

Conoco Phillips Company

Arapahoe County, Colorado

Sec. 22-T4S-R65W

Grimm Motocross 4-65 23-24 1H

Plan A

Plan: Rev A0

Sperry Drilling Services

Proposal Report

08 October, 2013

Well Coordinates: 1,675,386.62 N, 3,241,439.55 E (39° 41' 04.58" N, 104° 38' 31.66" W)

Ground Level: 5,758.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

Centered on Well Grimm Motocross 4-65 23-24 1H

KB 24 ft @ 5782.00usft (H&P 280)

N

True

API - US Survey Feet - Custom

HALLIBURTON

Project: Arapahoe County, Colorado
Site: Sec. 22-T4S-R65W
Well: Grimm Motocross 4-65 23-24 1H
Wellbore: Plan A
Plan: Rev A0

Conoco Phillips Company

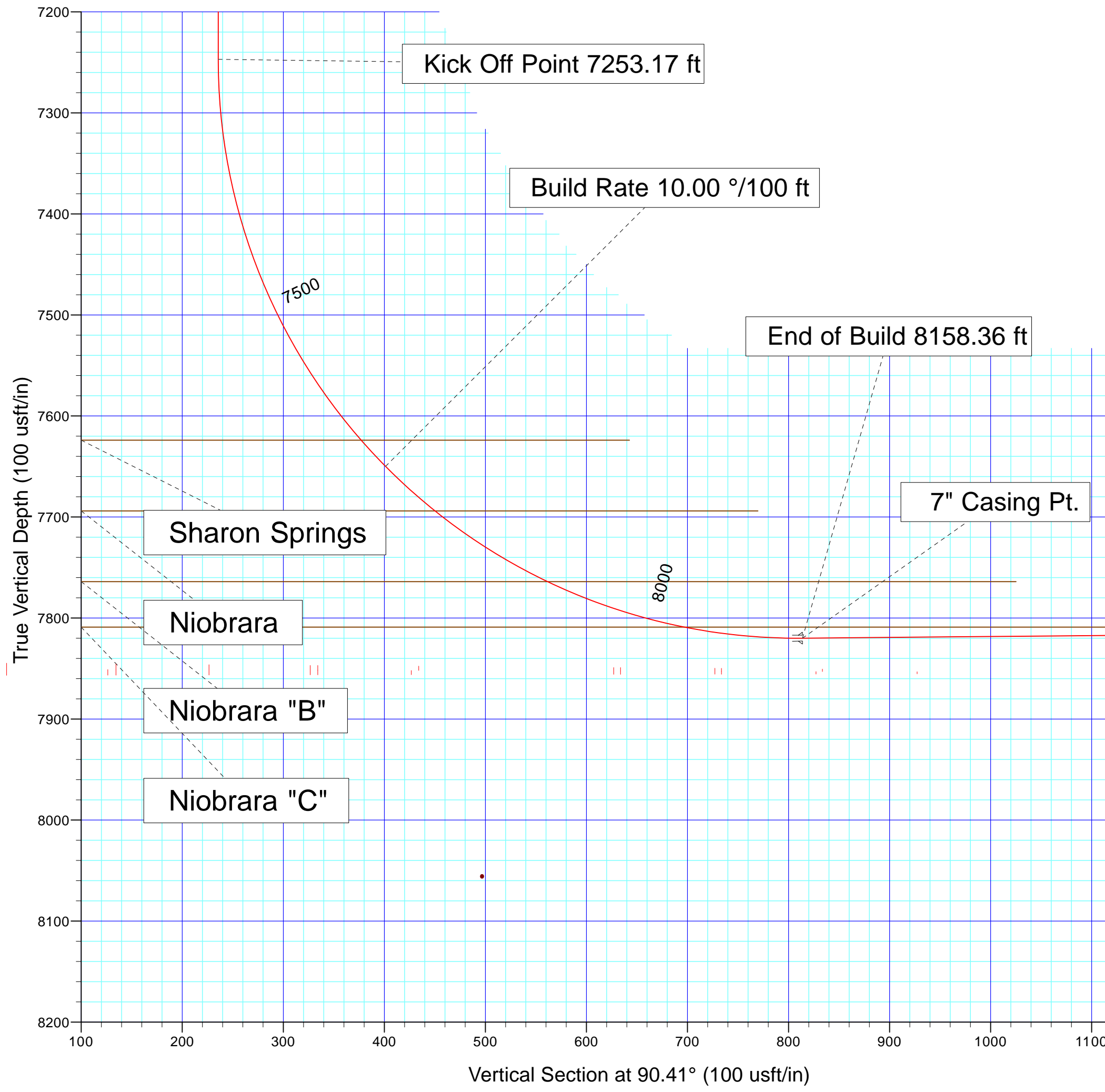
Plan: Rev A0 (Grimm Motocross 4-65 23-24 1H/Plan A)

