


Company: <u>NGL Water Solutions</u>	Job Number: <u>207</u>	Calculation Method
Field: <u>DJ Basin</u>	Magnetic Decl.: <u>8.30</u>	Proposed Azimuth <u>177.12</u>
Cty/Blk/Par: <u>Weld Cty, Colorado</u>	Grid Corr.: _____	Depth Reference <u>RKB</u>
Well Name: <u>NGL C1C</u>	Total Corr.: <u>8.30</u>	Tie Into <u>Weld Head</u>
Rig: <u>Ensign 32</u>	Target Info: _____	

Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		DLS (°/100')	Bld Rate (°/100')	Wlk Rate (°/100')
						N/S (ft)	E/W (ft)			
0	0.00	0.00	0	0.00	0.00	0.00	0.00			
750	0.40	226.30	750	749.99	1.71	1.81 S	1.89 W	0.05	0.1	30.2
813	0.90	207.00	63	812.99	2.28	2.40 S	2.28 W	0.86	0.8	-30.6
876	2.30	193.60	63	875.96	3.93	4.07 S	2.80 W	2.29	2.2	-21.3
939	3.90	188.80	63	938.87	7.24	7.42 S	3.42 W	2.57	2.5	-7.6
1002	5.40	192.00	63	1001.66	12.20	12.43 S	4.37 W	2.42	2.4	5.1
1065	7.20	192.50	63	1064.28	18.87	19.19 S	5.84 W	2.86	2.9	0.8
1128	8.70	189.00	63	1126.67	27.34	27.75 S	7.44 W	2.50	2.4	-5.6
1191	10.10	184.60	63	1188.82	37.48	37.96 S	8.63 W	2.50	2.2	-7.0
1254	11.30	181.10	63	1250.73	49.12	49.64 S	9.19 W	2.17	1.9	-5.6
1317	13.10	180.70	63	1312.30	62.40	62.95 S	9.39 W	2.86	2.9	-0.6
1380	14.30	177.20	63	1373.51	77.31	77.86 S	9.10 W	2.31	1.9	-5.6
1443	16.00	176.50	63	1434.32	93.77	94.30 S	8.19 W	2.71	2.7	-1.1
1506	15.70	175.60	63	1494.92	110.97	111.47 S	7.01 W	0.62	-0.5	-1.4
1569	15.10	177.20	63	1555.66	127.70	128.16 S	5.95 W	1.17	-1.0	2.5
1632	15.90	181.60	63	1616.37	144.51	144.99 S	5.79 W	2.26	1.3	7.0
1696	17.00	182.70	64	1677.75	162.56	163.10 S	6.48 W	1.79	1.7	1.7
1759	17.80	180.40	63	1737.87	181.34	181.92 S	6.98 W	1.67	1.3	-3.7
1822	18.20	178.30	63	1797.79	200.79	201.39 S	6.75 W	1.21	0.6	-3.3
1886	19.50	179.50	64	1858.35	221.46	222.06 S	6.36 W	2.12	2.0	1.9
1949	20.60	183.70	63	1917.54	242.98	243.64 S	6.99 W	2.88	1.7	6.7
2012	20.00	185.10	63	1976.62	264.66	265.43 S	8.66 W	1.23	-1.0	2.2
2075	20.30	185.10	63	2035.77	286.15	287.04 S	10.59 W	0.48	0.5	0.0
2138	21.10	182.10	63	2094.70	308.27	309.26 S	11.98 W	2.11	1.3	-4.8
2202	21.10	181.50	64	2154.41	331.23	332.29 S	12.70 W	0.34	0.0	-0.9
2266	20.80	181.90	64	2214.18	354.04	355.16 S	13.38 W	0.52	-0.5	0.6
2329	20.80	180.00	63	2273.07	376.36	377.53 S	13.75 W	1.07	0.0	-3.0
2392	21.20	178.10	63	2331.89	398.92	400.10 S	13.37 W	1.25	0.6	-3.0
2455	20.60	176.20	63	2390.75	421.40	422.55 S	12.26 W	1.44	-1.0	-3.0
2518	20.30	176.00	63	2449.78	443.40	444.51 S	10.76 W	0.49	-0.5	-0.3
2581	20.20	176.90	63	2508.88	465.21	466.27 S	9.41 W	0.52	-0.2	1.4
