HORIZONTAL / VERTICAL CONTROL DATA					
POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
63	1784+62.52	107.88' LT.	556854.7204	590193.3789	34.15'
64	1800+19.50	78.87' LT.	558390.8221	590377.2921	24.42'
363	151+54.64	1.03' LT.	557434.3376	590641.7036	20.43'
364	158+62.00	68.21' LT.	558142.1516	590579.4495	23.41'

CONSTRUCTION ALIGNMENT CONTROL				
POINT	STATION	OFFSET	NORTHING	EASTING
11004	141+15.02	0.00'	556394.7416	590635.5070
	145+00.00	0.00'	556779.7080	590638.1849
	150+00.00	0.00'	557279.6959	590641.6629
	155+00.00	0.00'	557779.6838	590645.1409
11005	159+26.77	0.00'	558206.4399	590648.1094
11003	161+01.38	0.67' LT	558381.0534	590649.3241
11007	162+76.00	0.00'	558555.6282	590653.1991
	165+00.00	0.00'	558779.5778	590658.1702
11021	311+00.00	0.00'	556326.2742	590400.6166
	315+00.00	0.00'	556722.5031	590455.4134
11017	318+31.09	0.00'	557050.4700	590500.7698
11012	322+80.44	13.95' RT	557495.5845	590562.3272
11019	327+28.64	0.00'	557944.8957	590568.2953
11013	329+66.55	0.00'	558182.7883	590571.4552
11030	842+48.05	0.00'	556117.4301	589068.3509
11035	847+07.08	0.00'	556309.7394	589485.1561

SEE SHEET HV-04 FOR CURVE DATA

CONSTRUCTION ALIGNMENT CONTROL				
POINT	STATION	OFFSET	NORTHING	EASTING
11031	858+61.08	333.47' RT	556793.2018	590532.9974
11037	867+66.25	0.00'	557947.0963	590548.3230
	870+00.00	0.00'	558180.8221	590551.4273
	875+00.00	0.00'	558680.7780	590558.0675
11051	1004+94.76	11.52' LT	558563.9695	590414.6154
11056	1009+81.26	0.00'	558079.7851	590360.2533
11052	1023+68.13	364.01' LT	556701.5748	590205.5139
11058	1035+06.96	0.00'	556120.5512	588946.2206
11059	1038+95.42	0.00'	555957.8063	588593.4922
100835	1779+00.00	0.00'	556282.6514	590221.7631
	1780+00.00	0.00'	556381.6744	590235.7077
	1785+00.00	0.00'	556876.7892	590305.4311
100837	1788+25.60	0.00'	557199.2097	590350.8353
11071	1795+26.46	21.20' RT	557893.2162	590448.5671
100839	1802+25.60	0.00'	558593.9445	590461.8473

SEE SHEET HV-04 FOR CURVE DATA

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AUGUST 2015

DATUM REFERENCE:
HORIZONTAL - THIS PROJECT IS REFERENCED TO THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83-2007).
VERTICAL - THIS PROJECT IS REFERENCED TO NAVD 88 BASED ON THE FOLLOWING STATE OF DELAWARE BENCHMARK

POINT	ELEV.
JU1066	64.03

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE 0 100 200 300 FEET

US 301 & SR 1 INTERCHANGE

CONTRACT	BRIDGE NO.
T200911302	DESIGNED BY: K.A.H.
COUNTY	
NEW CASTLE	CHECKED BY: B.R.T.

