

Conoco Phillips Company

Arapahoe County, Colorado

Sec. 4-T4S-R64W (B&D Land 4-64 Pad)

B&D Land 4-64 4-5 4BH

Plan A

Plan: Rev A1 (Need MagVar before Drilling)

Sperry Drilling Services

Standard Report

18 May, 2015

Well Coordinates: 1,690,983.70 N, 3,268,027.97 E (39° 43' 36.10" N, 104° 32' 49.49" W)

Ground Level: 5,617.20 usft

Local Coordinate Origin:

Centered on Well B&D Land 4-64 4-5 4BH

Viewing Datum:

KB 24 ft @ 5641.20usft (Unknown)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 73

HALLIBURTON

Project: Arapahoe County, Colorado
Site: Sec. 4-T4S-R64W (B&D Land 4-64 Pad)
Well: B&D Land 4-64 4-5 4BH
Wellbore: Plan A
Plan: Rev A1 (Need MagVar before Drilling)

Conoco Phillips Company

HALLIBURTON
Sperry Drilling

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dieg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	3000.00	0.00	0.00	3000.00	0.00	0.00	0.00	0.00	0.00	
3	3257.50	5.15	74.15	3257.15	3.16	11.13	2.00	74.15	-11.03	
4	6476.34	5.15	74.15	6463.00	82.07	289.07	0.00	0.00	-286.69	
5	6733.84	0.00	0.00	6720.15	85.23	300.20	2.00	180.00	-297.72	
6	6941.76	0.00	0.00	6928.07	85.23	300.20	0.00	0.00	-297.72	
7	7836.16	89.44	271.06	7501.00	95.75	-267.06	10.00	271.06	269.61	
8	17457.20	89.44	271.06	7595.00	274.12	-9885.99	0.00	0.00	9889.79	B&D Land 4-64 4-5 4BH_Rev A1_BHL Tgt

Plan: Rev A1 (Need MagVar before Drilling) (B&D Land 4-64 4-5 4BH/Plan A)