2644	20.30	178.30	63	2567.99	487.01	488.05 S	8.50 W	0.79	0.2	2.2
2708	21.30	178.50	64	2627.82	509.73	510.77 S	7.87 W	1.57	1.6	0.3
2771	22.20	177.40	63	2686.33	533.07	534.10 S	7.03 W	1.57	1.4	-1.7
2834	22.60	176.30	63	2744.58	557.08	558.07 S	5.71 W	0.92	0.6	-1.7
2897	23.10	175.20	63	2802.63	581.53	582.47 S	3.89 W	1.04	0.8	-1.7
2960	23.50	174.20	63	2860.50	606.43	607.28 S	1.59 W	0.89	0.6	-1.6
3024	22.00	174.10	64	2919.51	631.15	631.90 S	0.93 E	2.34	-2.3	-0.2
3087	22.20	174.90	63	2977.89	654.82	655.49 S	3.21 E	0.57	0.3	1.3
3149	23.00	176.70	62	3035.13	678.64	679.25 S	4.94 E	1.71	1.3	2.9
3212	22.80	177.20	63	3093.16	703.15	703.73 S	6.25 E	0.44	-0.3	0.8
3276	21.20	177.40	64	3152.50	727.13	727.68 S	7.38 E	2.50	-2.5	0.3
3339	20.00	179.00	63	3211.47	749.29	749.83 S	8.08 E	2.10	-1.9	2.5
3402	19.30	179.00	63	3270.80	770.46	771.01 S	8.45 E	1.11	-1.1	0.0
3465	19.80	179.50	63	3330.17	791.53	792.09 S	8.73 E	0.84	0.8	0.8
3528	20.50	179.30	63	3389.31	813.21	813.79 S	8.96 E	1.12	1.1	-0.3
3591	20.10	177.20	63	3448.40	835.06	835.64 S	9.62 E	1.32	-0.6	-3.3
3654	19.30	174.80	63	3507.71	856.29	856.82 S	11.09 E	1.81	-1.3	-3.8
3717	18.90	175.30	63	3567.24	876.89	877.35 S	12.87 E	0.69	-0.6	0.8
3781	19.30	174.60	64	3627.72	897.82	898.21 S	14.72 E	0.72	0.6	-1.1
3844	20.90	173.50	63	3686.88	919.44	919.75 S	16.97 E	2.61	2.5	-1.7
3907	21.30	173.20	63	3745.66	942.07	942.27 S	19.60 E	0.66	0.6	-0.5
3970	21.50	172.50	63	3804.31	964.99	965.08 S	22.46 E	0.51	0.3	-1.1
4033	20.60	172.00	63	3863.11	987.54	987.50 S	25.51 E	1.46	-1.4	-0.8
4096	20.00	172.50	63	3922.20	1009.31	1009.16 S	28.46 E	0.99	-1.0	0.8
4159	19.10	173.70	63	3981.56	1030.34	1030.09 S	30.99 E	1.56	-1.4	1.9
4222	19.00	175.30	63	4041.11	1050.88	1050.55 S	32.96 E	0.84	-0.2	2.5
4285	19.30	177.20	63	4100.63	1071.54	1071.17 S	34.31 E	1.10	0.5	3.0
4349	19.00	177.20	64	4161.09	1092.54	1092.14 S	35.34 E	0.47	-0.5	0.0
4412	18.90	177.80	63	4220.67	1113.00	1112.58 S	36.23 E	0.35	-0.2	1.0
4475	19.80	178.50	63	4280.11	1133.87	1133.44 S	36.90 E	1.48	1.4	1.1
4537	19.90	178.60	62	4338.43	1154.91	1154.49 S	37.44 E	0.17	0.2	0.2

Company: <u>NGL Water Solutions</u>	Job Number: <u>207</u>	Calculation Method
Field: <u>DJ Basin</u>	Magnetic Decl.: <u>8.30</u>	Proposed Azimuth <u>177.12</u>
 Cty/Blk/Par: <u>Weld Cty, Colorado</u>	Grid Corr.: _____	Depth Reference <u>RKB</u>
Well Name: <u>NGL C1C</u>	Total Corr.: <u>8.30</u>	Tie Into <u>Weld Head</u>
Rig: <u>Ensign 32</u>	Target Info: _____	

Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		DLS (°/100')	Bld Rate (°/100')	Wlk Rate (°/100')
						N/S (ft)	E/W (ft)			
4600	20.20	178.80	63	4397.61	1176.50	1176.08	S 37.93 E	0.49	0.5	0.3
4664	19.70	179.30	64	4457.77	1198.33	1197.92	S 38.29 E	0.83	-0.8	0.8
4727	18.10	180.20	63	4517.37	1218.71	1218.32	S 38.38 E	2.58	-2.5	1.4
4790	17.30	181.30	63	4577.39	1237.83	1237.47	S 38.14 E	1.38	-1.3	1.7
4853	17.90	180.40	63	4637.44	1256.84	1256.52	S 37.86 E	1.05	1.0	-1.4
4917	19.00	178.50	64	4698.15	1277.07	1276.77	S 38.06 E	1.96	1.7	-3.0
4980	18.00	175.80	63	4757.89	1297.06	1296.73	S 39.04 E	2.09	-1.6	-4.3
5043	16.60	172.50	63	4818.04	1315.76	1315.36	S 40.93 E	2.71	-2.2	-5.2
5107	17.30	173.20	64	4879.26	1334.36	1333.88	S 43.25 E	1.14	1.1	1.1
5170	19.10	175.50	63	4939.11	1354.01	1353.45	S 45.17 E	3.08	2.9	3.7
5233	21.50	175.30	63	4998.19	1375.86	1375.24	S 46.92 E	3.81	3.8	-0.3
5296	20.80	176.20	63	5056.95	1398.58	1397.91	S 48.61 E	1.22	-1.1	1.4
5360	20.50	178.50	64	5116.84	1421.15	1420.45	S 49.66 E	1.35	-0.5	3.6
5423	19.90	180.40	63	5175.96	1442.88	1442.20	S 49.87 E	1.41	-1.0	3.0
5486	19.00	181.10	63	5235.37	1463.82	1463.17	S 49.60 E	1.48	-1.4	1.1
5550	19.20	181.60	64	5295.85	1484.70	1484.11	S 49.11 E	0.40	0.3	0.8
5613	19.30	180.90	63	5355.32	1505.42	1504.88	S 48.65 E	0.40	0.2	-1.1
5676	19.80	180.60	63	5414.69	1526.46	1525.96	S 48.38 E	0.81	0.8	-0.5
5740	22.30	177.90	64	5474.42	1549.42	1548.93	S 48.71 E	4.19	3.9	-4.2
5803	23.40	176.20	63	5532.47	1573.89	1573.36	S 49.98 E	2.04	1.7	-2.7
5866	21.60	175.80	63	5590.67	1597.99	1597.41	S 51.65 E	2.87	-2.9	-0.6
5929	20.90	174.80	63	5649.39	1620.81	1620.17	S 53.52 E	1.25	-1.1	-1.6
5993	20.50	174.60	64	5709.26	1643.41	1642.69	S 55.61 E	0.63	-0.6	-0.3
6056	20.60	175.60	63	5768.25	1665.51	1664.73	S 57.50 E	0.58	0.2	1.6
6119	20.80	175.30	63	5827.18	1687.77	1686.92	S 59.27 E	0.36	0.3	-0.5
6182	20.80	176.20	63	5886.08	1710.14	1709.23	S 60.92 E	0.51	0.0	1.4
6245	20.50	175.80	63	5945.03	1732.35	1731.40	S 62.47 E	0.53	-0.5	-0.6
6309	20.70	173.70	64	6004.94	1754.84	1753.82	S 64.54 E	1.20	0.3	-3.3
6371	20.60	172.30	62	6062.96	1776.65	1775.52	S 67.20 E	0.81	-0.2	-2.3
6434	21.00	173.70	63	6121.85	1798.96	1797.72	S 69.92 E	1.01	0.6	2.2
