



Weatherford

Drilling Services
10000 West County Rd. 116
P.O. Box 61028
Midland, TX USA 79711
Tel. (432) 561-8892 Fax (432) 561-8895

Apache Corporation
303 Veterans Airpark Lane
Midland, TX, 79705

Date: July 22, 2019

Attention: John Vacek

Re: Apache Corporation
Well: Ghost Rider 22-15 FED COM 206H

Lea County, New Mexico

30-025-45773

N 22 245 32E 442 FSL + 2226 FWL (SURF)

K 15 245 32E 2579 FSL + 1645 FWL (BH)

Enclosed, please find the original survey performed on the referenced well by Precision Energy Services, Inc. (P-5 No. 676004), a Weatherford company. Other information required by your office is as follows:

Name & Title Of Surveyor	Well Number	Surveyed Depths	Dates Performed	Type of Survey
Cory Snyder MWD Ops. Coordinator	206H	10,446 MD 18,520 MD	7/12/2019 7/20/2019	Measurement While Drilling

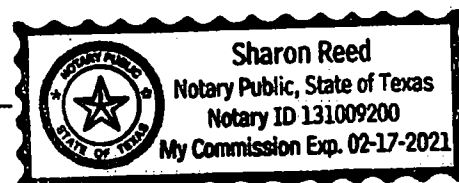
A notarized plan vs. actual is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Cory Snyder
MWD Ops. Coordinator

On this, the 22 day of July, 2019, before me a notary public, the undersigned officer, personally appeared Cory Snyder, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he executed the same for the purposes therein contained.

In witness hereof, I hereunto set my hand and official seal.

Notary Public



**5D Survey Report**

Apache Corporation

Field Name: Apache NM (Nad 83 NMEZ)
Site Name: Ghost Rider Pad 3S
Well Name: Ghost Rider 22-15 Fed Com 206H
File number: 13841025
Survey: Definitive survey

22 July 2019

30-025-45773

N 22 245 32E 442 FEL + 2226 FWL (Surf.)
K 15 245 32E 2579 FEL + 1645 FWL (BH)

**Weatherford®**



Ghost Rider 22-15 Fed Com 206H

Field Name:	Map Units: US ft		Company Name: Apache Corporation	
Apache NM (Nad 83 NMEZ)	Vertical Reference Datum (VRD): Mean Sea Level			
	Projected Coordinate System: NAD83 / New Mexico East (ftUS)			
	Comment:			
Site:	Units: US ft	North Reference: Grid	Convergence Angle: 0.36	
	Position:	Northing: 435975.40 US ft	Latitude: 32.196804379	
		Easting: 748254.10 US ft	Longitude: -103.664408574	
	Ghost Rider Pad 3S	Elevation above MSL: 3592.00 US ft		
	Comment: Lea Co, NM			
Slot:	Position (Relative to Site Centre)			
	+N/-S: 76.20 US ft	Northing: 436051.60 US ft	Latitude: 32.197011018	
	+E/-W: 164.50 US ft	Easting: 748418.60 US ft	Longitude: -103.663875272	
	Ghost Rider 22-15 Fed Com 206H	Slot TVD Reference: Ground Elevation		
	Elevation above MSL: 3594.00 US ft			
	Comment:			
Well:	Type: Main well	UWI:		
	File Number: 13841025	Comment: H&P 482		
	Closure Distance: 7439.01 US ft	Closure Azimuth: 355.21°		
	Vertical Section: Position of Origin (Relative to Slot centre)			
Ghost Rider 22-15 Fed Com 206H	+N/-S: -0.00 US ft	+E/-W: 0.00 US ft	Az: 355.23°	

Drill floor: Survey Name: Definitive Survey
Rig Height (Drill Floor): 26.00 US ft **Elevation above MSL:** 3620.00 US ft **Inclination:** 0.00° **Azimuth:** 0.00°

Survey Name: Definitive Survey

Date: 28/Jun/2018 **Survey Tool:** See Survey Tool Ranges below. **Comment:** **Company:**

Magnetic Model:

Model Name: Surcon **Date:** 04/Jul/2019 **Field Strength:** 47865.0 nT **Declination:** 6.78° **Dip:** 59.88°

IFR

Tie Point:

