



west virginia department of environmental protection

Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Jim Justice , Governor  
Austin Caperton , Cabinet Secretary  
www.dep.wv.gov

Friday, February 24, 2017  
WELL WORK PERMIT  
Vertical / New Drill

COLUMBIA GAS TRANSMISSION, LLC (A)  
P. O. BOX 1273

CHARLESTON, WV 253251273

Re: Permit approval for RIPLEY 12596  
47-035-03028-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.



James A. Martin  
Chief

Operator's Well Number: RIPLEY 12596  
Farm Name: BENSON, BETTY & ROGER L.  
U.S. WELL NUMBER: 47-035-03028-00-00  
Vertical / New Drill  
Date Issued: 2/24/2017

Promoting a healthy environment.

02/25/2017

## PERMIT CONDITIONS

West Virginia Code §22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

### CONDITIONS

---

1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code §22-6-20, which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. Pursuant to 35 CSR 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR 4-19.1.c, if the operator is unable to sample and analyze any water well or spring with one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours.
7. Well work activities shall not constitute a hazard to the safety of persons.
8. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced, drilling ceased, completion of any other permitted well work and completion of the well. Such notice shall be provided by sending an email to [DEPOOGNotify@wv.gov](mailto:DEPOOGNotify@wv.gov) within 30 days of commencement of drilling.

WW - 2B  
(Rev. 8/10)

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**WELL WORK PERMIT APPLICATION**

1) Well Operator: Columbia Gas Transmission, LLC 307032 Jackson Ripley Sandyville  
Operator ID County District Quadrangle

2) Operator's Well Number: Ripley 12596 3) Elevation: 782 ft PAD 780 ft

4) Well Type: (a) Oil \_\_\_\_\_ or Gas X  
(b) If Gas: Production \_\_\_\_\_ / Underground Storage X  
Deep X / Shallow \_\_\_\_\_ 4920 ft TVD

5) Proposed Target Formation(s): Oriskany Proposed Target Depth: 5151 ft MD

6) Proposed Total Depth: 5249 MD 5018 TVD Feet Formation at Proposed Total Depth: Helderberg

7) Approximate fresh water strata depths: 476 ft (based on offset residential water wells)

8) Approximate salt water depths: 1355 - 1810 ft (Salt Sand)

9) Approximate coal seam depths: none anticipated

10) Approximate void depths,(coal, Karst, other): none anticipated

11) Does land contain coal seams tributary to active mine? no

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)

Refer to attached wellbore diagram and QES well planning report.

Directionally drill well to Oriskany sandstone, fracture stimulate, and install pipeline.

Fracture treatment: 500 gal acid, 600 bbls fresh water, 100 MSCF N2, and 30 Klbs proppant.

13) **CASING AND TUBING PROGRAM**

TYPE	SPECIFICATIONS			FOOTAGE	INTERVALS	CEMENT
	Size	Grade	Weight per ft			
Conductor	20	B-35	53	32	20	20
Fresh Water	13.375	H-40	48	540	528	390
Intermediate	9.625	J-55	36	2500	2488	805
Intermediate	7	N-80	23	5133	5122	150
Production	4.5	P-110	11.6	5261	5251	360
Tubing						
Liners						

Packers: Kind: \_\_\_\_\_  
Sizes: \_\_\_\_\_  
Depths Set \_\_\_\_\_

RECEIVED  
Office of Oil and Gas  
12-25-2017  
Department of Environmental Protection

02/25/2017



Elevations  
GL: 780 ft  
KB: 792 ft

**4-1/2" Flowstring  
Double Barrier Diagram**

**Ripley well 12596**

~ not to scale ~

20" Conductor @ 32 ft KB

**13-3/8" Surface csq @ 540 ft KB**  
48 ppf H-40 ERW API 8rd thread  
Internal Yield: 1730 psi  
Collapse: 770 psi  
Joint Strength: 322 Klbs  
(cemented to surface)

Maximum surface operating pressure 1675 psig  
  
Maximum reservoir pore pressure 1900 psig

There are four residential water wells within 1050 ft of proposed Ripley well 12596. However, depths are unknown per current owners. The next closest water well with a known depth is approximately 2490 ft from the proposed storage well. The depth of this water well is at an elevation of 304 ft above sea level. This is the basis for determining the deepest subsurface fresh water zone in proximity to Ripley well 12596.

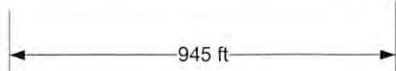
**9-5/8" Intermediate #1 csq @ 2500 ft TVD KB**  
36 ppf J-55 ERW LTC API 8rd thread  
Internal Yield: 3520 psi (SF = 1.8)  
Collapse: 2020 psi  
Body Yield Strength: 564 Klbs  
Joint Strength: 453 Klbs  
(cemented to surface)

*[Handwritten Signature]*  
12-20-16

**7" Interm #2 @ 5133 ft MD KB (4902 ft TVD)**  
23 ppf N-80 ERW LTC API 8rd thread  
Internal Yield: 6340 psi (SF = 3.3)  
Collapse: 3830 psi  
Body Yield Strength: 532 Klbs  
Joint Strength: 442 Klbs  
(cement bottom 1000' with 50/50 Pozmix lead and Class A tail)

**4-1/2" Flowstring @ 5261 ft MD KB (5030 ft TVD)**  
11.6 ppf P-110 USS-CDC HTQ modified API BTC  
Internal Yield: 10710 psi (SF = 5.6)  
Collapse: 7580 psi  
Body Yield Strength: 367 Klbs  
Joint Strength: 385 Klbs  
(cemented to 2000 ft with 50/50 Pozmix lead and Class A tail)

TD 5261 ft MD KB  
(5030 ft TVD)



Deepest Fresh Water @ 488 ft KB

Salt Sand  
1367-1822 ft TVD KB

Berea 2440 - 2447 ft TVD KB

KOP @ 2560 ft TVD KB

Marcellus shale 5043 - 5053 MD KB (4812 - 4822 ft TVD KB)

Onondaga limestone cap rock  
5053 - 5163 ft MD KB  
(4822 - 4932 ft TVD KB)

Oriskany storage 5163 - 5198 ft MD KB (4932 - 4967 ft TVD KB)

Helderberg limestone 5198 - 5261 ft MD KB  
(4967 - 5030 ft TVD KB)

Department of Environmental Protection  
JAN 9 3 2017  
02/25/2017

47035030 28T



TransCanada

# TransCanada

Jackson County, WV  
Ripley  
Ripley 12596

Wellbore #1

Plan: Design #3

## QES Well Planning Report

14 December, 2016

RECEIVED  
 Office of Oil, Gas and Gas  
 JAN 11 2017  
 WV Department of Environmental Protection  
 Environmental Protection  
 02/25/2017



<b>Database:</b>	EDM5002	<b>Local Co-ordinate Reference:</b>	Well Ripley 12596
<b>Company:</b>	TransCanada	<b>TVD Reference:</b>	well @ 792.0usft (Rig 12' KB)
<b>Project:</b>	Jackson County, WV	<b>MD Reference:</b>	well @ 792.0usft (Rig 12' KB)
<b>Site:</b>	Ripley	<b>North Reference:</b>	Grid
<b>Well:</b>	Ripley 12596	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #3		

<b>Project</b>	Jackson County, WV		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	West Virginia Southern Zone		

<b>Site</b>	Ripley				
<b>Site Position:</b>	<b>Northing:</b>	686,397.57 usft	<b>Latitude:</b>	38° 52' 58.324 N	
<b>From:</b> Map	<b>Easting:</b>	1,769,353.28 usft	<b>Longitude:</b>	81° 41' 58.435 W	
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	-0.43 °

<b>Well</b>	Ripley 12596					
<b>Well Position</b>	<b>+N/-S</b>	-1.4 usft	<b>Northing:</b>	686,396.18 usft	<b>Latitude:</b>	38° 52' 58.310 N
	<b>+E/-W</b>	-3.5 usft	<b>Easting:</b>	1,769,349.74 usft	<b>Longitude:</b>	81° 41' 58.480 W
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>	0.0 usft	<b>Ground Level:</b>	780.0 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	11/28/2016	-7.80	66.42	51,885

<b>Design</b>	Design #3			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	15.36

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,560.0	0.00	0.00	2,560.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,001.4	30.90	15.36	2,980.3	112.0	30.8	7.00	7.00	0.00	15.36	
4,220.6	30.90	15.36	4,026.4	715.7	196.6	0.00	0.00	0.00	0.00	
4,993.0	0.00	0.00	4,762.0	911.7	250.4	4.00	-4.00	0.00	180.00	
5,261.0	0.00	0.00	5,030.0	911.7	250.4	0.00	0.00	0.00	0.00	PBHL - Ripley 12596



Well Planning Report



<b>Database:</b>	EDM5002	<b>Local Co-ordinate Reference:</b>	Well Ripley 12596
<b>Company:</b>	TransCanada	<b>TVD Reference:</b>	well @ 792.0usft (Rig 12' KB)
<b>Project:</b>	Jackson County, WV	<b>MD Reference:</b>	well @ 792.0usft (Rig 12' KB)
<b>Site:</b>	Ripley	<b>North Reference:</b>	Grid
<b>Well:</b>	Ripley 12596	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #3		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Salt Sand</b>										
1,367.0	0.00	0.00	1,367.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Berea</b>										
2,440.0	0.00	0.00	2,440.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>9 5/8"</b>										
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
<b>Build 7° / 100'</b>										
2,560.0	0.00	0.00	2,560.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
2,600.0	2.80	15.36	2,600.0	0.9	0.3	1.0	7.00	7.00	0.00	0.00
2,700.0	9.80	15.36	2,699.3	11.5	3.2	11.9	7.00	7.00	0.00	0.00
2,800.0	16.80	15.36	2,796.6	33.7	9.3	34.9	7.00	7.00	0.00	0.00
2,900.0	23.80	15.36	2,890.3	67.1	18.4	69.6	7.00	7.00	0.00	0.00
3,000.0	30.80	15.36	2,979.1	111.3	30.6	115.4	7.00	7.00	0.00	0.00
<b>EOB @ 30.9° Inc. / 15.36° Azm</b>										
3,001.4	30.90	15.36	2,980.3	112.0	30.8	116.2	7.00	7.00	0.00	0.00
3,100.0	30.90	15.36	3,064.9	160.8	44.2	166.8	0.00	0.00	0.00	0.00
3,200.0	30.90	15.36	3,150.7	210.4	57.8	218.1	0.00	0.00	0.00	0.00
3,300.0	30.90	15.36	3,236.5	259.9	71.4	269.5	0.00	0.00	0.00	0.00
3,400.0	30.90	15.36	3,322.3	309.4	85.0	320.8	0.00	0.00	0.00	0.00
3,500.0	30.90	15.36	3,408.2	358.9	98.6	372.2	0.00	0.00	0.00	0.00
3,600.0	30.90	15.36	3,494.0	408.4	112.2	423.6	0.00	0.00	0.00	0.00
3,700.0	30.90	15.36	3,579.8	457.9	125.8	474.9	0.00	0.00	0.00	0.00
3,800.0	30.90	15.36	3,665.6	507.5	139.4	526.3	0.00	0.00	0.00	0.00
3,900.0	30.90	15.36	3,751.4	557.0	153.0	577.6	0.00	0.00	0.00	0.00
4,000.0	30.90	15.36	3,837.2	606.5	166.6	629.0	0.00	0.00	0.00	0.00
4,100.0	30.90	15.36	3,923.0	656.0	180.2	680.3	0.00	0.00	0.00	0.00
4,200.0	30.90	15.36	4,008.8	705.5	193.8	731.7	0.00	0.00	0.00	0.00
<b>Drop 4° / 100'</b>										

Office of Environmental Protection  
 West Virginia Department of Oil and Gas  
 JAN 16 2017





Well Planning Report



<b>Database:</b>	EDM5002	<b>Local Co-ordinate Reference:</b>	Well Ripley 12596
<b>Company:</b>	TransCanada	<b>TVD Reference:</b>	well @ 792.0usft (Rig 12' KB)
<b>Project:</b>	Jackson County, WV	<b>MD Reference:</b>	well @ 792.0usft (Rig 12' KB)
<b>Site:</b>	Ripley	<b>North Reference:</b>	Grid
<b>Well:</b>	Ripley 12596	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #3		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,220.6	30.90	15.36	4,026.5	715.7	196.6	742.2	0.00	0.00	0.00	
4,300.0	27.72	15.36	4,095.7	753.2	206.9	781.1	4.00	-4.00	0.00	
4,400.0	23.72	15.36	4,185.8	795.0	218.4	824.5	4.00	-4.00	0.00	
4,500.0	19.72	15.36	4,278.7	830.7	228.2	861.5	4.00	-4.00	0.00	
4,600.0	15.72	15.36	4,373.9	860.1	236.2	891.9	4.00	-4.00	0.00	
4,700.0	11.72	15.36	4,471.0	882.9	242.5	915.6	4.00	-4.00	0.00	
4,800.0	7.72	15.36	4,569.6	899.2	247.0	932.5	4.00	-4.00	0.00	
4,900.0	3.72	15.36	4,669.1	908.8	249.6	942.5	4.00	-4.00	0.00	
<b>EOD @ Vertical</b>										
4,993.0	0.00	15.36	4,762.0	911.7	250.4	945.5	4.00	-4.00	0.00	
5,000.0	0.00	0.00	4,769.0	911.7	250.4	945.5	0.00	0.00	0.00	
<b>Onondaga</b>										
5,053.0	0.00	0.00	4,822.0	911.7	250.4	945.5	0.00	0.00	0.00	
5,100.0	0.00	0.00	4,869.0	911.7	250.4	945.5	0.00	0.00	0.00	
<b>7"</b>										
5133	0.00	0.00	4902	911.7	250.4	945.5	0.00	0.00	0.00	
<b>Oriskany</b>										
5,163.0	0.00	0.00	4,932.0	911.7	250.4	945.5	0.00	0.00	0.00	
<b>Helderberg</b>										
5,198.0	0.00	0.00	4,967.0	911.7	250.4	945.5	0.00	0.00	0.00	
5,200.0	0.00	0.00	4,969.0	911.7	250.4	945.5	0.00	0.00	0.00	
<b>TD @ 5261' MD / 5030' TVD</b>										
5,261.0	0.00	0.00	5,030.0	911.7	250.4	945.5	0.00	0.00	0.00	