6496	20.60	173.70	62	6179.81	1820.94	1819.60	S 72.34 E	0.65	-0.6	0.0
6559	20.70	173.70	63	6238.76	1843.12	1841.69	S 74.78 E	0.16	0.2	0.0
6623	19.70	173.90	64	6298.82	1865.18	1863.66	S 77.17 E	1.57	-1.6	0.3
6686	19.10	174.60	63	6358.25	1886.08	1884.48	S 79.26 E	1.02	-1.0	1.1
6749	19.30	177.90	63	6417.74	1906.79	1905.14	S 80.62 E	1.75	0.3	5.2
6813	19.10	180.20	64	6478.18	1927.82	1926.18	S 80.97 E	1.22	-0.3	3.6
6876	19.30	178.50	63	6537.68	1948.52	1946.90	S 81.20 E	0.94	0.3	-2.7
6939	19.30	176.50	63	6597.14	1969.34	1967.70	S 82.11 E	1.05	0.0	-3.2
7002	19.40	174.10	63	6656.58	1990.20	1988.50	S 83.82 E	1.27	0.2	-3.8
7065	19.30	177.20	63	6716.03	2011.06	2009.31	S 85.41 E	1.64	-0.2	4.9
7128	17.90	174.40	63	6775.74	2031.14	2029.34	S 86.86 E	2.64	-2.2	-4.4
7192	17.00	171.40	64	6836.79	2050.28	2048.38	S 89.22 E	1.99	-1.4	-4.7
7255	18.10	173.50	63	6896.86	2069.21	2067.21	S 91.70 E	2.01	1.7	3.3
7318	18.60	178.30	63	6956.66	2089.02	2086.98	S 93.11 E	2.53	0.8	7.6
7381	18.60	177.80	63	7016.37	2109.11	2107.06	S 93.79 E	0.25	0.0	-0.8
7444	18.30	174.90	63	7076.13	2129.04	2126.95	S 95.06 E	1.53	-0.5	-4.6
7507	17.70	173.20	63	7136.05	2148.48	2146.32	S 97.07 E	1.27	-1.0	-2.7
7571	17.90	172.10	64	7196.98	2167.99	2165.72	S 99.58 E	0.61	0.3	-1.7
7634	18.50	171.80	63	7256.83	2187.58	2185.20	S 102.33 E	0.96	1.0	-0.5
7697	17.90	172.10	63	7316.68	2207.18	2204.68	S 105.09 E	0.96	-1.0	0.5
7760	17.60	171.60	63	7376.68	2226.30	2223.70	S 107.81 E	0.53	-0.5	-0.8
7824	17.90	171.10	64	7437.63	2245.72	2242.99	S 110.75 E	0.53	0.5	-0.8
7887	16.70	170.70	63	7497.78	2264.34	2261.48	S 113.71 E	1.91	-1.9	-0.6
7950	14.20	170.90	63	7558.50	2281.02	2278.05	S 116.39 E	3.97	-4.0	0.3
8013	13.60	169.70	63	7619.66	2296.05	2292.97	S 118.94 E	1.06	-1.0	-1.9
8076	14.00	170.90	63	7680.84	2310.97	2307.78	S 121.47 E	0.78	0.6	1.9
8139	13.50	170.70	63	7742.03	2325.85	2322.56	S 123.86 E	0.80	-0.8	-0.3
8203	12.50	172.30	64	7804.39	2340.18	2336.80	S 126.00 E	1.66	-1.6	2.5
8266	10.60	173.00	63	7866.11	2352.75	2349.31	S 127.62 E	3.02	-3.0	1.1
8329	9.40	174.80	63	7928.15	2363.67	2360.18	S 128.79 E	1.97	-1.9	2.9
8392	9.20	173.70	63	7990.33	2373.84	2370.31	S 129.81 E	0.42	-0.3	-1.7

