

SUPERELEVATION STANDARD

S.C. STATE HIGHWAY DEPT.
COLUMBIA

FED. ROAD DIV. NO.	STATE	COUNTY	DOCKET NO.	PROJECT NO.	NO.	SHEET NO.	TOTAL SHEETS
3	S.C.	MARION	34-309 34-310		5-332 5-331 5-320	4	57

NOTES

All curves are to be superelevated to the nearest thirty (30') minutes according to table. In any case where conditions do not permit an approach as long as shown on this sheet, the Resident Engineer is to adjust same to meet the conditions. Where unusual conditions make it desirable, superlevation may be obtained by revolving the surface about the centerline instead of the inside edge, the amount of superlevation to be the same as shown in the table. For all types of surfacing, the roadway crown shall decrease gradually from the point where superlevation begins, reaching a flat section 80ft. from the beginning SE. toward the curve. The crown in subgrade shall be eliminated to conform to the finished surfacing.

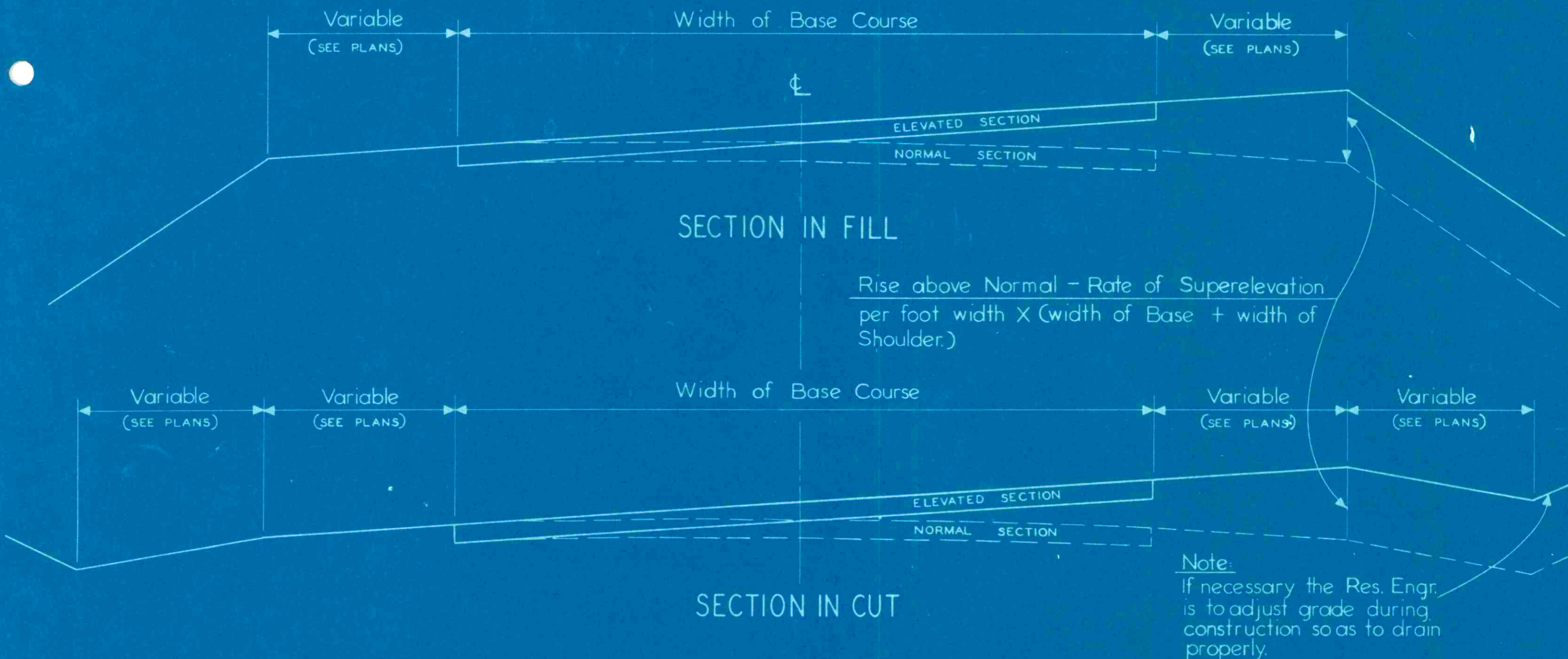
SUPERELEVATION FORMULA:

$$E = 0.067 \frac{S^2}{R}$$

E = SUPERELEVATION IN FEET

S = SPEED IN MILES PER HOUR

R = RADIUS OF CURVE IN FEET



SUPERELEVATION FOR DESIGN SPEED OF 65 M.P.H. (BASED ON S = 50 M.P.H. IN FORMULA)

