

# Great Western

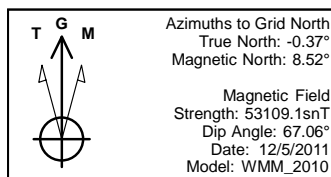
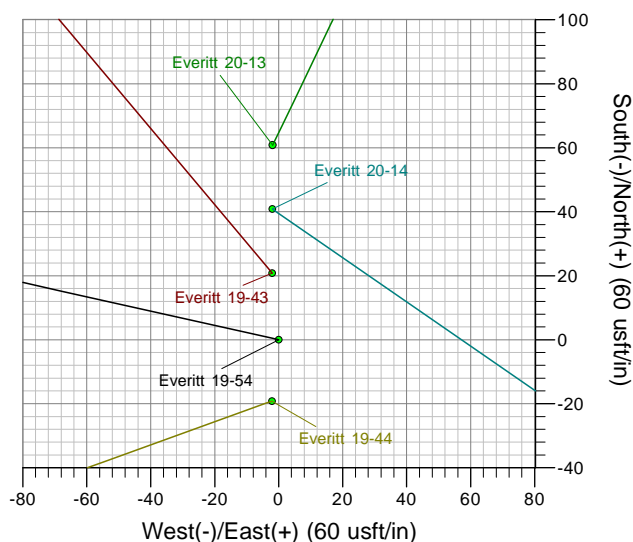
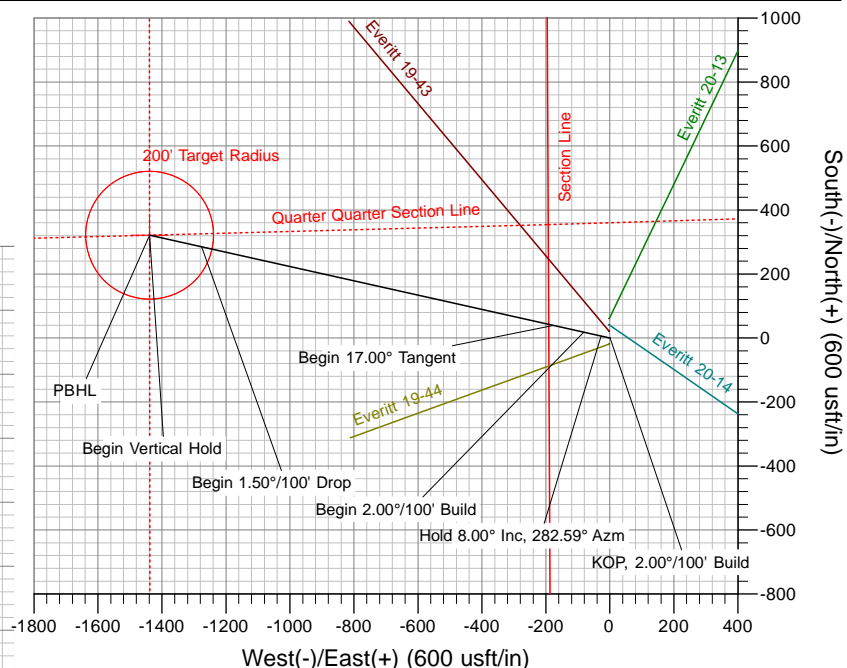
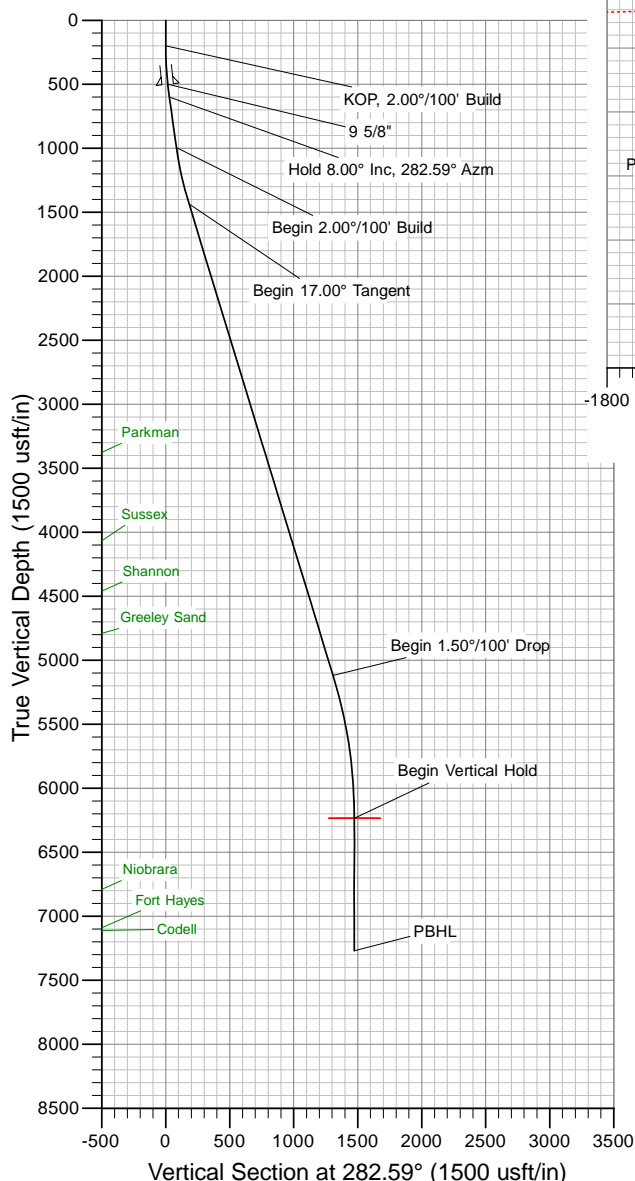
Company: Great Western  
Site: Everitt  
Well: 19-54  
Project: Weld County, Colorado (NAD 83)  
Rig Name: Cade 22



