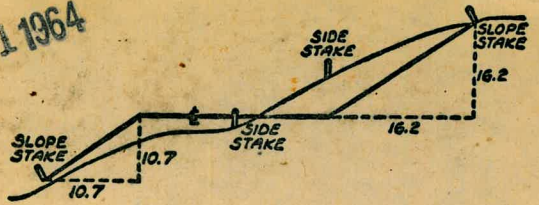


2071

EMERSON

MICROFILMED
DEC 31 1964



9.5
29.5
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40.0

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING
SLOPE 1 TO 1. ROADWAY OF ANY WIDTH

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	0
1	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	1
2	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	2
3	3.00	3.10	3.20	3.30	3.40	3.50	3.60	3.70	3.80	3.90	3
4	4.00	4.10	4.20	4.30	4.40	4.50	4.60	4.70	4.80	4.90	4
5	5.00	5.10	5.20	5.30	5.40	5.50	5.60	5.70	5.80	5.90	5
6	6.00	6.10	6.20	6.30	6.40	6.50	6.60	6.70	6.80	6.90	6
7	7.00	7.10	7.20	7.30	7.40	7.50	7.60	7.70	7.80	7.90	7
8	8.00	8.10	8.20	8.30	8.40	8.50	8.60	8.70	8.80	8.90	8
9	9.00	9.10	9.20	9.30	9.40	9.50	9.60	9.70	9.80	9.90	9
10	10.00	10.10	10.20	10.30	10.40	10.50	10.60	10.70	10.80	10.90	10
11	11.00	11.10	11.20	11.30	11.40	11.50	11.60	11.70	11.80	11.90	11
12	12.00	12.10	12.20	12.30	12.40	12.50	12.60	12.70	12.80	12.90	12
13	13.00	13.10	13.20	13.30	13.40	13.50	13.60	13.70	13.80	13.90	13
14	14.00	14.10	14.20	14.30	14.40	14.50	14.60	14.70	14.80	14.90	14
15	15.00	15.10	15.20	15.30	15.40	15.50	15.60	15.70	15.80	15.90	15
16	16.00	16.10	16.20	16.30	16.40	16.50	16.60	16.70	16.80	16.90	16
17	17.00	17.10	17.20	17.30	17.40	17.50	17.60	17.70	17.80	17.90	17
18	18.00	18.10	18.20	18.30	18.40	18.50	18.60	18.70	18.80	18.90	18
19	19.00	19.10	19.20	19.30	19.40	19.50	19.60	19.70	19.80	19.90	19
20	20.00	20.10	20.20	20.30	20.40	20.50	20.60	20.70	20.80	20.90	20
21	21.00	21.10	21.20	21.30	21.40	21.50	21.60	21.70	21.80	21.90	21
22	22.00	22.10	22.20	22.30	22.40	22.50	22.60	22.70	22.80	22.90	22
23	23.00	23.10	23.20	23.30	23.40	23.50	23.60	23.70	23.80	23.90	23
24	24.00	24.10	24.20	24.30	24.40	24.50	24.60	24.70	24.80	24.90	24
25	25.00	25.10	25.20	25.30	25.40	25.50	25.60	25.70	25.80	25.90	25
26	26.00	26.10	26.20	26.30	26.40	26.50	26.60	26.70	26.80	26.90	26
27	27.00	27.10	27.20	27.30	27.40	27.50	27.60	27.70	27.80	27.90	27
28	28.00	28.10	28.20	28.30	28.40	28.50	28.60	28.70	28.80	28.90	28
29	29.00	29.10	29.20	29.30	29.40	29.50	29.60	29.70	29.80	29.90	29
30	30.00	30.10	30.20	30.30	30.40	30.50	30.60	30.70	30.80	30.90	30
31	31.00	31.10	31.20	31.30	31.40	31.50	31.60	31.70	31.80	31.90	31
32	32.00	32.10	32.20	32.30	32.40	32.50	32.60	32.70	32.80	32.90	32
33	33.00	33.10	33.20	33.30	33.40	33.50	33.60	33.70	33.80	33.90	33
34	34.00	34.10	34.20	34.30	34.40	34.50	34.60	34.70	34.80	34.90	34
35	35.00	35.10	35.20	35.30	35.40	35.50	35.60	35.70	35.80	35.90	35
36	36.00	36.10	36.20	36.30	36.40	36.50	36.60	36.70	36.80	36.90	36
37	37.00	37.10	37.20	37.30	37.40	37.50	37.60	37.70	37.80	37.90	37
38	38.00	38.10	38.20	38.30	38.40	38.50	38.60	38.70	38.80	38.90	38
39	39.00	39.10	39.20	39.30	39.40	39.50	39.60	39.70	39.80	39.90	39
40	40.00	40.10	40.20	40.30	40.40	40.50	40.60	40.70	40.80	40.90	40
41	41.00	41.10	41.20	41.30	41.40	41.50	41.60	41.70	41.80	41.90	41
42	42.00	42.10	42.20	42.30	42.40	42.50	42.60	42.70	42.80	42.90	42
43	43.00	43.10	43.20	43.30	43.40	43.50	43.60	43.70	43.80	43.90	43
44	44.00	44.10	44.20	44.30	44.40	44.50	44.60	44.70	44.80	44.90	44
45	45.00	45.10	45.20	45.30	45.40	45.50	45.60	45.70	45.80	45.90	45
46	46.00	46.10	46.20	46.30	46.40	46.50	46.60	46.70	46.80	46.90	46
47	47.00	47.10	47.20	47.30	47.40	47.50	47.60	47.70	47.80	47.90	47
48	48.00	48.10	48.20	48.30	48.40	48.50	48.60	48.70	48.80	48.90	48
49	49.00	49.10	49.20	49.30	49.40	49.50	49.60	49.70	49.80	49.90	49
50	50.00	50.10	50.20	50.30	50.40	50.50	50.60	50.70	50.80	50.90	50

