701 (a private well identified near the project area, detailed in Table 2-1 in *Resource Report 2*) reports a hole depth of 253 feet, but no depth to water information.<sup>4</sup> Well M 11498 POD1 (a private well identified near the project area, detailed in Table 2-1 in *Resource Report 2*) is a cathodic protection well with a depth of 510 feet, and none of the remaining wells detailed in Table 201 in *Resource Report 2* have any well depth or depth to water information.<sup>5</sup>

A well mapped approximately 0.4 miles southwest of the project area boundary reports a well depth of 310 feet with a depth to water of 202 feet (Well M 10346).<sup>6</sup> Because this

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<sup>1</sup> Texas Water Development Board (TWDB). 2018. Water Data Interactive. Available at: <http://www2.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer>. Accessed June 2018.

<sup>2</sup> TWDB, 2018.

<sup>3</sup> TWDB, 2018.

<sup>4</sup> U.S. Geological Survey. 2018. National Water Information System: Web Interface. Available at: [https://waterdata.usgs.gov/nwis/inventory?agency\\_code=USGS&site\\_no=321520107594701](https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=321520107594701). Accessed June 2018.

<sup>5</sup> New Mexico Office of the State Engineer. (NMOSE) 2018. Water Rights Look Up web viewer. Available at: [https://gis.ose.state.nm.us/gisapps/ose\\_pod\\_locations/](https://gis.ose.state.nm.us/gisapps/ose_pod_locations/). Accessed June 2018.

<sup>6</sup> NMOSE, 2018.

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well is within a mile of the project area, it is a reasonably proxy for groundwater depth in the project area.

Because the water table is so far below ground-level near the project area, no portion of the proposed project is expected to require dewatering activities.

Dragoon Compressor Station

Depth to water at a well mapped within the existing Willcox CS fenced compound (Well Registry ID 611586) (detailed in Table 2-1, in *Resource Report 2*) was 354.5 feet in 2017.<sup>7</sup> At a well mapped northeast of the existing Willcox CS (GWSI ID 320636109393201), the depth to groundwater in 1952 was 258.74 feet, but current data are not available.<sup>8</sup>

Because the water table is so far below ground-level near the project area, no portion of the proposed project is expected to require dewatering activities.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4929

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<sup>7</sup> Arizona Department of Water Resources. 2018. Wells 55 Registry. Available at: <http://gisweb2.azwater.gov/WellReg>. Accessed June 2018.

<sup>8</sup> Arizona Department of Water Resources. 2018. Groundwater Site Inventory. Available at: <https://gisweb.azwater.gov/gwsi/Detail.aspx?SiteID=320636109393201>. Accessed June 2018.

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18. Section 2.2.1.5 states that “no seeps or springs were identified within 150 feet of the 17-Mile Loop Line...” However, the section does not state if groundwater wells were identified. Clarify if groundwater wells were identified within 150 feet of the 17-Mile Loop Line and provide an updated table 2-3, if necessary.

Response:

17-Mile loop line

There are no private wells occurring within 150 feet of any portion of the 17-mile Loop Line project area.<sup>9</sup> As such the sentence referenced in this request should be revised as follows “No private groundwater wells, seeps or springs were identified within 150 feet of the 17-mile loop line route during the field surveys, on USGS topographic quadrangles, on the USGS National Water Information System, or on the TWDB Groundwater Data Viewer (TWDB 2018; USGS 2018a).”

The only groundwater wells identified within 150 feet of the 17-mile Loop Line project area are three public wells, detailed in Section 2.2.1.4 of *Resource Report 2*, and provided in Table 2-1 as reproduced below.

**TABLE 2-1. PUBLIC WELL INFORMATION WITHIN THE LOOP LINE PROJECT AREA**

Facility ID	Well Registry ID	Well Location	Well Use	Latitude, Longitude	Owner	Capacity	Milepost
17-Mile Loop Line	4915517	Northeast of ROW	Withdrawal of water; Public supply	31.814552, -106.172263	Homestead MUD #1	N/A*	190.5
17-Mile Loop Line	4915513	Southwest of ROW	Withdrawal of water; Well plugged or destroyed	31.812778, -106.171667	Homestead MUD #1	N/A*	190.4
17-Mile Loop Line	4915609	Southwest of ROW	Withdrawal of water; Well plugged or destroyed	31.801945, -106.155834	Homestead MUD #2	N/A*	189.2

\* N/A = not applicable. Information regarding this well's capacity was not readily available from the USGS or State databases.

Sources: ADWR (2018d, 2018e); TWDB (2018); USGS (2018)

Response prepared by or under the supervision of:

Russell Waldron  
 Environmental Project Manager/SWCA Consultant  
 520-325-9194, ext. 4929

<sup>9</sup> Texas Water Development Board. 2018. Water Data Groundwater Data Viewer. Available at: <http://www2.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer>. Accessed June 2018.

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19. Has EPNG consulted with El Paso Water concerning its wells adjacent to the 17-Mile Loop Line?

Response:

EPNG has not yet reached out to El Paso Water but intends to consult with them concerning the wells adjacent to the proposed 17-mile loop line. As referenced in Environmental Resource Report 2, Section 2.2.2.2, EPNG does not anticipate the proposed 17-mile loop line route will result in any impacts or contamination to the public supply water well.

Response prepared by or under the supervision of:

Mike Bonar  
EPNG Environmental Project Manager  
719-520-4817

EL PASO NATURAL GAS COMPANY, L.L.C.  
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20. Would construction activities at the Red Mountain and Dragoon Compressor Station sites involve foundation dewatering activities?

Response:

No foundation dewatering activities will be required at either the proposed Red Mountain Compressor Station or the proposed Dragoon Compressor station because the depth required to dig the foundation at the compressor station sites will not be deep enough to encounter groundwater. As explained in EPNG's response to Request No. 17, groundwater depths at both locations are greater than 200 feet below the surface.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4929

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21. Confirm that El Paso would offer pre- and post-construction testing for the wells identified within 150 feet of the construction work areas to document water quality and flow and to establish a baseline for comparison in the event of inadvertent construction impacts. Also confirm that if testing reveals that impacts on the well occurred as a result of Project construction, El Paso would repair or replace the well in coordination with well owners.

Response:

There is one active public water supply well mapped within 150 feet of the 17-mile loop line and two other wells mapped within 150 feet area listed as plugged or destroyed; six privately owned wells were mapped within 150 feet of the Red Mountain Compressor Station project area, four of which are owned by EPNG; and 11 privately owned wells mapped within 150 feet of the Dagoon Compressor Station project area, all of which are owned by EPNG.

Because excavation for the proposed project will be shallow and no blasting will take place in vicinity of the wells, no impacts to wells are expected as a result of proposed project activities. However, EPNG will coordinate with well owners and offer pre- and post-construction water quality and flow testing for all functioning wells occurring within 150 feet of the three project areas. If impacts to these wells occur, EPNG would coordinate with well owners to repair or replace the wells and provide a temporary source of potable water while well repairs occur.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919



EL PASO NATURAL GAS COMPANY, L.L.C.  
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## Hydrostatic Testing

22. Identify the volume and the source of dust suppression water.

Response:

EPNG may use up to three sources of water during construction of the 17-mile loop line. EPNG may use an existing well located at its El Paso Compressor Station. EPNG will also search for a suitable private water well that can meet EPNG's requirements. EPNG may also seek to obtain water from the closest municipal source in El Paso, Texas. Unless EPNG finds a suitable private water well with sufficient quantity which meets required water requirements, EPNG proposes to utilize water from the closest municipal source, i.e., El Paso, Texas or EPNG's El Paso Compressor Station well. EPNG's contractor will be selecting whether to use a closer source of water or the more distant EPNG El Paso Compressor Station well to obtain water for dust suppression.

The volume of water to be used to mitigate fugitive dust emissions will be dependent on need and construction conditions. However EPNG estimates approximately 1.44 to 4.32 million gallons of water will be used for this effort. This estimate is based on the use of three 4,000 gallon water trucks at a minimum of once daily during construction and at a maximum of three times daily during an estimated 6 month period of construction. During construction, site conditions will dictate the frequency of watering for minimizing fugitive dust emissions.

At the Red Mountain Compressor Station, EPNG proposes to utilize water from the on-site well(s) if the water meets the required permit discharge water standards. If not, EPNG will use municipal water from the City of Deming, New Mexico. For the Dragoon Compressor Station, EPNG proposes to utilize water from the on-site well(s) if the water meets the required water standards. If not, EPNG will use municipal water from the City of Willcox, Arizona. As indicated in its response to Request No. 12, estimates that one 4,000 gallon water truck will be required every two days for 6 months during construction at each of the proposed compressor stations. Therefore, the maximum expected water quantity for dust control would be 360,000 to 400,000 gallons. During construction, the volume used will depend upon site conditions and the required frequency to minimize fugitive dust emissions.

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Response prepared by or under the supervision of:

Vickie Gibson &  
Steven Wells  
Kinder Morgan  
Project Managers  
719-520-4205  
719-520-4864

EL PASO NATURAL GAS COMPANY, L.L.C.  
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23. Identify any chemical which would be added to the hydrostatic test water, its concentration at discharge, and the proposed treatment and/or disposal method for the discharge. In addition, provide copies of any required permits for these discharges.

Response:

As noted in Section 1.4.2.8, no chemicals will be added to the hydrostatic test water. Disposal method and permits required for the discharge of the hydrostatic test water for all three project areas are identified in the Project's *Hydrostatic Testing Best Management Practices Plan* provided in the ECD in Appendix D of Resource Report 1 and included below. Project-specific permits will be obtained closer to the time of hydrotest activities since the permit would be good for up to 60 days from the date of issuance as noted below. Hydrostatic test water would be discharged through designated outfalls. Prior to discharge, a settling area would be established outside of a nearby ephemeral wash for water to soak into the ground within an upland area rather than flowing along roadways or into the ephemeral wash. The extent of this area would be determined based on the expected volume and flow rate of the discharge. The exact locations and size of the discharge locations are undetermined at this time, but would be developed in coordination with the construction contractor and would be in accordance with each state issued permit.

**17-Mile Loop Line:** Guidelines and any required permits would fall under the State of Texas and would require a minor permit from the Railroad Commission of Texas for discharge of water. Typically a Railroad Commission of Texas water discharge permit is good for up to 60 days from the date of issuance; therefore, EPNG intends to request this permit closer to when it plans to undertake hydrotest activities.

**Red Mountain Compressor Station:** Hydrostatic test water would need to be discharged in accordance with the EPA National Pollution Discharge Elimination System ("NPDES") requirements as the State of New Mexico does not directly implement the NPDES program.

**Dragoon Compressor Station:** Hydrostatic test water would need to be discharged in accordance with the Arizona Discharge Pollutant Elimination System General Permit for De Minimus Discharges to Waters of the US. An Arizona Department of Environmental Quality De Minimus Discharge permit will only be required if EPNG intends on discharging the water into waters of the US. EPNG does not plan on discharging any hydrostatic test water at the Dragoon Compressor Station into any waters of the US.

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Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

EL PASO NATURAL GAS COMPANY, L.L.C.  
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**Geologic Concerns**

24. Section 6.5.1 identified two wells within 1 mile of the 17-mile loop line. Section 6.5.2 describes them as “two permitted well locations.” Clarify if the identified wells have been constructed and if they are oil or natural gas wells. Also provide estimated distances to the wells and the approximate milepost.

Response:

According to the Railroad Commission of Texas, no existing producing, service, plugged, or abandoned natural gas or oil well have been constructed at or near these locations.<sup>10</sup> Permitted locations are those proposed well locations that have been granted a drilling permit from the Railroad Commission of Texas. The available records do not indicate when these two permitted well locations were permitted, whether they were permitted for oil or natural gas wells, who holds the permits, or whether the wells were drilled.

One permitted well location occurs 0.5 mile southwest of the 17-mile loop line at approximately milepost 181.0. The second permitted well location occurs 0.1-mile northeast of the 17-mile loop line at approximately milepost 181.6.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

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<sup>10</sup> Railroad Commission of Texas. 2018. Public GIS viewer. Available at: <http://www.gisp.rrc.texas.gov/GISViewer2/>. Accessed June 2018.

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**Erosion Control and Mitigation**

25. With respect to EPNG's proposed modification of the FERC Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) section III. D. Access Roads and section IV. CII Road Crossings and Access Points, explain the requested modifications. As written, it would appear that these changes would allow for unsafe conditions, if approved by a local agency.

Response:

The requested modification "unless allowed by local agencies" was intended to be in regards to maintaining accessible conditions at all road crossings and was not intended to apply to maintaining safe conditions at all road crossings. EPNG commits to ensuring the safety of all parties at road crossings and access points. The intended proposed modification to the Plan should read "EPNG construction could temporarily close certain road crossings provided local agency approval is obtained and an alternative route is available".

EPNG has attached the revised Plan behind this response showing the corrected modifications in Section III.D. and Section IV.CII.

Response prepared by or under the supervision of:

Vickie Gibson  
Kinder Morgan  
Project Manager  
719-520-4205



**Federal Energy  
Regulatory  
Commission**

**Office of  
Energy Projects**

**May 2013**

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# **UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN**

Washington, DC 20426

MAY 2013 VERSION

**UPLAND EROSION CONTROL, REVEGETATION, AND  
MAINTENANCE PLAN**

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## **UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN (PLAN)**

### **I. APPLICABILITY**

- A. The intent of this Plan is to assist project sponsors by identifying baseline mitigation measures for minimizing erosion and enhancing revegetation. Project sponsors shall specify in their applications for a new FERC authorization and in prior notice and advance notice filings, any individual measures in this Plan they consider unnecessary, technically infeasible, or unsuitable due to local conditions and fully describe any alternative measures they would use. Project sponsors shall also explain how those alternative measures would achieve a comparable level of mitigation.

Once a project is authorized, project sponsors can request further changes as variances to the measures in this Plan (or the applicant's approved plan). The Director of the Office of Energy Projects (Director) will consider approval of variances upon the project sponsor's written request, if the Director agrees that a variance:

1. provides equal or better environmental protection;
2. is necessary because a portion of this Plan is infeasible or unworkable based on project-specific conditions; or
3. is specifically required in writing by another federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Sponsors of projects planned for construction under the automatic authorization provisions in the FERC's regulations must receive written approval for any variances in advance of construction.

Project-related impacts on wetland and waterbody systems are addressed in the staff's Wetland and Waterbody Construction and Mitigation Procedures (Procedures).

## II. SUPERVISION AND INSPECTION

### A. ENVIRONMENTAL INSPECTION

1. At least one Environmental Inspector is required for each construction spread during construction and restoration (as defined by section V). The number and experience of Environmental Inspectors assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected.
2. Environmental Inspectors shall have peer status with all other activity inspectors.
3. Environmental Inspectors shall have the authority to stop activities that violate the environmental conditions of the FERC's Orders, stipulations of other environmental permits or approvals, or landowner easement agreements; and to order appropriate corrective action.

### B. RESPONSIBILITIES OF ENVIRONMENTAL INSPECTORS

At a minimum, the Environmental Inspector(s) shall be responsible for:

1. Inspecting construction activities for compliance with the requirements of this Plan, the Procedures, the environmental conditions of the FERC's Orders, the mitigation measures proposed by the project sponsor (as approved and/or modified by the Order), other environmental permits and approvals, and environmental requirements in landowner easement agreements.
2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;
3. Verifying that the limits of authorized construction work areas and locations of access roads are visibly marked before clearing, and maintained throughout construction;
4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements along the construction work area;
5. Identifying erosion/sediment control and soil stabilization needs in all areas;
6. Ensuring that the design of slope breakers will not cause erosion or direct water into sensitive environmental resource areas, including cultural resource sites, wetlands, waterbodies, and sensitive species habitats;

7. Verifying that dewatering activities are properly monitored and do not result in the deposition of sand, silt, and/or sediment into sensitive environmental resource areas, including wetlands, waterbodies, cultural resource sites, and sensitive species habitats; stopping dewatering activities if such deposition is occurring and ensuring the design of the discharge is changed to prevent reoccurrence; and verifying that dewatering structures are removed after completion of dewatering activities;
8. Ensuring that subsoil and topsoil are tested in agricultural and residential areas to measure compaction and determine the need for corrective action;
9. Advising the Chief Construction Inspector when environmental conditions (such as wet weather or frozen soils) make it advisable to restrict or delay construction activities to avoid topsoil mixing or excessive compaction;
10. Ensuring restoration of contours and topsoil;
11. Verifying that the soils imported for agricultural or residential use are certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner;
12. Ensuring that erosion control devices are properly installed to prevent sediment flow into sensitive environmental resource areas (e.g., wetlands, waterbodies, cultural resource sites, and sensitive species habitats) and onto roads, and determining the need for additional erosion control devices;
13. Inspecting and ensuring the maintenance of temporary erosion control measures at least:
  - a. on a daily basis in areas of active construction or equipment operation;
  - b. on a weekly basis in areas with no construction or equipment operation; and
  - c. within 24 hours of each 0.5 inch of rainfall;
14. Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental impacts;
15. Keeping records of compliance with the environmental conditions of the FERC's Orders, and the mitigation measures proposed by the project sponsor in the application submitted to the FERC, and other federal or state environmental permits during active construction and restoration;

16. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase; and
17. Verifying that locations for any disposal of excess construction materials for beneficial reuse comply with section III.E.

### III. PRECONSTRUCTION PLANNING

The project sponsor shall do the following before construction:

#### A. CONSTRUCTION WORK AREAS

1. Identify all construction work areas (e.g., construction right-of-way, extra work space areas, pipe storage and contractor yards, borrow and disposal areas, access roads) that would be needed for safe construction. The project sponsor must ensure that appropriate cultural resources and biological surveys are conducted, as determined necessary by the appropriate federal and state agencies.
2. Project sponsors are encouraged to consider expanding any required cultural resources and endangered species surveys in anticipation of the need for activities outside of authorized work areas.
3. Plan construction sequencing to limit the amount and duration of open trench sections, as necessary, to prevent excessive erosion or sediment flow into sensitive environmental resource areas.

#### B. DRAIN TILE AND IRRIGATION SYSTEMS

1. Attempt to locate existing drain tiles and irrigation systems.
2. Contact landowners and local soil conservation authorities to determine the locations of future drain tiles that are likely to be installed within 3 years of the authorized construction.
3. Develop procedures for constructing through drain-tiled areas, maintaining irrigation systems during construction, and repairing drain tiles and irrigation systems after construction.
4. Engage qualified drain tile specialists, as needed to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialists from the project area, if available.

C. GRAZING DEFERMENT

Develop grazing deferment plans with willing landowners, grazing permittees, and land management agencies to minimize grazing disturbance of revegetation efforts.

D. ROAD CROSSINGS AND ACCESS POINTS

Plan for safe and accessible conditions at all roadway crossings and access points during construction and restoration. **EPNG construction could temporarily close certain road crossings provided local agency approval is obtained and an alternative route is available.**

E. DISPOSAL PLANNING

Determine methods and locations for the regular collection, containment, and disposal of excess construction materials and debris (e.g., timber, slash, mats, garbage, drill cuttings and fluids, excess rock) throughout the construction process. Disposal of materials for beneficial reuse must not result in adverse environmental impact and is subject to compliance with all applicable survey, landowner or land management agency approval, and permit requirements.

F. AGENCY COORDINATION

The project sponsor must coordinate with the appropriate local, state, and federal agencies as outlined in this Plan and/or required by the FERC's Orders.

1. Obtain written recommendations from the local soil conservation authorities or land management agencies regarding permanent erosion control and revegetation specifications.
2. Develop specific procedures in coordination with the appropriate agencies to prevent the introduction or spread of invasive species, noxious weeds, and soil pests resulting from construction and restoration activities.
3. Develop specific procedures in coordination with the appropriate agencies and landowners, as necessary, to allow for livestock and wildlife movement and protection during construction.
4. Develop specific blasting procedures in coordination with the appropriate agencies that address pre- and post-blast inspections; advanced public notification; and mitigation measures for building foundations, groundwater wells, and springs. Use appropriate methods (e.g., blasting mats) to prevent damage to nearby structures and to prevent debris from entering sensitive environmental resource areas.

## G. SPILL PREVENTION AND RESPONSE PROCEDURES

The project sponsor shall develop project-specific Spill Prevention and Response Procedures, as specified in section IV of the staff's Procedures. A copy must be filed with the Secretary of the FERC (Secretary) prior to construction and made available in the field on each construction spread. The filing requirement does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.

## H. RESIDENTIAL CONSTRUCTION

For all properties with residences located within 50 feet of construction work areas, project sponsors shall: avoid removal of mature trees and landscaping within the construction work area unless necessary for safe operation of construction equipment, or as specified in landowner agreements; fence the edge of the construction work area for a distance of 100 feet on either side of the residence; and restore all lawn areas and landscaping immediately following clean up operations, or as specified in landowner agreements. If seasonal or other weather conditions prevent compliance with these time frames, maintain and monitor temporary erosion controls (sediment barriers and mulch) until conditions allow completion of restoration.

## I. WINTER CONSTRUCTION PLANS

If construction is planned to occur during winter weather conditions, project sponsors shall develop and file a project-specific winter construction plan with the FERC application. This filing requirement does not apply to projects constructed under the automatic authorization provisions of the FERC's regulations.

The plan shall address:

1. winter construction procedures (e.g., snow handling and removal, access road construction and maintenance, soil handling under saturated or frozen conditions, topsoil stripping);
2. stabilization and monitoring procedures if ground conditions will delay restoration until the following spring (e.g., mulching and erosion controls, inspection and reporting, stormwater control during spring thaw conditions); and
3. final restoration procedures (e.g., subsidence and compaction repair, topsoil replacement, seeding).

#### IV. INSTALLATION

##### A. APPROVED AREAS OF DISTURBANCE

1. Project-related ground disturbance shall be limited to the construction right-of-way, extra work space areas, pipe storage yards, borrow and disposal areas, access roads, and other areas approved in the FERC's Orders. Any project-related ground disturbing activities outside these areas will require prior Director approval. This requirement does not apply to activities needed to comply with the Plan and Procedures (i.e., slope breakers, energy-dissipating devices, dewatering structures, drain tile system repairs) or minor field realignments and workspace shifts per landowner needs and requirements that do not affect other landowners or sensitive environmental resource areas. All construction or restoration activities outside of authorized areas are subject to all applicable survey and permit requirements, and landowner easement agreements.
  
2. The construction right-of-way width for a project shall not exceed 75 feet or that described in the FERC application unless otherwise modified by a FERC Order. **The typical construction ROW associated with the 17-mile Loop will be 90 feet, Construction ROW within the sand dune areas will be 210 feet for safety reasons and to accommodate the sandy soils.** However, in limited, non-wetland areas, this construction right-of-way width may be expanded by up to 25 feet without Director approval to accommodate full construction right-of-way topsoil segregation and to ensure safe construction where topographic conditions (e.g., side-slopes) or soil limitations require it. Twenty-five feet of extra construction right-of-way width may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists.  
Project use of these additional limited areas is subject to landowner or land management agency approval and compliance with all applicable survey and permit requirements. When additional areas are used, each one shall be identified and the need explained in the weekly or biweekly construction reports to the FERC, if required. The following material shall be included in the reports:
  - a. the location of each additional area by station number and reference to previously filed alignment sheets, or updated alignment sheets showing the additional areas;
  - b. identification of the filing at FERC containing evidence that the additional areas were previously surveyed; and

- c. a statement that landowner approval has been obtained and is available in project files.

Prior written approval of the Director is required when the authorized construction right-of-way width would be expanded by more than 25 feet.

## B. TOPSOIL SEGREGATION

1. Unless the landowner or land management agency specifically approves otherwise, prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area or from the trench and subsoil storage area (ditch plus spoil side method) in:
  - a. cultivated or rotated croplands, and managed pastures;
  - b. residential areas;
  - c. hayfields; and
  - d. other areas at the landowner's or land managing agency's request.
2. In residential areas, importation of topsoil is an acceptable alternative to topsoil segregation.
3. Where topsoil segregation is required, the project sponsor must:
  - a. segregate at least 12 inches of topsoil in deep soils (more than 12 inches of topsoil); and
  - b. make every effort to segregate the entire topsoil layer in soils with less than 12 inches of topsoil.
4. Maintain separation of salvaged topsoil and subsoil throughout all construction activities.
5. Segregated topsoil may not be used for padding the pipe, constructing temporary slope breakers or trench plugs, improving or maintaining roads, or as a fill material.
6. Stabilize topsoil piles and minimize loss due to wind and water erosion with use of sediment barriers, mulch, temporary seeding, tackifiers, or functional equivalents, where necessary.



## C. DRAIN TILES

1. Mark locations of drain tiles damaged during construction.
2. Probe all drainage tile systems within the area of disturbance to check for damage.
3. Repair damaged drain tiles to their original or better condition. Do not use filter-covered drain tiles unless the local soil conservation authorities and the landowner agree. Use qualified specialists for testing and repairs.
4. For new pipelines in areas where drain tiles exist or are planned, ensure that the depth of cover over the pipeline is sufficient to avoid interference with drain tile systems. For adjacent pipeline loops in agricultural areas, install the new pipeline with at least the same depth of cover as the existing pipeline(s).

## CI. IRRIGATION

Maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties.

## CII. ROAD CROSSINGS AND ACCESS POINTS

1. Maintain safe and accessible conditions at all road crossings and access points during construction. **EPNG construction could temporarily close certain road crossings provided local agency approval is obtained and an alternate route is available.**
2. If crushed stone access pads are used in residential or agricultural areas, place the stone on synthetic fabric to facilitate removal.
3. Minimize the use of tracked equipment on public roadways. Remove any soil or gravel spilled or tracked onto roadways daily or more frequent as necessary to maintain safe road conditions. Repair any damages to roadway surfaces, shoulders, and bar ditches.

## CIII. TEMPORARY EROSION CONTROL

Install temporary erosion controls immediately after initial disturbance of the soil. Temporary erosion controls must be properly maintained throughout construction (on a daily basis) and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration is complete.

1. Temporary Slope Breakers
  - a. Temporary slope breakers are intended to reduce runoff velocity and divert water off the construction right-of-way. Temporary slope

breakers may be constructed of materials such as soil, silt fence, staked hay or straw bales, or sand bags.

- b. Install temporary slope breakers on all disturbed areas, as necessary to avoid excessive erosion. Temporary slope breakers must be installed on slopes greater than 5 percent where the base of the slope is less than 50 feet from waterbody, wetland, and road crossings at the following spacing (closer spacing shall be used if necessary):

<u>Slope (%)</u>	<u>Spacing (feet)</u>
5 - 15	300
>15 - 30	200
>30	100

- c. Direct the outfall of each temporary slope breaker to a stable, well vegetated area or construct an energy-dissipating device at the end of the slope breaker and off the construction right-of-way.
- d. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive environmental resource areas.

## 2. Temporary Trench Plugs

Temporary trench plugs are intended to segment a continuous open trench prior to backfill.

- a. Temporary trench plugs may consist of unexcavated portions of the trench, compacted subsoil, sandbags, or some functional equivalent.
- b. Position temporary trench plugs, as necessary, to reduce trenchline erosion and minimize the volume and velocity of trench water flow at the base of slopes.

## 3. Sediment Barriers

Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments beyond approved workspaces or into sensitive resources.

- a. Sediment barriers may be constructed of materials such as silt fence, staked hay or straw bales, compacted earth (e.g., driveable berms across travelways), sand bags, or other appropriate materials.

- b. At a minimum, install and maintain temporary sediment barriers across the entire construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody, wetland, or road crossing until revegetation is successful as defined in this Plan. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.
- c. Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody.

#### 4. Mulch

- a. Apply mulch on all slopes (except in cultivated cropland) concurrent with or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion. Spread mulch uniformly over the area to cover at least 75 percent of the ground surface at a rate of 2 tons/acre of straw or its equivalent, unless the local soil conservation authority, landowner, or land managing agency approves otherwise in writing.
- b. Mulch can consist of weed-free straw or hay, wood fiber hydromulch, erosion control fabric, or some functional equivalent.
- c. Mulch all disturbed upland areas (except cultivated cropland) before seeding if:
  - (1) final grading and installation of permanent erosion control measures will not be completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas), as required in section V.A.1; or
  - (2) construction or restoration activity is interrupted for extended periods, such as when seeding cannot be completed due to seeding period restrictions.
- d. If mulching before seeding, increase mulch application on all slopes within 100 feet of waterbodies and wetlands to a rate of 3 tons/acre of straw or equivalent.
- e. If wood chips are used as mulch, do not use more than 1 ton/acre and add the equivalent of 11 lbs/acre available nitrogen (at least 50 percent of which is slow release).

- f. Ensure that mulch is adequately anchored to minimize loss due to wind and water.
- g. When anchoring with liquid mulch binders, use rates recommended by the manufacturer. Do not use liquid mulch binders within 100 feet of wetlands or waterbodies, except where the product is certified environmentally non-toxic by the appropriate state or federal agency or independent standards-setting organization.
- h. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat, unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.

## V. RESTORATION

### A. CLEANUP

1. Commence cleanup operations immediately following backfill operations. Complete final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas). If seasonal or other weather conditions prevent compliance with these time frames, maintain temporary erosion controls (i.e., temporary slope breakers, sediment barriers, and mulch) until conditions allow completion of cleanup.

If construction or restoration unexpectedly continues into the winter season when conditions could delay successful decompaction, topsoil replacement, or seeding until the following spring, file with the Secretary for the review and written approval of the Director, a winter construction plan (as specified in section III.I). This filing requirement does not apply to projects constructed under the automatic authorization provisions of the FERC's regulations.

2. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion control structures are installed as specified in section IV.F. and inspected and maintained as specified in sections II.B.12 through 14. When access is no longer required the travel lane must be removed and the right-of-way restored.
3. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench shall be considered construction debris, unless approved for use as mulch or for some other use on the construction work areas by the landowner or land managing agency.

4. Remove excess rock from at least the top 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction work area shall be similar to adjacent areas not disturbed by construction. The landowner or land management agency may approve other provisions in writing.
5. Grade the construction right-of-way to restore pre-construction contours and leave the soil in the proper condition for planting.
6. Remove construction debris from all construction work areas unless the landowner or land managing agency approves leaving materials onsite for beneficial reuse, stabilization, or habitat restoration.
7. Remove temporary sediment barriers when replaced by permanent erosion control measures or when revegetation is successful.

#### B. PERMANENT EROSION CONTROL DEVICES

1. Trench Breakers
  - a. Trench breakers are intended to slow the flow of subsurface water along the trench. Trench breakers may be constructed of materials such as sand bags or polyurethane foam. Do not use topsoil in trench breakers.
  - b. An engineer or similarly qualified professional shall determine the need for and spacing of trench breakers. Otherwise, trench breakers shall be installed at the same spacing as and upslope of permanent slope breakers.
  - c. In agricultural fields and residential areas where slope breakers are not typically required, install trench breakers at the same spacing as if permanent slope breakers were required.
  - d. At a minimum, install a trench breaker at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or wetland. Install trench breakers at wetland boundaries, as specified in the Procedures. Do not install trench breakers within a wetland.

2. Permanent Slope Breakers

- a. Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction right-of-way, and prevent sediment deposition into sensitive resources. Permanent slope breakers may be constructed of materials such as soil, stone, or some functional equivalent.
- b. Construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, unless requested by the landowner, using spacing recommendations obtained from the local soil conservation authority or land managing agency.

In the absence of written recommendations, use the following spacing unless closer spacing is necessary to avoid excessive erosion on the construction right-of-way:

<u>Slope (%)</u>	<u>Spacing (feet)</u>
5 - 15	300
>15 - 30	200
>30	100

- c. Construct slope breakers to divert surface flow to a stable area without causing water to pool or erode behind the breaker. In the absence of a stable area, construct appropriate energy-dissipating devices at the end of the breaker.
- d. Slope breakers may extend slightly (about 4 feet) beyond the edge of the construction right-of-way to effectively drain water off the disturbed area. Where slope breakers extend beyond the edge of the construction right-of-way, they are subject to compliance with all applicable survey requirements.

C. SOIL COMPACTION MITIGATION

- 1. Test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Conduct tests on the same soil type under similar moisture conditions in undisturbed areas to approximate preconstruction conditions. Use penetrometers or other appropriate devices to conduct tests.
- 2. Plow severely compacted agricultural areas with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil.

If subsequent construction and cleanup activities result in further compaction, conduct additional tilling.

3. Perform appropriate soil compaction mitigation in severely compacted residential areas.

#### D. REVEGETATION

##### 1. General

- a. The project sponsor is responsible for ensuring successful revegetation of soils disturbed by project-related activities, except as noted in section V.D.1.b.
- b. Restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.

##### 2. Soil Additives

Fertilize and add soil pH modifiers in accordance with written recommendations obtained from the local soil conservation authority, land management agencies, or landowner. Incorporate recommended soil pH modifier and fertilizer into the top 2 inches of soil as soon as practicable after application.

##### 3. Seeding Requirements

- a. Prepare a seedbed in disturbed areas to a depth of 3 to 4 inches using appropriate equipment to provide a firm seedbed. When hydroseeding, scarify the seedbed to facilitate lodging and germination of seed.
- b. Seed disturbed areas in accordance with written recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority or the request of the landowner or land management agency. Seeding is not required in cultivated croplands unless requested by the landowner.
- c. Perform seeding of permanent vegetation within the recommended seeding dates. If seeding cannot be done within those dates, use appropriate temporary erosion control measures discussed in section IV.F and perform seeding of permanent vegetation at the beginning of the next recommended seeding season. Dormant seeding or temporary

seeding of annual species may also be used, if necessary, to establish cover, as approved by the Environmental Inspector. Lawns may be seeded on a schedule established with the landowner.

- d. In the absence of written recommendations from the local soil conservation authorities, seed all disturbed soils within 6 working days of final grading, weather and soil conditions permitting, subject to the specifications in section V.D.3.a through V.D.3.c.
- e. Base seeding rates on Pure Live Seed. Use seed within 12 months of seed testing.
- f. Treat legume seed with an inoculant specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydro).
- g. In the absence of written recommendations from the local soil conservation authorities, landowner, or land managing agency to the contrary, a seed drill equipped with a cultipacker is preferred for seed application.

Broadcast or hydroseeding can be used in lieu of drilling at double the recommended seeding rates. Where seed is broadcast, firm the seedbed with a cultipacker or roller after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment, other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application, as approved by the Environmental Inspector.

## VI. OFF-ROAD VEHICLE CONTROL

To each owner or manager of forested lands, offer to install and maintain measures to control unauthorized vehicle access to the right-of-way. These measures may include:

- A. signs;
- B. fences with locking gates;
- C. slash and timber barriers, pipe barriers, or a line of boulders across the right-of-way; and
- D. conifers or other appropriate trees or shrubs across the right-of-way.



## VII. POST-CONSTRUCTION ACTIVITIES AND REPORTING

### A. MONITORING AND MAINTENANCE

1. Conduct follow-up inspections of all disturbed areas, as necessary, to determine the success of revegetation and address landowner concerns. At a minimum, conduct inspections after the first and second growing seasons.
2. Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful when upon visual survey, crop growth and vigor are similar to adjacent undisturbed portions of the same field, unless the easement agreement specifies otherwise.

Continue revegetation efforts until revegetation is successful.

3. Monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in agricultural areas until restoration is successful.
4. Restoration shall be considered successful if the right-of-way surface condition is similar to adjacent undisturbed lands, construction debris is removed (unless otherwise approved by the landowner or land managing agency per section V.A.6), revegetation is successful, and proper drainage has been restored.
5. Routine vegetation mowing or clearing over the full width of the permanent right-of-way in uplands shall not be done more frequently than every 3 years. However, to facilitate periodic corrosion/leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In no case shall routine vegetation mowing or clearing occur during the migratory bird nesting season between April 15 and August 1 of any year unless specifically approved in writing by the responsible land management agency or the U.S. Fish and Wildlife Service.
6. Efforts to control unauthorized off-road vehicle use, in cooperation with the landowner, shall continue throughout the life of the project. Maintain signs, gates, and permanent access roads as necessary.

## B. REPORTING

1. The project sponsor shall maintain records that identify by milepost:
  - a. method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;
  - b. acreage treated;
  - c. dates of backfilling and seeding;
  - d. names of landowners requesting special seeding treatment and a description of the follow-up actions;
  - e. the location of any subsurface drainage repairs or improvements made during restoration; and
  - f. any problem areas and how they were addressed.
2. The project sponsor shall file with the Secretary quarterly activity reports documenting the results of follow-up inspections required by section VII.A.1; any problem areas, including those identified by the landowner; and corrective actions taken for at least 2 years following construction.

The requirement to file quarterly activity reports with the Secretary does not apply to projects constructed under the automatic authorization, prior notice, or advanced notice provisions in the FERC's regulations.

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
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**Topsoil Segregation**

26. Where would topsoil segregation be done? Would EPNG segregate topsoil from on top of the ditch or for the full width of the construction work area?

Response:

EPNG will segregate topsoil from the full width of the construction work area which includes the ditch, working side of the ROW and contractor staging areas as specified in the last paragraph of Section 1.4.2.7. The topsoil will be stored in such a manner as to prevent any mixing with subsoils.

Response prepared by or under the supervision of:

Mike Bonar  
EPNG Environmental Project Manager  
719-520-4817

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
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## Vegetation and Wildlife

27. Characterize the abundance and coverage of the species within the Semidesert grassland community at the two compressor station sites.

Response:

Biologists noted floral and faunal species present within both compressor station sites, the structure and distribution the vegetation community within the project areas, and made qualitative assessments of the suitability of the project areas for both special-status and general wildlife species. Neither proposed compressor station location occurs within an area of special concern for wildlife or vegetation. Both proposed station sites contain a higher percentage of disturbed areas than in the immediately area surrounding each compressor station site (i.e., lower numbers of plants and more bare ground or developed areas) based on an assessment of abundance and coverage.

### Red Mountain Compressor Station:

Where natural vegetation occurs, it generally consists of sparsely distributed short-stature shrubs, forbs, and cacti. Vegetation is dominated by creosotebush (*Larrea tridentata*), threadleaf snakeweed (*Gutierrezia microcephala*), honey mesquite (*Prosopis glandulosa*), prickly Russian thistle (*Salsola tragus*), soaptree yucca (*Yucca elata*), fourwing saltbush (*Atriplex canescens*), desert globemallow (*Sphaeralcea ambigua*), tobosagrass (*Pleuraphis mutica*), Palmer's amaranth (*Amaranthus palmeri*). However, the natural vegetation is extremely disturbed within this project area, and the project area contains areas entirely without vegetation (i.e., the fenced and graveled area containing the abandoned Deming Compressor Station) and bare areas where the natural vegetation has been removed or highly disturbed.

### Dragoon Compressor Station:

The project area contains native species typical of Semidesert Grassland biotic community that has been invaded by shrub species owing to past land-use (i.e., suppression of natural fire regime and historic grazing). Vegetation in the Dragoon Compressor Station site is dominated by velvet mesquite (*Prosopis velutina*) and desert broom (*Baccharis sarothroides*) in the overstory, with burroweed (*Isocoma tenuisecta*) and perennial bunchgrasses, primarily lovegrass (*Eragrostis* sp.), in the understory. Prickly Russian thistle (*Salsola tragus*), soaptree yucca (*Yucca elata*), and jimsonweed (*Datura* sp.) also occurred.

Past disturbances have altered the abundance and distribution of plant species in this project area. The proposed Dragoon Compressor Station project area contains several

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areas contain no vegetation including the fenced and graveled area yard for the existing Willcox Compressor Station, a concrete-lined industrial pond associated, and existing access roads. Much of the remaining areas of natural vegetation have been highly disturbed owing to the past construction and removal of the residential camp and the construction of the Willcox Compressor Station.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

EL PASO NATURAL GAS COMPANY, L.L.C.  
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28. Describe the vegetation types and quantify the amount of temporary and permanent disturbance that would occur to each vegetation type (e.g. Native Range/Brush, Semidesert grassland, Bottomland/Riparian, etc.). Identify timing windows, if applicable, for these habitat types. Include all access roads, TWS, ATWS, staging areas and contractor and pipe storage yards. Note that this categorization would be in addition to the NCLD land cover types provided in tables 8-9, 8-10, and 8-11.

Response:

17-mile Loop Line

EPNG has included in this response Table 3-1 included in Environmental Resource Report 3 that depicts the breakdown of vegetation community impacts for the proposed 17-mile loop line that are mapped within both temporary and permanent workspace of the pipeline, TWS, ATWS, staging areas, and contractor and pipe storage yards.

Access roads were not included in table 3-1. Because the 17-mile Loop Line portion of the project will use existing roads for access and will not create new access roads, there is no vegetation loss or habitat loss associated with the access roads. The use and maintenance of existing access for the 17-mile Loop Line construction comprises 0.3 acres of temporary impacts and 27.8 acres of permanent impacts.

Table 3-1: Vegetation Community Impacts for 17-Mile Loop Line

Vegetation Community	17-Mile Loop Line <sup>1</sup>			Off-Site Staging Areas <sup>1</sup>		
	Temporary Construction Impact (acres)	Permanent/Operational Impact (acres)	Existing ROW Work Area Impact (acres)	Additional Temporary Workspace Impact (acres)	Laydown Yards Temporary Impact (acres)	Ancillary Pipe Contractor Yards Temporary Impact (acres)
Native Invasive: Mesquite Shrubland	1.8	10.6	18.6	2.5	0	1.9
Trans-Pecos: Creosotebush Scrub	11.0	15.1	2.4	1.2	6.1	0
Trans-Pecos: Desert Deep Sand and Dune Grassland	<0.1	0.1	<0.1	0	0	0
Trans-Pecos: Desert Deep Sand and Dune Shrubland	2.7	18.4	9.9	3.1	0	17.2
Trans-Pecos: Desert Pavement	<0.1	<0.1	<0.1	0	0	2.2

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Vegetation Community	17-Mile Loop Line <sup>1</sup>			Off-Site Staging Areas <sup>1</sup>		
	Temporary Construction Impact (acres)	Permanent/Operational Impact (acres)	Existing ROW Work Area Impact (acres)	Additional Temporary Workspace Impact (acres)	Laydown Yards Temporary Impact (acres)	Ancillary Pipe Contractor Yards Temporary Impact (acres)
Trans-Pecos: Desert Wash Barren	0.4	3.0	1.3	0.1	0	0
Trans-Pecos: Desert Wash Shrubland	0.1	0.2	<0.1	0	0	0
Trans-Pecos: Lower Montane Riparian Shrubland	5.2	28.4	12.2	2.6	0	0
Trans-Pecos: Sand Dune	2.4	16.5	5.6	7.8	7.4	0.7
Trans-Pecos: Sandy Desert Grassland	1.8	11.5	5.5	0.9	0	0.3
Trans-Pecos: Sparse Creosotebush Scrub	2.5	5.6	1.3	0.3	0	0
Urban Low Intensity	0	<0.1	0	<0.1	0	0
Barren	0	0	0	0	0	2.3
<b>TOTAL <sup>2</sup></b>	<b>27.9</b>	<b>109.4</b>	<b>57.1</b>	<b>18.4</b>	<b>13.5</b>	<b>24.6</b>

Red Mountain Compressor Station

The Red Mountain CS occurs entirely within the Semidesert grassland biotic community.<sup>11</sup> Thus, all impacts resulting from construction of the new compressor station, above ground appurtenances, and access road, both temporary (72.0 acres) and permanent (6.2 acres), will disturb areas mapped as Semidesert grassland.

However, a biotic community as described by Brown, is a landscape-level classification system, and does not take into account existing disturbances, structures, and roads, all of which occur within the Red Mountain CS project area. Thus, actual impacts to vegetation types will be substantially less than the total acreage mapped within Semidesert grassland.

As noted in RR3, the project area for the proposed Red Mountain CS is highly disturbed already. Approximately 19.7 acres of the Red Mountain CS site contains no vegetation as it the fenced and graveled area containing the abandoned Deming CS. In addition,

<sup>11</sup> Brown, D.E. (ed.). 1994. *Biotic Communities: Southwestern United States and Northwestern Mexico*. Salt Lake City: University of Utah Press.

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the Red Mountain CS site contains existing paved access roads associated with the abandoned Deming CS. The remaining acreage of the Red Mountain CS site contains disturbed natural vegetation, off-highway vehicle (OHV) tracks, and large disturbed areas where the vegetation has been removed.

The Red Mountain CS footprint permanent impacts consist of 6.2 acres. However, approximately 1.4 acres of that permanent impact occurs within the existing graveled area of the abandoned Deming CS. The remaining 4.8 acres of permanent impacts occurs in a location where the vegetation is disturbed from prior construction and operational activities. While vegetation will be removed from temporary impacts, the abundance and coverage of plant species is relatively low within this area compared to the surrounding vicinity.

#### Dragoon Compressor Station

The Dragoon CS occurs entirely within the Semidesert grassland biotic community.<sup>12</sup> Thus, all impacts resulting from construction of the new compressor station, above ground appurtenances, and access road, both temporary (54.8 acres) and permanent (6.4 acres), will disturb areas mapped as Semidesert grassland.

However, as noted above, these acreages do not account for portions of the project area that may contain existing structures, roads, and disturbed areas. Thus, the actual impacts to vegetation occurring within Semidesert grassland will be less than the acreage mapped as Semidesert grassland. For example, the new access road within the project area will largely occur in previously disturbed areas, including along areas where prior roads associated with the Willcox CS existed. The construction footprint of the proposed Dragoon CS (permanent disturbance) occurs both in areas that are highly disturbed and areas that contain more undisturbed, natural vegetation. Within the temporary impact area, several areas contain no vegetation including (i) approximately 2 acres for a concrete-lined industrial pond associated with the existing Willcox CS; (ii) approximately 4.1 acres in the southern portion of the project area that contains a fenced and graveled yard for the existing Willcox CS; and (iii) approximately 0.3 acres of graveled areas containing facilities associated with the Willcox CS. Approximately 28.5 acres north and east of the existing Willcox CS contain disturbed areas, including roads and cleared areas that contain no vegetation, and areas where the native vegetation was either left in place or has regrown after prior disturbances associated with the construction of the Willcox CS and residential area. In the northern portion of the project area, approximately 11 acres contain the disturbances and remnant infrastructure of the residential camp that was constructed then removed following construction completion of the original Willcox CS. Thus, the permanent and temporary impacts to Semidesert grassland will be less than the total acreage mapped as Semidesert grassland. In addition, all areas disturbed by construction activities outside

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<sup>12</sup> Brown, 1994.



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of the permanent compressor station footprint will be restored according to the reclamation plan provided in the ECD in Appendix D of Resource Report 1.

Biologists noted floral and faunal species present within both compressor station sites, the structure and distribution the vegetation community within the project areas, and made qualitative assessments of the suitability of the project areas for both special-status and general wildlife species. Neither proposed compressor station occurs within an area of special concern for wildlife or vegetation. Both proposed compressor station sites contain a higher percentage of disturbed areas than in the immediately area surrounding each compressor station site (i.e., lower numbers of plants and more bare ground or developed areas) based on an assessment of abundance and coverage. Further, EPNG did not identify any timing windows applicable to the loop or compressor station construction.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
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29. Identify whether there are significant or sensitive wildlife habitats in the Project area, for example elk ranges, wild horse or wild burro areas, big game winter ranges, etc.

Response:

17-mile Loop Line

There are no significant or sensitive wildlife habitats in this project area. The only Governmental or Non-Governmental lands owned or managed for conservation and outdoor recreational purposes within the project area occurs as several neighborhood parks and trails owned and managed by the City of El Paso and occurring approximately 1 mile north and 1.5 miles southwest of the ancillary yards (i.e., those portions of the project area that occur disconnected from the main 17-mile loop line project area). However, these small areas occur within neighborhoods and are managed for recreation not as wildlife habitat or big game areas.

The BLM does not manage any herd management areas for wild horses or burrows within the state of Texas.<sup>13</sup> The nearest Wildlife Management Area is the Sierra Diablo, more than 70 miles southeast of the project area.<sup>14</sup> The Hueco Mountains occur just east and northeast of the project area, and the Hueco Tanks State Park occurs approximately 7 miles north-northeast of the project area. While these nearby areas may provide habitat for big game and other wildlife, there are no identified significant or sensitive wildlife habitats found in these locations in the vicinity of the project.

Red Mountain Compressor Station

There are no significant or sensitive wildlife habitats in this project area. The nearest BLM Herd Management area in New Mexico is more than 100 miles northeast of the project area, near Socorro, New Mexico.<sup>15</sup> The project area and vicinity are not within the core occupied elk range delineated by New Mexico Department of Game and Fish.<sup>16</sup> There are no identified significant or sensitive wildlife habitats found in these locations in the vicinity of the project and because this project area is so highly disturbed, it is unlikely to contain sufficient forage for big game species or feral equines.