HORIZONTAL AND VERTICAL CONTROL

HV-01

SHEET NO. 32

TOTAL SHTS. 491

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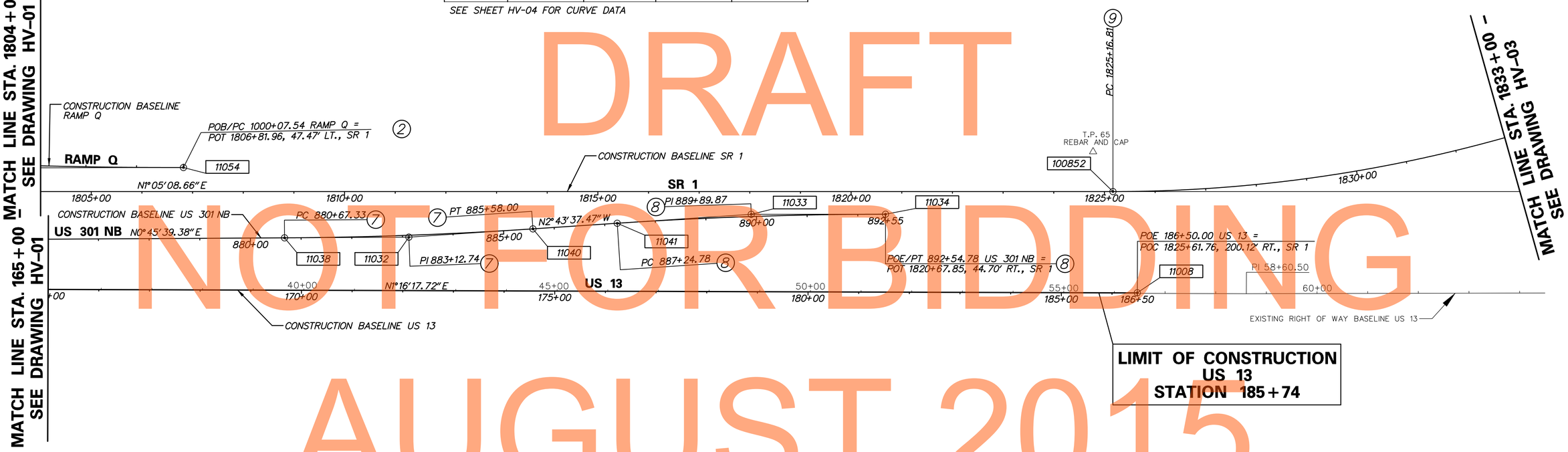
HORIZONTAL / VERTICAL CONTROL DATA					
POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
65	1824+77.58	78.66' LT.	560847.0084	590425.8688	36.48

CONSTRUCTION ALIGNMENT CONTROL				
POINT	STATION	OFFSET	NORTHING	EASTING
	165+00.00	0.00'	558779.5778	590658.1702
	170+00.00	0.00'	559279.4547	590669.2659
	175+00.00	0.00'	559779.3316	590680.3617
	180+00.00	0.00'	560279.2085	590691.4575
	185+00.00	0.00'	560779.0853	590702.5533
11008	186+50.00	0.00'	560929.0484	590705.8821
	880+00.00	0.00'	559180.7339	590564.7078
11038	880+67.33	0.00'	559248.0586	590565.6019
11032	883+12.74	3.74' RT	559493.4484	590568.8611
11040	885+58.00	0.00'	559738.5818	590557.1848
11041	887+24.78	0.00'	559905.1706	590549.2498
11033	889+89.87	4.36' LT	560169.9637	590536.6371
11034	892+54.78	0.00'	560435.0133	590541.4508
11054	1000+07.54	0.00'	559051.1235	590423.0297
	1805+00.00	0.00'	558868.2944	590467.0468
	1810+00.00	0.00'	559368.2047	590476.5211
	1815+00.00	0.00'	559868.1149	590485.9954
	1820+00.00	0.00'	560368.0251	590495.4697
	1825+00.00	0.00'	560867.9354	590504.9440
100852	1825+16.81	0.00'	560884.7432	590505.2625

SEE SHEET HV-04 FOR CURVE DATA



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AUGUST 2015

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE 0 100 200 300 FEET

US 301 & SR 1 INTERCHANGE

CONTRACT	BRIDGE NO.
T200911302	DESIGNED BY: K.A.H.
COUNTY	CHECKED BY: B.R.T.
NEW CASTLE	

HORIZONTAL AND VERTICAL CONTROL

HV-02

SHEET NO. 33

TOTAL SHTS. 491

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HORIZONTAL / VERTICAL CONTROL DATA

POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
66	1833+66.12	162.66' LT.	561679.3175	590239.7350	62.47'