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL - Ripley 12596 D# - hit/miss target - Shape - Point	0.00	360.00	5,030.0	911.7	250.4	687,307.91	1,769,600.18	38° 53' 7.340 N	81° 41' 55.400 W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
2,500.0	2,500.0	9 5/8"	9-5/8	12-1/4	
5,101.0	4,870.0	7"	7	8-3/4	

RECEIVED  
Office of Oil and Gas  
JAN 03 2017  
WV Department of  
Environmental Protection  
02/25/2017



<b>Database:</b>	EDM5002	<b>Local Co-ordinate Reference:</b>	Well Ripley 12596
<b>Company:</b>	TransCanada	<b>TVD Reference:</b>	well @ 792.0usft (Rig 12' KB)
<b>Project:</b>	Jackson County, WV	<b>MD Reference:</b>	well @ 792.0usft (Rig 12' KB)
<b>Site:</b>	Ripley	<b>North Reference:</b>	Grid
<b>Well:</b>	Ripley 12596	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #3		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,367.0	1,367.0	Salt Sand		0.00		
2,440.0	2,440.0	Berea		0.00		
5,053.0	4,822.0	Onondaga		0.00		
5,163.0	4,932.0	Oriskany		0.00		
5,198.0	4,967.0	Helderberg		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
2,560.0	2,560.0	0.0	0.0	Build 7° / 100'	
3,001.4	2,980.3	112.0	30.8	EOB @ 30.9° Inc. / 15.36° Azm	
4,220.6	4,026.5	715.7	196.6	Drop 4° / 100'	
4,993.0	4,762.0	911.7	250.4	EOD @ Vertical	
5,261.0	5,030.0	911.7	250.4	TD @ 5261' MD / 5030' TVD	



TransCanada

Project: Jackson County, WV  
 Site: Ripley  
 Well: Ripley 12596  
 Wellbore: Wellbore #1  
 Design: Design #3  
 Latitude: 38° 52' 58.310 N  
 Longitude: 81° 41' 58.480 W  
 Ground Level: 780.0  
 well @ 792.0usft (Rig 12' KB)



PROJECT DETAILS: Jackson County, WV

Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: West Virginia Southern Zone  
 System Datum: Mean Sea Level

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Ripley 12596, Grid North  
 Vertical (TVD) Reference: well @ 792.0usft (Rig 12' KB)  
 Section (VS) Reference: Slot - (0.0N, 0.0E)  
 Measured Depth Reference: well @ 792.0usft (Rig 12' KB)  
 Calculation Method: Minimum Curvature

WELL DETAILS: Ripley 12596

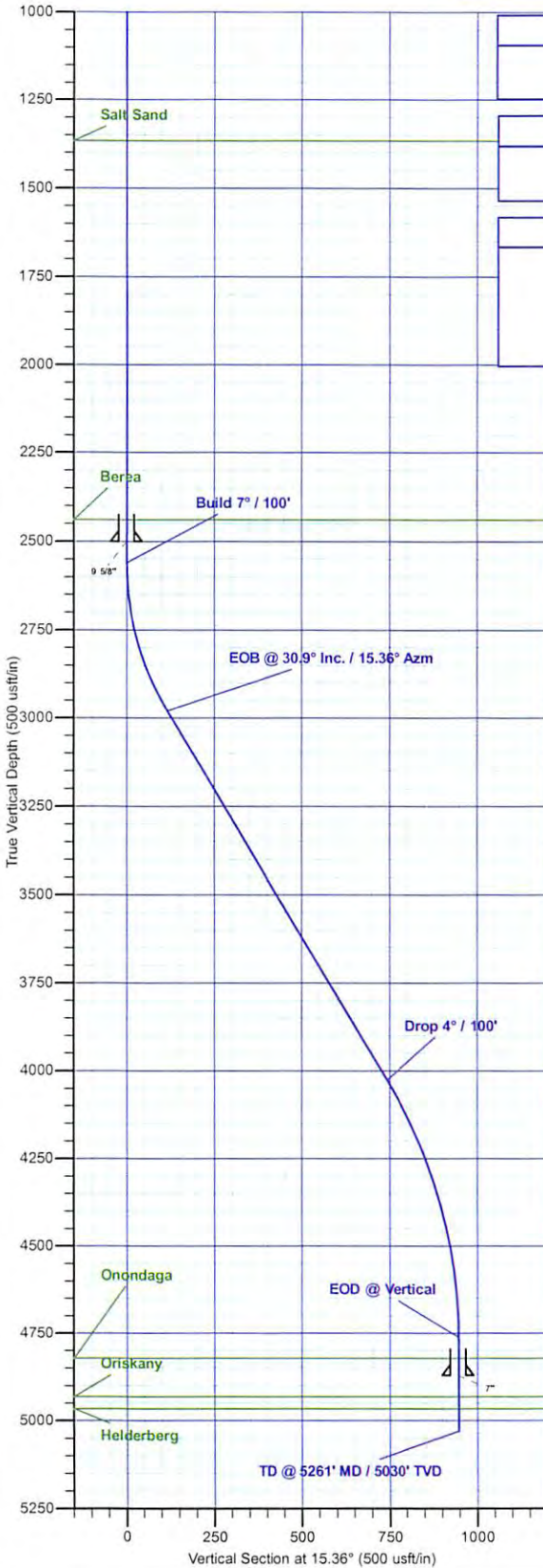
+N/-S	+E/-W	Northing	Ground Level: Easting	780.0 Latitude	Longitude
0.0	0.0	686396.18	1769349.74	38° 52' 58.310 N	81° 41' 58.480 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL - Ripley 12596 D#2	5030.0	911.7	250.4	687307.91	1769600.18	38° 53' 7.340 N	81° 41' 55.400 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2560.0	0.00	0.00	2560.0	0.0	0.0	0.00	0.00	0.0	Build 7° / 100'
3001.4	30.90	15.36	2980.3	112.0	30.8	7.00	15.36	116.2	EOB @ 30.9° Inc. / 15.36° Azm
4220.6	30.90	15.36	4026.4	715.7	196.6	0.00	0.00	742.2	Drop 4° / 100'
4993.0	0.00	0.00	4762.0	911.7	250.4	4.00	180.00	945.5	EOD @ Vertical
5261.0	0.00	0.00	5030.0	911.7	250.4	0.00	0.00	945.5	TD @ 5261' MD / 5030' TVD



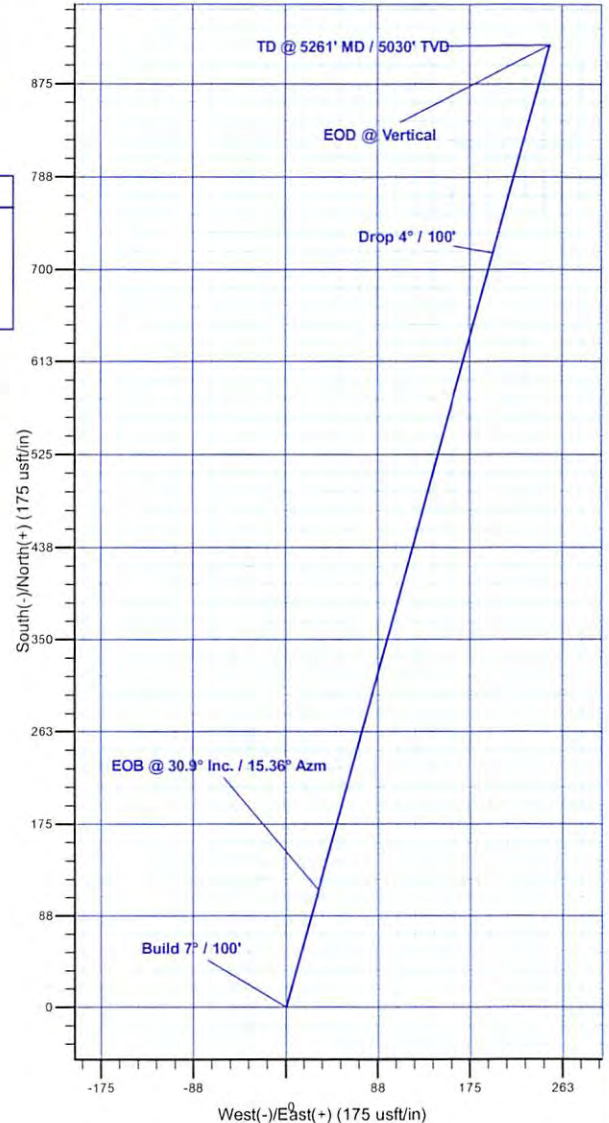
M G T  
 Azimuths to Grid North  
 True North: 0.43°  
 Magnetic North: -7.37°  
 Magnetic Field  
 Strength: 51885.1snT  
 Dip Angle: 66.42°  
 Date: 11/28/2016  
 Model: IGRF2015

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1367.0	1367.0	Salt Sand
2440.0	2440.0	Berea
4822.0	5053.0	Onondaga
4932.0	5163.0	Oriskany
4967.0	5198.0	Helderberg

CASING DETAILS

TVD	MD	Name	Size
2500.0	2500.0	9 5/8"	9-5/8
4870.0	5101.0	7"	7



Plan: Design #3 (Ripley 12596/Wellbore #1)

Created By: Will Jircik Date: 12:00, December 14 2016

02/25/2017



WW-2B1  
(5-12)

Well No. Ripley 12596

West Virginia Department of Environmental Protection  
Office of Oil and Gas

NOTICE TO SURFACE OWNERS

The well operator named below is preparing to file for a permit from the state to drill a new well. Before a well work permit can be filed with the Chief of the Office of Oil and Gas, the well operator is required to have given notice of the right to request water well or spring analytical testing. This notice shall be given to the owners or occupants of land which have a water well or spring being utilized for human consumption, domestic animals, or other general use and which is located within 1000 feet of the proposed well site.

With this form, the operator is giving you notice of your right to request analytical testing. The operator is required to sample and analyze the water wells or springs of all owners or occupants who request it. Therefore, if you wish to have your water well or spring tested, contact the operator named below.

All sampling shall be completed prior to drilling. Within thirty (30) days of the receipt of such sample analyses the operator shall submit the results to the Chief of the Office of Oil and Gas and to the owners or occupants who may have requested them.

Be advised, you have the right to sample and analyze any water supply at your own expense.

Listed below is the laboratory chosen by operator to perform analysis, and contactor chosen to collect sample.

Certified Laboratory Name ALS Environmental  
Sampling Contractor ALS Environmental

Well Operator Columbia Gas Transmission, LLC  
Address 1700 MacCorkle Ave. SE  
Charleston, WV 25314-1273  
Telephone 304-357-2000

FOR OPERATOR'S USE ONLY: Below, or on an attached page, list those persons which were given this notice. Place an asterisk beside the one(s) that contacted you and requested sampling and analyses. If there were no requests made, indicate by underling which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site, the Chief may require the operator to test wells up to 2000 feet from the proposed site.

BETTY BENSON  
426 COAST RUN ROAD  
SANDYVILLE, WV 25275

ROGER & TONIA CARPENTER  
151 MORGAN DRIVE  
SANDYVILLE, WV 25275

TAYLOR WILSON  
231 MORGAN DRIVE  
SANDYVILLE, WV 25275

BARBARA MILLS  
734 STONEGATE DRIVE  
SANDYVILLE, WV 25275

RECEIVED  
Office of Oil and Gas  
JAN 03 2017  
WV Department of  
Environmental Protection  
02/25/2017

4703503028T

**Water Wells and Springs in Proximity to Ripley New Drills**

\* well / spring to be tested in blue highlight

Well	Landowner	Well or Spring	Requested by Landowner (yes / no)	Sample Date	Water Well or Spring Coordinates		Distance from Proposed Storage Well	GL Elevation (Google Earth)	Well Depth	Well Depth above MSL
					Lat	Long				
Ripley 12596	Roger & Betty Benson	new water well	no		38 52 59.69	81 41 45.92	1010	642	???	
Ripley 12596	Roger & Betty Benson	old water well not in use	no		38 52 59.60	81 41 45.68	1020	641	???	
Ripley 12596	Taylor Wilson (formerly Guthrie)	water well but not in use	no		38 52 6.69	81 42 0.54	880	743	???	
Ripley 12596	Roger & Tonia Carpenter (formerly Wright)	water well	no		38 53 7.94	81 41 53.65	1050	783	???	
Ripley 12596	Carol & Ricky Barr	none								
Ripley 12596	Alonzo Statts	none								
Ripley 12596	Barbara Miles	water well	no		38 53 17.26	81 41 38.09	2490	729	425	304



WW-2A  
(Rev. 6-14)

1.) Date: 12/17/16  
2.) Operator's Well Number Ripley 12596  
State 47 County 035 Permit -  
3.) API Well No.: 47- 035 -

**STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE AND APPLICATION FOR A WELL WORK PERMIT**

4) Surface Owner(s) to be served: (a) Name Betty Benson Address 426 Coast Run Rd Sandville, WV 25275  
(b) Name Roger Benson Address 4380 11th Ave Parkersburg, WV 26101  
(c) Name \_\_\_\_\_ Address \_\_\_\_\_  
5) (a) Coal Operator Name \_\_\_\_\_ Address \_\_\_\_\_  
(b) Coal Owner(s) with Declaration Name not operated Address \_\_\_\_\_  
(c) Coal Lessee with Declaration Name not operated Address \_\_\_\_\_  
6) Inspector Jamie Stevens Address 105 Kentuck Rd Kenna, WV 25248 Telephone 304-206-7775

**TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:**

OR Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas

X Included is the information required by Chapter 22, Article 6, Section 8(d) of the Code of West Virginia (see page 2)

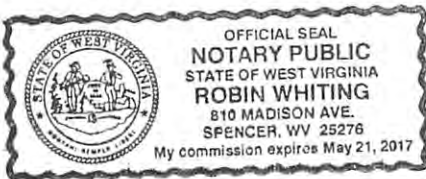
I certify that as required under Chapter 22-6 of the West Virginia Code I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through \_\_\_ on the above named parties by:

- \_\_\_\_\_ Personal Service (Affidavit attached)
- X \_\_\_\_\_ Certified Mail (Postmarked postal receipt attached)
- \_\_\_\_\_ Publication (Notice of Publication attached)

I have read and understand Chapter 22-6 and 35 CSR 4, and I agree to the terms and conditions of any permit issued under this application.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



Well Operator Columbia Gas Transmission, LLC  
By: James E. Amos  
Its: Senior Well Services Engineer  
Address: 48 Columbia Gas Rd Sandville, WV 25275  
Telephone: 304-373-2412  
Email: james\_amos@transcanada.com

Subscribed and sworn before me this 20 day of December, 2016

Notary Public

My Commission Expires May 21, 2017

Oil and Gas Privacy Notice

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov)

RECEIVED  
Office of Oil and Gas  
JAN 11 2017  
Department of Environmental Protection  
02/25/2017



1700 MacCorkle Ave SE  
P.O. Box 1273  
Charleston, WV 25325

December 20, 2016

Betty Benson  
426 Coast Run Road  
Sandyville, WV 25275

Columbia Gas Transmission, LLC is applying for a permit to the WV Department of Environmental Protection – Office of Oil and Gas, to drill a new underground natural gas storage well located on property owned by you. As reference, the field and well ID is Ripley 12596.