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<sup>13</sup> Bureau of Land Management (BLM). 2018. Herd Management Areas. Available at: <https://www.blm.gov/programs/wild-horse-and-burro/herd-management/herd-management-areas>. Accessed June 2018.

<sup>14</sup> Texas Parks and Wildlife. 2018. Big Bend Country. Select a WMA. Available at: [https://tpwd.texas.gov/huntwild/hunt/wma/find\\_a\\_wma/maps/?action=getMap&region=7](https://tpwd.texas.gov/huntwild/hunt/wma/find_a_wma/maps/?action=getMap&region=7). Accessed June 2018.

<sup>15</sup> BLM, 2018.

<sup>16</sup> New Mexico Department of Game and Fish. 2018. Core occupied elk range maps. Available at: <http://www.wildlife.state.nm.us/hunting/maps/big-game-unit-maps-pdfs/>. Accessed June 2018.

EL PASO NATURAL GAS COMPANY, L.L.C.  
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Dragoon CS

There are no significant or sensitive wildlife habitats in this project area. The nearest BLM Herd Management area in Arizona is more than 100 miles northwest of the project area, near Gila Bend, Arizona.<sup>17</sup> The nearest special wildlife area occurs in the Willcox Playa and Whitewater Draw Wildlife Areas that are closed to Sandhill Crane (*Antigone canadensis*) hunting, approximately 5 miles west of the project area. Sandhill cranes winter in extreme southeast Arizona, typically occurring in shallow lakes and rivers, irrigated croplands, pastures, wetlands, or grasslands. The project area is unlikely to contain suitable habitat for this species because it is largely disturbed and dry, and the concrete-lined pond does not contain vegetation, forage, or prey for this species. There are no additional identified significant or sensitive wildlife habitats found in these locations in the vicinity of the project.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

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<sup>17</sup> BLM, 2018.

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
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**Federal/State-Listed Threatened/Endangered Species**

30. Provide copies of any correspondence or telephone communications with the U.S. Fish and Wildlife Service or the States of Texas, New Mexico, and Arizona regarding EPNG's biological evaluation of state- and Federal-listed endangered and threatened species in the vicinity of the proposed project.

Response:

Attached behind this response, EPNG is providing written correspondence and telephone communication records with the USFWS, States of Texas, New Mexico, and Arizona regarding special-status species in the vicinity of the proposed project.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919



April 13, 2018

Stacy Campbell  
SWCA Environmental Consultants, Inc.  
343 W Franklin Street  
Tucson, AZ 85701

Re: Review of the Dragoon Compressor Station (South Mainline Expansion) Project

Dear Ms. Campbell:

The Arizona Game and Fish Department (Department) reviewed your Project Evaluation Request dated April 2, 2018, regarding the construction of a new natural gas compressor station to be built on one of two proposed sites (east and west alternatives) along El Paso Natural Gas' (EPNG's) South Mainline system in Cochise County, Arizona. Thank you for generating your own Heritage Data Management System (HDMS) On-Line Environmental Tool report on December 12, 2017.

As acknowledged in your company's biological evaluation of the project, five special status species have been documented within three miles of the project vicinity, although neither alternative is within federally proposed or designated critical habitat. Although the endangered lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*) has been documented in the vicinity of the two alternatives, your field reconnaissance documented no forage plants (i.e. agaves or saguaros) or roost sites occurring on either site.

Arizona's State Wildlife Action Plan (SWAP) identifies the state's wildlife Species of Greatest Conservation Need (SGCN). There is some overlap between the SGCN and federal Threatened and Endangered Species lists (e.g. lesser long-nosed bat, Chiricahua leopard frog). The On-Line Environmental Tool report provided a list of SGCN predicted to occur within three miles of the project alternatives. Please ensure your biologists familiarize themselves with this list prior to conducting pre-construction surveys and during construction activities. Animals potentially in harms-way during construction activities should be allowed to vacate the area on their own if possible, or be moved by a biologist following accepted wildlife removal methods.

Provided below is some general guidance to minimize wildlife impacts.

### **Artificial Lighting**

The Department is concerned about the possible effects of facility lighting on nocturnal wildlife. Artificial night lighting may attract insects and the species that prey on them (e.g. bats). It could also impair the ability of nocturnal animals to navigate, and may negatively affect reptile

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GOVERNOR: DOUGLAS A. DUCEY COMMISSIONERS: CHAIRMAN, JAMES R. AMMONS, YUMA | JAMES S. ZIELER, ST. JOHNS | ERIC S. SPARKS, TUCSON  
KURT R. DAVIS, PHOENIX | LELAND S. "BILL" BRAKE, ELGIN DIRECTOR: TY E. GRAY DEPUTY DIRECTOR: TOM P. FINLEY

Ms. Stacy Campbell

April 13, 2018

2

populations. The Department recommends using only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, canted, or cut to ensure that light reaches only areas needing illumination.

### **Bird Deaths in Pipes**

Increasing documentation shows that open-topped pipes, such as PVC or metal pipes that may be used for fence posts or property markers can be lethal entrapment hazards to wildlife, especially birds. Please ensure that all fence posts and other external construction related pipes are capped. More information is available at <https://www.partnersinflight.org/resources/death-pipes/>.

### **Migratory Bird Treaty Act (MBTA)**

The trees and/or vegetation within the project area may provide nesting opportunities for avian species that are regulated under the Migratory Bird Treaty Act (MBTA). A qualified biologist should conduct a survey for nesting birds within the project area prior to removal or trimming of trees/vegetation during the breeding season. Breeding season for birds is generally May through late August, depending on the species and habitat, and for raptors it is generally January through late June. If you anticipate your project will not be in compliance with MBTA, the Department recommends you contact the U.S. Fish and Wildlife Service (USFWS) for their Technical Assistance. The USFWS will provide options to comply with the MBTA.

### **Fencing**

The Department recommends the use of wildlife-friendly fencing whenever possible. In situations where wildlife exclusion is desirable, wildlife-proof fencing may be appropriate, as long as it does not pose an injury or mortality threat to wildlife. Areas employing wildlife-proof fencing should be evaluated regularly for possible wildlife entrapment and, if needed, install modifications to the fencing to allow wildlife egress from the fenced-in area.

The Department appreciates the opportunity to provide an evaluation of impacts to wildlife or wildlife habitats associated with the Dragoon Compressor Station (South Mainline Expansion) Project. If you have any questions regarding this letter, please contact Kristin Terpening at (520)591-2151 or [kterpening@azgfd.gov](mailto:kterpening@azgfd.gov), and visit our website for additional guidelines at <https://www.azgfd.com/wildlife/planning/wildlifeguidelines/>.

Sincerely,



Raul Vega  
Region V Supervisor, Tucson

RV:kt

cc: Laura Canaca, Project Evaluation Program Supervisor

AGFD# M18-04025134

# Record of Conversation

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**DATE: JUNE 15, 2018**

**TIME OF CALL: 11:15 AM  
ARIZONA TIME**

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**Call/Callers: Stacy Campbell, SWCA biologist called Mathew Wunder, Chief, Ecological and Environmental Planning Division**

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**Company: New Mexico Department of Game and Fish (NMGAF)**

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**Phone Number: (888) 248-6866**

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**Project Number: 43780**

**Email:**

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**Subject of Call: To determine whether NMGAF had a process to evaluate projects or coordinate with project proponents and to determine whether NMGAF might have any suggestions regarding this project.**

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**As per the conversation with Mr. Wunder: New Mexico Game and Fish Department does not generally coordinate about or evaluate projects unless the projects are state funded or a permit for "take" of New Mexico threatened or endangered wildlife is required.**

**He recommended contacting the New Mexico Department of Game and Fish in addition to U.S. Fish and Wildlife if the burrowing owls on the Red Mountain Compressor Station property cannot be avoided during construction, as owls are protected by state law.**

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# United States Department of the Interior

## Fish and Wildlife Service Arizona Ecological Services Office

9828 North 31<sup>st</sup> Avenue  
Phoenix, Arizona 85051

Telephone: (602) 242-0210 Fax: (602) 242-2513



AESO/SE  
02EAAZ00-2018-TA-0788

May 10, 2018

Mr. Mike Bonar  
El Paso Natural Gas Company, LLC  
Two North Nevada Avenue  
Colorado Springs, Colorado 80903

Dear Mr. Bonar:

Thank you for your correspondence of January 22, 2018, received in our office March 30, 2018. We apologize for the length of time it has taken for us to respond to your request. This letter documents our recommendations regarding El Paso Natural Gas Company's proposed South Mainline Expansion Project in Hudspeth and El Paso Counties, Texas; Luna County, New Mexico; and Cochise County Arizona. The proposed project includes three components:

- Construction of an approximately 17-mile long, 30-inch outside diameter loop line extension of Line No. 1110 adjacent to Line Nos. 1100 and 1103 in Texas;
- Construction of the new 13,000-horsepower Red Mountain Compressor Station at MP 305.3 of Line Nos. 1100 and 1103 in New Mexico; and
- Construction of the new 13,000-horsepower Dragoon Compressor Station at MP 409.5 of Line Nos. 1100 and 1103 in Arizona.

We have coordinated our evaluation of this proposed project among our Arizona, New Mexico, and Texas Ecological Services Offices and have reviewed SWCA's January 2018 Biological Evaluation that was included in your January 22, 2018 correspondence. We acknowledge that the Federal Energy Regulatory Commission has designated El Paso Natural Gas Company as their non-Federal representative. Therefore, we are directing this correspondence to you.

Based on the information that you have provided, we agree with your determination that the proposed project will have no effect on any listed endangered or threatened species nor will any designated critical habitat be affected by this project. Additionally, this project is not likely to jeopardize the continued existence of any proposed species nor adversely modify any proposed critical habitat. No further review is required for this project at this time. Should project plans change or if additional information on the distribution of listed or proposed species becomes



available, this determination may need to be reconsidered. We recommend that you maintain all supporting documentation for your determination for future reference.

Should you require further assistance or if you have any questions, please contact Scott Richardson (520) 670-6150 (x 242). Please refer to consultation number 02EAAZ00-2018-TA-0788 in any future correspondence. Thank you for your continued efforts to conserve endangered species.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Richardson", with a horizontal line extending to the right.

Field Supervisor

cc (electronic):

SWCA Environmental Consultants, Tucson, AZ (Attn: Russell Waldron)  
Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ  
[pep@azgfd.gov](mailto:pep@azgfd.gov), Arizona Game and Fish Department, Phoenix, AZ  
Regional Supervisor, Arizona Game and Fish Department, Tucson, AZ (Attn: John Windes)  
Regional Director, Fish and Wildlife Service, Albuquerque, NM (Attn: Marty Tuegel)  
Field Supervisor, Fish and Wildlife Service, Albuquerque, NM (Attn: Susan Millsap)  
Field Supervisor, Fish and Wildlife Service, Austin, TX (Attn: Adam Zerrenner)



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---

Carter P. Smith  
Executive Director

May 4, 2018

Ms. Stacy Campbell  
Biologist/Natural Resources Specialist  
SWCA Environmental Consultants  
343 West Franklin Street  
Tucson, AZ 85701

RE: El Paso Natural Gas Company's South Mainline Expansion Project – 17-mile Loop Line, El Paso and Hudspeth Counties, Texas

Dear Ms. Campbell:

Texas Parks and Wildlife Department (TPWD) received the coordination request for the above-referenced project located in El Paso and Hudspeth Counties. TPWD would like to offer the following information, comments, and recommendations to minimize impacts to fish and wildlife resources.

Please be aware that a written response to a TPWD recommendation or informational comment received by a state governmental agency may be required by state law. For further guidance, see the Texas Parks and Wildlife Code, Section 12.0011. For tracking purposes, please refer to TPWD project number 39709 in any return correspondence regarding this project.

**Project Description**

El Paso Natural Gas Company, LLC (EPNG) is proposing to construct 17 miles of new 30-inch-diameter loop line as an extension of its existing Line No. 1110, adjacent to its existing California Lines between milepost (MP) 174.5 and MP 191.5 in El Paso and Hudspeth Counties, Texas. Since the proposed loop line will be an extension of EPNG's existing Line No. 1110, the proposed line is referred to as the Line No. 1110 extension or the 17-mile loop line. The new pipeline would loop (i.e., run parallel and adjacent to) the existing EPNG California Lines west from its point of origin at Hueco Compressor Station (MP 174.5) approximately 17 miles to Mainline Valve 23 near the community of Homestead Meadows South, El Paso County, Texas. The new pipeline would be about 13 miles from the international border at its nearest point.

The 17-mile-long loop line project area is located within the Chihuahuan Desertscrub biome. The elevation within this project area ranges from approximately 4,040 to 4,350 feet above mean sea level (amsl). The south end of this project area is within the Hueco Compressor Station and is near the Hueco Mountains. The loop line right-of-way (ROW) is located 30 feet south of the EPNG Line No. 1100 and 1103 ROW, which has been disturbed from past construction and line maintenance activities. An access road runs adjacent to the majority of the length of the 17-mile-long project area, and the pipeline route

Ms. Stacy Campbell  
Page 2 of 10  
May 4, 2018

traverses some relatively undisturbed areas. The route also crosses the Homestead Meadows South residential subdivision, which is within a broad basin on the eastern outskirts of the city of El Paso.

In addition to the pipeline construction corridor, five non-contiguous areas (totaling approximately 20 acres) will be used as a contractor yard and four pipe laydown yards. These five areas are located at least 8.5 miles from the loop line construction ROW. All five sites have been heavily disturbed by the landowners for industrial and/or commercial materials storage activities and contain very little to no native vegetation. Private and public roads will also be used to access the five off-site areas and 17-mile loop line construction ROW. No new access roads will be constructed; existing access road may require minor improvements such as grading.

No aquatic habitats, including wetlands, broadleaf deciduous riparian vegetation communities (i.e., communities containing cottonwood, willow, or ash, etc.), or suitable bat roost sites (e.g., natural caves or mine features) occur in the 17-mile loop line project area or the five off-site yards or are crossed by the existing roads to be used for project access.

### **General Construction Recommendations**

**Recommendation:** TPWD recommends the judicious use and placement of sediment control fence to exclude wildlife from the construction area. In many cases, sediment control fence placement for the purposes of controlling erosion and protecting water quality can be modified minimally to also provide the benefit of excluding wildlife access to construction areas. The exclusion fence should be buried at least six inches and be at least 24 inches high. The exclusion fence should be maintained for the life of the project and only removed after the construction is completed and the disturbed site has been revegetated. Construction personnel should be encouraged to examine the inside of the exclusion area daily to determine if any wildlife species have been trapped inside the area of impact and provide safe egress opportunities prior to initiation of construction activities. TPWD recommends that any open trenches or excavation areas be covered overnight and/or inspected every morning to ensure no wildlife species have been trapped. For open trenches and excavated pits, install escape ramps at an angle of less than 45 degrees (1:1) in areas left uncovered. Also, inspect excavation areas for trapped wildlife prior to refilling.

**Recommendation:** For soil stabilization and/or revegetation of disturbed areas within the proposed project area, TPWD recommends erosion and seed/mulch stabilization materials that avoid entanglement hazards to snakes

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and other wildlife species. Because the mesh found in many erosion control blankets or mats pose an entanglement hazard to wildlife, TPWD recommends the use of no-till drilling, hydromulching and/or hydroseeding due to a reduced risk to wildlife. If erosion control blankets or mats will be used, the product should contain no netting or contain loosely woven, natural fiber netting in which the mesh design allows the threads to move, therefore allowing expansion of the mesh openings. Plastic mesh matting should be avoided.

### **Impacts to Vegetation/Wildlife Habitat**

The information provided included the following details regarding vegetation in the project area. The dominant vegetation for the ROW and access roads includes fourwing saltbush (*Atriplex canescens*), creosotebush (*Larrea tridentata*), honey mesquite (*Prosopis glandulosa*), spike dropseed (*Sporobolus contractus*), and soaptree yucca (*Yucca elata*). Dominant vegetation in the pipe yards includes broom snakeweed (*Gutierrezia sarothrae*), prickly Russian thistle (*Salsola tragus*), and wooly tidestromia (*Tidestromia lanuginosa*), with creosotebush and harmful peganum (*Peganum harmala*) as subdominant species. Dominant vegetation for the northern portion of the project area near U.S. Route 62 and Krag Road includes purple threeawn (*Aristida purpurea*) and broom snakeweed, with flatspine bur ragweed (*Ambrosia acanthicarpa*) and low woollygrass (*Dasyochloa pulchella*) as subdominant species.

**Recommendation:** TPWD recommends reducing the amount of vegetation proposed for clearing if at all possible and minimizing clearing of native vegetation, particularly mature native trees (if present), riparian vegetation (if present), and shrubs to the greatest extent practicable. TPWD recommends in-kind on-site replacement/restoration of the native vegetation wherever practicable. Colonization by invasive species, particularly invasive grasses and weeds, should be actively prevented. Vegetation management should include removing invasive species early on while allowing the existing native plants to revegetate the disturbed areas. TPWD recommends referring to the Lady Bird Johnson Wildflower Center Native Plant Database for regionally adapted native species that would be appropriate for landscaping and revegetation.

### **Federal Laws**

#### *Migratory Bird Treaty Act*

The Migratory Bird Treaty Act (MBTA) prohibits taking, attempting to take, capturing, killing, selling/purchasing, possessing, transporting, and importing of migratory birds, their eggs, parts and nests, except when specifically authorized by

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the Department of the Interior. This protection applies to most native bird species, including ground nesting species. The U.S. Fish and Wildlife Service (USFWS) Migratory Bird Office can be contacted at (505) 248-7882 for more information on potential impacts to migratory birds.

The information provided included the following details regarding migratory birds in the project area. Most of the birds observed in the project area are protected under the MBTA, which provides federal protection to all migratory birds, including nests and eggs. Burrowing owl (*Athene cunicularia*) individuals and active burrows were observed at the 17-mile loop line project area. This species is not protected under the Endangered Species Act, but is a migratory bird species protected under the MBTA. To avoid violating this law, any western burrowing owls and active burrows should be identified by a qualified biologist and measures should be taken to protect the nest from destruction prior to any ground-disturbing activity. In order to relocate or alter any MBTA-protected nests, it would be necessary to obtain a permit from the U.S. Fish and Wildlife Service to maintain compliance with the MBTA.

Several inactive nests were observed at the 17-mile loop line project area. Section 1 of the Interim Empty Nest Policy of the USFWS, Region 2, states that if the nest is completely inactive at the time of destruction or movement, a permit is not required in order to comply with the MBTA. If an active nest is observed before or during construction, measures should be taken to protect the nest from destruction and to avoid a violation of the MBTA. In addition, clearing vegetation outside the active nesting season can help avoid nest building and maintain compliance with the MBTA.

TPWD notes that specific recommendations regarding the western burrowing are included in the *Rare Species* section of this letter.

**Recommendation:** If migratory bird species are found nesting on or adjacent to the project area, they must be dealt with in a manner consistent with the MBTA. TPWD recommends excluding vegetation clearing activities during the general bird nesting season, March 15 through September 15, to avoid adverse impacts to breeding birds. If clearing vegetation during the migratory bird nesting season is unavoidable, TPWD recommends surveying the area proposed for disturbance to ensure that no nests with eggs or young will be disturbed by operations. TPWD recommends that a 150-foot buffer of vegetation remain around any nests that are observed prior to disturbance. Any vegetation (such as trees, shrubs, and grasses) or other open areas where occupied nests are located should not be disturbed until the eggs have hatched and the young have fledged.

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### State Laws

#### *Parks and Wildlife Code, Section 68.015*

Section 68.015 of the Parks and Wildlife Code regulates state-listed species. Please note that there is no provision for the capture, trap, take, or kill (incidental or otherwise) of state-listed species. The *TPWD Guidelines for Protection of State-Listed Species*, which includes a list of penalties for take of species, can be found on the Wildlife Habitat Assessment Program website. State-listed species may only be handled by persons with authorization obtained through TPWD. For more information on this permit, please contact the Wildlife Permits Office at (512) 389-4647.

The Texas Natural Diversity Database (TXNDD) is intended to assist users in avoiding harm to rare species or significant ecological features. Given the small proportion of public versus private land in Texas, the TXNDD does not include a representative inventory of rare resources in the state. Absence of information in the database does not imply that a species is absent from that area. Although it is based on the best data available to TPWD regarding rare species, the data from the TXNDD do not provide a definitive statement as to the presence, absence or condition of special species, natural communities, or other significant features within your project area. These data are not inclusive and **cannot be used as presence/absence data**. They represent species that could potentially be in your project area. This information cannot be substituted for on-the-ground surveys. The TXNDD is updated continuously based on new, updated and undigitized records; therefore, TPWD recommends requesting the most recent TXNDD data on a regular basis. For questions regarding a record or to request the most recent data, please contact [TexasNatural.DiversityDatabase@tpwd.texas.gov](mailto:TexasNatural.DiversityDatabase@tpwd.texas.gov).

#### Texas horned lizard (*Phrynosoma cornutum*)

There is one TXNDD record for this species located approximately 1 mile from the project area and additional records just outside of this radius. According to publically available aerial photographs as well as the photographs included in the information provided, it appears that the project area may provide suitable habitat for the state-listed Texas horned lizard. The Texas horned lizard inhabits open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees and soil may vary in texture from sandy to rocky.

If present in the project area, the Texas horned lizard could be impacted by ground disturbing activities from construction. A useful indication that the Texas horned lizard may occupy the site is the presence of harvester ant nests since harvester ants are the primary food source of Texas horned lizards. Texas horned lizards

may hibernate on-site in loose soils a few inches below ground during the cool months from September/October to March/April. Construction in these areas could harm hibernating lizards. Horned lizards are active above ground when temperatures exceed 75 degrees Fahrenheit. If horned lizards (nesting, gravid females, newborn young, lethargic from cool temperatures or hibernation) cannot move away from noise and approaching construction equipment in time, they could be affected by construction activities.

**Recommendation:** TPWD recommends having a qualified biologist survey the project area for any Texas horned lizards that may be in the area that is proposed for disturbance. As previously mentioned, a useful indication that the Texas horned lizard may occupy the site is the presence of harvester ant nests. The survey should be performed during the warm months of the year when the horned lizards are active. If horned lizards are found on-site, TPWD recommends relocating them off-site to an area that is close-by and contains similar habitat. TPWD recommends that any translocations of reptiles be the minimum distance possible no greater than one mile, preferably within 100 to 200 yards from the initial encounter location. After horned lizard removal, the area that will be disturbed during active construction and project specific locations should be fenced off to exclude horned lizards and other reptiles.

The exclusion fence should be constructed and maintained as follows:

- a. The exclusion fence should be constructed with metal flashing or drift fence material.
- b. Rolled erosion control mesh material should not be used.
- c. The exclusion fence should be buried at least 6 inches deep and be at least 24 inches high.
- d. The exclusion fence should be maintained for the life of the project and only removed after the construction is completed and the disturbed site has been revegetated.
- e. Any open trenches or excavation areas should be covered overnight and/or inspected every morning to ensure no Texas horned lizards or other wildlife have been trapped. For open trenches and excavated pits, install escape ramps at an angle of less than 45 degrees (1:1) in areas left uncovered. Also, inspect excavation areas for trapped wildlife prior to refilling.

**Recommendation:** If the site is found to contain unavoidable habitat of the Texas horned lizard, then TPWD recommends a permitted biological monitor be present during clearing and construction activities to relocate Texas horned lizards encountered during construction. TPWD also recommends providing contractor training where feasible. Because the biological monitor cannot

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oversee all construction activity at the same time, it's important for the contractor to be able to identify protected species and to be on the lookout for them during construction. TPWD also recommends avoiding impacts to harvester ant mounds where feasible. TPWD understands that ant mounds in the direct path of construction would be difficult to avoid, but contractors should be mindful of these areas when deciding where to place project specific locations and other disturbances associated with construction. If the presence of a biological monitor during construction is not feasible, state-listed threatened species observed during construction should be allowed to safely leave the site.

### Rare Species

In addition to state- and federally-protected species, TPWD tracks special features, natural communities, and rare species that are not listed as threatened or endangered. These species and communities are tracked in the TXNDD, and TPWD actively promotes their conservation. TPWD considers it important to evaluate and, if necessary, minimize impacts to rare species and their habitat to reduce the likelihood of endangerment and preclude the need to list as threatened or endangered in the future.

#### Western burrowing owl (*Athene cunicularia hypugaea*)

The western burrowing owl is a ground-dwelling owl that uses the burrows of prairie dogs and other fossorial animals for nesting and roosting. When natural burrows are limited, this species will breed in urban habitats which may lead to problems for the owls or their young. The owls opportunistically live and nest in road and railway ROWs, parking lots, baseball fields, school yards, golf courses, and airports. They have also been found nesting on campuses, in storm drains, drainage pipes, and cement culverts, on banks, along irrigation canals, under asphalt or wood debris piles, or openings under concrete pilings or asphalt. The burrowing owl is protected under the MBTA, and take of these birds, their nests, and eggs is prohibited. Potential impacts to the burrowing owl could include habitat removal as well as displacement and/or destruction of nests and eggs if ground disturbance occurs during the breeding season.

As previously mentioned, burrowing owl individuals and active burrows were observed at the 17-mile loop line project area and to avoid violating the MBTA, any western burrowing owls and active burrows should be identified by a qualified biologist and measures should be taken to protect the nest from destruction prior to any ground-disturbing activity. In order to relocate or alter any MBTA-protected nests, it would be necessary to obtain a permit from the USFWS to maintain compliance with the MBTA.



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**Recommendation:** TPWD recommends that the project area be surveyed for mammal burrows or any urban structures that may provide suitable habitat for burrowing owls prior to construction. TPWD concurs with the above mentioned commitment to identify active burrows and to protect the nests from destruction prior to any ground-disturbing activity. If nesting owls are found, TPWD recommends avoiding disturbance until the eggs have hatched and the young have fledged rather than relocating or altering active nests.

Black-tailed Prairie dog (*Cynomys ludovicianus*)

There may be suitable habitat for the black-tailed prairie dog within the project area. Black-tailed prairie dogs inhabit dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle. The black-tailed prairie dog is a keystone species that provides food and/or shelter for rare species tracked by TPWD such as the ferruginous hawk and the western burrowing owl, as well as many other wildlife species.

**Recommendation:** TPWD recommends avoiding disturbance of prairie dog towns or burrows and species that depend on them. TPWD recommends avoiding these areas during construction and installing exclusion fence to keep prairie dogs from entering the project area. If prairie dog burrows will be disturbed as a result of the proposed project, TPWD recommends non-harmful exclusion methods be used to encourage the animals to vacate the area prior to disturbance and discourage them from returning to the area during construction. If prairie dogs are encountered on the project site, TPWD recommends contacting a prairie dog relocation specialist. If impacting a portion of a larger colony, time relocation efforts and/or humane removal immediately before construction to discourage recolonization of the project area. Prairie dogs can be encouraged to move away from your project area by mowing overgrown adjacent areas. Conversely, prairie dogs can be discouraged from utilizing areas by not mowing and allowing grass or other tall vegetation to grow or by scraping all vegetation off the project site and leaving soil exposed.

Wheeler's spurge (*Chamaesyce geyeri var wheeleriana*)

There is one TXNDD record for Wheeler's spurge located within the project area and additional records for this species just outside of the project area. This species is found on sparingly vegetated, loose eolian quartz sand on reddish sand dunes or coppice mounds. The Wheeler's spurge flowers and fruits at least August through September, but probably earlier and later as well.

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**Recommendation:** TPWD recommends surveying for Wheeler's spurge where suitable habitat may be present (in areas where ground disturbance may occur). The survey should be performed by a qualified biologist at the time of year when this species is most likely to be found, usually during the flowering period. If this species is present, plans should be made to avoid adverse impacts to the greatest extent possible. If plants are found in the path of construction, including the placement of staging areas and other project related sites, this office should be contacted for further coordination and possible salvage of plants and/or seeds for seed banking. Plants not in the direct path of construction should be protected by markers or fencing and by instructing construction crews to avoid any harm.

Kit fox (*Vulpes macrotis*)

There is one TXNDD record for the kit fox located within the project area. This species primarily inhabits open desert, shrubby or shrub-grass habitat.

**Recommendation:** If during construction the project area is found to contain the rare species listed above, TPWD recommends that precautions be taken to avoid impacts to them.

**Recommendation:** Please review the TPWD county list for El Paso and Hudspeth Counties, as rare and protected species in addition to those discussed above could be present depending upon habitat availability. The USFWS should be contacted for species occurrence data, guidance, permitting, survey protocols, and mitigation for federally-listed species.

Determining the actual presence of a species in a given area depends on many variables including daily and seasonal activity cycles, environmental activity cues, preferred habitat, transiency and population density (both wildlife and human). The absence of a species can be demonstrated only with great difficulty and then only with repeated negative observations, taking into account all the variable factors contributing to the lack of detectable presence. If encountered during construction, measures should be taken to avoid impacting all wildlife.

#### Texas Natural Diversity Database

**Recommendation:** To aid in the scientific knowledge of a species' status and current range, TPWD encourages reporting all encounters of rare, state-listed, and federally-listed species to the TXNDD according to the data submittal instructions found on the Texas Natural Diversity Database website, including

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the previously-mentioned observations of the burrowing owl within the project area.

TPWD strives to respond to requests for project review within a 45 day comment period. Responses may be delayed due to workload and lack of staff. Failure to meet the 45 day review timeframe does not constitute a concurrence from TPWD that the proposed project will not adversely impact fish and wildlife resources.

TPWD advises review and implementation of these recommendations. If you have any questions, please contact me at (512) 389-8054 or email at [Jessica.Schmerler@tpwd.texas.gov](mailto:Jessica.Schmerler@tpwd.texas.gov).

Sincerely,



Jessica E. Schmerler  
Wildlife Habitat Assessment Program  
Wildlife Division

JES:39709

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

31. Clarify whether the December 12, 2017 IPaC Review of the 17-mile Loop Line included the ancillary contractor and pipe storage yards. If not, provide a supplemental report.

Response:

The December 12, 2017 IPaC review of the 17-mile Loop Line did not include the ancillary contractor and pipe storage yards. EPNG conducted a supplemental IPaC review on June 18, 2018. The June 18, 2018 supplemental IPaC Review report includes results for the entire 17-mile Loop Line, including ancillary contractor and pipe storage yards. EPNG is providing behind this response a copy of the supplemental June 18, 2018 IPaC Review report.

As noted in the attached report, there are no additional species or critical habitats returned in the June 18, 2018 IPaC report compared to the December 12, 2017 report.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Austin Ecological Services Field Office

10711 Burnet Road, Suite 200

Austin, TX 78758-4460

Phone: (512) 490-0057 Fax: (512) 490-0974

<http://www.fws.gov/southwest/es/AustinTexas/>

<http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>

In Reply Refer To:

June 18, 2018

Consultation Code: 02ETAU00-2018-SLI-1075

Event Code: 02ETAU00-2018-E-02100

Project Name: Southmainline Expansion 17-mile loop line including ancillary yards

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that *may* occur within the county of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

Please note that new information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Also note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of federally listed as threatened

or endangered species and to determine whether projects may affect these species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

While a Federal agency may designate a non-Federal representative to conduct informal consultation or prepare a biological assessment, the Federal Agency must notify the Service in writing of any such designation. The Federal agency shall also independently review and evaluate the scope and content of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by a federally funded, permitted or authorized activity, the agency is required to consult with the Service pursuant to 50 CFR 402. The following definitions are provided to assist you in reaching a determination:

- *No effect* - the proposed action will not affect federally listed species or critical habitat. A “no effect” determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, if the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.
  - *May affect, but is not likely to adversely affect* - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effect. The Federal agency or the designated non-Federal representative should consult with the Service to seek written concurrence that adverse effects are not likely. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.
  - *Is likely to adversely affect* - adverse effects to listed species may occur as a direct or indirect result of the proposed action. For this determination, the effect of the action is neither discountable nor insignificant. If the overall effect of the proposed action is beneficial to the listed species but the action is also likely to cause some adverse effects to individuals of that species, then the proposed action “is likely to adversely affect” the listed species. The analysis should consider all interrelated and interdependent actions. An “is likely to adversely affect” determination requires the Federal action agency to initiate formal section 7 consultation with our office.
-

Regardless of the determination, the Service recommends that the Federal agency maintain a complete record of the evaluation, including steps leading to the determination of effect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>.

### Migratory Birds

For projects that may affect migratory birds, the Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of these species. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Migratory birds may nest in trees, brushy areas, or other areas of suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals, nests, or eggs. If project activities must be conducted during this time, we recommend surveying for nests prior to conducting work. If a nest is found, and if possible, the Service recommends a buffer of vegetation remain around the nest until the young have fledged or the nest is abandoned.

For additional information concerning the MBTA and recommendations to reduce impacts to migratory birds please contact the U.S. Fish and Wildlife Service Migratory Birds Office, 500 Gold Ave. SW, Albuquerque, NM 87102. A list of migratory birds may be viewed at <https://www.fws.gov/birds/management/managed-species/migratory-bird-treaty-act-protected-species.php>. Guidance for minimizing impacts to migratory birds for projects including communications towers can be found at: <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/communication-towers.php>. Additionally, wind energy projects should follow the wind energy guidelines

<https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/wind-energy.php> ) for minimizing impacts to migratory birds and bats.

Finally, please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/eagles.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Austin Ecological Services Field Office**

10711 Burnet Road, Suite 200

Austin, TX 78758-4460

(512) 490-0057

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## Project Summary

Consultation Code: 02ETAU00-2018-SLI-1075

Event Code: 02ETAU00-2018-E-02100

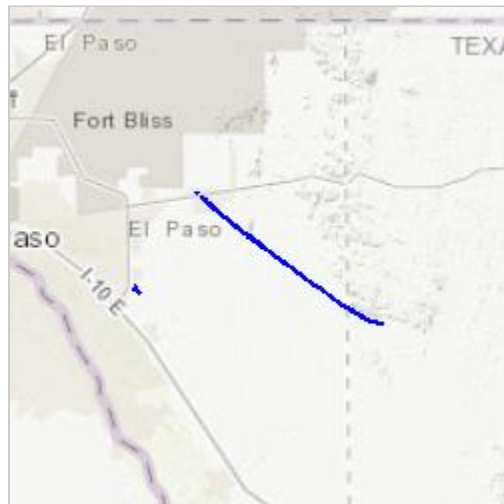
Project Name: Southmainline Expansion 17-mile loop line including ancillary yards

Project Type: OIL OR GAS

Project Description: Construction of a 17-mile loop line adjacent to existing pipeline

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/31.68542747630987N105.94926695258226W>



Counties: El Paso, TX | Hudspeth, TX

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## Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.
-

## Birds

NAME	STATUS
<p>Least Tern <i>Sterna antillarum</i>            Population: interior pop.            No critical habitat has been designated for this species.            Species profile: <a href="https://ecos.fws.gov/ecp/species/8505">https://ecos.fws.gov/ecp/species/8505</a></p>	Endangered
<p>Mexican Spotted Owl <i>Strix occidentalis lucida</i>            There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.            Species profile: <a href="https://ecos.fws.gov/ecp/species/8196">https://ecos.fws.gov/ecp/species/8196</a></p>	Threatened
<p>Northern Aplomado Falcon <i>Falco femoralis septentrionalis</i>            Population: Wherever found, except where listed as an experimental population            No critical habitat has been designated for this species.            Species profile: <a href="https://ecos.fws.gov/ecp/species/1923">https://ecos.fws.gov/ecp/species/1923</a></p>	Endangered
<p>Piping Plover <i>Charadrius melodus</i>            Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.            There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.            This species only needs to be considered under the following conditions:           <ul style="list-style-type: none"> <li>▪ Wind Energy Projects</li> </ul>           Species profile: <a href="https://ecos.fws.gov/ecp/species/6039">https://ecos.fws.gov/ecp/species/6039</a></p>	Threatened
<p>Red Knot <i>Calidris canutus rufa</i>            No critical habitat has been designated for this species.            This species only needs to be considered under the following conditions:           <ul style="list-style-type: none"> <li>▪ Wind Energy Projects</li> </ul>           Species profile: <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a></p>	Threatened
<p>Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i>            There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat.            Species profile: <a href="https://ecos.fws.gov/ecp/species/6749">https://ecos.fws.gov/ecp/species/6749</a></p>	Endangered
<p>Yellow-billed Cuckoo <i>Coccyzus americanus</i>            Population: Western U.S. DPS            There is <b>proposed</b> critical habitat for this species. Your location is outside the critical habitat.            Species profile: <a href="https://ecos.fws.gov/ecp/species/3911">https://ecos.fws.gov/ecp/species/3911</a></p>	Threatened

## Fishes

NAME	STATUS
<p>Rio Grande Silvery Minnow <i>Hybognathus amarus</i>            Population: Rio Grande, from Little Box Canyon to Amistad Dam            No critical habitat has been designated for this species.            Species profile: <a href="https://ecos.fws.gov/ecp/species/1391">https://ecos.fws.gov/ecp/species/1391</a></p>	Experimental Population, Non- Essential

## Flowering Plants

NAME	STATUS
<b>Guadalupe Fescue</b> <i>Festuca ligulata</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/8068">https://ecos.fws.gov/ecp/species/8068</a>	<b>Endangered</b>
<b>Sneed Pincushion Cactus</b> <i>Coryphantha sneedii</i> var. <i>sneedii</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/4706">https://ecos.fws.gov/ecp/species/4706</a>	<b>Endangered</b>

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

**Wetlands and Waterbodies**

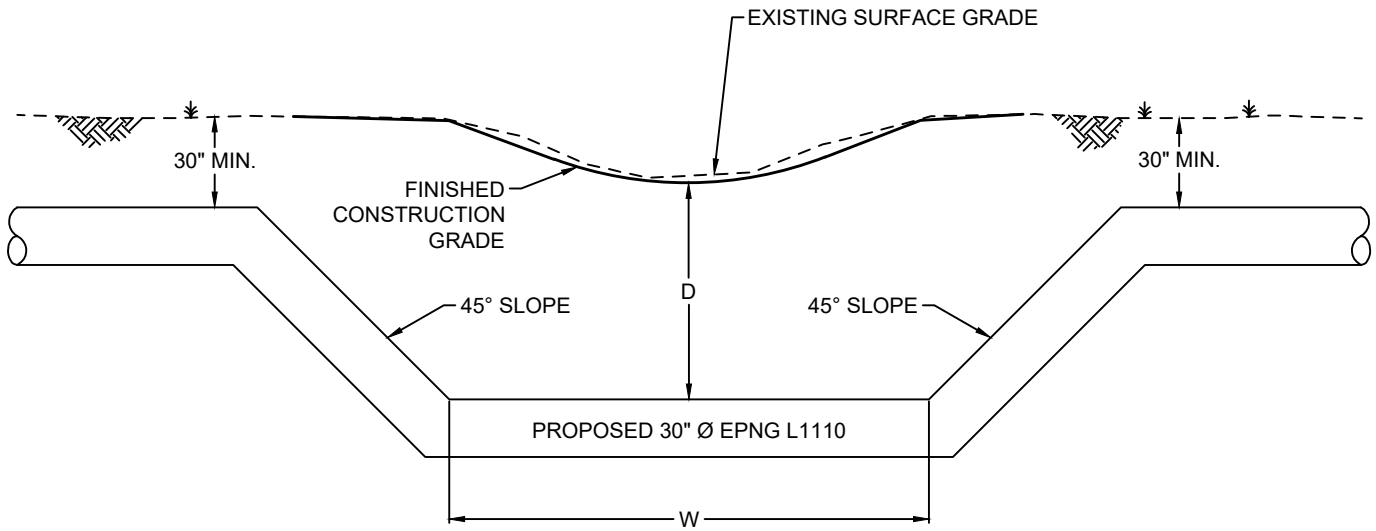
32. Provide the drawing showing the typical construction layout at dry wash crossings that was not included in appendix 1E.

Response:

Attached behind this response is the drawing showing typical construction layout at dry wash crossings.

Response prepared by or under the supervision of:

Vickie Gibson  
Kinder Morgan  
Project Manager  
719-520-4205



NOTES:

D = THE MAXIMUM OF 5', LONG TERM DEGRADATION DEPTH, OR SINGLE EVENT SCOUR DEPTH FOR 25, 50 AND 100 YEAR STORM EVENTS.

W = THE MAXIMUM OF 20', OR THE LATERAL MIGRATION POTENTIAL (I.E.) THE EXTENT OF ADDITIONAL DEPTH REQUIREMENTS ON EITHER SIDE OF DRAINAGE BANKS. THE LATERAL MIGRATION POTENTIAL TO BE CALCULATED BASED ON LOCAL FLOODPLAIN DISTRICT REGULATIONS.

Not to Scale

TYPICAL DRY WASH CROSSING

Date: 06/25/2018

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
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**Cultural Resources**

NOTE REGARDING CULTURAL RESOURCES:

All material filed with the Commission containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein

clearly labeled in bold lettering: **“CUI//PRIV – DO NOT RELEASE.”**

33. Based on a comparison of the project mapping (appendix 1B) and the mapping contained in the Class III Cultural Resources Survey report (figure 2), it appears that the Red Mountain Compressor Station (eastern section) was not surveyed in its entirety. In addition, page 1-8 of Resource Report 1 indicates there would be approximately 72 acres of temporary disturbance at the compressor station, but the Class III report covered only 56.2 acres. Please clarify this and indicate if the compressor station would require additional survey. If so, provide the report and the New Mexico State Historic Preservation Office’s comments on the report. Provide revised report mapping, if appropriate.

Response:

The topographic map provided in Appendix 1B incorrectly depicted the Red Mountain Compressor Station. No work is proposed outside the area depicted in Figure 2 of the cultural resources report. EPNG has provided a revised topographic map in its response to Request No. 2.

The 72 acres of temporary disturbance described in Resource Report 1 is entirely EPNG fee land and includes the land containing the existing, abandoned-in-place Deming Compressor Station. Ultimately, the area that will be temporarily disturbed will be less than 72 acres, but may include some of the existing graveled areas surrounding the Deming Compressor Station for such activities as vehicle and materials staging. The historic-age Deming Compressor Station buildings, although included within the temporary workspace acreage, will not be removed or altered as part of the Project. Systematic cultural resources survey (i.e., parallel pedestrian transects) was conducted on the 56.2 acres surrounding the fenced, graveled Deming Compressor Station site. Within the fenced, graveled Deming Compressor Station site, cultural resources survey focused on the documentation of the Deming Compressor Station, as it has the potential to be indirectly affected (i.e., visual effects) by Project activities and the ground surface was highly disturbed and/or gravel-covered. The cultural resources survey covered the entire Red Mountain Compressor Station construction workspace, although only 56.2 acres required systematic survey using parallel pedestrian transects.

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

Response prepared by or under the supervision of:

Jerome Hesse  
Cultural Resources Specialist-SWCA  
520-325-9194, ext. 4912



EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

34. Provide any previously unfiled correspondence from the Native American tribes contacted, including any comments on the cultural resources survey report(s). Indicate any follow-up activities El Paso has conducted with the tribes.

Response:

Post certificate application filing responses from Native American tribes were received from the White Mountain Apache Tribe, the Kiowa Tribe, and the Comanche Nation. The responses identified no traditional cultural properties and concluded that the project has little to no potential to affect resources of traditional cultural significance. The responses are attached behind this response. No further correspondence has taken place with the tribes.

Additionally, correspondence was received from the Texas Historical Commission (THC) regarding the Section 106 finding of effect for the Texas portion of the project. The THC concluded that the project would have no effect of historic properties.

The correspondence from the Native American tribes and the THC is attached behind this response.

Response prepared by or under the supervision of:

Jerome Hesse  
Cultural Resources Specialist-SWCA  
520-325-9194, ext. 4912

# COMANCHE NATION



SWCA Environmental Consultants  
Attn: Mr. Jerome Hesse  
343 West Franklin Street  
Arizona 85701

May 9, 2018

Re: El Paso Natural Gas Company, L.L.C., South Mainline Expansion Project,  
El Paso and Hudspeth Counties, Texas; Luna County, New Mexico; and  
Cochise County, Arizona/Section 106 Review

Dear Mr. Hesse:

In response to your request, the above reference project has been reviewed by staff of this office to identify areas that may potentially contain prehistoric or historic archeological materials. The location of your project has been cross referenced with the Comanche Nation site files, where an indication of “*No Properties*” have been identified. (IAW 36 CFR 800.4(d)(1)).

Please contact this office at (580) 595-9960/9618) if you require additional information on this project.

This review is performed in order to identify and preserve the Comanche Nation and State cultural heritage, in conjunction with the State Historic Preservation Office.

Regards

Comanche Nation Historic Preservation Office  
Theodore E. Villicana , Technician  
#6 SW “D” Avenue, Suite C  
Lawton, OK. 73502



**Kiowa Tribe**  
**Office of Historic Preservation**  
P.O. Box 50  
Carnegie, OK 73015

April 3, 2018

Jerome Hesse, Principal Investigator  
SWCA Environmental Consultants  
343 West Franklin Street  
Tucson, AZ 85701

**RE: Section 106 Consultation and Review for proposed El Paso Natural Gas Company, L.L.C., South Mainline Expansion Project, El Paso and Hudspeth Counties, Texas; Luna County, New Mexico; and Cochise County, Arizona**

Dear Mr. Hesse,

The Kiowa Tribe Office of Historic Preservation has received the information and materials requested for our Section 106 Review and Consultation. Section 106 of the National Historic Preservation Act of 1966 (NHPA), and 36 CFR Part 800 requires consultation with the Kiowa Tribe.

Given the information provided, you are hereby notified that the proposal project location should have minimal potential to adversely affect any known Archaeological, Historical, or Sacred Kiowa sites. Therefore, in accordance with 36 CFR 800.4(d) (1), you may proceed with your proposed project. However, please be advised undiscovered properties may be encountered and must be immediately reported to the Kiowa Tribe Office of Historic Preservation under both the NHPA and NAGPRA regulations.

This information is provided to assist you in complying with 36 CFR Part 800 for Section 106 Consultation procedures. Please retain this correspondence to show compliance. Should you have any questions, please do not hesitate to contact me at [kellie@tribaladminsivices.org](mailto:kellie@tribaladminsivices.org). Thank you for your time and consideration.

Sincerely,

Kellie J. Lewis  
Acting Tribal Historic Preservation Officer (THPO)

*Phone: (405) 435-1650*

---

**Kellie J. Lewis**  
Acting Tribal Historic Preservation Officer (THPO)  
*kellie@tribaladminsivices.org*

*Complex: (580) 654-2300*

**TEXAS HISTORICAL COMMISSION**  
*real places telling real stories*

RECEIVED BY:

APR 23 2018

SWCA, Incorporated

April 17, 2018

Brandon Young  
SWCA  
4407 Monterey Oaks Blvd.  
San Antonio, TX 78749

Re: Project review under Section 106 of the National Historic Preservation Act of 1966:  
Draft report: Intensive Cultural Resources Survey for the 17-Mile El Paso Natural Gas South  
Mainline Expansion Project and Associated Laydown Yards, El Paso and Hudspeth Counties  
(FERC; Tracking 201807934)

Dear Mr. Young:

Thank you for allowing us to review the report referenced above. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission.

The THC Archaeology Division review staff, led by David Camarena Garcés, has completed the review. After examining the report, we concur with the author's conclusion that sites 41EP868, 41EP2379, 41EP2424, 41EP2454, 41EP5490, 41EP708, 41HZ507, 41HZ508, 41HZ803 within the project right-of-way (ROW) do not appear to possess qualities of significance needed to be listed in the National Register of Historic Places (NRHP) due to the lack horizontal and vertical integrity and therefore do not warrant further work. However, the area of the sites located outside of the surveyed area are considered unevaluated and therefore have an undetermined eligibility. Please update the State Archeological Site Forms for all the previously recorded sites with the Texas Archeological Research Laboratory. Finally, we concur that the current project areas will not affect historic properties listed or potentially eligible for listing on the National Register of Historic Places.

We look forward to receiving the final copy of the report. Please also insure that a digital shapefile of the project area is forwarded to [archeological\\_projects@thc.texas.gov](mailto:archeological_projects@thc.texas.gov). Thank you for your cooperation in this federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. If we may be of further assistance, please contact David Camarena Garcés at 512/463-6252 or [david.camarena@thc.state.tx.us](mailto:david.camarena@thc.state.tx.us).