Created By: Kansa B. BeckerDate: 9:29, October 09 2013

Checked: _____Date: _____

Reviewed: _____Date: _____

Approved: _____Date: _____



T

M

Azimuths to True North

Magnetic Field

Magnetic North: 8.44°

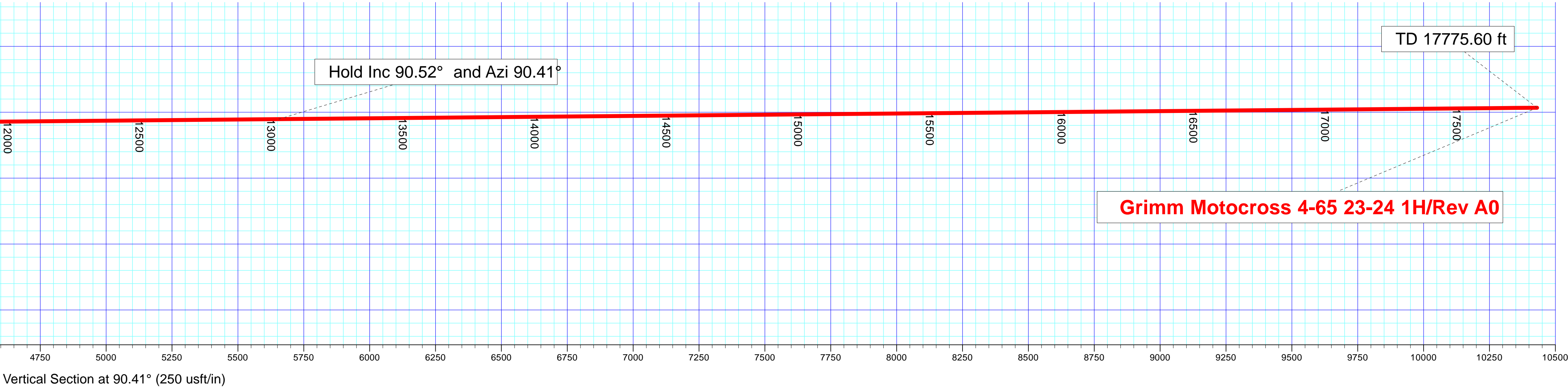
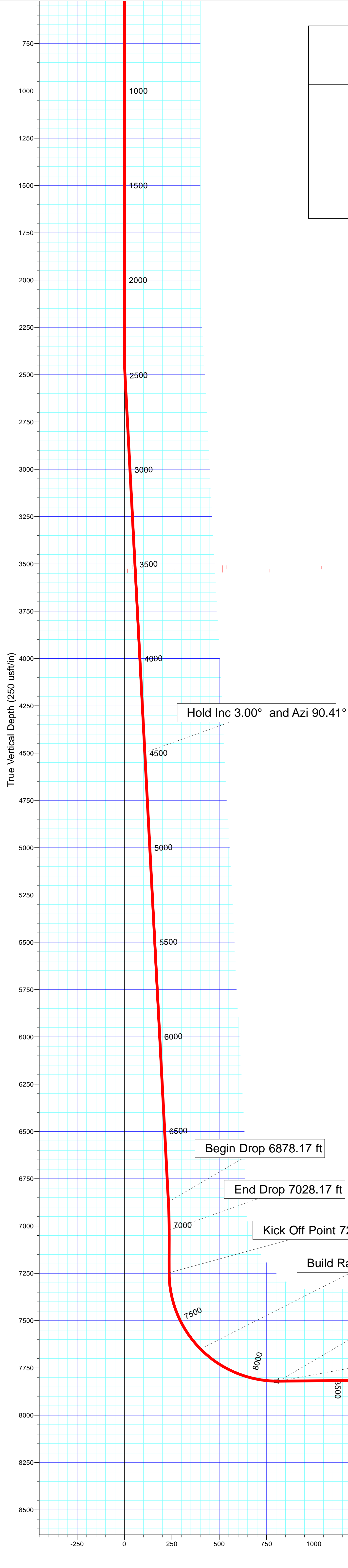
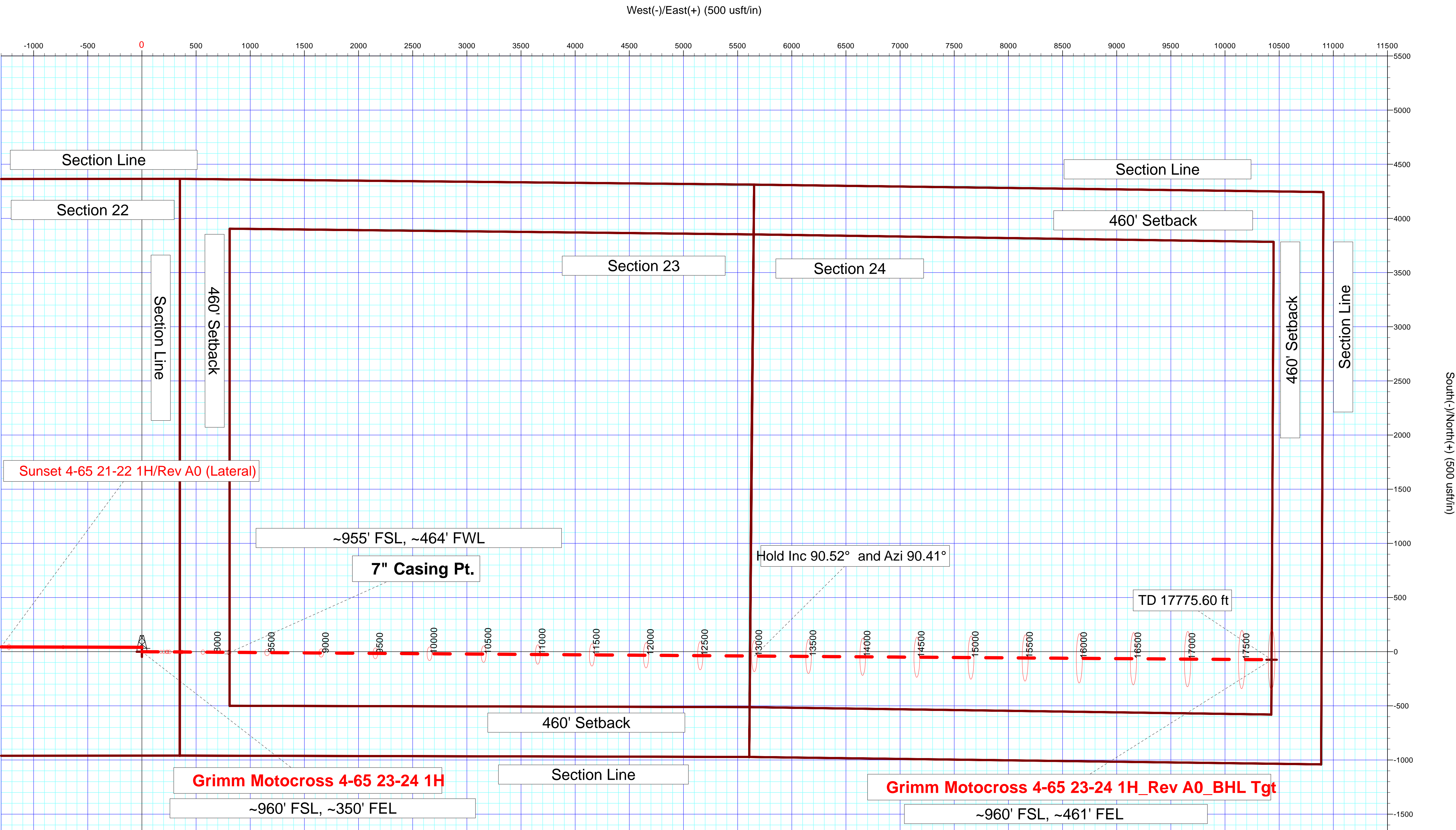
Strength: 52408.5snT

