

Whiting Oil and Gas Corporation

Weld County, CO
Sec. 30-T10N-R57W
Horsetail #30F-1942

Plan A

Plan: Rev A0

Sperry Drilling Services

Proposal Report

21 November, 2013

Well Coordinates: 1,542,708.07 N, 3,471,519.13 E (40° 48' 38.46" N, 103° 47' 47.66" W)

Ground Level: 4,781.70 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 Horsetail #30F-1942

KB 22 ft @ 4803.70usft (Frontier 26)

N

True

API - US Survey Feet - Custom

HALLIBURTON

Project: Weld County, CO
Site: Sec. 30-T10N-R57W
Well: Horsetail #30F-1942
Wellbore: Plan A
Plan: Rev A0

Whiting Oil and Gas Corporation

HALLIBURTON

Sperry Drilling

| 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 | 500.00 | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3 | 700.00 | 4.00 | 343.00 | 689.84 | 6.67 | -2.04 | 2.00 | 343.00 | 6.79 | |
| 4 | 5115.38 | 4.00 | 343.00 | 5104.46 | 301.22 | -92.09 | 0.00 | 0.00 | 306.41 | |
| 5 | 5897.20 | 90.00 | 343.00 | 5589.00 | 798.11 | -244.01 | 11.00 | 0.00 | 811.89 | |
| 6 | 5972.20 | 90.00 | 343.00 | 5589.00 | 869.84 | -265.94 | 0.00 | 0.00 | 884.85 | |
| 7 | 6499.85 | 90.00 | 358.83 | 5589.00 | 1389.22 | -348.99 | 3.00 | 90.00 | 1408.42 | |
| 8 | 12634.53 | 90.00 | 358.83 | 5589.00 | 7522.61 | -474.30 | 0.00 | 0.00 | 7537.55 | Horsetail #30F-1942_Rev A0_BHL Tgt |