Sincerely,



for  
Mark Wolfe, State Historic Preservation Officer





**White Mountain Apache Tribe**  
**Office of Historic Preservation**  
**PO Box 1032**  
**Fort Apache, AZ 85926**  
**Ph: (928) 338-3033 Fax: (928) 338-6055**

**To:** Jerome Hesse, Principle Investigator SWCA  
**Date:** April 5, 2018  
**Re:** EPNG LLC South Mainline Expansion Project, Cochise County, Arizona

.....

The White Mountain Apache Tribe Historic Preservation Office appreciates receiving information on the proposed project, dated March 20, 2018. In regards to this, please attend to the following checked items below.

**Please refer to the additional notes in regards to the proposed projects:**

Thank you for allowing the White Mountain Apache tribe the opportunity to review and respond to the above proposed construction and operation of a new compressor station, to be known as the Dagoon Compressor Station, in Cochise County, Arizona. We've determined the proposed project plans will "Not have an Adverse Effect" on the White Mountain Apache tribe's historic properties and/or traditional cultural properties.

Regardless, any/all ground disturbing activities should be monitored "if" there are reasons to believe that there are human remains and/or funerary objects present, and if such remains are encountered they shall be treated with respect and handled accordingly until such remains are repatriated to the affiliated tribe.

Thank you. We look forward to continued collaborations in the protection and preservation of places of cultural and historical importance.

Sincerely,

*Mark T. Altaha*

White Mountain Apache Tribe - THPO

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
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35. In the Unanticipated Discoveries Plan, page 2, first bulleted paragraph, line 3, insert “and FERC” after “SHPO.” In the second bulleted paragraph, lines 2 and 5, insert “and FERC” after “SHPO.” Delete the sentence starting “If the SHPO fails...” On page 4, update the FERC contact to: Laurie Boros, Staff Archaeologist; 202-502-8046; fax 202-208-0353; laurie.boros@ferc.gov. Provide the revised plan.

Response:

EPNG’s Unanticipated Discoveries Plan with the requested revisions is attached behind this response.

Response prepared by or under the supervision of:

Jerome Hesse  
Cultural Resources Specialist-SWCA  
520-325-9194, ext. 4912

APPENDIX 4C

# **Unanticipated Discoveries Plan**

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April 2018

# **EPNG South Mainline Expansion Project**

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PLAN AND PROCEDURES FOR  
ADDRESSING UNANTICIPATED  
DISCOVERIES OF CULTURAL  
RESOURCES AND HUMAN REMAINS  
DURING CONSTRUCTION



El Paso Natural Gas  
Company, L.L.C.  
a Kinder Morgan company



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  - 1.2 Unanticipated Discovery of Cultural Resources..... 1
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  - 1.4 Agency Contacts ..... 3

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## Abbreviations and Acronyms

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CI	Construction Inspector
EI	Environmental Inspector
EPNG	El Paso Natural Gas Company, L.L.C.
FERC or Commission	Federal Energy Regulatory Commission
NAGPRA	Native American Graves Protection and Repatriation Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historical Places
Project	South Mainline Expansion Project
SHPO	State Historic Preservation Office
Unanticipated Discoveries Plan	Plan and Procedures for Addressing Unanticipated Discoveries of Cultural Resources and Human Remains During Construction

# 1. Unanticipated Discoveries Plan

As part of the planning process for the South Mainline Expansion Project (“Project”), El Paso Natural Gas Company, L.L.C. (“EPNG”) conducted a cultural resources survey of the proposed Project areas. To ensure that EPNG maintains full and complete compliance with all federal and state regulations concerning the protection of cultural resources, and to maintain compliance with the Federal Energy Regulatory Commission’s (“FERC” or “Commission”) requirement for a plan to address the unanticipated discovery of cultural properties or human remains during construction, this *Plan and Procedures for Addressing Unanticipated Discoveries of Cultural Resources and Human Remains During Construction* (“Unanticipated Discoveries Plan”) has been prepared for the Project.

## 1.1 Personnel Responsibilities

The Environmental Inspector (“EI”) will be responsible for advising the construction contractor's personnel on the procedures to follow in the event that an unanticipated discovery is made. Training will occur as part of the pre-construction on-site training program for foremen, company inspectors, and construction supervisors. The EI will advise all operators of equipment involved in grading, stripping, or trenching activities to:

- A. Stop work immediately if they observe any indications of the presence of cultural materials (artifacts or other man-made features), animal bone, or possibly human bone;
- B. Contact the EI (or the Chief Inspector if the EI is not available) as soon as possible;
- C. Comply with unanticipated discovery procedures (see below); and
- D. Treat human remains with dignity and respect.

## 1.2 Unanticipated Discovery of Cultural Resources

All EIs have the responsibility to monitor the area of construction for potential archaeological materials or features throughout the period involving earth disturbance. If during the course of construction potential cultural resources are identified, all work will be immediately halted at the general location of the discovery. The construction personnel and/or monitors involved in the discovery will immediately notify the Construction Inspector (“CI”) and EI, who will notify EPNG. The EI or CI will ensure the find is protected and make stop work recommendations to EPNG.

- All construction work involving subsurface disturbance in the immediate vicinity of the resource will be halted, unless immediate cessation of construction activities will create an unsafe condition or endanger the construction crew. Specifically, work will be stopped at the location where the potential cultural resource was found and will not resume within 100 feet (in any direction) of the find until the construction is cleared to proceed.
- The cultural resource consultant will conduct an on-site inspection of the identified cultural discovery by the next business day. This on-site inspection will assess the nature of the cultural discovery to determine if it represents a cultural site, and if the site is eligible for inclusion in the National Register of Historic Places (“NRHP”). The cultural resource

consultant will verbally report to EPNG with further description of the discovery and a recommendation regarding the need for future treatment. EPNG will then consult with the FERC and, depending on the state in which the discovery is made, the appropriated State Historic Preservation Office (“SHPO”) to determine the NRHP eligibility of the cultural discovery. The SHPO will respond following contacts to all appropriate consulting parties.

- If the cultural resource consultant determines that the cultural discovery is not potentially significant, is an isolated find, or is completely disturbed by prior construction activities, and if the SHPO and FERC concur with this finding, the cultural resource consultant will inform EPNG that construction may resume. The decision will be documented by the cultural resource consultant. The method of documentation will be determined at the time and, depending on the circumstances, may range from a letter report to an e-mail.
- If the cultural resource consultant determines that the cultural discovery represents a significant archaeological site and the SHPO and FERC concur with this determination, then the cultural resource consultant will develop a plan for additional cultural investigations and/or mitigation of the identified cultural site. The plan will be submitted to EPNG for their review. EPNG will then submit this plan to the SHPO and FERC for review and concurrence. All proposed archaeological investigations will conform to the Secretary of Interior’s (SOI’s) Standards for Archeological Documentation and will be conducted by an archaeologist who meets or exceeds the SOI’s Professional Qualification Standards for Archeology as published in the Federal Register on September 29, 1983 (*Federal Register* 48:190:44738-44739).
- Construction in the area of the cultural site will not resume until all required fieldwork and consultation and coordination tasks are completed. Upon receipt of SHPO and FERC concurrence that all required fieldwork has been completed, the cultural resource consultant will notify EPNG that work at the location of the cultural discovery may resume. The decision will be documented appropriately by the cultural resource consultant. The method of documentation may range from a letter report to an e-mail, depending on the circumstances.
- A technical report describing the work at all locations where unanticipated discoveries resulted in additional survey and/or data recovery will be prepared and submitted to EPNG for review within one year of the completion of fieldwork. EPNG, or an approved agent of EPNG, will submit the reviewed technical report to SHPO and the FERC.

### **1.3 Unanticipated Discovery of Human Remains**

The following procedures will be initiated in the event unanticipated human remains are discovered. Should human remains be encountered during construction of the Project, all work will be immediately halted at the general location of the discovery.

- The construction personnel and/or monitors involved in the discovery will immediately notify the CI and EI, who will notify EPNG. State burial laws will be followed, and

notifications will be made to the appropriate officials and agency contacts as soon as possible, but at least within 24 hours of the discovery.

- In all cases, the location will be immediately secured, including a buffer zone of at least a 100-foot-radius from the discovery. Any human remains will be carefully covered with natural materials. Construction personnel and vehicles will promptly vacate the buffer zone. Vehicle traffic within the buffer zone will be limited to that necessary to remove vehicles and equipment from the buffer zone.
- Care will be taken to prevent any disturbance of the potential human remains during removal of vehicles and equipment. Until appropriate consultation has occurred, the discovery shall remain protected from any disturbance, such that no human remains or associated artifacts are touched, moved, or collected.
- Notifications will be made in accordance with state laws.
  - In Arizona, Arizona Revised Statute (ARS) § 41-865 applies to discoveries of human remains and funerary objects on private lands that are believed to be at least 50 years old. In such cases, EPNG will notify the Arizona State Museum (ASM) Mandated Programs Administrator, FERC and SHPO. If the finding consists of human remains that are thought to be recent (less than 50 years in age), EPNG would contact local law enforcement agency (Cochise County Sheriff's Office).
  - In New Mexico, the procedures described in the New Mexico Cultural Properties Act Section 18-6-11.2(C) apply to all discoveries of human remains and funerary objects. EPNG will notify the local law enforcement agency (Luna County Sheriff's Office), which shall notify the state medical investigator and SHPO. EPNG will also notify FERC of the discovery.
  - In the event of a discovery of human remains in Texas, EPNG will notify the local law enforcement agency (El Paso County Sheriff's Office or Hudspeth County Sheriff's Office), the county coroner, FERC, and SHPO. The subsequent treatment of the discovery will comply with regulations in the Texas statutes governing cemeteries (Chapters 711–715 of the Texas Health and Safety Code; Title 13, Part 2, Chapter 22 of the Texas Administrative Code).
- Until consultation is complete and a removal strategy is defined, the human remains will remain in place (in the ground), protected from natural forces and from vandalism and looting. Construction in the area of discovery may resume only upon approval from the appropriate point of contact (e.g., FERC, SHPO, ASM, or county coroner).

## 1.4 Agency Contacts

The following table provides information for the appropriate agencies to be contacted in the event on unanticipated discoveries.

---

**FERC Contact**

Laurie Boros, Staff Archaeologist  
 Federal Energy Regulatory Commission  
 888 First Street NE  
 Washington, DC 20426  
 Phone: (202) 502-8046  
 Fax: (202) 208-0353  
 laurie.boros@ferc.gov

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**Texas SHPO Contact**

David Camarena, Archaeologist  
 Texas Historical Commission  
 1511 Colorado St.  
 Austin, Texas 78701  
 Phone: (512) 463-6252  
 david.camarena@thc.state.tx.us

---

**New Mexico SHPO Contact**

Jeff Pappas, State Historic Preservation Officer  
 New Mexico Historic Preservation Division  
 Department of Cultural Affairs  
 407 Galisteo Street, Suite 236  
 Santa Fe, New Mexico 85701  
 Phone: (505) 827-6320  
 jeff.pappas@state.nm.us

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**Arizona SHPO Contact**

Kathryn Leonard, State Historic Preservation  
 Officer  
 Arizona State Parks  
 1100 West Washington Street  
 Phoenix, Arizona 85007  
 Phone: (602) 542-4009  
 kleonard@azstateparks.gov

---

**Arizona State Museum**

Todd Pitezal, Mandated Programs Administrator  
 University of Arizona  
 P.O. Box 210026  
 Tucson, Arizona 85721-0026  
 Phone: (520) 621-4795  
 pitezal@email.arizona.edu

---

**Texas Law Enforcement**

El Paso County Sheriff's Office  
 Phone: (915)-538-2292

Hudspeth County Sheriff's Office  
 Phone: (915)-369-2161

---

**New Mexico Law Enforcement**

Luna County Sheriff's Office  
 Phone: (577) 546-2655

---

**Arizona Law Enforcement**

Cochise County Sheriff's Office  
 Phone: (520) 432-9500

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**Texas Medical Examiner/Coroner**

El Paso County Medical Examiner  
 Phone: (915) 532-1447

Hudspeth County Coroner/Justice of the Peace  
 Phone: (915) 769-3450

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EL PASO NATURAL GAS COMPANY, L.L.C.  
 Responses to Data Request – OEP/DG2E/Gas Branch 4  
 Dated June 8, 2018 in Docket No. CP18-332-000  
 South Mainline Expansion Project

**Socioeconomics**

36. Revise table 5-3 to include total civilian labor force (persons), rather than total population.

Response:

**TABLE 5-3 POPULATION IMPACTS IN NEARBY COMMUNITIES**

PROJECT ID	COMMUNITY	TOTAL CIVILIAN LABOR FORCE <sup>A</sup>	CONSTRUCTION PERSONNEL			ADDITIONAL OPERATIONS PERSONNEL	
			AVERAGE NUMBER	PEAK NUMBER	PERCENT CHANGE <sup>B</sup>	NUMBER	PERCENT CHANGE
17-mile loop line	State of Texas	12,371,392			0.00		0.00
	El Paso County	334,280	70	150	0.05	0	0.00
	Hudspeth County	1,121			13.38		0.00
	City of El Paso	279,392			0.05		0.00
State of New Mexico	876,210	0.01			0.00		
Red Mountain Compressor Station	Luna County	8,012	55	100	1.25	1	0.01
	City of Deming	4,649			2.15		0.02
	State of Arizona	2,879,372			0.00		0.00
Dragoon Compressor Station	Cochise County	42,925	55	100	0.23	1	0.00
	City of Willcox	1,354			7.39		0.07

<sup>A</sup> U.S. Census Bureau, 2016

<sup>B</sup> Percent change based on peak number of construction personnel.

Response prepared by or under the supervision of:

Russell Waldron  
 Environmental Project Manager/SWCA Consultant  
 520-325-9194, ext. 4919

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
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37. In table 5-4, explain why the total number of hospital beds (2,162) is the same for El Paso County, Hudspeth County, and the City of El Paso.

Response:

EPNG relied on the American Hospital Directory website for determining the number of hospital beds that are available in the project areas. The American Hospital Directory uses multiple data sources, including public data sources and propriety data. Although it is not disclosed how they classify hospitals by city, they likely used the El Paso Metropolitan Statistical Area (MSA) for this area, which covers all of El Paso and Hudspeth Counties. If they used this MSA, then they would not be able to distinguish which county a hospital was located in. Additionally, the City of El Paso is the largest city within El Paso and Hudspeth Counties and the closest community to the project area. Many areas outside of the City of El Paso limits in both counties are rural and remote with smaller populations, therefore, there no substantial hospitals exist in these areas that the American Hospital Directory was able to determine through their reporting. Although the American Hospital Directory takes reasonable steps to report data as they appear in public use files, it is possible that their data is incomplete.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919



EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
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38. Describe EPNG's outreach and consultation with local fire departments and emergency providers (section 5.3.2).

Response:

As of the date of this filing, EPNG has not conducted any outreach or consultation with local fire departments or emergency providers. EPNG does however perform face-to-face meetings on an annual basis with emergency responders in order to discuss protocols and ongoing or upcoming projects in the area. If the proposed project is approved, EPNG will consult with local fire departments or emergency providers regarding this project and related activities.

Response prepared by or under the supervision of:

Vickie Gibson and Steven Wells  
Kinder Morgan  
Project Managers  
719-520-4205  
719-520-4864

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

39. As per USEPA's Promising Practices for EJ Methodologies in NEPA Reviews, Environmental Justice populations should be identified as those census tracts with either: 1) a minority population greater than 50 percent; 2) a minority population that is meaningfully greater (defined as more than 10 percent higher) than the reference county or state value; 3) census tracts where over 50 percent of the population is below the poverty level, or 4) those census units where the percentage of total population below poverty level that is meaningfully greater than (more than 10 percent higher) than the county or state as a whole. An example of a meaningfully greater value is 35 percent compared to 24 percent (i.e., an 11 percent increase). Using the Promising Practices' methodology, determine whether there are any EJ communities within the Project area.

Response:

The following analysis was performed using the USEPA's Promising Practices and should be referenced using the numbered list in the response.

- 1) None of the census tracts for the South Mainline Expansion Project contain more than a 50 percent minority population (Table 5-7 of Resource Report 5, *Socioeconomics*).
- 2) None of the census tracts for the South Mainline Expansion Project are meaningfully greater (defined as more than 10 percent higher) than the reference county or state value (Table 5-7 of Resource Report 5, *Socioeconomics*).
- 3) None of the census tracts for the South Mainline Expansion Project contain 50 percent or more of the population below the poverty level (Table 5-8 of Resource Report 5, *Socioeconomics*).
- 4) Census Tract 9503 (Hudspeth County), the only census tract for Hudspeth County, and Census Tracts 103.39 and 103.44 (El Paso County) are the tracts that would be considered Environmental Justice populations for the 17-mile loop line. The census tracts for Red Mountain Compressor Station and the Dragoon Compressor station do not contain populations where the percentage of total population below the poverty level is meaningfully greater (more than 10 percent higher) than the county or state as a whole (Table 5-8).

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
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40. For any identified EJ communities, describe what Project facilities may impact them, the potential impacts from construction and operation on these communities, the significance of the impacts on these EJ communities, and any mitigation measures that could reduce impacts on these communities.

Response:

As provided in the response to Question 39, there were three census tracts identified as Environmental Justice populations for the 17-mile loop line: 9503 (Hudspeth County), 103.39 (El Paso County), and 103.44 (El Paso County). These were identified as Environmental Justice populations based upon the percentage living below the poverty level, not the demographic statistics of these census tracts.

The population within these census tracts would not be disproportionately impacted by the construction and operation of the 17-mile loop line. The proposed 17-mile loop line would not displace any residences. The types of impacts that could affect the minority population within these census tracts outside of the 17-mile loop line footprint include air quality, noise impacts, and aesthetics. Air quality impacts would include construction of the 17-mile loop line that would result in a short period of minor impacts to local ambient air quality, mainly due to exhaust from the larger construction equipment, as well as fugitive particulates from earthmoving and land filling/dumping activities, as well as traffic. These impacts are typically small and localized, as these emissions will be very near to or at ground level. Additionally, these impacts would only occur for a short period. EPNG would comply with state regulations that address fugitive dust impacts from construction activities (see *Resource Report 9- Air and Noise Quality* for further information, including mitigation measures for air quality impacts).

Noise from on-site construction activities that may occur near these Environmental Justice populations along the pipeline routes and may be intermittent or continuous but would be limited to short durations over a period of three to four weeks at any one location based on the nature of right-of-way construction sequencing. These populations would not be disproportionately impacted by noise. The noise impacts from the project would be minimized by restricting construction activities to daylight hours, unless limited nighttime construction is required due to site conditions, specialized construction techniques, and/or weather-related events; equipping vehicles and equipment with mufflers; and maintaining vehicles and equipment in accordance with manufacturers' recommendations.

Aesthetically, the 17-mile loop line is unlikely to be visible from any residence long term, as the pipeline would be buried alongside existing natural gas pipelines and the ground surface will be restored, making any visual impacts negligible to this community.

EL PASO NATURAL GAS COMPANY, L.L.C.  
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Overall, direct and indirect impacts to the environmental justice communities would be negligible for the 17-mile loop line and these communities would not be disproportionately affected (i.e. - all communities across the 17-mile loop line would be equally impacted). Any air quality or noise impacts would be mitigated and would comply with applicable federal and state regulations.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

EL PASO NATURAL GAS COMPANY, L.L.C.  
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41. Include a discussion on the cumulative impacts of other past, present, or reasonably foreseeable projects on environmental justice populations, if present.

Response:

As provided in the response to Question 39, there were three census tracts identified as Environmental Justice populations for the 17-mile loop line: 9503 (Hudspeth County), 103.39 (El Paso County), and 103.44 (El Paso County). These were identified as Environmental Justice populations based upon the percentage living below the poverty level, not the demographic statistics of these census tracts.

As identified in Question 40, there would be negligible direct and/or indirect impacts to environmental justice populations associated with the construction of EPNG's proposed loop line. Therefore, cumulative impacts of other past, present, or reasonably foreseeable projects would be negligible, and would not be disproportionate to environmental justice populations.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
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**Noise Impact**

42. For each horizontal directional drill entry or exit location with noise sensitive areas (NSA) within 0.5 mile, provide the following: (a) identify all NSAs; (b) the estimated number of days of drilling required for each location, and whether drilling would be done 24 hours per day; (c) a topographic map showing the distance and direction of the nearest NSAs; (d) the existing day-night average noise (Ldn) at the nearest NSAs and the estimated noise impacts at the NSAs during drilling activities; and (e) a description of any noise mitigation (or propose alternate measures such as temporary relocation, compensation, etc. that would be implemented during short term drilling operations) which would be implemented during drilling activity to reduce noise impacts at the NSAs below 55 dBA Ldn, or 10 dBA over background if ambient levels are above 55 dBA Ldn.

Response:

EPNG plans to conduct a horizontal directional drill (“HDD”) at one location along the proposed 17-mile loop line between approximately Milepost 190.7356 to Milepost 191.1203 depicted on the revised alignment sheets that are provided in response to Request No. 5 (SHT 01110-018 and SHT 01110-019). EPNG is currently in the process of retaining a noise consultant to conduct a noise study to address this request. EPNG anticipates that the noise study will be completed by the end of July 2018 and will submit to FERC the requested information once it has been completed.

Response prepared by or under the supervision of:

Vickie Gibson  
Kinder Morgan  
Project Manager  
719-520-4205

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
South Mainline Expansion Project

43. Provide the anticipated construction schedule and identify the typical hours and days of construction (example: 7:00 am to 7:00 pm, Monday through Friday). Indicate if construction would take place on weekends and federal holidays. Additionally, provide a detailed list of all activities that may occur during nighttime hours.

Response

As noted in its response to Request No. 9, construction would be limited to only daylight hours or 7:00 am to 7:00 pm Monday through Saturday. Typically, work would not occur on Sundays or federal holidays. However, if construction falls behind schedule, the contractor may be allowed to work on Sundays, but this is not preferred. Hydrotest related activities may be conducted on Sundays or during nighttime hours. Limited personnel would be on-site during a hydrotest and no construction equipment would be in operation within 100 feet of the hydrotest. Additional activities that may occur during nighttime hours would occur with construction of the proposed 17-mile loop line and include:

1. HDD pulling the pipe back activities. The pull-back needs to be completed without stopping to minimize the potential of the piping getting stuck.
2. Final tie ins to the existing Line No. 1100 at the Valve Nos. 20-3/4 and 23.

Response prepared by or under the supervision of:

Vickie Gibson  
Kinder Morgan  
Project Manager  
719-520-4205

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
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44. Confirm that EPNG commits to implementing all noise control measures specified in the acoustic analyses for the proposed Dragoon and Red Mountain Compressor Stations in appendix 9.D.

Response:

After reviewing the noise reports contained in Appendix 9.D, EPNG noted that a previous revision of the noise report (dated February 6, 2018) for the Dragoon Compressor Station was inadvertently included in the original FERC filing. In an effort to provide FERC with the most recent information, EPNG has attached the final version of the noise report for the Dragoon Compressor Station (dated February 15, 2018) for inclusion in this submittal. The more current noise report incorporates two updates compared to the one originally filed. These updates were in section 8.2 and section 8.3. In section 8.2, the last sentence addressing a CO converter was deleted, given that the inclusion of CO converter was an error. Additionally, modifications were made to section 8.3 clarifying requirements for aboveground piping at the Dragoon Compressor Station.

Based on the original Red Mountain Compressor Station noise report included in the FERC filing, and the revised Dragoon Compressor Station (dated February 15, 2018) noise report, EPNG commits to implement all noise control measures outlined in Section 8 of the respective reports.

Response prepared by or under the supervision of:

Steven Wells  
Kinder Morgan  
Project Manager  
719-520-4864



# **DRAGOON COMPRESSOR STATION**

(COCHISE COUNTY, ARIZONA)

## **RESULTS OF AN AMBIENT SITE SOUND SURVEY AND ACOUSTICAL ANALYSIS OF THE NEW NATURAL GAS COMPRESSOR STATION (GREENFIELD SITE) ASSOCIATED WITH THE EPNG SOUTH MAINLINE EXPANSION PROJECT**

H&K Report No. 3671

H&K Job No. 5159

Date of Report: February 15, 2018

Prepared for: **El Paso Natural Gas, LLC** (“EPNG”)  
A company of Kinder Morgan

Submitted by: Paul D. Kiteck, P.E. (primary author)  
Senior Consultant at **Hoover & Keith Inc.** (H&K)

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### **Hoover & Keith Inc.**

Consultants in Acoustics and Noise Control Engineering

TX Office: 11381 Meadowglen, Suite I; Houston, TX 77082

CO Office: 1680 Northwestern Road; Longmont, CO 80503

TX Office Phone: (281) 496-9876

CO Office Phone: (303) 834-9455

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**REPORT SUMMARY**

This report includes the results of an acoustical analysis for a grass roots natural gas compressor station (i.e., **Dragoon Compressor Station – Greenfield Site**) associated with the **EPNG South Mainline Expansion Project** (“Project”). In addition, the results of an ambient sound survey at the site of the Dragoon Compressor Station (abbreviated as “Station” in the report) are included.

The purpose of the site ambient sound survey was to locate the noise-sensitive areas (NSAs) and to quantify the acoustical environment. The purpose of the noise impact analysis is to estimate the sound contribution of the Station and determine noise control measures to meet applicable sound level criteria. In addition, the acoustical assessment addresses the noise at the closest NSA(s) resulting from construction activities at the Station site and the potential noise contribution due to a blowdown event at the Station.

The following table summarizes the measured ambient noise environment at the Station site, the estimated sound level contribution of the Station at the identified closest NSAs during operation and the “total” sound level at the closest NSA (i.e., Station sound level plus the ambient sound level). The results in this table are defined as the “Noise Quality Analysis” for the Station.

**Noise Quality Analysis for the new Dragoon Compressor Station (Greenfield Site)**

Closest NSA(s) and Type of NSA	Distance & Direction of NSA from the Station	Existing Ambient Ldn (dBA)	Estimated Sound Level (Ldn) of the Station (dBA)	Station Ldn + Ambient Ldn (dBA)	Increase above Ambient (dB)
NSA #1 (Residence)	2,200 feet (NW)	41.6	49.5	50.2	8.6
NSA #2 (Residence)	2,850 feet (NNW)	38.0	45.5	46.2	8.2
NSA #3 (Residence)	3,550 feet (NE)	35.0	42.0	42.6	7.8

The acoustical analysis of the Station indicates that if the recommended and/or anticipated noise control measures are successfully implemented, the noise attributable to the **Dragoon Compressor Station (Greenfield Site)** is estimated to be lower than **55 dBA (L<sub>dn</sub>)** at the nearby NSAs. In addition, the acoustical assessment indicates that the noise of construction activities at the site of the Station and the noise resulting from a unit blowdown event at the Station should have minimum noise impact on the surrounding environment.

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## 1.0 INTRODUCTION

In this report, **Hoover & Keith Inc.** (H&K) presents the results of an acoustical analysis for a new natural gas compressor station (i.e., **Dragoon Compressor Station – Greenfield Site**) associated with the **EPNG South Mainline Expansion Project** (“Project”). In addition, the results of an ambient sound survey at the site of the Dragoon Compressor Station (abbreviated as “Station” in the report) are included. The following describes the purpose of the ambient sound survey and the Station acoustical analysis.

- (1) Quantify the existing acoustic environment (i.e., typical ambient sound level during daytime and nighttime) at the identified nearby noise-sensitive areas (NSAs), such as residences, hospitals, and schools.
- (2) Estimate the sound level contribution of the Station during operation at the identified nearby NSAs, based on the current Station design, and estimate the “total” Station sound level contribution (i.e., Station sound level plus the ambient sound level); included are recommended noise control measures and equipment sound requirements to insure that applicable sound level criteria are not exceeded after installation of the Station.
- (3) Estimate the sound level at the nearby NSAs resulting from construction activities at the Station site and estimate the sound level due to a compressor unit blowdown event.

## 2.0 SOUND LEVEL CRITERIA; TYPICAL METRICS AND TERMINOLOGY

For the reader’s information, a brief summary of applicable acoustical terminology and description of typical metrics used to measure and regulate environmental noise is provided at the end of the report (**Appendix**, p. 18).

### 2.1 Federal (FERC) Sound Requirement and Sound Guidelines

Certificate conditions of the Office of Energy Projects (OEP) of the Federal Energy Regulatory Commission (FERC) requires that the sound level attributable to a new natural gas compressor station not exceed the day-night average sound level (i.e.,  $L_{dn}$ ) of **55 dBA** at any nearby NSA. In addition, a sound level of **55 dBA** ( $L_{dn}$ ) can be used as a “benchmark noise criterion” for assessing the noise impact of temporary or intermittent noise such as Station site construction noise or an unit blowdown event at the Station. The **10-dB** adjustment to the  $L_{dn}$  is an energy average of the measured daytime  $L_{eq}$  ( $L_d$ ) and the measured nighttime  $L_{eq}$  ( $L_n$ ) plus **10 dB**.  $L_n$  is intended to compensate for nighttime sensitivity. For a steady sound source that operates continuously over a 24-hour period and controls the environmental sound level, an  $L_{dn}$  is approximately **6.4 dB** above the measured  $L_{eq}$ . If both the  $L_d$  and  $L_n$  are measured and/or estimated, then the  $L_{dn}$  is calculated using the following formula:

$$L_{dn} = 10 \log_{10} \left( \frac{15}{24} 10^{L_d/10} + \frac{9}{24} 10^{(L_n+10)/10} \right)$$

## 2.2 State/Local Regulations

The State of Arizona does not have any applicable noise regulations for this type of industrial-commercial facility. In addition, no county or local (township) noise regulations have been identified for this facility.

## 3.0 **DESCRIPTION OF STATION SITE AND EQUIPMENT**

**Figure 1 (Appendix, p. 10)** is an area layout/map showing the nearby NSAs (i.e., residences) within approximately 1 mile of the Station along with the reported sound measurement positions near the identified closest NSAs. There are currently no existing facilities at this proposed “greenfield site”, which is the “primary” site for the Station (i.e., another secondary site of the Station, as the site of the existing Willcox Station, is also being considered). The Station will be located Cochise County, Arizona, and approximately 13 miles southeast of Willcox, AZ. The area around the site is mostly agricultural land, undeveloped land and areas of natural gas development with only very few residences located within 1.0 mile of the Station site. The closest NSAs consist of a few single-family residences located between 2,200 feet to 3,550 feet from the Station site center (i.e., anticipated location of the Compressor Building).

For this Project, the Station will be equipped with one (1) natural gas turbine-driven compressor unit consisting of a Solar Model Mars 90 turbine driving a Solar centrifugal compressor [ISO Rating of 13,000 horsepower (HP)]. The turbine and compressor will be installed in an insulated metal building (i.e., Compressor Building). The following describes the anticipated auxiliary equipment and other notable items associated with the Solar turbine-driven compressor installation.

- Turbine exhaust silencer system and associated exhaust stack.
- Turbine air intake filter system with an in-duct intake silencer.
- Outdoor lube oil cooler (“LO cooler”) that serves the compressor.
- Gas aftercooler (an multi-fan air-cooled heat exchanger).
- Aboveground gas piping and piping components (e.g., valves, inlet filter/scrubbers).

In addition, there will be a gas blowdown vent for each unit within the fenced area of the Station in which the gas between the suction/discharge valves and compressor is vented to the atmosphere via a blowdown silencer (“unit blowdown”). During commissioning of the Station, it is estimated that a unit blowdown could occur 3 or 4 times/day and only during the daytime. During normal operation of the Station (i.e., after the commissioning period), a unit blowdown event occurs infrequently (e.g., 2 to 3 times/month), and a unit blowdown event only occurs for a short time frame (e.g., unit blowdown would persist for approximately 1 to 5 minutes). The Station also includes an emergency shutdown (“ESD”) that will only occur at required DOT test intervals (e.g., annual test of blowdown system) or in an emergency situation (gas leak or fire), and we understand that an ESD blowdown, if necessary, occurs for less than five (5) minutes.

#### **4.0 SOUND MEASUREMENT LOCATION(S) AND MEASUREMENT METHODOLOGY**

Ambient sound levels were measured only at the closest NSAs (i.e., “NSA #1”, “NSA #2” and “NSA #3”) since other NSAs were located more distant than these closest NSAs. The following is a description of the nearby (closest) NSAs and the selected sound measurement position near the closest NSAs during the site sound survey:

Pos. 1: Near NSA #1; Potential residence located 2,200 feet northwest (NW) of the Station site “acoustic” center (i.e., anticipated location of Compressor Building) although it has not been confirmed that this relatively new structure is utilized as a residence.

Pos. 2: Near NSA #2 (“next closest NSA”); Residence along Arzberger Road, located 2,850 feet north-northwest (NNW) of the Station site center.

Pos. 3: Near NSA #3; Residence located 3,550 feet northeast (NE) of the Station site center.

Ambient sound measurements around the site were performed by Garrett Porter of H&K in the daytime of Nov. 15, 2017. At the chosen sound measurement location(s), the A-weighted (A-wt.) equivalent sound level ( $L_{eq}$ ) and unweighted octave-band (O.B.) sound pressure levels (“SPLs”) were measured at five (5) feet above the ground. Several sample periods of the ambient noise level were performed at the sound measurement position(s). The sound measurements attempted to exclude “extraneous sound” such as a car or truck passing immediately by the measurement location or other intermittent sound sources. The acoustical measurement system consisted of a Norsonic Model Nor140 Sound Level Meter (a Type 1 SLM per ANSI S1.4 & S1.11) equipped with a microphone covered with a windscreen. The SLM was calibrated with a mic calibrator (calibrated within 1 year of the tests).

#### **5.0 MEASUREMENT RESULTS AND OBSERVATIONS**

**Table 1 (Appendix, p. 11)** summarizes the measured ambient daytime  $L_{eq}$  ( $L_d$ ) near the closest NSAs during the ambient sound survey. **Table 1** includes the resulting ambient  $L_{dn}$ , which was calculated from the average measured  $L_d$ . Meteorological conditions that occurred during the sound surveys are summarized in **Table 2 (Appendix, p. 11)**. The measured daytime levels ( $L_d$ ) on 11/15/17 and related unweighted O.B. SPLs at the reported sound measurement positions are provided in **Table 3 (Appendix, p. 11)**.

The reported ambient  $L_{dn}$  is calculated from the average of the measured ambient  $L_d$ , which should be an accurate representation of the “long-term” ambient  $L_{dn}$ . The following **Table A** summarizes the measured ambient  $L_d$  at the closest NSAs along with the resulting ambient  $L_{dn}$  at the identified closest NSAs, as calculated from the measured ambient  $L_d$ .

Meas. Pos.	Description of Sound Measurement Location and associated NSA	Measured Ambient Ld (11/15/17)	Resulting Ambient Ldn
Pos. 1	NSA #1: Potential residence located 2,200 ft. NW of the Station	35.2 dBA	41.6 dBA
Pos. 2	NSA #2: Residence located 2,850 ft. NNW of the Station	31.6 dBA	38.0 dBA
Pos. 3	NSA #3: Residence located 3,550 ft. NE of the Station	28.6 dBA	35.0 dBA

**Table A:** Summary of the Measured Ambient Ld and Resulting Ambient Ldn at the Closest NSAs.

In our opinion, the measured ambient sound levels during the sound survey are representation of the “long-term” ambient  $L_{dn}$ . At the sound measurement positions near the identified closest NSAs, the primary noise sources that influenced the measured A-wt. sound levels was the noise of distant vehicle traffic, the noise of distant aircraft, the sound of birds, and occasionally, the sound of wind blowing in the local foliage/trees.

## 6.0 **NOISE IMPACT ANALYSIS (COMPRESSOR STATION)**

The following section addresses the potential noise impact due to the full load operation of the Station. Also included is a noise assessment of the noise associated with a unit blowdown that occurs occasionally at the Station. The predicted noise impact analysis were performed only for the closest NSAs since the noise contribution of the Station at more distant NSAs should be lower than the predicted noise level at these closest NSAs.

### 6.1 Sound Contribution of the Station

The acoustical analysis of the Station considers the noise produced by all equipment associated with the Station that could impact the sound contribution at the NSAs. For this acoustical analysis of the Station, the sound contribution of the Station was estimated only at the closest NSAs (i.e., NSA #1, NSA #2 and NSA #3) along with the total estimated cumulative sound level at the closest NSAs (i.e., Station sound level plus the ambient sound level). A description of the acoustical analysis methodology and the source of sound data are provided in the **Appendix** (pp. 14–15). The following sound sources of the Station were considered significant.

- Noise generated by the turbine and compressor that penetrates the Compressor Building.
- Noise of the turbine exhaust, via the exhaust stack.
- Noise radiated from aboveground gas piping and associated components.
- Noise of the outdoor LO cooler.
- Noise generated by the turbine air intake system.
- Noise of the outdoor gas aftercooler.

**Table 4 (Appendix, p. 12)** shows the complete spreadsheet calculation of the estimated A-wt. sound level and the unweighted O.B. SPLs at the closest NSA (NSA #1) contributed by the Station during full load operation based on standard day conditions (i.e., no wind, 60 deg. F and 70% R.H.). The noise impact analysis includes the effect of the anticipated and/or recommended noise

control measures for the Station equipment. Also included in **Table 4** is the estimated total cumulative sound level at NSA #1 (i.e., Station sound level plus the ambient sound level).

**Table 5 (Appendix, p. 13)** provides the estimated A-wt. sound level and the related unweighted O.B. SPLs at NSA #2 during Station operation along with estimated total cumulative sound level contribution of the Station at NSA #2, based on the estimated Station sound level contribution at NSA #1 (RE: results calculated in **Table 4**).

**Table 6 (Appendix, p. 13)** provides the estimated A-wt. sound level and the related unweighted O.B. SPLs at NSA #3 during Station operation along with estimated total cumulative sound level contribution of the Station at NSA #3, based on the estimated Station sound level contribution at NSA #1 (RE: results calculated in **Table 4**).

The following **Table B** summarizes the estimated sound level contribution of the Station at the closest NSA assuming full load operation of all equipment associated with the Station.

Location and Operating Condition	Est'd A-Wt. Sound Level (i.e., Leq)	Calc'd Ldn (via Est'd A-Wt. Level)
Est'd sound level contribution of the Station during full load at NSA #1	43.1 dBA	49.5 dBA
Est'd sound level contribution of the Station during full load at NSA #2	39.1 dBA	45.5 dBA
Est'd sound level contribution of the Station during full load at NSA #3	35.6 dBA	42.0 dBA

**Table B:** Estimated Sound Contribution of the Dragoon Compressor Station at the Closest NSAs

6.2 Sound Contribution of a Unit Blowdown Event at the Station

The noise of a unit blowdown venting via a blowdown silencer will be specified to meet an A-wt. sound level of **60 dBA** at a distance of 300 feet. If this sound requirement is achieved, the noise of a unit blowdown will be approximately **38 dBA** (i.e.,  $L_{dn}$  of approximately **46 dBA**) at the closest NSA, located 2,200 feet from the unit blowdown silencer, which would be significantly lower than **55 dBA** ( $L_{dn}$ ). Consequently, although the noise of a unit blowdown event could be audible at the nearby NSAs, it is not expected to present a noise impact, noting also that a unit blowdown event occurs infrequently for a short time frame (e.g., 1 to 5 minute period). A description of the acoustical analysis methodology and source of sound data related to blowdown noise are provided in the **Appendix** (p. 15)

7.0 **NOISE IMPACT ANALYSIS (SITE CONSTRUCTION ACTIVITIES)**

The noise impact analysis of the construction-related activities at the Station site considers the noise produced by any significant sound sources associated with the primary construction equipment that could impact the sound contribution at the nearby NSAs. The predicted sound contribution of construction activities was performed only for the closest NSA (i.e., NSA #1). Construction of the Station will consist of earth work (e.g., site grading, clearing & grubbing) and construction of the site buildings, and the highest level of construction noise would occur during



earth work (i.e., period when the largest amount of construction equipment would operate). **Table 7 (Appendix, p. 16)** shows the calculation of the estimated maximum A-wt. sound level at the closest NSA contributed by the construction activities for standard day propagating conditions. A description of the acoustical methodology and source of data for the analysis of construction noise are provided in the **Appendix** (p. 17). The acoustical analysis indicates that the maximum A-wt. noise level of construction activities at the NSAs would be equal to or less than **43 dBA** ( $L_{dn}$  of approximately **41 dBA**, since nighttime construction is not anticipated).

## 8.0 **NOISE CONTROL MEASURES**

The following section provides the recommended noise control measures for the significant sound sources associated with the compressor installation along with other assumptions that may affect the noise and vibration generated by the Station during normal operation. It is anticipated that all of the listed noise control measures will be implemented.

### 8.1 Building Enclosing the Turbine/Compressor

We understand that noise control measures will be applied to the building enclosing the turbine and compressor rather than to the equipment themselves. The following describes specific requirements and other items related to the building components.

- As a minimum, walls and roof of the building should be constructed with exterior steel of 22 gauge and a minimum interior layer of 4–inch thick unfaced mineral wool (e.g., 6.0–8.0 pcf uniform density) covered with 26-gauge perforated liner.
- It is anticipated that the building air ventilation system will be designed with air-supply fans mounted in the building walls along with roof-mounted air exhaust vents. No louvers should be installed in the building walls as part of the building ventilation system design. Assuming this type of air ventilation system, the sound level for each wall air-supply fan should not exceed **60 dBA at 50 feet**, which may require that each supply fan employ an exterior silencer (e.g., 3-ft. length) and an acoustically-lined weatherhood.

### 8.2 Turbine Exhaust System

The turbine exhaust system should include a silencer system that provides the following dynamic sound insertion loss (“DIL”) values at the rated turbine operating conditions, and a “standard” Solar exhaust silencer is not capable of meeting these DIL values.

**DIL Values for the Exhaust Silencer System in dB per Octave-Band (O.B.) Center Freq. (Hz)**

31.5	63	125	250	500	1000	2000	4000	8000
5	15	25	35	40	40	35	30	25

To meet these DIL values and minimize the impact of the turbine exhaust noise at surrounding NSAs, it is recommended that a “2–stage exhaust silencer system” should be implemented. One (1) of the 2-stage silencers should be employed horizontally in the exhaust ducting located inside the respective compressor building (i.e., “1<sup>st</sup> stage silencer”), if feasible. The other silencer system could be integrated into the vertical outdoor exhaust stack (i.e., “2<sup>nd</sup> stage silencer”) or in the horizontal exhaust ducting located outside the compressor building.

### 8.3 Aboveground Gas Piping and associated Components

Based on the acoustical analysis, aboveground suction/discharge gas piping probably should not need to be covered with any type of acoustical insulation to meet the sound level requirement, but to ensure that the Station piping-radiated noise does not have a noise impact at the nearby NSAs, it is recommended that the outdoor discharge gas piping be covered with acoustical pipe insulation, if feasible.

### 8.4 Lube Oil Cooler (“LO Cooler”)

The sound level of the LO cooler at maximum operating speed should not exceed **65 dBA** at **50 feet** from the cooler perimeter (i.e., equivalent to a PWL of approximately **97 dBA**), and a “Standard” Solar LO cooler may be capable of meeting this sound level.

### 8.5 Turbine Air Intake System

The air intake system for the turbine should include at least one (1) in-duct silencer, and if feasible, the air intake silencer should be installed in the intake ductwork located inside the Compressor Building. As a minimum, the air intake silencer should provide the following DIL values, noting that a “standard” Solar air intake silencer should be capable of meeting these DIL values (per Solar’s “Noise Prediction Guidelines”).

**DIL Values for the Turbine Air Intake Silencer System in dB per O.B. Center Freq. (Hz)**

31.5	63	125	250	500	1000	2000	4000	8000
1	2	3	4	17	32	46	47	31

### 8.6 Gas Aftercooler

The sound level of the gas after cooler (i.e., all fans operating at maximum design speed) should not exceed **65 dBA** at **50 feet** from the cooler perimeter (equivalent to a PWL of **97 dBA**).

### 8.7 Station Unit Blowdown Silencer

The unit blowdown silencer should attenuate the unsilenced blowdown noise to a noise level equal to or less than **60 dBA** at 300 feet from the outlet of the silencer, which includes the noise radiated from the shell of the silencer during the blowdown event.

**9.0 SUMMARY AND FINAL COMMENT**

The following **Table C** summarizes the measured ambient noise environment at the Station site, the estimated sound level contribution of the Station at the closest NSA during operation and the “total” sound level at the closest NSA (i.e., Station sound level plus the ambient sound level). The results in **Table C** are defined as the “Noise Quality Analysis” for the Station.

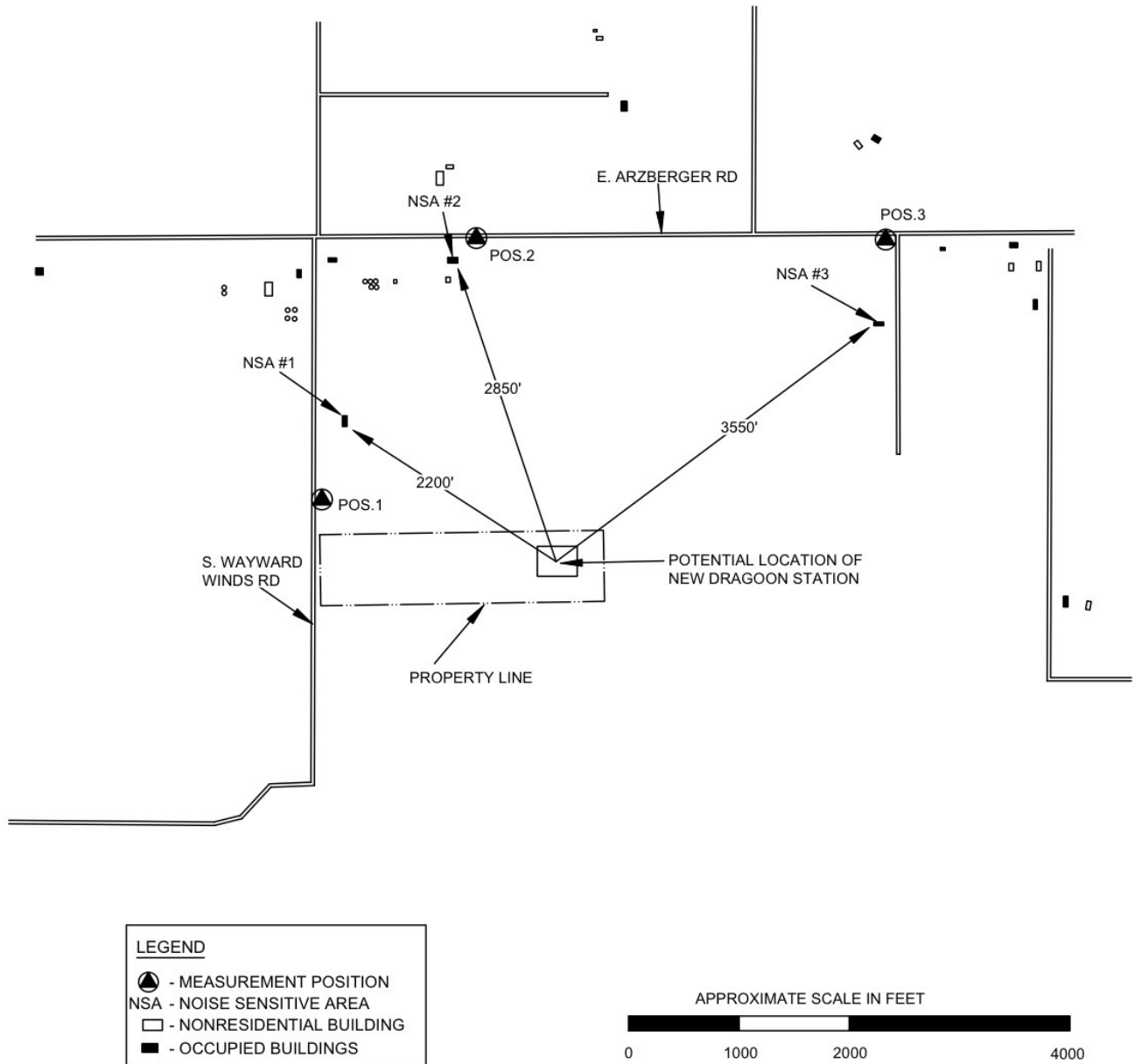
Closest NSA(s) and Type of NSA	Distance & Direction of NSA from the Station	Existing Ambient Ldn (dBA)	Estimated Sound Level (Ldn) of the Station (dBA)	Station Ldn + Ambient Ldn (dBA)	Increase above Ambient (dB)
NSA #1 (Residence)	2,200 feet (NW)	45.0	49.5	50.2	8.6
NSA #2 (Residence)	2,850 feet (NNW)	45.0	45.5	46.2	8.2
NSA #3 (Residence)	3,550 feet (NE)	45.0	42.0	42.6	7.8

**Table C: Noise Quality Analysis for the new Dragoon Compressor Station (Greenfield Site)**

The acoustical analysis of the Station indicates that if the recommended and/or anticipated noise control measures are successfully implemented, the noise attributable to the **Dragoon Compressor Station (Greenfield Site)** is estimated to be lower than **55 dBA (L<sub>dn</sub>)** at the nearby NSAs. In addition, the acoustical analysis indicates that the noise of construction activities at the site of the Station and the noise resulting from a unit blowdown event at the Station should have minimum noise impact on the surrounding environment.