MD: 0.00 US ft **Inclination:** 0.00° **Azimuth:** 0.00° **TVD:** 0.00 US ft **North Offset:** -0.00 US ft **East Offset:** 0.00 US ft

5D Survey Report

Survey Tool Ranges:			
Name	Start MD(USFt)	End MD(USFt)	Source Survey
VES GyroFlex V3	0.00	10324.00	VES Gyros
MWD + IFR + MS	10324.00	10824.00	WFT MWD 04
MWD + IFR + MS	10824.00	11202.00	WFT MWD 06
MWD + IFR + Sag Corr + MS	11202.00	18591.00	WFT MWD 07

Casing Points: (Relative to Slot centre)(TVD relative to Drill Floor)

Name	MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)
13 3/8 in	1078.00	0.65	109.78	1077.95	4.56	-4.87	436056.16	748413.73
9 5/8 in	4810.00	0.81	193.70	4809.66	-10.15	-3.79	436041.45	748414.81

Wellpath created using minimum curvature.

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N. Offset (US ft)	E. Offset (US ft)	Di.S (°/100US ft)	Northing (US ft)	Easting (US ft)	Comment
10324.00	2.55	245.43	10279.07	-334.77	-383.08	-564.96	0.32	435668.52	747853.64	Teonto VES Gyro
10446.00	2.33	241.37	10400.96	-336.70	-385.40	-569.61	0.23	435666.20	747848.99	First WFT MWD Svy
10493.00	1.46	280.16	10447.94	-336.93	-385.75	-571.03	3.20	435665.85	747847.57	
10541.00	3.98	4.45	10495.89	-335.13	-383.98	-571.51	8.54	435667.62	747847.09	
10588.00	9.05	9.09	10542.58	-329.92	-378.70	-570.80	10.84	435672.90	747847.80	
10635.00	13.51	8.32	10588.66	-320.98	-369.61	-569.42	9.49	435681.99	747849.18	
10682.00	18.78	5.36	10633.79	-308.18	-356.64	-567.91	11.35	435694.96	747850.69	
10730.00	23.81	3.41	10678.50	-290.97	-339.26	-566.62	10.58	435712.34	747851.98	
10777.00	29.29	3.84	10720.52	-270.20	-318.31	-565.28	11.67	435733.29	747853.32	
10824.00	34.15	4.70	10760.49	-245.80	-293.67	-563.43	10.38	435757.93	747855.17	
10872.00	40.89	5.61	10798.54	-217.03	-264.58	-560.79	14.09	435787.02	747857.81	
10919.00	47.89	3.86	10832.11	-184.62	-231.83	-558.10	15.12	435819.77	747860.50	
10966.00	56.49	0.27	10860.90	-147.79	-194.77	-556.84	19.26	435856.83	747861.76	
11013.00	65.00	357.04	10883.85	-106.90	-153.82	-557.85	19.07	435897.78	747860.75	
11060.00	71.40	355.18	10901.30	-63.29	-110.31	-560.82	14.10	435941.29	747857.78	
11108.00	74.70	355.70	10915.29	-17.38	-64.54	-564.47	6.95	435987.06	747854.13	
11155.00	78.08	358.78	10926.35	28.26	-18.93	-566.66	9.61	436032.67	747851.94	
11202.00	81.79	359.86	10934.56	74.41	27.34	-567.20	8.21	436078.94	747851.40	
11235.00	84.11	0.13	10938.61	107.04	60.09	-567.21	7.08	436111.69	747851.39	
11329.00	88.65	0.13	10944.55	200.49	153.87	-566.99	4.83	436205.47	747851.61	
11424.00	89.86	359.97	10945.78	295.14	248.86	-566.91	1.28	436300.46	747851.69	
11518.00	91.27	359.15	10944.86	388.87	342.85	-567.63	1.74	436394.45	747850.97	
11613.00	90.69	357.20	10943.23	483.72	437.79	-570.66	2.14	436489.39	747847.94	
11707.00	90.35	357.80	10942.38	577.64	531.69	-574.76	0.73	436583.29	747843.84	
11802.00	89.07	358.38	10942.86	672.52	626.64	-577.92	1.48	436678.24	747840.68	
11896.00	88.37	358.91	10944.96	766.33	720.58	-580.15	0.93	436772.18	747838.45	
11991.00	89.42	358.51	10946.79	861.14	815.54	-582.29	1.18	436867.14	747836.31	
12085.00	90.68	358.46	10946.71	954.98	909.51	-584.77	1.34	436961.11	747833.83	
12179.00	90.33	359.07	10945.88	1048.80	1003.48	-586.80	0.75	437055.08	747831.80	
12274.00	88.93	1.16	10946.49	1143.45	1098.47	-586.61	2.65	437150.07	747831.99	
12368.00	89.49	1.84	10947.79	1236.87	1192.43	-584.15	0.94	437244.03	747834.45	
12462.00	88.65	359.53	10949.31	1330.43	1286.40	-583.02	2.61	437338.00	747835.58	
12556.00	89.42	1.97	10950.90	1423.97	1380.37	-581.79	2.72	437431.97	747836.81	
12650.00	90.54	2.12	10950.93	1517.31	1474.31	-578.44	1.20	437525.91	747840.16	
12745.00	89.63	0.49	10950.79	1611.77	1569.28	-576.27	1.97	437620.88	747842.33	
12839.00	90.96	0.82	10950.31	1705.34	1663.27	-575.20	1.46	437714.87	747843.40	
12933.00	89.42	359.55	10949.99	1798.99	1757.27	-574.90	2.12	437808.87	747843.70	
13027.00	91.03	359.68	10949.63	1892.71	1851.26	-575.53	1.72	437902.86	747843.07	
13122.00	89.63	358.97	10949.08	1987.46	1946.25	-576.65	1.65	437997.85	747841.95	
13216.00	90.89	358.79	10948.65	2081.27	2040.23	-578.48	1.35	438091.83	747840.12	
13311.00	88.65	357.47	10949.03	2176.14	2135.17	-581.58	2.74	438186.77	747837.02	
13405.00	89.70	357.65	10950.39	2270.05	2229.07	-585.58	1.13	438280.67	747833.02	
13499.00	91.38	357.87	10949.50	2363.95	2322.99	-589.26	1.80	438374.59	747829.34	