Created By: Kansa B. Becker

Date: 14:44, May 18 2015

Checked: _____

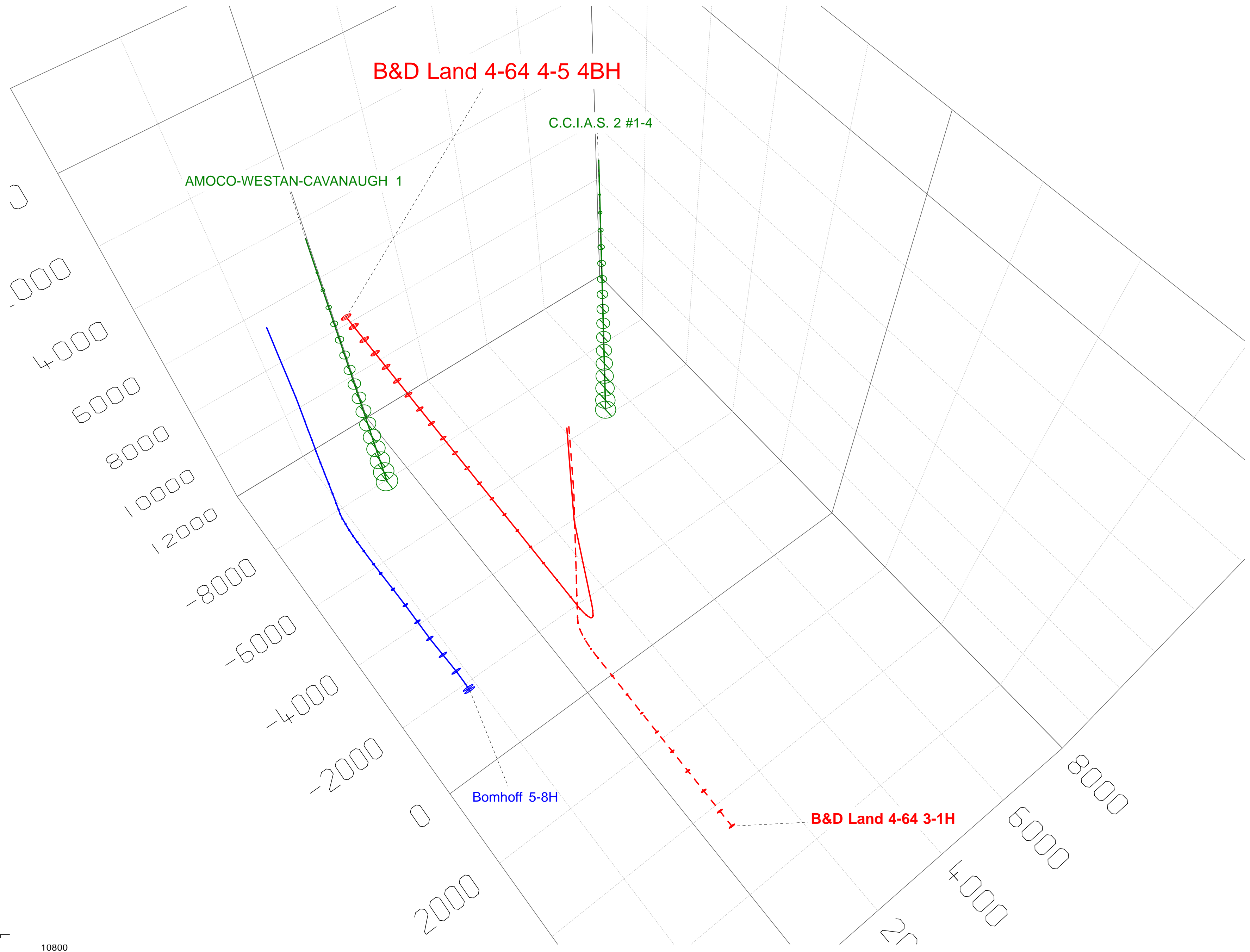
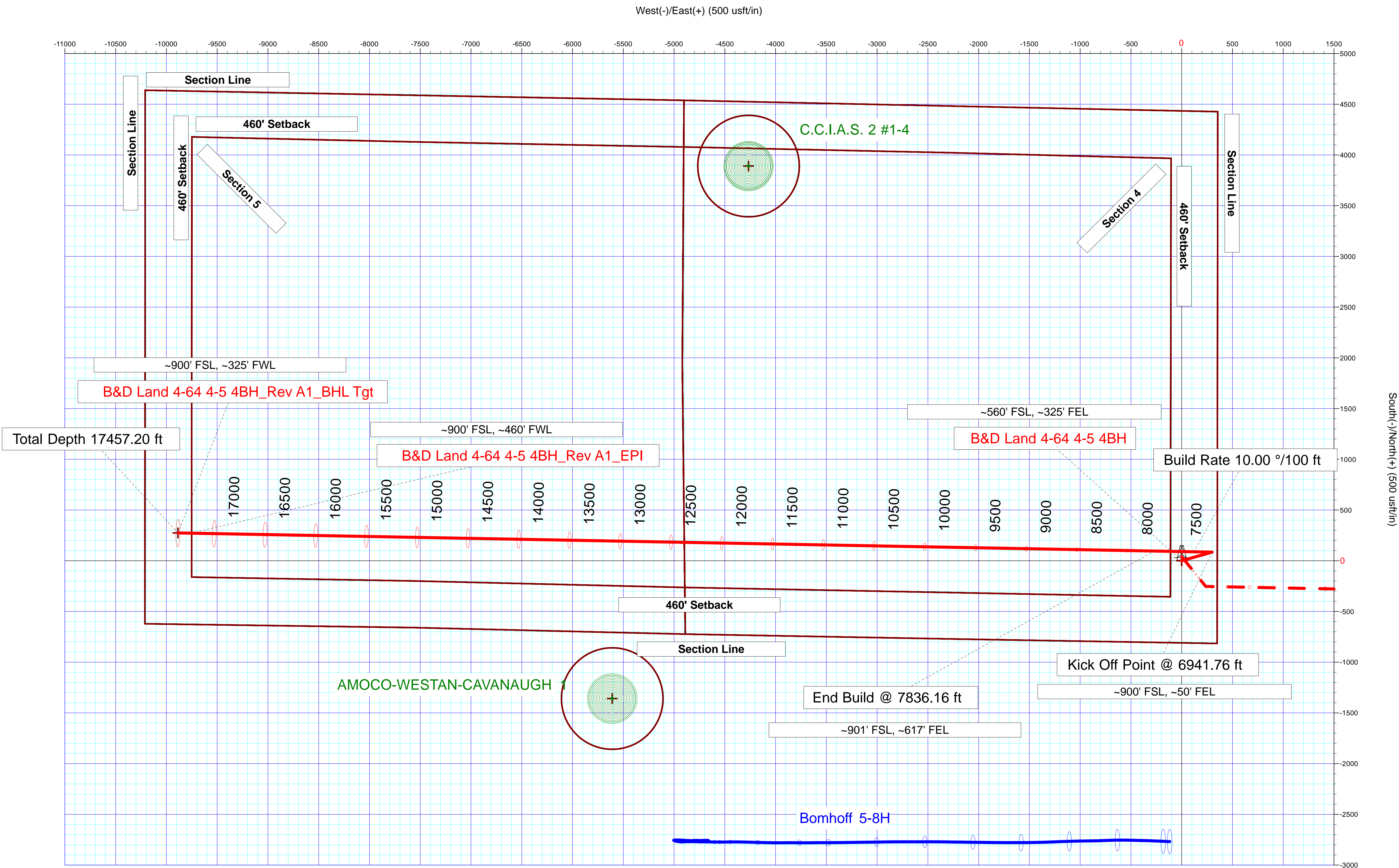