## **APPENDIX**

- **FIGURE 1: AREA LAYOUT AROUND THE STATION SHOWING THE IDENTIFIED NSAs WITHIN 1 MILE OF THE STATION AND THE CHOSEN SOUND MEASUREMENT POSITION NEAR THE CLOSEST NSAs**
  
- **SUMMARY OF THE MEASURED AMBIENT SOUND DATA**
  
- **ACOUSTICAL ANALYSIS (COMPRESSOR STATION)**
  
- **ANALYSIS METHODOLOGY (NOISE ATTRIBUTABLE TO THE STATION AND A BLOWDOWN EVENT) AND THE SOURCE OF SOUND DATA**
  
- **ACOUSTICAL ANALYSIS (CONSTRUCTION ACTIVITIES)**
  
- **DESCRIPTION OF THE ANALYSIS METHODOLOGY (CONSTRUCTION ACTIVITIES) AND THE SOURCE OF SOUND DATA**
  
- **SUMMARY OF TYPICAL METRICS AND ACOUSTICAL TERMINOLOGY**



**Figure 1:** Dagoon Compressor Station (Greenfield Site): Area Layout showing NSA(s) within Approximately 1 Mile of the Station and Chosen Sound Measurement Position near the Identified Closest NSAs.

Measurement Set		Meas'd/Calc'd A-Wt. Levels (dBA)				Notes and Observations during the Sound Survey
		Day-time Leq(Ld)	Avg. of of Ld	Night-time Leq(Ln)	Calc'd Ldn Note (1)	
Meas. Pos. & NSA	Date of Test					
Pos. 1 (NSA #1): Near a potential residence located 2,200 ft. NW of the Station Site Center	11/15/17 11:44 AM	35.3	<b>35.2</b>	Not Meas'd	<b>41.6</b>	Primary noise during sound tests: Very few sound sources; sound of insects and noise of a welding truck to the north of the measurement position.
	11/15/17 11:46 AM	36.2				
	11/15/17 11:47 AM	34.2				
Pos. 2 (NSA #2): Near a residence located 2,850 ft. NNW of the Station Site Center	11/15/17 11:50 AM	32.7	<b>31.6</b>	Not Meas'd	<b>38.0</b>	Primary noise during sound tests: Very few sound sources; sound of insects and noise of a welding truck to the west of the measurement position. Also, sound of distant roosters.
	11/15/17 11:52 AM	30.9				
	11/15/17 11:53 AM	31.1				
Pos. 3 (NSA #3): Near a residence located 3,550 ft. NE of the Station Site Center	11/15/17 11:56 AM	28.6	<b>28.6</b>	Not Meas'd	<b>35.0</b>	Primary noise during sound tests: Again, very few sound sources; sound of distant dog barking and noise of distant vehicle traffic.
	11/15/17 11:57 AM	28.5				
	11/15/17 11:58 AM	28.7				

**Table 1: EPNG Dragoon Compressor Station (Greenfield Site): Summary of the Measured Ambient Daytime Sound Levels (Ld) near the Identified Closest NSAs, as Measured on Nov. 15, 2017, along with Resulting Ambient Ldn (as Calculated via the Measured Ambient Ld).**

Note (1): Ldn calculated by adding 6.4 dB to the measured Ld since nighttime sound levels should be similar to the daytime sound levels.

Measurement Set		Temp.	R.H.	Wind	Wind	Peak	
Meas. Positions/Period	Time Frame/Date of Tests	(°F)	(%)	Direction	Speed	Wind	Sky Conditions
Pos. 1 - 3 (Daytime)	12:00 PM to 2:00 PM (11/15/17)	71	16	From the east	0-1 mph	2 mph	Clear

**Table 2: EPNG Dragoon Compressor Station (Greenfield Site): Summary of the Meteorological Conditions during the Sound Survey on Nov. 15, 2017**

Measurement Set		Unweighted Sound Pressure Level (SPL) in dB per O.B. Freq. (in Hz)										A-Wt. Level
		31.5	63	125	250	500	1000	2000	4000	8000		
Meas. Pos. & NSA	Time/Date of Test											
Pos. 1 (NSA #1): Near a potential residence located 2,200 ft. NW of the Station Site Center	11:44 AM (11/15/17)	45.4	52.0	48.2	36.5	28.6	19.2	17.7	20.8	21.2	35.3	
	11:46 AM (11/15/17)	43.0	51.8	45.3	36.4	31.9	26.3	24.1	26.1	26.0	36.2	
	11:47 AM (11/15/17)	42.9	51.3	45.7	34.6	28.7	19.0	20.2	23.0	23.7	34.2	
	<b>Avg. A-Wt. &amp; SPL</b>	<b>43.8</b>	<b>51.7</b>	<b>46.4</b>	<b>35.8</b>	<b>29.7</b>	<b>21.5</b>	<b>20.7</b>	<b>23.3</b>	<b>23.6</b>	<b>35.2</b>	
Pos. 2 (NSA #2): Near a residence located 2,850 ft. NNW of the Station Site Center	11:50 AM (11/15/17)	44.8	46.4	47.6	28.8	22.3	17.4	16.0	13.4	11.4	32.7	
	11:52 AM (11/15/17)	45.6	45.5	44.2	31.1	24.7	18.6	15.3	13.6	12.2	30.9	
	11:53 AM (11/15/17)	46.0	44.4	45.3	29.4	23.2	17.4	16.1	14.3	12.7	31.1	
	<b>Avg. A-Wt. &amp; SPL</b>	<b>45.5</b>	<b>45.4</b>	<b>45.7</b>	<b>29.8</b>	<b>23.4</b>	<b>17.8</b>	<b>15.8</b>	<b>13.8</b>	<b>12.1</b>	<b>31.6</b>	
Pos. 3 (NSA #3): Near a residence located 3,550 ft. NE of the Station Site Center	11:56 AM (11/15/17)	45.2	42.3	40.5	28.5	21.2	21.4	16.7	13.0	12.0	28.6	
	11:57 AM (11/15/17)	44.6	43.7	40.5	25.6	20.4	22.2	16.4	13.1	11.7	28.5	
	11:58 AM (11/15/17)	46.2	44.2	41.5	28.1	19.8	19.7	15.6	13.2	12.2	28.7	
	<b>Avg. A-Wt. &amp; SPL</b>	<b>45.3</b>	<b>43.4</b>	<b>40.8</b>	<b>27.4</b>	<b>20.5</b>	<b>21.1</b>	<b>16.2</b>	<b>13.1</b>	<b>12.0</b>	<b>28.6</b>	

**Table 3: EPNG Dragoon Compressor Station (Greenfield Site): Measured Ambient Daytime Leq (Ld) and associated Unweighted Octave-Band (O.B.) SPLs near the Identified Closest NSAs, as Measured on Nov. 15, 2017.**

Source No. & Dist (Ft)	Source PWL and Estimated Sound Level Contributions at a Specific Distance	Unweighted PWL or SPL in dB per O.B. Center Frequency (Hz)									A-Wt. Level	
		31.5	63	125	250	500	1000	2000	4000	8000		
1)	PWL of Turbine/Compressor inside Building	110	110	112	110	108	110	110	115	110	119	
	Attenuation of the Building	-6	-10	-16	-22	-26	-32	-35	-38	-38		
	Misc. Atten. (Shielding or Ground Effect)	0	0	0	0	0	0	0	0	0		
	2200 Hemispherical Radiation	-65	-65	-65	-65	-65	-65	-65	-65	-65		
	2200 Atm. Absorption (70% R.H., 60 deg F)	0	0	0	-1	-2	-3	-7	-17	-30		
2200	<b>Source Sound Level Contribution</b>	<b>39</b>	<b>35</b>	<b>31</b>	<b>23</b>	<b>16</b>	<b>10</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>20</b>	
2)	PWL of Unsilenced Turbine Exhaust	127	128	127	127	131	125	118	111	98	130	
	Atten. of Noise Control (Silencer System)	-5	-15	-25	-35	-40	-40	-35	-25	-20		
	Misc. Atten. (Shielding or Ground Effect)	0	0	0	0	0	0	0	0	0		
	2200 Hemispherical Radiation	-65	-65	-65	-65	-65	-65	-65	-65	-65		
	2200 Atm. Absorption (70% R.H., 60 deg F)	0	0	0	-1	-2	-3	-7	-17	-30		
2200	<b>Source Sound Level Contribution</b>	<b>57</b>	<b>48</b>	<b>37</b>	<b>27</b>	<b>25</b>	<b>17</b>	<b>12</b>	<b>5</b>	<b>0</b>	<b>28</b>	
3)	PWL of Aboveground Piping & Components	95	95	98	92	95	100	112	108	102	115	
	Atten. of Noise Control	0	0	0	0	0	0	0	0	0		
	Misc. Atten. (Shielding or Ground Effect)	0	0	0	0	0	0	0	0	0		
	2200 Hemispherical Radiation	-65	-65	-65	-65	-65	-65	-65	-65	-65		
	2200 Atm. Absorption (70% R.H., 60 deg F)	0	0	0	-1	-2	-3	-7	-17	-30		
2200	<b>Source Sound Level Contribution</b>	<b>30</b>	<b>30</b>	<b>33</b>	<b>27</b>	<b>29</b>	<b>32</b>	<b>41</b>	<b>27</b>	<b>7</b>	<b>43</b>	
4)	PWL of the Lube Oil Cooler ("Standard")	105	102	96	94	92	90	88	85	82	96	
	NR of Noise Control	0	0	0	0	0	0	0	0	0		
	Misc. Atten. (Shielding or Ground Effect)	0	0	0	0	0	0	0	0	0		
	2200 Hemispherical Radiation	-65	-65	-65	-65	-65	-65	-65	-65	-65		
	2200 Atm. Absorption (70% R.H., 60 deg F)	0	0	0	-2	-2	-3	-7	-17	-30		
2200	<b>Source Sound Level Contribution</b>	<b>40</b>	<b>37</b>	<b>31</b>	<b>27</b>	<b>26</b>	<b>22</b>	<b>17</b>	<b>4</b>	<b>0</b>	<b>27</b>	
5)	PWL of Unsilenced Turbine Air Intake	119	119	119	121	123	129	135	161	154	163	
	Attenuation of Intake Silencer ("Standard")	-1	-4	-10	-20	-30	-40	-50	-60	-50		
	Attenuation of Air Intake Filter	-1	-2	-5	-10	-15	-20	-20	-15	-10		
	2200 Hemispherical Radiation	-65	-65	-65	-65	-65	-65	-65	-65	-65		
	2200 Atm. Absorption (70% R.H., 60 deg F)	0	0	0	-1	-2	-3	-7	-17	-30		
2200	<b>Source Sound Level Contribution</b>	<b>52</b>	<b>48</b>	<b>39</b>	<b>26</b>	<b>12</b>	<b>1</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>27</b>	
6)	PWL of the Gas Aftercooler	115	108	98	95	92	90	88	85	82	96	
	NR of Noise Control	0	0	0	0	0	0	0	0	0		
	Misc. Atten. (Shielding or Ground Effect)	0	0	0	0	0	0	0	0	0		
	2200 Hemispherical Radiation	-65	-65	-65	-65	-65	-65	-65	-65	-65		
	2200 Atm. Absorption (70% R.H., 60 deg F)	0	0	0	-1	-2	-3	-7	-17	-30		
2200	<b>Source Sound Level Contribution</b>	<b>50</b>	<b>43</b>	<b>33</b>	<b>30</b>	<b>26</b>	<b>22</b>	<b>17</b>	<b>4</b>	<b>0</b>	<b>28</b>	
<b>Est'd Total Sound Contribution of Station/Unit at NSA #1</b>		<b>59</b>	<b>52</b>	<b>43</b>	<b>35</b>	<b>33</b>	<b>33</b>	<b>41</b>	<b>27</b>	<b>7</b>	<b>43.1</b>	<b>49.5</b>

Existing Ambient Sound Level at the NSA: Note (1)	41.6
Est'd Total Sound Level (Station Sound Level + Ambient Sound Level)	<b>50.2</b>
Potential Increase in the Existing Ambient Sound Level (dB)	8.6

**Table 4: EPNG Dragoon Compressor Station (Greenfield Site): Estimated Sound Contribution of the Station at the Closest NSA (i.e., NSA #1; Potential Residence located 2,200 Ft. NW of the Station Site Center) during Full Load Operation of the Solar Mars 90 Compressor Unit at the Station along with the Estimated Total Sound Level (i.e., Sound Level of the Station plus Ambient Sound Level).**

Note (1): Current ambient sound levels based on a recent 2017 ambient sound survey by H&K at the site of the station.

**NOTE: Silencer DIL & Equipment PWL values in this spreadsheet should not be used as the specified values. Refer to "Noise Control Measures" section in report or other company specifications for specified values.**

Source No. & Dist (Ft)	Noise Sources and Other Conditions/Factors associated with Acoustical Analysis	Unweighted SPL in dB per O.B. Center Frequency (Hz)										A-Wt. Level	
		31.5	63	125	250	500	1000	2000	4000	8000			
	Station A-wt. & SPLs at 2,200 Ft. (RE: Table 4)	59	52	43	35	33	33	41	27	7	43.1	Calc'd Ldn	
2850	Hemisp Radiation [20*log(2850/2200) = 2.3 dB]	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3			
2850	Atm. Absorption (70% R.H., 60 deg F)	0	0	0	0	0	-1	-2	-5	-9			
<b>Est'd Total Sound Contribution of the Station/Unit at NSA #2</b>		<b>57</b>	<b>50</b>	<b>40</b>	<b>32</b>	<b>30</b>	<b>30</b>	<b>37</b>	<b>20</b>	<b>0</b>	<b>39.1</b>	<b>45.5</b>	
Existing Ambient Sound Level at the NSA: Note (1)											38.0		
Est'd Total Sound Level (Station Sound Level + Ambient Sound Level)											<b>46.2</b>		
Potential Increase in the Existing Ambient Sound Level (dB)											8.2		

**Table 5: EPNG Dragoon Compressor Station (Greenfield Site): Estimated Sound Contribution of the Station at the Next Closest NSA (i.e., NSA #2; Residence located 2,850 Ft. NNW of the Station) during Full Load Operation of the Solar Mars 90 Compressor Unit at the Station along with the Estimated Total Sound Level (i.e., Sound Level of the Station plus Ambient Sound Level).**

Source No. & Dist (Ft)	Noise Sources and Other Conditions/Factors associated with Acoustical Analysis	Unweighted SPL in dB per O.B. Center Frequency (Hz)										A-Wt. Level	
		31.5	63	125	250	500	1000	2000	4000	8000			
	Station A-wt. & SPLs at 2,200 Ft. (RE: Table 4)	59	52	43	35	33	33	41	27	7	43.1	Calc'd Ldn	
3550	Hemisp Radiation [20*log(3550/2200) = 4.2 dB]	-4.2	-4.2	-4.2	-4.2	-4.2	-4.2	-4.2	-4.2	-4.2			
3550	Atm. Absorption (70% R.H., 60 deg F)	0	0	0	-1	-1	-2	-4	-10	-18			
<b>Est'd Total Sound Contribution of the Station/Unit at NSA #3</b>		<b>55</b>	<b>48</b>	<b>38</b>	<b>30</b>	<b>28</b>	<b>27</b>	<b>33</b>	<b>12</b>	<b>0</b>	<b>35.6</b>	<b>42.0</b>	
Existing Ambient Sound Level at the NSA: Note (1)											35.0		
Est'd Total Sound Level (Station Sound Level + Ambient Sound Level)											<b>42.8</b>		
Potential Increase in the Existing Ambient Sound Level (dB)											7.8		

**Table 6: EPNG Dragoon Compressor Station (Greenfield Site): Estimated Sound Contribution of the Station at NSA #3 (i.e., Residence located 3,550 Ft. NE of the Station) during Full Load Operation of the Solar Mars 90 Compressor Unit at the Station along with the Estimated Total Sound Level (i.e., Sound Level of the Station plus Ambient Sound Level).**



## **DESCRIPTION OF THE ANALYSIS METHODOLOGY AND SOURCE OF SOUND DATA**

### **ACOUSTICAL ANALYSIS METHODOLOGY**

In general, the predicted sound level contributed by the compressor station was calculated as a function of frequency from estimated octave-band (O.B.) sound power levels (“PWLs”) for each significant sound source associated with the Station compressor unit. The following summarizes the analysis procedure:

- Initially, unweighted O.B. PWLs of the significant noise sources associated with the compressor unit and Station were determined from actual sound level measurements performed by H&K at similar type of gas compressor facilities.
- Then, expected noise reduction (“NR”) or attenuation in dB per O.B. frequency due to any noise control measures, hemispherical sound propagation (discussed in more detail below\*) and atmospheric sound absorption (discussed in more detail below\*\*) were subtracted from the unweighted O.B. PWLs to obtain the unweighted O.B. sound pressure levels (“SPLs”) of each noise source. Since sound shielding by buildings (e.g., Compressor Building) can influence the sound level contributed at the NSAs, sound shielding due to buildings included, if appropriate. The sound attenuation effect due to vegetation (i.e., foliage/trees) and/or land contour were also considered in the acoustical analysis, if appropriate.
- Finally, the resulting estimated O.B. SPLs for all noise sources associated with the compressor unit (with noise control and other sound attenuation effects) were logarithmically summed, and the total O.B. SPLs for all noise sources were corrected for A-weighting to provide the estimated overall A-wt. sound level contributed by the compressor unit at the closest NSA. The predicted sound contribution of the compressor unit at the closest NSA was utilized to estimate the station noise contribution at the other nearby NSAs that are more distant than the closest NSA.

\*Attenuation due to hemispherical sound propagation: Sound propagates outwards in all directions (i.e., length, width, height) from a point source, and the sound energy of a noise source decreases with increasing distance from the source. In the case of hemispherical sound propagation, the source is located on a flat continuous plane/surface (e.g., ground), and the sound radiates hemispherically (i.e., outward, over and above the surface) from the source. The following equation is the theoretical decrease of sound energy when determining the resulting sound pressure level (SPL) of a noise source at a specific distance (“r”) of a receiver from a source sound power level (PWL):

Decrease in SPL (“hemispherical propagation”) from a noise source =  **$20 \cdot \log(r) - 2.3 \text{ dB}$**   
where “r” is distance of the receiver from the noise source.

\*\*Attenuation due to air absorption: Air absorbs sound energy, and the amount of absorption (“attenuation”) is dependent on the temperature and relative humidity (R.H.) of air and frequency of sound. For example, the attenuation due to air absorption for 1000 Hz octave band SPL is approximately **1.5 dB** per 1,000 feet for standard day conditions (i.e., no wind, 60 deg. F. and 70% R.H.).

## **ANALYSIS & METHODOLOGY (NOISE ATTRIBUTABLE TO A BLOWDOWN EVENT)**

The noise resulting from a blowdown event was estimated by using the “inverse-square law” and included some attenuation due to atmospheric sound absorption. Consequently, the estimated noise of a blowdown event at the receptor (i.e., closest NSA) was calculated as follows:

$$\text{SPL (receptor)} = (\text{Blowdown SPL at R1}) - 20 \cdot \log(R2/R1) - \text{Atm. Atten.} = 60 \text{ dBA} - 20 \cdot \log(2200/300) - 5 \text{ dB} = 38 \text{ dBA}$$

Where: R1 = Distance of Specified Blowdown Noise Level Requirement (i.e., 300 ft.)

R2 = Distance of the Closest Receptor (NSA #1) from the Blowdown Silencer (2,200 ft.)

## **SOURCE OF SOUND DATA**

The following describes the source of sound data for estimating the source sound levels and source PWLs used in the acoustical analysis. Note that equipment noise levels utilized in the acoustical analysis (i.e., spreadsheet analysis) are generally higher than the sound level requirement for the equipment to insure that the design incorporates an acoustical “margin of safety.”

- (1) PWL values of the specific equipment inside the building (i.e., noise of turbine/compressor) was calculated from sound data measured by H&K on similar type of gas compressor installation.
- (2) Turbine exhaust PWL values were calculated from sound data provided in Solar Noise Prediction Manual and sound data measured by H&K on a similar turbine installation.
- (3) Noise radiated from aboveground gas piping is primarily a result the noise generated by the gas compressor(s). Consequently, measurement of both near field and far field sound data on gas piping is presumed to be an accurate method of quantifying the noise associated with the new gas piping, and the estimated PWL values for gas piping used in the analysis were determined from near field and far field sound data by H&K on a similar type of compressor to that of the planned compressor unit.
- (4) PWL values for the LO cooler and any other site coolers (e.g., gas aftercooler) were designated to meet the design noise level goal. Note that the estimated PWL for the cooler utilized in the acoustical analysis assumes some noise associated with piping associated with the coolers. The noise level for the cooler(s) used in the acoustical analysis is generally higher than the sound level requirement in order that the noise design analysis incorporates an acoustical “margin of safety.” In addition, there can be other noise associated with the cooler that is not directly related to the operation of the cooler fans.
- (5) PWL values for the turbine air intake were calculated from sound data in Solar Noise Prediction Manual, although the low-frequency SPLs were modified as a result of field tests by H&K;
- (6) Estimated A-wt. sound level of a unit blowdown event, via a blowdown vent/silencer, was calculated from sound data measured by H&K on similar type of blowdown operations.

Type of Equipment	Equipment Power Rating or Capacity	Est'd Number Required	Est'd A-Wt. Sound Level at 50 Ft.: Note (1)	Resulting A-Wt. PWL of Single Piece of Equip.	Assumed Max. No. Operating at One Time	Est'd Max. A-Wt. PWL or Sound Level of Equip.	
Diesel Generator	250 to 400 HP	1 to 2	65 - 70 dBA	102 dBA	1	102	
Bulldozer	250 to 700 HP	1 to 2	75 - 80 dBA	110 dBA	1	110	
Grader	450 to 600 HP	1 to 2	70 - 75 dBA	105 dBA	1	105	
Backhoe	130 to 210 HP	1 to 2	65 - 72 dBA	104 dBA	1	104	
Front End Loader	150 to 250 HP	1 to 2	65 - 70 dBA	102 dBA	1	102	
Truck Loaded	40 Ton	As needed	70 - 75 dBA	105 dBA	1	105	
Est'd Total Maximum A-Wt. PWL (dBA) of All Construction Site Equipment						113	Calc'd
Atten. (dB) due to Hemispherical Sound Propagation (2,200 Ft.): Note (2)						-65	Ldn
Est'd Attenuation (in dB) due to Air Absorption and/or Foliage-Shielding: Note (3)						-5	Note (4)
<b>Est'd Sound Level (dBA) at Closest NSA (NSA #1) Considering a Maximum Number of Equipment Operating at One Time</b>						<b>43 dBA</b>	<b>41 dBA</b>

**Table 7: Dragoon Compressor Station (Greenfield Site): Estimated Sound Contribution at Closest NSA (i.e., NSA #1; Residence 2,200 Ft. NW of Station Site ) during Construction Activity at the Station. Sound Contribution assumes Operation of the "Loudest" Equipment during a Time Frame with the Largest Amount of Equipment Operating (e.g., Site Grading & Clearing/Grubbing)**

Note (1): Noise Emission Levels of construction equipment based on an EPA Report (meas'd sound data for a railroad construction project) and measured sound data in the field by H&K or other published sound data.

Note (2): Noise attenuation due to hemispherical sound propagation: Sound propagates outwards in all directions (i.e., length, width, height) from a point source, and the sound energy of a noise source decreases with increasing distance from the source. In the case of hemispherical sound propagation, the source is located on a flat continuous plane/surface (e.g., ground), and the sound radiates hemispherically from the source.

The following equation is the theoretical decrease of sound energy when determining the resulting SPL of a noise source at a specific distance ("r") of a receiver from a source sound power level (PWL):

Decrease in SPL ("hemispherical propagation") from a noise source =  $20 \cdot \log(r) - 2.3 \text{ dB}$ , where "r" is distance of the receiver from the noise source. For example, if the distance "r" is 2,200 feet between the site and closest NSA, the "hemispherical propagation" =  $20 \cdot \log(2200) - 2.3 \text{ dB} = 65 \text{ dB}$ .

Note (3): Noise attenuation due to air absorption & foliage: Air absorbs sound energy, and the amount of absorption ("attenuation") is dependent on temperature and relative humidity (R.H.) of the air and the frequency of sound. For standard day conditions (i.e., no wind, 60 deg. F. and 70% R.H.), the attenuation due to air absorption for the medium frequency" (i.e., 1000 Hz O.B. SPL) is approximately **1.5 dB** per 1,000 feet. In addition, foliage such as forest/trees between the Station site and nearby NSAs can have a sound attenuation effect depending on the amount/thickness of the foliage.

Note (4): Calc'd Ldn is approx. 2 dB lower than A-wt. sound level since construction activities will occur only during daytime.

## **ANALYSIS METHODOLOGY AND SOURCE OF SOUND DATA (CONSTRUCTION ACTIVITIES)**

The predicted sound level contributed by the construction-related activity (i.e., construction of the compressor station) was calculated from estimated A-wt. PWL of noise sources (i.e., construction equipment noise) that typically operate during the specific construction activity. The following summarizes the acoustical analysis procedure utilized for the construction activity at the site:

- Initially, the A-wt. PWL of noise sources associated with the construction activity were determined from published sound data and/or actual sound level measurements by H&K, and the total PWL of each noise source (equipment) was based on the anticipated number of equipment operating.
- Next, A-wt. PWL of all sources were logarithmically summed to provide the overall A-wt. PWL contributed by construction activity. It is assumed that the highest level of construction noise would occur during site earth work (i.e., time frame when the largest amount of equipment would operate).
- Finally, the estimated A-wt. sound level of the construction activity at the specific distance was determined by compensating for sound attenuation due to propagation (hemispherical radiation), atmospheric sound absorption and sound attenuation effect of foliage/forest\*\*\*.

The noise levels of construction equipment were based on an EPA Report (i.e., measured sound data from railroad construction equipment taken during the Northeast Corridor Improvement Project) that was summarized in a 1995 Report to the Federal Transit Administration as prepared by Harris Miller Miller & Hanson Inc. Also, construction equipment noise levels listed in an article in the Journal of Noise Control Engineering and sound data measured by H&K was utilized. The following list some references used by H&K to determine construction equipment noise emission levels:

- (1) “Transit Noise and Vibration Impact Assessment”, dated April 1995, prepared by Harris Miller Miller & Hanson Inc. for the Office of Planning of the Federal Transit Administration.
- (2) Erich Thalheimer, “Construction Noise Control Program and Mitigation Strategy at the Central Artery/Tunnel Project”, J of Noise Control Eng., 48 (5), pp. 157-165 (2000 Sep-Oct).
- (3) “Noise Control for Building Manufacturing Plant Equipment and Products”, course handout notes for a noise course given each year by Hoover & Keith Inc.

\*\*\*Discussion of noise attenuation due to air absorption attenuation and foliage/shielding: For this Station (i.e., distance of 2,200 feet from closest NSA), the “medium-frequency” air absorption attenuation is approximately **1.5 dB** per 1000 feet. Therefore, for this Station, the estimated medium-frequency air absorption attenuation would be approximately **3 dB** (i.e.,  $1.5 \text{ dB} \times 2200/1000 = 3 \text{ dB}$ ). There could be some additional attenuation due to foliage/trees, which was considered to be approximately **2 dB** attenuation. As a result, a total of **5 dB** attenuation was included for air absorption and foliage/shielding. For reference, the potential attenuation of foliage, based on our experience and an ISO Standard<sup>1</sup>, the “medium-frequency” attenuation (i.e., 1000 Hz) due to forest/trees greater than 500 feet thick is approximately **10 dB**.

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<sup>1</sup> ISO Standard 9613-1: 1993 (E), entitled “Acoustics – Attenuation of sound during propagation outdoors – Part 1: Calculation of the absorption of sound by the atmosphere, and Part 2: General method of calculation”

## **SUMMARY OF TYPICAL METRICS AND ACOUSTICAL TERMINOLOGY**

**Decibel** (dB): A unit for expressing the relative power level difference between acoustical or electrical signals. It is ten times the common logarithm of the ratio of two related quantities that are proportional to power. When adding dB or dBA values, the values must be added logarithmically. For example, the logarithmic addition of **35 dB** plus **35 dB** is **38 dB**.

**A-Weighted Sound Level** (dBA): The A-wt. sound level is a single-figure sound rating, expressed in decibels (Re 20  $\mu$ Pa), which correlates to the human perception of the loudness of sound. The dBA level is commonly used to measure industrial and environmental noise since it is easy to measure and provides a reasonable indication of the human annoyance value of the noise. The dBA measurement is not a good descriptor of a noise consisting of strong low-frequency components or for a noise with tonal components. The A-weighted curve approximates the response of the average ear at sound levels of 20 to 50 decibels.

**Daytime Sound Level** ( $L_d$ ) & **Nighttime Sound Level** ( $L_n$ ):  $L_d$  is the equivalent A-weighted sound level, in decibels, for a 15 hour time period, between 07:00 to 22:00 Hours (7:00 a.m. to 10:00 p.m.).  $L_n$  is the equivalent A-weighted sound level, in decibels, for a 9 hour time period, between 22:00 to 07:00 Hours (10:00 p.m. to 7:00 a.m.).

**Equivalent Sound Level** ( $L_{eq}$ ): The equivalent sound level ( $L_{eq}$ ) can be considered an average sound level measured during a period of time, including any fluctuating sound levels during that period. In this report, the  $L_{eq}$  is equal to the level of a steady (in time) A-weighted sound level that would be equivalent to the sampled A-weighted sound level on an energy basis for a specified measurement interval. The concept of the measuring  $L_{eq}$  has been used broadly to relate individual and community reaction to aircraft and other environmental noises.

**Day-Night Average Sound Level** ( $L_{dn}$ ): The  $L_{dn}$  is an energy average of the measured daytime  $L_{eq}$  ( $L_d$ ) and the measured nighttime  $L_{eq}$  ( $L_n$ ) plus **10 dB**. The **10-dB** adjustment to the  $L_n$  is intended to compensate for nighttime sensitivity. As such, the  $L_{dn}$  is not a true measure of the sound level but represents a skewed average that correlates generally with past sound surveys which attempted to relate environmental sound levels with physiological reaction and physiological effects. For a steady sound source that operates continuously over a 24-hour period and controls the environmental sound level, an  $L_{dn}$  is approximately **6.4 dB** above the measured  $L_{eq}$ . Consequently, an  $L_{dn}$  of **55 dBA** corresponds to a  $L_{eq}$  of **48.6 dBA**. If both the  $L_d$  and  $L_n$  are measured, then the  $L_{dn}$  is calculated using the following formula:

$$L_{dn} = 10 \log_{10} \left( \frac{15}{24} 10^{L_d/10} + \frac{9}{24} 10^{(L_n+10)/10} \right)$$

**Sound Power Level** ( $L_w$  or PWL): Ten times the common logarithm of the ratio of the total acoustic power radiated by a sound source to a reference power. A reference power of a picowatt or  $10^{-12}$  watt is conventionally used.

## **End of Report**

EL PASO NATURAL GAS COMPANY, L.L.C.  
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45. Explain how the noise control measures specified in the acoustical analysis performed for the Dragoon Compressor Station in appendix 9.D would not result in a perceptible increase in vibration at nearby NSAs during simultaneous full-load operation of the Dragoon Station and existing Willcox Compressor Station.

Response

The noise control measures recommended in the analyses, and to be implemented in the compressor station designs and construction, are intended to mitigate the sound levels around the compressor station (and at nearby NSAs) and not vibration issues. These control measures will have minimal effect on vibration issues. However, based on similar installations utilizing the type of compressor to be installed at the Dragoon Compressor Station (centrifugal compressors as opposed to reciprocating compressors), no vibration has been noted, nor is vibration anticipated for this type of compressor installation.

Response prepared by or under the supervision of:

Steven Wells  
Kinder Morgan  
Project Manager  
719-520-4864

EL PASO NATURAL GAS COMPANY, L.L.C.  
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**Air Quality**

46. Section 9.3.7.3 states that fugitive emissions from the proposed 17-mile-long loop line would be “insignificant” when compared emissions from the proposed compressor stations. Provide operational methane emission estimates (as methane and carbon dioxide equivalent emissions) associated with leaks and releases from the pipeline in metric tons per year. Identify all valves and other aboveground appurtenances associated with the pipeline used as the basis for these estimates. Include supporting calculations, and indicate all assumptions.

**Response**

Emissions from the operation of natural gas transmission pipelines result from fugitive releases from piping components. Table 1 below presents an estimate of the actual emissions from operation of the proposed 17-mile loop line pipeline (approximately 17 miles of pipe), using emission factors for gas service obtained from Table 2-4 of EPA’s Protocol for Equipment Leak Emission Estimates guidance document (EPA-453/R-95-017, November 1995)<sup>18</sup>. The emission factors were adjusted based on the expected CH4 content of the site-specific gas.

Component counts were based on the proposed alignment sheets for the project. In total, emissions were calculated from two (2) above ground valves connecting the new loop line at each end. The rest of the 17-mile line is strictly looped and with no appurtenances (like other valves, connections, crossovers, relief valves, etc.) assumed in between.

The fugitive emissions were represented as uncontrolled and annual emissions were calculated based on continuous operations of 8,760 hours/year. Supporting calculations are being included on separate file.

**Table 1: Fugitive Emissions**

Equipment Type	Total Emissions				
	% wt. <sup>1</sup>	Hourly Emissions, lb/hr	Daily Emissions, lb/day	Annual Emissions, tpy	Annual Emissions, MT per year
Total HC	100	0.020	0.476	0.087	0.079
Methane (CH <sub>4</sub> )	86.08	0.017	0.410	0.075	0.068
CO <sub>2</sub>	1.12	0.000	0.005	0.001	0.001
CO <sub>2</sub> e <sup>2</sup>	-	0.427	10.253	1.871	1.698

<sup>1</sup> Weight percents obtained from fuel gas composition table in Solar Turbines' Predicted Emission Performance document dated 3/22/2017.

<sup>18</sup> EPA’s Protocol for Equipment Leak Emission Estimates guidance document (EPA-453/R-95-017, November 1995)

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Response prepared by or under the supervision of:

Leslie R. Nolting  
Kinder Morgan  
Manager Air Permitting Compliance  
719-520-4652



EL PASO NATURAL GAS COMPANY, L.L.C.  
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47. Identify if open burning would be used and identify the mitigation measures which EPNG would use to minimize emission from burning any brush, slash, or any materials generated from construction activities and describe any applicable state or local regulations. Estimate the emissions of criteria pollutants (nitrogen oxides, volatile organic compounds, carbon monoxide, sulfur dioxide, particulate matter having an aerodynamic diameter less than 10 microns, particulate matter having an aerodynamic diameter less than 2.5 microns), total hazardous air pollutants, and greenhouse gases (GHG) in tons per year from open burning. In addition, identify any state or local regulations or permits required for open burning.

Response:

EPNG is not planning to conduct any open burning as part of this project and therefore it is not seeking any state or locally issued open burn permits or permissions. As such, no emission estimates from open burning are provided. EPNG is implementing training and preventative measures and strategies to mitigate range or grassland wildfires.

- Campfires and/or bonfires will not be allowed of any contractors or support personnel.
- Smoking will only be allowed in designated areas.
- Driving onto the open range will not be allowed.
- Fireworks will not be allowed.

Response prepared by or under the supervision of:

Leslie R. Nolting  
Kinder Morgan  
Manager Air Permitting Compliance  
719-520-4652

EL PASO NATURAL GAS COMPANY, L.L.C.  
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48. Indicate whether EPNG is, or plans to be, a participating member of the U.S. Environmental Protection Agency's (EPA) Methane Challenge Program and discuss the scope of participation. In addition:
- a. indicate if EPNG would install specific equipment to reduce fugitive methane emissions identified in EPA's Natural Gas STAR recommended technologies, by state agencies, or in peer-reviewed studies; and
  - b. discuss how EPNG would identify leaking valves, seals, or other equipment on the pipeline and compressor station facilities, and the criteria for repair/replacement.

Response:

Kinder Morgan Inc. (Kinder Morgan), the operating partner of El Paso Natural Gas Company Gas Pipeline LLC (EPNG), is a charter member of Our Nation's Energy Future (ONE Future). ONE Future's overall goal is to achieve a methane "leakage rate" (defined as methane emissions per natural gas volume produced or volume of natural gas throughput) of 1% or less along the natural gas value chain by 2025. In August 2016, US EPA officially approved and publicly announced the ONE Future Commitment Option under the Natural Gas STAR Methane Challenge Program. Kinder Morgan submitted and EPA has accepted Kinder Morgan's commitment and implementation plan to meet a 0.31% methane emissions intensity target by 2025 under the ONE Future option in EPA's Methane Challenge Program. EPNG is one of the Kinder Morgan operating pipelines that is participating in EPA's Methane Challenge Program through Kinder Morgan's ONE Future Commitment Option.

The following items identifies the specific regulatory and Methane Challenge program activities that EPNG will be implementing to reduce fugitive methane emissions associated with this proposed project.

1. As explained in detail in Section 9.3.1.1 in Resource Report 9, the proposed Dragoon Compressor Station will comply with all applicable pneumatic controller provisions, leak detection and repair (LDAR) standards, monitoring, reporting, and recordkeeping requirements of US EPA's New Source Performance Standard OOOOa (NSPS OOOOa). This regulatory LDAR program replaces similar leak detection and maintenance requirements specified in Kinder Morgan's Methane Challenge implementation plan.
2. As specified in Kinder Morgan's Methane Challenge Implementation Plan, EPNG will also implement techniques and practices to reduce transmission pipeline blowdown methane emissions to the extent feasible as time and conditions permit while maintaining pipeline safety and integrity and minimizing adverse customer impacts. The techniques will be evaluated and implemented along the

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transmission pipeline between compressor stations for those pipeline blowdown events associated with the construction and operation of this proposed project.

Response prepared by or under the supervision of:

Leslie R. Nolting  
Kinder Morgan  
Manager Air Permitting Compliance  
719-520-4652

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49. Identify any applicable fugitive dust permitting requirements for the Project areas within Luna County, New Mexico and El Paso and Hudspeth Counties, Texas. Identify all applicable fugitive dust permitting requirements for the Project within Cochise County, Arizona. Detail how EPNG’s proposed fugitive dust mitigation procedures outlined in section 9.3.6.1 would meet or exceed each of these respective permitting requirements, and identify any additional procedures EPNG would follow if necessary to meet these requirements.

Response:

There are no fugitive dust permitting requirements in Luna County, New Mexico and El Paso and Hudspeth Counties, Texas.<sup>19 20 21</sup> However, the Luna County, New Mexico Planning Department has requested a copy of EPNG’s Fugitive Dust Control Plan be provided to their County Compliance and Enforcement Department in the event that a complaint, related to fugitive dust from the proposed project activities, is filed.

Cochise County requires a joint application for a clearing and building permit with a dust control plan that meets the following provision(s): “During clearing, and until revegetation or stabilization has taken place, dust shall be minimized through the application of generally acceptable dust suppressants. Water, although generally accepted, is not preferred. Unacceptable dust controls are those that would have an adverse effect on human, animal or plant life, or cause property damage.”

EPNG’s proposed fugitive dust mitigation procedures outlined in section 9.3.6.1 of Resource Report 9 and detailed in EPNG’s Fugitive Dust Control Plan provided in the Environmental Construction Document (ECD) in Appendix D of Resource Report 1 would meet or exceed Cochise County’s permitting requirements for dust control and, if found to be inadequate by Cochise County staff prior to issuance of the clearing permit, the project ECD would be revised to meet all of Cochise County requirements.

Response prepared by or under the supervision of:

Leslie R. Nolting  
Kinder Morgan  
Manager Air Permitting Compliance  
719-520-4652

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<sup>19</sup> Benny Ramon, Luna County (575) 543-6620, pers. comm. via phone to Russell Waldron, SWCA, 06/19/18.

<sup>20</sup> Karl Rimkus, El Paso Environmental Service Department, Air Quality Program Manager (915) 212-6032, pers. comm. via phone to Brad Sohm, SWCA, 06/21/18.

<sup>21</sup> <https://www.cochise.az.gov/planning-and-zoning/land-clearing-ordinance>

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50. Section 1.3.1.2 states that the property on which the proposed Red Mountain Compressor Station would be sited also contains the “former Deming Compressor Station that was abandoned in 2011”. Table 1-9 lists the “EPNG-operated [Deming] Compressor Station” as being adjacent to the proposed Red Mountain Compressor Station. Confirm that the Deming Compressor Station has in fact been abandoned as stated in section 1.3.1.2, and that no compressor station currently has the ability to operate on the site.

Response:

The former Deming Compressor Station was abandoned pursuant to a FERC order issued on September 15, 2011 in Docket No. CP10-510-000. Accordingly, this station has been disconnected from the pipeline and abandoned. EPNG is not seeking to return this facility back into operation in any manner. Please see attachment behind this response that includes EPNG’s notification dated October 10, 2011 to the NMED Air Quality Bureau formally announcing the shutdown of Deming Compressor Station. The second letter within this attachment is the acknowledgement of our notice and the cancellation of the air permit (P138 R1) from the Air Quality Bureau, dated November 7, 2011.

Response prepared by or under the supervision of:

Leslie R. Nolting  
Kinder Morgan  
Manager Air Permitting Compliance  
719-520-4652

VIA UPS OVERNIGHT



October 10, 2011

Ned Jerabek  
Major Source Unit Manager  
New Mexico Environment Department  
Air Quality Bureau  
1301 Siler Road, Building B  
Santa Fe, New Mexico 87507

**Re: Notification of Facility Shutdown  
El Paso Natural Gas Company  
Deming Compressor Station, Lea County, New Mexico  
Operating Permit No. P138R1M2, NSR Permit 3614**

Dear Mr. Jerabek:

Pursuant to 20 NMAC 2.73.200.E.(2), El Paso Natural Gas Company (EPNG) is notifying the New Mexico Environment Department (NMED) that the Deming Compressor Station was shutdown as of September 15, 2011. All stationary sources listed under the Operating Permit No. P138R1M2 and NSR Permit 3614 will be permanently shut down. EPNG is requesting cancellation these permits.

If you have any questions regarding the shutdown of this facility, please contact Leslie Nolting at (719) 520-4652.

*As the Responsible Official for this facility, I certify that based on information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate, and complete.*

A handwritten signature in black ink that reads "David W. Campbell".

David W. Campbell  
Deming Area Manager

CC: Anu Pundari, EPNG Compliance Representative  
Leslie Nolting, EPNG Air Group



**SUSANA MARTINEZ**  
GOVERNOR

**JOHN A. SANCHEZ**  
LIEUTENANT GOVERNOR

**New Mexico**  
**ENVIRONMENT DEPARTMENT**

**Air Quality Bureau**

1301 Siler Road, Building B

Santa Fe, NM 87507-3113

Phone (505) 476-4300

Fax (505) 476-4375

[www.nmenv.state.nm.us](http://www.nmenv.state.nm.us)



**DAVE MARTIN**  
CABINET SECRETARY

**BUTCH TONGATE**  
DEPUTY SECRETARY

November 7, 2011

David Campbell  
Deming Area Manager  
El Paso Natural Gas  
1900 Deming Station Road SW  
Deming, NM 88030

Ref: Deming Compressor Station - Decommissioned  
Air Quality Operating Permit No. P138R1M3 and NSR Permit no. 3614R1  
IDEA ID No. 867 - PRT20110001  
AIRS No: 350290002

Dear Mr. Campbell:

This letter acknowledges the receipt of your request, dated October 12, 2011, to cancel the Operating Permit P0138R1 and the New Source Review Permit no. 3614 for the Deming Compressor Station located in Township 23S, Range 11W, Section 32 in Luna County, New Mexico.

All emission sources have been permanently shut down. Therefore the Title V Permit No. P138R1M2 for the Deming Compressor Station is hereby canceled as of the date of NSR No. 3614 permit cancellation and your facility is removed from the list of major sources in New Mexico in accordance with 20.2.70 NMAC.

If you have any questions, please call me in Santa Fe at 505-476-4339.

Sincerely,

Kerry Carr  
Air Permit Specialist  
New Mexico Environment Department/Air Quality Bureau

cc: EPA Region VI, 6PD-R

EL PASO NATURAL GAS COMPANY, L.L.C.  
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51. Identify the air quality monitoring station(s) used to obtain the background monitor concentrations listed in table 9.3-15. Identify the distance and direction from the monitoring station(s) to the Dragoon Compressor Station site; the owner/controller; location; land use in the area (rural, suburban, urban); and any other data used to justify the use of the monitoring stations.

Response:

Monitoring stations used to represent the background monitoring concentrations at the Dragoon Compressor Station are listed in Table 9.3-15 and discussed in section 9.3.4.2 Existing Air Quality Levels and in Table 9.3-8 in Resource Report 9.

Justification of the use of these monitors is presented in the air modeling reports for Dragoon Compressor Station found in Appendix 9.C of the Resource Report 9. Table 2 below summarizes the air quality monitors used to represent the existing background concentrations at the Dragoon Compressor Station.

Table 2: Dragoon Compressor Station – Background Monitoring Sites

Pollutant	Averaging Period	Monitoring Station ID	Monitoring Station Location	Owner/Controller and Land Use in Area	Location			Rank	Monitored Concentration ( $\mu\text{g}/\text{m}^3$ )
					City/State	04-019-1011			
CO	1-hour	04-019-1011	22nd & Craycroft	PDEQ – Neighborhood	Tucson, AZ	69.4	W	2 <sup>nd</sup> High Max. Avg.	1,790.48
	8-hour							2 <sup>nd</sup> High Max. Avg.	914.29
NO <sub>2</sub>	1-hour	04-019-1011	22nd & Craycroft	PDEQ – Neighborhood	Tucson, AZ	69.4	W	98 <sup>th</sup> Percentile Avg.	73.13
	Annual							Arithmetic Mean	16.53
PM <sub>2.5</sub>	24-hour	04-003-1005	Douglas Red Cross	ADEQ – Urban	Douglas, AZ	53.1	S	98 <sup>th</sup> Percentile Avg.	11.83
	Annual	04-003-1005						Arithmetic Mean Avg.	5.43
PM <sub>10</sub>	24-hour	04-019-0008	Corona de Tucson	PDEQ – Suburban	Corona de Tucson, AZ	64.4	W	2 <sup>nd</sup> High Max. Avg.	38.67
SO <sub>2</sub>	1-hour	04-019-1028	Children's Park NCore	PDEQ - Neighborhood	Tucson, AZ	76.4	W	99 <sup>th</sup> Percentile Avg.	8.96
	24-hour							2 <sup>nd</sup> High Max. Avg.	2.61



EL PASO NATURAL GAS COMPANY, L.L.C.  
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Response prepared by or under the supervision of:

Leslie R. Nolting  
Kinder Morgan  
Manager Air Permitting Compliance  
719-520-4652

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
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52. Identify the distance and direction of the EPNG Hueco Compressor Station from the proposed Red Mountain Compressor Station and Dragoon Compressor Station sites. Provide a qualitative assessment of potential cumulative operational air quality impacts of the proposed Project compressor stations and the existing Hueco Compressor Station. Provide a wind rose for the Red Mountain Compressor Station and Dragoon Compressor Station Project areas. Using a wind rose and any available air modeling data for the Hueco Compressor Station, discuss the likelihood that the cumulative air quality concentrations of criteria pollutants would result in localized elevations over existing ambient concentrations obtained from the state and local air quality monitoring stations identified in the response above.