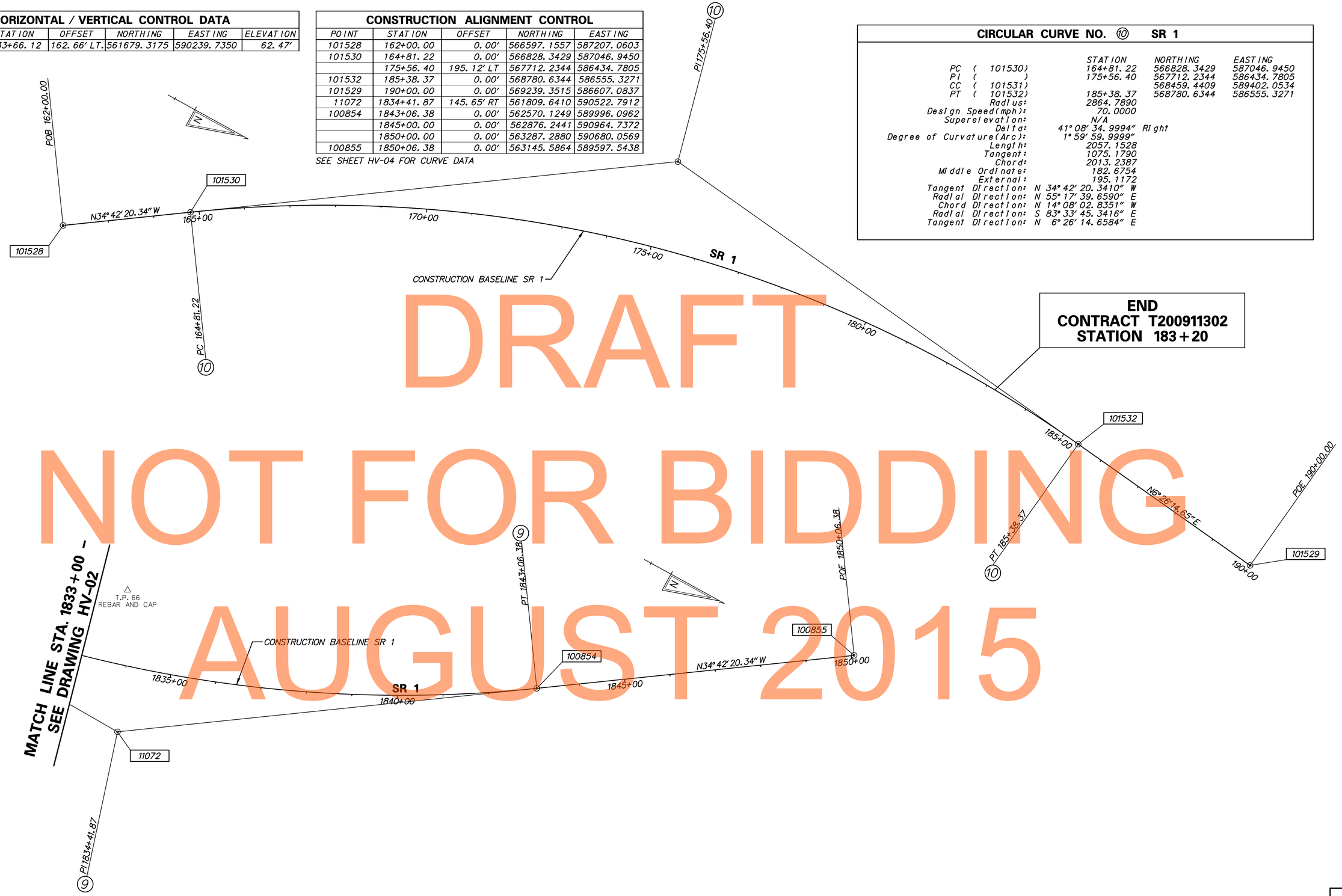
CONSTRUCTION ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
101528	162+00.00	0.00'	566597.1557	587207.0603
101530	164+81.22	0.00'	566828.3429	587046.9450
	175+56.40	195.12' LT	567712.2344	586434.7805
101532	185+38.37	0.00'	568780.6344	586555.3271
101529	190+00.00	0.00'	569239.3515	586607.0837
11072	1834+41.87	145.65' RT	561809.6410	590522.7912
100854	1843+06.38	0.00'	562570.1249	589996.0962
	1845+00.00	0.00'	562876.2441	590964.7372
	1850+00.00	0.00'	563287.2880	590680.0569
100855	1850+06.38	0.00'	563145.5864	589597.5438