Dip Angle: 66.40°

Date: 12/31/2013

Model: BGGM2013

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2375.00	0.00	0.00	2375.00	0.00	0.00	0.00	0.00	0.00	
3	2525.00	3.00	90.41	2524.93	-0.03	3.93	2.00	90.41	3.93	
4	6878.17	3.00	90.41	6872.14	-1.66	231.75	0.00	0.00	231.75	
5	7028.17	0.00	0.00	7022.07	-1.69	235.67	2.00	180.00	235.68	
6	7253.17	0.00	0.00	7247.07	-1.69	235.67	0.00	0.00	235.68	
7	8158.36	90.52	90.41	7820.00	-5.79	813.80	10.00	90.41	813.82	
8	17775.60	90.52	90.41	7733.00	-74.01	10430.41	0.00	0.0010430.67		Grimm Motocross 4-65 23-24 1H_Rev A0_BHL Tgt



Plan Report for Grimm Motocross 4-65 23-24 1H - Rev A0

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)	Toolface Azimuth (°)
0.00	0.00	0.00	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	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	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	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	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	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	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	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	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	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,822.00	0.00	0.00	1,822.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills										
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,062.00	0.00	0.00	2,062.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre Shale										
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	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	0.00	0.00	0.00
2,262.00	0.00	0.00	2,262.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface Casing										
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,375.00	0.00	0.00	2,375.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 2375.00 ft										
2,400.00	0.50	90.41	2,400.00	0.00	0.11	0.11	2.00	2.00	0.00	90.41
2,500.00	2.50	90.41	2,499.96	-0.02	2.73	2.73	2.00	2.00	0.00	0.00
2,525.00	3.00	90.41	2,524.93	-0.03	3.93	3.93	2.00	2.00	0.00	0.00
End Nudge @ 2525.00 ft										
2,600.00	3.00	90.41	2,599.83	-0.06	7.85	7.85	0.00	0.00	0.00	0.00
2,700.00	3.00	90.41	2,699.69	-0.09	13.08	13.08	0.00	0.00	0.00	0.00
2,800.00	3.00	90.41	2,799.55	-0.13	18.32	18.32	0.00	0.00	0.00	0.00
2,900.00	3.00	90.41	2,899.42	-0.17	23.55	23.55	0.00	0.00	0.00	0.00
3,000.00	3.00	90.41	2,999.28	-0.21	28.78	28.79	0.00	0.00	0.00	0.00
3,100.00	3.00	90.41	3,099.14	-0.24	34.02	34.02	0.00	0.00	0.00	0.00
3,200.00	3.00	90.41	3,199.01	-0.28	39.25	39.25	0.00	0.00	0.00	0.00
3,300.00	3.00	90.41	3,298.87	-0.32	44.49	44.49	0.00	0.00	0.00	0.00
3,400.00	3.00	90.41	3,398.73	-0.36	49.72	49.72	0.00	0.00	0.00	0.00
3,500.00	3.00	90.41	3,498.60	-0.39	54.95	54.95	0.00	0.00	0.00	0.00
3,600.00	3.00	90.41	3,598.46	-0.43	60.19	60.19	0.00	0.00	0.00	0.00
3,700.00	3.00	90.41	3,698.32	-0.47	65.42	65.42	0.00	0.00	0.00	0.00
3,800.00	3.00	90.41	3,798.18	-0.51	70.65	70.65	0.00	0.00	0.00	0.00
3,900.00	3.00	90.41	3,898.05	-0.54	75.89	75.89	0.00	0.00	0.00	0.00
4,000.00	3.00	90.41	3,997.91	-0.58	81.12	81.12	0.00	0.00	0.00	0.00
4,100.00	3.00	90.41	4,097.77	-0.62	86.35	86.36	0.00	0.00	0.00	0.00
4,200.00	3.00	90.41	4,197.64	-0.66	91.59	91.59	0.00	0.00	0.00	0.00
4,300.00	3.00	90.41	4,297.50	-0.69	96.82	96.82	0.00	0.00	0.00	0.00
4,400.00	3.00	90.41	4,397.36	-0.73	102.05	102.06	0.00	0.00	0.00	0.00
4,500.00	3.00	90.41	4,497.22	-0.77	107.29	107.29	0.00	0.00	0.00	0.00
Hold Inc 3.00° and Azi 90.41°										
4,600.00	3.00	90.41	4,597.09	-0.81	112.52	112.52	0.00	0.00	0.00	0.00