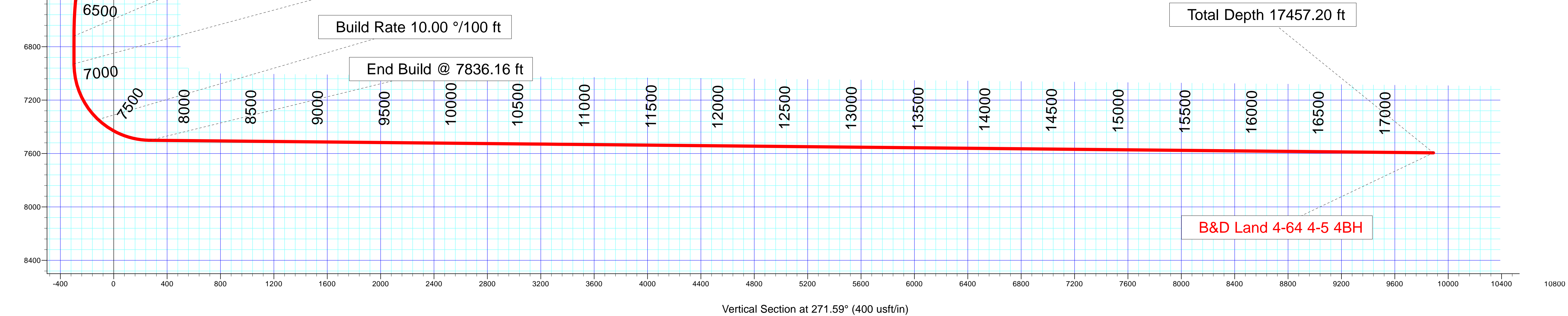
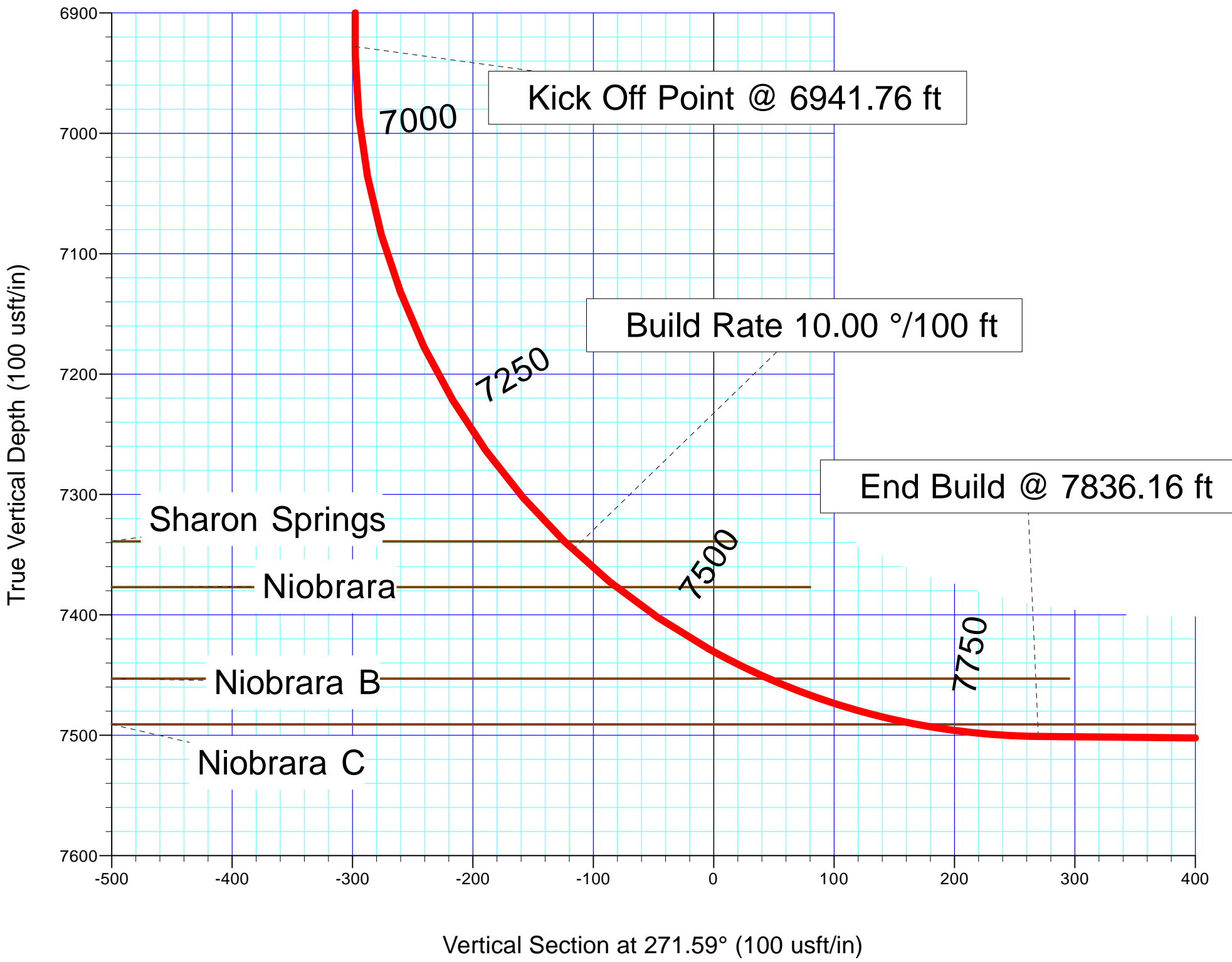
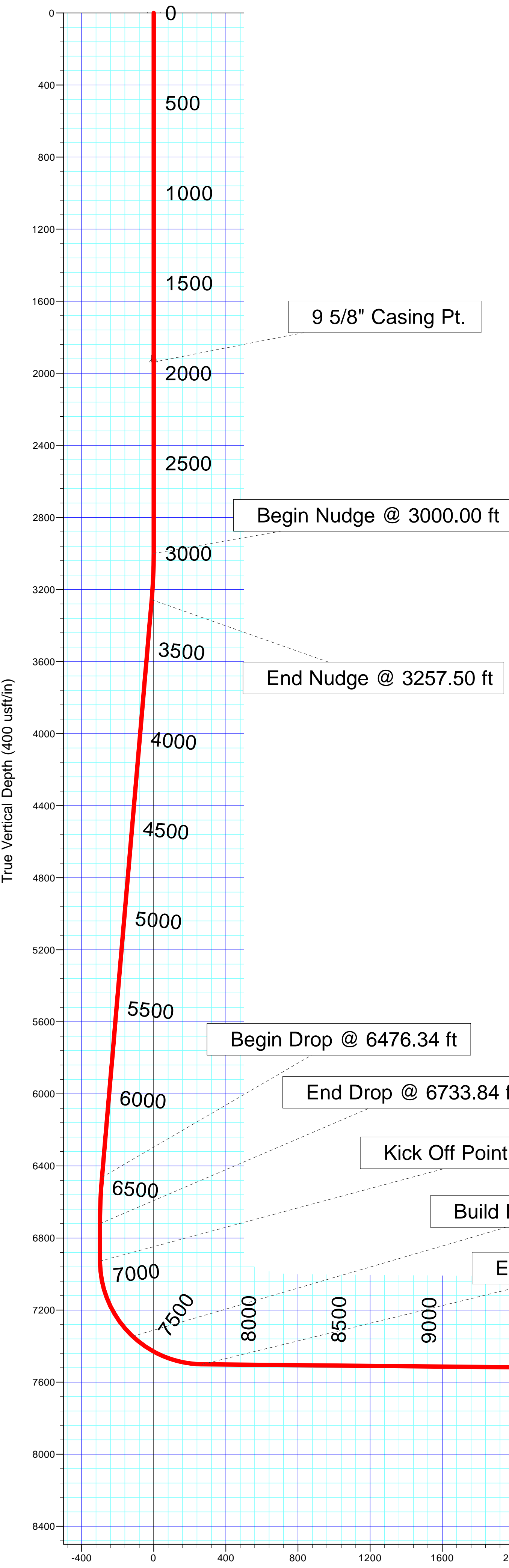
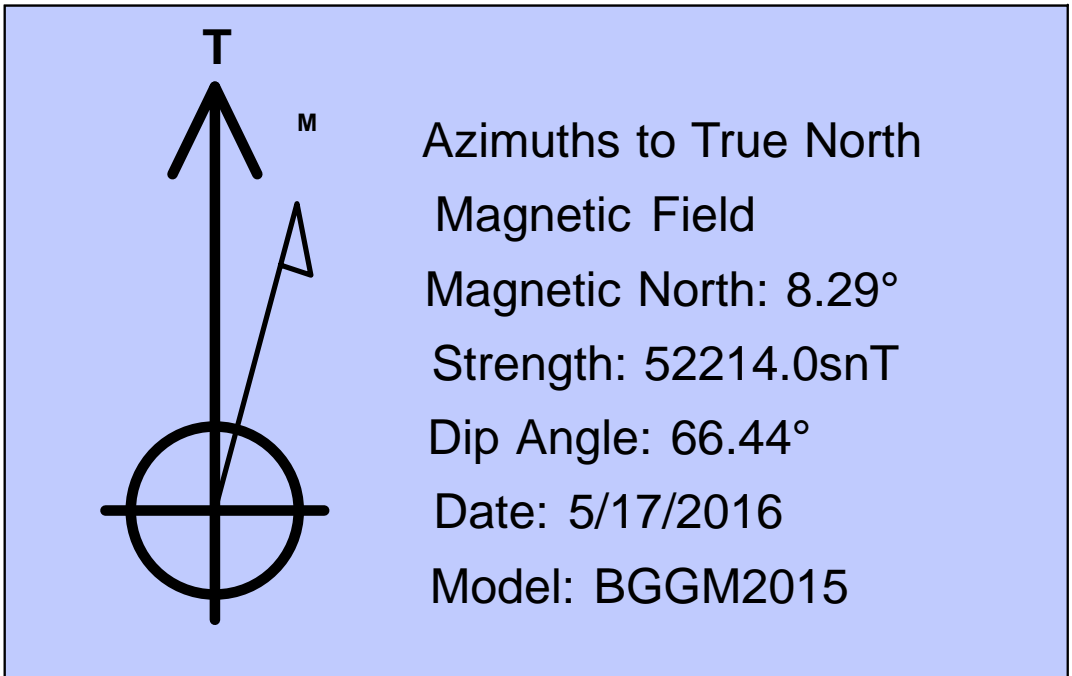
Date: _____