SEE SHEET HV-04 FOR CURVE DATA

CIRCULAR CURVE NO. 10 SR 1

	STATION	NORTHING	EASTING
PC (101530)	164+81.22	566828.3429	587046.9450
PI ( )	175+56.40	567712.2344	586434.7805
CC (101531)		568459.4409	589402.0534
PT (101532)	185+38.37	568780.6344	586555.3271
Radius:	2864.7890		
Design Speed(mph):	70.0000		
Superelevation:	N/A		
Delta:	41° 08' 34.9994" Right		
Degree of Curvature(Arc):	1° 59' 59.9999"		
Length:	2057.1528		
Tangent:	1075.1790		
Chord:	2013.2387		
Middle Ordinate:	182.6754		
External:	195.1172		
Tangent Direction:	N 34° 42' 20.3410" W		
Radial Direction:	N 55° 17' 39.6590" E		
Chord Direction:	N 14° 08' 02.8351" W		
Radial Direction:	S 83° 33' 45.3416" E		
Tangent Direction:	N 6° 26' 14.6584" E		



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AUGUST 2015

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE
0 100 200 300
FEET

US 301 &
SR 1 INTERCHANGE

CONTRACT	BRIDGE NO.
T200911302	DESIGNED BY: K.A.H.
COUNTY	
NEW CASTLE	CHECKED BY: B.R.T.

HORIZONTAL AND
VERTICAL CONTROL

HV-03

SHEET NO.
34
TOTAL SHTS.
491

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CIRCULAR CURVE NO. 1 – US 301 NB

	STATION	NORTHING	EASTING
PC (11035)	847+07.08	556309.7394	589485.1561
PI (11031)	858+61.08	556793.2018	590532.9974
CC (11036)		557971.3996	588718.4844
PT (11037)	867+66.25	557947.0963	590548.3230

Radius:	1830.0000
Design Speed(mph):	60.0000
Superelevation:	5.6000%
Delta:	64° 28′ 15.5392″ Left
Degree of Curvature(Arc):	3° 07′ 51.3009″
Length:	2059.1726
Tangent:	1153.9962
Chord:	1952.2453
Middle Ordinate:	282.0709
External:	333.4711
Tangent Direction:	N 65° 13′ 54.9145″ E
Radial Direction:	S 24° 46′ 05.0855″ E
Chord Direction:	N 32° 59′ 47.1449″ E
Radial Direction:	S 89° 14′ 20.6248″ E
Tangent Direction:	N 0° 45′ 39.3752″ E

CIRCULAR CURVE NO. 2 – RAMP Q

	STATION	NORTHING	EASTING
PC (11054)	1000+07.54	559051.1235	590423.0297
PI (11051)	1004+94.76	558563.9695	590414.6154
CC (11055)		559229.0031	580124.5658
PCC (11056)	1009+81.26	558079.7851	590360.2533

Radius:	10300.0000
Design Speed(mph):	70.0000
Superelevation:	-3.0000%
Delta:	5° 24′ 59.5822″ Right
Degree of Curvature(Arc):	0° 33′ 22.5709″
Length:	973.7274
Tangent:	487.2266
Chord:	973.3649
Middle Ordinate:	11.5045
External:	11.5173
Tangent Direction:	S 0° 59′ 22.3423″ W
Radial Direction:	N 89° 00′ 37.6577″ W
Chord Direction:	S 3° 41′ 52.1334″ W
Radial Direction:	N 83° 35′ 38.0755″ W
Tangent Direction:	S 6° 24′ 21.9245″ W

CIRCULAR CURVE NO. 3 – RAMP Q

	STATION	NORTHING	EASTING
PCC (11056)	1009+81.26	558079.7851	590360.2533
PI (11052)	1023+68.13	556701.5748	590205.5139
CC (11057)		558354.2586	587915.6134
PT (11058)	1035+06.96	556120.5512	588946.2206

Radius:	2460.0000
Design Speed(mph):	70.0000
Superelevation:	-5.8000%
Delta:	58° 49′ 33.0402″ Right
Degree of Curvature(Arc):	2° 19′ 44.7482″
Length:	2525.6935
Tangent:	1386.8698
Chord:	2416.2131
Middle Ordinate:	317.0864
External:	364.0057
Tangent Direction:	S 6° 24′ 21.9290″ W
Radial Direction:	N 83° 35′ 38.0710″ W
Chord Direction:	S 35° 49′ 08.4491″ W
Radial Direction:	N 24° 46′ 05.0308″ W
Tangent Direction:	S 65° 13′ 54.9692″ W

CIRCULAR CURVE NO. 4 – SR 1

	STATION	NORTHING	EASTING
PC (100837)	1788+25.60	557199.2097	590350.8353
PI (11071)	1795+26.46	557893.2162	590448.5671
CC (100838)		558813.2694	578889.1895
PT (100839)	1802+25.60	558593.9445	590461.8473