Planning: 936.442.2510 Fax: 936.442.2515  
Operations: 936.442.2500 Fax: 936.442.2599

## ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	V Sect	Departure	Annotation
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	KOP, 2.00°/100' Build
600.00	8.00	282.59	598.70	6.08	-27.21	27.88	27.88	Hold 8.00° Inc, 282.59° Azm
1000.00	8.00	282.59	994.81	18.21	-81.54	83.55	83.55	Begin 2.00°/100' Build
1449.79	17.00	282.59	1433.48	39.39	-176.44	180.78	180.78	Begin 17.00° Tangent
5303.08	17.00	282.59	5118.50	284.82	-1275.69	1307.10	1307.10	Begin 1.50°/100' Drop
6436.13	0.00	0.00	6235.00	321.17	-1438.50	1473.92	1473.92	Begin Vertical Hold
7471.13	0.00	0.00	7270.00	321.17	-1438.50	1473.92	1473.92	PBHL



US State Plane 1983  
Colorado Northern Zone

Created By: Allen Slack  
Date: 13:35, December 06 2011  
Plan: Design #1

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# **Great Western**

**Weld County, Colorado (NAD 83)  
Everitt  
19-54**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**06 December, 2011**

<b>Database:</b>	Southern Region	<b>Local Co-ordinate Reference:</b>	Well 19-54
<b>Company:</b>	Great Western	<b>TVD Reference:</b>	WELL @ 4790.00usft (Cade 22)
<b>Project:</b>	Weld County, Colorado (NAD 83)	<b>MD Reference:</b>	WELL @ 4790.00usft (Cade 22)
<b>Site:</b>	Everitt	<b>North Reference:</b>	Grid
<b>Well:</b>	19-54	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

<b>Project</b>	Weld County, Colorado (NAD 83)		
<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>	Colorado Northern Zone		

<b>Well</b>	19-54			
<b>Well Position</b>	<b>+N/-S</b>	1,413,723.47 usft	<b>Northing:</b>	1,413,723.47 usft
	<b>+E/-W</b>	3,159,770.64 usft	<b>Easting:</b>	3,159,770.64 usft
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	
			<b>Latitude:</b>	40° 28' 3.5487 N
			<b>Longitude:</b>	104° 55' 32.742 W
			<b>Ground Level:</b>	4,776.00 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>
	WMM_2010	12/5/2011	8.89	67.06	53,109

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	282.59

<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
0.00	0.00	0.00	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	
600.00	8.00	282.59	598.70	6.08	-27.21	2.00	2.00	0.00	282.59	Vert. v1 - Everitt 19
1,000.00	8.00	282.59	994.81	18.21	-81.54	0.00	0.00	0.00	0.00	
1,449.79	17.00	282.59	1,433.49	39.39	-176.44	2.00	2.00	0.00	0.00	
5,303.08	17.00	282.59	5,118.50	284.82	-1,275.69	0.00	0.00	0.00	0.00	
6,436.13	0.00	0.00	6,235.00	321.17	-1,438.50	1.50	-1.50	0.00	180.00	Vert. v1 - Everitt 19
7,471.13	0.00	0.00	7,270.00	321.17	-1,438.50	0.00	0.00	0.00	0.00	