Reviewed: _____

Date: _____

Approved: _____

Date: _____



Plan Report for B&D Land 4-64 4-5 4BH - Rev A1 (Need MagVar before Drilling)

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00
1,585.00	0.00	0.00	1,585.00	0.00	0.00	0.00	0.00
Fox Hills							
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00
1,738.00	0.00	0.00	1,738.00	0.00	0.00	0.00	0.00
Pierre Shale							
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00
1,938.00	0.00	0.00	1,938.00	0.00	0.00	0.00	0.00
9 5/8" Casing Pt.							
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00
Begin Nudge @ 3000.00 ft							
3,100.00	2.00	74.15	3,099.98	0.48	1.68	-1.66	2.00
3,200.00	4.00	74.15	3,199.84	1.91	6.71	-6.66	2.00
3,257.50	5.15	74.15	3,257.15	3.16	11.13	-11.03	2.00
End Nudge @ 3257.50 ft							
3,300.00	5.15	74.15	3,299.48	4.20	14.80	-14.67	0.00
3,400.00	5.15	74.15	3,399.08	6.65	23.43	-23.24	0.00
3,500.00	5.15	74.15	3,498.67	9.10	32.07	-31.80	0.00
3,600.00	5.15	74.15	3,598.27	11.56	40.70	-40.36	0.00
3,700.00	5.15	74.15	3,697.87	14.01	49.34	-48.93	0.00
3,800.00	5.15	74.15	3,797.46	16.46	57.97	-57.49	0.00
3,900.00	5.15	74.15	3,897.06	18.91	66.61	-66.06	0.00
4,000.00	5.15	74.15	3,996.66	21.36	75.24	-74.62	0.00