SUPERELEVATION TABLE

DEGREE OF CURVE	RADIUS OF CURVE	SUPERELEV. IN FT. PER FT. WIDTH	TOTAL SUPERELEVATION - FT.			LENGTH OF APPROACH - FT.		
			21' WIDTH	23' WIDTH	25' WIDTH	21' WIDTH	23' WIDTH	25' WIDTH
0° - 30'	11 459.19	0.014	0.29	0.32	0.35	98	104	110
1° - 00'	5729.65	0.029	0.61	0.67	0.73	162	174	186
1° - 30'	3819.83	0.043	0.90	0.99	1.08	220	236	256
2° - 00'	2864.93	0.057	1.20	1.31	1.43	280	302	326
2° - 30'	2292.01	0.072	1.51	1.66	1.80	342	372	400
3° - 00'	1910.08	0.086	1.81	1.98	2.15	402	436	470
3° - 30' AND OVER			TO BE SUPERELEVATED SAME AS 3°-00'					

TABLE SHOWING AMOUNT OF SUPERELEVATION AT ANY POINT ON APPROACH TO CURVE

DISTANCE FROM BEGINNING OF SUPERELEVATION IN DIRECTION OF CURVE - FEET

21 FT. WIDTH DEGREE OF CURVE		SUPERELEVATION IN FEET																																												
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410	420			
0°-30'	0.01	0.03	0.06	0.10	0.15	0.20	0.24	0.27	0.29	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67
1°-00'	0.01	0.03	0.06	0.10	0.15	0.20	0.24	0.27	0.29	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67
1°-30'	0.01	0.03	0.06	0.10	0.15	0.20	0.24	0.27	0.29	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67
2°-00'	0.01	0.03	0.06	0.10	0.15	0.20	0.24	0.27	0.29	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67
2°-30'	0.01	0.03	0.06	0.10	0.15	0.20	0.24	0.27	0.29	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67
3°-00'	0.01	0.03	0.06	0.10	0.15	0.20	0.24	0.27	0.29	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67

23 FT. WIDTH DEGREE OF CURVE		SUPERELEVATION IN FEET																																													
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	174	180	190	200	210	220	230	238	240	250	260	270	280	290	300	302	310	320	330	340	350	360	370	372	380	390	400	410	420
0°-30'	0.01	0.03	0.06	0.10	0.15	0.20	0.24	0.27	0.29	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	
1°-00'	0.01	0.03	0.06	0.10	0.15	0.20	0.24	0.27	0.29	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	
1°-30'	0.01	0.03	0.06	0.10	0.15	0.20	0.24	0.27	0.29	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	
2°-00'	0.01	0.03	0.06	0.10	0.15	0.20	0.24	0.27	0.29	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	
2°-30'	0.01	0.03	0.06	0.10	0.15	0.20	0.24	0.27	0.29	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	
3°-00'	0.01	0.03	0.06	0.10	0.15	0.20	0.24	0.27	0.29	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	

SUPERELEVATION FOR DESIGN SPEED OF 45 M.P.H. (BASED ON S = 35 M.P.H. IN FORMULA)

SUPERELEVATION TABLE

DEGREE OF CURVE	RADIUS OF CURVE	SUPERELEV. IN FT. PER FT. WIDTH	TOTAL SUPERELEVATION - FT.			LENGTH OF APPROACH - FT.		
			19' WIDTH	21' WIDTH	23' WIDTH	19' WIDTH	21' WIDTH	23' WIDTH
1° - 00'	5729.65	0.014	0.27	0.29	0.32	94	98	104
1° - 30'	3819.83	0.021	0.40	0.44	0.48	120	126	136
2° - 00'	2864.93	0.029	0.55	0.61	0.67	150	162	174
2° - 30'	2292.01	0.036	0.68	0.76	0.83	176	192	206
3° - 00'	1910.08	0.043	0.82	0.90	0.99	204	220	238
3° - 30'	1637.26	0.050	0.95	1.05	1.15	230	250	270
4° - 00'	1432.69	0.057	1.08	1.20	1.31	256	280	302
4° - 30'	1273.57	0.065	1.24	1.37	1.50	288	314	340
5° - 00'	1146.28	0.072	1.37	1.51	1.66	314	342	372
5° - 30'	1042.14	0.079	1.50	1.66	1.82	340	372	404
6° - 00'	955.37	0.086	1.63	1.81	1.98	366	402	436
6° - 30' AND OVER			TO BE SUPERELEVATED SAME AS 6°-00'					