<b>Database:</b>	Southern Region	<b>Local Co-ordinate Reference:</b>	Well 19-54
<b>Company:</b>	Great Western	<b>TVD Reference:</b>	WELL @ 4790.00usft (Cade 22)
<b>Project:</b>	Weld County, Colorado (NAD 83)	<b>MD Reference:</b>	WELL @ 4790.00usft (Cade 22)
<b>Site:</b>	Everitt	<b>North Reference:</b>	Grid
<b>Well:</b>	19-54	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

## 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)
0.00	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
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>KOP, 2.00°/100' Build</b>									
300.00	2.00	282.59	299.98	0.38	-1.70	1.75	2.00	2.00	0.00
400.00	4.00	282.59	399.84	1.52	-6.81	6.98	2.00	2.00	0.00
500.00	6.00	282.59	499.45	3.42	-15.32	15.69	2.00	2.00	0.00
500.55	6.01	282.59	500.00	3.43	-15.37	15.75	2.00	2.00	0.00
<b>9 5/8"</b>									
600.00	8.00	282.59	598.70	6.08	-27.21	27.88	2.00	2.00	0.00
<b>Hold 8.00° Inc, 282.59° Azm</b>									
700.00	8.00	282.59	697.73	9.11	-40.79	41.80	0.00	0.00	0.00
800.00	8.00	282.59	796.76	12.14	-54.38	55.71	0.00	0.00	0.00
900.00	8.00	282.59	895.78	15.17	-67.96	69.63	0.00	0.00	0.00
1,000.00	8.00	282.59	994.81	18.21	-81.54	83.55	0.00	0.00	0.00
<b>Begin 2.00°/100' Build</b>									
1,100.00	10.00	282.59	1,093.57	21.61	-96.81	99.19	2.00	2.00	0.00
1,200.00	12.00	282.59	1,191.73	25.77	-115.43	118.27	2.00	2.00	0.00
1,300.00	14.00	282.59	1,289.16	30.67	-137.38	140.77	2.00	2.00	0.00
1,400.00	16.00	282.59	1,385.75	36.31	-162.64	166.65	2.00	2.00	0.00
1,449.79	17.00	282.59	1,433.49	39.39	-176.44	180.78	2.00	2.00	0.00
<b>Begin 17.00° Tangent</b>									
1,500.00	17.00	282.59	1,481.51	42.59	-190.76	195.46	0.00	0.00	0.00
1,600.00	17.00	282.59	1,577.14	48.96	-219.29	224.69	0.00	0.00	0.00
1,700.00	17.00	282.59	1,672.77	55.33	-247.82	253.92	0.00	0.00	0.00
1,800.00	17.00	282.59	1,768.40	61.70	-276.35	283.15	0.00	0.00	0.00
1,900.00	17.00	282.59	1,864.04	68.07	-304.88	312.38	0.00	0.00	0.00
2,000.00	17.00	282.59	1,959.67	74.44	-333.40	341.61	0.00	0.00	0.00
2,100.00	17.00	282.59	2,055.30	80.81	-361.93	370.84	0.00	0.00	0.00
2,200.00	17.00	282.59	2,150.94	87.18	-390.46	400.07	0.00	0.00	0.00
2,300.00	17.00	282.59	2,246.57	93.55	-418.99	429.30	0.00	0.00	0.00
2,400.00	17.00	282.59	2,342.20	99.92	-447.51	458.53	0.00	0.00	0.00
2,500.00	17.00	282.59	2,437.83	106.29	-476.04	487.76	0.00	0.00	0.00
2,600.00	17.00	282.59	2,533.47	112.65	-504.57	516.99	0.00	0.00	0.00
2,700.00	17.00	282.59	2,629.10	119.02	-533.10	546.22	0.00	0.00	0.00
2,800.00	17.00	282.59	2,724.73	125.39	-561.62	575.45	0.00	0.00	0.00
2,900.00	17.00	282.59	2,820.36	131.76	-590.15	604.68	0.00	0.00	0.00
3,000.00	17.00	282.59	2,916.00	138.13	-618.68	633.91	0.00	0.00	0.00
3,100.00	17.00	282.59	3,011.63	144.50	-647.21	663.14	0.00	0.00	0.00
3,200.00	17.00	282.59	3,107.26	150.87	-675.73	692.37	0.00	0.00	0.00
3,300.00	17.00	282.59	3,202.89	157.24	-704.26	721.60	0.00	0.00	0.00
3,400.00	17.00	282.59	3,298.53	163.61	-732.79	750.83	0.00	0.00	0.00
3,479.96	17.00	282.59	3,375.00	168.70	-755.60	774.21	0.00	0.00	0.00
<b>Parkman</b>									
3,500.00	17.00	282.59	3,394.16	169.98	-761.32	780.06	0.00	0.00	0.00
3,600.00	17.00	282.59	3,489.79	176.35	-789.84	809.29	0.00	0.00	0.00
3,700.00	17.00	282.59	3,585.43	182.72	-818.37	838.52	0.00	0.00	0.00
3,800.00	17.00	282.59	3,681.06	189.09	-846.90	867.75	0.00	0.00	0.00
3,900.00	17.00	282.59	3,776.69	195.46	-875.43	896.98	0.00	0.00	0.00
4,000.00	17.00	282.59	3,872.32	201.83	-903.96	926.21	0.00	0.00	0.00
4,100.00	17.00	282.59	3,967.96	208.20	-932.48	955.44	0.00	0.00	0.00
4,200.00	17.00	282.59	4,063.59	214.56	-961.01	984.67	0.00	0.00	0.00
4,201.48	17.00	282.59	4,065.00	214.66	-961.43	985.10	0.00	0.00	0.00