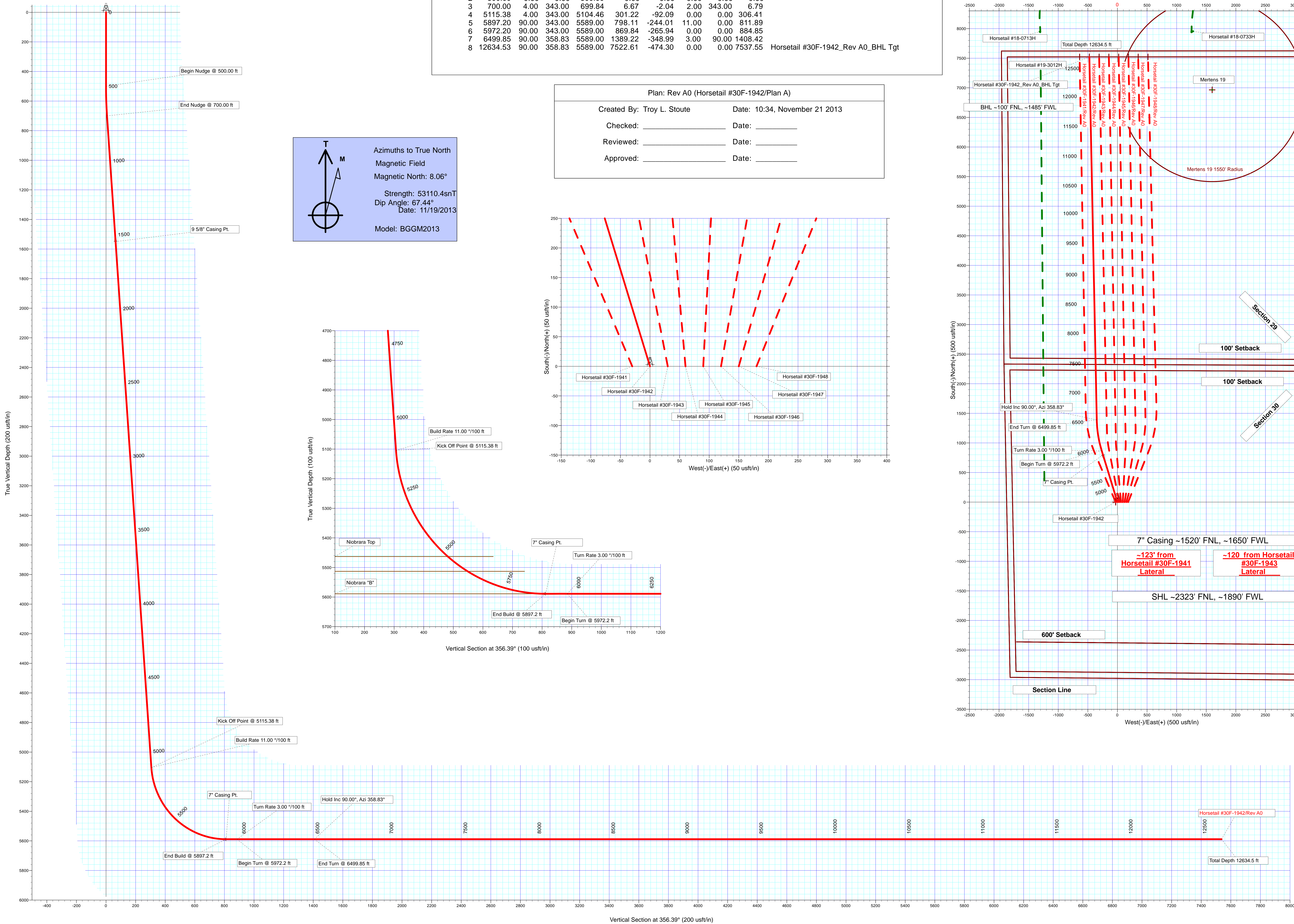
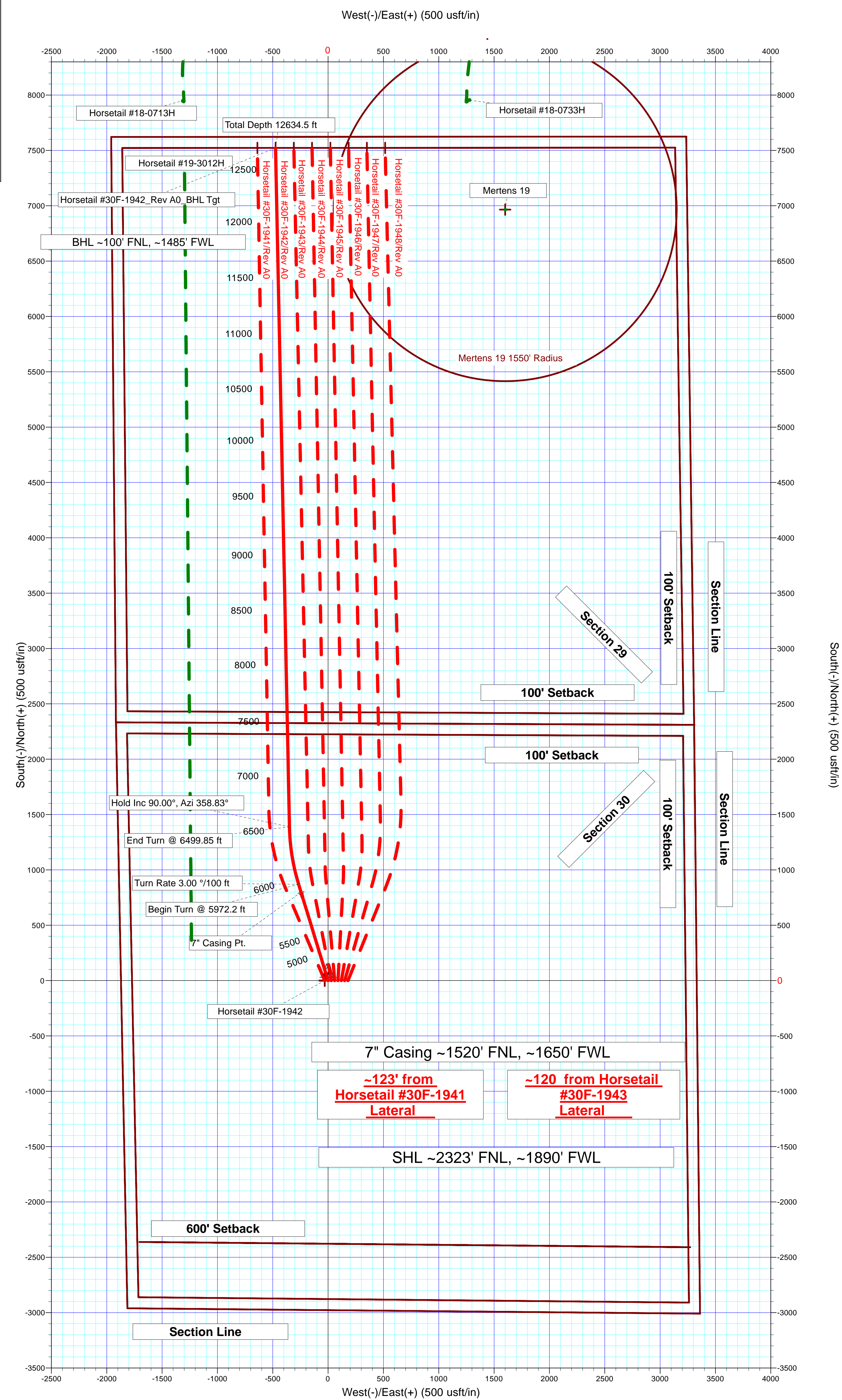