5D Survey Report

Survey Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
HD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	H.Offset (US ft)	E.Offset (US ft)	DLS (%/100US ft)	Northing (US ft)	Easting (US ft)	Comment
13594.00	89.28	358.82	10948.95	2458.80	2417.95	-592.00	2.43	438469.55	747826.60	
13688.00	89.07	358.35	10950.31	2552.63	2511.91	-594.32	0.55	438563.51	747824.28	
13782.00	90.12	358.37	10950.97	2646.49	2605.87	-597.01	1.12	438657.47	747821.59	
13877.00	90.12	357.99	10950.77	2741.36	2700.82	-600.03	0.40	438752.42	747818.57	
13971.00	89.14	1.25	10951.38	2835.07	2794.80	-600.65	3.62	438846.40	747817.95	
14066.00	88.93	1.39	10952.98	2929.52	2889.76	-598.47	0.27	438941.36	747820.13	
14160.00	90.12	1.47	10953.76	3022.96	2983.73	-596.12	1.27	439035.33	747822.48	
14255.00	90.19	1.07	10953.50	3117.44	3078.70	-594.01	0.43	439130.30	747824.59	
14349.00	91.31	1.17	10952.27	3210.93	3172.68	-592.18	1.20	439224.28	747826.42	
14443.00	90.33	1.24	10950.93	3304.41	3266.64	-590.20	1.05	439318.24	747828.40	
14537.00	89.77	1.82	10950.84	3397.84	3360.61	-587.69	0.86	439412.21	747830.91	
14632.00	90.40	359.77	10950.70	3492.39	3455.59	-586.37	2.26	439507.19	747832.23	
14726.00	91.03	359.30	10949.53	3586.11	3549.58	-587.14	0.84	439601.18	747831.46	
14820.00	89.77	358.69	10948.87	3679.91	3643.56	-588.78	1.49	439695.16	747829.82	
14914.00	90.89	358.47	10948.33	3773.74	3737.53	-591.11	1.21	439789.13	747827.49	
15009.00	89.35	0.10	10948.13	3868.50	3832.52	-592.30	2.36	439884.12	747826.30	
15103.00	90.40	0.05	10948.34	3962.16	3926.52	-592.18	1.12	439978.12	747826.42	
15198.00	87.88	359.41	10949.76	4056.85	4021.50	-592.62	2.74	440073.10	747825.98	
15292.00	88.65	359.66	10952.61	4150.54	4115.45	-593.39	0.86	440167.05	747825.21	
15387.00	89.70	359.23	10953.98	4245.27	4210.43	-594.31	1.19	440262.03	747824.29	
15481.00	90.75	359.45	10953.61	4339.03	4304.43	-595.39	1.14	440356.03	747823.21	
15576.00	89.84	359.63	10953.12	4433.76	4399.42	-596.15	0.98	440451.02	747822.45	
15670.00	90.12	359.84	10953.15	4527.47	4493.42	-596.59	0.37	440545.02	747822.01	
15765.00	90.96	0.01	10952.26	4622.14	4588.41	-596.71	0.90	440640.01	747821.89	
15860.00	89.98	358.52	10951.48	4716.90	4683.40	-597.93	1.88	440735.00	747820.67	
15954.00	90.54	358.46	10951.05	4810.75	4777.37	-600.41	0.60	440828.97	747818.19	