TABLE SHOWING AMOUNT OF SUPERELEVATION AT ANY POINT ON APPROACH TO CURVE

DISTANCE FROM BEGINNING OF SUPERELEVATION IN DIRECTION OF CURVE - FEET

		ELEVATION IN DIRECTION OF CURVE - FEET																																																																			
		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410	420																										
21 FT. WIDTH	DEGREE OF CURVE	1°-00'	01	03	06	10	15	20	24	27	28	29																																																									
	1°-30'	01	03	06	10	15	20	25	30	35	—	39	42	43	44																																																						
	2°-00'	01	03	06	10	15	20	25	30	35	—	40	45	50	—	55	58	60	61	61																																																	
	2°-30'	01	03	06	10	15	20	25	30	35	—	41	46	51	—	56	60	65	70	—	73	75	76	76																																													
	3°-00'	01	03	06	10	15	20	25	30	35	—	42	47	52	—	57	61	66	71	—	75	80	84	—	87	89	90																																										
	3°-30'	01	03	06	10	15	20	25	30	35	—	43	48	53	—	58	62	67	72	—	76	81	85	—	90	95	99	102	104	105																																							
	4°-00'	01	03	06	10	15	20	25	30	35	—	44	49	54	—	59	63	68	73	—	77	82	86	—	91	96	100	105	110	114	117	119	120																																				
	4°-30'	01	03	06	10	15	20	25	30	35	—	45	50	55	—	60	64	69	74	—	78	83	87	—	92	97	101	106	111	115	120	125	130	133	136	137																																	
23 FT. WIDTH	DEGREE OF CURVE	1°-00'	01	03	06	10	15	20	24	27	29	31	32																																																								
	1°-30'	01	03	06	10	15	20	25	30	35	40	—	44	46	47	48																																																					
	2°-00'	01	03	06	10	15	20	25	30	35	40	—	45	50	55	—	60	63	66	67	67																																																
	2°-30'	01	03	06	10	15	20	25	30	35	40	—	46	51	56	—	61	65	70	75	—	79	81	83	83																																												
	3°-00'	01	03	06	10	15	20	25	30	35	40	—	47	52	57	—	62	66	71	76	—	80	85	89	—	94	97	98	99																																								
	3°-30'	01	03	06	10	15	20	25	30	35	40	—	48	53	58	—	63	67	72	77	—	81	86	90	—	95	100	105	—	109	112	114	115																																				
	4°-00'	01	03	06	10	15	20	25	30	35	40	—	49	54	59	—	64	68	73	78	—	82	87	91	—	96	101	106	—	110	115	120	125	126	130	131	131																																
	4°-30'	01	03	06	10	15	20	25	30	35	40	—	50	55	60	—	65	69	74	79	—	83	88	92	—	97	102	107	—	111	116	121	126	131	135	140	—	144	147	149	150																												
25 FT. WIDTH	DEGREE OF CURVE	1°-00'	01	03	06	10	15	20	24	27	29	31	32																																																								
	1°-30'	01	03	06	10	15	20	25	30	35	40	—	44	46	47	48																																																					
	2°-00'	01	03	06	10	15	20	25	30	35	40	—	45	50	55	—	60	63	66	67	67																																																
	2°-30'	01	03	06	10	15	20	25	30	35	40	—	46	51	56	—	61	65	70	75	—	79	81	83	83																																												
	3°-00'	01	03	06	10	15	20	25	30	35	40	—	47	52	57	—	62	66	71	76	—	80	85	89	—	94	97	98	99																																								
	3°-30'	01	03	06	10	15	20	25	30	35	40	—	48	53	58	—	63	67	72	77	—	81	86	90	—	95	100	105	—	109	112	114	115																																				
	4°-00'	01	03	06	10	15	20	25	30	35	40	—	49	54	59	—	64	68	73	78	—	82	87	91	—	96	101	106	—	110	115	120	125	126	130	131	131																																
	4°-30'	01	03	06	10	15	20	25	30	35	40	—	50	55	60	—	65	69	74	79	—	83	88	92	—	97	102	107	—	111	116	121	126	131	135	140	—	144	147	149	150																												
27 FT. WIDTH	DEGREE OF CURVE	1°-00'	01	03	06	10	15	20	24	27	29	31	32																																																								
	1°-30'	01	03	06	10	15	20	25	30	35	40	—	44	46	47	48																																																					
	2°-00'	01	03	06	10	15	20	25	30	35	40	—	45	50	55	—	60	63	66	67	67																																																
	2°-30'	01	03	06	10	15	20	25	30	35	40	—	46	51	56	—	61	65	70	75	—	79	81	83	83																																												
	3°-00'	01	03	06	10	15	20	25	30	35	40	—	47	52	57	—	62	66	71	76	—	80	85	89	—	94	97	98	99																																								