ing loc.

Calculation Method
Proposed Azimuth 177.12
Depth Reference RKB
Tie Into Weld Head

[illegible]

ing Inc.

Magnetic Decl.: 8.30Proposed Azimuth 177.12[illegible]

Note : Change this table below for the
EOB or EOH or EOD

Target Description	
TVD =	8700.00
North / South =	-2495.50
East / West =	125.50
Radius =	1

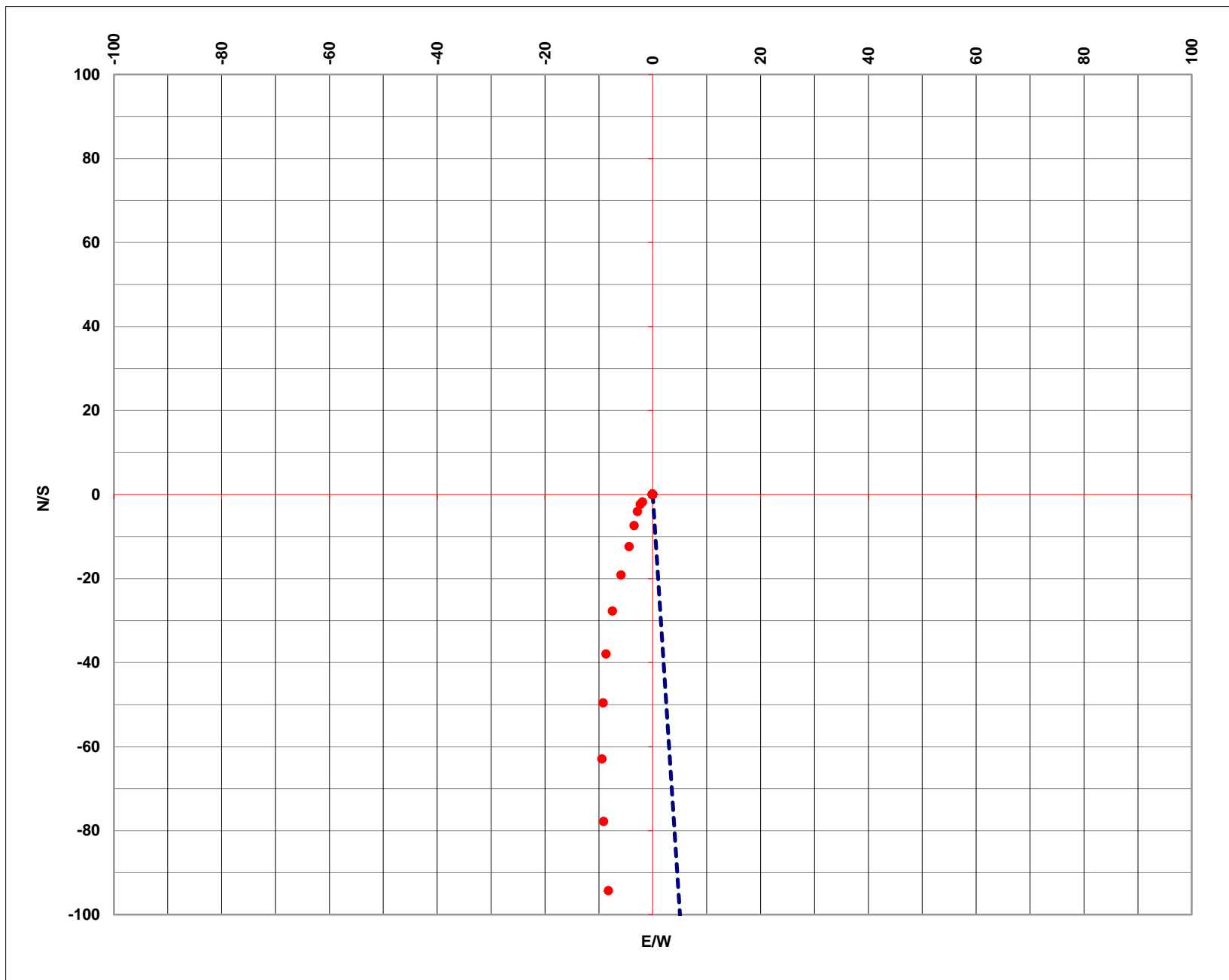
Selected Survey			
MD =	9042.00	TVD =	8637.08
Inc =	3.30	N / S =	-2431.27
Azm =	192.50	E / W =	129.65