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<b>Project:</b>	Weld County, Colorado (NAD 83)	<b>MD Reference:</b>	WELL @ 4790.00usft (Cade 22)
<b>Site:</b>	Everitt	<b>North Reference:</b>	Grid
<b>Well:</b>	19-54	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

## 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)
<b>Sussex</b>									
4,300.00	17.00	282.59	4,159.22	220.93	-989.54	1,013.90	0.00	0.00	0.00
4,400.00	17.00	282.59	4,254.85	227.30	-1,018.07	1,043.13	0.00	0.00	0.00
4,500.00	17.00	282.59	4,350.49	233.67	-1,046.59	1,072.36	0.00	0.00	0.00
4,600.00	17.00	282.59	4,446.12	240.04	-1,075.12	1,101.59	0.00	0.00	0.00
4,614.51	17.00	282.59	4,460.00	240.97	-1,079.26	1,105.83	0.00	0.00	0.00
<b>Shannon</b>									
4,700.00	17.00	282.59	4,541.75	246.41	-1,103.65	1,130.82	0.00	0.00	0.00
4,800.00	17.00	282.59	4,637.38	252.78	-1,132.18	1,160.05	0.00	0.00	0.00
4,900.00	17.00	282.59	4,733.02	259.15	-1,160.70	1,189.28	0.00	0.00	0.00
4,959.58	17.00	282.59	4,790.00	262.95	-1,177.70	1,206.70	0.00	0.00	0.00
<b>Greeley Sand</b>									
5,000.00	17.00	282.59	4,828.65	265.52	-1,189.23	1,218.51	0.00	0.00	0.00
5,100.00	17.00	282.59	4,924.28	271.89	-1,217.76	1,247.74	0.00	0.00	0.00
5,200.00	17.00	282.59	5,019.92	278.26	-1,246.29	1,276.97	0.00	0.00	0.00
5,300.00	17.00	282.59	5,115.55	284.63	-1,274.81	1,306.20	0.00	0.00	0.00
5,303.08	17.00	282.59	5,118.50	284.82	-1,275.69	1,307.10	0.00	0.00	0.00
<b>Begin 1.50°/100' Drop</b>									
5,400.00	15.54	282.59	5,211.53	290.74	-1,302.19	1,334.25	1.50	-1.50	0.00
5,500.00	14.04	282.59	5,308.21	296.30	-1,327.11	1,359.78	1.50	-1.50	0.00
5,600.00	12.54	282.59	5,405.53	301.31	-1,349.55	1,382.77	1.50	-1.50	0.00
5,700.00	11.04	282.59	5,503.42	305.77	-1,369.49	1,403.21	1.50	-1.50	0.00
5,800.00	9.54	282.59	5,601.81	309.66	-1,386.93	1,421.08	1.50	-1.50	0.00
5,900.00	8.04	282.59	5,700.63	312.99	-1,401.84	1,436.36	1.50	-1.50	0.00
6,000.00	6.54	282.59	5,799.82	315.75	-1,414.23	1,449.05	1.50	-1.50	0.00
6,100.00	5.04	282.59	5,899.30	317.95	-1,424.08	1,459.14	1.50	-1.50	0.00
6,200.00	3.54	282.59	5,999.02	319.58	-1,431.38	1,466.63	1.50	-1.50	0.00
6,300.00	2.04	282.59	6,098.90	320.65	-1,436.14	1,471.50	1.50	-1.50	0.00
6,400.00	0.54	282.59	6,198.87	321.14	-1,438.34	1,473.75	1.50	-1.50	0.00
6,436.13	0.00	0.00	6,235.00	321.17	-1,438.50	1,473.92	1.50	-1.50	0.00
<b>Begin Vertical Hold</b>									
6,500.00	0.00	0.00	6,298.87	321.17	-1,438.50	1,473.92	0.00	0.00	0.00
6,600.00	0.00	0.00	6,398.87	321.17	-1,438.50	1,473.92	0.00	0.00	0.00
6,700.00	0.00	0.00	6,498.87	321.17	-1,438.50	1,473.92	0.00	0.00	0.00
6,800.00	0.00	0.00	6,598.87	321.17	-1,438.50	1,473.92	0.00	0.00	0.00
6,900.00	0.00	0.00	6,698.87	321.17	-1,438.50	1,473.92	0.00	0.00	0.00
6,991.13	0.00	0.00	6,790.00	321.17	-1,438.50	1,473.92	0.00	0.00	0.00
<b>Niobrara</b>									
7,000.00	0.00	0.00	6,798.87	321.17	-1,438.50	1,473.92	0.00	0.00	0.00
7,100.00	0.00	0.00	6,898.87	321.17	-1,438.50	1,473.92	0.00	0.00	0.00
7,200.00	0.00	0.00	6,998.87	321.17	-1,438.50	1,473.92	0.00	0.00	0.00
7,291.13	0.00	0.00	7,090.00	321.17	-1,438.50	1,473.92	0.00	0.00	0.00
<b>Fort Hayes</b>									
7,300.00	0.00	0.00	7,098.87	321.17	-1,438.50	1,473.92	0.00	0.00	0.00
7,311.13	0.00	0.00	7,110.00	321.17	-1,438.50	1,473.92	0.00	0.00	0.00
<b>Codell</b>									
7,400.00	0.00	0.00	7,198.87	321.17	-1,438.50	1,473.92	0.00	0.00	0.00
7,471.13	0.00	0.00	7,270.00	321.17	-1,438.50	1,473.92	0.00	0.00	0.00
<b>PBHL</b>									