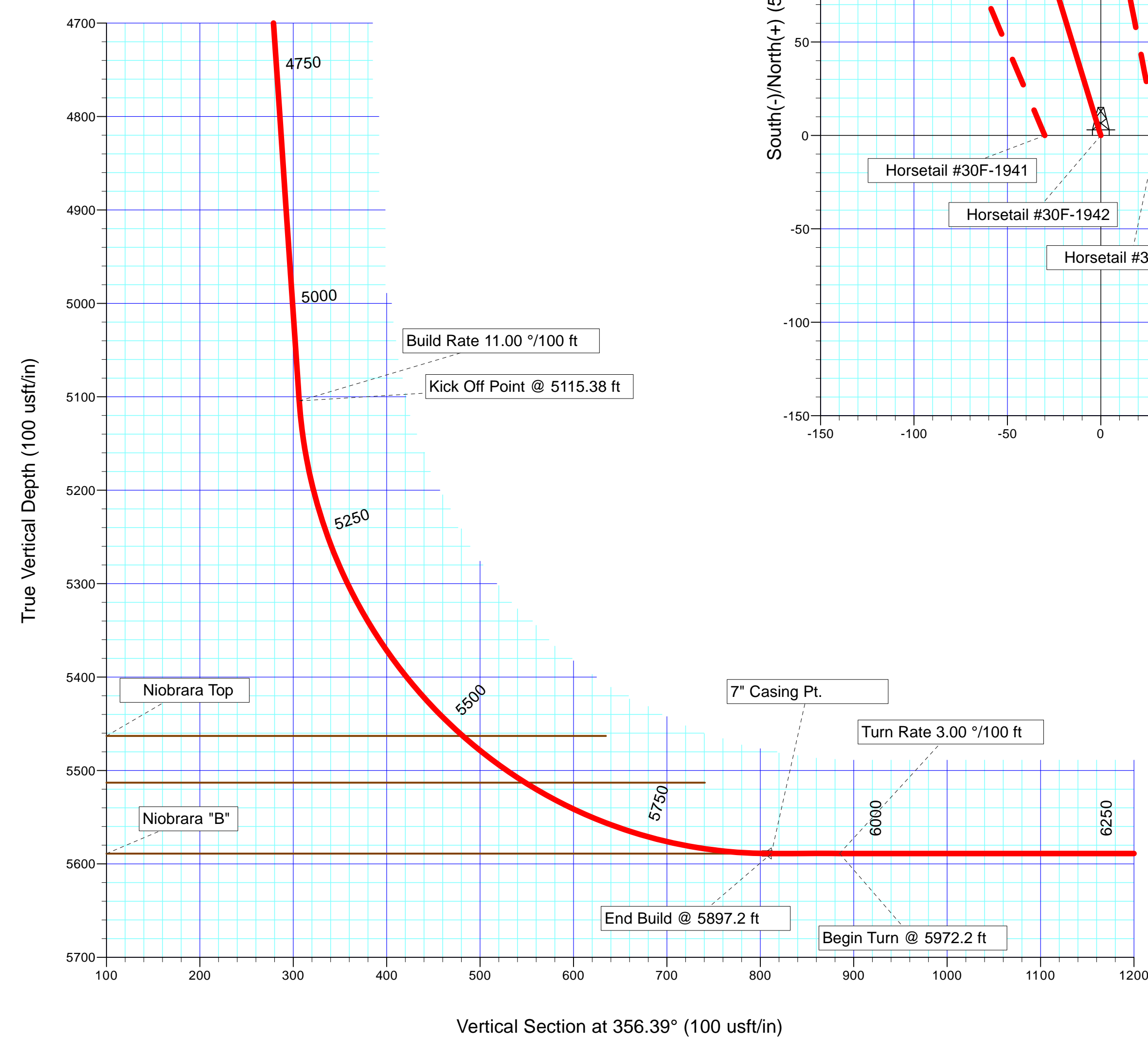
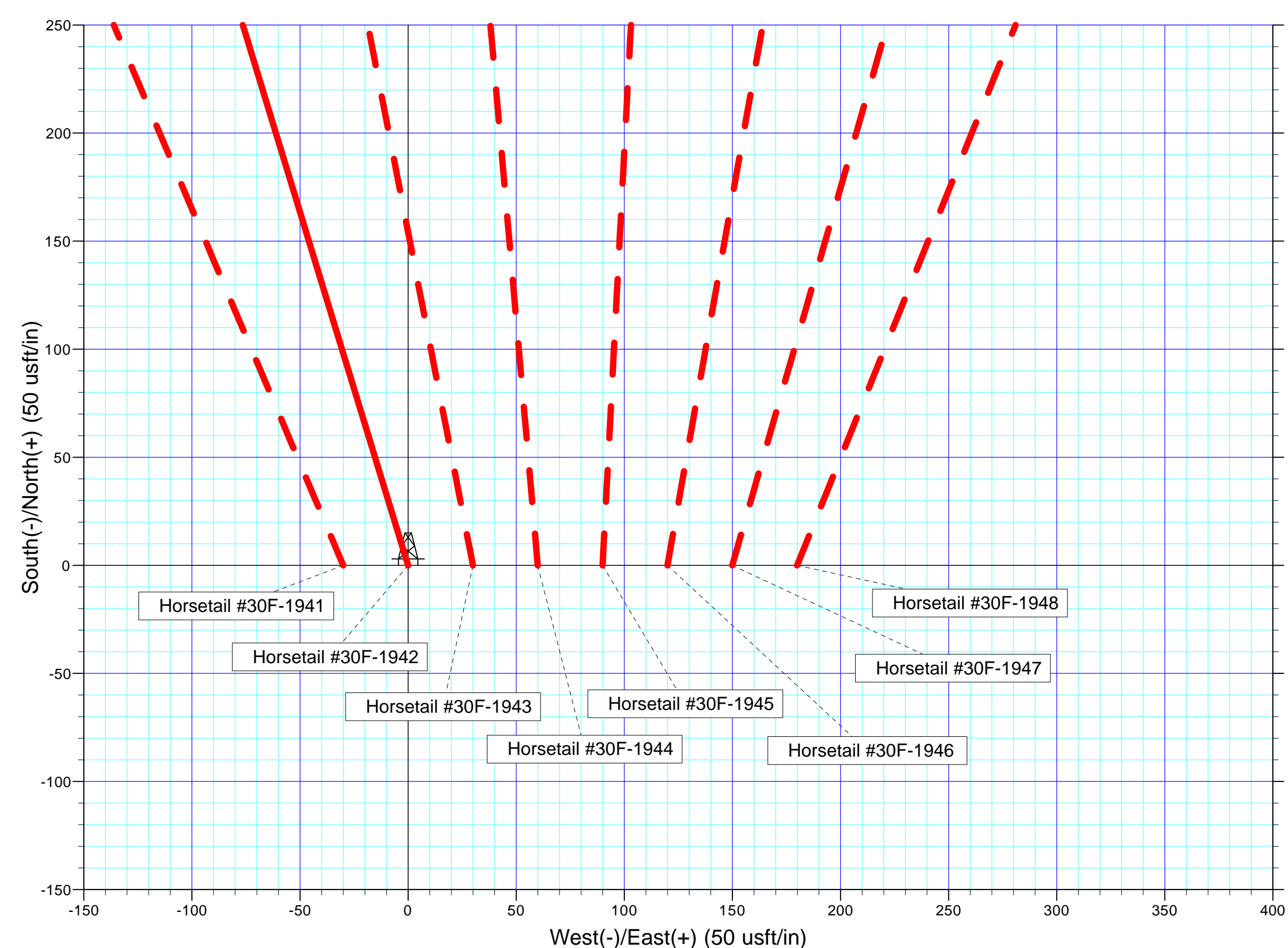