INDEXED

Distance of slope stake from side or shoulder stake for any width roadway, slope 1 to 1. If ground is nearly level, the cut or fill at side stake is located by the double entry method in left column and top row. The number in body of table in same row and column gives distance from side stake to slope stake. If ground is not level estimate the difference in elevation between the side stake and slope stake, lower target by this amount if cut, elevate if fill. Add this amount to cut or fill and find distance in table. Set up rod at this point, and line of sight should cut target. If it does not make the slight adjustment necessary.

DIRECTIONS FOR USE OF TABLES

TABLE No. XIV

Distance of slope stake from side or shoulder stake for any width roadway, slope $1\frac{1}{2}$ to 1. If ground is nearly level, the cut or fill at side stake is located by the double entry method in left column and top row. The number in body of table in same row and column gives distance from side stake to slope stake. If ground is not level estimate the difference in elevation between the side stake and slope stake, lower target by this amount if cut, elevate if fill. Add this amount to cut or fill and find distance in table. Set up rod at this point, and line of sight should cut target. If it does not make the slight adjustment necessary.

TABLE No. VIII

To find Tangent and External for curve of any other degree, divide by degree of curve and add correction found in column of corrections. Degree of curve with a given I may be found by dividing tangent, (or external), opposite I by given tangent, (or external).

The distance from a point on the tangent to the curve is very nearly the square of the tangent length divided by twice the radius.

