

# **MALLARD EXPLORATION**

**WELD COUNTY, COLORADO (NAD 83)**

**SE SW SEC. 34 T8N R60W 6th P.M.**

**GREEN TEAL FED 34-27-3HN**

**ORIGINAL WELLBORE**

**06 September, 2017**

**Plan: PROPOSAL 1**



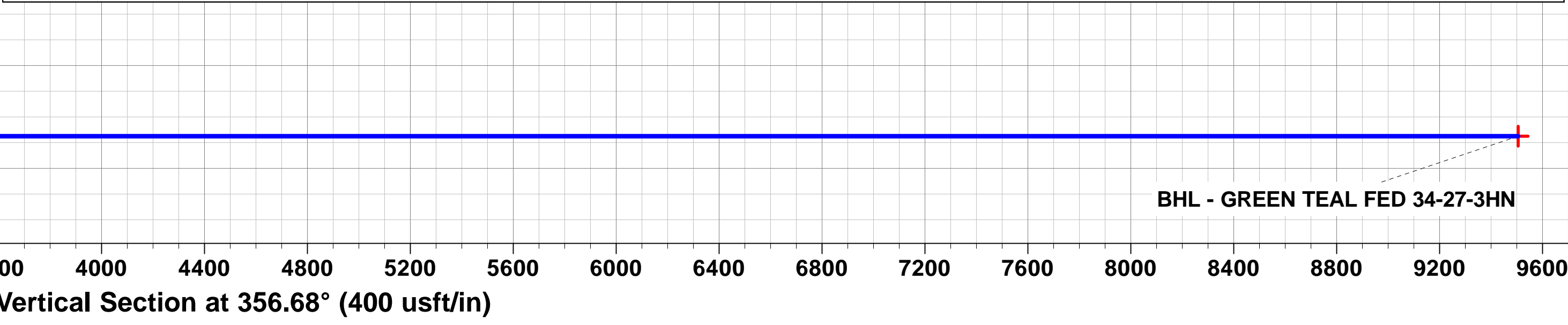
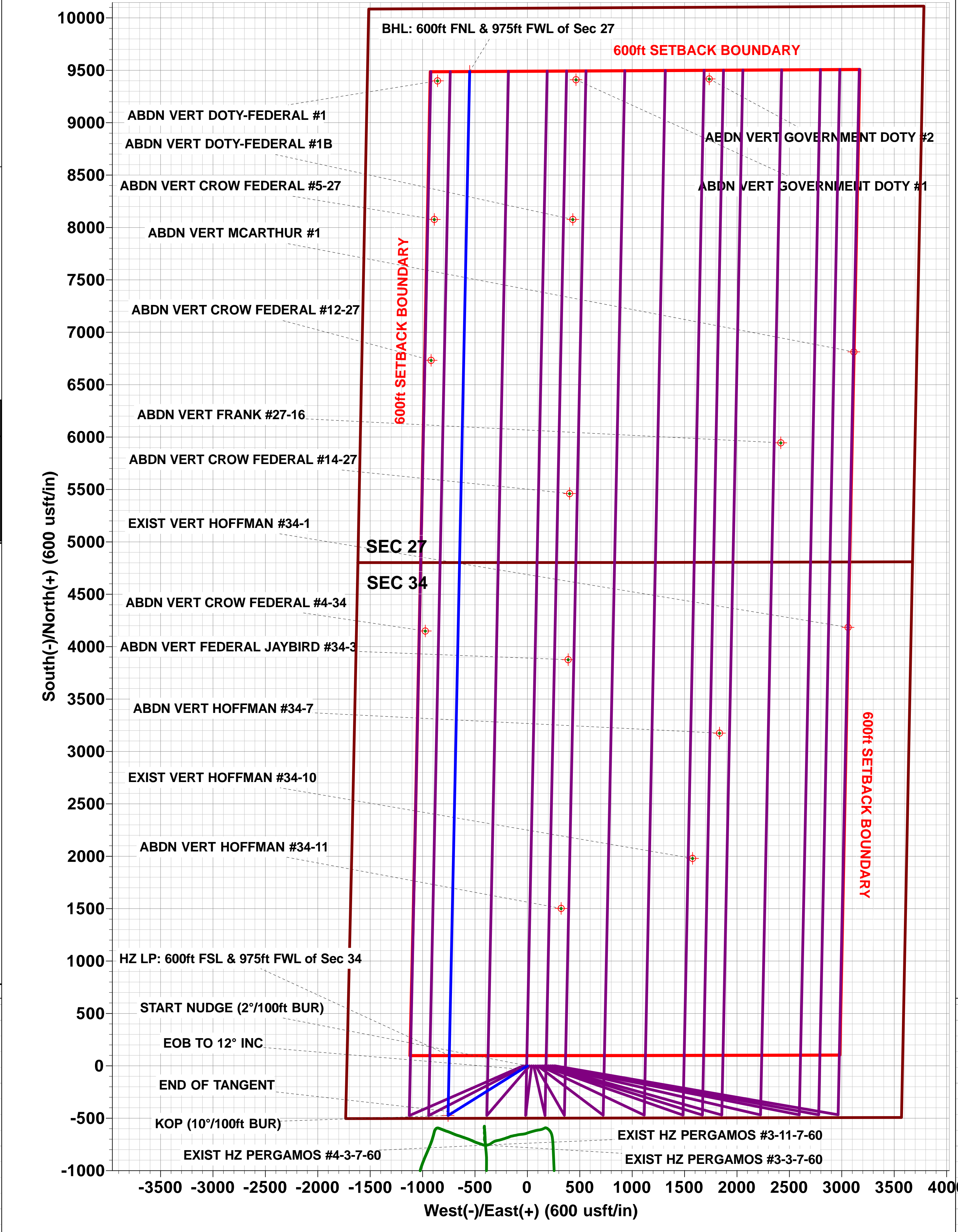