Plan Report for Grimm Motocross 4-65 23-24 1H - Rev A0

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)	Toolface Azimuth (°)
4,700.00	3.00	90.41	4,696.95	-0.84	117.75	117.76	0.00	0.00	0.00	0.00
4,800.00	3.00	90.41	4,796.81	-0.88	122.99	122.99	0.00	0.00	0.00	0.00
4,900.00	3.00	90.41	4,896.68	-0.92	128.22	128.22	0.00	0.00	0.00	0.00
5,000.00	3.00	90.41	4,996.54	-0.95	133.45	133.46	0.00	0.00	0.00	0.00
5,100.00	3.00	90.41	5,096.40	-0.99	138.69	138.69	0.00	0.00	0.00	0.00
5,200.00	3.00	90.41	5,196.27	-1.03	143.92	143.92	0.00	0.00	0.00	0.00
5,300.00	3.00	90.41	5,296.13	-1.07	149.15	149.16	0.00	0.00	0.00	0.00
5,400.00	3.00	90.41	5,395.99	-1.10	154.39	154.39	0.00	0.00	0.00	0.00
5,500.00	3.00	90.41	5,495.85	-1.14	159.62	159.63	0.00	0.00	0.00	0.00
5,600.00	3.00	90.41	5,595.72	-1.18	164.85	164.86	0.00	0.00	0.00	0.00
5,700.00	3.00	90.41	5,695.58	-1.22	170.09	170.09	0.00	0.00	0.00	0.00
5,800.00	3.00	90.41	5,795.44	-1.25	175.32	175.33	0.00	0.00	0.00	0.00
5,900.00	3.00	90.41	5,895.31	-1.29	180.56	180.56	0.00	0.00	0.00	0.00
6,000.00	3.00	90.41	5,995.17	-1.33	185.79	185.79	0.00	0.00	0.00	0.00
6,100.00	3.00	90.41	6,095.03	-1.37	191.02	191.03	0.00	0.00	0.00	0.00
6,200.00	3.00	90.41	6,194.90	-1.40	196.26	196.26	0.00	0.00	0.00	0.00
6,300.00	3.00	90.41	6,294.76	-1.44	201.49	201.49	0.00	0.00	0.00	0.00
6,400.00	3.00	90.41	6,394.62	-1.48	206.72	206.73	0.00	0.00	0.00	0.00
6,500.00	3.00	90.41	6,494.48	-1.52	211.96	211.96	0.00	0.00	0.00	0.00
6,600.00	3.00	90.41	6,594.35	-1.55	217.19	217.20	0.00	0.00	0.00	0.00
6,700.00	3.00	90.41	6,694.21	-1.59	222.42	222.43	0.00	0.00	0.00	0.00
6,800.00	3.00	90.41	6,794.07	-1.63	227.66	227.66	0.00	0.00	0.00	0.00
6,878.17	3.00	90.41	6,872.14	-1.66	231.75	231.75	0.00	0.00	0.00	0.00
Begin Drop 6878.17 ft										
6,900.00	2.56	90.41	6,893.94	-1.67	232.81	232.81	2.00	-2.00	0.00	180.00
7,000.00	0.56	90.41	6,993.90	-1.69	235.54	235.54	2.00	-2.00	0.00	180.00
7,028.17	0.00	0.00	7,022.07	-1.69	235.67	235.68	2.00	-2.00	0.00	-180.00
End Drop 7028.17 ft										
7,100.00	0.00	0.00	7,093.90	-1.69	235.67	235.68	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,193.90	-1.69	235.67	235.68	0.00	0.00	0.00	0.00
7,253.17	0.00	0.00	7,247.07	-1.69	235.67	235.68	0.00	0.00	0.00	0.00
Kick Off Point 7253.17 ft										
7,300.00	4.68	90.41	7,293.84	-1.70	237.59	237.59	10.00	10.00	0.00	90.41
7,400.00	14.68	90.41	7,392.30	-1.82	254.38	254.39	10.00	10.00	0.00	0.00
7,500.00	24.68	90.41	7,486.33	-2.06	288.02	288.03	10.00	10.00	0.00	0.00
7,600.00	34.68	90.41	7,573.10	-2.41	337.48	337.49	10.00	10.00	0.00	0.00
7,664.55	41.14	90.41	7,624.00	-2.69	377.11	377.12	10.00	10.00	0.00	0.00
Sharon Springs										
7,700.00	44.68	90.41	7,649.96	-2.86	401.25	401.26	10.00	10.00	0.00	0.00
Build Rate 10.00 °/100 ft										
7,765.82	51.26	90.41	7,694.00	-3.21	450.11	450.12	10.00	10.00	0.00	0.00
Niobrara										
7,800.00	54.68	90.41	7,714.58	-3.40	477.40	477.41	10.00	10.00	0.00	0.00
7,897.68	64.45	90.41	7,764.00	-4.00	561.51	561.53	10.00	10.00	0.00	0.00
Niobrara "B"										
7,900.00	64.68	90.41	7,765.00	-4.01	563.61	563.62	10.00	10.00	0.00	0.00
8,000.00	74.68	90.41	7,799.68	-4.68	657.27	657.28	10.00	10.00	0.00	0.00
8,040.58	78.74	90.41	7,809.00	-4.96	696.75	696.77	10.00	10.00	0.00	0.00
Niobrara "C"										
8,100.00	84.68	90.41	7,817.56	-5.37	755.52	755.54	10.00	10.00	0.00	0.00
8,158.36	90.52	90.41	7,820.00	-5.79	813.80	813.82	10.00	10.00	0.00	0.00
End of Build 8158.36 ft - 7" Casing Pt.										
8,200.00	90.52	90.41	7,819.63	-6.08	855.44	855.46	0.00	0.00	0.00	0.00
8,300.00	90.52	90.41	7,818.72	-6.79	955.43	955.46	0.00	0.00	0.00	0.00
8,400.00	90.52	90.41	7,817.82	-7.50	1,055.43	1,055.45	0.00	0.00	0.00	0.00
8,500.00	90.52	90.41	7,816.91	-8.21	1,155.42	1,155.45	0.00	0.00	0.00	0.00
8,600.00	90.52	90.41	7,816.01	-8.92	1,255.41	1,255.45	0.00	0.00	0.00	0.00
8,700.00	90.52	90.41	7,815.10	-9.63	1,355.41	1,355.44	0.00	0.00	0.00	0.00