As part of the well permitting process required by the Office of Oil and Gas, Columbia, the well operator, is required to provide a copy of all applicable permit forms for your review and record retention. Columbia encourages you to review each form in detail, and follow the instructions as outlined.

Sincerely,

A handwritten signature in black ink that reads "Jim Amos". The signature is fluid and cursive, with the first letters of "Jim" and "Amos" being capitalized and prominent.

Jim Amos  
Senior Well Services Engineer  
Columbia Gas Transmission, LLC

RECEIVED  
Office of Oil and Gas  
JAN 03 2017  
WV Department of  
Environmental Protection  
02/25/2017





1700 MacCorkle Ave SE  
P.O. Box 1273  
Charleston, WV 25325

December 20, 2016

Roger Benson  
4300 11<sup>th</sup> Avenue  
Parkersburg, WV 26101

Columbia Gas Transmission, LLC is applying for a permit to the WV Department of Environmental Protection – Office of Oil and Gas, to drill a new underground natural gas storage well located on property owned by you. As reference, the field and well ID is Ripley 12596.

As part of the well permitting process required by the Office of Oil and Gas, Columbia, the well operator, is required to provide a copy of all applicable permit forms for your review and record retention. Columbia encourages you to review each form in detail, and follow the instructions as outlined.

Sincerely,

A handwritten signature in black ink that reads "Jim Amos". The signature is fluid and cursive, with the first name "Jim" being more prominent than the last name "Amos".

Jim Amos  
Senior Well Services Engineer  
Columbia Gas Transmission, LLC

4703503028T

7016 0750 0000 9118 6100

**U.S. Postal Service™  
CERTIFIED MAIL® RECEIPT**  
*Domestic Mail Only*

For delivery information, visit our website at [www.usps.com](http://www.usps.com)®.

**OFFICIAL USE**

Certified Mail Fee \$	
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy) \$	
<input type="checkbox"/> Return Receipt (electronic) \$	
<input type="checkbox"/> Certified Mail Restricted Delivery \$	
<input type="checkbox"/> Adult Signature Required \$	
<input type="checkbox"/> Adult Signature Restricted Delivery \$	
Postage \$	
Total Postage and Fees \$	
Sent To <b>BETTY BENSON</b>	
Street and Apt. No., or PO Box No. <b>426 COAST RUN RD</b>	
City, State, ZIP+4® <b>SANDYVILLE, WV 25275</b>	

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7016 0750 0000 9118 6094

**U.S. Postal Service™  
CERTIFIED MAIL® RECEIPT**  
*Domestic Mail Only*

For delivery information, visit our website at [www.usps.com](http://www.usps.com)®.

**OFFICIAL USE**

Certified Mail Fee \$	Postmark Here
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy) \$	
<input type="checkbox"/> Return Receipt (electronic) \$	
<input type="checkbox"/> Certified Mail Restricted Delivery \$	
<input type="checkbox"/> Adult Signature Required \$	
<input type="checkbox"/> Adult Signature Restricted Delivery \$	
Postage \$	
Total Postage and Fees \$	
Sent To <b>ROGER BENSON</b>	
Street and Apt. No., or PO Box No. <b>4300 11TH AVE</b>	
City, State, ZIP+4® <b>PARKERSBURG, WV 26101</b>	

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

RECEIVED  
Office of Oil and Gas  
JAN 03 2017  
WV Department of  
Environmental Protection  
02/25/2017



WW-2A Surface Waiver  
(4/16)

SURFACE OWNER WAIVER

County 035

Operator \_\_\_\_\_

Operator well number Ripley 12596

**INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW2-A**

The well operator named on page WW2A is applying for a permit from the State to do oil or gas well work. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Office of Oil and Gas.

**NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

**WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:**

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

**Time Limits and methods for filing comments.** The law requires these materials to be served on or before the date the operator files his Application. You have **FIFTEEN (15) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

**Comments must be in writing.** Your comments must include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

The Chief has the power to deny or condition a well work permit based on comments on the following grounds:

- 1) The proposed well work will constitute a hazard to the safety of persons.
- 2) The soil erosion and sediment control plan is not adequate or effective;
- 3) Damage would occur to publicly owned lands or resources;
- 4) The proposed well work fails to protect fresh water sources or supplies;
- 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation...".

**If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.**

**List of Water Testing Laboratories.** The Office maintains a list of water testing laboratories which you can hire to test your water to establish water quality prior to and after drilling. Contact the Chief to obtain a copy.

**VOLUNTARY STATEMENT OF NO OBJECTION**

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application for a Well Work Permit on Form WW2-A, and attachments consisting of pages 1 through \_\_\_ including a work order on Form WW2-B, a survey plat, WW-9, and a soil and erosion plan, all for proposed well work on my surface land as described therein.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

\_\_\_\_\_  
Signature Date \_\_\_\_\_

\_\_\_\_\_  
Company Name  
By \_\_\_\_\_ Date \_\_\_\_\_  
Its \_\_\_\_\_

\_\_\_\_\_  
Print Name

RECEIVED  
Office of Oil and Gas  
JAN 03 2017  
Signature \_\_\_\_\_ Date \_\_\_\_\_  
WV Department of Environmental Protection  
02/25/2017

WW-2A Coal Waiver

COAL OPERATOR, OWNER, OR LESSEE WAIVER

\* coal not operated

County Jackson

Operator Columbia Gas Transmission, LLC

Operator's Well Number Ripley 12596

INSTRUCTIONS TO COAL OPERATOR, OWNER, OR LESSEE

To the coal operator, owner, or lessee named on page WW2-A. You are hereby notified that any objection you wish to make or are required to make by WV Code 22-6-15, 16 or 17, must be filed with the Chief of the Office of Oil and Gas within fifteen (15) days after the receipt of this application by the Office. Mail objections to:

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0499 extension 1654

WAIVER

The undersigned coal operator \_\_\_\_\_ / owner \_\_\_\_\_ / lessee \_\_\_\_\_ / of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company Name  
By  
Its

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

RECEIVED  
Office of Oil and Gas  
JAN 23 2017  
WV Department of  
Environmental Protection  
02/25/2017



WW-2A1  
(Rev. 1/11)

Operator's Well Number Ripley 12596

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6, Section 8(d)  
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
surface	TL and Emma Benson; Cleophas and Mary Benson	Columbia Gas Transmission, LLC	Storage Lease 1052774-000	85 / 486
bottom hole	OH and Jewel Cook; Lewis and Ethel Stanley Cook	Columbia Gas Transmission, LLC	Storage Lease 1052506-00	84 / 184

**Acknowledgement of Possible Permitting/Approval  
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources
- WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator:  
By: Its:

Columbia Gas Transmission, LLC

James E. Amos

Senior Well Services Engineer

02/25/2017

WW-9  
(5/16)

API Number 47 - 035 -  
Operator's Well No. Ripley 12596

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS  
FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Columbia Gas Transmission, LLC OP Code 307032

Watershed (HUC 10) Mud Run Quadrangle Sandyville

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes  No

Will a pit be used? Yes  No

If so, please describe anticipated pit waste: fresh and salt water, FW based drilling fluid, cement returns, cuttings

Will a synthetic liner be used in the pit? Yes  No  If so, what ml.? 30

Proposed Disposal Method For Treated Pit Wastes:

- Land Application (if selected provide a completed form WW-9-GPP)
- Underground Injection ( UIC Permit Number 34-009-23821, 34-009-23823, 34-009-23824, 34-105-23619 )
- Reuse (at API Number \_\_\_\_\_)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain \_\_\_\_\_)

Will closed loop system be used? If so, describe: yes - steel flow line to earthen pit or circulating tank

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. fresh water

-If oil based, what type? Synthetic, petroleum, etc. \_\_\_\_\_

Additives to be used in drilling medium? NaCl, KCl, biocide, polymer, bentonite, attapulgite, starch, surfactant

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. leave in pit

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) cement (if solidifying)

-Landfill or offsite name/permit number? if needed: Rumpke Beech Hollow Landfill (Wellston, OH)

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on April 1, 2016, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature *James E. Amos*

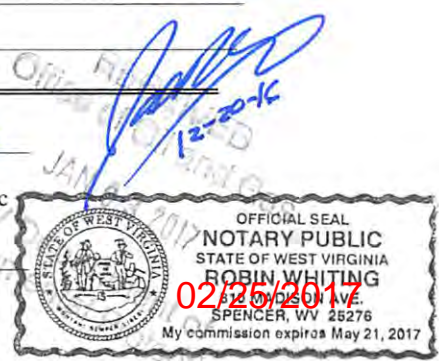
Company Official (Typed Name) James E. Amos

Company Official Title Senior Well Services Engineer

Subscribed and sworn before me this 20 day of December, 2016

*Robin Whiting* Notary Public

My commission expires May 21, 2017





4703503028T

Form WW-9

Operator's Well No. Ripley 12596

Proposed Revegetation Treatment: Acres Disturbed 11.8 (pad+road+pipeline) Prevegetation pH 6-7

Lime 2 Tons/acre or to correct to pH 7-8

Fertilizer type 10-10-10

Fertilizer amount 600 lbs/acre

Mulch straw @ 2 Tons/acre

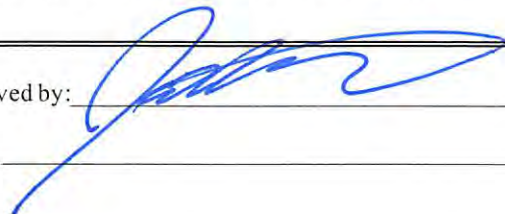
Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
<u>Annual Rye</u>	<u>40</u>	<u>Orchard Grass and/or Tall Fescue</u>	<u>29</u>
		<u>Birdsfoot Trefoil (Empire)</u>	<u>9</u>
		<u>Annual Rye</u>	<u>12</u>

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, provide water volume, include dimensions (L, W, D) of the pit, and dimensions (L, W), and area in acres, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: 

Comments:

Title: OG Inspector

Date: 12-20-16

Field Reviewed? (  ) Yes

(  ) No

RECEIVED  
 Office of Oil and Gas  
 Office of Environmental Protection  
 WV Department of Environmental Protection  
 Environmental Protection  
 JAN 03 2017  
 JAN 03 2017  
 02/25/2017

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS  
GROUNDWATER PROTECTION PLAN

Operator Name: Columbia Gas Transmission, LLC  
Watershed (HUC 10): Mud Run Quad: Sandyville  
Farm Name: Betty Benson and Roger Benson

- 1. List the procedures used for the treatment and discharge of fluids. Include a list of all operations that could contaminate the groundwater.

No fluids planned to be discharged.  
No fertilizer will be stored on site. Fuel, oil, and lubricants will be stored on site, but located within secondary containment. Spills from construction equipment, well treatment fluids, and produced well fluids are the only possible source of contamination to groundwater. Drilling and flowback fluids to be stored in tanks. Earthen pit to constructed to WV DEP standards.

- 2. Describe procedures and equipment used to protect groundwater quality from the list of potential contaminant sources above.

Earthen berm to be constructed around perimeter of well pad with storm water sumps to control release of captured precipitation.  
Construction and well servicing equipment will be monitored and inspected daily for leaks. Earthen pit and tanks to be monitored daily for leaks. Spill kits will be on site.

- 3. List the closest water body, distance to closest water body, and distance from closest Well Head Protection Area to the discharge area.

Coast Run of Mud Run is approximately 500 ft to the SE.  
WV Baptist Conference Center (WV9918034) is the closest Well Head Protection Area at a distance of 5.3 miles from discharge area. Refer to enclosed assessment letter dated 12/6/16 from Department of Health and Human Resources, Source Water Assessment and Protection department.

- 4. Summarize all activities at your facility that are already regulated for groundwater protection.

N/A

- 5. Discuss any existing groundwater quality data for your facility or an adjacent property.

Received  
Office of Oil and Gas  
JAN 03 2017  
WV Department of  
Environmental Protection  
02/25/2017

N/A

6. Provide a statement that no waste material will be used for deicing or fill material on the property.

No waste material will be used for deicing or fill material on the property.

7. Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

During routine tailgate and JSA meetings groundwater protection will be a topic of discussion.

8. Provide provisions and frequency for inspections of all GPP elements and equipment.

No fertilizer will be stored on site. Fuel, oil, and lubricants will be stored on site, but located within secondary containment. Spills from construction equipment, well treatment fluids, and produced well fluids are the only possible source of contamination to groundwater.  
  