<b>Database:</b>	Southern Region	<b>Local Co-ordinate Reference:</b>	Well 19-54
<b>Company:</b>	Great Western	<b>TVD Reference:</b>	WELL @ 4790.00usft (Cade 22)
<b>Project:</b>	Weld County, Colorado (NAD 83)	<b>MD Reference:</b>	WELL @ 4790.00usft (Cade 22)
<b>Site:</b>	Everitt	<b>North Reference:</b>	Grid
<b>Well:</b>	19-54	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

#### Design 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
Vert. v1 - Everitt 19-54 - plan hits target center - Circle (radius 200.00)	0.00	0.00	6,235.00	321.17	-1,438.50	1,414,044.64	3,158,332.13	40° 28' 6.8141 N	104° 55' 51.327 W

#### Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
500.55	500.00	9 5/8"	9-5/8	12-1/4

#### Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,479.96	3,375.00	Parkman		0.00	
4,201.48	4,065.00	Sussex		0.00	
4,614.51	4,460.00	Shannon		0.00	
4,959.58	4,790.00	Greeley Sand		0.00	
6,991.13	6,790.00	Niobrara		0.00	
7,291.13	7,090.00	Fort Hayes		0.00	
7,311.13	7,110.00	Codell		0.00	

#### Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
200.00	200.00	0.00	0.00	KOP, 2.00°/100' Build
600.00	598.70	6.08	-27.21	Hold 8.00° Inc, 282.59° Azm
1,000.00	994.81	18.21	-81.54	Begin 2.00°/100' Build
1,449.79	1,433.49	39.39	-176.44	Begin 17.00° Tangent
5,303.08	5,118.50	284.82	-1,275.69	Begin 1.50°/100' Drop
6,436.13	6,235.00	321.17	-1,438.50	Begin Vertical Hold
7,471.13	7,270.00	321.17	-1,438.50	PBHL