Plan Report for B&D Land 4-64 4-5 4BH - Rev A1 (Need MagVar before Drilling)

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
4,100.00	5.15	74.15	4,096.25	23.81	83.88	-83.18	0.00
4,200.00	5.15	74.15	4,195.85	26.27	92.51	-91.75	0.00
4,300.00	5.15	74.15	4,295.44	28.72	101.15	-100.31	0.00
4,400.00	5.15	74.15	4,395.04	31.17	109.78	-108.87	0.00
4,500.00	5.15	74.15	4,494.64	33.62	118.42	-117.44	0.00
4,600.00	5.15	74.15	4,594.23	36.07	127.05	-126.00	0.00
4,700.00	5.15	74.15	4,693.83	38.52	135.69	-134.57	0.00
4,800.00	5.15	74.15	4,793.43	40.97	144.32	-143.13	0.00
4,900.00	5.15	74.15	4,893.02	43.43	152.96	-151.69	0.00
5,000.00	5.15	74.15	4,992.62	45.88	161.59	-160.26	0.00
5,100.00	5.15	74.15	5,092.22	48.33	170.23	-168.82	0.00
5,200.00	5.15	74.15	5,191.81	50.78	178.86	-177.39	0.00
5,300.00	5.15	74.15	5,291.41	53.23	187.50	-185.95	0.00
5,400.00	5.15	74.15	5,391.00	55.68	196.13	-194.51	0.00
5,500.00	5.15	74.15	5,490.60	58.14	204.77	-203.08	0.00
5,600.00	5.15	74.15	5,590.20	60.59	213.40	-211.64	0.00
5,700.00	5.15	74.15	5,689.79	63.04	222.04	-220.20	0.00
5,800.00	5.15	74.15	5,789.39	65.49	230.67	-228.77	0.00
5,900.00	5.15	74.15	5,888.99	67.94	239.31	-237.33	0.00
6,000.00	5.15	74.15	5,988.58	70.39	247.94	-245.90	0.00
6,100.00	5.15	74.15	6,088.18	72.85	256.58	-254.46	0.00
6,200.00	5.15	74.15	6,187.77	75.30	265.21	-263.02	0.00
6,300.00	5.15	74.15	6,287.37	77.75	273.85	-271.59	0.00
6,400.00	5.15	74.15	6,386.97	80.20	282.48	-280.15	0.00
6,476.34	5.15	74.15	6,463.00	82.07	289.07	-286.69	0.00
Begin Drop @ 6476.34 ft							
6,500.00	4.68	74.15	6,486.57	82.63	291.02	-288.62	2.00
6,600.00	2.68	74.15	6,586.36	84.38	297.19	-294.74	2.00
6,700.00	0.68	74.15	6,686.31	85.18	300.01	-297.53	2.00
6,733.84	0.00	0.00	6,720.15	85.23	300.20	-297.72	2.00
End Drop @ 6733.84 ft							
6,800.00	0.00	0.00	6,786.31	85.23	300.20	-297.72	0.00
6,900.00	0.00	0.00	6,886.31	85.23	300.20	-297.72	0.00
6,941.76	0.00	0.00	6,928.07	85.23	300.20	-297.72	0.00
Kick Off Point @ 6941.76 ft							
7,000.00	5.82	271.06	6,986.21	85.29	297.24	-294.76	10.00
7,100.00	15.82	271.06	7,084.31	85.63	278.49	-276.01	10.00
7,200.00	25.82	271.06	7,177.66	86.29	242.99	-240.51	10.00
7,300.00	35.82	271.06	7,263.42	87.24	191.82	-189.33	10.00
7,400.00	45.82	271.06	7,339.00	88.45	126.54	-124.04	10.00
Sharon Springs							
7,410.00	46.82	271.06	7,345.90	88.59	119.31	-116.81	10.00
Build Rate 10.00 °/100 ft							
7,457.61	51.58	271.06	7,377.00	89.25	83.29	-80.78	10.00
Niobrara							
7,500.00	55.82	271.06	7,402.09	89.89	49.13	-46.62	10.00
7,600.00	65.82	271.06	7,450.78	91.50	-38.05	40.57	10.00
7,605.49	66.37	271.06	7,453.00	91.60	-43.07	45.59	10.00
Niobrara B							
7,700.00	75.82	271.06	7,483.58	93.25	-132.37	134.90	10.00
7,734.40	79.26	271.06	7,491.00	93.87	-165.95	168.49	10.00

Plan Report for B&D Land 4-64 4-5 4BH - Rev A1 (Need MagVar before Drilling)