Inspections to be performed daily.

Signature: *James E. Am...*

Date: 12/19/16



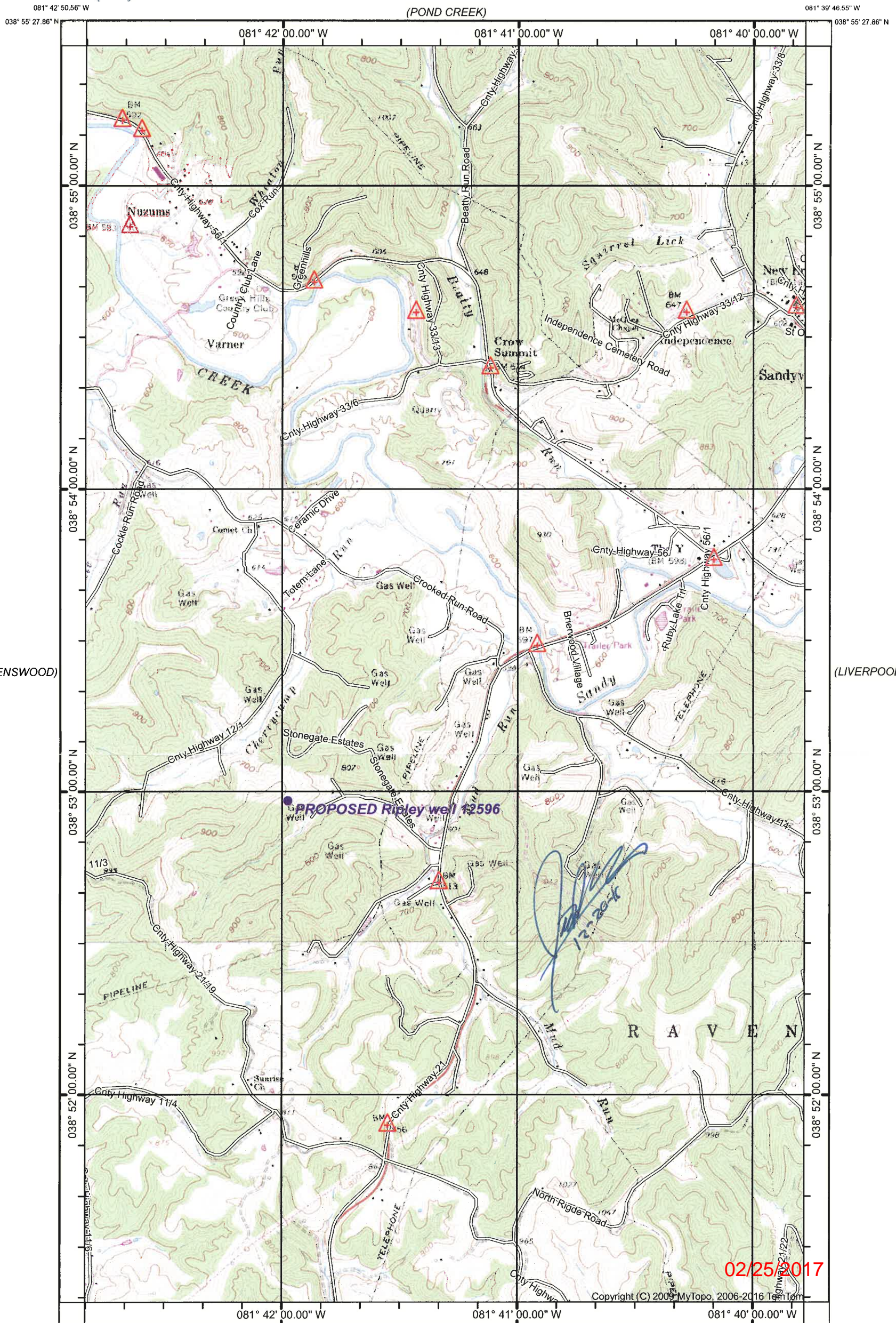
4703503028T

(PORTLAND)



SANDYVILLE QUADRANGLE  
WEST VIRGINIA  
TOPOGRAPHIC SERIES

(ROCKPORT)



(COTTAGEVILLE)

Produced by MyTopo Terrain Navigator  
Topography based on USGS 1:24,000 Maps  
North American 1983 Datum (NAD83)  
Polyconic Projection

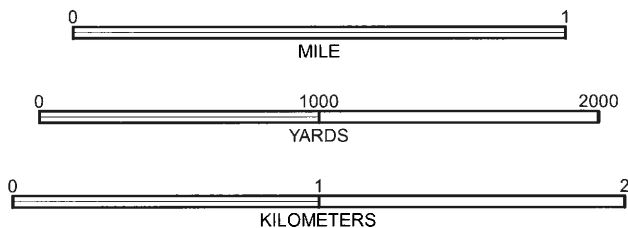
To place on the predicted North American 1927 move the  
projection lines 9M N and 13M E

Declination

MN GN

GN 0.43° W  
MN 7.78° W

(RIPLEY)  
SCALE 1:24000



CONTOUR INTERVAL 20 FEET  
NATIONAL GEODETIC VERTICAL DATUM 1929

Printed: Sat Dec 17, 2016

SANDYVILLE, WV  
1960

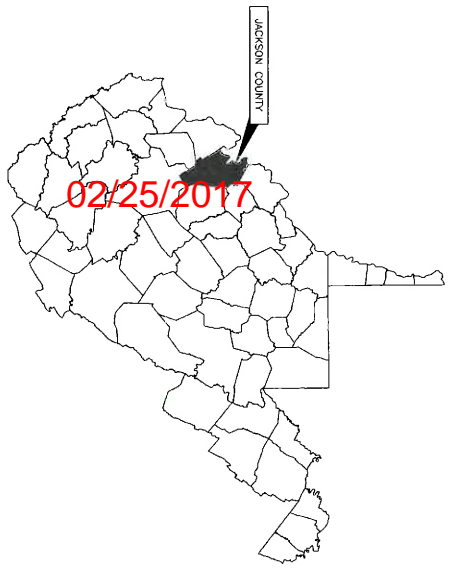
(GAY)

4703503028T



B	1-100-5117-0
DRAWING NUMBER	ISSUE

PROJECT NUMBER 22892  
 FACILITY NAME  
 ASSET GROUP X - ZONE X  
 JACKSON COUNTY, WEST VIRGINIA  
 PIPELINE: 6" LINE X59W12596  
 MAOP - XXX PSIG, MOP - XXX PSIG  
 INVENTORY MAP: XXXXXX  
 XX.XXXXXN, -XX.XXXXXW



PROJECT LOCATION:  
 JACKSON COUNTY, WEST VIRGINIA

# RIPLEY WELL 12596 (MOD)

## PROPOSED WELL PAD AND ACCESS ROAD

### ENGINEERING SERVICES - DESIGN - WORK ORDER # 47100 - PROJECT # 22892

### DESIGN DRAWINGS - CIVIL

**DESIGN DRAWINGS**

D	7115	COV-1	COVER SHEET
D	7115	NOT	GENERAL NOTES
D	7115	INX-1	INDEX SHEET
D	7115	INX-2	INDEX SHEET
TD	7115	103A	LAYOUT & GRADING PLAN
TD	7115	103B	LAYOUT & GRADING PLAN
TD	7115	103C	LAYOUT & GRADING PLAN
TD	7115	103D	LAYOUT & GRADING PLAN
TD	7115	103E	BASELINE & PAD CROSS SECTIONS
TD	7115	103F	ACCESS ROAD PROFILE
D	7115	TYP-1	TYPICALS
D	7115	TYP-2	TYPICALS
D	7115	TYP-3	TYPICALS
D	7115	TYP-4	TYPICALS

# WV DEP Reclamation Plan

*Handwritten signature and initials*  
 12-20-K



Know what's Below.  
 Call before you dig.  
 DIAL 811 OR 1-800-245-4648

1. BASIS OF COORDINATES AND DATUM IS GRID NORTH, DERIVED FROM STATIC TIES TO NEIS MONUMENTS AND TRANSFORMED INTO WEST VIRGINIA STATE PLANE SOUTH, NAD 83 (2011), US SURVEY FOOT.
2. INFORMATION DEPICTED HEREON IS BASED ON A SURVEY CONDUCTED FOR THE PURPOSE OF ESTABLISHING BASELINES FOR MAPPING SELECTED TOPOGRAPHIC FEATURES.
3. PROPERTY LINES SHOWN ARE FROM AVAILABLE PROPERTY LINE EVIDENCE AND DEED INFORMATION SUPPLIED BY THE CLIENT. A COMPLETE BOUNDARY SURVEY COMPLIANT WITH WV CODE 30-13A HAS NOT BEEN CONDUCTED.

BID SET  
 ISSUED: 11/29/2016



TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS HAVE BEEN MET AND I AM NOT PROVIDING ANY GUARANTEE OR WARRANTY OF ANY KIND. I AM NOT PROVIDING ANY GUARANTEE OR WARRANTY OF ANY KIND.

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

PROJECT DELIVERY	DATE	DRAWING NUMBER	ISSUE
PROJECT NUMBER	DATE	D-7115-COV-1	1
W.O. NUMBER	DATE	47100	

47035030281  
 11

**GENERAL NOTES**

1. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING STATE ONE CALL UTILITY LOCATING SERVICE. IN WEST VIRGINIA CALL 811 TO CONTACT WEST VIRGINIA UTILITY PROTECTION SERVICES (WUPS).
2. CONTRACTOR SHALL PERFORM ALL WORK IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL LAWS & REGULATIONS AS DERIVED BY THE CONTRACT DOCUMENTS, SPECIFICATIONS, DRAWINGS, ENVIRONMENTAL PLANS AND PERMIT STIPULATIONS.
3. WELDING, GRINDING, AND BEVELING TO BE DONE IN ACCORDANCE WITH COLUMBIA PIPELINE GROUP'S GENERAL WELDING SPECIFICATIONS.
4. THE IN PIPING IS TO BE INTERNALLY TAPERED IN ACCORDANCE WITH COLUMBIA PIPELINE GROUP'S WELDING SPECIFICATIONS.
5. GALVANIZED STEEL PIPE CLAMPS SHALL COME WITH A 1/8" THICK WELDED LINER ATTACHED TO THE PIPE CLAMP. THE SHIM BLOCKS MAY BE OF THE EPOXY TYPE OR THE GALVANIZED STEEL TYPE WITH A 1/8" PVC LINER. ALTERNATIVES TO GALVANIZED STEEL PIPE CLAMPS ARE CABLES OR U-BOLTS. A VIBRACON SHEATH MAY BE ORDERED FOR EITHER THE CABLES OR U-BOLTS AS REQUIRED.
6. ALL WELDING ON PRESSURIZED PIPING TO REMAIN IN SERVICE SHALL BE PERFORMED BY WELDERS QUALIFIED AND TESTED THRU CPG AND API 1104.
7. EXISTING UNDERGROUND UTILITIES LOCATIONS SHOWN ON DRAWINGS ARE APPROXIMATE AND BASED ON FIELD LOCATES. RECORDS, DOCUMENTS, AND OPERATING PERSONNEL CONTRACTORS MUST FOLLOW ALL CPG AND STATE REGULATIONS REGARDING UTILITY LOCATES.
8. THE EXISTING ADJACENT PIPELINE SHALL BE ENERGIZED DURING CONSTRUCTION. EXTREME CAUTION SHALL BE EXERCISED TO AVOID CONTACT WITH THE EXISTING COLUMBIA PIPELINE. A MINIMUM OF 3 FEET OF SOIL THICKNESS SHALL BE MAINTAINED BETWEEN THE EXISTING COLUMBIA PIPELINE AND THE NEW PIPE TO ALLOW EQUIPMENT TO CROSS. TRAVERSE ALONG OR OTHERWISE WORK OVER THE LOADED LINES.
9. FOREIGN PIPELINES ENCOUNTERED DURING THE ABANDONMENT PROCESS WILL BE CROSSED USING THE OWNER'S PRE-APPROVED CROSSING METHODS.
10. CONTRACTOR SHALL CONFINE EQUIPMENT AND WORK ACTIVITY WITHIN THE PIPELINE RIGHT-OF-WAY AND ANY DESIGNATED WORK AREAS.
11. EROSION CONTROL DEVICES SHALL MEET APPLICABLE STATE, FEDERAL, AND COLUMBIA STANDARDS. THESE DEVICES SHALL BE INSTALLED AND MAINTAINED USING GOOD ENVIRONMENTAL PRACTICES AND IN ACCORDANCE WITH APPLICABLE PERMITS.
12. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL WHEREVER CONSTRUCTION ACTIVITIES INTERFERE WITH PUBLIC ROADWAYS, ENSURING PUBLIC SAFETY IN THE FORM OF PERSONNEL, BARRIERS AND FENCES, WARNING SIGNS, FLASHING LIGHTS, FLAG-PERSONS, ETC. ALL CONSTRUCTION AND DETOUR SIGNING SHALL BE IN STRICT ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD).
13. AREAS DISTURBED DURING CONSTRUCTION OUTSIDE OF PROPOSED FENCE SHALL BE RESTORED TO ORIGINAL CONDITION. REFER TO CCI STANDARDS FOR SEEDING REQUIREMENTS.
14. ALL PIPELINE ABANDONMENT PROCESS WILL FOLLOW CPG SPECIFICATION 220.01.01 PIPE REMOVAL AND ABANDONMENT IN PLACE.