	3°-30'	01	03	06	10	15	20	25	30	35	40	—	48	53	58	—	63	67	72	77	—	81	86	90	—	95	100	105	—	109	112	114	115																																				
	4°-00'	01	03	06	10	15	20	25	30	35	40	—	49	54	59	—	64	68	73	78	—	82	87	91	—	96	101	106	—	110	115	120	125	126	130	131	131																																
	4°-30'	01	03	06	10	15	20	25	30	35	40	—	50	55	60	—	65	69	74	79	—	83	88	92	—	97	102	107	—	111	116	121	126	131	135	140	—	144	147	149	150																												
29 FT. WIDTH	DEGREE OF CURVE	1°-00'	01	03	06	10	15	20	24	27	29	31	32																																																								
	1°-30'	01	03	06	10	15	20	25	30	35	40	—	44	46	47	48																																																					
	2°-00'	01	03	06	10	15	20	25	30	35	40	—	45	50	55	—	60	63	66	67	67																																																
	2°-30'	01	03	06	10	15	20	25	30	35	40	—	46	51	56	—	61	65	70	75	—	79	81	83	83																																												
	3°-00'	01	03	06	10	15	20	25	30	35	40	—	47	52	57	—	62	66	71	76	—	80	85	89	—	94	97	98	99																																								
	3°-30'	01	03	06	10	15	20	25	30	35	40	—	48	53	58	—	63	67	72	77	—	81	86	90	—	95	100	105	—	109	112	114	115																																				
	4°-00'	01	03	06	10	15	20	25	30	35	40	—	49	54	59	—	64	68	73	78	—	82	87	91	—	96	101	106	—	110	115	120	125	126	130	131	131																																
	4°-30'	01	03	06	10	15	20	25	30	35	40	—	50	55	60	—	65	69	74	79	—	83	88	92	—	97	102	107	—	111	116	121	126	131	135	140	—	144	147	149	150																												
33 FT. WIDTH	DEGREE OF CURVE	1°-00'	01	03	06	10	15	20	24	27	29	31	32																																																								
	1°-30'	01	03	06	10	15	20	25	30	35	40	—	44	46	47	48																																																					
	2°-00'	01	03	06	10	15	20	25	30	35	40	—	45	50	55	—	60	63	66	67	67																																																
	2°-30'	01	03	06	10	15	20	25	30	35	40	—	46	51	56	—	61	65	70	75	—	79	81	83	83																																												
	3°-00'	01	03	06	10	15	20	25	30	35	40	—	47	52	57	—	62	66	71	76	—	80	85	89	—	94	97	98	99																																								
	3°-30'	01	03	06	10	15	20	25	30	35	40	—	48	53	58	—	63	67	72	77	—	81	86	90	—	95	100	105	—	109	112	114	115																																				
	4°-00'	01	03	06	10	15	20	25	30	35	40	—	49	54	59	—	64	68	73	78	—	82	87	91	—	96	101	106	—	110	115	120	125	126	130	131	131																																
	4°-30'	01	03	06	10	15	20	25	30	35	40	—	50	55	60	—	65	69	74	79	—	83	88	92	—	97	102	107	—	111	116	121	126	131	135	140	—	144	147	149	150																												
39 FT. WIDTH	DEGREE OF CURVE	1°-00'	01	03	06	10	15	20	24	27	29	31	32																																																								
	1°-30'	01	03	06	10	15	20	25	30	35	40	—	44	46	47	48																																																					
	2°-00'	01	03	06	10	15	20	25	30	35	40	—	45	50	55	—	60	63	66	67	67																																																
	2°-30'	01	03	06	10	15	20	25	30	35	40	—	46	51	56	—	61	65	70	75	—	79	81	83	83																																												
	3°-00'	01	03	06	10	15	20	25	30	35	40	—	47	52	57	—	62	66	71	76	—	80	85	89	—	94	97	98	99																																								
	3°-30'	01	03	06	10	15	20	25	30	35	40	—	48	53	58	—	63	67	72	77	—	81	86	90	—	95	100	105	—	109	112	114	115																																				
	4°-00'	01	03	06	10	15	20	25	30	35	40	—	49	54	59	—	64	68	73	78	—	82	87	91	—	96	101	106	—	110	115	120	125	126	130	131	131																																
	4°-30'	01	03	06	10	15	20	25	30	35	40	—	50	55	60	—	65	69	74	79	—	83	88	92	—	97	102	107	—	111	116	121	126	131	135	140	—	144	147	149	150																												
49 FT. WIDTH	DEGREE OF CURVE	1°-00'	01	03	06	10	15	20	24	27	29	31	32																																																								
	1°-30'	01	03	06	10	15	20	25	30	35	40	—	44	46	47	48																																																					
	2°-00'	01	03	06	10	15	20	25	30	35	40	—	45	50	55	—	60	63	66	67	67																																																
	2°-30'	01	03	06	10	15	20	25	30	35	40	—	46	51	56	—	61	65	70	75	—	79	81	83	83																																												
	3°-00'	01	03	06	10	1																																																															