Response:

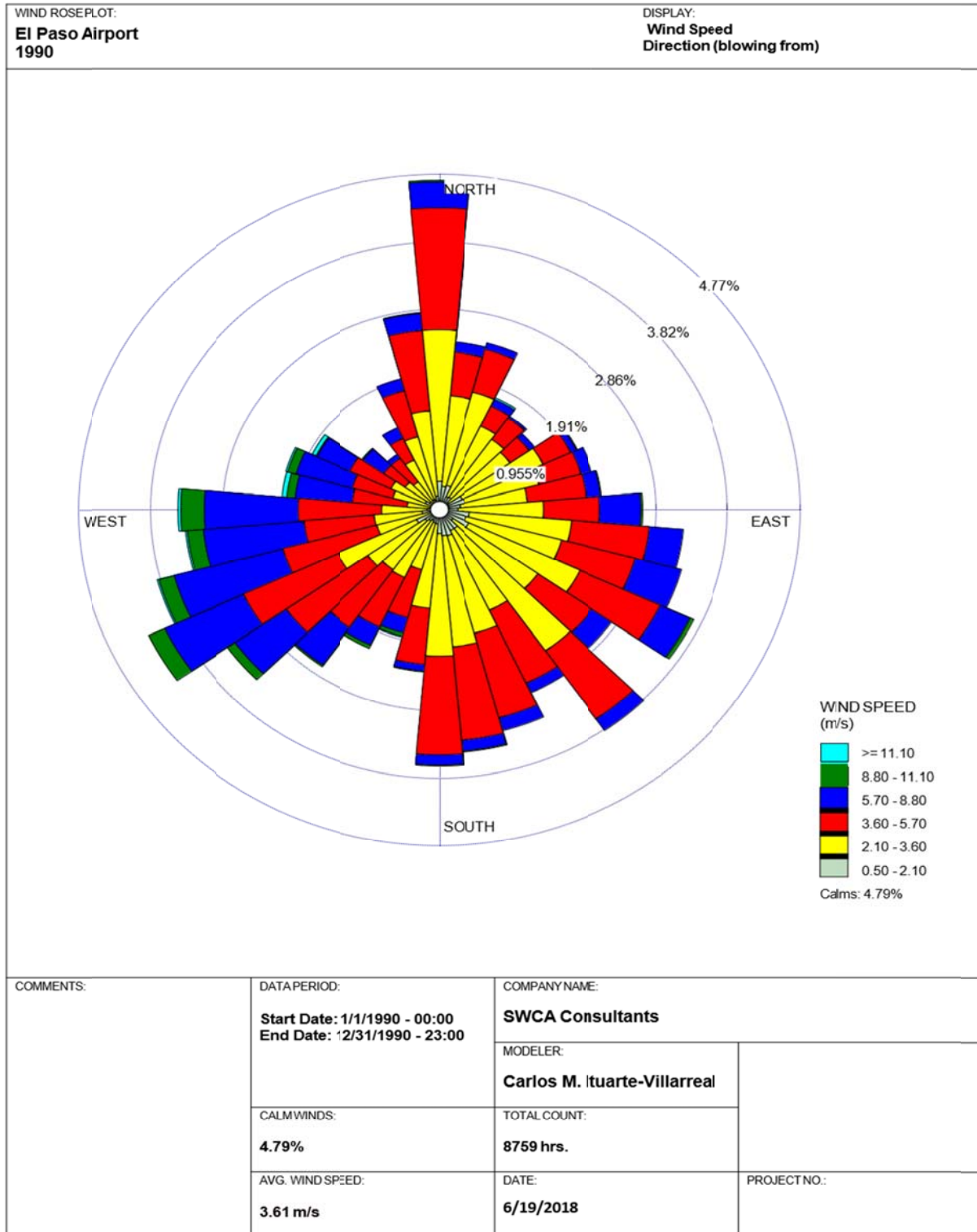
The existing EPNG Hueco Compressor Station in Hudspeth County, Texas is located approximately 127 miles northeast of the proposed Red Mountain Compressor station in Luna County, NM, and approximately 220 miles east of the proposed Dragoon Compressor Station in Cochise County, AZ.

The prevailing wind direction at the Hueco Compressor Station is from north to south and from west-southwest to east-northeast, as recorded at the El Paso International Airport Weather Station. The wind rose diagram shown in figure 1 was created using VIEW WRPLOT software. The chart is a summary of statistical information on wind direction and speed. The line segments are drawn at 16 compass directions, with the length of the line proportional to the frequency of the wind blowing from a particular direction, while the line thickness shows the frequency of the occurrence of wind speeds according to its class.

Similarly, wind rose diagrams were created for the proposed Dragoon and Red Mountain Compressor Stations and are depicted below. Figure 2 shows that the dominant winds for the Dragoon site blow from the northwest to the southeast, and partly blow from the southeast to the northwest. Prevailing winds from the west are representative of the area surrounding the proposed Red Mountain Compressor Station, as shown in figure 3.

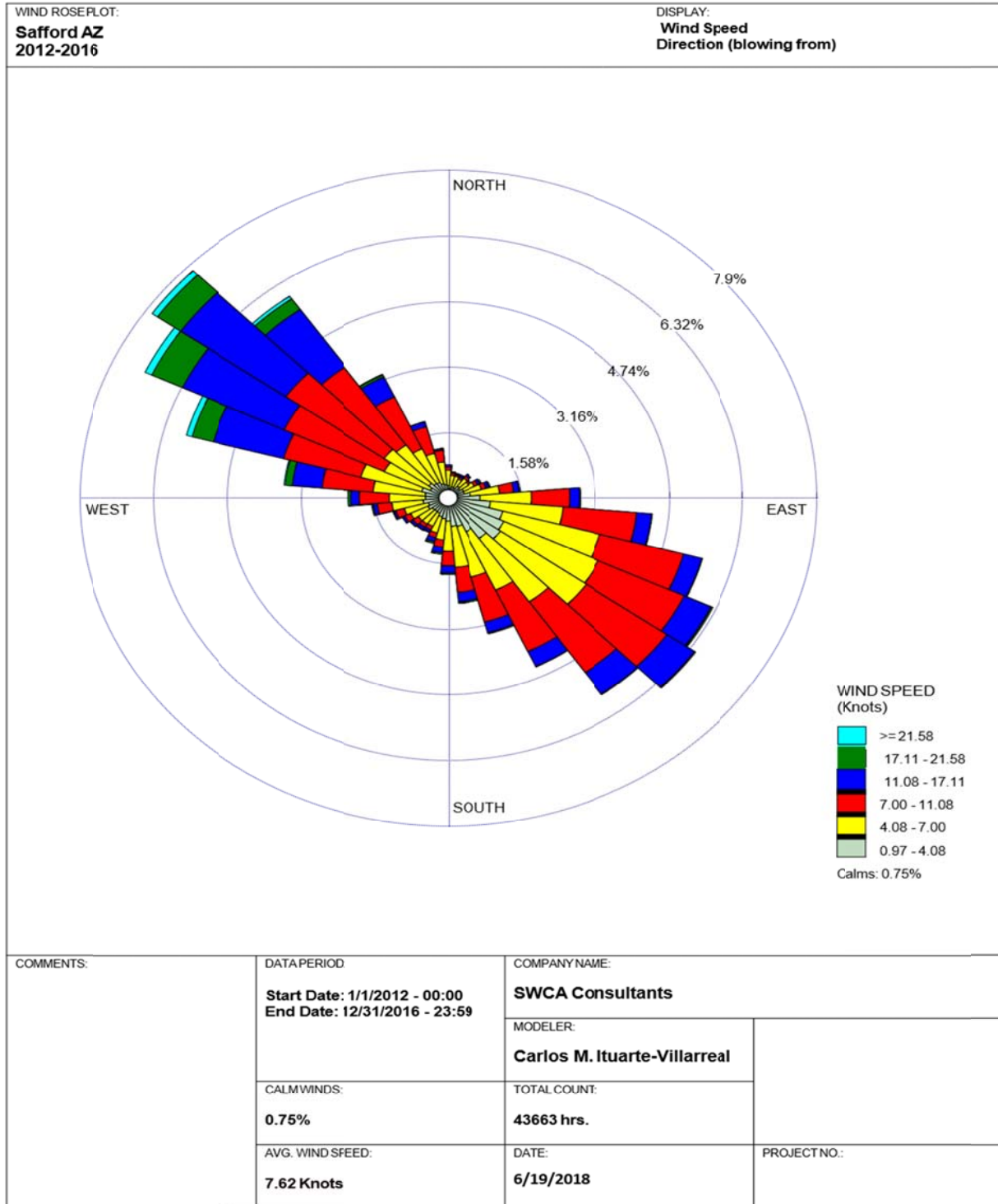
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Figure 1. El Paso International Airport – Wind Rose



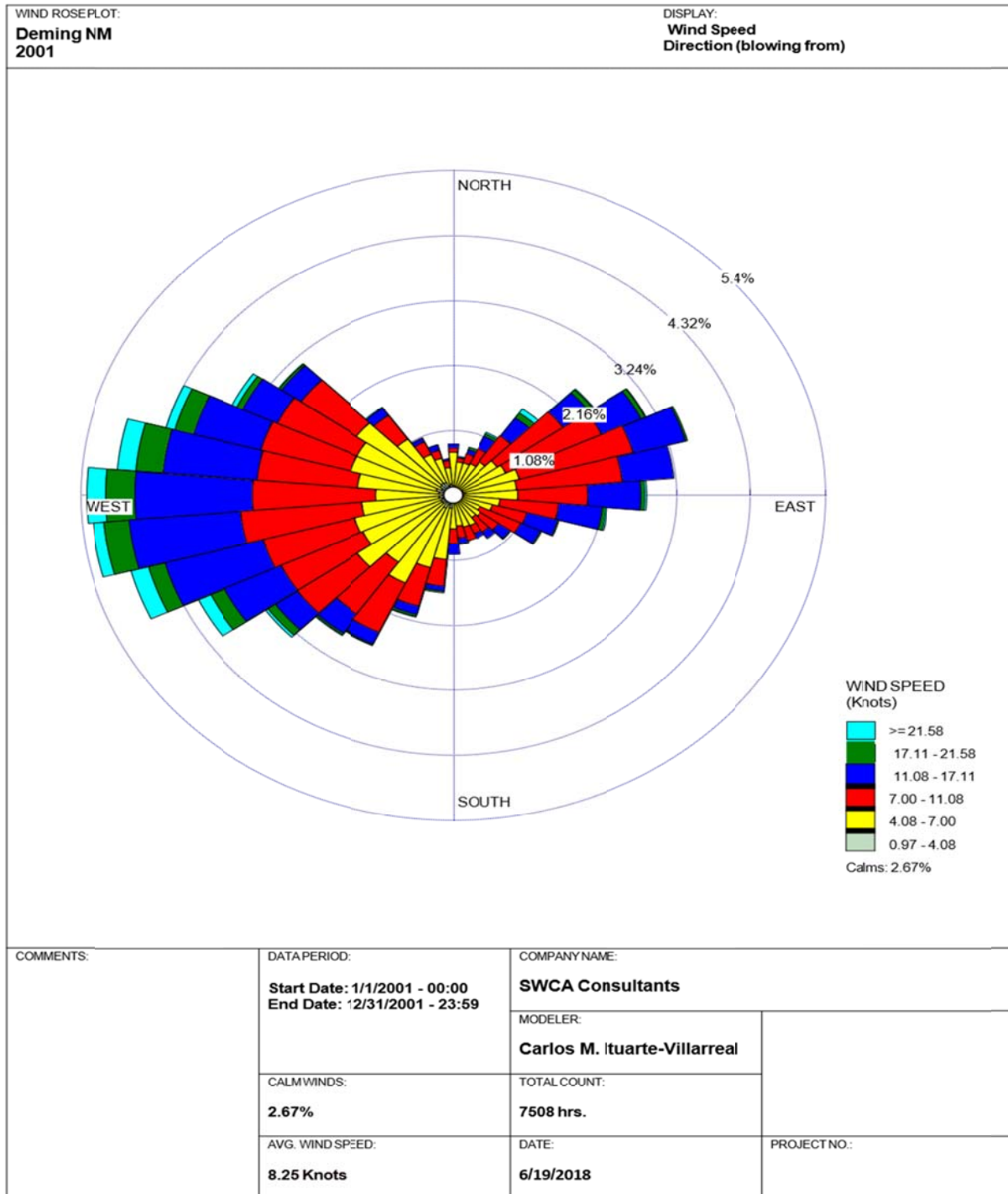
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Figure 2. Safford, AZ – Wind Rose



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Figure 3. Deming, NM– Wind Rose



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As shown above in Figure 1, the dominant winds at the Hueco Compressor Station blow from north to south and from west-southwest to east-northeast; therefore, transporting the emission concentrations from this source in the opposite direction of the locations of the proposed compressor stations and the monitoring sites used to represent the existing conditions at the proposed sites.

It is also important to note that particulate sources typically have impacts in the immediate vicinity of the source. Consequently, it is very unlikely that particulate emissions from the existing Hueco Compressor Station would travel far enough to be represented in the ambient concentrations used for the modeling of the air quality impacts from the proposed project.

Therefore, based on the distances and locations of the proposed Red Mountain Compressor Station and Dragoon Compressor Station sites from the existing Hueco Compressor Station, and the existing prevailing winds at all three (3) facilities, it is very unlikely that increases over the existing air quality concentrations of criteria pollutants would result from the operation of the proposed facilities.

Furthermore, the modeling results presented in the Resource Report 9 indicate that the cumulative modeled design value concentrations representing operation of the proposed Compressor Stations and plus the existing background concentration would be in compliance with all applicable NAAQS and that the proposed Project is not expected to contribute to cumulative impacts on air resources in Class I areas.

Response prepared by or under the supervision of:

Leslie R. Nolting  
Kinder Morgan  
Manager Air Permitting Compliance  
719-520-4652

EL PASO NATURAL GAS COMPANY, L.L.C.  
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53. It is not evident that the air quality analysis for the proposed Dragoon Compressor Station in appendix 9.C incorporates the results of a refined AERMOD modeling analysis for all existing sources at the Willcox Compressor Station, as stated in section 9.3.7.4. Clarify. Provide a copy of the air modeling analysis dated May 24, 2017 for the existing Willcox Compressor Station. Provide revised tables 9.3-15 and 9.3-16 that identify the individual modeled pollutant contributions from each of the proposed Dragoon and existing Willcox Compressor Stations.

Response:

As described in section 9.3.7.4 of the Report Resource 9, two (2) separate modeling analysis were performed to determine the estimated air quality impacts from the operation of the proposed Dragoon Compressor Station.

The first analysis was performed using AERSCREEN to determine the project-alone impacts. EPNG used the worst-case stack parameters from each of the sources, and modeled each of the sources and determined impacts at the fence line. EPNG summed the maximum-modeled concentrations before comparing the results to each of the applicable standards. The use of AERSCREEN and the assumption that the maximum impacts for the individual sources occur at the same location can be considered a very conservative approach.

A second analysis dated May 24, 2017 was performed using EPA AERMOD model. The resulting ground level concentrations from this dispersion analysis demonstrated that the proposed project would result in insignificant impacts for all pollutants except for the 1-hr NO<sub>2</sub>. A cumulative analysis of the 1-hour NO<sub>2</sub> was then performed. 1-hr NO<sub>2</sub> impacts were therefore evaluated including background NO<sub>2</sub> concentrations and the two existing turbines at Willcox Compressor Station. As a result of this analysis, it was concluded that the proposed facility would be compliant with the NAAQS. A copy of the air modeling analysis dated May 24, 2017 is being provided with this submittal.

Is important to note that subsequent to the filing of the of the Resource Report 9 and as part of the Technical Review and Evaluation of the Application for Significant Revision to Permit No. 61325; the Arizona Department of Environmental Quality (ADEQ) conducted an Ambient Air Impact (AQA) Assessment. The main objective of this modeling analysis was to estimate future 1-hour NO<sub>2</sub> impacts due to the operation of the new Dragoon site and to determine if the new facility would interfere with the attainment or maintenance of the NAAQS. Modeled results for the 1-hour NO<sub>2</sub> are summarized in Table 3 included below.

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Table 3: Modeled 1-hour NO<sub>2</sub> results

Ambient Impacts from Existing Willcox CS (µg/m <sup>3</sup> ) <sup>1</sup>	Ambient Impacts from Proposed Dragoon Site (µg/m <sup>3</sup> )	Total Ambient Impacts (µg/m <sup>3</sup> )	NAAQS (µg/m <sup>3</sup> )	Percent Standard %
173	3.4	176.4	188	94%

<sup>1</sup>From TSD for Class I Significant Revision No. 54971. Background concentration was included.

It was concluded by ADEQ that the emissions from the proposed Dragoon Compressor Station would not interfere with attainment and maintenance of the NAAQS for 1-hour NO<sub>2</sub>. A copy of the Technical Review and Evaluation document is being included with this submittal.

Response prepared by or under the supervision of:

Leslie R. Nolting  
 Kinder Morgan  
 Manager Air Permitting Compliance  
 719-520-4652



**TECHNICAL REVIEW AND EVALUATION  
OF APPLICATION FOR  
AIR QUALITY PERMIT NO. 70818  
(SIGNIFICANT PERMIT REVISION TO PERMIT NO. 61325)**

**EL PASO NATURAL GAS COMPANY, L.L.C. - WILLCOX COMPRESSION STATION**

**I. INTRODUCTION**

This Class I Permit No. 70818 (significant permit revision to Permit No.61325) is issued to El Paso Natural Gas Company, L.L.C. (EPNG), the Permittee, for the addition of a new compressor station consisting of a centrifugal compressor driven by a 13,000 HP natural gas fired combustion turbine, and a natural gas fired emergency generator.

**A. Company Information**

1. Facility Name: El Paso Natural Gas Company, L.L.C.  
Willcox Compressor Station
2. Facility Location: N 32° 06' 42", W 109° 39' 42"  
Arzberger Road, 6 miles E of Kansas Settlement Road  
Willcox, Cochise County, Arizona 85643
3. Mailing Address: El Paso Natural Gas Company, L.L.C.  
5151 E. Broadway, Suite 1680  
Tucson, AZ 85711:

**B. Attainment Classification**

The facility location is classified as attainment or unclassifiable for all criteria pollutants.

**II. REVISION DESCRIPTION**

The new facility, the Dragoon Compressor Station, is proposed be constructed northeast of EPNG's existing Willcox Compressor Station, on the same land parcel. This compressor station will operate independently of the existing Willcox Compressor Station and will be dedicated toward mainline compression on the existing transmission pipelines. The existing Willcox Compressor Station will continue to provide compression on the lateral pipeline branching off of the mainline, servicing customers in Mexico.

**III. EMISSIONS**

The combustion turbine will be equipped with Solar's SoLoNOx lean-mix dry low NOx combustion system, which will limit NOx emissions to 15 parts per million by volume, dry (ppmvd), corrected to 15% oxygen (O2) and limit carbon monoxide (CO) emissions to 25 ppmvd, corrected to 15% O2.

The potential to emit as a result of the above change, and the facility wide potential to emit before and after this change are provided in the Table 1 below.

**TABLE 1- FACILITY WIDE POTENTIAL TO EMIT**

Pollutant	Potential to Emit, tons per year		
	Before	MPR #70818	After
PM	5.77	2.84	8.61
PM <sub>10</sub>	5.77	2.84	8.61
PM <sub>2.5</sub>	5.77	2.84	8.61
CO	72.35	34.30	106.64
NO <sub>x</sub>	596.87	26.56	623.42
SO <sub>2</sub>	2.96	1.46	4.43
VOC	3.45	9.77	51.89

#### IV. MINOR NEW SOURCE REVIEW

The increase in potential to emit for NO<sub>x</sub> is greater than the permitting exemption threshold of 20 tons/year. Thus, the change is subject to Minor New Source Review (minor NSR) requirements. The facility has opted to comply with the minor NSR requirements by performing a RACT (Reasonably Available Control Technology) analysis, and has proposed to comply with the New Source Performance Standards (NSPS) under 40 CFR 60 Subpart KKKK as RACT. Since the previous modeling performed in 2012 for Significant Permit Revision No 54971 indicated modeled emissions at 173 microgram, ADEQ performed an additional modeling analysis to ensure continued compliance with NAAQS. The results of this modeling analysis can be found in Section VII.

#### V. NEW APPLICABLE REGULATIONS

- A. The new Solar turbine is subject to NSPS requirements under 40 CFR 60 Subpart KKKK. These requirements are applicable to turbines constructed after 2005.
- B. The new natural gas-fired emergency engine is subject to NSPS requirements under 40 CFR 60 Subpart JJJJ. The engine is also subject to National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements under 40 CFR 63 Subpart ZZZZ. These requirements are met by complying with NSPS 40 CFR 60 Subpart JJJJ.
- C. In accordance with 40 CFR Subpart OOOOa, the facility will become subject to the applicable conditions of this subpart upon startup of the new Dragoon (Solar/Mars 13000 S) compressor. The basis for this applicability determination is found under 40 CFR 60 Subpart OOOOa, 60.5370a(j), where “a “modification” to a compressor station occurs when an additional compressor is installed at a compressor station”. Thus, a “modification” to the Willcox Compressor Station will occur on installation of the additional compressor station. Thus the facility is subject to the applicable requirements for the control of greenhouse gases (GHG) under 40 CFR 60 Subpart OOOOa.

Since the Solar compressor to be installed at the facility utilizes dry seals, and the pneumatic controllers are of no-bleed design, these are not subject to any requirements under 40 CFR 60 Subpart OOOOa. The collection of fugitive emissions components at the compressor station, is the only affected facility, and is subject to applicable requirements under 40 CFR 60.5397a.



## VI. NEW MONITORING AND PERFORMANCE TEST REQUIREMENTS

### A. Solar Turbine

1. The Permittee is required to conduct annual performance tests for NO<sub>x</sub> in accordance with the performance test procedure in 40 CFR 60 Subpart KKKK.
2. Additionally, to demonstrate on going compliance with the emission limits, the Permittee is required to conduct periodic stack testing for NO<sub>x</sub> emissions using a portable analyzer in accordance with ASTM Test Method D6522.

### B. GHG and VOC Fugitive Emissions

1. The Permittee is required to develop an emissions monitoring plan that covers the collection of fugitive emissions components at compressor stations.
2. The Permittee is required to conduct an initial monitoring survey of the compressor stations within 60 days of the startup of Dragoon Compressor Station.
3. Subsequent surveys shall be conducted at least quarterly after the initial survey.

## VII. AMBIENT AIR IMPACT ANALYSIS

The previous Prevention of Significant Deterioration (PSD) modeling indicated that the ambient impact (modeled concentration plus background concentration) for 1-hour NO<sub>2</sub> due to the emissions from the EPNG Willcox facility was 173 µg/m<sup>3</sup>, approximately 92 percent of the NAAQS 188 µg/m<sup>3</sup>. Although EPNG elected to conduct a RACT analysis for the new emission unit, ADEQ performed an additional modeling analysis to determine if such a modification would interfere with the attainment or maintenance of the NAAQS.

ADEQ used the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD, version 16216r) for the modeling analysis. ADEQ used the Plume Volume Molar Ratio Method (PVMRM) to evaluate the compliance with 1-hour NO<sub>2</sub>, which was consistent with the method used in the previous PSD modeling. Additionally, ADEQ used the same in-stack ratio, hourly ozone dataset and meteorological dataset as used in the PSD modeling. EPNG provided ADEQ the facility layout map, the stack parameters for the new stack, as well as the information for new buildings. The modeled results were summarized in Table 2

**Table 2: Modeled Results for 1-hour NO<sub>2</sub>**

Ambient Impact from the existing emission units (µg/m <sup>3</sup> ) <sup>a</sup>	Ambient Impact from the new emission unit (µg/m <sup>3</sup> ) <sup>b</sup>	Total Ambient Impact (µg/m <sup>3</sup> ) <sup>c</sup>	NAAQS (µg/m <sup>3</sup> )
173	3.4	176.4	188

<sup>a</sup> From TSD for Class I Significant Revision No. 54971. Background concentration was included.

<sup>b</sup> Based on the 98th percentile of the annual distribution of maximum daily 1-hour concentrations, averaged across the 5 years of meteorological data modeled.

<sup>c</sup> This estimation is conservative since the highest impacts from the existing emission units and the new emission unit unlikely occurred at the same location at the same time



Based on the modeled results above, it is concluded that the emissions from the new unit will not interfere with attainment and maintenance of the NAAQS for 1-hour NO<sub>2</sub>. Considering the magnitude of the NO<sub>x</sub> emissions from the new emission unit (approximately 27 tpy), ADEQ also determined that the 8-hour ozone impacts due to the emissions from the new unit would be below the significant impact level (SIL) of 1.0 ppb. Based on the EPA's Modeled Emission Rates for Precursors (MERPs) Guidance, the most conservative MERP value for NO<sub>x</sub> that could result in the SIL of 1 ppb was 184 tpy. Therefore, it is concluded that the emissions from new unit will not interfere with attainment and maintenance of the NAAQS for ozone.

### VIII. LIST OF ABBREVIATIONS

AAAQG	Arizona Ambient Air Quality Guideline
A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
hp	Horsepower
IC	Internal Combustion
lb	Pound
m	Meter
MERP	Modeled Emission Rates for Precursors
MMBtu	Million British Thermal Units
µg/m <sup>3</sup>	Microgram per Cubic Meter
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NO <sub>x</sub>	Nitrogen Oxide
NO <sub>2</sub>	Nitrogen Dioxide
O <sub>3</sub>	Ozone
Pb	Lead
PM	Particulate Matter
PM <sub>10</sub>	Particulate Matter Nominally less than 10 Micrometers
PSD	Prevention of Significant Deterioration
PTE	Potential-to-Emit
RACT	Reasonably Available Control Technology
SIL	Significant Impact Level
SO <sub>2</sub>	Sulfur Dioxide
EPA	Environmental Protection Agency
VOC	Volatile Organic Compound
yr	Year

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54. Explain why no background monitor concentrations are listed in table 9.3-14 for the proposed Red Mountain Compressor Station site. Provide data obtained from the nearest available state and local air monitoring station.

Response:

The recommended state air monitoring stations and background concentrations listed in the New Mexico Air Quality Bureau Air Dispersion Modeling Guidelines<sup>22</sup> are presented in table 9.3-7 of the Resource Report 9.

No background concentrations were listed in table 9.3-14 for Annual NO<sub>2</sub>, Annual SO<sub>2</sub>, 3-hour SO<sub>2</sub> and Annual PM<sub>2.5</sub> as modeled values for these pollutants/averaging periods were estimated to be under their respective Significant Impact Levels (SILs) and therefore, no further analysis was required.

In the case of the 1-hour NO<sub>2</sub>, 1-hour and 8-hour CO and 1-hour SO<sub>2</sub>, the New Mexico Environmental Department (NMED) Air Quality Bureau (AQB) allows facilities to determine the total design value for these pollutants/averaging periods by modeling the entire facility and all nearby sources instead of adding a background concentration if the facility is over 10 km from the center of Albuquerque and El Paso.

Response prepared by or under the supervision of:

Leslie R. Nolting  
Kinder Morgan  
Manager Air Permitting Compliance  
719-520-4652

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<sup>22</sup> New Mexico Air Quality Bureau (2017), Air Dispersion Modeling Guidelines, Revised August 8, 2017. [https://www.env.nm.gov/wp-content/uploads/2017/01/NM\\_AirDispersionModelingGuidelines\\_8\\_August\\_2017.pdf](https://www.env.nm.gov/wp-content/uploads/2017/01/NM_AirDispersionModelingGuidelines_8_August_2017.pdf)

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**Land Use**

55. In table 8-1, the total land area associated with the new permanent right-of-way for the 17-mile pipeline is shown as 109.4 acres. In table 1-1 this value is 109.7 acres.

Response:

To aid in differentiating types of ROW, the 109.4 acres for permanent ROW presented in Resource Report 8, Table 8-1 combines the 17 miles of new pipeline (109.07 acres) and the new ROW for both Mainline Valves (0.14 acres and 0.19 acres respectively). This acreage is broken down in Resource Report 1, Table 1-1; however, the sum of the 17-mile loop and mainline valves land requirements is the same between both tables. Revised tables are provided below with yellow highlighting to accent the totals.

**TABLE 1-1 PROPOSED PROJECT FACILITIES**

Facility	Description	County, State	Milepost(s)	Temporary Construction Land Use (acres)	Permanent Operational Land Use (acres)	Land Requirements by Project Element (acres)
17-mile Loop Line	17 miles of new pipeline	El Paso and Hudspeth, Texas	174.5-191.5	0	109.07	109.07
	New mainline valve No. 20-3/4 and pigging facility	El Paso, TX	174.5	0	0.14	0.14
	New mainline valve No. 23 and pigging facility	Hudspeth, TX	191.5	0	0.19	0.19
	Temporary construction ROW	El Paso and Hudspeth, TX	174.5-191.5	27.9	0	27.9
	Shared ROW with EPNG Lines 1100 and 1103 (existing ROW Work Area [ERWA])	El Paso and Hudspeth, TX	174.5-191.5	48.8	12.2	57.0
	ATWS at road and wash crossings	El Paso and Hudspeth, TX	Variable (see Table 8.3 in RR8)	18.4	0	18.4
	Contractor/pipe yards	El Paso, TX	Off-site	24.7	0	24.7
	Staging Areas	El Paso and Hudspeth, TX	188.0 and 174.5	13.5	0	13.5
	Temporary access roads	El Paso and Hudspeth, TX	Variable between 174.5 and 191.5	0.3	27.8	28.1
<b>Total Land Use (17-mile loop line)</b>				<b>129.6</b>	<b>149.4</b>	<b>279.0</b>

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Facility	Description	County, State	Milepost(s)	Temporary Construction Land Use (acres)	Permanent Operational Land Use (acres)	Land Requirements by Project Element (acres)
Red Mountain Compressor Station	New compressor station, necessary auxiliary equipment, access road	Luna, NM	305.3	72.0	6.2	78.2
Total Land Use (Red Mountain Compressor Station)						78.2
Dragoon Compressor Station	New compressor station, access road, and necessary auxiliary equipment	Cochise, AZ	406.9	54.8	6.4	61.2
Total Land Use (Dragoon Compressor Station)						61.2

\* Totals may not add up due to rounding.

**TABLE 8-1 17-MILE LOOP LINE LAND REQUIREMENTS**

Facility	County, State	Milepost(s)	Temporary Construction Land Use (acres)	Permanent Operational Land Use (acres)	Total (acres)
New permanent ROW for 17 miles of pipeline, MLV 20-3/4, MLV 23, and 2 pigging facilities	El Paso and Hudspeth, Texas	174.5-191.5	0	109.4	109.4
Existing ROW Work Area (ERWA)	El Paso and Hudspeth, Texas	variable locations between 174.5 and 191.5	44.8	12.2	57.0
Temporary Workspace (TWS)	El Paso and Hudspeth, TX	variable locations between 174.5 and 191.5	27.9	0	27.9
ATWS at road and wash crossings	El Paso and Hudspeth, TX	variable locations between 174.5 and 191.5	18.4	0	18.4
Contractor/pipe yards	El Paso, TX	n/a	24.7	0	24.7
Staging Areas	El Paso and Hudspeth, TX	188.0 and 174.5	13.5	0	13.5
Access roads	El Paso and Hudspeth, TX	variable between 174.5 and 191.5	0.3	27.8	28.1
Total			129.6	149.4	279.0

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Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919



EL PASO NATURAL GAS COMPANY, L.L.C.  
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56. Identify whether the pipeline cross any rangeland, and if so, how much? What mitigation measures would be used to limit impacts to grazing (fence maintenance, topsoil segregation, etc.).

Response:

Both the Dragoon Compressor Station and the Red Mountain Compressor Station are located on private lands owned by EPNG; therefore, no rangelands exist in either of these fenced project locations.

There are four parcels located on public lands that total 2.0 miles of range land which are crossed by the 17-mile loop line. Assuming a 90-foot disturbance limit for the loop line multiplied by 2.0 miles yields approximately 22 acres where public grazing could occur. However, EPNG is not aware of any grazing leases on these public lands. Similarly, given the large number of small, individually privately-held parcels crossed by the loop line route, EPNG is not aware of grazing on these parcels.

While grazing within the loop line is not fully known, the EPNG would reduce impacts to any potential grazing on public and private lands by maintaining existing fences, gating fences crossing the construction corridor, and repairing fence damaged during the project. The only new fence planned for the project would be around the two new Mainline Valves at either end of the 17-mile loop line (requiring a total of 0.14 acres and 0.19 acres, respectively). Impacts on potential grazing would also be reduced through topsoil segregation practices during construction, as well as reseeding in accordance with consultation from the local NRCS Field Office as described in Resource Report 1, Appendix D "*Reclamation Plan*".

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

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57. How much agricultural land would the pipeline cross? Identify the types of crops that would be crossed, whether drain tiles or irrigation systems are present, and EPNG's plans to repair/replace drain tiles or irrigation systems, compensate for crop damage, and segregate topsoil in agricultural in agricultural areas.

Response:

Review of recent aerial imagery for the 17-mile loop line (Resource Report 1, Appendix C) indicates that commercial or non-commercial agricultural activities are not currently practiced and have not recently occurred on public or private lands crossed by the project. Therefore, no crops fields would be crossed or damaged.

The presence of commercial irrigation systems within the 17-mile loop line project area were not identified during field visits or from aerial imagery review; therefore, they are assumed not to be present. The presence of underground agricultural systems, such as drain tiles, are not expected due to the lack of irrigated agriculture within the loop line construction ROW. In the unlikely event that the project impacts previously unidentified agricultural facilities, EPNG would work with the individual landowner to fulfil all compensation requirements as detailed in individual land easement. Impacts to potential future agricultural uses would be minimized by topsoil segregation practiced during construction, as well as reseeding in accordance with consultation from the local NRCS Field Office as described in Resource Report 1, Appendix D *"Reclamation Plan"*.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

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58. Explain why no ATWS are identified in table 8-2 for the construction of the aboveground facilities.

Response:

Both of the proposed pigging facilities at MLV 20-3/4 and 23 would be constructed within the workspace required for the pipeline construction or existing and proposed easements so additional ATWS specifically for the pigging facilities would not be required. At MLV 20-3/4 a 60 x 100 foot work space is needed to construct the above ground pigging facility. Approximately 30 x 100 feet of this work space would be contained within ERWA-1 and 30 x 100 feet of this work space would be contained within TWS-1.

At MLV 23 a 60 x 140 foot work space is needed to construct the above ground pigging facility. Approximately 20 x 140 feet of this work space would be contained within ERWA-92 and 40 x 140 feet of this work space would be contained within the proposed permanent easement of Loop Line 1110.

Response prepared by or under the supervision of:

Vickie Gibson  
Kinder Morgan  
Project Manager  
719-520-4205

EL PASO NATURAL GAS COMPANY, L.L.C.  
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59. Explain whether all temporary access roads were surveyed for presence of endangered species and cultural resources.

Response:

All temporary access roads were surveyed for endangered species (see Resource Report 3, *Fish, Wildlife, and Vegetation*), and cultural resources (see Resource Report 4, *Cultural Resources*). There will be no new access roads constructed for this project. Access to all construction areas will be via existing roads or along the construction ROW.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

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60. Does EPNG plan to use all the contractor yards identified in table 8-3?

Response:

EPNG does anticipate using the five contractor/pipe yards identified in table 8-3 and described in Section 8.2.1 totaling 24.7 acres. As described in section 8.2.1 the contractor/pipe yards would be used for general contractor use, construction staging, and equipment and material storage as needed.

Response prepared by or under the supervision of:

Vickie Gibson  
Kinder Morgan  
Project Manager  
719-520-4205

EL PASO NATURAL GAS COMPANY, L.L.C.  
Responses to Data Request – OEP/DG2E/Gas Branch 4  
Dated June 8, 2018 in Docket No. CP18-332-000  
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61. How does EPNG plan to address non-residential structures within the construction work area in general, and specifically the structure at milepost 190.89?

Response:

The non-residential structures are encroachments within the existing EPNG ROW and per the easement language, these structures would need to be removed by the landowner as they are impeding the enjoyment of the easement. Land will engage the landowners to facilitate the structures removal prior to construction. No permits are required to remove the encroachments from El Paso County.

Response prepared by or under the supervision of:

Geoff Heidke  
ROW Agent – Albuquerque Office  
505-831-7770

EL PASO NATURAL GAS COMPANY, L.L.C.  
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62. With respect to work in residential areas (section 8.2.2):
- a. Describe how EPNG will minimize the hazards of open trenches in residential areas when construction activities are not in progress.
  - b. How will EPNG minimize noise impacts to residents?
  - c. How and when will EPNG notify landowners of construction activities?

Response:

- a. EPNG will minimize the hazards of open trenches in residential areas when construction activities are not in progress by minimizing the time that a trench is open and minimizing the extent of the open trenches in the residential area. EPNG will require the contractor to minimize open trenches by only trenching what can be installed and backfilled in one day. Any required open holes such as bell holes for tie ins, pre pits, etc will be fenced with safety fencing. In addition, EPNG will have signage in both English and Spanish at the boundaries of the work site warning “Construction Area”, “Unauthorized Persons- KEEP OUT”.
- b. EPNG will minimize noise impacts to residents by restricting work operations to daylight hours which will typically be from 7:00 am to 7:00 pm on Monday through Saturday. In addition, construction through residential area will be considered a “mini spread” where the contractor will be required to have less pieces of equipment working.
- c. Landowners will be notified prior to construction activities via mail no less than 30 days prior to construction commencement. Additionally, EPNG Land/ROW personnel will be present during construction of facilities in areas affecting residential areas.

Response prepared by or under the supervision of:

Vickie Gibson  
Kinder Morgan  
Project Manager  
719-520-4205

EL PASO NATURAL GAS COMPANY, L.L.C.  
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63. Does the Project cross any NRCS Farm and Ranchlands Preservation Program easements?

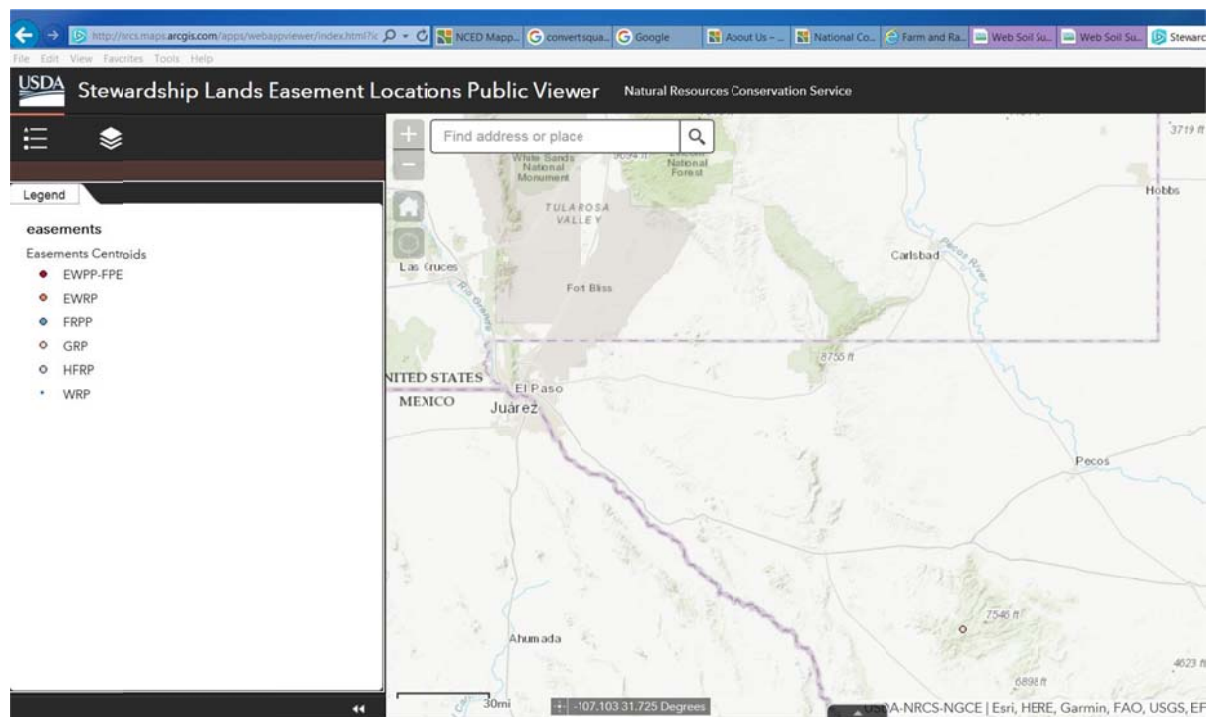
Response:

The Dragoon Compressor Station and Red Mountain Compressor Station are located on lands owned by ENPG; therefore, no Farm and Ranch Lands Protection Program (FRPP) easements exist at these locations.

A review of the USDA Agricultural Conservation Easement Program (ACEP) indicated that there are no FRPP easements or other Agricultural Land Easements (ALEs) in or near the 17-mile loop line (see attached map).<sup>23</sup>

USDA Agricultural Conservation Easement Program. 2018. Interactive easement mapper. Available at:

<http://nrcs.maps.arcgis.com/apps/webappviewer/index.html?id=60cb4564f7b4461ca9a61fa224c066ba>. Accessed on June 1, 2018.



<sup>23</sup> The ACEP supersedes the Farm and Ranch Lands Protection Program which was repealed in 2014.



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Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

EL PASO NATURAL GAS COMPANY, L.L.C.  
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64. Provide a description of EPNG’s outreach to agencies and landowners including meetings with agencies and open houses held with landowners and public.

Response:

Given the relatively small scope of the project, EPNG has not conducted any open houses with landowners and public. Instead, it has relied on direct contact with affected stakeholders. EPNG has been in regular contact with state and local government officials, landowners, and local media affected by the proposed Project via in-person meetings, phone and email communication. The purpose of EPNG’s outreach efforts were to:

1. Introduce the purpose of the project and the areas where the project would take place
2. Notify officials when constituents would be receiving communications from the Project seeking permission to access their property for survey, and when the Project filed its FERC 7c application
3. Discuss and invite feedback from landowners in Cochise County, AZ regarding the proposed Dragoon Compressor Station locations under consideration that EPNG would seek FERC approval in its 7c application

**Dates and descriptions of communications with stakeholders:**

- **May 10, 2017:** Notification emailed to elected officials in advance of EPNG Project letter sent to landowners in Hudspeth and El Paso County, Texas seeking survey permission. The group of officials included:
  - U.S. Senator John Cornyn
  - U.S. Senator Ted Cruz
  - U.S. Representative Beto O’Rourke
  - Texas Governor Greg Abbot
  - Texas State Senator Jose Rodriguez
  - Texas State Representative Mary Gonzalez
  - Hudspeth County Judge Mike Doyal
  - El Paso County Judge Veronica Escobar
  - El Paso County Supervisor Vincent Perez
  - El Paso Mayor Oscar Leeser
- **August 3, 2017:** Meeting with the following Cochise County stakeholders to introduce the Project and receive feedback:
  - Cochise County Supervisor Ann English
  - Cochise County Administrator Edward Gilligan
  - Willcox Chamber of Commerce Executive Director Alan Baker
- **August 23, 2017:** Meeting with Cochise County Supervisor Peggy Judd to

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introduce the Project and receive feedback.

- **September 19, 2017:** Meeting with Cochise County Administrator Ed Gilligan to discuss the county's interests in potential locations under consideration to site the Dragoon Compressor Station.
- **October 16, 2017:** Meeting with Cochise County landowner and winery owner Kief Manning to introduce the South Mainline Expansion Project and answer Mr. Manning's questions about impacts with siting the proposed Dragoon Compressor Station on property adjacent to Mr. Manning considered by the Project.
- **Week of October 23, 2017:** Project overview and introductory meetings with the following officials in El Paso County, Texas and Luna County, New Mexico:
  - Ruben Vogt, El Paso County Judge (TX)
  - Vincent Perez, El Paso County Commissioner (TX)
  - Ira Pearson, Luna County Manager (NM)
  - Dee Margo, City of El Paso Mayor (NM)
  - Benny Jasso, City of Deming Mayor (NM)
- **November 28, 2017:** Follow up meeting and tour of Kief Manning's property adjacent to a parcel considered by the Project to site the Dragoon Compressor Station. The Project answered Mr. Manning's questions about health, noise and visual impacts, and discussed his plans to develop his property associated with his winery business.
- **January 4, 2018:** Introductory and Project overview meeting with Willcox, Arizona Mayor Mike Laws.
- **January 4, 2018:** The Project team met with a group of approximately twelve landowners, winery business owners, and government officials in Cochise County hosted by a local landowner who operates a winery on his property. The meeting purpose was to discuss the different Dragoon Compressor Station sites under consideration by the Project team prior to seeking FERC review through its 7(c) application. The Project answered questions and concerns from the meeting participants and committed to a follow up meeting in Fall 2018 to discuss the Project's Dragoon Compressor Station siting preference and answer additional questions from stakeholders.
- **January 17, 2018:** The Project responded to an inquiry from U.S. Senator John McCain's office about the Project. The Project provided Senator. McCain's office a summary of the project and outreach to date.
- **February 7, 2018:** The Project responded to an inquiry from a Cochise County landowner to clarify the locations under consideration by the Project for the Dragoon Compressor Station.
- **April 30, 2018:** Notification mailed to the following elected officials informing them of EPNG's FERC 7(c) application and docket number for the South Mainline Expansion Project:
  - U.S. Senator John Cornyn
  - U.S. Senator Ted Cruz

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- U.S. Representative Beto O'Rourke
- Texas Governor Greg Abbot
- Texas State Senator Jose Rodriguez
- Texas State Representative Mary Gonzalez
- Hudspeth County Judge Mike Doyal
- El Paso County Judge Veronica Escobar
- El Paso County Supervisor Vincent Perez
- El Paso Mayor Oscar Leeser
- **May 1, 2018:** Meeting with Cochise County Commissioner Edward Gilligan to discuss the Project's siting preference for the Dragoon Compressor Station filed in EPNG's FERC 7(c) application.
- **May 3, 2018:** Provided a project overview and description with reporter Carol Broeder of the Front Range News in Willcox, AZ.

Response prepared by or under the supervision of:

Jesse Greenberg  
Manager, Corporate Communications/Public Affairs  
630-725-3802

EL PASO NATURAL GAS COMPANY, L.L.C.  
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65. Identify the results of any consultations with NRCS or others concerning recommended seed mixes.

Response:

On June 25, 2018, EPNG reached out to the Texas NRCS field office in El Paso, Texas to consult with them on a seed mix that would be suitable specifically for the proposed 17-mile loop line route and is waiting on a response back from the NRCS field office. Both proposed compressor stations are on land entirely owned by EPNG, therefore EPNG has not consulted with these local field offices however, EPNG will be using a seed mix based on the local native species present on-site for the disturbed areas in the compressor station sites.

As described in Resource Report 1, Appendix D "*Reclamation Plan*" disturbed areas would be revegetated using a local native seed mixture developed in consultation with the local NRCS field office. Seed mixtures would be based on past restoration performance, erosion control, existing dominant plant species, availability of seed, wildlife habitat value, and livestock management needs, as applicable.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

EL PASO NATURAL GAS COMPANY, L.L.C.  
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66. Provide any updated correspondence with El Paso or Hudspeth Counties concerning planned development in proximity to the pipeline facilities. Note that this information is required for us to complete our environmental assessment.

Response:

As described in Resource Report 8, *Land Use, Recreation, and Aesthetics*, El Paso County and Hudspeth County do not have land use plans that would indicate planned development areas or economic zones that would likely affect the 17-mile loop line. SWCA requested information on planned developments and/or other information on building permit applications, etc. from El Paso County Economic Development Department. No reply was received.<sup>24</sup> Hudspeth County does not currently maintain an Economic Development Department and has not for many years. The project would need to submit Development Permit Application to Hudspeth County prior to construction, to ensure no conflicts with designated flood zones. The Rio Grande Council of Governments (located in El Paso, Texas) recently hired an Economic Development Director that will be responsible for economic development planning in Hudspeth County in the future.<sup>25</sup>

Several developments underway are visible from aerial imagery approximately 2 miles south and west of the 17-mile loop project area near the City of El Paso. The Horizon residential development (individual “ghost” plots) along the 17-mile loop line are likely precluded from future development due to State of Texas restrictions on selling land without existing utilities and because the cost to furnish utilities to each plot far outweighs the value of the plot.

At this time, no planned developments were identified in proximity to the 17-mile loop line.

As of the date of this filing, there is no updated correspondence with El Paso or Hudspeth Counties concerning planned development in proximity to the pipeline facilities.

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<sup>24</sup> Personal communication between Russell Waldron and El Paso County Economic Development Department (915.546.2177) June 14, 2018.

<sup>25</sup> Personal communication between Patrick Blair and Hudspeth County Administrator (915.369.2321) June 14, 2018.

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Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4919

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**Alternatives**

67. Provide information supporting EPNG’s conclusion that constructing a new compressor station in lieu of a loop line is not a viable system alternative.