**GENERAL CONSTRUCTION NOTES**

1. CLEAR ALL WOODY AND ORGANIC MATERIAL AND TREES FROM THE SITE BEFORE BEGINNING CUTFILLS.
2. ALL TREES 10 INCHES DBH AND LARGER ARE TO BE CUT INTO POLE LENGTHS (12 TO 14') AND STACKED.
3. STOCKPILE THE TOPSOIL IN DESIGNATED LOCATIONS.
4. NO FILL IS TO BE PLACED ON FROZEN MATERIAL.
5. FILL MATERIAL SHALL BE CLEAN SOIL AND BE PLACED IN LIFTS OR LAYERS IN ACCORDANCE WITH DETAILS IN THIS PLAN.
6. PROPER COMPACTION SHALL BE ACCOMPLISHED BEFORE BEGINNING THE NEXT FILL LIFT.
7. NO FILLS ARE TO BE PLACED AT GREATER THAN A 2:1 SLOPE.
8. ROCK LIFTS OR ROCK DIMENSIONS SHALL NOT EXCEED 36 INCHES.
9. ENSURE THAT EMBANKMENT MATERIALS EXHIBIT ADEQUATE SOIL STRENGTH AND PROPER MOISTURE CONTENT.
10. DURING OR AFTER ANY RAIN EVENT PAID SOILS SHALL BE INSPECTED FOR ANY CONTAMINANTS OR SPHERS ON THE WATER SURFACE. IF CONTAMINANTS OR SPHERS ARE OBSERVED, FOLLOW APPROPRIATE PROCEDURES IN THE WELLSITE SAFETY PLAN.

**SEQUENCE OF CONSTRUCTION**

1. MAKE ALL AGENCY NOTIFICATIONS ACCORDING TO PERMIT REQUIREMENTS.
  2. SURVEY AND STAKE CONTROL CENTERLINES AND WORK AREA LIMITS.
  3. HOLD PRE-CONSTRUCTION CONFERENCE WITH ENVIRONMENTAL INSPECTORS. CONTRACTOR TO PROVIDE PROPOSED SEQUENCE OF EARTH DISTURBANCE WITH TIMELINES FOR STATIONING.
  4. PERFORM TREE CLEARING AND INSTALL BMPs AS NEEDED TO CONTROL INITIAL DISTURBANCES.
  5. INSTALL CONSTRUCTION ENTRANCES.
  6. CLEAR AND GRUB FOR INSTALLATION OF PERIMETER CONTROLS.
  7. INSTALL PERIMETER CONTROLS (SILT FENCE, COMPOST FILTER SOCK, OUTLET STRUCTURES, ETC.).
  8. COMPLETE SITE CLEANING AND GRUBBING.
  9. STRIP TOPSOIL FROM DESIGNATED AREAS.
  10. GRADE SITE TO CIVIL DESIGN PLANS.
  11. AFTER PIPELINE IS INSTALLED, GRADE SITE TO FINAL RESTORATION CONTOURS.
  12. COMPLETE FINAL STABILIZATION BY PERFORMING SEEDING PREPARATIONS, TOPSOIL APPLICATION, SOIL AMENDMENT APPLICATIONS, SEEDING AND MULCHING.
  13. AFTER SITE IS PERMANENTLY STABILIZED AND UPON FINAL INSPECTION AND COMPANY APPROVAL, REMOVE TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES AND THEN STABILIZE AREAS DISTURBED BY REMOVAL.
- NOTE: ON COMPLETION OR TEMPORARY CESSATION OF EARTH DISTURBANCE ACTIVITY OR AT ANY STAGE OR PHASE WHERE CESSATION OF EARTH DISTURBANCE WILL EXCEED SEVEN DAYS, IMMEDIATELY SEED AND MULCH OR OTHERWISE PROTECT THE SITE FROM ACCELERATED EROSION AND SEDIMENTATION.

**STANDARD GRADING NOTES**

- APPLICABLE CODES AND STANDARDS:**
  1. ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIALS (AASHTO)
  2. AMERICAN CONCRETE INSTITUTE - "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI-318-02).
- MATERIALS**
  1. AASHTO #57 STONE
  2. GEOTEXTILE FABRIC, WEED BARRIER, TYPE AR 3201 OR APPROVED EQUAL (IF APPLICABLE TO BE DETERMINED BY ENGINEER)
- INSTALLATION**
  1. EXCAVATE TO PROPER ELEVATION AND GRADE.
  2. AFTER SUPERGRADE GRADING HAS BEEN COMPLETED A GEOTEXTILE FABRIC FOR WEED CONTROL SHALL BE INSTALLED.
  3. AFTER THE INSTALLATION OF THE GEOTEXTILE HAS BEEN COMPLETED, BACKFILL AND COMPACT STONE IN SIX-INCH LIFTS.

**STANDARD CONCRETE NOTES**

1. CONCRETE AND REBAR SPECIFICATIONS PER COLUMBIA SPECIFICATION CON-101.
2. ALL CONCRETE SHALL BE PROTECTED BY ONE OR MORE CURING MATERIALS. POLYETHYLENE SHEETING WILL BE PERMITTED AS CURING ONLY ON AREAS WHERE INTIMATE CONTACT WITH THE CONCRETE SURFACE CAN BE OBTAINED AND MAINTAINED FOR AT LEAST SEVEN DAYS. MEMBRANE FORMING CURING COMPOUND MAY BE USED IF IMMEDIATELY APPLIED AFTER ACCEPTANCE OF THE CONCRETE FINISH.
3. ALL FOUNDATIONS SHALL BE PLACED ON FIRM UNDISTURBED SOIL FREE OF FROST AND NOT FROZEN Boulders, SOFT SPOTS, EXCESSIVE WATER AND ORGANIC MATERIALS. IF UNSUITABLE CONDITIONS ARE ENCOUNTERED, NOTIFY THE COLUMBIA PIPELINE GROUP ENGINEER BEFORE PROCEEDING.
4. ALL EXPOSED CONCRETE SURFACES SHALL BE A GOOD FINISH AND STEEL TROWELED TO PRODUCE A SMOOTH, UNIFORM FINISH. ALL CONCRETE SHALL BE CURED FOR A MINIMUM OF 7 DAYS. ALL CRACKS SHALL BE REPAIRED. CAVITIES PRODUCED BY FORM TIES AND OTHER HOLES, BROKEN CORNERS OR EDGES AND OTHER DEFECTS SHALL BE REPAIRED AND THEN RUBBERED.
5. ALL CORROSION CONTROL WORK TO BE PERFORMED PER THE REFERENCED PROCEDURE / SPECIFICATION.

**STANDARD GRATING NOTES**

1. GRATING SHALL HAVE 3/16" BEARING BARS MATCHING THE DEPTH SHOWN ON THE PLANS WITH CROSS BARS @ 4' O.C.
2. SUPPORT GRATING WITH SADDLE CLIPS AT 24" O.C. PROVIDE MIN (2) CLIPS AT THE ENDS OF EACH PANEL.
3. ALL OPENINGS LARGER THAN 4" SHALL BE BANDED.
4. GRATING SHALL MEET THE FOLLOWING CRITERIA:
  - UNIFORM LIVE LOAD 60 PSF
  - CONCENTRATED LIVE LOAD 300 LB (OVER 1 SQ. FT.)
  - MAXIMUM DEFLECTION 3/8"

**MATERIAL SUMMARY - WELL PAD 12596**

ITEM	QUANTITY	UNIT	DESCRIPTION
CE	1	EACH	CONSTRUCTION ENTRANCE
SF	1,662.00	LINEAR FEET (LF)	SILT FENCE SOCK
EQS	10,000.00	SQUARE YARD (SY)	EROSION CONTROL BLANKET

02/25/2017

**TABLE 2A - PERMANENT SEED MIX FOR UPLAND ROW AND WATERBODY CROSSINGS**

SEED	TYPE	RATE (lb./ACRES)
ORCHARD GRASS AND/OR TALL FESCUE*		29
PROSOPY		9
ANNUAL RYE		12
10-10-10 (OR EQUIVALENT)		600*
MILK		4,000
LIV OR STRAW		4,000
AGRICULTURAL LIME		4,000

\* PINE LIME SEED WITHIN 12 MONTHS OF TESTING  
 \* IF TALL FESCUE IS USED, PLANT ENDOPHYTE-FREE CERTIFIED SEED  
 \* LEGUMES TO BE INOCULATED BY MANUFACTURER'S RECOMMENDATIONS IF NOT AVAILABLE. LEGUMES ARE TO BE INOCULATED AT TIMES RECOMMENDED RATE FOR CONVENTIONAL METHODS AND 10 TIMES RECOMMENDED RATE FOR COVER CROPS.  
 \* WHERE WOOD CHIPS ARE SPREAD, ADDITIONAL NITROGEN (12 TO 15 lb./TON OF CHIPS) WILL BE SPREAD  
 \* SEED RATE MUST BE DOUBLED FOR BROODCROFT SEEDING.

**TABLE 2B - SEED MIX FOR TEMPORARY STABILIZATION**

SEED	TYPE	RATE (lb./ACRES)
ANNUAL RYE		40
LIV OR STRAW		5,000

**TABLE 2C - SEED MIX REQUIREMENTS IN WETLANDS**

SEED	TYPE	RATE (lb./ACRES)
ANNUAL RYE		40

\* ANNUAL RYE IS USED AS TEMPORARY RE-VEGETATION LEGUME UNTIL PERENNIAL PLANTS RE-ESTABLISH COVER. A MONITORING PROGRAM WILL BE IN EFFECT TO INSURE ADEQUATE COVER IS ESTABLISHED.

**Columbia Pipeline Group**

PROJECT SEED MIXES

*Handwritten signature/initials*

**BID SET**  
 ISSUED: 11/29/2016

<p><b>M M</b>          MOTT MICHAEL</p>		<p>NON-SKALDED</p>	
<p>DESIGN PRESSURE: PSIG AT 71' DESIGN FACTOR, MAXIMUM ROOF STRESS LABEL AT _____ PSIG, BASED ON _____          MAJOR TEST PRESSURE: PSIG, BASED ON _____          TEST METHOD: _____          TEST MATERIAL: _____</p>	<p>TEMPERATURE: _____          TO THE BEST OF MY KNOWLEDGE ALL COMPONENTS OF THIS DRAWING WERE DESIGNED IN ACCORDANCE WITH APPLICABLE COLUMBIA ORDERLINES AND SPECIFICATIONS.</p>	<p>DATE: 11/29/2016          BY: [Signature]          APPROVED: [Signature]</p>	<p>DATE: 11/29/2016          BY: [Signature]          APPROVED: [Signature]</p>
<p>PROJECT DELIVERY          PROJECT ENGINEERING          PROJECT NUMBER: 22892          W.O. NUMBER: 47100</p>		<p>PROJECT SEED MIXES          PROJECT NUMBER: 47100</p>	
<p>TITLE: GENERAL NOTES          DRAWING NUMBER: D-7115-NOT</p>		<p>ISSUE: B</p>	



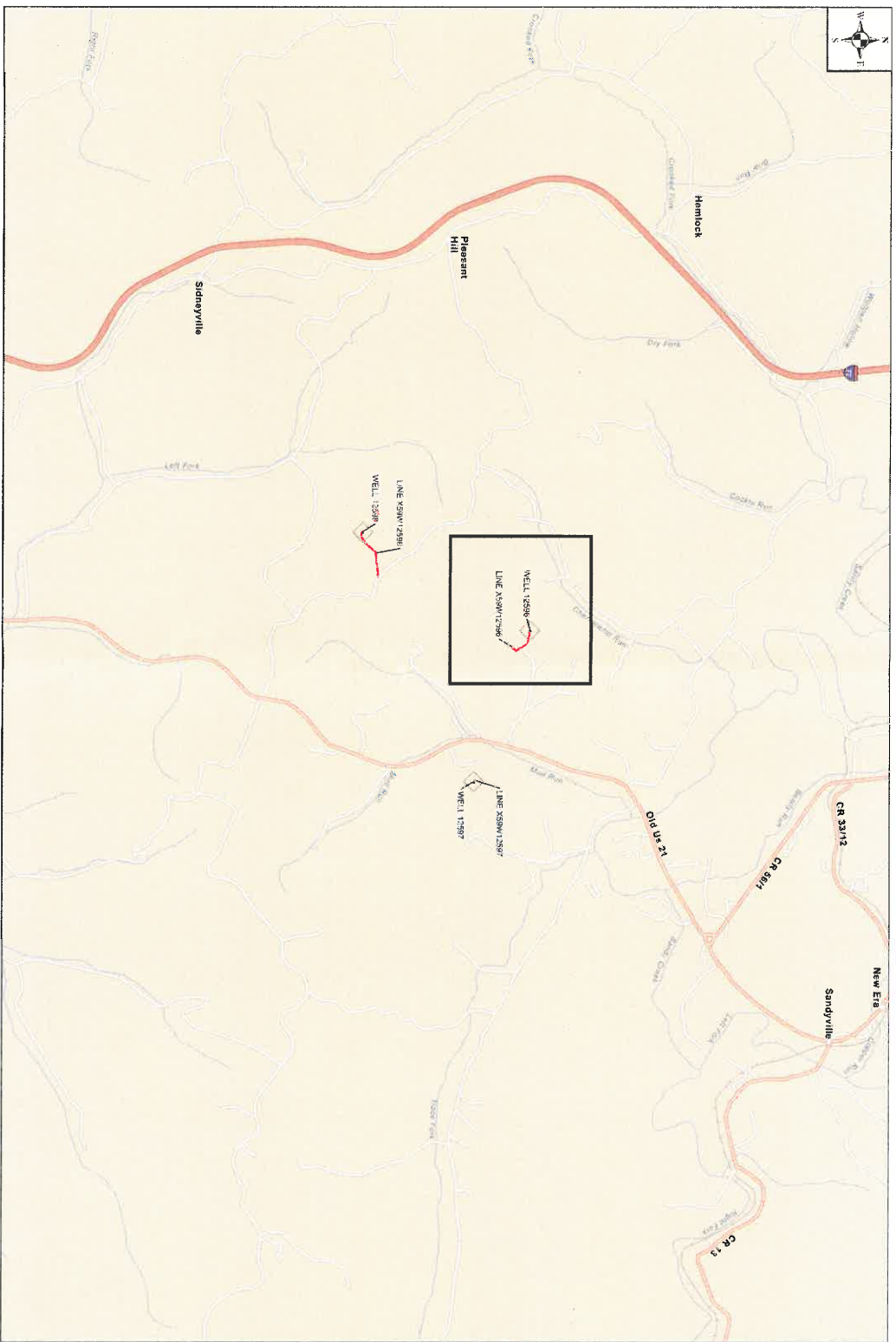
ISSUE	DRAWING NUMBER
B	1-XN-117LD

1 2 3 4 5 6 7 8 9 10 11



# Columbia Gas Transmission

02/25/2017



## RIPLEY WELL 12596

*JSR*

NO.		REVISIONS		NO.		REVISIONS		NO.		REVISIONS	
BY	DATE	BY	DATE	BY	DATE	BY	DATE	BY	DATE	BY	DATE
M M KOTT MCCONNELL				NON-SCALE 0				RE-ISSUED FOR BID			
DESIGN MESSAGE: _____ PROJECT _____ TEST FACTOR: _____ MAXIMUM HOOP STRESS: _____ AT _____ PSI, BASED ON _____ MINIMUM TEST PRESSURE: _____ TEST LIMITED BY _____ TEST METHOD: _____ TEST PERIOD: _____ SERVICE: _____ INVESTIGATING THE INSPECTION REQUIREMENTS _____ TO THE BEST OF MY KNOWLEDGE ALL OF THE PERMITS ARE DESIGN IN ACCORDANCE WITH APPLICABLE COLUMBIA GAS TRANSMISSION SPECIFICATIONS.				DESIGN ENGINEER: _____ DATE: _____ DATE: _____				DWG. NO. _____ REFERENCE _____			
PROJECT DELIVERY PROJECT NUMBER: 22892 W/O NUMBER: 47100				TITLE INDEX SHEET				PROJECT NUMBER: 22892 W/O NUMBER: 47100			
ISSUED: 11/29/2016				PROJECT NUMBER: 22892 W/O NUMBER: 47100				DRAWING NUMBER: 07115-INX-1 ISSUE: B			