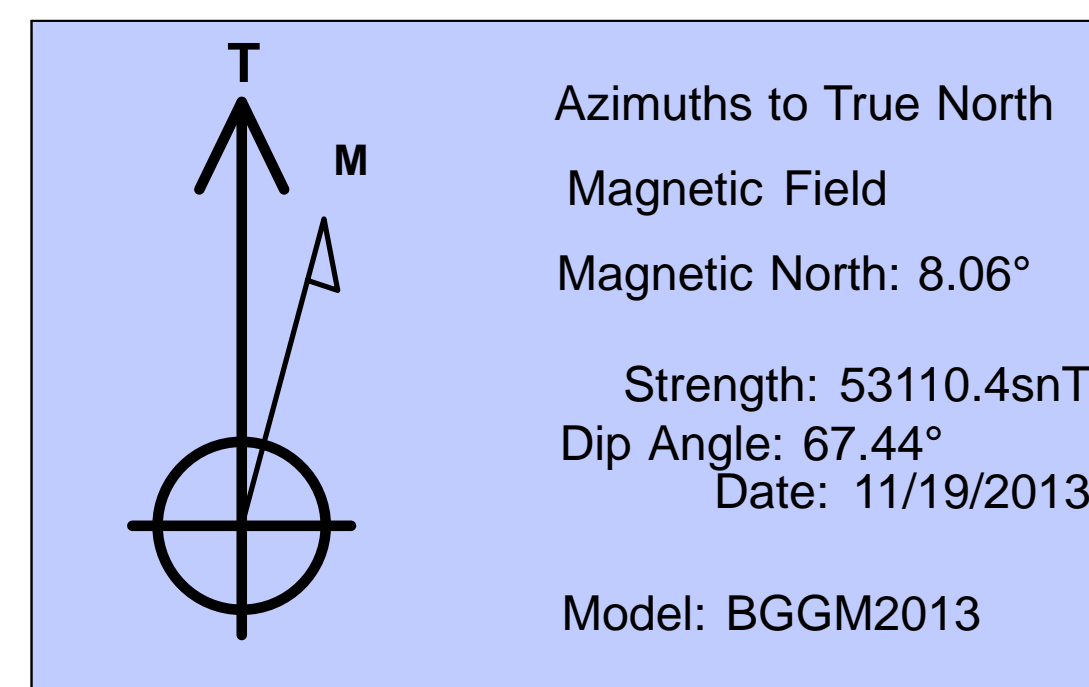
Plan: Rev A0 (Horsetail #30F-1942/Plan A)