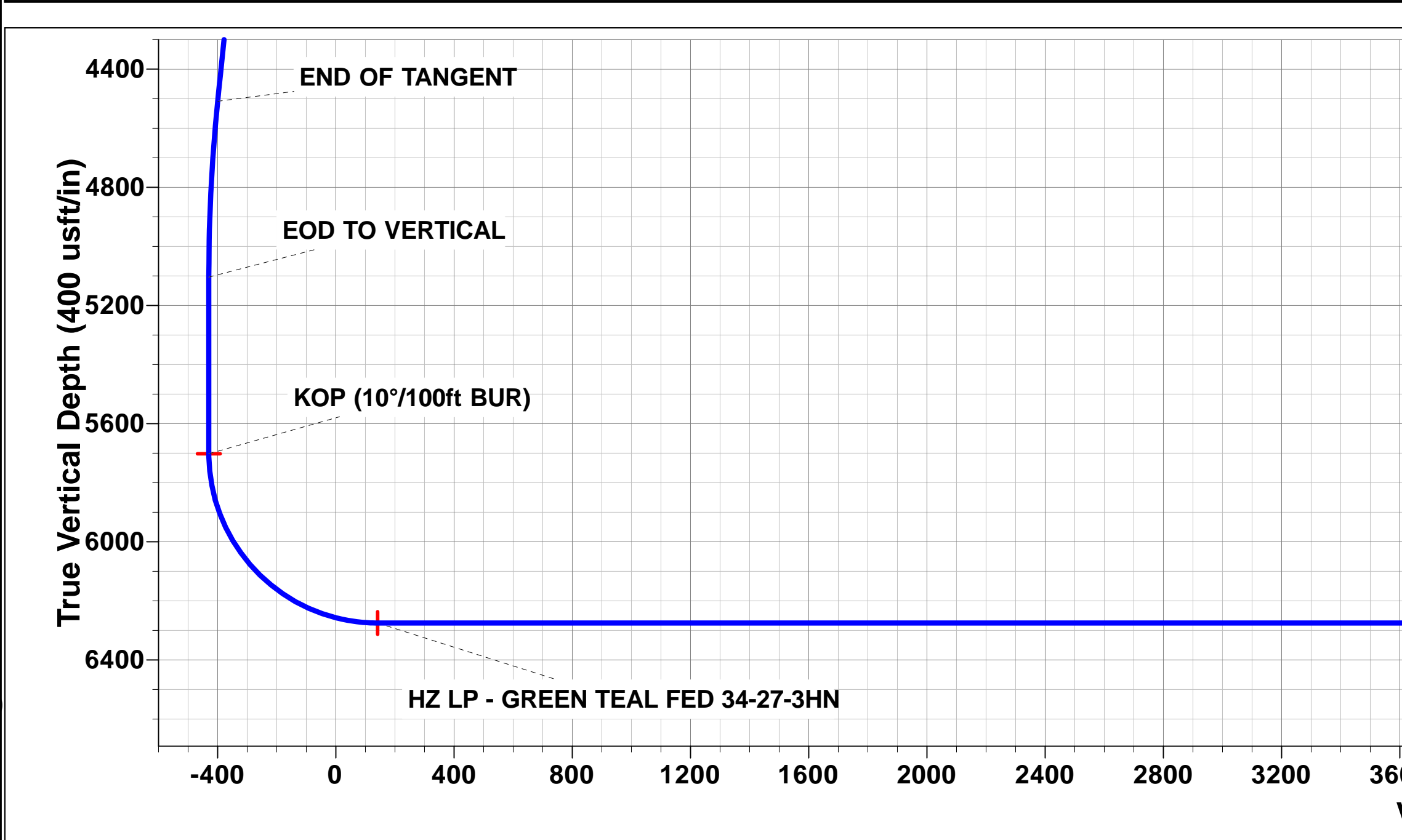
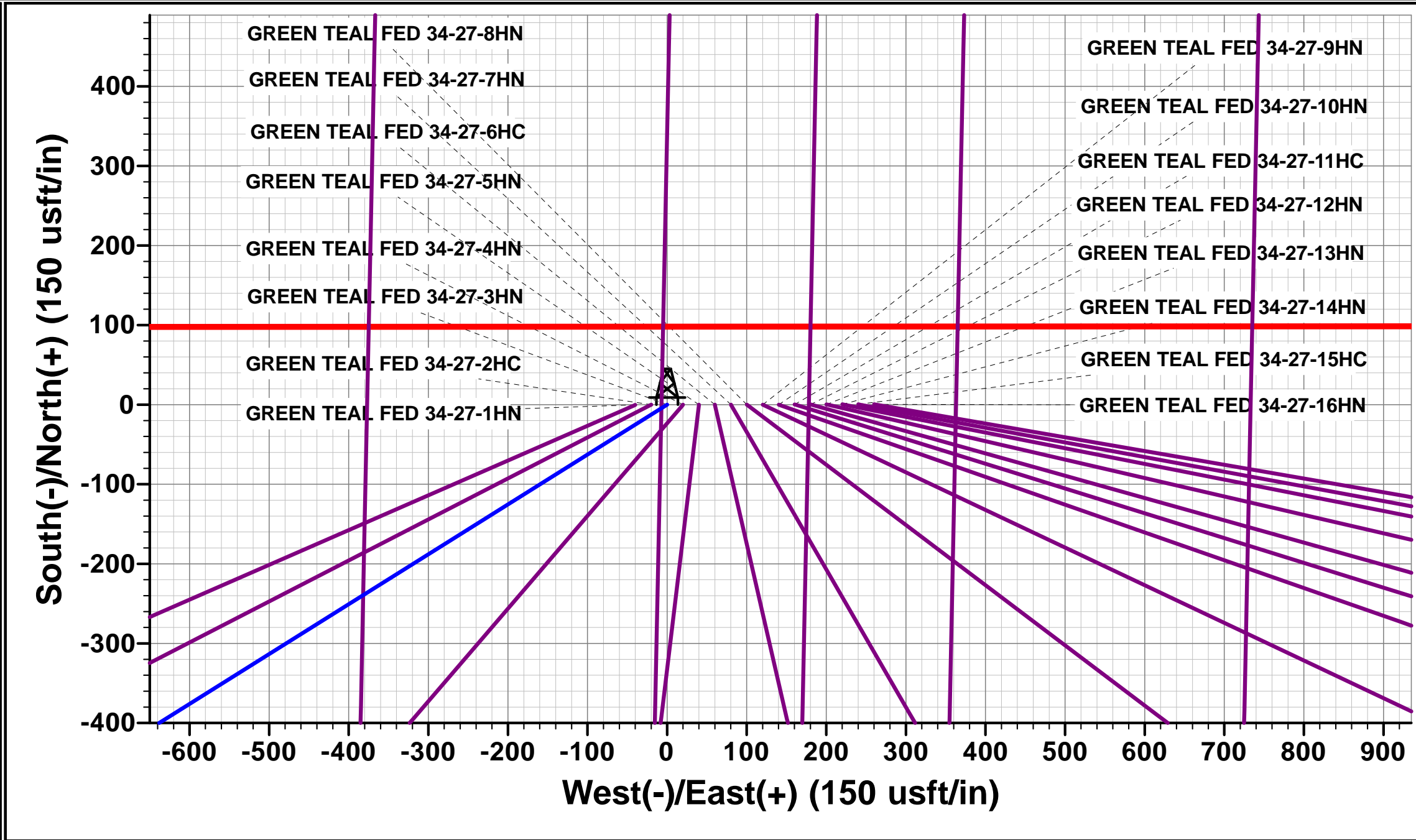
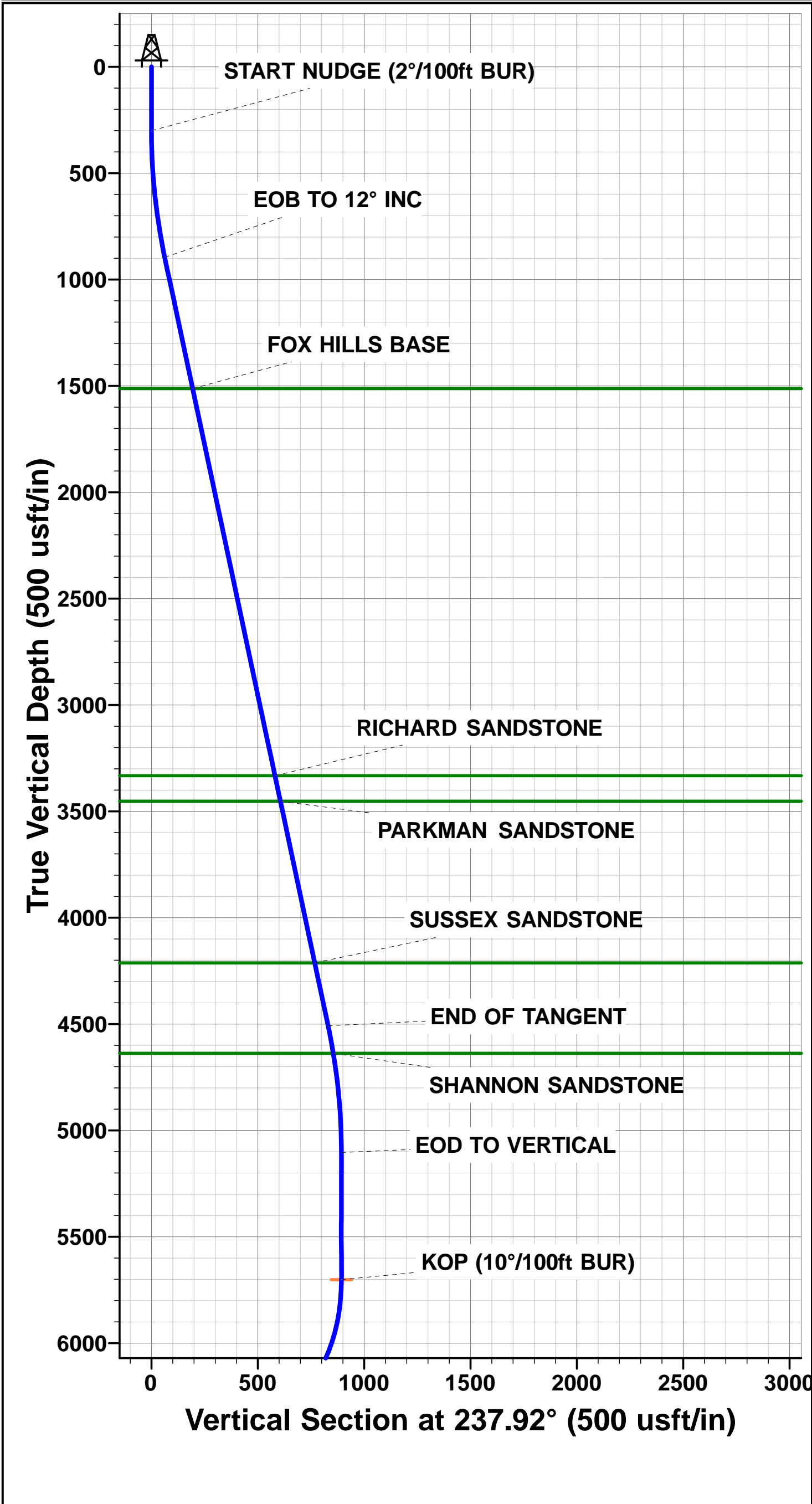