H G F E D C B A



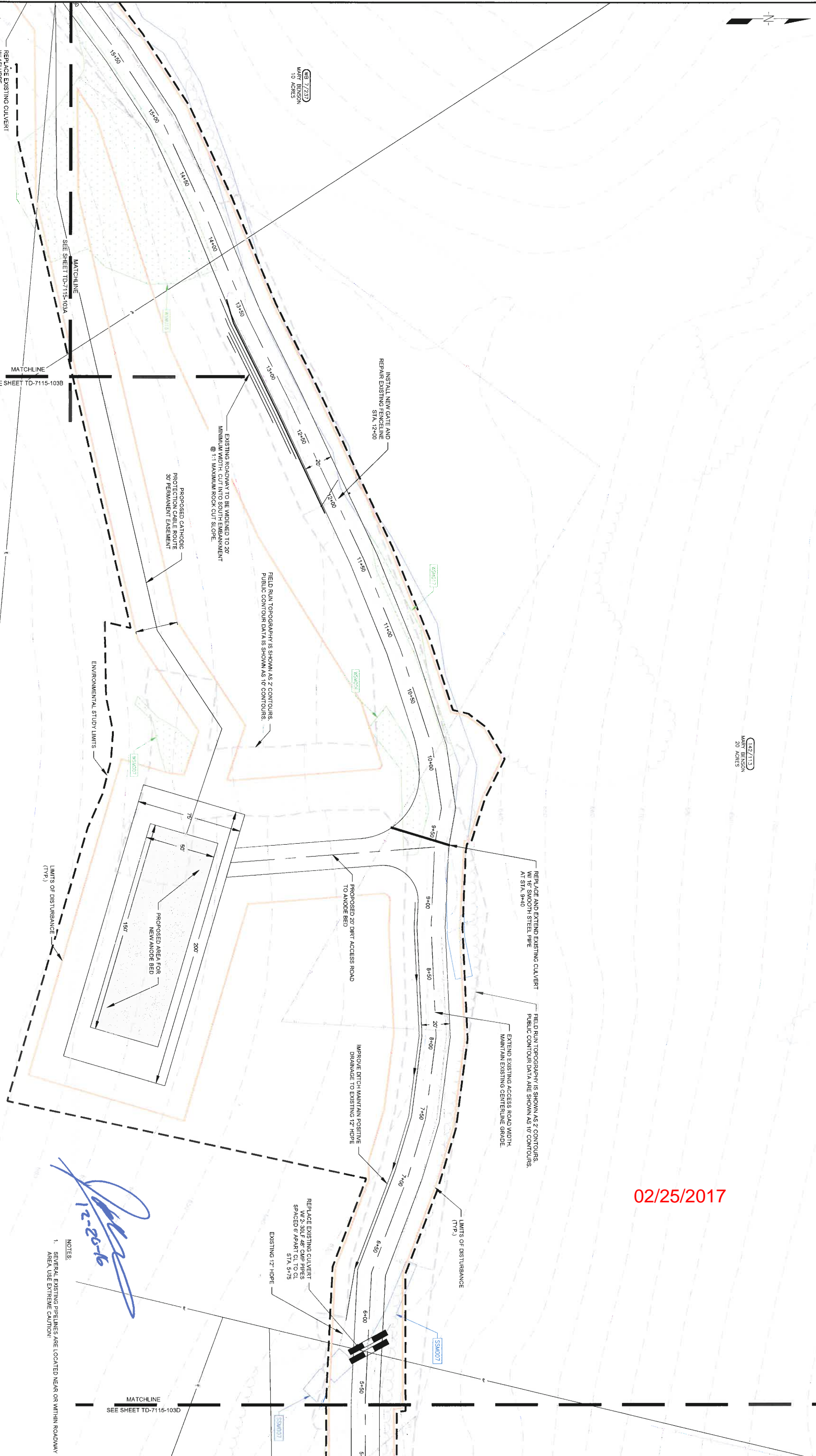












(12/1/13)  
 MARY BRINSON  
 20 ACRES

(08/7/2013)  
 MARY BRINSON  
 19 ACRES

(2/17/2012)  
 MARY BRINSON

NO.	REVISIONS	BY	DATE	NO.	REVISIONS	BY	DATE

NO.	REVISIONS	BY	DATE

DESIGN PRESSURE		DESIGN FACTOR		MAXIMUM HOOP STRESS LEVEL	
MINIMUM TEST PRESSURE		TEST PERIOD		TEST PERIOD	
TEST METHOD		TEST PERIOD		TEST PERIOD	

DESIGN PRESSURE		DESIGN FACTOR		MAXIMUM HOOP STRESS LEVEL	
MINIMUM TEST PRESSURE		TEST PERIOD		TEST PERIOD	
TEST METHOD		TEST PERIOD		TEST PERIOD	

DESIGN PRESSURE		DESIGN FACTOR		MAXIMUM HOOP STRESS LEVEL	
MINIMUM TEST PRESSURE		TEST PERIOD		TEST PERIOD	
TEST METHOD		TEST PERIOD		TEST PERIOD	

SCALE: 1" = 30'-0"

TO THE BEST OF MY KNOWLEDGE ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE COLUMBIAN CODES AND SPECIFICATIONS.

DESIGNER: [Signature]

DATE: 09/01/16

NOTES:  
 1. SEVERAL EXISTING PIPELINES ARE LOCATED NEAR OR WITHIN ROADWAY AREA. USE EXTREME CAUTION!

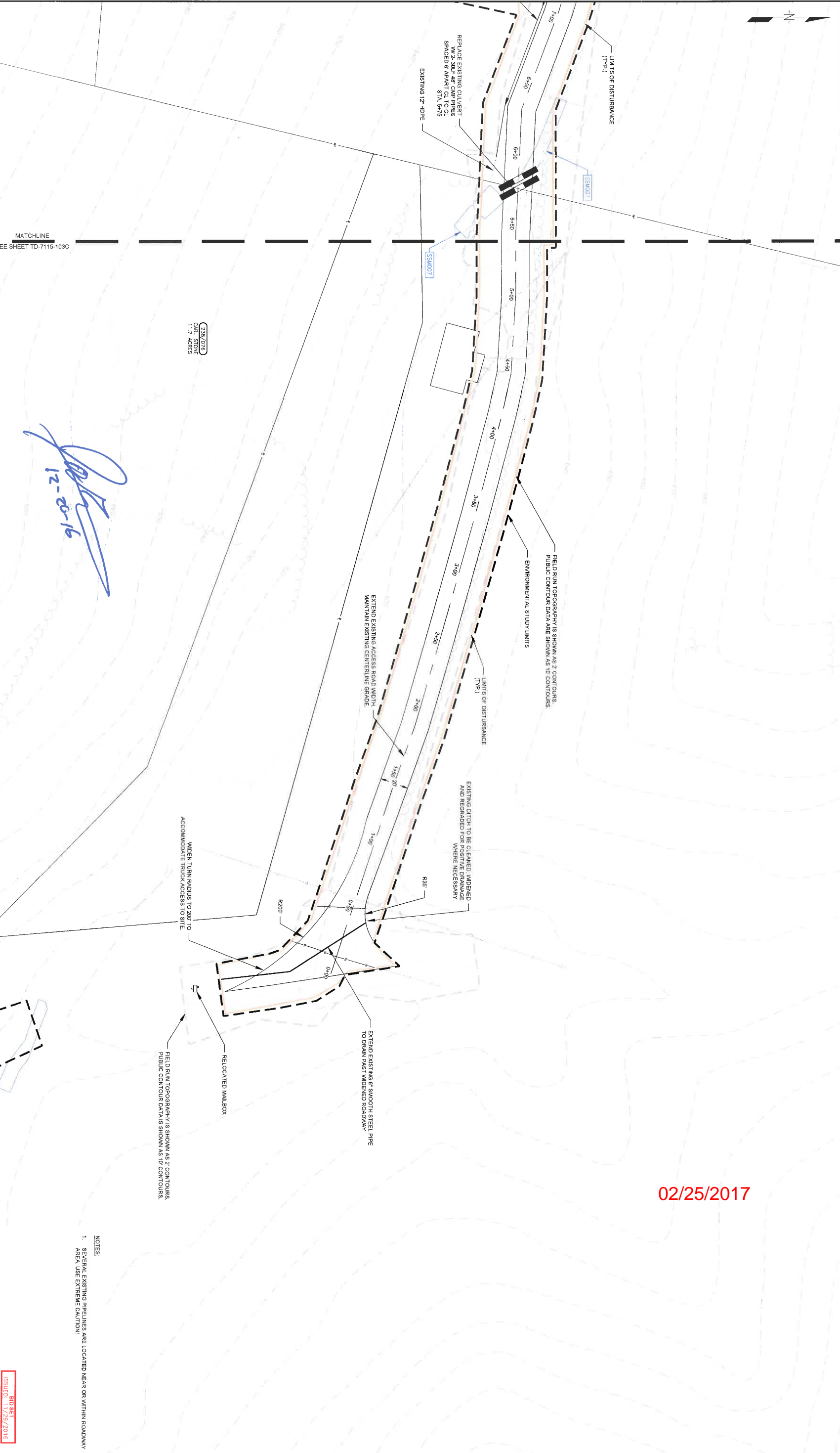
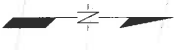
*[Handwritten signature]*  
 12-20-16

02/25/2017



B  
 DRAWING NUMBER  
 TD-1115-1030  
 ISSUE

1 2 3 4 5 6 7 8 9 10 11



*Handwritten signature and date:*  
 12-20-16

MATCHLINE  
 SEE SHEET TD-7115-103C

236/076  
 CARL STONE  
 11.7 ACRES

02/25/2017

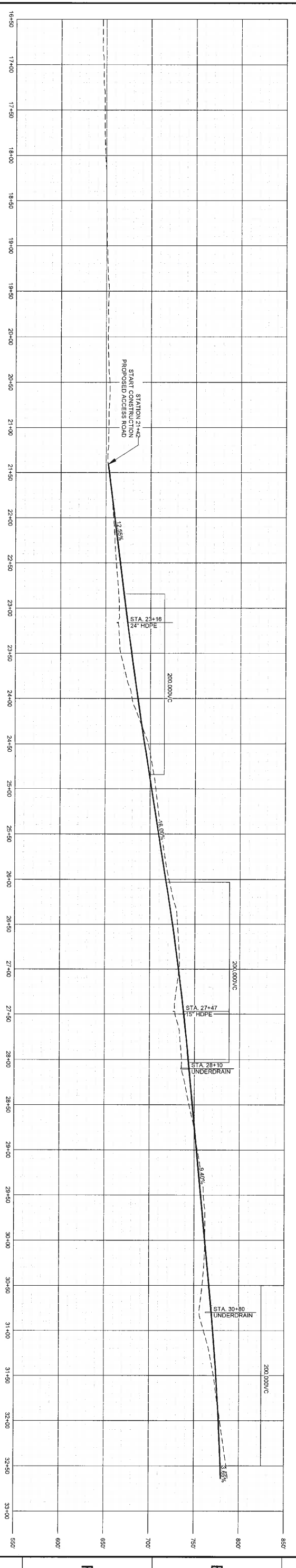
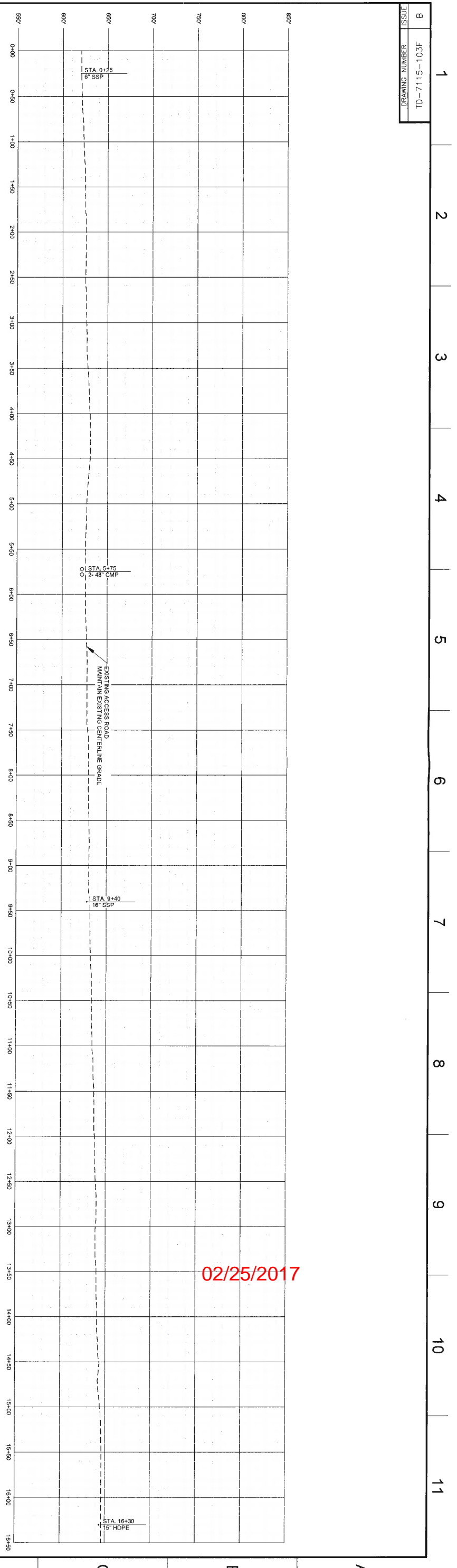
NOTES:  
 1. SEVERAL EXISTING PIPES ARE LOCATED NEAR OR WITHIN ROADWAY AREA. USE EXTREME CAUTION.