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
Niobrara C							
7,800.00	85.82	271.06	7,499.51	95.08	-230.95	233.49	10.00
7,836.16	89.44	271.06	7,501.00	95.75	-267.06	269.61	10.00
End Build @ 7836.16 ft							
7,900.00	89.44	271.06	7,501.62	96.93	-330.89	333.45	0.00
8,000.00	89.44	271.06	7,502.60	98.79	-430.87	433.44	0.00
8,100.00	89.44	271.06	7,503.58	100.64	-530.85	533.43	0.00
8,200.00	89.44	271.06	7,504.56	102.49	-630.82	633.42	0.00
8,300.00	89.44	271.06	7,505.53	104.35	-730.80	733.41	0.00
8,400.00	89.44	271.06	7,506.51	106.20	-830.78	833.40	0.00
8,500.00	89.44	271.06	7,507.49	108.06	-930.76	933.40	0.00
8,600.00	89.44	271.06	7,508.46	109.91	-1,030.74	1,033.39	0.00
8,700.00	89.44	271.06	7,509.44	111.76	-1,130.71	1,133.38	0.00
8,800.00	89.44	271.06	7,510.42	113.62	-1,230.69	1,233.37	0.00
8,900.00	89.44	271.06	7,511.39	115.47	-1,330.67	1,333.36	0.00
9,000.00	89.44	271.06	7,512.37	117.33	-1,430.65	1,433.35	0.00
9,100.00	89.44	271.06	7,513.35	119.18	-1,530.63	1,533.34	0.00
9,200.00	89.44	271.06	7,514.33	121.03	-1,630.60	1,633.33	0.00
9,300.00	89.44	271.06	7,515.30	122.89	-1,730.58	1,733.32	0.00
9,400.00	89.44	271.06	7,516.28	124.74	-1,830.56	1,833.31	0.00
9,500.00	89.44	271.06	7,517.26	126.60	-1,930.54	1,933.31	0.00
9,600.00	89.44	271.06	7,518.23	128.45	-2,030.52	2,033.30	0.00
9,700.00	89.44	271.06	7,519.21	130.30	-2,130.49	2,133.29	0.00
9,800.00	89.44	271.06	7,520.19	132.16	-2,230.47	2,233.28	0.00
9,900.00	89.44	271.06	7,521.16	134.01	-2,330.45	2,333.27	0.00
10,000.00	89.44	271.06	7,522.14	135.87	-2,430.43	2,433.26	0.00
10,100.00	89.44	271.06	7,523.12	137.72	-2,530.41	2,533.25	0.00
10,200.00	89.44	271.06	7,524.10	139.57	-2,630.38	2,633.24	0.00
10,300.00	89.44	271.06	7,525.07	141.43	-2,730.36	2,733.23	0.00
10,400.00	89.44	271.06	7,526.05	143.28	-2,830.34	2,833.22	0.00
10,500.00	89.44	271.06	7,527.03	145.13	-2,930.32	2,933.22	0.00
10,600.00	89.44	271.06	7,528.00	146.99	-3,030.30	3,033.21	0.00
10,700.00	89.44	271.06	7,528.98	148.84	-3,130.27	3,133.20	0.00
10,800.00	89.44	271.06	7,529.96	150.70	-3,230.25	3,233.19	0.00
10,900.00	89.44	271.06	7,530.93	152.55	-3,330.23	3,333.18	0.00
11,000.00	89.44	271.06	7,531.91	154.40	-3,430.21	3,433.17	0.00
11,100.00	89.44	271.06	7,532.89	156.26	-3,530.19	3,533.16	0.00
11,200.00	89.44	271.06	7,533.87	158.11	-3,630.17	3,633.15	0.00
11,300.00	89.44	271.06	7,534.84	159.97	-3,730.14	3,733.14	0.00
11,400.00	89.44	271.06	7,535.82	161.82	-3,830.12	3,833.13	0.00
11,500.00	89.44	271.06	7,536.80	163.67	-3,930.10	3,933.13	0.00
11,600.00	89.44	271.06	7,537.77	165.53	-4,030.08	4,033.12	0.00
11,700.00	89.44	271.06	7,538.75	167.38	-4,130.06	4,133.11	0.00
11,800.00	89.44	271.06	7,539.73	169.24	-4,230.03	4,233.10	0.00
11,900.00	89.44	271.06	7,540.71	171.09	-4,330.01	4,333.09	0.00
12,000.00	89.44	271.06	7,541.68	172.94	-4,429.99	4,433.08	0.00
12,100.00	89.44	271.06	7,542.66	174.80	-4,529.97	4,533.07	0.00
12,200.00	89.44	271.06	7,543.64	176.65	-4,629.95	4,633.06	0.00
12,300.00	89.44	271.06	7,544.61	178.51	-4,729.92	4,733.05	0.00
12,400.00	89.44	271.06	7,545.59	180.36	-4,829.90	4,833.04	0.00
12,500.00	89.44	271.06	7,546.57	182.21	-4,929.88	4,933.04	0.00

Plan Report for B&D Land 4-64 4-5 4BH - Rev A1 (Need MagVar before Drilling)