16049.00	88.58	357.87	10951.78	4905.61	4872.31	-603.45	2.15	440923.91	747815.15	
16144.00	90.19	358.05	10952.80	5000.50	4967.24	-606.83	1.71	441018.84	747811.77	
16238.00	91.24	357.84	10951.63	5094.38	5061.17	-610.20	1.14	441112.77	747808.40	
16333.00	89.77	358.19	10950.79	5189.26	5156.11	-613.49	1.59	441207.71	747805.11	
16427.00	89.70	359.48	10951.23	5283.08	5250.08	-615.40	1.37	441301.68	747803.20	
16521.00	90.12	0.45	10951.37	5376.75	5344.08	-615.46	1.12	441395.68	747803.14	
16616.00	90.33	359.91	10951.00	5471.40	5439.08	-615.16	0.61	441490.68	747803.44	
16710.00	92.15	0.50	10948.97	5565.02	5533.05	-614.82	2.04	441584.65	747803.78	
16804.00	93.27	1.30	10944.52	5658.45	5626.94	-613.35	1.46	441678.54	747805.25	
16899.00	91.45	0.91	10940.61	5752.87	5721.83	-611.52	1.96	441773.43	747807.08	
16993.00	91.80	0.90	10937.94	5846.37	5815.78	-610.04	0.37	441867.38	747808.56	
17088.00	92.43	0.95	10934.44	5940.84	5910.71	-608.50	0.67	441962.31	747810.10	
17182.00	90.26	0.44	10932.23	6034.38	6004.67	-607.36	2.37	442056.27	747811.24	
17277.00	90.26	0.20	10931.80	6129.00	6099.66	-606.83	0.25	442151.26	747811.77	
17371.00	91.17	359.85	10930.63	6222.66	6193.66	-606.79	1.04	442245.26	747811.81	
17466.00	88.58	359.64	10930.83	6317.36	6288.65	-607.21	2.74	442340.25	747811.39	
17560.00	88.79	359.54	10932.99	6411.06	6382.62	-607.89	0.25	442434.22	747810.71	
17655.00	89.07	359.00	10934.77	6505.81	6477.60	-609.10	0.64	442529.20	747809.50	
17749.00	89.63	359.06	10935.83	6599.60	6571.58	-610.69	0.60	442623.18	747807.91	
17844.00	92.71	359.43	10933.89	6694.33	6666.54	-611.94	3.27	442718.14	747806.66	
17938.00	93.06	359.47	10929.16	6787.96	6760.41	-612.84	0.37	442812.01	747805.76	
18033.00	91.45	359.46	10925.42	6882.62	6855.33	-613.73	1.69	442906.93	747804.87	
18127.00	92.08	359.64	10922.53	6976.31	6949.28	-614.47	0.70	443000.88	747804.13	
18221.00	90.89	359.25	10920.09	7070.02	7043.25	-615.38	1.33	443094.85	747803.22	
18316.00	91.31	359.31	10918.27	7164.77	7138.22	-616.57	0.45	443189.82	747802.03	
18411.00	91.66	359.26	10915.81	7259.50	7233.18	-617.75	0.37	443284.78	747800.85	
18505.00	92.01	358.87	10912.80	7353.24	7327.12	-619.29	0.56	443378.72	747799.31	
18520.00	92.01	358.88	10912.27	7368.20	7342.11	-619.58	0.07	443393.71	747799.02	
18591.00	92.01	358.88	10909.78	7439.01	7413.05	-620.97	0.00	443464.65	747797.63	Last WFT MWD Svy TD@18591' MD / PTB