Created By: Troy L. Stoute Date: 10:34, November 21 2013

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____



Plan Report for Horsetail #30F-1942 - 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 |
| Begin Nudge @ 500.00 ft | | | | | | | | | | |
| 600.00 | 2.00 | 343.00 | 599.98 | 1.67 | -0.51 | 1.70 | 2.00 | 2.00 | 0.00 | 343.00 |
| 700.00 | 4.00 | 343.00 | 699.84 | 6.67 | -2.04 | 6.79 | 2.00 | 2.00 | 0.00 | 0.00 |
| End Nudge @ 700.00 ft | | | | | | | | | | |
| 800.00 | 4.00 | 343.00 | 799.59 | 13.34 | -4.08 | 13.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 900.00 | 4.00 | 343.00 | 899.35 | 20.02 | -6.12 | 20.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,000.00 | 4.00 | 343.00 | 999.11 | 26.69 | -8.16 | 27.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,100.00 | 4.00 | 343.00 | 1,098.86 | 33.36 | -10.20 | 33.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,200.00 | 4.00 | 343.00 | 1,198.62 | 40.03 | -12.24 | 40.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,300.00 | 4.00 | 343.00 | 1,298.38 | 46.70 | -14.28 | 47.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,400.00 | 4.00 | 343.00 | 1,398.13 | 53.37 | -16.32 | 54.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,500.00 | 4.00 | 343.00 | 1,497.89 | 60.04 | -18.36 | 61.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,552.24 | 4.00 | 343.00 | 1,550.00 | 63.53 | -19.42 | 64.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 5/8" Casing Pt. | | | | | | | | | | |
| 1,600.00 | 4.00 | 343.00 | 1,597.65 | 66.71 | -20.40 | 67.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 4.00 | 343.00 | 1,697.40 | 73.38 | -22.44 | 74.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 4.00 | 343.00 | 1,797.16 | 80.05 | -24.47 | 81.43 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 4.00 | 343.00 | 1,896.91 | 86.72 | -26.51 | 88.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 4.00 | 343.00 | 1,996.67 | 93.39 | -28.55 | 95.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 4.00 | 343.00 | 2,096.43 | 100.07 | -30.59 | 101.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 4.00 | 343.00 | 2,196.18 | 106.74 | -32.63 | 108.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 4.00 | 343.00 | 2,295.94 | 113.41 | -34.67 | 115.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 4.00 | 343.00 | 2,395.70 | 120.08 | -36.71 | 122.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 4.00 | 343.00 | 2,495.45 | 126.75 | -38.75 | 128.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 4.00 | 343.00 | 2,595.21 | 133.42 | -40.79 | 135.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 4.00 | 343.00 | 2,694.97 | 140.09 | -42.83 | 142.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 4.00 | 343.00 | 2,794.72 | 146.76 | -44.87 | 149.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 4.00 | 343.00 | 2,894.48 | 153.43 | -46.91 | 156.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 4.00 | 343.00 | 2,994.23 | 160.10 | -48.95 | 162.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 4.00 | 343.00 | 3,093.99 | 166.77 | -50.99 | 169.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 4.00 | 343.00 | 3,193.75 | 173.44 | -53.03 | 176.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 4.00 | 343.00 | 3,293.50 | 180.12 | -55.07 | 183.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 4.00 | 343.00 | 3,393.26 | 186.79 | -57.11 | 190.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 4.00 | 343.00 | 3,493.02 | 193.46 | -59.15 | 196.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 4.00 | 343.00 | 3,592.77 | 200.13 | -61.19 | 203.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 4.00 | 343.00 | 3,692.53 | 206.80 | -63.22 | 210.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 4.00 | 343.00 | 3,792.29 | 213.47 | -65.26 | 217.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 4.00 | 343.00 | 3,892.04 | 220.14 | -67.30 | 223.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 4.00 | 343.00 | 3,991.80 | 226.81 | -69.34 | 230.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 4.00 | 343.00 | 4,091.56 | 233.48 | -71.38 | 237.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 4.00 | 343.00 | 4,191.31 | 240.15 | -73.42 | 244.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 4.00 | 343.00 | 4,291.07 | 246.82 | -75.46 | 251.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 4.00 | 343.00 | 4,390.82 | 253.49 | -77.50 | 257.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 4.00 | 343.00 | 4,490.58 | 260.17 | -79.54 | 264.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 4.00 | 343.00 | 4,590.34 | 266.84 | -81.58 | 271.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 4.00 | 343.00 | 4,690.09 | 273.51 | -83.62 | 278.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 4.00 | 343.00 | 4,789.85 | 280.18 | -85.66 | 285.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 4.00 | 343.00 | 4,889.61 | 286.85 | -87.70 | 291.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,000.00 | 4.00 | 343.00 | 4,989.36 | 293.52 | -89.74 | 298.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 4.00 | 343.00 | 5,089.12 | 300.19 | -91.78 | 305.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,115.38 | 4.00 | 343.00 | 5,104.46 | 301.22 | -92.09 | 306.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| Build Rate 11.00 °/100 ft - Kick Off Point @ 5115.38 ft | | | | | | | | | | |