Plan Report for Grimm Motocross 4-65 23-24 1H - Rev A0

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)	Toolface Azimuth (°)
8,800.00	90.52	90.41	7,814.20	-10.34	1,455.40	1,455.44	0.00	0.00	0.00	0.00
8,900.00	90.52	90.41	7,813.29	-11.05	1,555.39	1,555.43	0.00	0.00	0.00	0.00
9,000.00	90.52	90.41	7,812.39	-11.76	1,655.39	1,655.43	0.00	0.00	0.00	0.00
9,100.00	90.52	90.41	7,811.49	-12.47	1,755.38	1,755.43	0.00	0.00	0.00	0.00
9,200.00	90.52	90.41	7,810.58	-13.18	1,855.38	1,855.42	0.00	0.00	0.00	0.00
9,300.00	90.52	90.41	7,809.68	-13.89	1,955.37	1,955.42	0.00	0.00	0.00	0.00
9,400.00	90.52	90.41	7,808.77	-14.60	2,055.36	2,055.41	0.00	0.00	0.00	0.00
9,500.00	90.52	90.41	7,807.87	-15.30	2,155.36	2,155.41	0.00	0.00	0.00	0.00
9,600.00	90.52	90.41	7,806.96	-16.01	2,255.35	2,255.41	0.00	0.00	0.00	0.00
9,700.00	90.52	90.41	7,806.06	-16.72	2,355.34	2,355.40	0.00	0.00	0.00	0.00
9,800.00	90.52	90.41	7,805.15	-17.43	2,455.34	2,455.40	0.00	0.00	0.00	0.00
9,900.00	90.52	90.41	7,804.25	-18.14	2,555.33	2,555.39	0.00	0.00	0.00	0.00
10,000.00	90.52	90.41	7,803.34	-18.85	2,655.32	2,655.39	0.00	0.00	0.00	0.00
10,100.00	90.52	90.41	7,802.44	-19.56	2,755.32	2,755.39	0.00	0.00	0.00	0.00
10,200.00	90.52	90.41	7,801.53	-20.27	2,855.31	2,855.38	0.00	0.00	0.00	0.00
10,300.00	90.52	90.41	7,800.63	-20.98	2,955.30	2,955.38	0.00	0.00	0.00	0.00
10,400.00	90.52	90.41	7,799.72	-21.69	3,055.30	3,055.37	0.00	0.00	0.00	0.00
10,500.00	90.52	90.41	7,798.82	-22.40	3,155.29	3,155.37	0.00	0.00	0.00	0.00
10,600.00	90.52	90.41	7,797.92	-23.11	3,255.28	3,255.36	0.00	0.00	0.00	0.00
10,700.00	90.52	90.41	7,797.01	-23.82	3,355.28	3,355.36	0.00	0.00	0.00	0.00
10,800.00	90.52	90.41	7,796.11	-24.53	3,455.27	3,455.36	0.00	0.00	0.00	0.00
10,900.00	90.52	90.41	7,795.20	-25.24	3,555.26	3,555.35	0.00	0.00	0.00	0.00
11,000.00	90.52	90.41	7,794.30	-25.94	3,655.26	3,655.35	0.00	0.00	0.00	0.00
11,100.00	90.52	90.41	7,793.39	-26.65	3,755.25	3,755.34	0.00	0.00	0.00	0.00
11,200.00	90.52	90.41	7,792.49	-27.36	3,855.24	3,855.34	0.00	0.00	0.00	0.00
11,300.00	90.52	90.41	7,791.58	-28.07	3,955.24	3,955.34	0.00	0.00	0.00	0.00
11,400.00	90.52	90.41	7,790.68	-28.78	4,055.23	4,055.33	0.00	0.00	0.00	0.00
11,500.00	90.52	90.41	7,789.77	-29.49	4,155.22	4,155.33	0.00	0.00	0.00	0.00
11,600.00	90.52	90.41	7,788.87	-30.20	4,255.22	4,255.32	0.00	0.00	0.00	0.00