Ghost Rider 22-15 FED COM 206H
Lea Co., New Mexico
H&P 482

Plan vs Actual

Plan Data for Ghost Rider 22-15 Fed Com 206H

Field: Apache NM (Mad 83 NMEZ)
Map Unit: USFt Vertical Reference Datum (VRD): Mean Sea Level
Projected Coordinate System: NAD83 / New Mexico East (ftUS);

Site: Ghost Rider Pad 35
Unit: USFt TVD Reference:
Company Name: Apache Corporation
Position: Northing: 435975.48USFt Latitude: 32.196804°
Easting: 748254.18USFt Longitude: -103.664489°
North Reference: Grid Grid Convergence: 0.36°
Elevation Above VRD: 3592.00USFt
Comment: Lea Co, NM

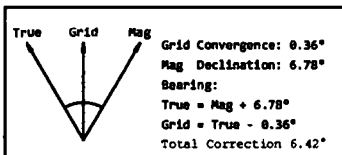
Slot: Ghost Rider 22-15 Fed Com 206H
Position:
Offset is from Site centre
+N/-S: 78.20USFt Northing: 436051.60USFt Latitude: 32.197011°
+E/-W: 164.50USFt Easting: 748418.68USFt Longitude: -103.663875°
Elevation Above VRD: 3594.00USFt

Well: Ghost Rider 22-15 Fed Com 206H
Type: Main-Well
File Number: 13841025
Plan Folder: P2 Plan: P2:V1
Vertical Section: Position offset of origin from Slot centre:
+N/-S: 0.00USFt Azimuth: 355.23°
+E/-W: 0.00USFt
Magnetic Parameters:
Model: Field Strength: Declination: Dip: Date:
Surcon IFR 47865(nT) 6.78° 59.88° 2019-07-04
Comment: H&P 482

Drawing By: Ty Norda Date: 5 July 2023
Office Name: Drilling Services - Houston
Address: 13281 Curran Road
Houston, TX 77060
Phone: Office: +1.832.955.8832 | Cell: +1.713.882.8254



KB: 3620.00
GL: 3594.00



Plan Data for Ghost Rider 22-15 Fed Com 206H

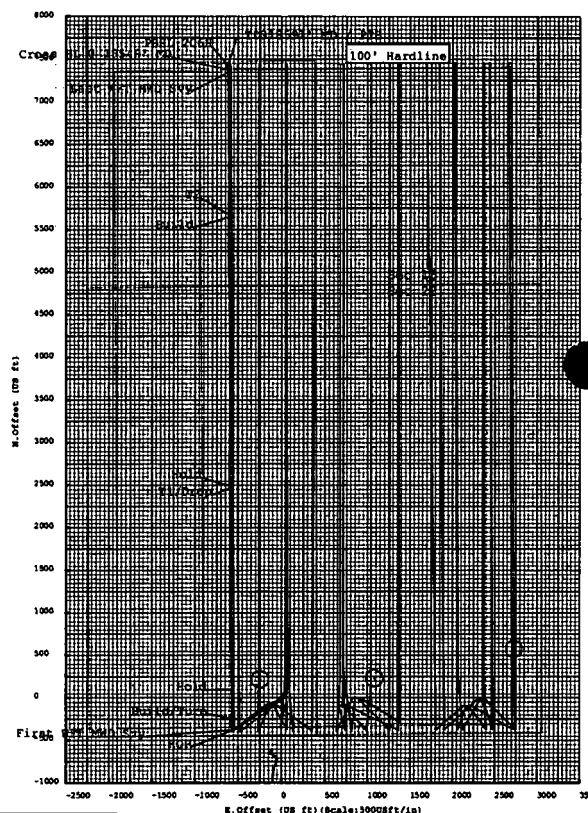
Plan Point Information:
DogLeg Severity Unit: "/100.00ft Position offsets from Slot centre