Project: WELD COUNTY, COLORADO (NAD 83)  
Site: SE SW SEC. 34 T8N R60W 6th P.M.  
Well: GREEN TEAL FED 34-27-3HN  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL 1

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Dep	Annotation	
0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	SHL: 500ft FSL & 1722ft FWL of Sec 34	
300.0	300.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)	
895.7	900.0	12.00	237.92	-33.3	-53.1	-30.1	62.6	EOB TO 12° INC	
4508.4	4593.5	12.00	237.92	-441.1	-703.7	-399.6	830.6	END OF TANGENT	
5104.1	5193.6	0.00	0.00	-474.4	-756.8	-429.8	893.2	EOD TO VERTICAL	
5702.1	5791.6	0.00	0.00	-474.4	-756.8	-429.8	893.2	KOP (10°/100ft BUR)	
6275.0	6691.5	90.00	1.19	98.4	-744.9	141.4	1466.1	HZ LP: 600ft FSL & 975ft FWL of Sec 34	
6275.0	16084.4	90.00	1.18	9489.3	-550.6	9505.2	10859.0	BHL: 600ft FNL & 975ft FWL of Sec 27	

PROPOSED LOCAL COORDINATES:  
  
SHL: 500ft FSL & 1722ft FWL Sec 34  
  
HZ LP: 600ft FSL & 975ft FWL Sec 34  
  
BHL: 600ft FNL & 975ft FWL of Sec 27

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - GREEN TEAL FED 34-27-3HN	5702.1	-474.4	-756.8	40.611574	-104.084489
HZ LP - GREEN TEAL FED 34-27-3HN	6275.0	98.4	-744.9	40.613146	-104.084446
BHL - GREEN TEAL FED 34-27-3HN	6275.0	9489.3	-550.6	40.638922	-104.083747



# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well GREEN TEAL FED 34-27-3HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4939.0usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4939.0usft (Original Well Elev)
<b>Site:</b>	SE SW SEC. 34 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	GREEN TEAL FED 34-27-3HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 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		Using geodetic scale factor

<b>Site</b>	SE SW SEC. 34 T8N R60W 6th P.M.		
<b>Site Position:</b>		<b>Northing:</b>	1,469,260.15 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,393,696.59 usft
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	1.10000ft
		<b>Latitude:</b>	40.612875
		<b>Longitude:</b>	-104.081907
		<b>Grid Convergence:</b>	0.92 °

<b>Well</b>	GREEN TEAL FED 34-27-3HN		
<b>Well Position</b>	<b>+N/-S</b>	0.3 usft	<b>Northing:</b>
	<b>+E/-W</b>	40.0 usft	<b>Easting:</b>
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b>
			<b>Latitude:</b>
			<b>Longitude:</b>
			<b>Ground Level:</b>

<b>Wellbore</b>	ORIGINAL WELLBORE				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	06/09/2017	7.83	67.12	52,546

<b>Design</b>	PROPOSAL 1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<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	356.68	

<b>Plan Sections</b>											
MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100usf)	Turn Rate (°/100usf)	TFO (°)	Target
0.0	0.00	0.00	0.0	-4,939.0	0.0	0.0	0.00	0.00	0.00	0.00	
300.0	0.00	0.00	300.0	-4,639.0	0.0	0.0	0.00	0.00	0.00	0.00	
900.0	12.00	237.92	895.7	-4,043.3	-33.3	-53.1	2.00	2.00	0.00	237.92	
4,593.5	12.00	237.92	4,508.4	-430.6	-441.1	-703.7	0.00	0.00	0.00	0.00	
5,193.6	0.00	0.00	5,104.1	165.1	-474.4	-756.8	2.00	-2.00	0.00	180.00	
5,791.6	0.00	0.00	5,702.1	763.1	-474.4	-756.8	0.00	0.00	0.00	0.00	KOP - GREEN TEA
6,691.5	90.00	1.19	6,275.0	1,336.0	98.4	-744.9	10.00	10.00	0.13	1.19	HZ LP - GREEN TE
16,084.4	90.00	1.18	6,275.0	1,336.0	9,489.3	-550.6	0.00	0.00	0.00	-120.14	BHL - GREEN TEA

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well GREEN TEAL FED 34-27-3HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4939.0usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4939.0usft (Original Well Elev)