Response:

EPNG concluded that the optimal design for the South Mainline Expansion Project would include 17 miles of 30-inch pipeline loop and two new compressor stations located approximately 100 miles from each other. See Resource Report 10 – Alternatives, Section 10.6.2. However, to assist the Commission in its evaluation of EPNG’s Application, EPNG proffers the following additional analysis of a “loop line only” alternative and a “compression only” alternative:

**Loop Line-Only Alternative:**

EPNG would have to construct and install the following pipeline segments in order to achieve the same hydraulic design (flow and pressure requirements) for EPNG’s proposed South Mainline Expansion Project without the installation of the proposed Red Mountain and Dragoon Compressor Stations:

- Pipeline Loop Equivalent of the Red Mountain Compressor Station – 38.8 miles of 30-inch diameter pipeline to loop Line No. 1103, commencing at a point near EPNG’s Florida Compressor Station (estimated cost of \$95,305,687); and
- Pipeline Loop Equivalent of the Dragoon Compressor Station – 129.8 miles of 30-inch diameter pipeline to loop Line No. 1103, commencing at a point near EPNG’s San Simon Compressor Station (estimated cost of \$319,387,950).

Estimated Total Cost: Installation of 168.6 miles of 30-inch diameter pipeline at an estimated cost of \$414,693,637.

Environmental Impact: 168.6 miles of incremental ground disturbance.

**Compression-Only Alternative:**

EPNG would have to construct and install the following compression infrastructure in order to achieve the same hydraulic design (flow and pressure requirements) for EPNG’s proposed South Mainline Expansion Project without the installation of the proposed 17-mile loop line:



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- Construction and installation of a new compressor station at a greenfield site that would be located between the Hueco and El Paso Compressor Stations.

Estimated Total Cost: Approximately \$44 million.

Environmental Impact: Additional ground disturbance, air emissions, and noise impacts.

**Conclusion:**

In regards to the Loop Line-Only Alternative, EPNG estimates a significant capital cost savings of over approximately \$286 million. In addition, this alternative would require significantly more ground disturbance creating increased environmental impact. In evaluating the Compression-Only Alternative, EPNG estimates a capital cost savings of approximately \$2.1 million by building the proposed loop line in lieu of a third compressor station. In addition to the capital cost savings, EPNG determined that an approximate 17-mile loop line would provide the same level of expansion capacity as would additional compression and at a lower overall cost to shippers because the fuel burned during operation would be recovered through EPNG's fuel tracking mechanism.

Therefore, because of the additional/incremental ground disturbance, increased air emissions associated with the operation of an additional compressor facility, noise impacts, potential environmental impacts, and costs including increased O&M costs, EPNG concludes that the 17 miles of 30-inch pipeline loop and two new compressor stations as proposed and detailed in its Resource Report 10 is the superior, preferred option.

Response prepared by or under the supervision of:

Kevin D. Johnson  
Director of Pipeline Management (Gas Control/System Design)  
719-667-7569

EL PASO NATURAL GAS COMPANY, L.L.C.  
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68. Supplement the discussion in section 10.10 to compare the size of the electric transmission line necessary under the current proposal for each of the Dragoon and Red Mountain Compressor Stations with what would be required for electric motors.

Response:

EPNG considered the electric motor-driven compression for Dragoon as an alternative to the natural gas-fired turbine. To maintain the same operational flexibility as the 13,220 hp ISO rated Solar Mars 90 compressor unit, one nominally rated 15 MVA Variable Frequency Drive-controlled motor driven compression unit would be required. The existing distribution line at the location is 14.4 kV, and it is believed it could not support the anticipated increased electrical demand due to distance from nearest substation. Therefore, to provide the equivalent required electrical power for the 13,220 HP load, EPNG would have to secure an agreement with the local co-op electric utility, Sulphur Springs Electric, to provide the estimated 15 MVA electric service to the proposed compressor site. This new electric service would require a transmission tap and new pole routing from Sulphur Springs substation located approximately 13 miles from the proposed Dragoon location. A new substation would need to be constructed next to Dragoon to step down transmission line system voltage to the site required voltage of 13.8kV. The substation construction project would require 1 acre of land, a 15 MVA oil filled step down transformer, dead end structure, and disconnect devices.

EPNG considered the electric motor-driven compression for Red Mountain as an alternative to the natural gas-fired turbine. To maintain the same operational flexibility as the 13,220 hp ISO rated Solar Mars 90 compressor unit, one nominally rated 15 MVA Variable Frequency Drive-controlled driven compression unit would be required. The existing distribution line at the location is 13.8 kV, and it is believed it could not support the anticipated increased electrical demand due to available fault current. Therefore, to provide the required electrical power for the 13,220 HP electric load, EPNG would have to secure an agreement with the local Co-Op electric utility, Columbus Electric, to provide the required 15 MVA, electric service to the proposed compressor site. This new electric service would require a transmission tap and new pole routing from Columbus Electric substation located approximately 13 miles from the proposed Red Mountain location. A new substation would need to be constructed next to Red Mountain to step down transmission line system voltage to the site required voltage of 13.8kV. The substation construction project would require 1 acre of land, a 15 MVA oil filled step down transformer, dead end structure, and disconnect devices.

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Response prepared by or under the supervision of:

Steven Wells  
Kinder Morgan  
Project Manager  
719-520-4864

EL PASO NATURAL GAS COMPANY, L.L.C.  
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**Cumulative Impacts**

69. Update table 1-8 if El Paso or Hudspeth Counties provide additional data concerning reasonably foreseeable future actions in the cumulative impact assessment area of the 17-Mile Loop Line. This updated table should also include the following information:
- a. Project name, sponsor/proponent, and location (city/county);
  - b. approximate distance and direction of the project from the (Project Name) facilities;
  - c. project type and a description of the project;
  - d. footprint/layout and anticipated impacts (acres of land/resource [wetlands, vegetation, habitat, etc.] affected);
  - e. a description of the permits or authorizations required for the project and a description of any environmental review required to support those permits or authorizations; and
  - f. the current status and schedule of the project (e.g., proposed for October 2018, under construction, completed).

Response:

As noted in response to Request No. 66, coordination with El Paso and Hudspeth Counties was completed and they provided no additional data concerning reasonably foreseeable future actions in the cumulative impact assessment area of the proposed 17-mile loop line. The level of detail requested for reasonably foreseeable projects is not available. The information provided in Table 1-8 for reasonably foreseeable future actions is the best available to our knowledge.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4929

EL PASO NATURAL GAS COMPANY, L.L.C.  
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**Reliability and Safety**

70. Identify by milepost and in table form, all U.S. Department of Transportation Class Locations and High Consequence Areas (as defined in 49 CFR 192.903) for the proposed looping route and major route alternatives, and explain the basis for high consequence area identification.

Response:

**Proposed 17-Mile Looping Route:**

A high consequence area identification was made for the segment of the proposed 17 Mile Loop Line from MP 189.16 to 191.12 a distance of 2.07 miles because of the presence of greater than 20 homes, as well as the location of the New World Hari Salon/T-Mobile business center, the Aladdin Daycare Playground, the Aladdin Daycare and Victory Baptist Church that are located within a 660 foot radius of the proposed pipeline alignment.

Proposed 17 Mile Loop Line 1110 Alignment			
Beginning Milepost	Ending Milepost	Length Miles	Class Location
174.54	189.05	14.51	1
189.05	191.12	2.07	3, HCA
191.12	191.53	0.41	1

**Major Route Alternative:**

A high consequence area identification was also made for the segment of the alternative Line No. 1110 route from MP 191.29 to 193.37 a distance of 2.08 miles because of the presence of greater than 20 homes within a 660 foot radius of the proposed pipeline alignment. Further development of what looks to be a partially completed subdivision south of the realignment could potentially add an additional high consequence area for the alternative route.

Alternative Alignment 19 Mile Loop Line 1110 Alignment			
Beginning Milepost	Ending Milepost	Length Miles	Class Location
174.54	191.29	16.75	1
reroute begins approximately MP 187.3			
191.29	193.37	2.08	3, HCA
193.37	193.6	0.41	1

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Response prepared by or under the supervision of:

Vickie Gibson  
Kinder Morgan  
Project Manager  
719-520-4205

EL PASO NATURAL GAS COMPANY, L.L.C.  
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**General**

71. Provide a Microsoft Word version of all environmental resource report tables (including updates as requested above).

Response:

EPNG is providing behind this response a Microsoft Word version of all environmental resource report tables.

Response prepared by or under the supervision of:

Russell Waldron  
Environmental Project Manager/SWCA Consultant  
520-325-9194, ext. 4929



El Paso Natural Gas  
Company, L.L.C.  
a Kinder Morgan company

# **EPNG South Mainline Expansion Project CP18-332-000**

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**DATA REQUEST DATED: 6/8/18  
RESPONSE TO REQUEST NO. 71  
MICROSOFT WORD VERSION OF ENVIRONMENTAL RESOURCE REPORT  
TABLES**



**RESOURCE REPORT 1 - GENERAL PROJECT DESCRIPTION SUMMARY OF FILING INFORMATION**

380.12 (C) FULL FILING REQUIREMENTS	FOUND IN SECTION
<p>1) Describe and provide location maps of all jurisdictional facilities, including all aboveground facilities associated with the project (such as: meter stations, pig launchers/receivers, valves), to be constructed, modified, abandoned, replaced, or removed, including related construction and operational support activities and areas such as maintenance bases, staging areas, communications towers, power lines, and new access roads (roads to be built or modified). As relevant, the report must describe the length and diameter of the pipeline, the types of aboveground facilities that would be installed, and associated land requirements. It must also identify other companies that must construct jurisdictional facilities related to the project, where the facilities would be located, and where they are in the Commission's approval process.</p>	<p>1.3 Appendix 1A Appendix 1B Appendix 1C</p>
<p>2) Identify and describe all non-jurisdictional facilities, including auxiliary facilities, that will be built in association with the project, including facilities to be built by other companies. (i) Provide the following information:</p> <ul style="list-style-type: none"> <li>- (A) A brief description of each facility, including as appropriate: Ownership, land requirements, gas consumption, megawatt size, construction status, and an update of the latest status of federal, state, and local permits/approvals;</li> <li>- (B) The length and diameter of any interconnecting pipeline;</li> <li>- (C) Current 1:24,000/1:25,000 scale topographic maps showing the location of the facilities;</li> <li>- (D) Correspondence with the appropriate State Historic Preservation Officer (SHPO) or duly authorized Tribal Historic Preservation Officer (THPO) for tribal lands regarding whether properties eligible for listing on the National Register of Historic Places (NRHP) would be affected;</li> <li>- (E) Correspondence with the U.S. Fish and Wildlife Service (and National Marine Fisheries Service, if appropriate) regarding potential impacts of the proposed facility on federally listed threatened and endangered species; and</li> <li>- (F) For facilities within a designated coastal zone management area, a consistency determination or evidence that the owner has requested a consistency determination from the state's coastal zone management program.</li> </ul> <p>(ii) Address each of the following factors and indicate which ones, if any, appear to indicate the need for the Commission to do an environmental review of project-related non-jurisdictional facilities.</p> <ul style="list-style-type: none"> <li>- (A) Whether or not the regulated activity comprises "merely a link" in a corridor type project (e.g., a transportation or utility transmission project).</li> <li>- (B) Whether there are aspects of the non-jurisdictional facility in the immediate vicinity of the regulated activity which uniquely determine the location and configuration of the regulated activity.</li> <li>- (C) The extent to which the entire project will be within the Commission's jurisdiction.</li> <li>- (D) The extent of cumulative federal control and responsibility.</li> </ul>	<p>1.3 Appendix 1C</p>

380.12 (C) FULL FILING REQUIREMENTS	FOUND IN SECTION
<p>(3) Provide the following maps and photos:</p> <ul style="list-style-type: none"> <li>- (i) Current, original United States Geological Survey (USGS) 7.5-minute series topographic maps or maps of equivalent detail, covering at least a 0.5-mile-wide corridor centered on the pipeline, with integer mileposts identified, showing the location of rights-of-way, new access roads, other linear construction areas, compressor stations, and pipe storage areas. Show nonlinear construction areas on maps at a scale of 1:3,600 or larger keyed graphically and by milepost to the right-of-way maps.</li> <li>- (ii) Original aerial images or photographs or photo-based alignment sheets based on these sources, not more than 1 year old (unless older ones accurately depict current land use and development) and with a scale of 1:6,000 or larger, showing the proposed pipeline route and location of major aboveground facilities, covering at least a 0.5 mile-wide corridor, and including mileposts. Older images/photographs/alignment sheets should be modified to show any residences not depicted in the original. Alternative formats (e.g., blue-line prints of acceptable resolution) need prior approval by the environmental staff of the Office of Energy Projects.</li> <li>- (iii) In addition to the copy required under §157.6(a)(2) of this chapter, applicant should send two additional copies of topographic maps and aerial images/photographs directly to the environmental staff of the Office of Energy Projects.</li> </ul>	Appendix 1B
<p>4) When new or additional compression is proposed, include large scale (1:3,600 or greater) plot plans of each compressor station. The plot plan should reference a readily identifiable point(s) on the USGS maps required in paragraph (c)(3) of this section. The maps and plot plans must identify the location of the nearest noise-sensitive areas (schools, hospitals, or residences) within 1 mile of the compressor station, existing and proposed compressor and auxiliary buildings, access roads, and the limits of areas that would be permanently disturbed.</p>	Appendix 1B
<p>(5)(i) Identify facilities to be abandoned, and state how they would be abandoned, how the site would be restored, who would own the site or right-of-way after abandonment, and who would be responsible for any facilities abandoned in place.</p> <ul style="list-style-type: none"> <li>- (ii) When the right-of-way or the easement would be abandoned, identify whether landowners were given the opportunity to request that the facilities on their property, including foundations and below ground components, be removed. Identify any landowners whose preferences the company does not intend to honor, and the reasons therefore.</li> </ul>	N/A
<p>(6) Describe and identify by milepost, proposed construction and restoration methods to be used in areas of rugged topography, residential areas, active croplands, sites where the pipeline would be located parallel to and under roads, and sites where explosives are likely to be used.</p>	1.4
<p>(7) Unless provided in response to Resource Report 5, describe estimated workforce requirements, including the number of pipeline construction spreads, average workforce requirements for each construction spread and meter or compressor station, estimated duration of construction from initial clearing to final restoration, and number of personnel to be hired to operate the proposed project.</p>	Provided in Resource Report 5
<p>(8) Describe reasonably foreseeable plans for future expansion of facilities, including additional land requirements and the compatibility of those plans with the current proposal.</p>	N/A
<p>(9) Describe all authorizations required to complete the proposed action and the status of applications for such authorizations. Identify environmental mitigation requirements specified in any permit or proposed in any permit application to the extent not specified elsewhere in this section.</p>	1.7
<p>(10) Provide the names and mailing addresses of all affected landowners specified in §157.6(d) and certify that all affected landowners will be notified as required in §157.6(d).</p>	Appendix 1G

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**TABLE 1-1 PROPOSED PROJECT FACILITIES**

Facility	Description	County, State	Milepost(s)	Temporary Construction Land Use (acres)	Permanent Operational Land Use (acres)	Land Requirements by Project Element (acres)
17-mile Loop Line	17 miles of new pipeline	El Paso and Hudspeth, Texas	174.5-191.5	0	109.07	109.07
	New mainline valve No. 20-3/4 and pigging facility	El Paso, TX	174.5	0	0.14	0.14
	New mainline valve No. 23 and pigging facility	Hudspeth, TX	191.5	0	0.19	0.19
	Temporary construction ROW	El Paso and Hudspeth, TX	174.5-191.5	27.9	0	27.9
	Shared ROW with EPNG Lines 1100 and 1103 (existing ROW Work Area [ERWA])	El Paso and Hudspeth, TX	174.5-191.5	48.8	12.2	57.0
	ATWS at road and wash crossings	El Paso and Hudspeth, TX	Variable (see Table 8.3 in RR8)	18.4	0	18.4
	Contractor/pipe yards	El Paso, TX	Off-site	24.7	0	24.7
	Staging Areas	El Paso and Hudspeth, TX	188.0 and 174.5	13.5	0	13.5
	Temporary access roads	El Paso and Hudspeth, TX	Variable between 174.5 and 191.5	0.3	27.8	28.1
	<b>Total Land Use (17-mile loop line)</b>				<b>129.6</b>	<b>149.4</b>
Red Mountain Compressor Station	New compressor station, necessary auxiliary equipment, access road	Luna, NM	305.3	72.0	6.2	78.2
<b>Total Land Use (Red Mountain Compressor Station)</b>						<b>78.2</b>
Dragoon Compressor Station	New compressor station, access road, and necessary auxiliary equipment	Cochise, AZ	406.9	54.8	6.4	61.2
<b>Total Land Use (Dragoon Compressor Station)</b>						<b>61.2</b>

\* Totals may not add up due to rounding.

**TABLE 1-2 HYDROSTATIC TEST WATER VOLUMES**

Facility	Estimated Test Water Volume (gallons) *
17-mile Loop Line	1,600,000
Red Mountain Compressor Station	40,000

Facility	Estimated Test Water Volume (gallons) *
Dragoon Compressor Station	120,000
<b>TOTAL</b>	<b>1,760,000</b>

\*Volumes are estimates only and based on the expected needs for testing of the suction and discharge piping systems at the compressor station sites, as well as the 17-mile-long loop line.

**TABLE 1-3 FOREIGN LINE CROSSINGS BY MILEPOST AND TYPE OF UTILITY**

Crossing ID	Type of Utility	Milepost	Ownership	Crossing Method
OneOK gas pipeline	Underground pipeline	175.13	OneOK	Excavation under utility
Magellan gas pipeline	Underground pipeline	177.5	Magellan	Excavation under utility

**TABLE 1-4 ANTICIPATED CONSTRUCTION SCHEDULE AND WORKFORCE**

New Facility ID	Construction			Estimated Cleanup/ Restoration Start Date	Estimated Workforce	
	Estimated Start Date	Estimated End Date	Estimated Duration		Temporary Construction Personnel	Additional Permanent Personnel
17-mile Loop Line	1/2020	06/2020	5 months	07/2020	150	0
Red Mountain Compressor Station	10/2019	06/2020	8 months	05/2020	110	1
Dragoon Compressor Station	10/2019	06/2020	8 months	05/2020	110	1

**TABLE 1-5 PERMITS, APPROVALS, AND CONSULTATIONS REQUIRED**

Associated facility	Agency	Permit / Approval / Consultation	Actual Date (Anticipated)		Agency Contact
			Submittal	Approval	
<b>Federal</b>					
17-mile Loop Line Red Mountain CS Dragoon CS	Federal Energy Regulatory Commission	Natural Gas Act, Section 7(c) – Certificate of Public Convenience and Necessity	(04/2018)	(04/2019)	Division of Pipeline Certificates Office of Energy Projects 888 First Street, NE Washington, DC 20426
17-mile Loop Line Red Mountain CS Dragoon CS	United States Army Corps of Engineers	Clean Water Act, Section 404, Nationwide Permit 12 (impacts likely below requirement for Agency Notification)	N/A	N/A	N/A
17-mile Loop Line Red Mountain CS Dragoon CS	United States Fish and Wildlife Service	Consultations for impacts on federally listed threatened and endangered species and critical habitat under Section 7 of the Endangered Species Act, the Migratory Bird Treaty Act, the Bald and Gold Eagle Protection Act, and the Fish and Wildlife Coordination Act	01/23/18	05/10/18	Michelle Durflinger Environmental Review Branch Regional Office U.S. Fish and Wildlife Service P.O. Box 1306 Albuquerque, NM 87103
<b>State of Texas</b>					
17-mile Loop Line	Texas Historical Commission State Historic Preservation Office	National Historic Preservation Act (“NHPA”), Section 106 Consultation	03/15/2018	04/17/18	Mark Wolfe Executive Director Texas Historical Commission P.O. Box 12276 Austin, Texas 78711"
17-mile Loop Line	Railroad Commission of Texas	Horizontal Directional Drilling rules and regulations	(3 <sup>rd</sup> quarter 2018)	(4 <sup>th</sup> Quarter 2018)	Engineering Unit 1701 N. Congress Austin Texas 78701
17-mile Loop Line	Railroad Commission of Texas	Clean Water Act, Section 402 National Pollutant Discharge Elimination System Water Pollution Control Permit and De Minimus permit for Hydrostatic Testing Water	(3 <sup>rd</sup> Quarter 2018)	(4 <sup>th</sup> Quarter 2018)	Grant Chambless Railroad Commission of Texas Oil and Gas Division 1701 North Congress, 11th Floor Austin, Texas 78701
17-mile Loop Line	Texas Department of Transportation, El Paso District	Encroachment Permit for horizontal directional drill	(3 <sup>rd</sup> Quarter 2018)	(4 <sup>th</sup> Quarter 2018)	Robert Bielek District Engineer 13301 Gateway West El Paso, TX 79928-5410

Associated facility	Agency	Permit / Approval / Consultation	Actual Date (Anticipated)		Agency Contact
			Submittal	Approval	
<b>State of New Mexico</b>					
Red Mountain CS	New Mexico Environment Department	Air Quality Permit	0315/2018	(3 <sup>rd</sup> Quarter 2018)	Kathy P{rim 525 Camino de los Marquez, Suite 1 Santa Fe, NM, 85705 505-476-4351
Red Mountain CS	New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division	NPDES Hydrostatic Test Water Discharge Permit	Prior to construction	TBD	David Catanach, Director 1220 S. St. Francis Drive Santa Fe, NM 87505 Phone: (505) 476-3441
Red Mountain CS	US EPA – Region 6	Section 402 Clean Water Act, National Pollutant Discharge Elimination System (NPDES) Construction General Permit for Stormwater Discharges and Notice of Intent	Prior to construction	TBD	EPA Region 6 Main Office 1445 Ross Avenue, Suite 1200 Dallas, Texas 75202 800-887-6063
Red Mountain CS	New Mexico Department of Cultural Affairs, Historic Preservation Division	NHPA, Section 106 consultation	03/15/2018	03/28/18	Jeff Pappas State Historic Preservation Officer New Mexico Historic Preservation Division Department of Cultural Affairs 407 Galisteo Street, Suite 236 Santa Fe, New Mexico 87501
<b>State of Arizona</b>					
Dragoon CS	Arizona Department of Agriculture	Notice of Intent to Clear Land of Protected Native Plants	(1 <sup>st</sup> quarter 2019)	30 days automatic	Arizona Department of Agriculture Licensing and Registration Section 1688 West Adams Phoenix, Arizona 85007 Phone: (602) 542-6408 Fax: (602) 542-0466
Dragoon CS	Arizona Department of Environmental Quality, Water Quality Division	Section 402 Clean Water Act, National Pollutant Discharge Elimination System (NPDES) Permit  Arizona Pollutant Discharge Elimination System (AZPDES) Construction General Permit for Stormwater Discharges and Notice of Intent	Prior to construction	TBD	Arizona Department of Environmental Quality Water Quality Division - Surface Water Section Stormwater and General Permits 1110 West Washington Street, 5415A-1 Phoenix, Arizona 85007 Attn: Christopher Henninger Phone: (602) 771-4508 cph@azdeq.gov Attn: Lauri Sherrill (NOI)



Associated facility	Agency	Permit / Approval / Consultation	Actual Date (Anticipated)		Agency Contact
			Submittal	Approval	
Dragoon CS	Arizona Game and Fish Department	Special Status Species and Sensitive Communities Consultation/Project Evaluation	April 2018	04/14/18	Arizona Game and Fish Department Project Evaluation Program, WMHB 5000 W. Carefree Highway Phoenix, Arizona 85086 Attn: Project Evaluation Program Supervisor Phone: (623) 236-7602 Fax: (623) 236-7366 pep@azgfd.gov
Dragoon CS	Arizona Department of Environmental Quality, Air Quality Division	Class I, Minor Modification air quality permit	April 2018	(4 <sup>th</sup> Quarter 2018)	Arizona Department of Environmental Quality 1110 West Washington Street Phoenix, Arizona 85007 Attn: Balaji Vaidyanathan Air Quality Permits Section Manager (602) 771-4527 bv1@azdeq.gov
Dragoon CS	Arizona State Parks, State Historic Preservation Office	NHPA, Section 106 consultation	03/15/2018	04/12/18	Kathryn Leonard State Historic Preservation Officer Arizona State Parks 1100 West Washington Street Phoenix, Arizona 85007

Local Agencies					
17-mile Loop Line	Hudspeth and El Paso Counties	Floodplain Management Department Development Permit	(3rd Quarter 2018)	(4th Quarter 2018)	William Zagorski 313 North Rachal Sinton, TX 78387  Mattie Atkinson 300 N. Rachal Ave. Sinton, TX 78387

Associated facility	Agency	Permit / Approval / Consultation	Actual Date (Anticipated)		Agency Contact
			Submittal	Approval	
17-mile Loop Line		Water Well Production Permit	(3rd Quarter 2018)	(4th Quarter 2018)	Lonnie Steward PO Box 531 Sinton, TX 78387

17-mile Loop Line	El Paso and Hudspeth Counties	Drainage/Floodplain Development Permit	(2 <sup>nd</sup> Quarter 2018)	(3 <sup>rd</sup> Quarter 2018)	Cindy J. Engelhardt Halff Associates, Inc. 4030 West Braker Lane, Suite 450 Austin, TX 78759  Lori McLennan Environmental Services & Floodplain Administration 411 N. Wells, Room 130 Edna, Texas 77957
17-mile Loop Line	El Paso County Public Works Department, Road and Bridge Division	Encroachment Permit	Prior to construction	TBD	Pat D. Aduato Public Works Director Public Works Department 800 E. Overland Suite 407 El Paso, Texas 79901
Dragoon CS	Cochise County, Development Services Department	Land Clearing Permit (fugitive dust)	Prior to construction	TBD	Jerry Stabley 1415 Melody Lane, Bldg E Bisbee, AZ 85603. Phone: (520) 432-9240
Dragoon CS	Cochise County, Development Services Department	Commercial Use/Building Permit	Prior to construction	TBD	Jerry Stabley 1415 Melody Lane, Bldg E Bisbee, AZ 85603. Phone: (520) 432-9240
Dragoon CS	Cochise County, Highway and Floodplain Department	Right-of-Way Permit (encroachment)	Prior to construction	TBD	Karen Riggs, Director 1415 Melody Lane, Bldg E Bisbee, AZ 85603. Phone: (520) 432-9240

**TABLE 1-6 PUBLIC LIBRARIES AND NEWSPAPERS IN THE PROJECT AREA**

New Facility ID	Library	Newspaper(s)
17-mile Loop Line	El Paso Public Library Irving Schwartz Branch 1865 Dean Martin Drive El Paso, TX 79936	El Paso Herald-Post 9050 Viscount Blvd #442 El Paso, TX 79925
	Grace Grebing Public Library 110 Main St. Dell City, TX 79837	Hudspeth County Herald 290 Main St. Dell City, TX 79837
Red Mountain Compressor Station	Marshall Memorial Library 110 S Diamond Ave, Deming, NM 88030	Deming Headlight 219 E Maple Street Deming, NM 88030
Dragoon Compressor Station	Elsie S. Hogan Community Library 100 N. Curtis Ave. Willcox, AZ 85643	Arizona Range News 122 S Haskell Avenue Willcox, AZ 85643

**TABLE 1-7 RESOURCE-SPECIFIC CUMULATIVE IMPACT ASSESSMENT AREAS**

Resource	CIAA Boundary	CIAA Rationale
RR 1: General Project Description	N/A	N/A
RR 2: Water Use and Quality	Watershed boundary (HUC)	Watersheds are well-defined, published natural boundaries for surface water flow. Cumulative effects have been most extensively studied at the watershed level. Published papers and agency guidance to support the proposed CIAA boundary include: <ul style="list-style-type: none"> <li>• Watershed Analysis as a Framework for Implementing Ecosystem Management (Montgomery, Grant, and Sullivan 1995);</li> <li>• Evaluating and Managing Cumulative Effects: Process and Constraints (MacDonald 2000);and</li> <li>• Considering Cumulative Effects Under the National Environmental Policy Act (“NEPA”) (Council on Environmental Quality 1997).</li> </ul>
RR 3: Fish, Wildlife, and Vegetation	5 miles	Wildlife areas of influence are published and well defined. A 5-mile boundary encompasses plant seed dispersion areas and migration corridors or individual home ranges for species with potential to occur in the project area. Published papers and agency guidance to support the proposed CIAA boundary include: <ul style="list-style-type: none"> <li>• Guidance on Preparing Cumulative Impact Analysis (Washington State Department of Transportation 2008); and</li> <li>• Guidance for Preparers of Cumulative Impact Analysis, Approach and Guidance (California Department of Transportation [Caltrans] 2005).</li> </ul>
RR 4: Cultural Resources	Area of Potential Effect (“APE”)	The FERC <i>Guidance Manual for Environmental Report Preparation</i> requires analysis of cultural resources within the APE, which is defined by the State Historic Preservation Office (“SHPO”) and accounts for both direct and indirect impacts (e.g., visual impacts) to cultural resources. Published papers and agency guidance to support the proposed CIAA boundary include: <ul style="list-style-type: none"> <li>• Guidance on Preparing Cumulative Impact Analysis (Washington State Department of Transportation 2008);and</li> <li>• Guidance for Preparers of Cumulative Impact Analysis, Approach and Guidance (Caltrans 2005);</li> </ul>
RR 5: Socioeconomics	County	County boundaries are published and well defined. The FERC <i>Guidance Manual for</i>

Resource	CIAA Boundary	CIAA Rationale
		<p><i>Environmental Report Preparation</i> specifies that the socioeconomic impact area generally comprises the municipalities or counties in which project facilities would be located or may be affected by project activities. Socioeconomic data is collected and published at the county level by the United States Census Bureau and the United States Department of Labor. Published papers and agency guidance to support the proposed CIAA boundary include:</p> <ul style="list-style-type: none"> <li>• Corpus Christi LNG Project Final Environmental Impact Statement (FERC 2014a).</li> </ul>
RR 6: Geological Resources	0.5 mile	<p>Geologic conditions and potential resources occur within site-specific locales and are generally not affected by activities occurring outside the designated work area. Project-related impacts are typically limited to impacts associated with current and future mineral and non-mineral mining activities rather than geologic formations and geologic hazards. The <i>FERC Guidance Manual for Environmental Report Preparation</i> suggests that impacts to mines and oil or gas fields be evaluated out to 0.25 mile. Published papers and agency guidance to support the proposed CIAA boundary include:</p> <ul style="list-style-type: none"> <li>• Corpus Christi LNG Project Final Environmental Impact Statement (FERC 2014a).</li> </ul>
RR 7: Soils	0.5 mile	<p>Soil resources occur within site-specific locales and are generally not affected by activities occurring outside the designated work area. Published papers and agency guidance to support the proposed CIAA boundary include:</p> <ul style="list-style-type: none"> <li>• NEPA Handbook: Chapter 10 Environmental Analysis (United States Forest Service 2012);</li> <li>• Consideration of Cumulative Impacts in EPA Review of NEPA Documents (United States Environmental Protection Agency [“USEPA”] 1999); and</li> <li>• Corpus Christi LNG Project Final Environmental Impact Statement (FERC 2014a).</li> </ul>
RR 8: Land Use, Recreation, and Aesthetics	1.0 mile	<p>Impacts to land uses, recreation, and aesthetics generally occur within and adjacent to project areas. The <i>FERC Guidance Manual for Environmental Report Preparation</i> specifies that public lands, recreation areas, special land uses, and planned developments within 0.25 mile of project activities be evaluated. Published papers and agency guidance to support the proposed CIAA boundary include:</p> <ul style="list-style-type: none"> <li>• Guidance on Preparing Cumulative Impact Analysis (Washington State Department of Transportation 2008);and</li> <li>• Guidance for Preparers of Cumulative Impact Analysis, Approach and Guidance (Caltrans 2005);</li> </ul>
RR 9: Air and Noise Quality	50 kilometers (air)	<p>The USEPA considers 50 kilometers (“km”) to be the nominal distance at which most steady-state Gaussian plume models such as AERMOD, the USEPA’s preferred ambient air quality impact assessment model, are applicable. According to the USEPA’s Guideline on Air Quality Models (Appendix W to Part 51—Guideline on Air Quality Models, 40 CFR § 51, Appendix W [2015]), “... steady-state Gaussian plume models should not be applied at distances greater than can be accommodated by the steady state assumptions inherent in such models. The maximum distance for refined steady-state Gaussian plume model application for regulatory purposes is generally considered to be 50km.” Published papers and agency guidance to support the proposed air quality CIAA boundary include:</p> <ul style="list-style-type: none"> <li>• Guideline on Air Quality Models (USEPA regulations found at 40 CFR § 51, Appendix W); and</li> <li>• Considering Cumulative Effects under NEPA (Council on Environmental Quality 1997).</li> </ul> <p>Although projects are identified within 50 km of the compressor stations, as discussed in Resource Report 9, the effects of air emissions from the proposed project are expected to be limited to a 15-km radius around each compressor station. Therefore, assessment of cumulative impacts is limited to projects within the 15-km potential impact radius.</p>
	1.0 mile (noise and vibration)	<p>Noise impacts are highly localized and attenuate quickly as the distance from the noise source increases. Published papers and agency guidance to support the proposed noise CIAA boundary include:</p> <ul style="list-style-type: none"> <li>• Corpus Christi LNG Project Final Environmental Impact Statement (FERC 2014a); and</li> <li>• Cameron Liquefaction Project Final Environmental Impact Statement (FERC 2014b).</li> </ul>

Resource	CIAA Boundary	CIAA Rationale
RR 10: Alternatives	N/A	N/A
RR 11: Reliability and Safety	N/A	N/A
RR 12: PCB Contamination	Designated work area	PCB contamination and exposure is typically localized and is generally not affected by activities occurring outside the designated work area. No PCB contamination is anticipated on the sites and no work at existing compressor station sites are included as part of the project.
RR 13: Engineering and Design Material	N/A	N/A

HUC = hydrologic unit code

N/A = Not Applicable

**TABLE 1-8 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS IN THE CIAAS FOR THE 17-MILE LOOP LINE PROJECT**

Action	Description	Status / SCHEDULE	Distance from 17-mile Loop Line	Resources Assessed For Cumulative Impacts
Residential and Commercial Development	Low- to Medium—Density Residential Development and Low- to Medium-Intensity Commercial Development	Currently ongoing	Throughout El Paso and Hudspeth Counties. Development occurs immediately adjacent to project.	Wildlife, Vegetation, Land Use
US 62 Road Widening (TXDOT 2018)	Widen 4-Lane, Undivided to 6-Lane, Divided and construct overpass	Under Development, Bids to be received in 2025	The proposed project crosses US 62	Wildlife, Vegetation, Land Use
Horizon Corporation Land Purchases	Land was bought around the El Paso, Texas area from Horizon Corporation between 1962 and 1975	Complete	Parcels are immediately adjacent to the project	Land Use
Miscellaneous Recreational Activities	Includes vehicle and foot recreational activities in the surrounding landscape	Currently ongoing	Throughout El Paso and Hudspeth Counties	Wildlife, Vegetation, Land Use
EPNG Hueco Compressor Station	EPNG-operated Compressor Station in Hudspeth County, Texas	Complete	Adjacent to southeastern end of the project	Wildlife, Vegetation, Land Use, Air Quality
EPNG Line No. 1110	EPNG-operated natural gas pipeline in Hudspeth County, Texas	Complete	Adjacent to southeastern end of the project	Wildlife, Vegetation, Land Use
EPNG Line No. 1103	EPNG-operated natural gas pipeline in Hudspeth and El Paso Counties, Texas	Complete	Runs parallel to the entire project	Wildlife, Vegetation, Land Use
EPNG Line No. 1100	EPNG-operated natural gas pipeline in Hudspeth and El Paso Counties, Texas	Complete	Runs parallel to the entire project	Wildlife, Vegetation, Land Use
EPNG Line No. 1136	EPNG-operated natural gas pipeline in Hudspeth and El Paso Counties, Texas	Complete	Adjacent to and runs southwest from the project, averaging approximately 6.5 miles from project	Wildlife, Vegetation, Land Use
EPNG MLV 22	EPNG-operated MLV in El Paso County, Texas	Complete	Adjacent to northwestern end of the project	Wildlife, Vegetation, Land Use
KN Energy Company Pipeline	KN Energy Company-operated pipeline	Complete	Crosses the project and runs parallel to project approximately 1.0 mile north	Wildlife, Vegetation, Land Use

Action	Description	Status / SCHEDULE	Distance from 17-mile Loop Line	Resources Assessed For Cumulative Impacts
Uranium Mine	Unknown Abandoned Uranium Mine	Complete	Approximately 0.33 miles northeast of the project at MP 186.6	Wildlife, Vegetation, Land Use
Sand and Gravel Pit Mine	Unknown Sand and Gravel Pit Mine	Unknown, but assumed complete.	Approximately 1.08 miles northeast of the project at MP 179	Wildlife and Vegetation
Sand and Gravel Pit Mine	Unknown Sand and Gravel Pit Mine	Unknown, but assumed complete.	Approximately 0.75 miles northeast of the project at MP 188.1	Wildlife, Vegetation, Land Use
Sand and Gravel Pit Mines (3)	Unknown Sand and Gravel Pit Mines	Unknown, but assumed complete.	Approximately 1.3 (2) and 1.5 (1) miles southwest of the project at MP 179.8	Wildlife and Vegetation
Sand and Gravel Pit Mine	Unknown Sand and Gravel Pit Mine	Unknown, but assumed complete.	Approximately 1.3 miles southwest of the project at MP 180.3	Wildlife and Vegetation

**TABLE 1-9 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS IN THE CIAAS FOR RED MOUNTAIN COMPRESSOR STATION**

Action	Description	Status / Schedule	Distance from Red Mountain Compressor Station	Resources Assessed For Cumulative Impacts
Butterfield Trail Regional Landfill (Deming).	The 320-acre Butterfield Trail Regional Landfill is an existing facility that receives solid waste from commercial haulers. The solid waste will be placed and compacted in lined phases.cells that are served by environmental management control systems. The waste is covered with at least 6" of soil or an alternate cover.	Currently ongoing	Approximately 1.0 miles west	Wildlife, Vegetation, Land Use, Air Quality
Miscellaneous Recreational Activities	Includes vehicle and foot recreational activities in the surrounding landscape	Currently ongoing	Throughout Luna County	Wildlife, Vegetation, Land Use
Grazing and Ranching	Cattle Grazing; guest ranches	Currently ongoing	Throughout Luna County. Parcels surrounding the Red Mountain Compressor Station are rangeland.	Wildlife, Vegetation, Land Use
EPNG Line No. 1100	EPNG-operated natural gas pipeline in Luna County, NM	Complete	Adjacent to the project	Wildlife, Vegetation, Land Use

Action	Description	Status / Schedule	Distance from Red Mountain Compressor Station	Resources Assessed For Cumulative Impacts
EPNG Line No. 1103	EPNG-operated natural gas pipeline in Luna County, NM	Complete	Adjacent to the project	Wildlife, Vegetation, Land Use
EPNG Line No. 1600	EPNG-operated natural gas pipeline in Luna County, NM	Complete	Adjacent to the project	Wildlife, Vegetation, Land Use
EPNG Line No. 2000	EPNG-operated natural gas pipeline in Luna County, NM	Complete	Adjacent to the project	Wildlife, Vegetation, Land Use
EPNG Deming Compressor Station	EPNG-operated Compressor Station in Luna County, New Mexico	Complete	Adjacent to the project	Wildlife, Vegetation, Land Use, Air Quality

**TABLE 1-10 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS IN THE CIAAS FOR DRAGOON COMPRESSOR STATION**

Action	Description	Status / Schedule	Distance from Dragoon Compressor Station	Resources Assessed For Assessed For Cumulative Impacts
Agriculture, Grazing and Ranching	Crop production, Cattle Grazing; guest ranches	Currently ongoing	Throughout Cochise County. Parcels surrounding the Dragoon Compressor Station are agricultural production	Wildlife, Vegetation, Land Use
Residential and Commercial Development	Low-Density, Single Family Home Residential Development and Low-Intensity Commercial Development	Complete	Throughout Cochise County. Development begins approximately 0.5 miles from the project site	Wildlife, Vegetation, Land Use
Southline Transmission Project (Southline 2018)	Southline Transmission, L.L.C would construct a 225-mile-long transmission line between Afton, New Mexico and Apache, Arizona, and upgrade and rebuild a 130-mile-long transmission line between the existing Apache and Saguaro Substations.	Construction to occur in 2018, phased into operation 2018-2020	Approximately 4 miles northwest	Wildlife
Miscellaneous Recreational Activities	Includes vehicle and foot recreational activities in the surrounding landscape	Currently ongoing	Throughout Cochise County	Wildlife, Vegetation, Land Use
EPNG Line No. 1100	EPNG-operated natural gas pipeline in Cochise County, AZ	Complete	Adjacent to the project	Wildlife, Vegetation, Land Use
EPNG Line No. 1103	EPNG-operated natural gas pipeline in Cochise County, AZ	Complete	Adjacent to the project	Wildlife, Vegetation, Land Use
Willcox Compressor Station	EPNG-operated natural gas fired compressor Station	Complete	500 feet from the project	Air and Noise, wildlife, vegetation, Land Use



**TABLE 2-1. PUBLIC WELL INFORMATION WITHIN THE LOOP LINE PROJECT AREA**

Facility ID	Well Registry ID	Well Location	Well Use	Latitude, Longitude	Owner	Capacity	Milepost
17-Mile Loop Line	4915517	Northeast of ROW	Withdrawal of water; Public supply	31.814552, -106.172263	Homestead MUD #1	N/A*	190.5
17-Mile Loop Line	4915513	Southwest of ROW	Withdrawal of water; Well plugged or destroyed	31.812778, -106.171667	Homestead MUD #1	N/A*	190.4
17-Mile Loop Line	4915609	Southwest of ROW	Withdrawal of water; Well plugged or destroyed	31.801945, -106.155834	Homestead MUD #2	N/A*	189.2

\* N/A = not applicable. Information regarding this well's capacity was not readily available from the USGS or State databases. Sources: ADWR (2018d, 2018e); TWDB (2018); USGS (2018)

**TABLE 2-2. WATER QUALITY INFORMATION NEAR THE PROJECT AREA**

Facility ID	Water Quality Report Date	Nitrate-n (ppm)	Fluoride (ppm)	Lead (ppb)	Copper (ppm)	Arsenic (ppb)	Total Organic Carbon	Total Coliform and E. coli Present?	Specific Conductance	Temperature	pH
17-Mile Loop Line*	2016	1.01	0.75	1.0	0.12	4.9	2.49	No	N/A	N/A	N/A
Red Mountain Compressor Station**	2015	2.0	0.50	2.1	0.11	4.9	N/A	Yes	N/A	N/A	N/A
Dragoon Compressor Station***	1989	N/A	0.9	N/A	N/A	N/A	N/A	N/A	360	22.5	7.7

\* Source: El Paso Water (2016) (used average levels reported)

\*\* Source: City of Deming Consumer Confidence Report (City of Deming 2015)

\*\*\* Source: ADWR (2018d): water quality data from 1989.

N/A = Not reported

ppm = parts per million

ppb = parts per billion

**TABLE 2-3. PRIVATE WELL INFORMATION NEAR THE PROJECT AREA**

Facility ID	Well Registry ID (Arizona GWSI ID)	SWCA ID (see Figure 2A-10)	Well Location	Well Use	Township, Range, Section	Owner	Capacity (GPM)
Red Mountain Compressor Station	USGS 321520107594701	-	Maps within footprint of Deming Compressor Station (CS)	Inactive	T23S, R11W, -- Section 32	--	N/A
Red Mountain Compressor Station	M 11498 POD1	-	Eastern edge of Deming CS	CPS-- Cathodic Protection Well	T23S, R11W, Section 32	Gallup Pipeline & Compliance	N/A*
Red Mountain Compressor Station	M 00135 A	-	Within project area, southeastern edge of Deming CS	Industrial	T23S, R11W, Section 32	EPNG	N/A*

Facility ID	Well Registry ID (Arizona GWSI ID)	SWCA ID (see Figure 2A-10)	Well Location	Well Use	Township, Range, Section	Owner	Capacity (GPM)
Red Mountain Compressor Station	M 00135 -A COMB-S2	-	Within project area, east of access road as it enters Deming CS	Industrial, adjudicated	T23S, R11W, Section 32	EPNG	N/A*
Red Mountain Compressor Station	M 00135 B-S-2	-	Same location as above	Industrial	T23S, R11W, Section 32	EPNG	N/A*
Red Mountain Compressor Station	M 00135--A	-	Same location as above	Industrial, adjudicated	T23S, R11W, Section 32	EPNG	N/A*
Dragoon Compressor Station	533960 (no GWSI ID)	1	Adjacent to proposed eastern access road	Cathodic Protection	T15S, R26E, Section 23	EPNG	N/A*
Dragoon Compressor Station	611564 (320642109394801)	2	Northwest of existing Willcox Compressor Station	Withdrawal, industrial	T15S, R26E, Section 23	EPNG	441
Dragoon Compressor Station	611586 (320642109394401)	3	North of existing Willcox Compressor Station	Well destroyed, unused	T15S, R26E, Section 23	EPNG	N/A*
Dragoon Compressor Station	611585 (320633109394001)	4	Maps within existing Willcox Compressor Station fenced compound	Well destroyed, unused	T15S, R26E, Section 23	EPNG	175
Dragoon Compressor Station	2251819 (no GWSI ID)	5	Maps within existing Willcox Compressor Station yard	Cathodic Protection	T15S, R26E, Section 23	EPNG	N/A*
Dragoon Compressor Station	No Well Registry ID (320642109394301)	6	North of existing Willcox Compressor Station	Well Destroyed, unused	T15S, R26E, Section 23	EPNG	N/A*
Dragoon Compressor Station	No Well Registry ID (320636109393201)	7	Northeast of existing Willcox Compressor Station	Withdrawal, Industrial	T15S, R26E, Section 23	EPNG	N/A*
Dragoon Compressor Station	611586 (320633109393901)	8	Within existing Willcox Compressor Station fenced compound	Withdrawal/ Observation, Industrial	T15S, R26E, Section 23	EPNG	208
Dragoon Compressor Station	611585 (320633109394001)	9	Maps within existing Willcox Compressor Station yard	Well Destroyed, unused	T15S, R26E, Section 23	EPNG	175
Dragoon Compressor Station	611586 (320642109394401)	10	North of existing Willcox Compressor Station	Well Destroyed, unused	T15S, R26E, Section 23	EPNG	N/A*
Dragoon Compressor Station	61154 (320642109394801)	11	Northwest of existing Willcox Compressor Station	Withdrawal, Industrial	T15S, R26E, Section 23	EPNG	441

\* Information regarding this well's capacity was not readily available from the USGS or State databases. Sources: ADWR (2018d, 2018e); New Mexico Water Rights Reporting System (2018), TWDB (2018); USGS (2018)

**TABLE 2-4. WATERSHEDS WITHIN PROJECT WORK AREAS**

New Facility ID	12-digit HUC	Watershed Name	Watershed Size (acres)*
17-Mile Loop Line	130401000203	Franklin Drain-Rio Grande	75,563.14
17-Mile Loop Line	130401000307	Island Spur Drain-Rio Grande	49,091.46
17-Mile Loop Line	130401000305	Phoneline Canyon-Fourmile Draw	26,744.28
17-Mile Loop Line	130401000404	Padre Canyon	53,751.23
Red Mountain Compressor Station	130302021406	Unnamed	21,555.91
Dragoon Compressor Station	150502010703	OB Draw	23,429.4

\* USGS Watershed Boundary Dataset (USGS 2018b)

**TABLE 2-5. EPHEMERAL DRAINAGES CROSSED BY THE 17-MILE LOOP LINE ROUTE**

New Facility ID	Waterbody ID*	Nearest Milepost	Flow Regime
17-Mile Loop Line	Wash 1	174.6	Ephemeral
17-Mile Loop Line	Wash 2	175.0	Ephemeral
17-Mile Loop Line	Wash 3	175.3	Ephemeral
17-Mile Loop Line	Wash 4	175.3	Ephemeral
17-Mile Loop Line	Wash 5	175.5	Ephemeral
17-Mile Loop Line	Wash 6	175.8	Ephemeral
17-Mile Loop Line	Wash 6	175.8	Ephemeral
17-Mile Loop Line	Wash 7	175.9	Ephemeral
17-Mile Loop Line	Wash 7	175.9	Ephemeral
17-Mile Loop Line	Wash 8	176.2	Ephemeral
17-Mile Loop Line	Wash 9	176.5	Ephemeral
17-Mile Loop Line	Wash 10	176.7	Ephemeral
17-Mile Loop Line	Wash 11	176.8	Ephemeral
17-Mile Loop Line	Wash 12	176.9	Ephemeral
17-Mile Loop Line	Wash 13	177.0	Ephemeral
17-Mile Loop Line	Wash 14	177.2	Ephemeral
17-Mile Loop Line	Wash 15	177.2	Ephemeral
17-Mile Loop Line	Wash 16	177.7	Ephemeral
17-Mile Loop Line	Wash 17	178.5	Ephemeral
17-Mile Loop Line	Wash 18	179.1	Ephemeral
17-Mile Loop Line	Wash 19	180.5	Ephemeral
17-Mile Loop Line	Wash 19	180.5	Ephemeral

New Facility ID	Waterbody ID*	Nearest Milepost	Flow Regime
17-Mile Loop Line	Wash 20 (Fourmile Draw)	183.7	Ephemeral

**TABLE 3-1 VEGETATION COMMUNITY IMPACTS FOR 17-MILE LOOP LINE**

Vegetation Community	17-Mile Loop Line <sup>1</sup>			Off-Site Staging Areas <sup>1</sup>		
	Temporary Construction Impact (acres)	Permanent/Operational Impact (acres)	Existing ROW Work Area Impact (acres)	Additional Temporary Workspace Impact (acres)	Laydown Yards Temporary Impact (acres)	Ancillary Pipe Contractor Yards Temporary Impact (acres)
Native Invasive: Mesquite Shrubland	1.8	10.6	18.6	2.5	0	1.9
Trans-Pecos: Creosotebush Scrub	11.0	15.1	2.4	1.2	6.1	0
Trans-Pecos: Desert Deep Sand and Dune Grassland	<0.1	0.1	<0.1	0	0	0
Trans-Pecos: Desert Deep Sand and Dune Shrubland	2.7	18.4	9.9	3.1	0	17.2
Trans-Pecos: Desert Pavement	<0.1	<0.1	<0.1	0	0	2.2
Trans-Pecos: Desert Wash Barren	0.4	3.0	1.3	0.1	0	0
Trans-Pecos: Desert Wash Shrubland	0.1	0.2	<0.1	0	0	0
Trans-Pecos: Lower Montane Riparian Shrubland	5.2	28.4	12.2	2.6	0	0
Trans-Pecos: Sand Dune	2.4	16.5	5.6	7.8	7.4	0.7
Trans-Pecos: Sandy Desert Grassland	1.8	11.5	5.5	0.9	0	0.3
Trans-Pecos: Sparse Creosotebush Scrub	2.5	5.6	1.3	0.3	0	0
Urban Low Intensity	0	<0.1	0	<0.1	0	0
Barren	0	0	0	0	0	2.3
<b>TOTAL <sup>2</sup></b>	<b>27.9</b>	<b>109.4</b>	<b>57.1</b>	<b>18.4</b>	<b>13.5</b>	<b>24.6</b>

<sup>1</sup> Acreages do not include access roads.