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
12,600.00	89.44	271.06	7,547.54	184.07	-5,029.86	5,033.03	0.00
12,700.00	89.44	271.06	7,548.52	185.92	-5,129.84	5,133.02	0.00
12,800.00	89.44	271.06	7,549.50	187.77	-5,229.81	5,233.01	0.00
12,900.00	89.44	271.06	7,550.48	189.63	-5,329.79	5,333.00	0.00
13,000.00	89.44	271.06	7,551.45	191.48	-5,429.77	5,432.99	0.00
13,100.00	89.44	271.06	7,552.43	193.34	-5,529.75	5,532.98	0.00
13,200.00	89.44	271.06	7,553.41	195.19	-5,629.73	5,632.97	0.00
13,300.00	89.44	271.06	7,554.38	197.04	-5,729.70	5,732.96	0.00
13,400.00	89.44	271.06	7,555.36	198.90	-5,829.68	5,832.96	0.00
13,500.00	89.44	271.06	7,556.34	200.75	-5,929.66	5,932.95	0.00
13,600.00	89.44	271.06	7,557.31	202.61	-6,029.64	6,032.94	0.00
13,700.00	89.44	271.06	7,558.29	204.46	-6,129.62	6,132.93	0.00
13,800.00	89.44	271.06	7,559.27	206.31	-6,229.59	6,232.92	0.00
13,900.00	89.44	271.06	7,560.25	208.17	-6,329.57	6,332.91	0.00
14,000.00	89.44	271.06	7,561.22	210.02	-6,429.55	6,432.90	0.00
14,100.00	89.44	271.06	7,562.20	211.88	-6,529.53	6,532.89	0.00
14,200.00	89.44	271.06	7,563.18	213.73	-6,629.51	6,632.88	0.00
14,300.00	89.44	271.06	7,564.15	215.58	-6,729.48	6,732.87	0.00
14,400.00	89.44	271.06	7,565.13	217.44	-6,829.46	6,832.87	0.00
14,500.00	89.44	271.06	7,566.11	219.29	-6,929.44	6,932.86	0.00
14,600.00	89.44	271.06	7,567.08	221.15	-7,029.42	7,032.85	0.00
14,700.00	89.44	271.06	7,568.06	223.00	-7,129.40	7,132.84	0.00
14,800.00	89.44	271.06	7,569.04	224.85	-7,229.37	7,232.83	0.00
14,900.00	89.44	271.06	7,570.02	226.71	-7,329.35	7,332.82	0.00
15,000.00	89.44	271.06	7,570.99	228.56	-7,429.33	7,432.81	0.00
15,100.00	89.44	271.06	7,571.97	230.41	-7,529.31	7,532.80	0.00
15,200.00	89.44	271.06	7,572.95	232.27	-7,629.29	7,632.79	0.00
15,300.00	89.44	271.06	7,573.92	234.12	-7,729.26	7,732.78	0.00
15,400.00	89.44	271.06	7,574.90	235.98	-7,829.24	7,832.78	0.00
15,500.00	89.44	271.06	7,575.88	237.83	-7,929.22	7,932.77	0.00
15,600.00	89.44	271.06	7,576.85	239.68	-8,029.20	8,032.76	0.00
15,700.00	89.44	271.06	7,577.83	241.54	-8,129.18	8,132.75	0.00
15,800.00	89.44	271.06	7,578.81	243.39	-8,229.15	8,232.74	0.00
15,900.00	89.44	271.06	7,579.79	245.25	-8,329.13	8,332.73	0.00
16,000.00	89.44	271.06	7,580.76	247.10	-8,429.11	8,432.72	0.00
16,100.00	89.44	271.06	7,581.74	248.95	-8,529.09	8,532.71	0.00
16,200.00	89.44	271.06	7,582.72	250.81	-8,629.07	8,632.70	0.00
16,300.00	89.44	271.06	7,583.69	252.66	-8,729.05	8,732.69	0.00
16,400.00	89.44	271.06	7,584.67	254.52	-8,829.02	8,832.69	0.00
16,500.00	89.44	271.06	7,585.65	256.37	-8,929.00	8,932.68	0.00
16,600.00	89.44	271.06	7,586.62	258.22	-9,028.98	9,032.67	0.00
16,700.00	89.44	271.06	7,587.60	260.08	-9,128.96	9,132.66	0.00
16,800.00	89.44	271.06	7,588.58	261.93	-9,228.94	9,232.65	0.00
16,900.00	89.44	271.06	7,589.56	263.79	-9,328.91	9,332.64	0.00
17,000.00	89.44	271.06	7,590.53	265.64	-9,428.89	9,432.63	0.00
17,100.00	89.44	271.06	7,591.51	267.49	-9,528.87	9,532.62	0.00
17,200.00	89.44	271.06	7,592.49	269.35	-9,628.85	9,632.61	0.00
17,300.00	89.44	271.06	7,593.46	271.20	-9,728.83	9,732.60	0.00
17,400.00	89.44	271.06	7,594.44	273.05	-9,828.80	9,832.60	0.00
17,457.20	89.44	271.06	7,595.00	274.12	-9,885.99	9,889.79	0.00
Total Depth 17457.20 ft							

Plan Report for B&D Land 4-64 4-5 4BH - Rev A1 (Need MagVar before Drilling)

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
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Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,000.00	3,000.00	0.00	0.00	Begin Nudge @ 3000.00 ft
3,257.50	3,257.15	3.16	11.13	End Nudge @ 3257.50 ft
6,476.34	6,463.00	82.07	289.07	Begin Drop @ 6476.34 ft
6,733.84	6,720.15	85.23	300.20	End Drop @ 6733.84 ft
6,941.76	6,928.07	85.23	300.20	Kick Off Point @ 6941.76 ft
7,410.00	7,345.90	88.59	119.31	Build Rate 10.00 °/100 ft
7,836.16	7,501.00	95.75	-267.06	End Build @ 7836.16 ft
17,457.20	7,595.00	274.12	-9,885.99	Total Depth 17457.20 ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
Target	B&D Land 4-64 4-5 4BH_Rev A1_BHL Tgt	271.59	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	1,938.00	Rev A1 (Need MagVar before Drilling)	MWD+IFR1+MS_WY
1,938.00	17,457.20	Rev A1 (Need MagVar before Drilling)	MWD+IFR1+MS_WY

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,938.00	1,938.00	9 5/8" Casing Pt.	9-5/8	13-1/2

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	TVDSS (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,585.00	1,585.00	-4,056.20	Fox Hills			
1,738.00	1,738.00	-3,903.20	Pierre Shale			
7,400.00	7,339.00	1,697.80	Sharon Springs			
7,457.61	7,377.00	1,735.80	Niobrara			
7,605.49	7,453.00	1,811.80	Niobrara B			
7,734.40	7,491.00	1,849.80	Niobrara C			