MD	Inc	Az	TVD	+N/-S	+E/-W	Northing	Easting	VSec	DLS Comments
(USFt)	(°)	(USFt)	(USFt)	(USFt)	(USFt)	(USFt)	(USFt)	(USFt)	(DLSU)
10324.00	2.55	245.43	10279.07	-383.08	-564.96	435668.52	747853.64	-334.77	0.32 Tieout VES Gyro
10490.00	2.55	245.43	10444.91	-385.15	-571.68	435665.45	747846.92	-337.28	0.00 PTB/Hold
10511.35	2.55	245.43	10466.24	-385.55	-572.54	435665.05	747846.06	-337.60	0.00 KOP
10895.78	45.00	0.65	10813.13	-246.55	-579.14	435805.05	747839.46	-197.53	12.00 Build/Turn
11270.85	90.00	359.71	10953.00	91.12	-578.55	436142.72	747840.05	138.92	12.00 Hold
13639.31	90.00	359.71	10953.00	2459.56	-590.50	438511.16	747828.10	2500.15	0.00 T1/Drop
13664.41	89.50	359.71	10953.11	2484.66	-590.63	438536.26	747827.97	2525.17	2.00 Hold
16824.05	89.50	359.71	10980.79	5644.13	-606.57	441695.73	747812.03	5675.03	0.00 Build
16849.15	90.00	359.71	10980.90	5669.23	-606.70	441720.83	747811.90	5700.05	2.00 T2
18601.24	90.00	359.71	10980.90	7421.30	-615.57	443472.90	747801.03	7446.78	0.00 PBHL 206H

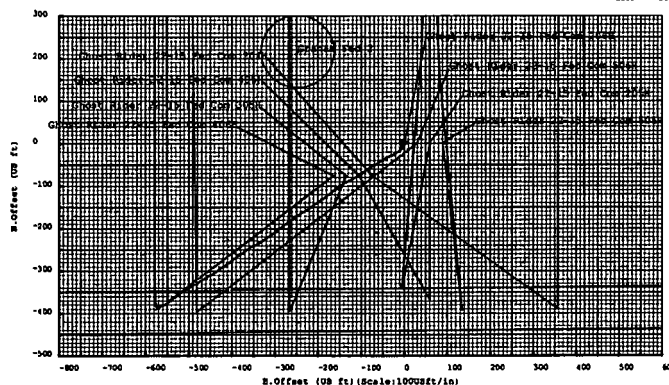
Plan Data for Ghost Rider 22-15 Fed Com 206H

Formation Point Information:

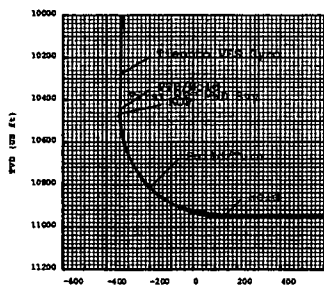
Name	TVD Elevation	MD	
(USFt)	(USFt)	(USFt)	
Rustler	1019.00	2601.00	1019.05
Salado	2349.00	1271.00	2349.13
Castile	3439.00	181.00	3439.19
Delmar	4839.00	-1219.00	4839.34
Avalon	8739.00	-5119.00	8773.26
1st BSC	9609.00	-5989.00	9650.15
1st BSS	9849.00	-6229.00	9892.37
2nd BSC	10009.00	-6389.00	10053.36
2nd BSS	10429.00	-6809.00	10474.07
3rd BSC	10929.00	-7309.00	11118.81



Plan Data for Ghost Rider 22-15 Fed Com 206H						
Target Set Information:						
Name: GR 22-15 FC 206H						
Position offsets from Slot centre						
Name	TVD	Elevation	+N/-S	+E/-W	Northing	Easting
	(USFt)	(USFt)	(USFt)	(USFt)	(USFt)	(USFt)
VP	10475.50	-6855.50	-392.00	-576.00	435659.60	747842.60
T1	10953.00	-7333.00	2459.56	-590.50	438511.16	747828.10
T2	10980.90	-7360.90	5669.23	-606.70	441720.83	747811.90
BHL/NL-Plat	10980.90	-7360.90	7373.90	-615.30	443425.50	747803.30
PBHL 206H	10980.90	-7360.90	7421.30	-615.57	443472.90	747803.03



VS (US Ft) (Bearing: 355.23° Scale: 500USFt/in)



VS (US Ft) (Bearing: 355.23° Scale: 2000USFt/in)