Plan Report for Horsetail #30F-1942 - 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 (°) |
|---|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|----------------------------|
| 5,200.00 | 13.31 | 343.00 | 5,188.03 | 313.38 | -95.81 | 318.79 | 11.00 | 11.00 | 0.00 | 0.00 |
| 5,300.00 | 24.31 | 343.00 | 5,282.54 | 344.16 | -105.22 | 350.10 | 11.00 | 11.00 | 0.00 | 0.00 |
| 5,400.00 | 35.31 | 343.00 | 5,369.18 | 391.63 | -119.73 | 398.39 | 11.00 | 11.00 | 0.00 | 0.00 |
| 5,500.00 | 46.31 | 343.00 | 5,444.75 | 454.03 | -138.81 | 461.87 | 11.00 | 11.00 | 0.00 | 0.00 |
| 5,527.17 | 49.30 | 343.00 | 5,463.00 | 473.28 | -144.70 | 481.45 | 11.00 | 11.00 | 0.00 | 0.00 |
| Niobrara Top | | | | | | | | | | |
| 5,600.00 | 57.31 | 343.00 | 5,506.49 | 529.08 | -161.75 | 538.21 | 11.00 | 11.00 | 0.00 | 0.00 |
| 5,612.29 | 58.66 | 343.00 | 5,513.00 | 539.04 | -164.80 | 548.34 | 11.00 | 11.00 | 0.00 | 0.00 |
| Niobrara "A" | | | | | | | | | | |
| 5,700.00 | 68.31 | 343.00 | 5,552.11 | 614.01 | -187.72 | 624.60 | 11.00 | 11.00 | 0.00 | 0.00 |
| 5,800.00 | 79.31 | 343.00 | 5,579.95 | 705.70 | -215.76 | 717.88 | 11.00 | 11.00 | 0.00 | 0.00 |
| 5,897.20 | 90.00 | 343.00 | 5,589.00 | 798.12 | -244.01 | 811.89 | 11.00 | 11.00 | 0.00 | 0.00 |
| End Build @ 5897.2 ft - Niobrara "B" - 7" Casing Pt. | | | | | | | | | | |
| 5,900.00 | 90.00 | 343.00 | 5,589.00 | 800.80 | -244.83 | 814.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,972.20 | 90.00 | 343.00 | 5,589.00 | 869.84 | -265.94 | 884.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| Turn Rate 3.00 °/100 ft - Begin Turn @ 5972.2 ft | | | | | | | | | | |
| 6,000.00 | 90.00 | 343.83 | 5,589.00 | 896.48 | -273.87 | 911.94 | 3.00 | 0.00 | 3.00 | 90.00 |
| 6,100.00 | 90.00 | 346.83 | 5,589.00 | 993.22 | -299.19 | 1,010.07 | 3.00 | 0.00 | 3.00 | 90.00 |
| 6,200.00 | 90.00 | 349.83 | 5,589.00 | 1,091.14 | -319.40 | 1,109.07 | 3.00 | 0.00 | 3.00 | 90.00 |
| 6,300.00 | 90.00 | 352.83 | 5,589.00 | 1,189.99 | -334.47 | 1,208.67 | 3.00 | 0.00 | 3.00 | 90.00 |
| 6,400.00 | 90.00 | 355.83 | 5,589.00 | 1,289.49 | -344.34 | 1,308.60 | 3.00 | 0.00 | 3.00 | 90.00 |
| 6,499.85 | 90.00 | 358.83 | 5,589.00 | 1,389.22 | -348.99 | 1,408.42 | 3.00 | 0.00 | 3.00 | 90.00 |
| Hold Inc 90.00°, Azi 358.83° - End Turn @ 6499.85 ft | | | | | | | | | | |
| 6,500.00 | 90.00 | 358.83 | 5,589.00 | 1,389.37 | -348.99 | 1,408.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 90.00 | 358.83 | 5,589.00 | 1,489.34 | -351.03 | 1,508.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 90.00 | 358.83 | 5,589.00 | 1,589.32 | -353.08 | 1,608.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 90.00 | 358.83 | 5,589.00 | 1,689.30 | -355.12 | 1,708.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,900.00 | 90.00 | 358.83 | 5,589.00 | 1,789.28 | -357.16 | 1,808.21 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,000.00 | 90.00 | 358.83 | 5,589.00 | 1,889.26 | -359.21 | 1,908.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,100.00 | 90.00 | 358.83 | 5,589.00 | 1,989.24 | -361.25 | 2,008.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,200.00 | 90.00 | 358.83 | 5,589.00 | 2,089.22 | -363.29 | 2,107.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,300.00 | 90.00 | 358.83 | 5,589.00 | 2,189.20 | -365.33 | 2,207.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,400.00 | 90.00 | 358.83 | 5,589.00 | 2,289.18 | -367.38 | 2,307.76 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 90.00 | 358.83 | 5,589.00 | 2,389.16 | -369.42 | 2,407.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 90.00 | 358.83 | 5,589.00 | 2,489.14 | -371.46 | 2,507.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 90.00 | 358.83 | 5,589.00 | 2,589.12 | -373.50 | 2,607.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 90.00 | 358.83 | 5,589.00 | 2,689.09 | -375.55 | 2,707.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 90.00 | 358.83 | 5,589.00 | 2,789.07 | -377.59 | 2,807.31 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 90.00 | 358.83 | 5,589.00 | 2,889.05 | -379.63 | 2,907.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 90.00 | 358.83 | 5,589.00 | 2,989.03 | -381.67 | 3,007.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 90.00 | 358.83 | 5,589.00 | 3,089.01 | -383.72 | 3,107.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 90.00 | 358.83 | 5,589.00 | 3,188.99 | -385.76 | 3,206.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 90.00 | 358.83 | 5,589.00 | 3,288.97 | -387.80 | 3,306.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 90.00 | 358.83 | 5,589.00 | 3,388.95 | -389.84 | 3,406.76 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 90.00 | 358.83 | 5,589.00 | 3,488.93 | -391.89 | 3,506.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 90.00 | 358.83 | 5,589.00 | 3,588.91 | -393.93 | 3,606.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 90.00 | 358.83 | 5,589.00 | 3,688.89 | -395.97 | 3,706.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 90.00 | 358.83 | 5,589.00 | 3,788.87 | -398.01 | 3,806.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 90.00 | 358.83 | 5,589.00 | 3,888.84 | -400.06 | 3,906.31 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 90.00 | 358.83 | 5,589.00 | 3,988.82 | -402.10 | 4,006.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 90.00 | 358.83 | 5,589.00 | 4,088.80 | -404.14 | 4,106.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 90.00 | 358.83 | 5,589.00 | 4,188.78 | -406.19 | 4,206.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 90.00 | 358.83 | 5,589.00 | 4,288.76 | -408.23 | 4,305.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 90.00 | 358.83 | 5,589.00 | 4,388.74 | -410.27 | 4,405.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 90.00 | 358.83 | 5,589.00 | 4,488.72 | -412.31 | 4,505.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 90.00 | 358.83 | 5,589.00 | 4,588.70 | -414.36 | 4,605.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 90.00 | 358.83 | 5,589.00 | 4,688.68 | -416.40 | 4,705.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 90.00 | 358.83 | 5,589.00 | 4,788.66 | -418.44 | 4,805.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 90.00 | 358.83 | 5,589.00 | 4,888.64 | -420.48 | 4,905.41 | 0.00 | 0.00 | 0.00 | 0.00 |