<b>Site:</b>	SE SW SEC. 34 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	GREEN TEAL FED 34-27-3HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
<b>SHL: 500ft FSL &amp; 1722ft FWL of Sec 34</b>										
0.0	0.00	0.00	0.0	4,939.00	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	4,839.00	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	4,739.00	0.0	0.0	0.0	0.00	0.00	0.00
<b>START NUDGE (2°/100ft BUR)</b>										
300.0	0.00	0.00	300.0	4,639.00	0.0	0.0	0.0	0.00	0.00	0.00
400.0	2.00	237.92	400.0	4,539.02	-0.9	-1.5	-0.8	2.00	2.00	0.00
500.0	4.00	237.92	499.8	4,439.16	-3.7	-5.9	-3.4	2.00	2.00	0.00
600.0	6.00	237.92	599.5	4,339.55	-8.3	-13.3	-7.6	2.00	2.00	0.00
700.0	8.00	237.92	698.7	4,240.30	-14.8	-23.6	-13.4	2.00	2.00	0.00
800.0	10.00	237.92	797.5	4,141.53	-23.1	-36.9	-20.9	2.00	2.00	0.00
<b>EOB TO 12° INC</b>										
900.0	12.00	237.92	895.7	4,043.33	-33.3	-53.1	-30.1	2.00	2.00	0.00
1,000.0	12.00	237.92	993.4	3,945.56	-44.3	-70.7	-40.1	0.00	0.00	0.00
1,100.0	12.00	237.92	1,091.3	3,847.75	-55.3	-88.3	-50.1	0.00	0.00	0.00
1,200.0	12.00	237.92	1,189.1	3,749.93	-66.4	-105.9	-60.1	0.00	0.00	0.00
1,300.0	12.00	237.92	1,286.9	3,652.12	-77.4	-123.5	-70.1	0.00	0.00	0.00
1,400.0	12.00	237.92	1,384.7	3,554.30	-88.5	-141.1	-80.1	0.00	0.00	0.00
1,500.0	12.00	237.92	1,482.5	3,456.49	-99.5	-158.7	-90.1	0.00	0.00	0.00
<b>FOX HILLS BASE</b>										
1,531.2	12.00	237.92	1,513.0	3,426.00	-103.0	-164.2	-93.3	0.00	0.00	0.00
1,600.0	12.00	237.92	1,580.3	3,358.68	-110.6	-176.4	-100.2	0.00	0.00	0.00
1,700.0	12.00	237.92	1,678.1	3,260.86	-121.6	-194.0	-110.2	0.00	0.00	0.00
1,800.0	12.00	237.92	1,776.0	3,163.05	-132.6	-211.6	-120.2	0.00	0.00	0.00
1,900.0	12.00	237.92	1,873.8	3,065.23	-143.7	-229.2	-130.2	0.00	0.00	0.00
2,000.0	12.00	237.92	1,971.6	2,967.42	-154.7	-246.8	-140.2	0.00	0.00	0.00
2,100.0	12.00	237.92	2,069.4	2,869.60	-165.8	-264.5	-150.2	0.00	0.00	0.00
2,200.0	12.00	237.92	2,167.2	2,771.79	-176.8	-282.1	-160.2	0.00	0.00	0.00
2,300.0	12.00	237.92	2,265.0	2,673.97	-187.9	-299.7	-170.2	0.00	0.00	0.00
2,400.0	12.00	237.92	2,362.8	2,576.16	-198.9	-317.3	-180.2	0.00	0.00	0.00
2,500.0	12.00	237.92	2,460.7	2,478.35	-209.9	-334.9	-190.2	0.00	0.00	0.00
2,600.0	12.00	237.92	2,558.5	2,380.53	-221.0	-352.5	-200.2	0.00	0.00	0.00
2,700.0	12.00	237.92	2,656.3	2,282.72	-232.0	-370.2	-210.2	0.00	0.00	0.00
2,800.0	12.00	237.92	2,754.1	2,184.90	-243.1	-387.8	-220.2	0.00	0.00	0.00
2,900.0	12.00	237.92	2,851.9	2,087.09	-254.1	-405.4	-230.2	0.00	0.00	0.00
3,000.0	12.00	237.92	2,949.7	1,989.27	-265.2	-423.0	-240.2	0.00	0.00	0.00
3,100.0	12.00	237.92	3,047.5	1,891.46	-276.2	-440.6	-250.2	0.00	0.00	0.00
3,200.0	12.00	237.92	3,145.4	1,793.64	-287.3	-458.2	-260.2	0.00	0.00	0.00
3,300.0	12.00	237.92	3,243.2	1,695.83	-298.3	-475.9	-270.2	0.00	0.00	0.00
<b>RICHARD SANDSTONE</b>										
3,391.8	12.00	237.92	3,333.0	1,606.00	-308.4	-492.0	-279.4	0.00	0.00	0.00
3,400.0	12.00	237.92	3,341.0	1,598.02	-309.3	-493.5	-280.2	0.00	0.00	0.00
3,500.0	12.00	237.92	3,438.8	1,500.20	-320.4	-511.1	-290.2	0.00	0.00	0.00
<b>PARKMAN SANDSTONE</b>										
3,514.5	12.00	237.92	3,453.0	1,486.00	-322.0	-513.7	-291.7	0.00	0.00	0.00
3,600.0	12.00	237.92	3,536.6	1,402.39	-331.4	-528.7	-300.2	0.00	0.00	0.00
3,700.0	12.00	237.92	3,634.4	1,304.57	-342.5	-546.3	-310.2	0.00	0.00	0.00
3,800.0	12.00	237.92	3,732.2	1,206.76	-353.5	-563.9	-320.2	0.00	0.00	0.00
3,900.0	12.00	237.92	3,830.1	1,108.94	-364.6	-581.6	-330.3	0.00	0.00	0.00
4,000.0	12.00	237.92	3,927.9	1,011.13	-375.6	-599.2	-340.3	0.00	0.00	0.00
4,100.0	12.00	237.92	4,025.7	913.31	-386.6	-616.8	-350.3	0.00	0.00	0.00
4,200.0	12.00	237.92	4,123.5	815.50	-397.7	-634.4	-360.3	0.00	0.00	0.00
<b>SUSSEX SANDSTONE</b>										