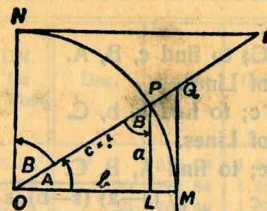


TABLE II
TRIGONOMETRIC FORMULÆ.

$$\angle A = \angle MOP \quad \angle B = \angle PON = \angle OPL$$

$$R = OB = c = 1$$

$$\sin A = \frac{a}{c} = \frac{a}{1} = a = \text{cos } B = LP$$

$$\text{cos } A = \frac{b}{c} = \frac{b}{1} = b = \text{sin } B = OL$$

$$\tan A = \frac{a}{b} = \frac{MQ}{OM} = \frac{MQ}{1} = MQ = \cot B = MQ$$

$$\cot A = \frac{NT}{ON} = \frac{NT}{1} = NT = \tan B = NT$$

$$\sec A = \frac{OQ}{OM} = \frac{OQ}{1} = OQ = \text{csc } B = OQ$$

$$\text{csc } A = \frac{OT}{ON} = \frac{OT}{1} = OT = \sec B = OT$$

$$\text{vers } A = \frac{LM}{OP} = LM = \text{covers } B = \text{vers } B$$

$$\text{covers } A = \frac{OP-LP}{OP} = OP-LP = \text{vers } B$$

$$\text{exsec } A = PQ = \text{coexsec } B$$

$$\text{coexsec } A = PT = \text{exsec } B$$

$$\sin \frac{1}{2} A = \sqrt{\frac{1-\text{Cos } A}{2}} \quad \cos \frac{1}{2} A = \sqrt{\frac{1+\text{Cos } A}{2}}$$

$$\sin 2 A = 2 \sin A \cos A \quad \cos 2 A = \cos^2 A - \sin^2 A$$

$$\text{Law of Lines} \quad \frac{\sin A}{a} = \frac{\sin B}{B} = \frac{\sin C}{C}$$

$$\text{Law of Cosines} \quad c^2 = a^2 + b^2 - 2 ab \cos C$$

$$\text{Law of Tangents} \quad \frac{a+b}{a-b} = \frac{\tan \frac{1}{2} (A+B)}{\tan \frac{1}{2} (A-B)}$$

TABLE II — Continued
TRIGONOMETRIC FORMULÆ (continued)

in any triangle:

Given a, b, C; to find c, B, A.

Use Law of Lines.

Given A, B, c; to find a, b, C.

Use Law of Lines.

Given a, b, c; to find A, B, C.

$$\text{Let } \frac{a+b+c}{2} = s, \sqrt{\frac{(s-a)(s-b)(s-c)}{s}} = r$$

$$\cos \frac{1}{2} A = \sqrt{\frac{s(s-a)}{bc}}$$

$$\tan \frac{1}{2} A = \frac{r}{s-a}$$

$$\tan \frac{1}{2} B = \frac{r}{s-b}$$

$$\tan \frac{1}{2} C = \frac{r}{s-c}$$

Area of a triangle:

$$\text{Area} = \frac{1}{2} ab \sin C$$

$$\text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$$

PRISMOIDAL FORMULA.