Plan Report for Horsetail #30F-1942 - 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 (°) |
|-------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|----------------------|
| 10,100.00 | 90.00 | 358.83 | 5,589.00 | 4,988.61 | -422.53 | 5,005.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 90.00 | 358.83 | 5,589.00 | 5,088.59 | -424.57 | 5,105.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 90.00 | 358.83 | 5,589.00 | 5,188.57 | -426.61 | 5,205.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 90.00 | 358.83 | 5,589.00 | 5,288.55 | -428.65 | 5,305.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 90.00 | 358.83 | 5,589.00 | 5,388.53 | -430.70 | 5,404.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 90.00 | 358.83 | 5,589.00 | 5,488.51 | -432.74 | 5,504.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 90.00 | 358.83 | 5,589.00 | 5,588.49 | -434.78 | 5,604.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 90.00 | 358.83 | 5,589.00 | 5,688.47 | -436.82 | 5,704.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 90.00 | 358.83 | 5,589.00 | 5,788.45 | -438.87 | 5,804.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 90.00 | 358.83 | 5,589.00 | 5,888.43 | -440.91 | 5,904.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 90.00 | 358.83 | 5,589.00 | 5,988.41 | -442.95 | 6,004.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 90.00 | 358.83 | 5,589.00 | 6,088.39 | -444.99 | 6,104.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 90.00 | 358.83 | 5,589.00 | 6,188.36 | -447.04 | 6,204.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 90.00 | 358.83 | 5,589.00 | 6,288.34 | -449.08 | 6,304.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 90.00 | 358.83 | 5,589.00 | 6,388.32 | -451.12 | 6,404.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 90.00 | 358.83 | 5,589.00 | 6,488.30 | -453.17 | 6,503.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 90.00 | 358.83 | 5,589.00 | 6,588.28 | -455.21 | 6,603.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 90.00 | 358.83 | 5,589.00 | 6,688.26 | -457.25 | 6,703.78 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,900.00 | 90.00 | 358.83 | 5,589.00 | 6,788.24 | -459.29 | 6,803.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,000.00 | 90.00 | 358.83 | 5,589.00 | 6,888.22 | -461.34 | 6,903.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,100.00 | 90.00 | 358.83 | 5,589.00 | 6,988.20 | -463.38 | 7,003.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 90.00 | 358.83 | 5,589.00 | 7,088.18 | -465.42 | 7,103.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,300.00 | 90.00 | 358.83 | 5,589.00 | 7,188.16 | -467.46 | 7,203.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,400.00 | 90.00 | 358.83 | 5,589.00 | 7,288.13 | -469.51 | 7,303.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,500.00 | 90.00 | 358.83 | 5,589.00 | 7,388.11 | -471.55 | 7,403.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,600.00 | 90.00 | 358.83 | 5,589.00 | 7,488.09 | -473.59 | 7,503.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,634.50 | 90.00 | 358.83 | 5,589.00 | 7,522.59 | -474.30 | 7,537.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total Depth 12634.5 ft | | | | | | | | | | |
| 12,634.53 | 90.00 | 358.83 | 5,589.00 | 7,522.61 | -474.30 | 7,537.55 | 0.00 | 0.00 | 0.00 | 0.00 |