Plan Report for B&D Land 4-64 4-5 4BH - Rev A1 (Need MagVar before Drilling)

Wellbore Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
C.C.I.A.S. 2 #1-4_SB - plan misses target center by 5773.82usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 500.00)	0.00	0.00	0.00	3,890.61	-4,266.16	1,694,829.32	3,263,721.25	39° 44' 14.546 N	104° 33' 44.100 W
B&D Land 4-64 4-5 4B - plan hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,690,983.70	3,268,027.97	39° 43' 36.100 N	104° 32' 49.490 W
Point 1				0.00	-355.38	-110.77	1,690,627.18	3,267,920.93	
Point 2				0.00	1,822.29	-107.71	1,692,804.75	3,267,901.15	
Point 3				0.00	3,966.82	-104.65	1,694,949.19	3,267,881.72	
Point 4				0.00	4,022.65	-2,293.53	1,694,982.05	3,265,692.38	
Point 5				0.00	4,078.75	-4,901.91	1,695,010.79	3,263,083.57	
Point 6				0.00	4,128.94	-7,554.71	1,695,033.15	3,260,430.40	
Point 7				0.00	4,178.31	-9,748.62	1,695,059.51	3,258,236.10	
Point 8				0.00	2,021.76	-9,749.66	1,692,903.08	3,258,257.68	
Point 9				0.00	-161.38	-9,751.28	1,690,720.05	3,258,278.96	
Point 10				0.00	-199.46	-7,554.01	1,690,705.02	3,260,476.50	
Point 11				0.00	-263.12	-4,888.85	1,690,669.32	3,263,142.17	
B&D Land 4-64 4-5 4B - plan hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,690,983.70	3,268,027.97	39° 43' 36.100 N	104° 32' 49.490 W
Point 1				0.00	4,538.75	-4,901.91	1,695,470.76	3,263,078.74	
Point 2				0.00	1,934.23	-4,918.16	1,692,866.23	3,263,089.81	
Point 3				0.00	-723.12	-4,888.85	1,690,209.34	3,263,146.99	
Point 4				0.00	-770.85	-2,270.66	1,690,189.08	3,265,765.53	
Point 5				0.00	-815.38	349.23	1,690,172.03	3,268,385.73	
Point 6				0.00	1,822.29	352.29	1,692,809.58	3,268,361.12	
Point 7				0.00	4,426.82	355.35	1,695,413.99	3,268,336.86	
Point 8				0.00	4,482.65	-2,293.53	1,695,442.03	3,265,687.56	
Point 9				0.00	4,538.75	-4,901.91	1,695,470.76	3,263,078.74	
Point 10				0.00	4,588.94	-7,554.71	1,695,493.13	3,260,425.57	
Point 11				0.00	4,638.31	-10,208.62	1,695,514.66	3,257,771.30	
Point 12				0.00	2,021.76	-10,209.66	1,692,898.25	3,257,797.71	
Point 13				0.00	-621.38	-10,211.28	1,690,255.25	3,257,823.81	
Point 14				0.00	-659.46	-7,554.01	1,690,245.05	3,260,481.33	
Point 15				0.00	-723.12	-4,888.85	1,690,209.34	3,263,146.99	
Point 16				0.00	1,934.23	-4,918.16	1,692,866.23	3,263,089.81	
AMOCO-WESTAN-CA - plan misses target center by 5770.94usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Circle (radius 500.00)	0.00	0.00	-14.90	-1,358.26	-5,608.80	1,689,566.69	3,262,433.75	39° 43' 22.670 N	104° 34' 1.272 W
B&D Land 4-64 4-5 4B - plan misses target center by 1.39usft at 17322.02usft MD (7593.68 TVD, 271.61 N, -9750.85 E) - Point	0.00	0.00	7,595.00	272.04	-9,750.82	1,691,153.44	3,258,274.87	39° 43' 38.770 N	104° 34' 54.290 W
B&D Land 4-64 4-5 4B - plan hits target center - Point	0.00	0.00	7,595.00	274.12	-9,885.99	1,691,154.10	3,258,139.69	39° 43' 38.790 N	104° 34' 56.020 W

Directional Difficulty Index

Average Dogleg over Survey:	0.57 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 7,836.16 usft
Net Tortousity applicable to Plans:	0.57 °/100usft	Directional Difficulty Index:	6.638

Audit Info

North Reference Sheet for Sec. 4-T4S-R64W (B&D Land 4-64 Pad) - B&D Land
4-64 4-5 4BH - Plan A

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference .
Vertical Depths are relative to KB 24 ft @ 5641.20usft (Unknown). Northing and Easting are relative to B&D Land 4-64 4-5 4BH
Coordinate System is US State Plane 1983, Colorado Central Zone using datum North American Datum 1983, ellipsoid GRS 1980
Projection method is Lambert Conformal Conic (2 parallel)
Central Meridian is 105° 30' 0.000 W°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:39° 45' 0.000 N°
False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99999547

Grid Coordinates of Well: 1,690,983.70 usft N, 3,268,027.97 usft E
Geographical Coordinates of Well: 39° 43' 36.10" N, 104° 32' 49.49" W
Grid Convergence at Surface is: 0.60°

Based upon Minimum Curvature type calculations, at a Measured Depth of 17,457.20usft
the Bottom Hole Displacement is 9,889.79usft in the Direction of 271.59° (True).
Magnetic Convergence at surface is: -7.69° (17 May 2016, , BGGM2015)