NO.		REVISIONS		NO.		REVISIONS		NO.		REVISIONS	
APPROVED	DATE	APPROVED	DATE	APPROVED	DATE	APPROVED	DATE	APPROVED	DATE	APPROVED	DATE
<p><b>M M</b>                  M M                  M M</p> <p>SCALE: 1" = 30'-0"</p> <p>DESIGN PRESSURE: _____ PSI AT _____ DESIGN FACTOR. MAXIMUM HOPE STRESS LEVEL AT _____ PSI &amp; S.M.S. BASED ON _____ MAINTENANCE PRESSURE _____ PSI. TEST PERIOD _____ HOURS. NON-DESTRUCTIVE INSPECTION REQUIREMENTS: _____</p> <p>DESIGN ENGINEER: _____ DATE: _____</p> <p>TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE COLUMBIA ORDINANCES AND SPECIFICATIONS.</p>											
DWG. NO.						REFERENCE					
PROJECT DELIVERY						PROJECT DELIVERY					
PROJECT ENGINEERING						PROJECT ENGINEERING					
RIPLEY WELL SITE 12596						RIPLEY WELL SITE 12596					
LAYOUT & GRADING PLAN						LAYOUT & GRADING PLAN					
COLUMBIA Gas Transmission						COLUMBIA Gas Transmission					
DATE: 09/01/16						DATE: 09/01/16					
PROJECT NUMBER: 22892						PROJECT NUMBER: 22892					
W.O. NUMBER: 27100						W.O. NUMBER: 27100					
DRAWING NUMBER: TD-7115-1030						DRAWING NUMBER: TD-7115-1030					
ISSUE: B						ISSUE: B					





DRAWING NUMBER	ISSUE
TD-7115-103F	B



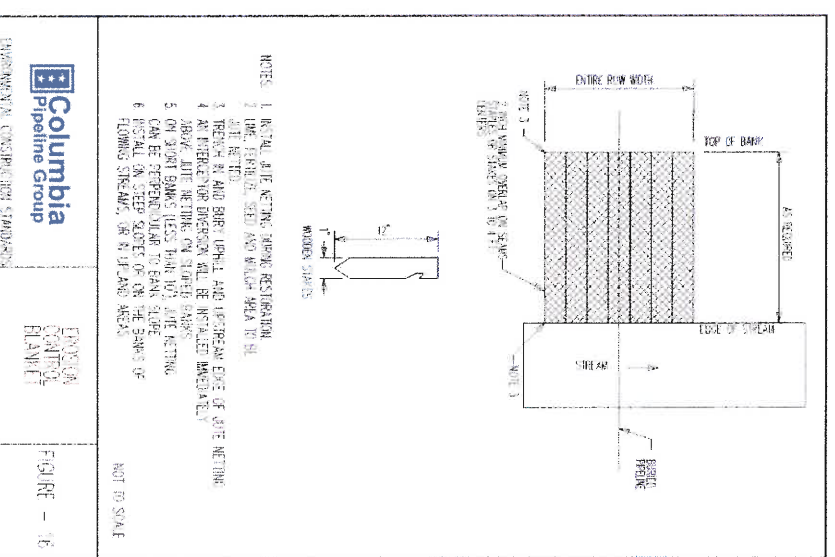
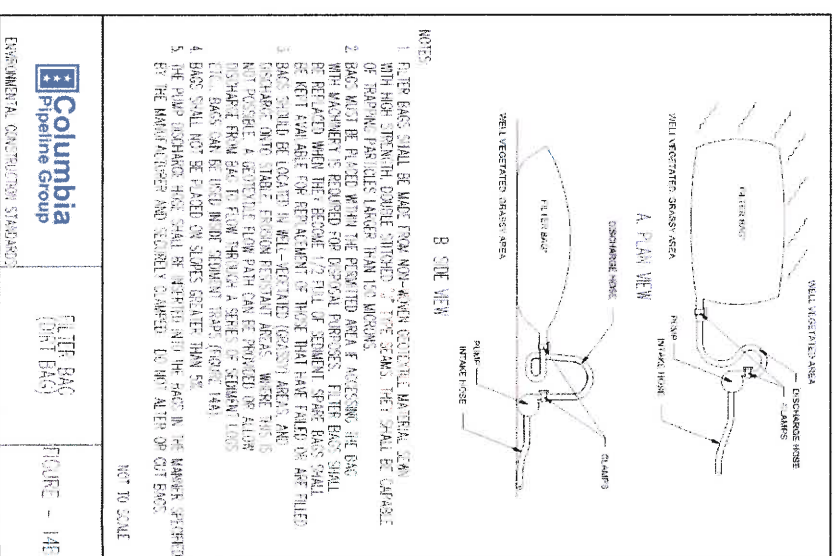
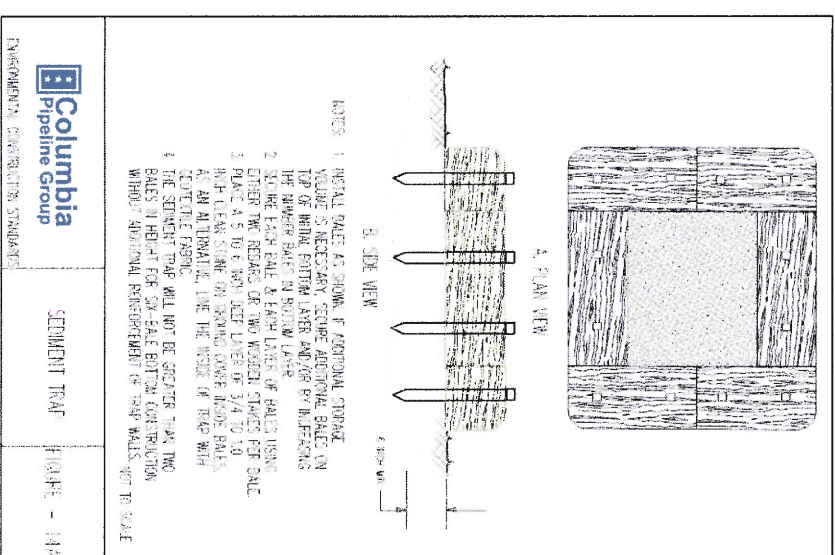
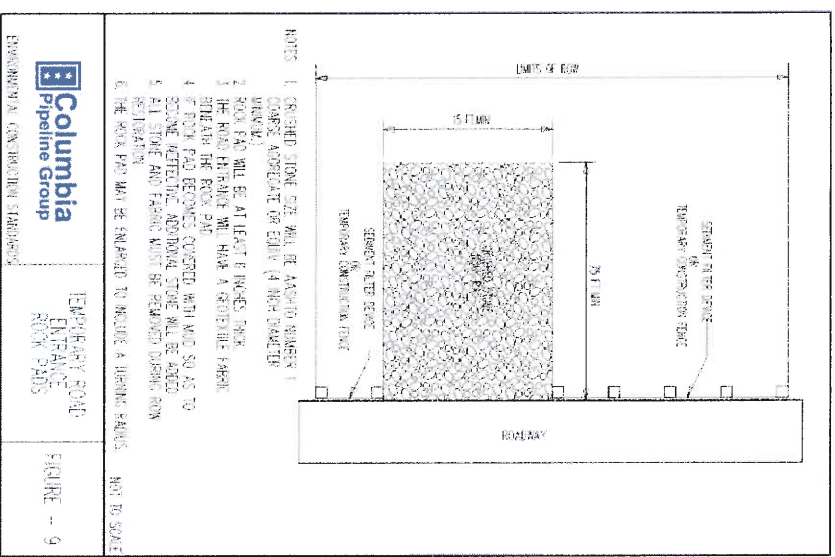
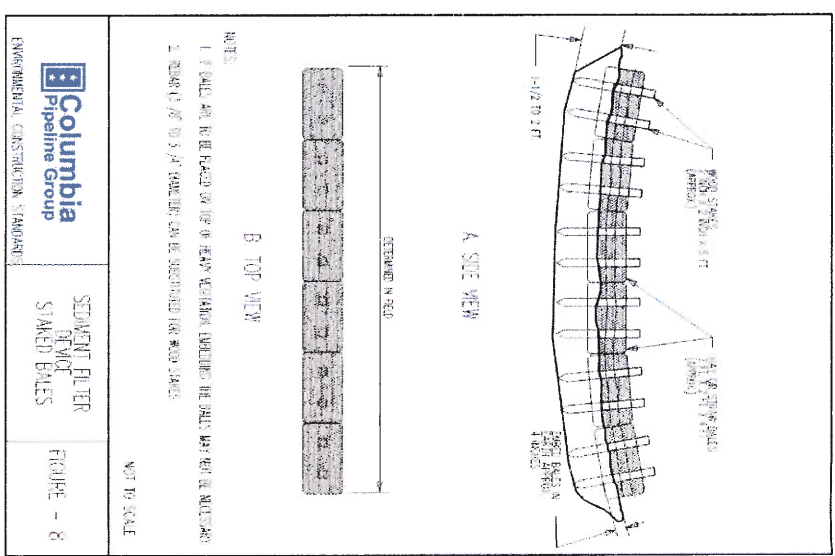
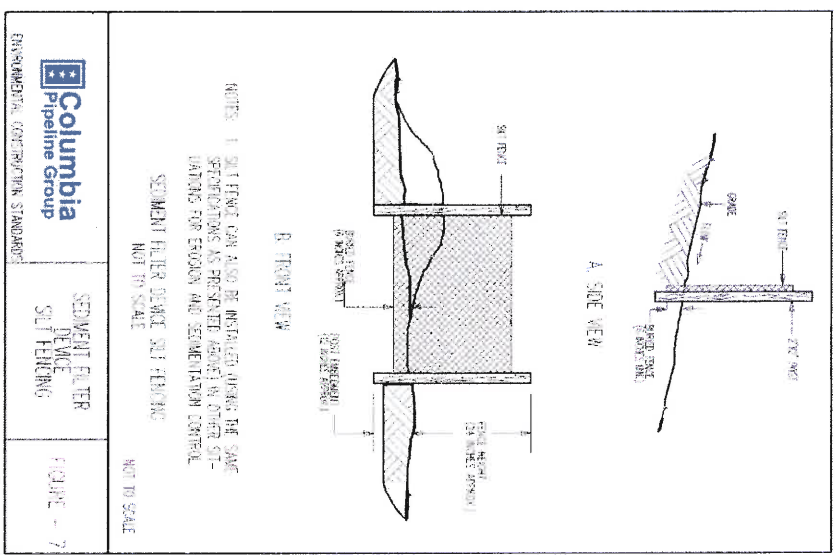
12596 ACCESS ROAD CENTERLINE PROFILE  
 HORIZONTAL SCALE 1" = 50'  
 VERTICAL SCALE 1" = 50'

*SOZ*

02/25/2017

NO.		REVISIONS		NO.		REVISIONS	
APPROVED	DATE	APPROVED	DATE	APPROVED	DATE	APPROVED	DATE
<p><b>M M M</b>                  MOTT MACDONALD</p> <p>AS NOTED</p> <p>RE-ISSUED FOR BID</p>							
<p>DESIGN PRESSURE: 150 PSI AT 1" DESIGN FACTOR. MAXIMUM HOPE STRESS LEVEL: 150 PSI. BASED ON 100% FACTOR OF SAFETY. TEST LIMIT: 100%.</p> <p>DESIGN ENGINEER: [Signature] DATE: 11/29/2016</p> <p>TEST METHOD: [Signature] DATE: 11/29/2016</p> <p>UNDERSTANDING INSPECTION REQUIREMENTS: [Signature] DATE: 11/29/2016</p> <p>CERTIFICATE TO THE BEST OF MY KNOWLEDGE ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE COLUMBIA GAS RULES AND SPECIFICATIONS.</p>							
DWG. NO.		REFERENCE		DWG. NO.		REFERENCE	
10-7115-103A		RIPLEY WELL SITE 12596 - LAYOUT & GRADING PLAN		10-7115-103B		RIPLEY WELL SITE 12596 - LAYOUT & GRADING PLAN	
PROJECT DELIVERY		PROJECT ENGINEERING		PROJECT DELIVERY		PROJECT ENGINEERING	
COLUMBIA GAS TRANSMISSION		COLUMBIA GAS TRANSMISSION		COLUMBIA GAS TRANSMISSION		COLUMBIA GAS TRANSMISSION	
TITLE		ACCESS ROAD PROFILE		TITLE		ACCESS ROAD PROFILE	
PROJECT NUMBER: 22892		SITE: 09/15		PROJECT NUMBER: 22892		SITE: 09/15	
W.O. NUMBER: 47100		DRAWING NUMBER: TD-7115-103F		W.O. NUMBER: 47100		DRAWING NUMBER: TD-7115-103F	
ISSUE		ISSUE		ISSUE		ISSUE	
B		B		B		B	