# Planning Report



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<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4939.0usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4939.0usft (Original Well Elev)
<b>Site:</b>	SE SW SEC. 34 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	GREEN TEAL FED 34-27-3HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

## Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
<b>4,291.5</b>	<b>12.00</b>	<b>237.92</b>	<b>4,213.0</b>	<b>726.00</b>	<b>-407.8</b>	<b>-650.5</b>	<b>-369.4</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
4,300.0	12.00	237.92	4,221.3	717.69	-408.7	-652.0	-370.3	0.00	0.00	0.00
4,400.0	12.00	237.92	4,319.1	619.87	-419.8	-669.7	-380.3	0.00	0.00	0.00
4,500.0	12.00	237.92	4,416.9	522.06	-430.8	-687.3	-390.3	0.00	0.00	0.00
<b>END OF TANGENT</b>										
<b>4,593.5</b>	<b>12.00</b>	<b>237.92</b>	<b>4,508.4</b>	<b>430.57</b>	<b>-441.1</b>	<b>-703.7</b>	<b>-399.6</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
4,600.0	11.87	237.92	4,514.8	424.24	-441.9	-704.9	-400.3	2.00	-2.00	0.00
4,700.0	9.87	237.92	4,613.0	326.04	-451.9	-720.9	-409.4	2.00	-2.00	0.00
<b>SHANNON SANDSTONE</b>										
<b>4,725.4</b>	<b>9.36</b>	<b>237.92</b>	<b>4,638.0</b>	<b>301.00</b>	<b>-454.1</b>	<b>-724.5</b>	<b>-411.4</b>	<b>2.00</b>	<b>-2.00</b>	<b>0.00</b>
4,800.0	7.87	237.92	4,711.8	227.24	-460.1	-733.9	-416.8	2.00	-2.00	0.00
4,900.0	5.87	237.92	4,811.0	127.97	-466.4	-744.1	-422.5	2.00	-2.00	0.00
5,000.0	3.87	237.92	4,910.7	28.33	-470.9	-751.3	-426.6	2.00	-2.00	0.00
5,100.0	1.87	237.92	5,010.5	-71.54	-473.6	-755.5	-429.0	2.00	-2.00	0.00
<b>EOD TO VERTICAL</b>										
<b>5,193.6</b>	<b>0.00</b>	<b>0.00</b>	<b>5,104.1</b>	<b>-165.10</b>	<b>-474.4</b>	<b>-756.8</b>	<b>-429.8</b>	<b>2.00</b>	<b>-2.00</b>	<b>0.00</b>
5,200.0	0.00	0.00	5,110.5	-171.52	-474.4	-756.8	-429.8	0.00	0.00	0.00
5,300.0	0.00	0.00	5,210.5	-271.52	-474.4	-756.8	-429.8	0.00	0.00	0.00
5,400.0	0.00	0.00	5,310.5	-371.52	-474.4	-756.8	-429.8	0.00	0.00	0.00
5,500.0	0.00	0.00	5,410.5	-471.52	-474.4	-756.8	-429.8	0.00	0.00	0.00
5,600.0	0.00	0.00	5,510.5	-571.52	-474.4	-756.8	-429.8	0.00	0.00	0.00
5,700.0	0.00	0.00	5,610.5	-671.52	-474.4	-756.8	-429.8	0.00	0.00	0.00
<b>KOP (10°/100ft BUR)</b>										
<b>5,791.6</b>	<b>0.00</b>	<b>0.00</b>	<b>5,702.1</b>	<b>-763.10</b>	<b>-474.4</b>	<b>-756.8</b>	<b>-429.8</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
5,800.0	0.84	1.19	5,710.5	-771.52	-474.3	-756.8	-429.7	10.00	10.00	0.00
5,900.0	10.84	1.19	5,809.9	-870.88	-464.2	-756.6	-419.6	10.00	10.00	0.00
6,000.0	20.84	1.19	5,906.0	-966.95	-436.9	-756.0	-392.4	10.00	10.00	0.00
6,100.0	30.85	1.19	5,995.8	-1,056.84	-393.4	-755.1	-349.0	10.00	10.00	0.00
6,200.0	40.85	1.19	6,076.8	-1,137.79	-334.9	-753.9	-290.7	10.00	10.00	0.00
<b>SHARON SPRINGS</b>										
<b>6,232.8</b>	<b>44.13</b>	<b>1.19</b>	<b>6,101.0</b>	<b>-1,162.00</b>	<b>-312.7</b>	<b>-753.4</b>	<b>-268.6</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,300.0	50.85	1.19	6,146.4	-1,207.36	-263.3	-752.4	-219.2	10.00	10.00	0.00
<b>NIOBRARA A CHALK</b>										
<b>6,340.8</b>	<b>54.93</b>	<b>1.19</b>	<b>6,171.0</b>	<b>-1,232.00</b>	<b>-230.7</b>	<b>-751.7</b>	<b>-186.8</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
<b>NIOBRARA A CHALK BASE</b>										
<b>6,393.0</b>	<b>60.15</b>	<b>1.19</b>	<b>6,199.0</b>	<b>-1,260.00</b>	<b>-186.7</b>	<b>-750.8</b>	<b>-142.9</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,400.0	60.85	1.19	6,202.4	-1,263.43	-180.6	-750.7	-136.8	10.00	10.00	0.00
<b>NIOBRARA B1 CHALK TOP</b>										
<b>6,452.8</b>	<b>66.13</b>	<b>1.19</b>	<b>6,226.0</b>	<b>-1,287.00</b>	<b>-133.4</b>	<b>-749.7</b>	<b>-89.7</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,500.0	70.85	1.19	6,243.3	-1,304.30	-89.5	-748.8	-46.0	10.00	10.00	0.00
<b>NIOBRARA B1 CHALK BASE</b>										
<b>6,532.2</b>	<b>74.07</b>	<b>1.19</b>	<b>6,253.0</b>	<b>-1,314.00</b>	<b>-58.8</b>	<b>-748.2</b>	<b>-15.4</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,600.0	80.85	1.19	6,267.7	-1,328.71	7.3	-746.8	50.5	10.00	10.00	0.00
<b>HZ LP: 600ft FSL &amp; 975ft FWL of Sec 34 - NIOBRARA B2 CHALK TOP</b>										
<b>6,691.5</b>	<b>90.00</b>	<b>1.19</b>	<b>6,275.0</b>	<b>-1,336.00</b>	<b>98.4</b>	<b>-744.9</b>	<b>141.3</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,700.0	90.00	1.19	6,275.0	-1,336.00	106.9	-744.7	149.8	0.05	0.05	0.00
6,800.0	90.00	1.19	6,275.0	-1,336.00	206.9	-742.7	249.5	0.00	0.00	0.00
6,900.0	90.00	1.19	6,275.0	-1,335.99	306.8	-740.6	349.2	0.00	0.00	0.00
7,000.0	90.00	1.19	6,275.0	-1,335.99	406.8	-738.5	448.9	0.00	0.00	0.00
7,100.0	90.00	1.19	6,275.0	-1,335.98	506.8	-736.4	548.6	0.00	0.00	0.00
7,200.0	90.00	1.19	6,275.0	-1,335.98	606.8	-734.4	648.3	0.00	0.00	0.00
7,300.0	90.00	1.19	6,275.0	-1,335.98	706.8	-732.3	748.0	0.00	0.00	0.00
7,400.0	90.00	1.19	6,275.0	-1,335.97	806.7	-730.2	847.7	0.00	0.00	0.00