<sup>2</sup> Totals may not add up due to rounding.

**TABLE 4-1 CULTURAL RESOURCES IDENTIFIED DURING SURVEY**

Facility/County/Resource Number	Resource Type	Applicant NRHP Assessment	Applicant Recommendations	SHPO Comments
<b>17-Mile Loop Line</b>				
<b>Hudspeth County, Texas</b>				
41HZ507	Prehistoric lithic scatter	Not eligible within APE	No further work	Pending
41HZ508	Historic artifact scatter	Not eligible within APE	No further work	Concur, not eligible
41HZ803	Historic artifact scatter	Not eligible within APE	No further work	Pending
<b>El Paso County, Texas</b>				
41EP868	Prehistoric lithic scatter	Not eligible within APE	No further work	Pending
41EP2379	Prehistoric open campsite	Not eligible within APE	No further work	Pending
41EP2424	Prehistoric open campsite	Not eligible within APE	No further work	Pending
41EP2454	Prehistoric open campsite	Not eligible within APE	No further work	Pending
41EP5490	Historic AT&T communication cable	Not eligible within APE	No further work	Pending
41EP7308	Jornada Mogollon artifact scatter and features	Not eligible within APE	No further work	Pending
Facility/County/Resource Number	Resource Type	Applicant NRHP Assessment	Applicant Recommendations	SHPO Comments
<b>Red Mountain Compressor Station</b>				
<b>Luna County, New Mexico</b>				
LA 189480	Historic remains of Deming Compressor Station residential camp	Not eligible	No further work	Concur, not eligible
HCPI 44624	Deming Compressor Station	Not eligible	No further work	Property is of undetermined eligibility. No adverse effect.
<b>Dragoon Compressor Station</b>				
<b>Cochise County, Arizona</b>				
AZ CC:14:62(ASM)	Historic remains of the Willcox Compressor Station residential camp	Not eligible	No further work	Concur, not eligible (FERC Docket CP12-6-000; SHPO No. 21011-1253)

**TABLE 4-2 NATIVE AMERICAN TRIBAL COMMUNICATIONS**

Date	Sender	Recipient	Contents
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03/20/2018	EPNG	<p>Apache Tribe of Oklahoma            Comanche Nation of Oklahoma            Fort McDowell Yavapai Nation            Fort Sill Apache Tribe            Hopi Tribe            Kiowa Tribe of Oklahoma            Mescalero Apache Tribe            Pascua Yaqui Tribe            San Carlos Apache Tribe            Tohono O'odham Nation            White Mountain Apache Tribe            Yavapai Apache Nation            Ysleta del Sur Pueblo            Zuni Pueblo</p>	<p>Project introduction letter, cultural resources survey report(s), and unanticipated discovery plan.</p>
03/26/2018	Hopi Tribe	EPNG	<p>Statement that no historic properties significant to the Hopi Tribe will be affected</p>
04/02/2018	Ysleta del Sur Pueblo	EPNG	<p>Statement that the Project will not adversely affect traditional, religious, or culturally significant sites of the Pueblo. Request that they be notified in the event of the discovery of human remains or associated artifacts.</p>

**TABLE 5-1 EXISTING SOCIOECONOMIC CONDITIONS IN NEARBY COMMUNITIES**

Project ID	Community	Approximate Distance from Facilities (miles)	2016 Population Estimate <sup>A</sup>	2010 Population Density (people/square mile) <sup>B</sup>	2011–2015 Per Capita Income (USD) <sup>C</sup>	2011–2015 Civilian Labor Force (percent) <sup>C</sup>	2011–2015 Unemployment Rate (percent) <sup>C</sup>	Major Industries
17-mile loop line	State of Texas	N/A	27,862,596	96.3	\$26,999	64.3	7.0	Construction, Restaurant and Food Services, Elementary and Secondary Schools, Hospitals <sup>E</sup>
	El Paso County	N/A	837,918	790.6	\$18,880	57.7	8.4	Healthcare and Social Assistance, Retail, Educational Services <sup>E</sup>
	Hudspeth County	N/A	4,053	0.8	\$15,990	46.8	5.7	Public Administration, Educational Services, Agriculture, Forestry, Fishing, Hunting, Accommodation and Food Service <sup>E</sup>
	City of El Paso	2.0	683,080	2,543.2	\$20,154	58.6	8.1	Healthcare and Social Assistance, Educational Services, Retail <sup>E</sup>
Red Mountain Compressor Station	State of New Mexico	N/A	2,081,015	17.0	\$24,012	59.1	9.2	Restaurants and Food Services, Elementary and Secondary Schools, Construction, Hospitals <sup>E</sup>
	Luna County	N/A	24,450	8.5	\$15,078	51.5	13.8	Retail, Healthcare and Social Assistance, Accommodation and Food Service, Educational Services <sup>E</sup>
	City of Deming	13	14,488	914.8	\$14,077	52.9	18.9	Healthcare and Social Assistance, Retail, Educational Services, Accommodation and Food Service <sup>E</sup>
Dragoon Compressor Station	State of Arizona	N/A	6,931,071	56.3	\$25,848	59.3	8.9	Construction, Restaurants and Food Services, Elementary and Secondary Schools, Hospitals <sup>E</sup>
	Cochise County	N/A	125,770	21.3	\$23,506	46.4	8.7	Public Administration, Healthcare and Social Assistance, Retail <sup>E</sup>

Project ID	Community	Approximate Distance from Facilities (miles)	2016 Population Estimate <sup>A</sup>	2010 Population Density (people/square mile) <sup>B</sup>	2011–2015 Per Capita Income (USD) <sup>C</sup>	2011–2015 Civilian Labor Force (percent) <sup>C</sup>	2011–2015 Unemployment Rate (percent) <sup>C</sup>	Major Industries
	City of Willcox	13.6	3,511	610.89 <sup>D</sup>	\$18,604	54.6	9.2	Healthcare and Social Assistance, Retail, Accommodation and Food Service, Educational Services <sup>E</sup>

A U.S. Census Bureau, 2016

B U.S. Census Bureau, 2010

C U.S. Census Bureau, 2015

D These data were not provided by the U.S. Census. Population Density was found by dividing the 2010 population estimate by the land area of the city of Willcox (6.15 square miles)

E Data USA, 2018

**TABLE 5-2 HOUSING CHARACTERISTICS IN NEARBY COMMUNITIES**

PROJECT ID	COMMUNITY	APPROXIMATE DISTANCE FROM FACILITIES (MILES)	2011–2015 HOUSING UNITS <sup>A</sup>	2011–2015 VACANT HOUSING UNITS <sup>A</sup>	2011–2015 VACANT HOUSING UNITS FOR RENT <sup>A</sup>	2011–2015 FOR SEASONAL, RECREATIONAL, OR OCCASIONAL USE <sup>A</sup>	2011–2015 RENTAL VACANCY RATE (PERCENT) <sup>A</sup>	NUMBER OF HOTELS AND MOTELS <sup>B</sup>	NUMBER OF MOTEL AND HOTEL ROOMS
17-mile loop line	State of Texas	N/A	10,305,607	1,156,411	55,564	244,552	7.8	-	-
	El Paso County	N/A	282,616	23,004	1,427	2,245	8.1	119	9,504 <sup>E</sup>
	Hudspeth County	N/A	1,533	565	9	127	3.8	81	9,234 <sup>D</sup>
	City of El Paso	2.0	240,167	19,485	1,315	1,636	8.4	119	9,504 <sup>E</sup>
Red Mountain Compressor Station	State of New Mexico	N/A	909,565	145,962	3,959	51,211	8.3	-	-
	Luna County	N/A	10,972	1,928	50	348	5.5	35	3,990 <sup>D</sup>
	City of Deming	13.0	5,993	713	27	101	5.6	35	3,990 <sup>D</sup>
Dragoon Compressor Station	State of Arizona	N/A	2,890,664	478,452	15,081	216,209	8.6	-	-
	Cochise County	N/A	60,087	11,262	228	2,155	15.9	127	275,571 <sup>C</sup>
	Willcox	13.6	1,779	407	0	0	20.1	12	1,368 <sup>D</sup>

<sup>A</sup> U.S. Census Bureau, 2015



<sup>B</sup> Yellowbook, 2018 (number of “Hotels and Motels” as advertised on www.yellowbook.com). Some of these hotels and motels may be located in adjacent counties.

<sup>C</sup> Arizona Office of Tourism, 2017

<sup>D</sup> Based on an estimate of approximately 114 rooms per hotel. Statistic Brain 2017.

<sup>E</sup> City of El Paso 2017

**TABLE 5-3 POPULATION IMPACTS IN NEARBY COMMUNITIES**

PROJECT ID	COMMUNITY	TOTAL CIVILIAN LABOR FORCE <sup>A</sup>	CONSTRUCTION PERSONNEL			ADDITIONAL OPERATIONS PERSONNEL	
			AVERAGE NUMBER	PEAK NUMBER	PERCENT CHANGE <sup>B</sup>	NUMBER	PERCENT CHANGE
17-mile loop line	State of Texas	12,371,392			0.00		0.00
	El Paso County	334,280	70	150	0.05	0	0.00
	Hudspeth County	1,121			13.38		0.00
	City of El Paso	279,392			0.05		0.00
State of New Mexico	876,210	0.01			0.00		
Red Mountain Compressor Station	Luna County	8,012	55	100	1.25	1	0.01
	City of Deming	4,649			2.15		0.02
	State of Arizona	2,879,372			0.00		0.00
Dragoon Station Compressor	Cochise County	42,925	55	100	0.23	1	0.00
	City of Willcox	1,354			7.39		0.07
	State of Arizona	2,879,372			0.00		0.00

<sup>A</sup> U.S. Census Bureau, 2016

<sup>B</sup> Percent change based on peak number of construction personnel.

**TABLE 5-4 PUBLIC SERVICES IN NEARBY COMMUNITIES**

PROJECT ID	COMMUNITY	APPROXIMATE DISTANCE FROM FACILITIES (MILES)	NUMBER OF PUBLIC SCHOOLS <sup>A</sup>	NUMBER OF SHERIFF'S DEPARTMENTS <sup>B</sup>	NUMBER OF POLICE DEPARTMENTS <sup>B</sup>	NUMBER OF FIRE AND RESCUE DEPARTMENTS <sup>C</sup>	NUMBER OF HOSPITAL S/BEDS <sup>D</sup>	SERVICEABLE TO MUNICIPAL WATER AND SEWER (YES/NO)
17-mile loop line	State of Texas	N/A	-	-	-	-	-	-
	El Paso County	N/A	249	1	7	3	24, 2,162 <sup>G</sup>	-
	Hudspeth County	N/A	5	1	0	0	0, 2,162 <sup>G</sup>	-
	City of El Paso	2.0	222	0	1	1	24, 2,162 <sup>G</sup>	No
Red Mountain Compressor Station	State of New Mexico	N/A	-	-	-	-	-	-
	Luna County	N/A	11	1	1	1	1, 25 <sup>E</sup>	-
	City of Deming	13.0	11	0	1	1	1, 25 <sup>E</sup>	No
Dragoon Compressor Station	State of Arizona	N/A	-	-	-	-	-	-
	Cochise County	N/A	77	2	6	7	5, 94 <sup>G</sup>	-
	City of Willcox	13.6	4	0	1	1	1, 25 <sup>F</sup>	No

<sup>A</sup> National Center for Education Statistics, 2018

<sup>B</sup> USA Cops, 2018

<sup>C</sup> USA Fire and Rescue, 2018

<sup>D</sup> US Hospital Info, 2018

<sup>E</sup> Mimbres Memorial Hospital and Nursing Home, 2018

<sup>F</sup> Northern Cochise Community Hospital, 2018

<sup>G</sup> American Hospital Directory, 2018

**TABLE 5-5 STATE TAX RATES AND REVENUES IN NEARBY COMMUNITIES**

PROJECT ID	COMMUNITY	2017 SALES TAX RATE (PERCENT) <sup>A</sup>	PROJECTED SALES TAX REVENUES (USD)	PROJECTED PROPERTY TAX REVENUES (USD)
17-mile loop line	State of Texas	6.25	\$59,922,200,000 <sup>D</sup>	-
	El Paso County	0.50	\$45,250,000 <sup>E</sup>	\$153,787,490 <sup>E</sup>
	Hudspeth County	0.00	-	-
	City of El Paso	0.00	-	-
	N/A- Special	0.50	-	-
Red Mountain Compressor Station	State of New Mexico	5.125	\$10,868,600,000 <sup>B</sup>	-
	Luna County	1.75	-	-
	City of Deming	3.125	\$3,400,000 <sup>C</sup>	\$1,138,081 <sup>C</sup>
Dragoon Compressor Station	State of Arizona	5.60	\$6,537,786,696 <sup>F</sup>	-. <sup>G</sup>
	Cochise County	0.50	\$1,386,264,279 <sup>F</sup>	-
	City of Willcox	3.00	-	-

<sup>A</sup> Avalara, 2018

<sup>B</sup> State of New Mexico, 2017

<sup>C</sup> City of Deming, 2016

<sup>D</sup> State of Texas, 2017

<sup>E</sup> City of El Paso, 2018

<sup>F</sup> Arizona Department of Revenue, 2017

<sup>G</sup> The statewide property tax in Arizona was repealed in 1996.

**TABLE 5-6 EPNG PROPERTY TAX ESTIMATION**

PROJECT ID	TOTAL ESTIMATED CAPITAL EXPENDITURE	ESTIMATED VALUE / MILE	ASSESSED VALUE	TAX RATE	ESTIMATE D 2021 TAXES	EFFECTIVE AD VALOREM TAX RATE
17-mile loop line	\$40,000,000	\$2,101,106	\$33,932,868	0.0294	\$999,057	0.025
Red Mountain Compressor Station	\$40,000,000	-	\$9,332,400	0.0233	\$217,186	0.0054
Dragoon Compressor Station	\$40,000,000	-	\$3,400,128	0.1590	\$540,652	0.0135

**TABLE 5-7 DEMOGRAPHIC STATISTICS (PERCENTAGE) IN NEARBY COMMUNITIES**

PROJECT ID	COMMUNITY	TOTAL POPULATION (COUNT)	WHITE	AFRICAN AMERICAN	NATIVE AMERICAN AND ALASKAN NATIVE	ASIAN	NATIVE HAWAIIAN AND PACIFIC ISLANDER	PERSONS REPORTING TWO OR MORE RACES	OTHER RACE	HISPANIC OR LATINO ORIGIN <sup>1</sup>	TOTAL MINORITY
17-mile loop line	State of Texas	26,538,614	74.9	11.9	0.5	4.2	0.1	2.5	6.0	38.4	25.2
	El Paso County	831,095	82.8	3.5	0.6	1.1	0.2	2.2	9.6	81.3	17.2
	Hudspeth County	3,330	90.7	1.3	0.0	0.8	0.0	1.9	5.4	78.4	9.4
	City of El Paso	676,325	83.7	3.7	0.5	1.2	0.2	2.2	8.5	79.9	16.3
	Census Tract 9503 (Hudspeth County) <sup>2</sup>	3,330	90.7	1.3	0.0	0.8	0.0	1.9	5.4	78.4	9.4
	Census Tract 103.39 (El Paso County)	9,148	79.3	3.4	0.1	0.2	0.1	3.6	13.3	84.5	20.7
	Census Tract 103.41 (El Paso County)	29,238	84.6	6.8	0.2	0.6	0.1	3.2	4.5	84.8	15.4
	Census Tract 103.43 (El Paso County)	6,993	85.3	2.3	0.4	2.2	0.0	5.2	4.6	74.1	14.7
	Census Tract 103.44 (El Paso County)	2,986	87.1	0.0	0.2	0.0	0.0	2.1	10.6	98.1	12.9
Red Mountain Compressor Station	State of New Mexico	2,084,117	73.2	2.1	9.1	1.4	0.1	3.3	10.9	47.4	26.9
	Luna County	24,789	89.5	1.2	1.5	0.4	0.1	1.7	5.7	64.1	10.6
	City of Deming	14,667	86.9	1.6	2.4	0.5	0.1	0.8	7.6	70.5	13.0
Dragoon Compressor Station	Census Tract 5	4,625	87.9	1.4	1.8	0.3	0.0	3.0	5.6	61.5	12.1
	State of Arizona	6,641,928	78.4	4.2	4.4	3.0	0.2	3.2	6.5	30.3	21.5
	Cochise County	129,647	80.0	3.9	1.2	1.7	0.2	5.8	7.3	33.9	20.1
Dragoon Compressor Station	City of Willcox	3,639	82.9	0.7	0.0	0.0	0.0	7.0	9.4	60.0	17.1
	Census Tract 1	1,540	75.7	0.5	0.8	0.3	0.0	10.5	12.2	32.7	24.3

Source: U.S. Census Bureau, 2015

< <sup>1</sup> People who identify their origin as Hispanic or Latino may be of any race. Thus, the percent Hispanic or Latino should not be added to the race as percentage of population categories.

< <sup>2</sup> This is the only census tract in Hudspeth County; therefore, the demographics for both the county and this census tract are the same.

**TABLE 5-8 PERCENTAGE OF POPULATION LIVING BELOW THE POVERTY LEVEL IN NEARBY COMMUNITIES**

PROJECT ID	COMMUNITY	PERCENTAGE OF POPULATION BELOW POVERTY LEVEL		
		TOTAL	UNDER 18 YEARS	65 YEARS AND OVER
17-mile loop line	State of Texas	17.3	24.7	11.1
	El Paso County	22.8	31.7	18.9
	Hudspeth County	40.3	63.8	29.4
	City of El Paso	20.9	29.4	17.6
	Census Tract 9503 (Hudspeth County)	40.3	63.8	29.4
	Census Tract 103.39 (El Paso County)	29.8	38.9	23.1
	Census Tract 103.41 (El Paso County)	12.0	14.5	7.3
	Census Tract 103.43 (El Paso County)	5.2	6.3	2.9
Red Mountain Compressor Station	Census Tract 103.44 (El Paso County)	29.0	32.5	44.0
	State of New Mexico	21.0	29.4	12.0
	Luna County	29.6	39.0	19.3
	City of Deming	33.1	45.2	20.7
	Census Tract 5	37.2	58.8	7.0
Dragoon Compressor Station	State of Arizona	18.2	26.0	8.8
	Cochise County	17.9	24.9	10.6
	City of Willcox	18.0	24.8	6.4
	Census Tract 1	18.2	16.8	10.2

Source: U.S. Census Bureau, 2015

**TABLE 7-1 SOIL MAP UNIT CHARACTERISTICS**

SITE	COUNTY	SOIL MAP UNIT NAME	SOIL MAP UNIT SYMBOL	PROJECT SOIL AREA CALCULATIONS (ACRES)							SOIL MAP UNIT PERCENT OF TOTAL	DRAINAGE CLASS	COMPACTION POTENTIAL <sup>1</sup>	HYDRIC RATING <sup>2</sup>	ERODIBILITY <sup>3</sup>		REVEG. CONCERN <sup>4</sup>	STONY/ROCKY SOIL	PRIME FARMLAND/ STATEWIDE <sup>2</sup>	SHALLOW BEDROCK <sup>5</sup>
				TEMP. ROW	PERM. ROW	LAYDOWN AREAS	ATWS	ERWA	TOTAL	WIND (INDEX / WEG)					WATER (K FACTOR / LAND CAPABILITY)					
Dragoon Compressor Station	Cochise County, AZ	Tubac Soils	42	54.8	6.4	-	-	-	61.2	100	Well Drained	Not rated	Not Hydric	Unknown / Unknown	Unknown / 7S	Yes	No	No	No	
Red Mountain Compressor Station	Luna County, NM	Mohave Sandy Clay Loam, 0 to 3 percent slopes	MU	70.05	6.2	-	-	-	76.25	98.5	Well Drained	Medium	Not Hydric	56 / 5	0.32 / 7C	Yes	No	No	No	
		Pintura-Berino complex, eroded	PB	1.2	-	-	-	-	1.2	1.5	Well Drained	Low	Not Hydric	250 / 1	0.20 / 7E	Yes	No	No	No	
17-mile loop line	El Paso County, TX	Dune Land	DU	2.72	18.04	7.36	7.94	6.19	42.25	18.69	Well Drained	Low	Not Hydric	250 / 1	0.10 / 8S	Yes	No	No	No	
		Hueco-Wink Association, hummocky	HW	3.53	24.33	-	5.03	26.89	59.78	26.44	Well Drained	Medium	Not Hydric	134 / 2	0.24 / 7E	Yes	No	No	No	
		Mimbres Association, level	MBA	0.11	0.64	-	0.00	0.22	0.97	0.43	Well Drained	High	Not Hydric	48 / 6	0.49 / 7C	Yes	No	No	No	
	Hudspeth County, TX	Simona Association, undulating	SMB	2.79	15.38	-	0.46	5.74	24.37	10.78	Well Drained	Low	Not Hydric	56 / 5	0.15 / 7E	Yes	No <sup>6</sup>	No	Yes: 7-20 inches to petrocalcic	
		Wink Association, level	WKA	5.61	33.78	-	3.76	15.09	58.24	25.76	Well Drained	Medium	Not Hydric	86 / 3	0.20 / 7E	Yes	No	No	No	
	Hudspeth County, TX	Chispa-Tenneco complex, 0 to 8 percent slopes	CPC	2.36	0.00	0.02	0.50	1.36	4.24	1.88	Well Drained	Medium	Not Hydric	86 / 3	0.17 / 6S (Chispa), 6 C (Tenneco)	Yes	No	No	No	
		Culberspeth-Chilicotal complex, 1 to 8 percent slopes	CVC	10.74	17.16	6.08	0.72	1.53	36.23	16.03	Well Drained	Medium	Not Hydric	56 / 5	0.24 / 7S (Culberspeth), 6S (Chilicotal)	Yes	Yes	No	No	

1 – See Section 7.2.3.2

2 – As designated by the NRCS

3 – See Section 7.2.3.4

4 – Includes coarse-textured soils (sandy loams and coarser) that are moderately well to excessively drained and soils with an average slope greater than or equal to 9 percent

5 – Includes soils that have bedrock within 60 inches of the soil surface

6 – Although the soil contains more than 5 percent rock fragments, the fragments are not greater than 3 inches across

**TABLE 7-2 17-MILE LOOP LINE DETAILED SOIL MAP UNITS BY MILEPOST**

BEGINNING MILEPOST	ENDING MILEPOST	LENGTH CROSSED (FEET)	SOIL MAP UNIT
174.54	174.7	640.2	Chispa-Tenneco Complex, 0 to 8 percent slopes
174.7	174.8	321.7	Culberspeth-Chilicotal Complex, 1 to 8 percent slopes
174.8	174.9	456.5	Chispa-Tenneco Complex, 0 to 8 percent slopes
174.9	175	767.0	Culberspeth-Chilicotal Complex, 1 to 8 percent slopes
175	175.2	721.0	Chispa-Tenneco Complex, 0 to 8 percent slopes
175.2	177.5	12,590.2	Culberspeth-Chilicotal Complex, 1 to 8 percent slopes
177.5	179.4	10,057.9	Simona Association, undulating
179.4	179.5	460.6	Mimbres Association, level
179.5	181.9	12,462.7	Wink Association, level
181.9	182.1	1,064.3	Simona Association, undulating
182.1	183.1	5,408.1	Wink Association, level
183.1	183.6	2,775.3	Hueco-Wink Association, hummocky
183.6	184.5	4,562.9	Wink Association, level
184.5	185.1	3,452.9	Hueco-Wink Association, hummocky
185.1	186.0	4,697.4	Dune Land
186.0	187.0	5,205.4	Hueco-Wink Association, hummocky
187.0	187.4	2,239.9	Wink Association, level
187.4	187.7	1,455.6	Hueco-Wink Association, hummocky
187.7	189.0	6,665.7	Dune Land
189.0	191.5	13,608.7	Hueco-Wink Association, hummocky

**TABLE 8-1 17-MILE LOOP LINE LAND REQUIREMENTS**

Facility	County, State	Milepost(s)	Temporary Construction Land Use (acres)	Permanent Operational Land Use (acres)	Total (acres)
New permanent ROW for 17 miles of buried pipeline, MLV 1, MLV 2, and pig launchers/receivers	El Paso and Hudspeth, Texas	174.5-191.5	0	109.4	109.4
Existing ROW Work Area (ERWA)	El Paso and Hudspeth, Texas	variable locations between 174.5 and 191.5	44.8	12.2	57.0
Temporary Workspace (TWS)	El Paso and Hudspeth, TX	variable locations between 174.5 and 191.5	27.9	0	27.9
ATWS at road and wash crossings	El Paso and Hudspeth, TX	variable locations between 174.5 and 191.5	18.4	0	18.4
Contractor/pipe yards	El Paso, TX	n/a	24.7	0	24.7
Staging Areas	El Paso and Hudspeth, TX	188.0 and 174.5	13.5	0	13.5
Access roads	El Paso and Hudspeth, TX	variable between 174.5 and 191.5	0.3	27.8	28.1
<b>Total</b>			<b>129.6</b>	<b>149.4</b>	<b>279.0</b>

**TABLE 8-2 17-MILE LOOP LINE EXISTING ADJACENT RIGHTS OF WAY**

Facility	County, State	MP Begin	MP End	ROW Type	Position relative to loop line	Width of adjacent ROW (feet)	Existing width of ROW used for temporary construction (feet)	Existing width of ROW used permanently for loop line (feet)
Permanent Pipeline	Hudspeth, TX	174.5	175.2	EPNG Fee Owned Property	New loop line located within EPNG owned property	80'	30	~30
Permanent Pipeline ROW	Hudspeth, TX	175.2	177.8	Texas State Right of Way	Southern boundary of ROW is 30 feet north of loop line	80	0	0
Permanent Pipeline ROW	El Paso, TX	177.8	189	Easement	Adjacent and southern boundary of ROW is 10 feet north of loop line, except 20' north from MP 188.5 to 189	120	20' from MP 189.3 to 190.8	0
Permanent Pipeline ROW	El Paso, TX	189	191.1	Easement	New loop line disturbance contained within existing ROW	120	90	~40
New mainline valve No. 20-3/4	Hudspeth, TX	174.5	174.5	EPNG Fee Owned Property	Facility located inside existing Fee Owned Property	Fee Owned Property	60	60' wide by 100' long
New mainline	El Paso, TX	191.1	191.1	Easement	Adjacent and	~120	60	60' wide by 140'



Facility	County, State	MP Begin	MP End	ROW Type	Position relative to loop line	Width of adjacent ROW (feet)	Existing width of ROW used for temporary construction (feet)	Existing width of ROW used permanently for loop line (feet)
valve No. 23					overlapping N. side of loop line			long

**TABLE 8-3 17-MILE LOOP LINE ADDITIONAL TEMPORARY WORK SPACES, CONTRACTOR YARDS, AND LAYDOWN AREAS**

Facility ID	County, State	Milepost at Midpoint	Dimensions	Reason Needed	Area (Acres)	Existing Land Use
ATWS-1	Hudspeth, TEXAS	174.61	25' X 311'	WASH AREA	0.18	Shrub/Scrub
ATWS-2	Hudspeth, TEXAS	175.11	61' X 364'	PIPELINE CROSSING/PI WORK SPACE/WASH	0.51	Shrub/Scrub
ATWS-3	Hudspeth, TEXAS	176.22	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-4	Hudspeth, TEXAS	176.26	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-5	Hudspeth, TEXAS	176.99	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-6	Hudspeth, TEXAS	177.03	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-7	Hudspeth, TEXAS	177.35	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-8	Hudspeth, TEXAS	177.38	25' X 277'	ROAD CROSSING	0.16	Barren Land (Rocks/Sand/Clay)
ATWS-9	Hudspeth, TEXAS	177.62	25' X 307'	WASH AREA	0.18	Shrub/Scrub
ATWS-10	Hudspeth, TEXAS	177.77	25' X 110'	ROAD BORE/ACCESS ROW	0.07	Barren Land (Rocks/Sand/Clay)
ATWS-11	Hudspeth, TEXAS	177.80	25' X 140'	ROAD BORE/ACCESS ROW	0.08	Barren Land (Rocks/Sand/Clay)
ATWS-12	EL PASO, TEXAS	179.80	25' X 528'	ROAD BORE/ACCESS ROW/WASH	0.29	Barren Land (Rocks/Sand/Clay)
ATWS-13	EL PASO, TEXAS	179.88	25' X 125'	ROAD CROSSING	0.07	shrub/Scrub
ATWS-14	EL PASO, TEXAS	179.99	40' X 544'	PI'S/ROAD CROSSING	0.50	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-15	EL PASO, TEXAS	180.50	25' X 402'	WASH AREAS	0.23	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-16	EL PASO, TEXAS	180.74	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-17	EL PASO, TEXAS	180.76	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-18	EL PASO, TEXAS	181.03	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-19	EL PASO, TEXAS	181.06	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub

Facility ID	County, State	Milepost at Midpoint	Dimensions	Reason Needed	Area (Acres)	Existing Land Use
ATWS-20	EL PASO, TEXAS	181.33	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-21	EL PASO, TEXAS	181.35	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-22	EL PASO, TEXAS	181.53	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-23	EL PASO, TEXAS	181.55	25' X 281'	ROAD CROSSING	0.16	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-24	EL PASO, TEXAS	181.61	25' X 309'	ROAD CROSSING	0.18	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-25	EL PASO, TEXAS	181.67	25' X 327'	ROAD CROSSING	0.19	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-26	EL PASO, TEXAS	181.74	25' X 282'	ROAD CROSSING	0.16	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-27	EL PASO, TEXAS	181.80	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-28	EL PASO, TEXAS	182.00	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-29	EL PASO, TEXAS	182.03	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-30	EL PASO, TEXAS	182.37	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-31	EL PASO, TEXAS	182.39	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-32	EL PASO, TEXAS	182.67	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-33	EL PASO, TEXAS	182.70	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-34	EL PASO, TEXAS	183.09	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-35	EL PASO, TEXAS	183.12	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-36	EL PASO, TEXAS	183.50	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-37	EL PASO, TEXAS	183.54	25' X 125'	ROAD CROSSING	0.07	Barren Land

Facility ID	County, State	Milepost at Midpoint	Dimensions	Reason Needed	Area (Acres)	Existing Land Use
						(Rocks/Sand/Clay), Shrub/Scrub
ATWS-38	EL PASO, TEXAS	183.61	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-39	EL PASO, TEXAS	183.64	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-40	EL PASO, TEXAS	183.82	25' X 522'	WASH AREA	0.30	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-41	EL PASO, TEXAS	183.92	25' X 125'	ROAD CROSSING	0.08	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-42	EL PASO, TEXAS	183.95	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-43	EL PASO, TEXAS	184.23	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-44	EL PASO, TEXAS	184.26	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-45	EL PASO, TEXAS	184.34	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-46	EL PASO, TEXAS	184.37	25' X 125'	ROAD CROSSING	0.07	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
ATWS-47	EL PASO, TEXAS	184.75	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-48	EL PASO, TEXAS	184.78	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-49	EL PASO, TEXAS	184.86	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-50	EL PASO, TEXAS	184.88	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-51	EL PASO, TEXAS	185.02	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-52	EL PASO, TEXAS	185.05	25' X 125'	ROAD CROSSING	0.07	Grassland/Herbaceous
ATWS-53	EL PASO, TEXAS	185.24	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-54	EL PASO, TEXAS	185.27	25' X 272'	ROAD CROSSING	0.16	Shrub/Scrub, Grassland/Herbaceous
ATWS-55	EL PASO, TEXAS	185.32	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-56	EL PASO, TEXAS	185.49	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-57	EL PASO, TEXAS	185.51	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub, Grassland/Herbaceous
ATWS-58	EL PASO, TEXAS	185.79	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub

Facility ID	County, State	Milepost at Midpoint	Dimensions	Reason Needed	Area (Acres)	Existing Land Use
ATWS-59	EL PASO, TEXAS	185.92	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-60	EL PASO, TEXAS	186.02	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-61	EL PASO, TEXAS	186.04	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-62	EL PASO, TEXAS	186.29	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-63	EL PASO, TEXAS	186.31	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-64	EL PASO, TEXAS	186.38	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-65	EL PASO, TEXAS	186.40	25' X 59'	ROAD CROSSING	0.03	Shrub/Scrub
ATWS-66	EL PASO, TEXAS	186.42	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-67	EL PASO, TEXAS	186.75	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-68	EL PASO, TEXAS	186.78	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-69	EL PASO, TEXAS	186.86	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-70	EL PASO, TEXAS	186.88	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-71	EL PASO, TEXAS	187.06	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-72	EL PASO, TEXAS	187.09	25' X 125'	ROAD CROSSING	0.07	Shrub/Scrub
ATWS-73	EL PASO, TEXAS	187.32	25' X 236	PIPELINE CROSSINGS	0.14	Shrub/Scrub, Grassland/Herbaceous
ATWS-74	EL PASO, TEXAS	188.06	25' X 125'	ROAD BORE/ACCESS ROW	0.07	Shrub/Scrub
ATWS-75	EL PASO, TEXAS	188.57	134' X 3,630'	EXTRA SPACE FOR SAND DUNE AREA	7.22	Shrub/Scrub
ATWS-76	EL PASO, TEXAS	189.49	20' X 115'	ROAD BORE/ACCESS ROW	0.05	Shrub/Scrub
ATWS-77	EL PASO, TEXAS	190.02	5' X 221'	TEMPORARY WORKSPACE/SPOIL DIRT	0.03	Shrub/Scrub
ATWS-78	EL PASO, TEXAS	190.25	20' X 803'	TEMPORARY WORKSPACE/SPOIL DIRT	0.38	Developed (Low Intensity), Developed (Open Space), Shrub/Scrub
ATWS-79	EL PASO, TEXAS	190.73	140' X 529'	ROAD BORE/ACCESS ROW	1.24	Developed (Open Space), Shrub/Scrub
ATWS-80	EL PASO, TEXAS	190.89	10' X 1016'	ROAD BORE/ACCESS ROW	0.24	Shrub/Scrub
ATWS-81	EL PASO, TEXAS	191.11	85' X 250'	HDD BORE PIT AREA	0.48	Shrub/Scrub, Grassland/Herbaceous
ATWS-82	EL PASO, TEXAS	191.32	25' X 1947'	HDD PULL BACK	1.10	Barren Land (Rocks/Sand/Clay), Shrub/Scrub, Grassland/Herbaceous
ATWS-83	EL PASO, TEXAS	191.52	25' X 143'	ROAD CROSSING/ACCESS ROW	0.08	Barren Land (Rocks/Sand/Clay), Shrub/Scrub
Contractor/Pipe Yard 1	El Paso, TX	N/A	344' x 520'	Pipe Storage Area	4.10	Developed (Open Space), Developed (Low Intensity), Barren Land (Rock/Sand/Clay), Shrub/Scrub,

Facility ID	County, State	Milepost at Midpoint	Dimensions	Reason Needed	Area (Acres)	Existing Land Use
						Grassland/Herbaceous
Contractor/Pipe Yard 2	El Paso, TX	N/A	345' x 644'	Pipe Storage Area	5.16	Shrub/Scrub
Contractor/Pipe Yard 3	El Paso, TX	N/A	317' x 693'	Pipe Storage Area	5.05	Shrub/Scrub, Grassland/Herbaceous
Contractor Yard/Pipe 4	El Paso, TX	N/A	315' x 639'	Pipe Storage Area	5.00	Shrub/Scrub, Grassland/Herbaceous

Facility ID	County, State	Milepost at Midpoint	Dimensions	Reason Needed	Area (Acres)	Existing Land Use
Contractor Yard 5	El Paso, TX	N/A	344' x 677'	Pipe Storage Area	5.34	Developed (Open Space), Developed (Low Intensity), Developed (Medium Intensity), Developed (High Intensity)
Staging Area 1	Hudspeth, TX	174.54	498' x 534'	Staging Area	6.10	Shrub/Scrub
Staging Area 2	El Paso, TX	187.95	424' x 857'	Staging Area	7.36	Shrub/Scrub, Grassland/Herbaceous

**TABLE 8-4 17-MILE LOOP LINE ACCESS ROADS**

Purpose of Use	County, State	Milepost	Road Name	Proposed Modification	Dimensions	Construction Use (acres)	Operational Use (acres)	Existing Land Use
Permanent Access Road	Hudspeth, TX	174.5-177.8	AR-1	Grade up to 20 feet wide	20 feet wide by 3.4 miles	8.3	8.3	Dirt road
	El Paso, TX	177.8-191.1	AR-1	Grade up to 20 feet wide	20 feet wide by 8.0 miles	19.5	19.5	Dirt road
Temporary Access Road	El Paso, TX	189.34	AR-31	Grade up to 20 feet wide	20 feet wide by 42 feet	0.02		Dirt road
	El Paso, TX	191.13-191.15	AR-38	None, entirely within ROW proposed for pipeline, which will be restored as part of the pipeline	variable			Dirt road
	El Paso, TX	191.28	AR-47	Grade up to 20 feet wide	20 feet wide by 151 feet	0.10		Dirt road
	El Paso, TX	191.01	AR-48	Grade up to 20 feet wide	20 feet wide by 270 feet	0.12		Dirt road
	El Paso, TX	192.01	AR-49	Grade up to 20 feet wide	20 feet wide by 132 feet	0.06		Dirt road
<b>Total</b>						<b>28.1</b>	<b>27.8</b>	

Note: all proposed access roads are currently existing. No new roadways would be construction as part of the project.

**TABLE 8-5 RED MOUNTAIN COMPRESSOR STATION LAND REQUIREMENTS**

Facility	County, State	Line No.1100 Milepost(s)	Temporary Construction Land Use (acres)	Permanent Operational Land Use (acres)	Land Requirements by Project Element (acres)
New compressor station, access road, and necessary auxiliary equipment	Luna, NM	305.3	72.0	6.2	78.2
				<b>Total</b>	<b>78.2</b>

**TABLE 8-6 DRAGON COMPRESSOR STATION LAND REQUIREMENTS**

Facility	County, State	Line No. 1100 Milepost(s)	Temporary Construction Land Use (acres)	Permanent Operational Land Use (acres)	Land Requirements by Project Element (acres)
New compressor station and necessary auxiliary equipment, and permanent access road	Cochise, AZ	406.9	54.8	6.4	61.2
				<b>Total</b>	<b>61.2</b>

**TABLE 8-7 LAND USE IN MILES BY PROJECT SITE AND LAND COVER TYPE**

Facility	County, State	Developed, Open Space (miles)	Developed, Low Intensity (miles)	Developed, Medium Intensity (miles)	Developed, High Intensity (miles)	Barren Land (miles)	Shrub / Scrub (miles)	Grassland / Herbaceous (miles)
17-mile Loop Line	El Paso, Texas	0.33	0.01	0	0.02	2.62	10.19	0.95
	Hudspeth, TX	0	0	0	0	0.09	2.81	0
Red Mountain Compressor Station	Luna, NM	0	0.04	0.11	0	0	0.35	0
Dragoon Compressor Station	Cochise, AZ	0	0	0	0	0	0.38	0
<b>Total</b>		<b>0.33</b>	<b>0.05</b>	<b>0.11</b>	<b>0.02</b>	<b>2.71</b>	<b>13.73</b>	<b>0.95</b>

**TABLE 8-8 17-MILE LOOP LINE RESIDENCES AND OTHER BUILDINGS WITHIN 50 FEET OF CONSTRUCTION WORKSPACE**

Type of Building	County, State	Nearest Milepost	Position	Distance to Construction Work Area (feet)	Distance to Pipeline Centerline (feet)	<25' from Construction Work Area (Drawing #)
Unknown	El Paso, TX	189.37	S. side of PROW	22	42	Yes (1)
Residence	El Paso, TX	189.42	S. side of PROW	3	22	Yes (2)
Residence	El Paso, TX	189.47	S. side of ATWS	38	61	No
Unknown	El Paso, TX	189.53	N. side of PROW	27	122	No

Type of Building	County, State	Nearest Milepost	Position	Distance to Construction Work Area (feet)	Distance to Pipeline Centerline (feet)	<25' from Construction Work Area (Drawing #)
Residence	El Paso, TX	189.53	S. side of PROW	44	64	No
Residence	El Paso, TX	189.62	S. side of PROW	36	55	No
Unknown	El Paso, TX	189.62	N. side of PROW	45	140	No
Residence	El Paso, TX	189.67	S. side of PROW	33	53	No
Unknown	El Paso, TX	189.67	S. side of PROW	22	42	Yes (3)
Residence	El Paso, TX	189.77	N. side of PROW	38	108	No
Unknown	El Paso, TX	189.79	S. side of ATWS	20	41	Yes (4)
Unknown	El Paso, TX	189.82	N. side of ATWS	38	113	No
Unknown	El Paso, TX	189.84	S. side of ATWS	21	42	Yes (5)
Unknown	El Paso, TX	189.85	S. side of ATWS	22	43	Yes (6)
Residence	El Paso, TX	189.87	S. side of PROW	40	60	No
Residence	El Paso, TX	189.96	S. side of PROW	30	50	No
Residence	El Paso, TX	189.98	S. side of PROW	40	60	No
Residence	El Paso, TX	190.04	S. side of ATWS	4	29	Yes (7)
Residence	El Paso, TX	190.07	S. side of PROW	12	37	Yes (8)
Unknown	El Paso, TX	190.09	S. side of PROW	6	25	Yes (9)
Residence	El Paso, TX	190.10	S. side of ATWS	22	42	Yes (10)
Residence	El Paso, TX	190.13	N. side of ATWS	45	140	No
Residence	El Paso, TX	190.16	S. side of PROW	20	40	Yes (11)
Residence	El Paso, TX	190.37	S. side of PROW	30	50	No
Residence	El Paso, TX	190.51	N. side of ATWS	8	104	Yes (12)
Residence	El Paso, TX	190.52	S. side of PROW	35	55	No
Mobile Home	El Paso, TX	190.63	N. side of PROW	5	102	Yes (13)
Unknown	El Paso, TX	190.67	N. side of ATWS	35	132	No
Unknown	El Paso, TX	190.73	N. side of ATWS	37	112	No
Unfinished	El Paso, TX	190.83	S. side of PROW	0*, (bore location)	7	Yes (14)
Residence	El Paso, TX	190.85	S. side of PROW	14	28	Yes (15)
Unknown	El Paso, TX	190.89	S. side of PROW	0*, (bore location)	0	Yes (16)
Unknown	El Paso, TX	190.89	S. side of PROW	33	44	No

\*EPNG's Land Department would work with the landowner to reduce any risk to the integrity, operation and maintenance of the pipeline.

**TABLE 8-9 17-MILE LOOP LINE LAND USE IMPACTS BY LAND COVER TYPE AND PROJECT ELEMENT**

Facility		Developed, Open Space		Developed, Low Intensity		Developed, Medium Intensity		Developed, High Intensity		Barren Land		Shrub/Scrub		Grassland/Herbaceous		Existing Roadway		Existing Pipeline ROW	
		Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)
New Permanent Pipeline ROW (including mainline valves and pig launchers / receivers)	El Paso, TX		0.2							16.03		70.64	6.02						
	Hudspeth, TX									0.17		16.34							
Overlap with Existing ROW	El Paso and Hudspeth, TX																		57.03
Temporary pipeline construction ROW	El Paso, TX								1.91		12.62		0.59						
	Hudspeth, TX								0.47		12.41								
ATWS at road and wash crossings	El Paso, TX	0.58		0.01				0.01		2.88		10.42		3.38					
	Hudspeth, TX									0.02		1.20							
Contractor/Pipe yards	El Paso, TX	4.16		2.60		0.28		0.20		1.07		14.52		1.93					
Staging Areas	El Paso, TX											7.11		0.29					
	Hudspeth, TX											6.13							
Access roads	El Paso, TX															0.31	19.47		
	Hudspeth, TX																	8.30	
<b>Total</b>		<b>4.74</b>	<b>0.2</b>	<b>2.61</b>		<b>0.28</b>		<b>0.21</b>		<b>6.35</b>	<b>16.20</b>	<b>64.41</b>	<b>86.98</b>	<b>12.21</b>		<b>0.31</b>	<b>27.77</b>		<b>57.03</b>

\* Note: land cover values reported in this table reflect a broadly defined nationwide land cover dataset (MRLC 2018) (totals may differ slightly due to rounding errors), which may not fully describe the current physical conditions on-site, which are more fully described in *Resource Report 03 – Fish, Wildlife, and Vegetation*.