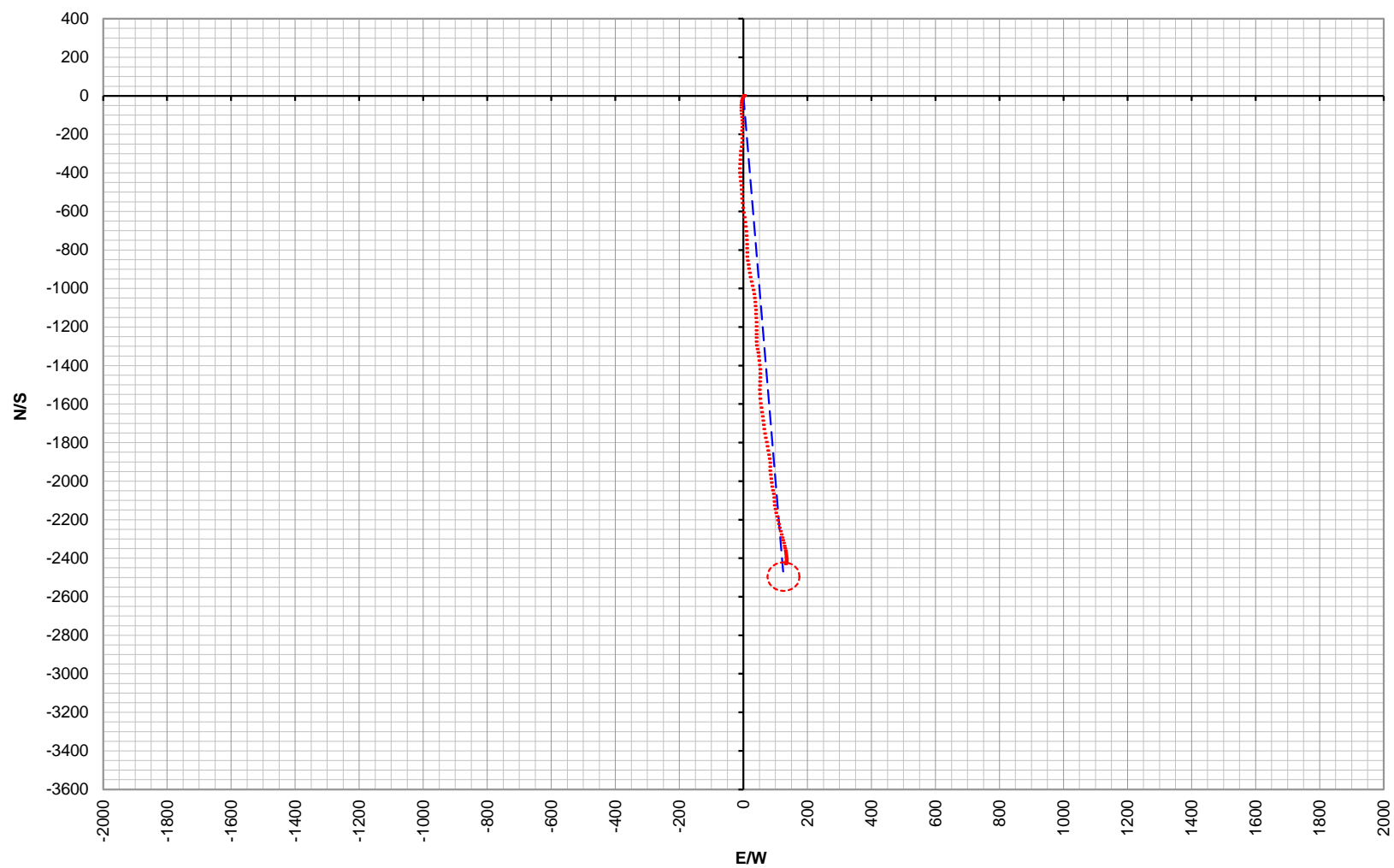
Target Coordinates to Land	
N/S=	-2495.50 E/W= 125.50
PLAN BUILD/DROP =	1.8
TARGET ANGLE =	0
V-SECTION IN DROP =	5.278891
MD IN DROP =	183.3333
MD TO START DROP =	10068
Target Center Coordinates	
N/S=	-2495.50 E/W= 125.50

Target Solution	
Inc to target Center =	45.65
Azm to Target Center =	183.70
Inc to Leading Edge =	45.20
Inc to Trailing Edge =	46.09
Azm To Left Edge =	182.81
Azm To Right Edge =	184.59

Closure to Target from Survey Station		
Closure Distance =	64.4	FT
Closure Direction =	183.7	AZ
Build Needed to Land @ VS Target		
Total Amount of Vertical Section =	2498.65	
VS @ last Survey Station =	2434.72	
Build/Drop to Target =	-0.1	

Closure from Target Center to Last Survey		
Distance from Target Center =	64.4	FT
Direction from Target Center =	3.7	AZ





VS