Radius:	11574.7359
Design Speed(mph):	70.0000
Superelevation:	1.7000%
Delta:	6° 55′ 48.3463″ Left
Degree of Curvature(Arc):	0° 29′ 42.0260″
Length:	1399.9990
Tangent:	700.8541
Chord:	1399.1457
Middle Ordinate:	21.1603
External:	21.1991
Tangent Direction:	N 8° 00′ 57.0067″ E
Radial Direction:	S 81° 59′ 02.9933″ E
Chord Direction:	N 4° 33′ 02.8336″ E
Radial Direction:	S 88° 54′ 51.3396″ E
Tangent Direction:	N 1° 05′ 08.6604″ E

CIRCULAR CURVE NO. 5 – RAMP R

	STATION	NORTHING	EASTING
PC (11017)	318+31.09	557050.4700	590500.7698
PI (11012)	322+80.44	557495.5845	590562.3272
CC (11018)		558040.9214	583338.9330
PT (11019)	327+28.64	557944.8957	590568.2953

Radius:	7230.0000
Design Speed(mph):	50.0000
Superelevation:	-2.0000%
Delta:	7° 06′ 46.1448″ Left
Degree of Curvature(Arc):	0° 47′ 32.9019″
Length:	897.5473
Tangent:	449.3509
Chord:	896.9711
Middle Ordinate:	13.9235
External:	13.9503
Tangent Direction:	N 7° 52′ 25.7439″ E
Radial Direction:	S 82° 07′ 34.2561″ E
Chord Direction:	N 4° 19′ 02.6715″ E
Radial Direction:	S 89° 14′ 20.4010″ E
Tangent Direction:	N 0° 45′ 39.5990″ E

CIRCULAR CURVE NO. 6 – US 13

	STATION	NORTHING	EASTING
PC (11005)	159+26.77	558206.4399	590648.1094
PI (11003)	161+01.38	558381.0534	590649.3241
CC (11006)		558047.0147	613566.7550
PT (11007)	162+76.00	558555.6282	590653.1991

Radius:	22919.2000
Design Speed(mph):	65.0000
Superelevation:	NORMAL
Delta:	0° 52′ 22.9377″ Right
Degree of Curvature(Arc):	0° 14′ 59.9651″
Length:	349.2288
Tangent:	174.6178
Chord:	349.2255
Middle Ordinate:	0.6652
External:	0.6652
Tangent Direction:	N 0° 23′ 54.7825″ E
Radial Direction:	S 89° 36′ 05.2175″ E
Chord Direction:	N 0° 50′ 06.2514″ E
Radial Direction:	S 88° 43′ 42.2797″ E
Tangent Direction:	N 1° 16′ 17.7203″ E

CIRCULAR CURVE NO. 7 – US 301 NB

	STATION	NORTHING	EASTING
PC (11038)	880+67.33	559248.0586	590565.6019
PI (11032)	883+12.74	559493.4484	590568.8611
CC (11039)		559355.0993	582506.3127
PT (11040)	885+58.00	559738.5818	590557.1848

Radius:	8060.0000
Design Speed(mph):	60.0000
Superelevation:	2.0000%
Delta:	3° 29′ 16.8478″ Left
Degree of Curvature(Arc):	0° 42′ 39.1167″
Length:	490.6712
Tangent:	245.4114
Chord:	490.5954
Middle Ordinate:	3.7336
External:	3.7353
Tangent Direction:	N 0° 45′ 39.3752″ E
Radial Direction:	S 89° 14′ 20.6248″ E
Chord Direction:	N 0° 58′ 59.0486″ W
Radial Direction:	N 87° 16′ 22.5275″ E
Tangent Direction:	N 2° 43′ 37.4725″ W

CIRCULAR CURVE NO. 8 – US 301 NB

	STATION	NORTHING	EASTING
PC (11041)	887+24.78	559905.1706	590549.2498
PI (11033)	889+89.87	560169.9637	590536.6371
CC (11042)		560288.6531	598600.1219
PT (11034)	892+54.78	560435.0133	590541.4508