**TABLE 8-11 DRAGOON COMPRESSOR STATION LAND USE IMPACTS BY LAND COVER TYPE AND PROJECT ELEMENT**

Facility	Developed, Open Space		Developed, Low Intensity		Developed, Medium Intensity		Developed, High Intensity		Shrub/Scrub		Grassland/Herbaceous		Total	
	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)
New compressor station, above ground appurtenances, access road	10.5	2.0	1.6	0.0	2.1	0.0	1.5	0.0	37.4	4.4	1.7	0.0	54.8	6.4



**TABLE 8-10 RED MOUNTAIN COMPRESSOR STATION LAND USE IMPACTS BY LAND COVER TYPE AND PROJECT ELEMENT**

Facility	Developed, Open Space		Developed, Low Intensity		Developed, Medium Intensity		Developed, High Intensity		Shrub/Scrub		Total	
	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)	Temporary Construction Impacts (acres)	Permanent / Operational Impacts (acres)
New compressor station, above ground appurtenances, access road	0.7	0.0	5.3	0.0	7.5	0.0	1.4	0.0	57.1	6.2	72.0	6.2

**Table 10-1 Comparison of Routes for the Homestead Meadows Subdivision**

Factor	Proposed Route	Alternative 1 (Route Variation)	Information Sources
Length (miles)	17	19	EPNG
Length adjacent to existing EPNG ROW (miles)	17	12.8	EPNG
Length adjacent to other utility or road ROWs (miles)	17	16.1	EPNG
Construction ROW (acres)	212.7	230.0	EPNG
Permanent ROW (acres)	109.4	119.6	EPNG
Construction impact on residential land (acres)	9.5	0.0	Aerial Imagery
Land parcels crossed (number)	512	Not available	El Paso County Assessor's Office
Residential or commercial buildings within 50/25 feet of construction ROW (number)	28/12	1/0	Aerial Imagery
Residential or commercial buildings within 50/25 feet of permanent ROW (number)	28/12	1/0	Aerial Imager

**Table 10-2 Estimated Potential Impacts for Dragoon Compressor Station Site Alternatives**

SITING VARIABLE	WEST ALTERNATIVE SITE	EAST ALTERNATIVE SITE (PREFERRED SITE)
<b>Engineering/Feasibility</b>		
Length of interconnecting pipe needed (feet)	0	~1,500
Proximity to existing access points/roads (feet)	~2,000	Adjacent
<b>Study Area</b>		
Parcel size (acres)	40	40
<b>Wetland and Water Resources</b>		
Wetlands (acres)	0	0
Surface waters (number)	0	0
<b>Groundwater and Floodplains</b>		
Groundwater wells within 150 feet (number)	1	3 (on-site)
Sole-source aquifers (number)	0	0
<b>Sensitive Species</b>		
Federally listed species with potential to occur	No	No
State-listed species with potential to occur	No	No
Migratory birds with potential to occur	Yes	Yes

Sensitive Wildlife Resource Areas		
Critical habitat	No	No
Wildlife refuges and preserves	No	No
Cultural Resources		
National Register of Historic Places–eligible sites	No historic properties affected	No historic properties affected
Known archaeological sites	No eligible sites	No eligible sites
Soils		
Prime farmland (acres)	0 (fallow unirrigated)	0
Geologic Features		
Steep slopes/extreme topography (acres)	0	0
Karst areas/sinkholes/subsidence (acres)	40 (potential for subsidence due to agricultural groundwater drawdown)	0
High landslide potential (yes/no)	None	None
Faults/high-seismicity areas (number)	None	None
Shallow bedrock (yes/no)	None	None
Land Use on Parcel (acres)		
Current use	Fallow agricultural and two pipeline corridors	Lands previously disturbed by the Willcox Compressor Station
Other Land Use Considerations		
Residences within 100 feet (number)	0	0
Other structures within 100 feet (number)	0	1 (existing compressor station)
Conservation Lands within 0.25 mile (yes/no)		
Nature Conservancy Lands	None	None
U.S. Department of Agriculture Conservation Program Lands	None	None
Important Bird Areas	None	None
Existing Rights-of-Way (number) on Parcel		
Railroads	0	0
Roads	0	1 (existing access road)
Transmission lines	0	0
Pipelines	2	3
Environmental Sites within 0.25 mile (number)		
Landfills	0	0
U.S. Environmental Protection Agency–regulated facilities	0	0

SITING VARIABLE	WEST ALTERNATIVE SITE	EAST ALTERNATIVE SITE (PREFERRED SITE)
<b>Land Ownership</b>		
Public (percent)	0	0
Private (percent)	100	100
Landowner willing to sell (yes/no)	yes	N/A (owned by EPNG)
<b>Sensitive Visual / Noise Receivers (approximate distance in feet)</b>		
Residences	2,200 (winery); 2,850 (residence)	2,150 (residence)
Roadways	2,600	0

**TABLE 11-1 STATISTICS OF ACCIDENTAL DEATHS**

TYPE OF ACCIDENT (YEAR)	NUMBER OF FATALITIES NATIONWIDE
Motor vehicles (highways; 2015)	35,092
Falls (2014)	31,959
Exposure to smoke, fire, and flames (2014)	2,701
Aviation (2015)	415
Accidental poisoning and exposure to noxious substances (2014)	42,032
Accidental drowning and submersion (2014)	3,406
Tornadoes and floods (2016)	144
Lightning (2016)	38
Natural gas pipelines (2015)	12

Sources: Centers for Disease Control (2016); National Transportation Safety Board (2017); National Weather Service (2017); USDOT (2017)



El Paso Natural Gas  
Company, L.L.C.  
a Kinder Morgan company

# **EPNG South Mainline Expansion Project CP18-332-000**

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**DATA REQUEST DATED: 6/8/18  
RESPONSE TO REQUEST NO. 71  
MICROSOFT WORD VERSION OF ENVIRONMENTAL RESOURCE REPORT TABLES  
RR9**

**RESOURCE REPORT 9 - AIR AND NOISE QUALITY SUMMARY OF FILING INFORMATION**

380.12 (K) FULL FILING REQUIREMENTS	FOUND IN SECTION
(1) Describe the existing air quality, including background levels of nitrogen dioxide and other criteria pollutants which may be emitted above U.S. Environmental Protection Agency-identified significance levels.	9.3.4
(2) Quantitatively describe existing noise levels at noise-sensitive areas, such as schools, hospitals, or residences and include any areas covered by relevant state or local noise ordinances. - (i) Report existing noise levels as the $L_{eq}$ (day), $L_{eq}$ (night), and $L_{dn}$ and include the basis for the data or estimates. - (ii) For existing compressor stations, include the results of a sound level survey at the site property line and nearby noise-sensitive areas while the compressors are operated at full load. - (iii) For proposed new compressor station sites, measure or estimate the existing ambient sound environment based on current land uses and activities. - (iv) Include a plot plan that identifies the locations and duration of noise measurements, the time of day, weather conditions, wind speed and direction, engine load, and other noise sources present during each measurement.	9.4.3
(3) Estimate the impact of the project on air quality, including how existing regulatory standards would be met. - (i) Provide the emission rate of nitrogen oxides from existing and proposed facilities, expressed in pounds per hour and tons per year for maximum operating conditions, include supporting calculations, emission factors, fuel consumption rates, and annual hours of operation. - (ii) For major sources of air emissions (as defined by the U.S. Environmental Protection Agency), provide copies of applications for permits to construct (and operate, if applicable) or for applicability determinations under regulations for the prevention of significant air quality deterioration and subsequent determinations.	9.3.3 9.3.7 Appendix 9.A Appendix 9.B
(4) Provide a quantitative estimate of the impact of the project on noise levels at noise-sensitive areas, such as schools, hospitals, or residences. - (i) Include step-by-step supporting calculations or identify the computer program used to model the noise levels, the input and raw output data and all assumptions made when running the model, far-field sound level data for maximum facility operation, and the source of the data. - (ii) Include sound pressure levels for unmuffled engine inlets and exhausts, engine casings, and cooling equipment; dynamic insertion loss for all mufflers; sound transmission loss for all compressor building components, including walls, roof, doors, windows and ventilation openings; sound attenuation from the station to nearby noise-sensitive areas; the manufacturer's name, the model number, the performance rating; and a description of each noise source and noise control component to be employed at the proposed compressor station. For proposed compressors the initial filing must include at least the proposed horsepower, type of compression, and energy source for the compressor. - (iii) Far-field sound level data measured from similar units in service elsewhere, when available, may be substituted for manufacturer's far-field sound level data. - (iv) If specific noise control equipment has not been chosen, include a schedule for submitting the data prior to certification. - (v) The estimate must demonstrate that the project will comply with applicable noise regulations and show how the facility will meet the following requirements: a. (A) The noise attributable to any new compressor station, compression added to an existing station, or any modification, upgrade or update of an existing station, must not exceed a day-night sound level ( $L_{dn}$ ) of 55 decibels on the A-weighted scale at any pre-existing noise-sensitive area (such as schools, hospitals, or residences). b. (B) New compressor stations or modifications of existing stations shall not result in a perceptible increase in vibration at any noise-sensitive area.	9.1 9.2 9.4 Appendix 9.D
(5) Describe measures and manufacturer's specifications for equipment proposed to mitigate impact to air and noise quality, including emission control systems, installation of filters, mufflers, or insulation of piping and buildings, and orientation of equipment away from noise-sensitive areas.	9.3.6.1 9.3.7.3 Appendix 9.B Appendix 9.D

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**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-1 PROPOSED PROJECT FACILITIES**

Facility ID	County, State	Facility Description
<b>State of New Mexico</b>		
New Red Mountain Compressor Station	Luna County, New Mexico	(1) Solar Mars 90S natural gas turbine (1) Caterpillar G3512, G3516TA or similar hp rated emergency generator engine (1) Used oil (1) Lube oil tank
<b>State of Arizona</b>		
New Dragoon Compressor Station	Cochise County, Arizona	(1) Solar Mars 90S natural gas turbine (1) Caterpillar G3512, G3516TA or similar hp rated emergency generator engine (1) Used oil/waste water tank (1) Lube oil tank
<b>State of Texas</b>		
17-mile loop line extension	Hudspeth and El Paso Counties, Texas	17 miles of 30-inch-diameter pipeline

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-2 NATIONAL AIR QUALITY STANDARDS**

Pollutant	Averaging Period	National Standards				Format of Standard
		Primary <sup>1</sup>		Secondary <sup>2</sup>		
		(ppm)	(µg/m3)	(ppm)	(µg/m3)	
CO	1-hour	35	40,000	N/A	N/A	Not to be exceeded more than once per year
	8-hour	9	10,000	N/A	N/A	Not to be exceeded more than once per year

Pollutant	Averaging Period	National Standards				Format of Standard
		Primary <sup>1</sup>		Secondary <sup>2</sup>		
		(ppm)	(µg/m3)	(ppm)	(µg/m3)	
NO <sub>2</sub>	1-hour	0.1	188	N/A	N/A	98th percentile of annual 1-hour daily maximum concentrations, averaged over 3 years
	Annual	0.053	100	0.053	100	Annual mean
O <sub>3</sub>	8-hour	0.07	N/A	0.07	N/A	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
PM <sub>2.5</sub>	24-hour	N/A	35	N/A	35	Annual 98th percentile of 24-hour maximum concentrations, averaged over 3 years
	Annual	N/A	12	N/A	15	Annual mean averaged over 3 years
PM <sub>10</sub>	24-hour	N/A	150	N/A	150	Not to be exceeded more than once per year on average over 3 years

Pollutant	Averaging Period	National Standards				Format of Standard
		Primary <sup>1</sup>		Secondary <sup>2</sup>		
		(ppm)	(µg/m <sup>3</sup> )	(ppm)	(µg/m <sup>3</sup> )	
Pb	Rolling 3-month	N/A	0.15	N/A	0.15	Not to be exceeded
SO <sub>2</sub>	1-hour	0.075	196	N/A	N/A	99th percentile of annual 1-hour daily maximum concentrations, averaged over 3 years
	3-hour	N/A	N/A	0.5	1,300	Not to be exceeded more than once per year

Source: EPA 2017b (<https://www.epa.gov/criteria-air-pollutants/naaqs-table>)

<sup>1</sup> Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state’s implementation plan is approved by the EPA.

<sup>2</sup> Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

ppm: parts per million

µg/m<sup>3</sup>: micrograms per cubic meter

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-3 NATIONAL AND NEW MEXICO AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Period	NAAQS				NMAAQS <sup>3</sup>		Format of Standard
		Primary <sup>1</sup>		Secondary <sup>2</sup>		(ppm)	(µg/m <sup>3</sup> )	
		(ppm)	(µg/m <sup>3</sup> )	(ppm)	(µg/m <sup>3</sup> )			
CO	1-hour	35	40,000	N/A	N/A	13.1	14,997.5	CO NAAQS are not to be exceeded more than once per year. NMAAQS are not to be exceeded.
	8-hour	9	10,000	N/A	N/A	8.7	9,960.1	CO NAAQS are not to be exceeded more than once per year. NMAAQS are not to be exceeded.

Pollutant	Averaging Period	NAAQS				NMAAQS <sup>3</sup>		Format of Standard
		Primary <sup>1</sup>		Secondary <sup>2</sup>		(ppm)	(µg/m <sup>3</sup> )	
		(ppm)	(µg/m <sup>3</sup> )	(ppm)	(µg/m <sup>3</sup> )			
NO <sub>2</sub>	1-hour	0.1	188	N/A	N/A	N/A	N/A	98th percentile of annual 1-hour daily maximum concentrations, averaged over 3 years
	24-hour	N/A	N/A	N/A	N/A	0.1	188.0	Highest 24-hour maximum concentration. Compliance with 1-hour NAAQS automatically demonstrates compliance with 24-hour NMAAQS.
	Annual	0.053	100	0.053	100	0.050	94.0	Annual mean
O <sub>3</sub>	8-hour	0.07	N/A	0.07	N/A	N/A	N/A	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
H <sub>2</sub> S	1-hour	N/A	N/A	N/A	N/A	0.0	13.9	Not to be exceeded more than once per year
	1/2-hour	N/A	N/A	N/A	N/A	0.1	139.3	For the Pecos-Permian Basin Intrastate AQCR

Pollutant	Averaging	NAAQS				NMAAQs <sup>3</sup>		Format of Standard
PM <sub>2.5</sub>	1/2-hour	N/A	N/A	N/A	N/A	0.03	41.8	For within 5-miles of the corporate limits of municipalities within the Pecos-Permian Basin AQCR
	24-hour	N/A	35	N/A	35	N/A	N/A	Annual 98th percentile of 24-hour maximum concentrations, averaged over 3 years
	Annual	N/A	12	N/A	15	N/A	N/A	Annual mean averaged over 3 years
PM <sub>10</sub>	24-hour	N/A	150	N/A	150	N/A	N/A	Not to be exceeded more than once per year on average over 3 years
Pb	Rolling 3-month	N/A	0.15	N/A	0.15	N/A	N/A	Not to be exceeded
	24-hour	N/A	N/A	N/A	N/A	N/A	150.0	Not to be exceeded
TSP	7-day	N/A	N/A	N/A	N/A	N/A	110.0	Not to be exceeded
	30-day	N/A	N/A	N/A	N/A	N/A	90.0	Not to be exceeded
	Annual	N/A	N/A	N/A	N/A	N/A	60.0	Annual geometric mean
SO <sub>2</sub>	1-hour	0.075	196	N/A	N/A	N/A	N/A	99th percentile of annual 1-hour daily maximum concentrations, averaged over 3 years
	3-hour	N/A	N/A	0.5	1300	N/A	N/A	Not to be exceeded more than once per year
	24-hour	N/A	N/A	N/A	N/A	0.1	261.9	
	Annual	N/A	N/A	N/A	N/A	0.0	52.4	Not to be exceeded more than once per year

Sources: EPA 2017b (<https://www.epa.gov/criteria-air-pollutants/naaq-table>)  
 NMAAQB 2017a ([https://www.env.nm.gov/wp-content/uploads/2017/01/NM\\_AirDispersionModelingGuidelines\\_8\\_August\\_2017.pdf](https://www.env.nm.gov/wp-content/uploads/2017/01/NM_AirDispersionModelingGuidelines_8_August_2017.pdf))

<sup>1</sup> Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the EPA.

<sup>2</sup> Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

<sup>3</sup> New Mexico Ambient Air Quality Standards: The levels of air quality established by the New Mexico Environmental Improvement Board to protect the public from soiling and nuisance effects of larger particulates and to protect the public health or adverse effects of a pollutant.

ppm: parts per million

µg/m<sup>3</sup>: micrograms per cubic meter

H<sub>2</sub>S: hydrogen sulfide

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-4 PREVENTION OF SIGNIFICANT DETERIORATION OF AIR QUALITY INCREMENTS, SIGNIFICANT IMPACT LEVELS, AND MONITORING OF DE MINIMIS CONCENTRATIONS**

Pollutant	Averaging Time	PSD Increments		SILs		Monitoring de Minimis Concentrations (µg/m <sup>3</sup> )
		Class I	Class II	Class I	Class II	
		(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	
CO	1-hour	N/A	N/A	N/A	2,000	N/A
	8-hour	N/A	N/A	N/A	500	575
NO <sub>2</sub>	1-hour	N/A	N/A	N/A	7.52	N/A

PM <sub>2.5</sub>	Annual	2.5	25	0.1	1	14
	24-hour	2	9	0.07	1.2	4
PM <sub>10</sub>	Annual	1	4	0.06	0.3	N/A
	24-hour	8	30	0.32	5	10
SO <sub>2</sub>	Annual	4	17	0.16	1	N/A
	1-hour	N/A	N/A	N/A	7.8	N/A
	3-hour	25	512	1	25	N/A
	24-hour	5	91	0.2	5	13
	Annual	2	20	0.08	1	N/A

Sources: 40 CFR 52.21(c), 61 *Federal Register* 38249, 40 CFR 51.165(b)(2), 40 CFR 52.21(i)(5)(i).

Notes: N/A = Not applicable; µg/m<sup>3</sup> = micrograms per cubic meter.

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-5 PROJECT FACILITIES AND REPRESENTATIVE WEATHER STATIONS**

Project Facility	Representative Weather Station
Red Mountain Compressor Station – Luna County, NM	Deming, NM US USC00292436
Dragoon Compressor Station – Cochise County, AZ	Willcox, AZ US USC00029334

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-6 CLIMATOLOGICAL CONDITIONS – DEMING, NEW MEXICO**

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Normal Daily Max Temperature (°F)	58.1	63.2	70.4	78.6	87.3	95.3	94.6	91.9	87.8	78.3	66.5	57.2	77.4
Normal Daily Min Temperature (°F)	27.1	30.4	35.2	41.6	50.2	59	64.3	63.1	56.4	45	33.2	27.3	44.4
Normal Daily Mean Temperature (°F)	42.6	46.8	52.8	60.1	68.8	77.1	79.5	77.5	72.1	61.6	49.8	42.2	60.9
Precipitation (inches)	0.53	0.6	0.32	0.34	0.25	0.53	1.99	2	1.17	0.94	0.67	0.9	10.24
Days with ≥ 0.10 inch Precipitation	2.0	1.8	1.0	0.7	0.7	1.4	4.4	4.9	2.9	2.6	1.9	2.9	27.2
Snowfall (inches)	0.8	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	2.1

Source: NCDC's 1981-2010 Climate Normals for DEMING, NM US USC00292436

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-7 CLIMATOLOGICAL CONDITIONS – WILLCOX, ARIZONA**

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Normal Daily Max Temperature (°F)	61.2	65.1	71.4	79.0	87.6	95.6	95.7	92.8	89.9	80.3	69.6	60.2	79.0
Normal Daily Min Temperature (°F)	28.4	31.2	35.0	40.2	48.5	57.0	64.7	63.7	56.5	44.4	33.4	27.5	44.2
Normal Daily Mean Temperature (°F)	44.8	48.2	53.2	59.6	68.0	76.3	80.2	78.3	73.2	62.3	51.5	43.9	61.6
Precipitation (inches)	1.09	0.93	0.68	0.33	0.39	0.46	2.61	2.53	1.18	1.16	0.71	1.25	13.32
Days with ≥ 0.10 inch Precipitation	2.8	2.6	2.1	0.9	0.9	1.1	6.0	5.8	3.1	2.4	1.8	3.1	32.6
Snowfall (inches)	0.8	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	2.7

Source: Data are 30-year averages (1981-2010) From NCDC LCD Annual Summary for Willcox, AZ US USC00029334.

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-7 BACKGROUND LEVELS OF CRITERIA POLLUTANTS FOR RED MOUNTAIN COMPRESSOR STATION SITE**

Pollutant	Averaging Period	Monitoring Station ID	Location		Rank	Monitored Concentration		
			City/State	Distance (miles)		(ppm)	(ppb)	(µg/m³)
CO <sup>1</sup>	1-hour	35-001-0023	Albuquerque, NM	214	2nd High Max. Avg.	--	--	1,787.86
	8-hour	35-001-0023	Albuquerque, NM	214	2nd High Max. Avg.	--	--	1,183.00
NO <sub>2</sub> <sup>2</sup>	1-hour	35-029-0003	Deming, NM	16.3	98th Percentile Avg.	--	--	53.277
	Annual	35-029-0003	Deming, NM	16.3	Arithmetic Mean	--	--	6.966
O <sub>3</sub> <sup>2</sup>	8-hour	35-029-0003	Deming, NM	16.3	4th High Max. Avg.	--	--	141.910
PM <sub>2.5</sub> <sup>3</sup>	24-hour	35-013-0025	Las Cruces, NM	71.8	98th Percentile Avg.	--	--	12.77
	Annual	35-013-0025	Las Cruces, NM	71.8	Arithmetic Mean Avg.	--	--	5.63
PM <sub>10</sub> <sup>4</sup>	24-hour	35-002-9001	Deming, NM	14.2	2nd High Max Avg.	--	--	46.50
SO <sub>2</sub> <sup>5</sup>	1-hour	35-017-1003	Hurley, NM	30.6	99th Percentile Avg.	--	--	1.7457
	24-hour	35-017-1003	Hurley, NM	30.6	2nd High Max. Avg.	--	--	--

Source: NMAQB 2017.

1 Data from Del Norte High School monitor for the years 2013–2015.

2 Data from 7E Deming Airport monitor for the years 2013–2015.

3 Data from 6Q Las Cruces monitor for the years 2013–2015.

4 Data from 7D Deming monitor for the years 2013–2015.

5 Data from 7T Hurley Smelter monitor for the years 2013–2015.

ppm: parts per million

µg/m<sup>3</sup>: micrograms per cubic meter

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-8 BACKGROUND LEVELS OF CRITEIA POLLUTANTS FOR DRAGOON COMPRESSOR STATION**

Pollutant	Averaging Period	Monitoring Station ID	Monitoring Station Name	Location			Rank	Monitored Concentration
				City/State	Distance (miles)	Direction from Compressor Station		(µg/m³)
CO	1-hour	04-019-1011	22nd & Craycroft	Tucson, AZ	69.4	W	2 <sup>nd</sup> High Max. Avg.	1,790.48
	8-hour	04-019-1011	22nd & Craycroft	Tucson, AZ	69.4	W	2 <sup>nd</sup> High Max. Avg.	914.29
NO <sub>2</sub>	1-hour	04-019-1011	22nd & Craycroft	Tucson, AZ	69.4	W	98 <sup>th</sup> Percentile Avg.	73.13
	Annual	04-019-1011	22nd & Craycroft	Tucson, AZ	69.4	W	Arithmetic Mean	16.53
PM <sub>2.5</sub>	24-hour	04-003-1005	Douglas Red Cross	Douglas, AZ	53.1	S	98 <sup>th</sup> Percentile Avg.	11.83
	Annual	04-003-1005	Douglas Red Cross	Douglas, AZ	53.1	S	Arithmetic Mean Avg.	5.43
PM <sub>10</sub>	24-hour	04-019-0008	Corona de Tucson	Corona de Tucson, AZ	64.4	W	2 <sup>nd</sup> High Max. Avg.	38.67
SO <sub>2</sub>	1-hour	04-019-1028	Children's Park NCore	Tucson, AZ	76.4	W	99 <sup>th</sup> Percentile Avg.	8.96
	24-hour	04-019-1028	Children's Park NCore	Tucson, AZ	76.4	W	2 <sup>nd</sup> High Max. Avg.	2.61

Source: EPA 2017c

- 1 Data from 22nd & Craycroft monitor for the years 2014–2016.
  - 2 Data from Chiricahua National Monument monitor for the years 2014–2016
  - 3 Data from Douglas Red Cross monitor for the years 2014–2016
  - 4 Data from Corona de Tucson monitor for the years 2014–2016.
  - 6 Data from Children's Park NCore monitor for the years 2014–2016
- µg/m³: micrograms per cubic meter

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-9 ESTIMATED RED MOUNTAIN COMPRESSOR STATION CONSTRUCTION SITE EMISSIONS**

Activity	Total Project Emissions (Tons per Year)						
	CO	NOX	VOC	SO2	PM10	PM2.5	CO2e*

Construction Equipment (Off-Road)	1.67	3.05	0.42	0.00	0.14	0.12	388
Worker and On-Road Construction Equipment Commuting	2.38	0.23	0.27	0.00	3.81	0.47	444
Equipment/Material Delivery	0.06	0.15	0.01	0.01	0.09	0.02	35
Fugitive Dust from Earthmoving	--	-	-	-	4.29	0.43	-
<b>TOTAL</b>	<b>4.11</b>	<b>3.42</b>	<b>0.69</b>	<b>0.02</b>	<b>8.33</b>	<b>1.04</b>	<b>867</b>

\*Note: CO2e is in metric tons.

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-10 ESTIMATED DRAGOON COMPRESSOR STATION CONSTRUCTION SITE EMISSION**

Activity	Total Project Emissions (Tons per Year)						
	CO	NO <sub>x</sub>	VOC	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2e</sub> *
Construction Equipment (Off-Road)	1.25	2.29	0.31	0.00	0.10	0.09	291
Worker and On-Road Construction Equipment Commuting	2.31	0.22	0.26	0.00	7.09	0.79	431
Equipment/Material Delivery	0.06	0.16	0.01	0.01	0.15	0.03	37
Fugitive Dust from Earthmoving	--	-	-	-	3.09	0.31	-
<b>TOTAL</b>	<b>3.61</b>	<b>2.67</b>	<b>0.58</b>	<b>0.02</b>	<b>10.44</b>	<b>1.23</b>	<b>759</b>

\*Note: CO2e is in metric tons.

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-11 ESTIMATED 17-MILE LOOP LINE CONSTRUCTION EMISSIONS**

Activity	Total Project Emissions (tons Per year)						
	CO	NO <sub>x</sub>	VOC	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2e</sub> *
Construction Equipment (Off-Road)	8.07	17.65	2.35	0.03	0.68	0.60	2,664
Worker and On-Road Construction Equipment Commuting	0.49	0.05	0.05	<0.01	16.12	1.63	92
Equipment/Material Delivery	0.05	0.12	<0.01	0.01	0.15	0.03	27
Fugitive Dust from Construction Operations	-	-	-	-	2.16	0.22	-
<b>TOTAL</b>	<b>8.61</b>	<b>17.82</b>	<b>2.41</b>	<b>0.04</b>	<b>19.11</b>	<b>2.48</b>	<b>2,783</b>

\*Note: CO2e is in metric tons

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-12 PROPOSED OPERATIONAL EMISSIONS AT RED MOUNTAIN COMPRESSOR STATION SITE**

Emission Source	Total Project Emissions (Tons per Year)						
	VOC <sup>g</sup>	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM/PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2e</sub>
Combustion Turbine – Normal Operation Emissions	14.76	25.36	25.75	6.53	4.19	4.9	49,504.05

Emission Source	Total Project Emissions (Tons per Year)						
	VOC <sup>g</sup>	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM/PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2e</sub>
Emissions from Maintenance, Startup and Shutdowns, and Malfunctions <sup>a</sup>	10.0	-	6.2	-	-	-	2,142.23
Emergency Generator Engine Emissions <sup>b</sup>	0.61	1.2	2.5	0.030	0.01	0.01	230.8
Fugitive Emissions	0.56	-	-	-	-	-	4.72
<b>TOTAL</b>	<b>25.32</b>	<b>25.36</b>	<b>31.95</b>	<b>6.53</b>	<b>4.19</b>	<b>4.19</b>	<b>51,621.00</b>
<b>Permitting Requirement Thresholds</b>							
<i>PSD Major Source Thresholds<sup>c</sup></i>	<i>250</i>	<i>250</i>	<i>250</i>	<i>250</i>	<i>250 / N/A<sup>f</sup></i>	<i>N/A<sup>e</sup></i>	<i>100,000<sup>d</sup></i>
<i>Title V Major Source Thresholds<sup>d</sup></i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100 / N/A<sup>f</sup></i>	<i>N/A<sup>e</sup></i>	<i>100,000<sup>d</sup></i>

a Emissions from Maintenance, Startup and Shutdowns, and Malfunctions includes combustion turbine startup and shutdown, blowdowns, and pigging emissions.  
 b Emergency engine emissions are not included in totals compared against the permitting requirement thresholds as this unit will operate for no more than 500 hours per year and will therefore be exempt from permitting per NMAC 20.2.72.202.B(3).  
 c The PSD major source thresholds were obtained from 40 CFR § 52.21(b)(1)(b) for areas in attainment of the NAAQS. HAP emissions are not covered by the PSD permitting program.  
 d The Title V major source thresholds were obtained from 40 CFR § 70.2 for areas in attainment of the NAAQS.  
 e Projects that are not subject to NSR/PSD review for a non-GHG pollutant are not subject to PSD review for GHG.  
 f There is no regulatory threshold for PM10 and PM2.5. PM10 and PM2.5 are accounted for by particulate matter ("PM") total  
 g VOC emissions are based on the Unburned Hydrocarbon (UHC) emission factor from Solar. Assumes 100% of UHC is VOC for purposes of PTE. This is extremely conservative and results in a higher PTE than those calculated for Dragoon Compressor Station, which were estimated utilizing the UHC emission factor multiplied by the VOC content of the fuel. Actual VOC emissions for Red Mountain will be much lower based on the VOC content of the fuel.

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT. -13 PROPOSED OPERATIONAL EMISSIONS AT DRAGOON COMPRESSOR STATION SITE**

Emission Source	Total Project Emissions (Tons per Year)						
	VOC <sup>e</sup>	NO <sub>x</sub>	CO	SO <sub>2</sub>	PM/PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2e</sub>
Combustion Turbine – Normal Operation Emissions	0.46	25.24	25.66	1.43	2.78	2.78	49,252.74
Combustion Turbine – Startup and Shutdown Emissions	0.45	0.10	6.20	0.03	0.06	0.06	101.80
Emergency Generator Engine Emissions	0.61	1.22	2.44	0.01	0.01	0.01	137.29
Fugitive Emissions	0.54	-	-	-	-	-	375.71
Unit Blowdown Emissions	7.69	-	-	-	-	-	5,319.55
Pig Launching and Receiving Emissions	0.02	-	-	-	-	-	11.79
<b>TOTAL</b>	<b>9.77</b>	<b>26.56</b>	<b>34.30</b>	<b>1.46</b>	<b>2.84</b>	<b>2.84</b>	<b>55,198.87</b>
<b>Permitting Requirement Thresholds</b>							
<i>PSD Significant Emissions Threshold<sup>a</sup></i>	<i>40</i>	<i>40</i>	<i>100</i>	<i>40</i>	<i>25 / 15</i>	<i>10</i>	<i>-</i>
<i>Title V Major Source Thresholds<sup>b</sup></i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100 / N/A<sup>c</sup></i>	<i>N/A<sup>c</sup></i>	<i>100,000<sup>d</sup></i>

a The PSD Significant Emissions thresholds were obtained from 40 CFR § 51.166(b)(23) for areas in attainment of the NAAQS. HAP emissions are not covered by the PSD permitting program.  
 b The Title V major source thresholds were obtained from 40 CFR § 70.2 for areas in attainment of the NAAQS. Although Dragoon is not a Title V major source, it is adjacent to an existing Title V major source and therefore subject to Title V permitting.  
 c There is no regulatory threshold for PM10 and PM2.5. PM10 and PM2.5 are accounted for by particulate matter ("PM") total  
 d Projects that are not subject to NSR/PSD review for a non-GHG pollutant are not subject to PSD review for GHG.  
 e VOC emissions are calculated using the emission factor for UHC from Solar multiplied by the VOC content in the fuel (3.11% by weight).



**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-14 PREDICTED IMPACTS OF EQUIPMENT AT RED MOUNTAIN COMPRESSOR STATION SITE**

Pollutant	Averaging Period	Modeled Maximum Impact	Background Monitor Concentration	Total	Standard/ NAAQS	Percent of Standard/ NAAQS	Unit
NO <sub>2</sub>	Annual <sup>a</sup>	0.79	-	0.79	1	79.5%	µg/m <sup>3</sup>
	1-hour <sup>b</sup>	98.52	-	98.52	188	52.4%	µg/m <sup>3</sup>
CO	8-hour <sup>c</sup>	1,876.41	-	1,876.41	9,960.1	18.8%	µg/m <sup>3</sup>
	1-hour <sup>c</sup>	2,226.88	-	2,226.88	14,997.5	14.8%	µg/m <sup>3</sup>
SO <sub>2</sub>	Annual <sup>a</sup>	0.23	-	0.23	1	22.7%	µg/m <sup>3</sup>
	3-hour <sup>a</sup>	10.00	-	10.00	25	40.0%	µg/m <sup>3</sup>
	1-hour <sup>b</sup>	17.39	-	17.39	196.4	8.9%	µg/m <sup>3</sup>
	24-hour <sup>d</sup>	5.10	-	5.10	91	5.6%	µg/m <sup>3</sup>
PM <sub>2.5</sub>	Annual <sup>a</sup>	0.15	-	0.15	0.3	48.8%	µg/m <sup>3</sup>
	24-hour <sup>b</sup>	3.38	12.77	16.15	35	46.1%	µg/m <sup>3</sup>

a Concentrations compared against significant levels.

b Maximum facility concentrations were above significant levels and are compared against NAAQS.

c Cumulative concentrations were compared against NMAAQS.

d Standard used was represent by PSD Class II thresholds.

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-15 PREDICTED IMPACTS OF EQUIPMENT AT DRAGOON COMPRESSOR STATION SITE**

Pollutant	Averaging Period	Modeled Maximum Impact	Background Monitor Concentration	Total	NAAQS	Percent of NAAQS	Unit
NO <sub>2</sub>	Annual	5.35	73.13	78.48	100	78.5%	µg/m <sup>3</sup>
	1-hour	57.08	16.53	73.61	188	39.2%	µg/m <sup>3</sup>
CO	8-hour	2,763.53	1,790.48	4,554.01	10,000	45.5%	µg/m <sup>3</sup>
	1-hour	3,070.59	914.29	3,984.87	40,000	10.0%	µg/m <sup>3</sup>
SO <sub>2</sub>	3-hour	1.69	2.61	4.31	1,300	0.3%	µg/m <sup>3</sup>
	1-hour	1.69	8.96	10.66	196	5.4%	µg/m <sup>3</sup>
PM <sub>10</sub>	24-hour	1.38	38.67	40.05	150	26.7%	µg/m <sup>3</sup>
PM <sub>2.5</sub>	Annual	0.23	5.43	5.66	12	47.2%	µg/m <sup>3</sup>
	24-hour	1.38	11.83	13.21	35	37.7%	µg/m <sup>3</sup>

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-16 PREDICTED IMPACTS OF EQUIPMENT AT DRAGOON COMPRESSOR STATION SITE**

Ambient Impacts from Existing Willcox CS	Ambient Impacts from Proposed Dragoon Site	Total Ambient Impacts	NAAQS	Percent Standard
( $\mu\text{g}/\text{m}^3$ ) <sup>1</sup>	( $\mu\text{g}/\text{m}^3$ )	( $\mu\text{g}/\text{m}^3$ )	( $\mu\text{g}/\text{m}^3$ )	%
173	3.4	176.4	188	94%

<sup>1</sup> From TSD for Class I Significant Revision No. 54971. Background concentration was included.

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-17 PREDICTED IMPACTS OF EQUIPMENT AT DRAGOON COMPRESSOR STATION SITE VS PSD CLASS II SIL**

Pollutant	Averaging Period	Modeled Maximum Impact	PSD Class II Significance Level	Significant Impact Area (meters)	Unit
NO <sub>2</sub>	Annual	5.35	1.00	500.00	µg/m <sup>3</sup>
	1-hour	57.08	7.52	748.00	µg/m <sup>3</sup>
CO	8-hour	2,763.53	500.00	485.00	µg/m <sup>3</sup>
	1-hour	3,070.59	2000.00	50.00	µg/m <sup>3</sup>
SO <sub>2</sub>	3-hour	1.69	25.00	-	µg/m <sup>3</sup>
	1-hour	1.69	7.80	-	µg/m <sup>3</sup>
PM <sub>10</sub>	24-hour	1.38	5.00	-	µg/m <sup>3</sup>
	Annual	0.23	1.00	-	µg/m <sup>3</sup>
PM <sub>2.5</sub>	Annual	0.23	0.30	-	µg/m <sup>3</sup>
	24-hour	1.38	1.20	56.00	µg/m <sup>3</sup>

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-18 PREDICTED IMPACTS OF EQUIPMENT AT DRAGOON COMPRESSOR STATION SITE AT CLASS I AREAS**

Pollutant	Averaging Period	Modeled Max Impact at Class 1 receiver	PSD Class I SIL	Class I PSD Increment	Max % PSD Increment	Unit
NO <sub>2</sub>	Annual	0.08	0.1	2.5	3.21%	µg/m <sup>3</sup>
CO	24-Hour	0.06	0.32	8.0	0.74%	µg/m <sup>3</sup>
	Annual	0.01	0.16	4.0	0.25%	µg/m <sup>3</sup>
SO <sub>2</sub>	3-Hour	0.05	1.0	25.0	0.21%	µg/m <sup>3</sup>
	24-hour	0.03	0.2	5.0	0.63%	µg/m <sup>3</sup>
	Annual	0.01	0.08	2.0	0.50%	µg/m <sup>3</sup>
PM <sub>2.5</sub>	24-Hour	0.06	0.07	2.0	2.98%	µg/m <sup>3</sup>
	Annual	0.01	0.06	1.0	0.99%	µg/m <sup>3</sup>

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-19 DOWNSTREAM GHG EMISSION CALCULATIONS**

Load Factor	Capacity (MMBtu/day)	GHG Emissions				
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	GHG Emissions	CO <sub>2</sub> e
		(tpy)	(tpy)	(tpy)	(tpy)	(tpy)
						CO <sub>2</sub> e (MT)

48%	22,282	495,323	9.3	0.9	495,333	495,835	449,813
100%	46,420	1,031,923	19.4	1.9	1,031,945	1,032,989	937,111

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-20 GLOBAL WARMING POTENTIALS (100-YEAR TIME HORIZON)**

NAME	CAS No.	Chemical Formula	GWP
Carbon Dioxide	124-38-9	CO2	1
Methane	74-82-8	CH4	25
Nitrous Oxide	10024-97-2	N2O	298

Source: Table A-1 in 40 CFR Part 98 - EPA Mandatory Reporting of Greenhouse Gases

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-21 DEFAULT EMISSION FACTORS AND HIGH HEAT VALUES FOR NATURAL GAS**

Fuel Type	Default High Heat Value	Default Emission Factors		
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
		MMBtu/scf	(kg/MMBtu)	(kg/MMBtu)
Natural Gas	0.001026	53.06	0.0010	0.0001

Source: Tables C-1 and C-2 in 40 CFR Part 98 - EPA Mandatory Reporting of Greenhouse Gases

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-8 AMBIENT NOISE MEASUREMENT LOCATIONS AT DRAGOON COMPRESSOR STATION SITE**

Measurement Position	Measurement Location	Environmental Noise at Location
Pos. 1: Near NSA #1	Residence located 2,320 feet WSW of Dragoon CS.	Willcox Station and the sound of birds and other animals (i.e., dogs barking, a rooster and chickens).
Pos. 2: Near NSA #2	Residence located 3,160 feet SW of Dragoon CS.	Willcox Station and the sound of birds and other animals (i.e., dogs barking, a rooster and chickens).
Pos. 3: Near NSA #3	Residences located 2,510 feet SSW of Dragoon CS.	Willcox Station and the sound of birds and other animals (i.e., dogs barking, a rooster and chickens).
Pos. 4: Near NSA #4	Residence located 2,150 feet S of Dragoon CS.	Willcox Station and the sound of birds and other animals (i.e., dogs barking, a rooster and chickens).
Pos 5: Near NSA #5	Residence located 2430 feet E of Dragoon CS.	Willcox Station and the sound of birds and other animals (i.e., dogs barking, a rooster and chickens).

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-9 WEATHER CONDITIONS DURING AMBIENT NOISE MEASUREMENTS AT DRAGOON COMPRESSOR STATION SITE**

Parameter	Value
Date:	November 15, 2017
Temperature:	39°F

Parameter	Value
Relative Humidity (“RH”):	65%
Wind Speed:	3-4 mph

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-10 EXISTING SOUND LEVEL MEASUREMENT RESULTS FOR DRAGOON COMPRESSOR STATION MEASUREMENT LOCATIONS**

Measurement Location	Date of Test	NSA Description	Distance and Direction From Site Center	A-Weighted Sound Levels (dBA)	
				Measured L <sub>eq</sub> (L <sub>d</sub> ) <sup>1</sup>	Equivalent L <sub>dn</sub> <sup>2</sup>
Pos. 1: Near NSA #1	11/15/2017	Residence	2,320 feet SW	37.6	44.0
Pos. 2: Near NSA #2	11/15/2017	Residence	3,160 feet SW	37.8	44.2
Pos. 3: Near NSA #3	11/15/2017	Residence	2,510 feet SSW	37.6	44.0
Pos. 4: Near NSA #4	11/15/2017	Residence	2,150 feet S	35.9	42.3
Pos. 5: Near NSA #5	11/15/2017	Residence	2,430 feet E	35.9	42.3

<sup>1</sup> Because Station could only be operated at 50% of full capacity during the survey (i.e., 1 of 2 units operated), 3.0 dB was added to the measured sound levels [i.e., 10\*log (1/0.50) = 3.0 dB] to represent the maximum estimated sound level at the surrounding NSAs if both Station compressor units were operated at full capacity

<sup>2</sup> L<sub>dn</sub> calculated by adding 6.4 dB to the measured L<sub>d</sub> since nighttime sound levels should be similar to the daytime sound levels.

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-11 AMBIENT NOISE MEASUREMENT LOCATIONS AT RED MOUNTAIN COMPRESSOR STATION MODIFICATION SITE**

Measurement Position	Measurement Location	Environmental Noise at Location
Pos 1: Front Gate	Located at the front entrance gate of the compressor station.	Birds, Insects and distant vehicle traffic.

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-12 WEATHER CONDITIONS DURING AMBIENT NOISE MEASUREMENTS AT RED MOUNTAIN COMPRESSOR STATION MODIFICATION SITE**

Parameter	Value
Date:	November 15, 2017
Temperature:	75°F
Relative Humidity:	14%
Wind Speed:	2-3 mph

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-13 EXISTING SOUND LEVEL MEASUREMENT RESULTS FOR RED MOUNTAIN COMPRESSOR STATION MEASUREMENT LOCATIONS**

Measurement Location	Date of Test	NSA Description	Distance and Direction From Site Center	A-Weighted Sound Levels (dBA)	
				Measured L <sub>eq</sub> (L <sub>d</sub> )	Equivalent L <sub>dn</sub>
Pos 1: Front Gate	11/15/2017	Not a NSA	5,280 feet S	32.9	39.3

<sup>1</sup> L<sub>dn</sub> calculated by adding 6.4 dB to the measured L<sub>d</sub> since nighttime sound levels should be similar to the daytime sound levels.

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-14 OPERATING EQUIPMENT NOISE DATA FOR THE DRAGOON COMPRESSOR STATION SITE**

SOURCE	SOUND POWER LEVELS (L <sub>w</sub> ) AT OCTAVE CENTER FREQUENCY (DBA)									TOTAL
	31.5	63	125	250	500	1K	2K	4K	8K	DBA
<i>Compressor Engine</i>										
Mechanical (Casing Radiation)	110	110	112	110	108	110	110	115	110	119
Turbine Exhaust	127	128	127	127	131	125	118	111	98	130
Air Intake	119	119	119	121	123	129	135	161	154	163
Gas Aftercooler	115	108	98	95	92	90	88	85	82	96
Lube Oil Cooler	105	102	96	94	92	90	88	85	82	96
Aboveground Gas Piping & Components	95	95	98	92	95	100	112	108	102	115
<i>Attenuation Elements (dB)</i>										
Compressor Engines Exhaust Silencer	5	15	25	35	40	40	35	25	20	
Metal Insulated Compressor Building	6	10	16	22	26	32	35	38	38	
Air Intake Silencer	1	4	10	20	30	40	50	60	50	

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-15 OPERATING EQUIPMENT NOISE DATA FOR THE RED MOUNTAIN COMPRESSOR STATION SITE**

SOURCE	SOUND POWER LEVELS (L <sub>w</sub> ) AT OCTAVE CENTER FREQUENCY (DBA)									TOTAL
	31.5	63	125	250	500	1K	2K	4K	8K	DBA
<i>Compressor Engine</i>										
Mechanical (Casing Radiation)	110	110	112	110	108	110	110	115	110	119
Turbine Exhaust	127	128	127	127	131	125	118	111	98	130
Air Intake	119	119	119	121	123	129	135	161	154	163
Gas Aftercooler	115	112	102	98	95	92	90	88	85	99
Lube Oil Cooler	105	102	96	94	92	90	88	85	82	96
Aboveground Gas Piping & Components	95	95	98	92	95	100	112	108	102	115
<i>Attenuation Elements (dB)</i>										
Compressor Engines Exhaust Silencer	3	12	22	30	35	35	30	25	20	
Metal Insulated Compressor Building	6	10	16	22	26	32	35	38	38	
Air Intake Silencer	1	4	10	20	30	40	50	60	50	

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-16 SOUND LEVEL OF TYPICAL NOISE SOURCES**

Noise Source (At A Given Distance Away From The Observer)	Scale of A-Weighted Sound Level* (dBA) <sup>2</sup>	Human Judgment of Noise Loudness (Relative to a Reference Loudness of 70 dB*)

Noise Source (At A Given Distance Away From The Observer)	Scale of A-Weighted Sound Level* (dBA) <sup>2</sup>	Human Judgment of Noise Loudness (Relative to a Reference Loudness of 70 dB*)
Military jet take -off with after-burner (50 feet) <sup>1</sup>	140	
Civil defense siren (100 feet)	130	
Commercial jet take-off (200 feet)	120	<u>Considered the Threshold of Pain</u> *32 times as loud
Pile driver (50 feet) Rock music concert environment	110	*16 times as loud
Ambulance siren (100 feet) Newspaper press (5 feet) Power lawn mower (3 feet)	100	<u>Considered Very Loud</u> *8 times as loud
Motorcycle (25 feet) Propeller plane flyover (1,000 feet) Diesel truck , 40 mph (50 feet)	90	*4 times as loud
Garbage disposal l (3 feet) High urban environment	80	*2 times as loud
Passenger car, 65 mph (25 feet) Living room stereo (15 feet) Vacuum cleaner (3 feet)	70	<u>Considered Moderately Loud</u> (Reference loudness for table)
Normal conversation (5 feet) Air conditioning unit (100 feet) Department store environment	60	*1/2 as loud
Light traffic (100 feet) Private business office environment	50	*1/4 as loud
<b>Commission Sound Limit</b>	<b>48.6</b>	
<b>Red Mountain Compressor Station and Dragoon Compressor Station (5,280 feet and 2,150 feet)</b>	<b>34.5 – 44.1</b>	
Bird calls (distant) Lower limit of urban sound environment	40	<u>Considered Quiet</u> *1/8 as loud
Soft whisper (5 feet) Quiet bedroom environment	30	
Recording studio environment	20	<u>Considered Perceptible to the Human Ear</u>
	10	<u>Considered the Lower Threshold of Hearing.</u>

<sup>1</sup>The noise environment from which the value is derived is the deck of an aircraft carrier.

<sup>2</sup>Values are provided in dBA Leq, The Commission's 55 dBA Ldn sound limit equates to 48.6 dBA Leq. Leq is the scale of all other noise levels provided within the table.

\*These values are logarithmic measurements (i.e., every 10-dBA increase is perceived by the human ear as approximately twice the previous noise level; therefore, the pile driver is twice as loud as the ambulance siren).

Source: Modified from Oil and Gas Development on the Southern Ute Indian Reservation, Final Environmental Impact Statement July 2002

**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-17 SOUND LEVEL PREDICTIONS  
AT THE RED MOUNTAIN COMPRESSOR STATION SITE**

NSA	Distance To NSA from Property Boundary feet	Direction	Measured Existing Background		Sound Level Attributable to Station	Combined, Existing Background with Station		Increase Above Existing Background
			Leq dBA	Ldn dBA	Leq dBA	Leq dBA	Ldn dBA	dB

NSA	Distance To NSA from Property Boundary	Direction	Measured Existing Background		Sound Level Attributable to Station	Combined, Existing Background with Station		Increase Above Existing Background
	feet		L <sub>eq</sub> dBA	L <sub>dn</sub> dBA	L <sub>eq</sub> dBA	L <sub>eq</sub> dBA	L <sub>dn</sub> dBA	dB
1	5,280	-	32.8	39.2	29.7	34.5	40.9	1.7



**TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.-11 SOUND LEVEL PREDICTIONS AT THE DRAGOON COMPRESSOR STATION SITE**

NSA	Distance To NSA from Property Boundary  feet	Direction	Measured Existing Background		Sound Level Attributable to Station	Combined, Existing Background with Station		Increase Above Existing Background
			L <sub>eq</sub> dBA	L <sub>dn</sub> dBA	L <sub>eq</sub> dBA	L <sub>eq</sub> dBA	L <sub>dn</sub> dBA	dB
1	2,320	WSW	34.6	44.0	42.3	43.6	50.0	6.0
2	3,160	SW	34.8	44.2	37.6	40.7	47.1	2.9
3	2,510	SSW	34.6	44.0	41.2	42.8	49.2	5.2
4	2,150	S	32.9	42.3	43.4	44.1	50.5	8.2
5	2,430	E	32.9	42.3	41.6	42.6	49.0	6.7