11,700.00	90.52	90.41	7,787.96	-30.91	4,355.21	4,355.32	0.00	0.00	0.00	0.00
11,800.00	90.52	90.41	7,787.06	-31.62	4,455.20	4,455.32	0.00	0.00	0.00	0.00
11,900.00	90.52	90.41	7,786.15	-32.33	4,555.20	4,555.31	0.00	0.00	0.00	0.00
12,000.00	90.52	90.41	7,785.25	-33.04	4,655.19	4,655.31	0.00	0.00	0.00	0.00
12,100.00	90.52	90.41	7,784.35	-33.75	4,755.18	4,755.30	0.00	0.00	0.00	0.00
12,200.00	90.52	90.41	7,783.44	-34.46	4,855.18	4,855.30	0.00	0.00	0.00	0.00
12,300.00	90.52	90.41	7,782.54	-35.17	4,955.17	4,955.30	0.00	0.00	0.00	0.00
12,400.00	90.52	90.41	7,781.63	-35.88	5,055.16	5,055.29	0.00	0.00	0.00	0.00
12,500.00	90.52	90.41	7,780.73	-36.59	5,155.16	5,155.29	0.00	0.00	0.00	0.00
12,600.00	90.52	90.41	7,779.82	-37.29	5,255.15	5,255.28	0.00	0.00	0.00	0.00
12,700.00	90.52	90.41	7,778.92	-38.00	5,355.14	5,355.28	0.00	0.00	0.00	0.00
12,800.00	90.52	90.41	7,778.01	-38.71	5,455.14	5,455.27	0.00	0.00	0.00	0.00
12,900.00	90.52	90.41	7,777.11	-39.42	5,555.13	5,555.27	0.00	0.00	0.00	0.00
13,000.00	90.52	90.41	7,776.20	-40.13	5,655.12	5,655.27	0.00	0.00	0.00	0.00
Hold Inc 90.52° and Azi 90.41°										
13,100.00	90.52	90.41	7,775.30	-40.84	5,755.12	5,755.26	0.00	0.00	0.00	0.00
13,200.00	90.52	90.41	7,774.39	-41.55	5,855.11	5,855.26	0.00	0.00	0.00	0.00
13,300.00	90.52	90.41	7,773.49	-42.26	5,955.10	5,955.25	0.00	0.00	0.00	0.00
13,400.00	90.52	90.41	7,772.58	-42.97	6,055.10	6,055.25	0.00	0.00	0.00	0.00
13,500.00	90.52	90.41	7,771.68	-43.68	6,155.09	6,155.25	0.00	0.00	0.00	0.00
13,600.00	90.52	90.41	7,770.78	-44.39	6,255.08	6,255.24	0.00	0.00	0.00	0.00
13,700.00	90.52	90.41	7,769.87	-45.10	6,355.08	6,355.24	0.00	0.00	0.00	0.00
13,800.00	90.52	90.41	7,768.97	-45.81	6,455.07	6,455.23	0.00	0.00	0.00	0.00
13,900.00	90.52	90.41	7,768.06	-46.52	6,555.06	6,555.23	0.00	0.00	0.00	0.00
14,000.00	90.52	90.41	7,767.16	-47.23	6,655.06	6,655.23	0.00	0.00	0.00	0.00
14,100.00	90.52	90.41	7,766.25	-47.93	6,755.05	6,755.22	0.00	0.00	0.00	0.00
14,200.00	90.52	90.41	7,765.35	-48.64	6,855.04	6,855.22	0.00	0.00	0.00	0.00
14,300.00	90.52	90.41	7,764.44	-49.35	6,955.04	6,955.21	0.00	0.00	0.00	0.00
14,400.00	90.52	90.41	7,763.54	-50.06	7,055.03	7,055.21	0.00	0.00	0.00	0.00
14,500.00	90.52	90.41	7,762.63	-50.77	7,155.02	7,155.21	0.00	0.00	0.00	0.00
14,600.00	90.52	90.41	7,761.73	-51.48	7,255.02	7,255.20	0.00	0.00	0.00	0.00