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well GREEN TEAL FED 34-27-3HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4939.0usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4939.0usft (Original Well Elev)
<b>Site:</b>	SE SW SEC. 34 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	GREEN TEAL FED 34-27-3HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,500.0	90.00	1.19	6,275.0	-1,335.97	906.7	-728.1	947.4	0.00	0.00	0.00
7,600.0	90.00	1.19	6,275.0	-1,335.97	1,006.7	-726.1	1,047.1	0.00	0.00	0.00
7,700.0	90.00	1.19	6,275.0	-1,335.96	1,106.7	-724.0	1,146.8	0.00	0.00	0.00
7,800.0	90.00	1.19	6,275.0	-1,335.96	1,206.7	-721.9	1,246.4	0.00	0.00	0.00
7,900.0	90.00	1.19	6,275.0	-1,335.96	1,306.6	-719.8	1,346.1	0.00	0.00	0.00
8,000.0	90.00	1.19	6,275.0	-1,335.96	1,406.6	-717.8	1,445.8	0.00	0.00	0.00
8,100.0	90.00	1.19	6,275.0	-1,335.95	1,506.6	-715.7	1,545.5	0.00	0.00	0.00
8,200.0	90.00	1.19	6,275.0	-1,335.95	1,606.6	-713.6	1,645.2	0.00	0.00	0.00
8,300.0	90.00	1.19	6,274.9	-1,335.95	1,706.5	-711.6	1,744.9	0.00	0.00	0.00
8,400.0	90.00	1.19	6,274.9	-1,335.95	1,806.5	-709.5	1,844.6	0.00	0.00	0.00
8,500.0	90.00	1.19	6,274.9	-1,335.94	1,906.5	-707.4	1,944.3	0.00	0.00	0.00
8,600.0	90.00	1.19	6,274.9	-1,335.94	2,006.5	-705.3	2,044.0	0.00	0.00	0.00
8,700.0	90.00	1.19	6,274.9	-1,335.94	2,106.5	-703.3	2,143.7	0.00	0.00	0.00
8,800.0	90.00	1.19	6,274.9	-1,335.94	2,206.4	-701.2	2,243.3	0.00	0.00	0.00
8,900.0	90.00	1.19	6,274.9	-1,335.93	2,306.4	-699.1	2,343.0	0.00	0.00	0.00
9,000.0	90.00	1.19	6,274.9	-1,335.93	2,406.4	-697.0	2,442.7	0.00	0.00	0.00
9,100.0	90.00	1.19	6,274.9	-1,335.93	2,506.4	-695.0	2,542.4	0.00	0.00	0.00
9,200.0	90.00	1.19	6,274.9	-1,335.93	2,606.3	-692.9	2,642.1	0.00	0.00	0.00
9,300.0	90.00	1.19	6,274.9	-1,335.93	2,706.3	-690.8	2,741.8	0.00	0.00	0.00
9,400.0	90.00	1.19	6,274.9	-1,335.92	2,806.3	-688.8	2,841.5	0.00	0.00	0.00
9,500.0	90.00	1.19	6,274.9	-1,335.92	2,906.3	-686.7	2,941.2	0.00	0.00	0.00
9,600.0	90.00	1.19	6,274.9	-1,335.92	3,006.3	-684.6	3,040.9	0.00	0.00	0.00
9,700.0	90.00	1.19	6,274.9	-1,335.92	3,106.2	-682.5	3,140.6	0.00	0.00	0.00
9,800.0	90.00	1.19	6,274.9	-1,335.92	3,206.2	-680.5	3,240.3	0.00	0.00	0.00
9,900.0	90.00	1.19	6,274.9	-1,335.92	3,306.2	-678.4	3,339.9	0.00	0.00	0.00
10,000.0	90.00	1.19	6,274.9	-1,335.92	3,406.2	-676.3	3,439.6	0.00	0.00	0.00
10,100.0	90.00	1.19	6,274.9	-1,335.92	3,506.2	-674.3	3,539.3	0.00	0.00	0.00
10,200.0	90.00	1.19	6,274.9	-1,335.91	3,606.1	-672.2	3,639.0	0.00	0.00	0.00
10,300.0	90.00	1.19	6,274.9	-1,335.91	3,706.1	-670.1	3,738.7	0.00	0.00	0.00
10,400.0	90.00	1.19	6,274.9	-1,335.91	3,806.1	-668.1	3,838.4	0.00	0.00	0.00
10,500.0	90.00	1.19	6,274.9	-1,335.91	3,906.1	-666.0	3,938.1	0.00	0.00	0.00
10,600.0	90.00	1.19	6,274.9	-1,335.91	4,006.0	-663.9	4,037.8	0.00	0.00	0.00
10,700.0	90.00	1.19	6,274.9	-1,335.91	4,106.0	-661.8	4,137.5	0.00	0.00	0.00
10,800.0	90.00	1.19	6,274.9	-1,335.91	4,206.0	-659.8	4,237.2	0.00	0.00	0.00
10,900.0	90.00	1.19	6,274.9	-1,335.91	4,306.0	-657.7	4,336.9	0.00	0.00	0.00
11,000.0	90.00	1.19	6,274.9	-1,335.91	4,406.0	-655.6	4,436.5	0.00	0.00	0.00
11,100.0	90.00	1.19	6,274.9	-1,335.91	4,505.9	-653.6	4,536.2	0.00	0.00	0.00
11,200.0	90.00	1.19	6,274.9	-1,335.91	4,605.9	-651.5	4,635.9	0.00	0.00	0.00
11,300.0	90.00	1.19	6,274.9	-1,335.91	4,705.9	-649.4	4,735.6	0.00	0.00	0.00
11,400.0	90.00	1.19	6,274.9	-1,335.91	4,805.9	-647.4	4,835.3	0.00	0.00	0.00
11,500.0	90.00	1.19	6,274.9	-1,335.91	4,905.9	-645.3	4,935.0	0.00	0.00	0.00
11,600.0	90.00	1.19	6,274.9	-1,335.91	5,005.8	-643.2	5,034.7	0.00	0.00	0.00
11,700.0	90.00	1.18	6,274.9	-1,335.91	5,105.8	-641.2	5,134.4	0.00	0.00	0.00
11,800.0	90.00	1.18	6,274.9	-1,335.91	5,205.8	-639.1	5,234.1	0.00	0.00	0.00
11,900.0	90.00	1.18	6,274.9	-1,335.91	5,305.8	-637.0	5,333.8	0.00	0.00	0.00
12,000.0	90.00	1.18	6,274.9	-1,335.91	5,405.7	-635.0	5,433.5	0.00	0.00	0.00
12,100.0	90.00	1.18	6,274.9	-1,335.91	5,505.7	-632.9	5,533.1	0.00	0.00	0.00
12,200.0	90.00	1.18	6,274.9	-1,335.91	5,605.7	-630.8	5,632.8	0.00	0.00	0.00
12,300.0	90.00	1.18	6,274.9	-1,335.91	5,705.7	-628.8	5,732.5	0.00	0.00	0.00
12,400.0	90.00	1.18	6,274.9	-1,335.91	5,805.7	-626.7	5,832.2	0.00	0.00	0.00
12,500.0	90.00	1.18	6,274.9	-1,335.91	5,905.6	-624.6	5,931.9	0.00	0.00	0.00
12,600.0	90.00	1.18	6,274.9	-1,335.91	6,005.6	-622.6	6,031.6	0.00	0.00	0.00
12,700.0	90.00	1.18	6,274.9	-1,335.92	6,105.6	-620.5	6,131.3	0.00	0.00	0.00
12,800.0	90.00	1.18	6,274.9	-1,335.92	6,205.6	-618.4	6,231.0	0.00	0.00	0.00