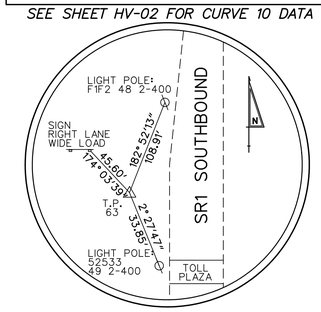
Radius:	8060.0000
Design Speed(mph):	60.0000
Superelevation:	NORMAL
Delta:	3° 46′ 03.2062″ Right
Degree of Curvature(Arc):	0° 42′ 39.1167″
Length:	529.9956
Tangent:	265.0933
Chord:	529.9001
Middle Ordinate:	4.3559
External:	4.3583
Tangent Direction:	N 2° 43′ 37.4725″ W
Radial Direction:	N 87° 16′ 22.5275″ E
Chord Direction:	N 0° 50′ 35.8694″ W
Radial Direction:	S 88° 57′ 34.2663″ E
Tangent Direction:	N 1° 02′ 25.7337″ E

CIRCULAR CURVE NO. 9 – SR 1

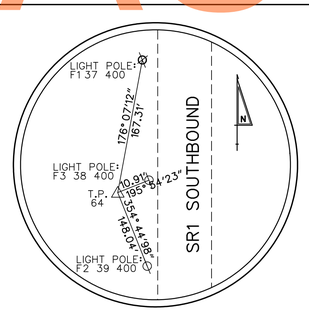
	STATION	NORTHING	EASTING
PC (100852)	1825+16.81	560884.7432	590505.2625
PI (11072)	1834+41.87	561809.6410	590522.7912
CC (100853)		560939.0269	587640.9879
PT (100854)	1843+06.38	562570.1249	589996.0962

Radius:	2864.7890
Design Speed(mph):	70.0000
Superelevation:	5.5000%
Delta:	35° 47′ 29.0019″ Left
Degree of Curvature(Arc):	2° 00′ 00.0000″
Length:	1789.5695
Tangent:	925.0639
Chord:	1760.6140
Middle Ordinate:	138.6057
External:	145.6527
Tangent Direction:	N 1° 05′ 08.6598″ E
Radial Direction:	S 88° 54′ 51.3402″ E
Chord Direction:	N 16° 48′ 35.8396″ W
Radial Direction:	N 55° 17′ 39.6579″ E
Tangent Direction:	N 34° 42′ 20.3421″ W

SEE SHEET HV-02 FOR CURVE 10 DATA



TRAVERSE POINT #63
REBAR AND CAP



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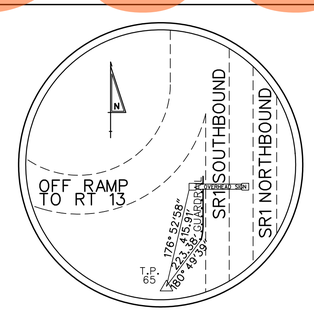

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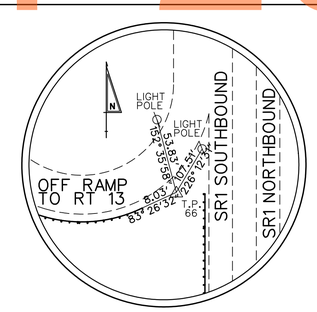

TRAVERSE POINT #66
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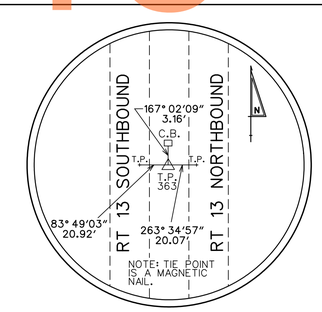
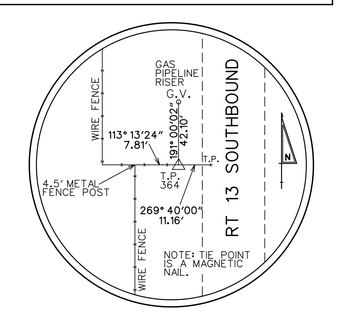


TRAVERSE POINT #363
REBAR AND CAP



TRAVERSE POINT #364
REBAR AND CAP

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AUGUST 2015

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

NOT TO SCALE

US 301 & SR 1 INTERCHANGE

CONTRACT	BRIDGE NO.
T200911302	DESIGNED BY: K.A.H.
COUNTY	
NEW CASTLE	CHECKED BY: B.R.T.

HORIZONTAL AND VERTICAL CONTROL

HV-04
SHEET NO. 35
TOTAL SHTS. 491

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