Plan Report for Grimm Motocross 4-65 23-24 1H - Rev A0

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)	Toolface Azimuth (°)
14,700.00	90.52	90.41	7,760.82	-52.19	7,355.01	7,355.20	0.00	0.00	0.00	0.00
14,800.00	90.52	90.41	7,759.92	-52.90	7,455.01	7,455.19	0.00	0.00	0.00	0.00
14,900.00	90.52	90.41	7,759.01	-53.61	7,555.00	7,555.19	0.00	0.00	0.00	0.00
15,000.00	90.52	90.41	7,758.11	-54.32	7,654.99	7,655.18	0.00	0.00	0.00	0.00
15,100.00	90.52	90.41	7,757.21	-55.03	7,754.99	7,755.18	0.00	0.00	0.00	0.00
15,200.00	90.52	90.41	7,756.30	-55.74	7,854.98	7,855.18	0.00	0.00	0.00	0.00
15,300.00	90.52	90.41	7,755.40	-56.45	7,954.97	7,955.17	0.00	0.00	0.00	0.00
15,400.00	90.52	90.41	7,754.49	-57.16	8,054.97	8,055.17	0.00	0.00	0.00	0.00
15,500.00	90.52	90.41	7,753.59	-57.87	8,154.96	8,155.16	0.00	0.00	0.00	0.00
15,600.00	90.52	90.41	7,752.68	-58.58	8,254.95	8,255.16	0.00	0.00	0.00	0.00
15,700.00	90.52	90.41	7,751.78	-59.28	8,354.95	8,355.16	0.00	0.00	0.00	0.00
15,800.00	90.52	90.41	7,750.87	-59.99	8,454.94	8,455.15	0.00	0.00	0.00	0.00
15,900.00	90.52	90.41	7,749.97	-60.70	8,554.93	8,555.15	0.00	0.00	0.00	0.00
16,000.00	90.52	90.41	7,749.06	-61.41	8,654.93	8,655.14	0.00	0.00	0.00	0.00
16,100.00	90.52	90.41	7,748.16	-62.12	8,754.92	8,755.14	0.00	0.00	0.00	0.00
16,200.00	90.52	90.41	7,747.25	-62.83	8,854.91	8,855.14	0.00	0.00	0.00	0.00
16,300.00	90.52	90.41	7,746.35	-63.54	8,954.91	8,955.13	0.00	0.00	0.00	0.00
16,400.00	90.52	90.41	7,745.44	-64.25	9,054.90	9,055.13	0.00	0.00	0.00	0.00
16,500.00	90.52	90.41	7,744.54	-64.96	9,154.89	9,155.12	0.00	0.00	0.00	0.00
16,600.00	90.52	90.41	7,743.64	-65.67	9,254.89	9,255.12	0.00	0.00	0.00	0.00
16,700.00	90.52	90.41	7,742.73	-66.38	9,354.88	9,355.11	0.00	0.00	0.00	0.00
16,800.00	90.52	90.41	7,741.83	-67.09	9,454.87	9,455.11	0.00	0.00	0.00	0.00
16,900.00	90.52	90.41	7,740.92	-67.80	9,554.87	9,555.11	0.00	0.00	0.00	0.00
17,000.00	90.52	90.41	7,740.02	-68.51	9,654.86	9,655.10	0.00	0.00	0.00	0.00
17,100.00	90.52	90.41	7,739.11	-69.22	9,754.85	9,755.10	0.00	0.00	0.00	0.00
17,200.00	90.52	90.41	7,738.21	-69.92	9,854.85	9,855.09	0.00	0.00	0.00	0.00
17,300.00	90.52	90.41	7,737.30	-70.63	9,954.84	9,955.09	0.00	0.00	0.00	0.00
17,400.00	90.52	90.41	7,736.40	-71.34	10,054.83	10,055.09	0.00	0.00	0.00	0.00
17,500.00	90.52	90.41	7,735.49	-72.05	10,154.83	10,155.08	0.00	0.00	0.00	0.00
17,600.00	90.52	90.41	7,734.59	-72.76	10,254.82	10,255.08	0.00	0.00	0.00	0.00
17,700.00	90.52	90.41	7,733.68	-73.47	10,354.81	10,355.07	0.00	0.00	0.00	0.00
17,775.60	90.52	90.41	7,733.00	-74.01	10,430.41	10,430.67	0.00	0.00	0.00	0.00