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well GREEN TEAL FED 34-27-3HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4939.0usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4939.0usft (Original Well Elev)
<b>Site:</b>	SE SW SEC. 34 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	GREEN TEAL FED 34-27-3HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,900.0	90.00	1.18	6,274.9	-1,335.92	6,305.6	-616.4	6,330.7	0.00	0.00	0.00
13,000.0	90.00	1.18	6,274.9	-1,335.92	6,405.5	-614.3	6,430.4	0.00	0.00	0.00
13,100.0	90.00	1.18	6,274.9	-1,335.92	6,505.5	-612.2	6,530.1	0.00	0.00	0.00
13,200.0	90.00	1.18	6,274.9	-1,335.92	6,605.5	-610.2	6,629.7	0.00	0.00	0.00
13,300.0	90.00	1.18	6,274.9	-1,335.92	6,705.5	-608.1	6,729.4	0.00	0.00	0.00
13,400.0	90.00	1.18	6,274.9	-1,335.92	6,805.5	-606.0	6,829.1	0.00	0.00	0.00
13,500.0	90.00	1.18	6,274.9	-1,335.93	6,905.4	-604.0	6,928.8	0.00	0.00	0.00
13,600.0	90.00	1.18	6,274.9	-1,335.93	7,005.4	-601.9	7,028.5	0.00	0.00	0.00
13,700.0	90.00	1.18	6,274.9	-1,335.93	7,105.4	-599.8	7,128.2	0.00	0.00	0.00
13,800.0	90.00	1.18	6,274.9	-1,335.93	7,205.4	-597.8	7,227.9	0.00	0.00	0.00
13,900.0	90.00	1.18	6,274.9	-1,335.93	7,305.3	-595.7	7,327.6	0.00	0.00	0.00
14,000.0	90.00	1.18	6,274.9	-1,335.94	7,405.3	-593.6	7,427.3	0.00	0.00	0.00
14,100.0	90.00	1.18	6,274.9	-1,335.94	7,505.3	-591.6	7,527.0	0.00	0.00	0.00
14,200.0	90.00	1.18	6,274.9	-1,335.94	7,605.3	-589.5	7,626.7	0.00	0.00	0.00
14,300.0	90.00	1.18	6,274.9	-1,335.94	7,705.3	-587.4	7,726.3	0.00	0.00	0.00
14,400.0	90.00	1.18	6,274.9	-1,335.95	7,805.2	-585.4	7,826.0	0.00	0.00	0.00
14,500.0	90.00	1.18	6,274.9	-1,335.95	7,905.2	-583.3	7,925.7	0.00	0.00	0.00
14,600.0	90.00	1.18	6,275.0	-1,335.95	8,005.2	-581.2	8,025.4	0.00	0.00	0.00
14,700.0	90.00	1.18	6,275.0	-1,335.95	8,105.2	-579.2	8,125.1	0.00	0.00	0.00
14,800.0	90.00	1.18	6,275.0	-1,335.96	8,205.2	-577.1	8,224.8	0.00	0.00	0.00
14,900.0	90.00	1.18	6,275.0	-1,335.96	8,305.1	-575.1	8,324.5	0.00	0.00	0.00
15,000.0	90.00	1.18	6,275.0	-1,335.96	8,405.1	-573.0	8,424.2	0.00	0.00	0.00
15,100.0	90.00	1.18	6,275.0	-1,335.97	8,505.1	-570.9	8,523.9	0.00	0.00	0.00
15,200.0	90.00	1.18	6,275.0	-1,335.97	8,605.1	-568.9	8,623.6	0.00	0.00	0.00
15,300.0	90.00	1.18	6,275.0	-1,335.97	8,705.0	-566.8	8,723.3	0.00	0.00	0.00
15,400.0	90.00	1.18	6,275.0	-1,335.98	8,805.0	-564.7	8,823.0	0.00	0.00	0.00
15,500.0	90.00	1.18	6,275.0	-1,335.98	8,905.0	-562.7	8,922.6	0.00	0.00	0.00
15,600.0	90.00	1.18	6,275.0	-1,335.98	9,005.0	-560.6	9,022.3	0.00	0.00	0.00
15,700.0	90.00	1.18	6,275.0	-1,335.99	9,105.0	-558.6	9,122.0	0.00	0.00	0.00
15,800.0	90.00	1.18	6,275.0	-1,335.99	9,204.9	-556.5	9,221.7	0.00	0.00	0.00
15,900.0	90.00	1.18	6,275.0	-1,335.99	9,304.9	-554.4	9,321.4	0.00	0.00	0.00
16,000.0	90.00	1.18	6,275.0	-1,336.00	9,404.9	-552.4	9,421.1	0.00	0.00	0.00
<b>BHL: 600ft FNL &amp; 975ft FWL of Sec 27</b>										
<b>16,084.4</b>	<b>90.00</b>	<b>1.18</b>	<b>6,275.0</b>	<b>-1,336.00</b>	<b>9,489.3</b>	<b>-550.6</b>	<b>9,505.2</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well GREEN TEAL FED 34-27-3HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB-EST @ 4939.0usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB-EST @ 4939.0usft (Original Well Elev)
<b>Site:</b>	SE SW SEC. 34 T8N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	GREEN TEAL FED 34-27-3HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,531.2	1,513.0	FOX HILLS BASE				
3,391.8	3,333.0	RICHARD SANDSTONE				
3,514.5	3,453.0	PARKMAN SANDSTONE				
4,291.5	4,213.0	SUSSEX SANDSTONE				
4,725.4	4,638.0	SHANNON SANDSTONE				
6,232.8	6,101.0	SHARON SPRINGS				
6,340.8	6,171.0	NIOBRARA A CHALK				
6,393.0	6,199.0	NIOBRARA A CHALK BASE				
6,452.8	6,226.0	NIOBRARA B1 CHALK TOP				
6,532.2	6,253.0	NIOBRARA B1 CHALK BASE				
6,691.5	6,275.0	NIOBRARA B2 CHALK TOP				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.0	0.0	0.0	0.0	SHL: 500ft FSL & 1722ft FWL of Sec 34
300.0	300.0	0.0	0.0	START NUDGE (2°/100ft BUR)
900.0	895.7	-33.3	-53.1	EOB TO 12° INC
4,593.5	4,508.4	-441.1	-703.7	END OF TANGENT
5,193.6	5,104.1	-474.4	-756.8	EOD TO VERTICAL
5,791.6	5,702.1	-474.4	-756.8	KOP (10°/100ft BUR)
6,691.5	6,275.0	98.4	-744.9	HZ LP: 600ft FSL & 975ft FWL of Sec 34
16,084.4	6,275.0	9,489.3	-550.6	BHL: 600ft FNL & 975ft FWL of Sec 27