Plan Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates +N/-S (usft) | +E/-W (usft) | Comment |
|-----------------------|-----------------------|--------------------------------|--------------|------------------------------|
| 500.00 | 500.00 | 0.00 | 0.00 | Begin Nudge @ 500.00 ft |
| 700.00 | 699.84 | 6.67 | -2.04 | End Nudge @ 700.00 ft |
| 5,115.38 | 5,104.46 | 301.22 | -92.09 | Build Rate 11.00 °/100 ft |
| 5,115.38 | 5,104.46 | 301.22 | -92.09 | Kick Off Point @ 5115.38 ft |
| 5,897.20 | 5,589.00 | 798.12 | -244.01 | End Build @ 5897.2 ft |
| 5,972.20 | 5,589.00 | 869.84 | -265.94 | Turn Rate 3.00 °/100 ft |
| 5,972.20 | 5,589.00 | 869.84 | -265.94 | Begin Turn @ 5972.2 ft |
| 6,499.85 | 5,589.00 | 1,389.22 | -348.99 | Hold Inc 90.00°, Azi 358.83° |
| 6,499.85 | 5,589.00 | 1,389.22 | -348.99 | End Turn @ 6499.85 ft |
| 12,634.50 | 5,589.00 | 7,522.59 | -474.30 | Total Depth 12634.5 ft |

Vertical Section Information

| Angle Type | Target | Azimuth (°) | Origin Type | Origin +N/-S (usft) | +E/-W (usft) | Start TVD (usft) |
|------------|------------------------------------|-------------|-------------|---------------------|--------------|------------------|
| Target | Horsetail #30F-1942_Rev A0_BHL Tgt | 356.39 | Slot | 0.00 | 0.00 | 0.00 |

Survey tool program

| From (usft) | To (usft) | Survey/Plan | Survey Tool |
|-------------|-----------|-------------|-----------------|
| 0.00 | 1,671.50 | Rev A0 | MWD+IFR1+MS+sag |

Plan Report for Horsetail #30F-1942 - Rev A0**Survey tool program**

| From (usft) | To (usft) | Survey/Plan | Survey Tool |
|----------------|--------------|-------------|-----------------|
| 1,671.50 | 5,897.20 | Rev A0 | MWD+IFR1+MS+sag |
| 5,897.20 | 12,634.53 | Rev A0 | MWD+IFR1+MS+sag |

Casing Details

| Measured Depth (usft) | Vertical Depth (usft) | Name | Casing Diameter (") | Hole Diameter (") |
|-----------------------------|-----------------------------|-------------------|---------------------------|-------------------------|
| 1,552.24 | 1,550.00 | 9 5/8" Casing Pt. | 9-5/8 | 13-1/2 |
| 5,897.20 | 5,589.00 | 7" Casing Pt. | 7 | 8-3/4 |

Formation Details

| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|-----------------------------|-----------------------------|--------------|-----------|------------|-------------------------|
| 5,527.17 | 5,463.00 | Niobrara Top | | 0.00 | |
| 5,612.29 | 5,513.00 | Niobrara "A" | | 0.00 | |
| 5,897.20 | 5,589.00 | Niobrara "B" | | 0.00 | |

Targets associated with this wellbore

| Target Name | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Shape |
|-------------------------------------|---------------|-----------------|-----------------|-------|
| Horsetail #30F-1941_Rev A0_BHL Tgt | 5,513.00 | 7,522.62 | -638.80 | Point |
| Horsetail #29E-3201A_Rev A0_BHL Tgt | 5,524.50 | -7,719.72 | 3,757.44 | Point |
| Horsetail #30F-1942_Rev A0_BHL Tgt | 5,589.00 | 7,522.61 | -474.30 | Point |

Directional Difficulty Index

| | | | |
|-------------------------------------|----------------|-------------------------------|----------------------------------|
| Average Dogleg over Survey: | 0.84 °/100usft | Maximum Dogleg over Survey: | 11.00 °/100usft at 5,897.20 usft |
| Net Tortousity applicable to Plans: | 0.84 °/100usft | Directional Difficulty Index: | 6.350 |

Audit Info

North Reference Sheet for Sec. 30-T10N-R57W - Horsetail #30F-1942 - 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 22 ft @ 4803.70usft (Frontier 26). Northing and Easting are relative to Horsetail #30F-1942

Coordinate System is US State Plane 1983, Colorado Northern 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:40° 47' 0.000 N°

False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 1.00000455

Grid Coordinates of Well: 1,542,708.07 usft N, 3,471,519.13 usft E

Geographical Coordinates of Well: 40° 48' 38.46" N, 103° 47' 47.66" W

Grid Convergence at Surface is: 1.10°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,634.53usft

the Bottom Hole Displacement is 7,537.55usft in the Direction of 356.39° (True).

Magnetic Convergence at surface is: -6.96° (19 November 2013, , BGGM2013)