TD 17775.60 ft

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
2,375.00	2,375.00	0.00	0.00	Begin Nudge @ 2375.00 ft
2,525.00	2,524.93	-0.03	3.93	End Nudge @ 2525.00 ft
4,500.00	4,497.22	-0.77	107.29	Hold Inc 3.00° and Azi 90.41°
6,878.17	6,872.14	-1.66	231.75	Begin Drop 6878.17 ft
7,028.17	7,022.07	-1.69	235.67	End Drop 7028.17 ft
7,253.17	7,247.07	-1.69	235.67	Kick Off Point 7253.17 ft
7,700.00	7,649.96	-2.86	401.25	Build Rate 10.00 °/100 ft
8,158.36	7,820.00	-5.79	813.80	End of Build 8158.36 ft
13,000.00	7,776.20	-40.13	5,655.12	Hold Inc 90.52° and Azi 90.41°
17,775.60	7,733.00	-74.01	10,430.41	TD 17775.60 ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (usft)	+E/-W (usft)	Start TVD (usft)
Target	Grimm Motocross 4-65 23-24 1H_Rev A0_BHL Tgt	90.41	Slot	0.00	0.00	0.00

Plan Report for Grimm Motocross 4-65 23-24 1H - Rev A0

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	2,262.00	Rev A0	NSG-CT_D/P
2,262.00	7,253.17	Rev A0	MWD
8,158.36	17,775.60	Rev A0	MWD

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
8,158.36	7,820.00	7" Casing Pt.	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,822.00	1,822.00	Fox Hills			
2,062.00	2,062.00	Pierre Shale			
2,262.00	2,262.00	Surface Casing			
7,664.55	7,624.00	Sharon Springs			
7,765.82	7,694.00	Niobrara			
7,897.68	7,764.00	Niobrara "B"			
8,040.58	7,809.00	Niobrara "C"			

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Grimm Motocross 4-65 23-24 1H_Sec. 23 & 2	0.00	0.00	0.00	Polygon
Grimm Motocross 4-65 23-24 1H_SB	0.00	0.00	0.00	Polygon
Grimm Motocross 4-65 23-24 1H_Sec. 22_SL	0.00	0.00	0.00	Polygon
Grimm Motocross 4-65 23-24 1H_Rev A0_BH	7,733.00	-74.01	10,430.41	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.54 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 8,158.36 usft
Net Tortousity applicable to Plans:	0.54 °/100usft	Directional Difficulty Index:	6.629

Audit Info

North Reference Sheet for Sec. 22-T4S-R65W - Grimm Motocross 4-65 23-24 1H - 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 @ 5782.00usft (H&P 280). Northing and Easting are relative to Grimm Motocross 4-65 23-24 1H

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 -105.50°, 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: 0.99998772

Grid Coordinates of Well: 1,675,386.62 usft N, 3,241,439.55 usft E

Geographical Coordinates of Well: 39° 41' 04.58" N, 104° 38' 31.66" W

Grid Convergence at Surface is: 0.54°

Based upon Minimum Curvature type calculations, at a Measured Depth of 17,775.60usft

the Bottom Hole Displacement is 10,430.67usft in the Direction of 90.41° (True).

Magnetic Convergence at surface is: -7.90° (31 December 2013, , BGGM2013)