BID SET  
 ISSUED: 11/29/2016



*Signature*

02/25/2017



BID SET  
ISSUED: 11/29/2016

DESIGN PRESSURE: 750 PSI		DESIGN FACTOR: 1.0		MAXIMUM HOOP STRESS LEVEL: 100,000 PSI	
AT 100% FLOW		BASED ON		MAXIMUM TEST PRESSURE: 150,000 PSI	
MINIMUM TEST PRESSURE: 100,000 PSI		TEST METHOD: HYDRAULIC		TEST FREQUENCY: 100% OF PIPE	
TEST MEDIA: WATER		SERVICE: GAS		NON-DESTRUCTIVE INSPECTION REQUIREMENTS: VISUAL	
TO THE BEST OF MY KNOWLEDGE, ALL COMPONENTS OF THIS DRAWING ARE DESIGNED IN ACCORDANCE WITH APPLICABLE CODES, STANDARDS, SPECIFICATIONS AND REGULATIONS.					
DESIGNER: [Signature]					
DATE: 11/29/2016					
DRAWN BY: MM					
DATE: 11/29/2016					
CHECKED BY: [Signature]					
DATE: 11/29/2016					
APPROVED BY: [Signature]					
DATE: 11/29/2016					
PROJECT NUMBER: 22882					
W.O. NUMBER: 47100					
DRAWING NUMBER: 07115-TYP-1					
ISSUE: B					

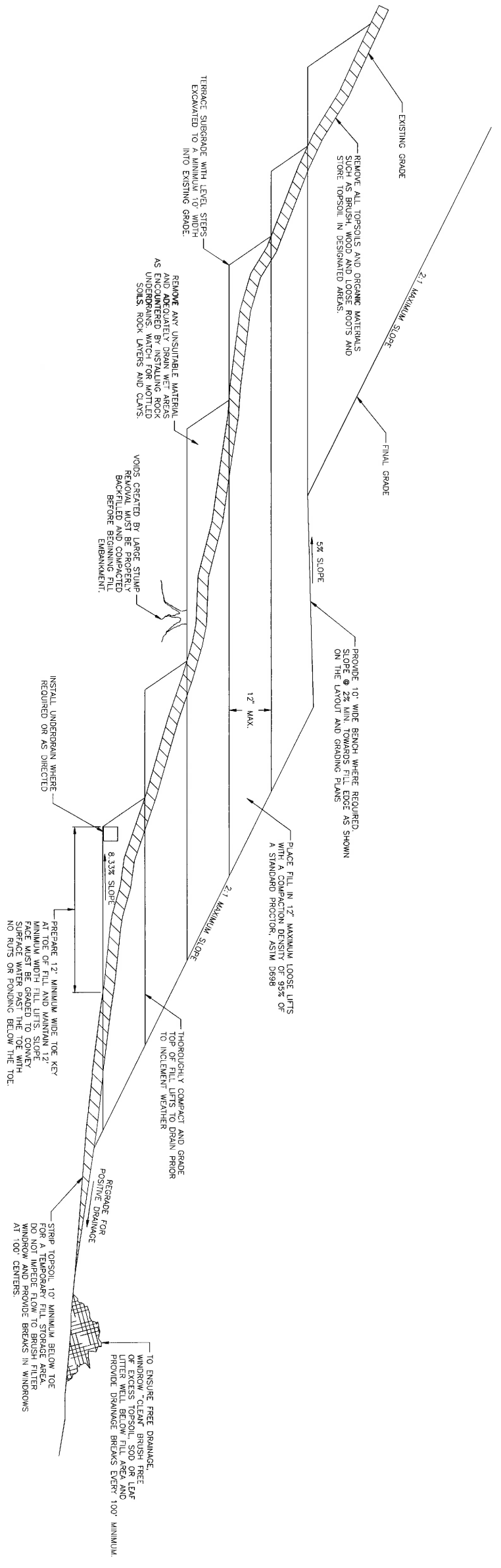








NOTES:  
1. EXCAVATED TOE KEY BASE MUST BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO BEGINNING FILL PLACEMENT.



**FILL PLACEMENT**  
NOT TO SCALE

*STP*

02/25/2017

BID SET  
ISSUED: 11/29/2016

<p><b>PROJECT DELIVERY</b> PROJECT ENGINEERING 1000 W. COLUMBIA PARKWAY, SUITE 200, COLUMBIA, MO 65201 RIPLEY WELL 12596</p>		<p><b>Columbia</b> Gas Transmission</p>	
<p>TITLE TYPICALS</p>		<p>DRAWING NUMBER D7115-TYP-4</p>	
<p>DESIGNER MAM</p>		<p>DATE 02/15</p>	
<p>CHECKER MAM</p>		<p>PROJECT NUMBER 22892</p>	
<p>DATE 11/29/2016</p>		<p>W.O. NUMBER 47100</p>	
<p>ISSUED BY MAM</p>		<p>ISSUE B</p>	

4703503028T



STATE OF WEST VIRGINIA  
DEPARTMENT OF HEALTH AND HUMAN RESOURCES  
BUREAU FOR PUBLIC HEALTH  
OFFICE OF ENVIRONMENTAL HEALTH SERVICES

Earl Ray Tomblin  
Governor

Karen L. Bowling  
Cabinet Secretary

December 6, 2016

William Timmermeyer  
Environmental Planning & Permitting Principal  
TransCanada | Columbia Pipeline Group  
1700 MacCorkle Ave., SE  
PO Box 1273  
Charleston, WV 25314

<b>Ripley 12596</b>
Lat: 38.8829
Long: 81.6996
<b>Ripley 12597</b>
Lat: 38.8790
Long: 81.6849
<b>Ripley 12598</b>
Lat: 38.8706
Long: 81.7084

**Re:** SWAP Information Request for  
Proposed Ripley wells  
Jackson County, West Virginia

Dear Mr. Timmermeyer:

In response to the informational request dated December 5, 2016 concerning the closest Wellhead Protection Areas for three proposed wells in Jackson County. Based on the current information, we have found that your project area **does not** intersect any public water sources or protection areas.

The closest distances to the Protection Areas are as follow:

Wellhead Protection Area	WV9918034	WV BAPTIST CONF. CENTER	5.3 miles
Zone of Critical Concern	WV3301811	CITY OF RIPLEY	3.5 mile
Zone of Peripheral Concern	WV3301811	CITY OF RIPLEY	3.4 mile

Your location is 104 miles upstream of a public water intake at the WVAWC –Huntington District.

We do not have information regarding private drinking wells in the area. I suggest you contact the county health department for this information.

I hope the information provided helps you with the completion of your project. If you have any questions, please do not hesitate to contact me at (304) 356-4309.

Sincerely,

Lisa A. King, GIS Administrator  
Source Water Assessment and Protection

CC: William J. Toomey

350 Capitol Street, Room 313  
Charleston, West Virginia 25301-3713  
Telephone: (304) 558-2981

RECEIVED  
Office of Oil and Gas  
JAN 03 2017  
WV Department of  
Environmental Protection

02/25/2017

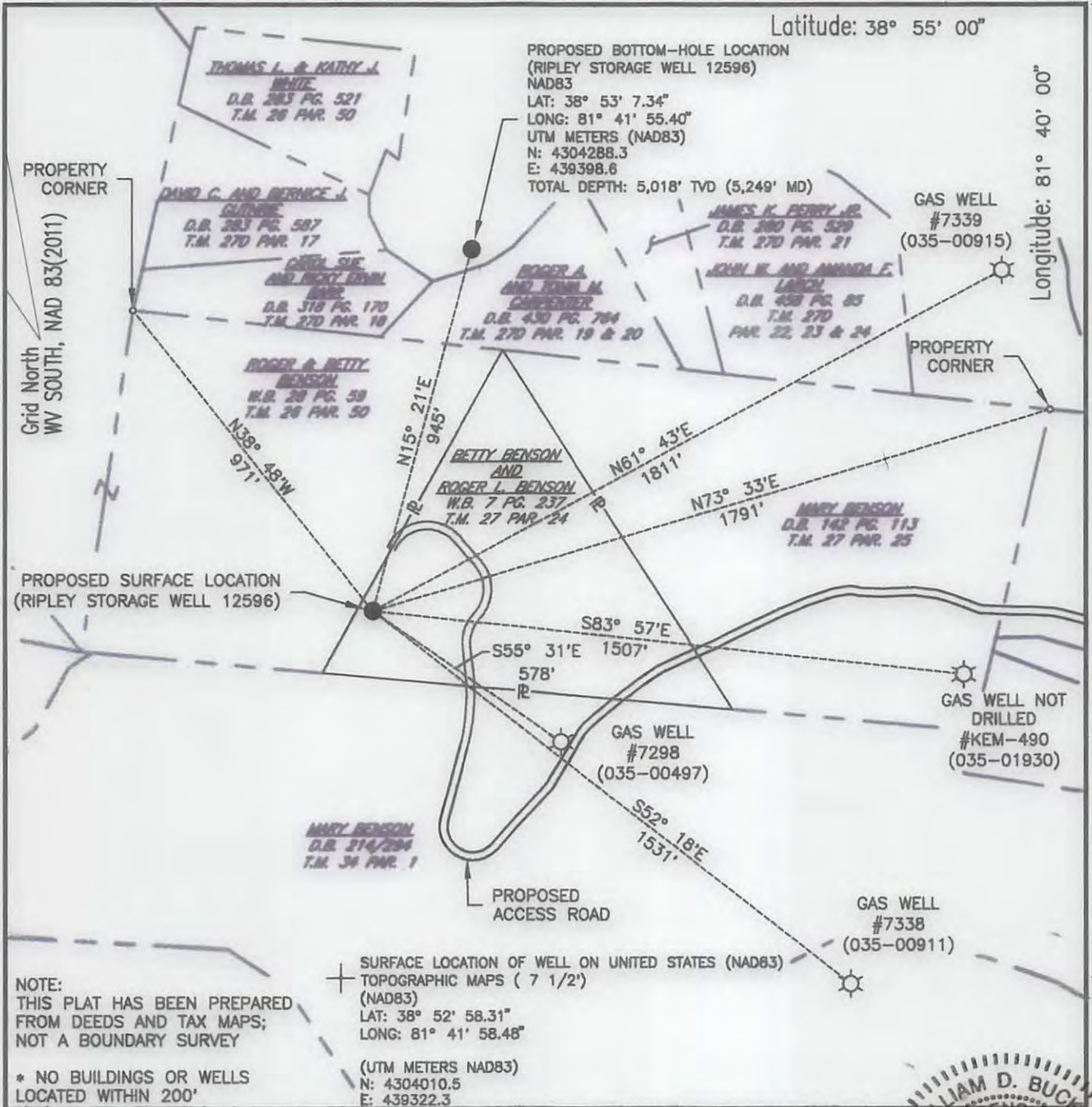


9,379'

Latitude: 38° 55' 00"

Longitude: 81° 40' 00"

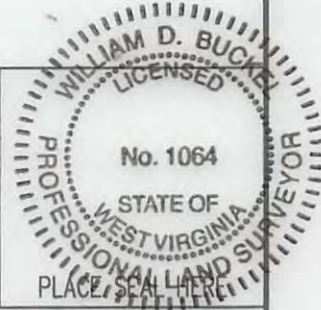
12,370'



NOTE:  
THIS PLAT HAS BEEN PREPARED  
FROM DEEDS AND TAX MAPS;  
NOT A BOUNDARY SURVEY

\* NO BUILDINGS OR WELLS  
LOCATED WITHIN 200'

⊕ SURFACE LOCATION OF WELL ON UNITED STATES (NAD83)  
TOPOGRAPHIC MAPS ( 7 1/2' )  
(NAD83)  
LAT: 38° 52' 58.31"  
LONG: 81° 41' 58.48"  
  
(UTM METERS NAD83)  
N: 4304010.5  
E: 439322.3



FILE # \_\_\_\_\_  
DRAWING # 12596  
SCALE: 1" = 400'  
MINIMUM DEGREE OF ACCURACY: 1:2,500'  
PROVEN SOURCE OF ELEVATION: STATIC GPS SURVEY WITH TIES TO NGS DATA

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: *William D. Buckel*

R.P.E.: \_\_\_\_\_ L.L.S.: 1064

+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP  
OFFICE OF OIL & GAS  
601 57TH STREET  
CHARLESTON, WV 25304



DATE: 12/27/2016  
OPERATOR'S WELL #: 12596  
API WELL #: 47 035 03028 T  
STATE COUNTY PERMIT

Well Type:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow

WATERSHED: MUD RUN ELEVATION: 782'  
COUNTY/DISTRICT: JACKSON / RIPLEY QUADRANGLE: SANDYVILLE

SURFACE OWNER: BETTY BENSON AND ROGER L. BENSON ACREAGE: 10  
O.H. COOK AND JEWEL COOK AND LEWIS H. COOK AND ETHEL STANLEY COOK  
OIL & GAS ROYALTY OWNER: LEASE NO. 1052774-000 (SURFACE) 1052506-00 (BOTTOM HOLE) ACREAGE: 72

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
CLEAN OUT & REPLUG  OTHER CHANGE  SPECIFY: \_\_\_\_\_

TARGET FORMATION: ORISKANY SANDSTONE (STORAGE RESERVOIR) ESTIMATED DEPTH: 4920 FT. TVD 5151 FT. MD

WELL OPERATOR COLUMBIA GAS TRANSMISSION DESIGNATED AGENT PAUL AMICK  
Address 1700 MACCORKLE AVE. SE PO BOX 1273 Address 1700 MACCORKLE AVE. SE PO BOX 1273  
City CHARLESTON State WV Zip Code 25325-1273 City CHARLESTON State WV Zip Code 25325-1273

02/25/2017