$$\text{Vol.} = \frac{h}{6} (B+b+4M)$$

h = altitude; b, B = bases; M = midsection

TABLE III
INCHES AND FRACTIONS OF AN INCH IN DECIMALS OF A FOOT

	0	1	2	3	4	5	6	7	8	9	10	11	
$\frac{1}{16}$	.0052	.0885	.1719	.2552	.3385	.4219	.5052	.5885	.6719	.7552	.8385	.9219	$\frac{1}{16}$
$\frac{1}{8}$	.0104	.0938	.1771	.2604	.3438	.4271	.5104	.5938	.6771	.7604	.8438	.9271	$\frac{1}{8}$
$\frac{3}{16}$	.0156	.0990	.1823	.2656	.3490	.4323	.5156	.5990	.6823	.7656	.8490	.9323	$\frac{3}{16}$
$\frac{1}{4}$	.0208	.1042	.1875	.2708	.3542	.4375	.5208	.6042	.6875	.7708	.8542	.9375	$\frac{1}{4}$
$\frac{5}{16}$	.0260	.1094	.1927	.2760	.3594	.4427	.5260	.6094	.6927	.7760	.8594	.9427	$\frac{5}{16}$
$\frac{3}{8}$	.0313	.1146	.1979	.2813	.3646	.4479	.5313	.6146	.6979	.7813	.8646	.9479	$\frac{3}{8}$
$\frac{7}{16}$	.0365	.1198	.2031	.2865	.3698	.4531	.5365	.6198	.7031	.7865	.8698	.9531	$\frac{7}{16}$
$\frac{1}{2}$	.0417	.1250	.2083	.2917	.3750	.4583	.5417	.6250	.7083	.7917	.8750	.9583	$\frac{1}{2}$
$\frac{9}{16}$	.0469	.1302	.2135	.2969	.3803	.4635	.5469	.6302	.7135	.7969	.8802	.9635	$\frac{9}{16}$
$\frac{5}{8}$	.0521	.1354	.2188	.3021	.3854	.4688	.5521	.6354	.7188	.8021	.8854	.9688	$\frac{5}{8}$
$\frac{11}{16}$	.0573	.1406	.2240	.3073	.3906	.4740	.5573	.6406	.7240	.8073	.8906	.9740	$\frac{11}{16}$
$\frac{3}{4}$	.0625	.1458	.2292	.3125	.3958	.4792	.5625	.6458	.7292	.8125	.8958	.9792	$\frac{3}{4}$
$\frac{13}{16}$	.0677	.1510	.2344	.3177	.4010	.4844	.5677	.6510	.7344	.8177	.9010	.9844	$\frac{13}{16}$
$\frac{7}{8}$	.0729	.1563	.2396	.3229	.4063	.4896	.5729	.6563	.7396	.8229	.9063	.9896	$\frac{7}{8}$
$\frac{15}{16}$	.0781	.1615	.2448	.3281	.4115	.4948	.5781	.6615	.7448	.8281	.9115	.9948	$\frac{15}{16}$
1	.0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167	1.000	1

TABLE IV — RADII, ORDINATES AND DEFLECTIONS

Deg.	Radius	Mid. Ord.	Tan. Offset	Def. for 1 Foot	Deg.	Radius	Mid. Ord.	Tan. Offset	Def. for 1 Foot
0° 10'	34377.5	.036	.145	0.05'	7°	819.02	1.528	6.105	2.10'
20	17188.8	.073	.291	0.10	20'	781.84	1.600	6.395	2.20
30	11459.2	.109	.436	0.15	30	764.49	1.637	6.540	2.25
40	8594.42	.145	.582	0.20	40	747.89	1.673	6.685	2.30
50	6875.55	.182	.727	0.25					
1	5729.65	.218	.873	0.30	8	716.78	1.746	6.976	2.40
10	4911.15	.255	1.018	0.35	20	688.16	1.819	7.266	2.50
20	4297.28	.291	1.164	0.40	30	674.69	1.855	7.411	2.55
30	3819.83	.327	1.309	0.45	40	661.74	1.892	7.556	2.60
40	3437.87	.364	1.454	0.50					
50	3125.36	.400	1.600	0.55	9	637.28	1.965	7.846	2.70
2	2864.93	.436	1.745	0.60	20	614.56	2.037	8.136	2.80
10	2644.58	.473	1.891	0.65	30	603.80	2.074	8.281	2.85
20	2455.70	.509	2.036	0.70	40	593.42	2.110	8.426	2.90
30	2292.01	.545	2.181	0.75					
40	2148.79	.582	2.327	0.80	10	573.69	2.183	8.716	3.00
50	2022.41	.618	2.472	0.85	30	546.44	2.292	9.150	3.15
3	1910.08	.655	2.618	0.90	40	521.67	2.402	9.585	3.30
10	1709.57	.691	2.763	0.95	30	499.06	2.511	10.02	3.45
20	1719.12	.727	2.908	1.00	40	478.34	2.620	10.45	3.60
30	1637.28	.764	3.054	1.05	10	459.28	2.730	10.89	3.75
40	1562.88	.800	3.199	1.10	30	441.68	2.839	11.32	3.90
50	1494.95	.836	3.345	1.15	40	425.40	2.949	11.75	4.05
4	1432.69	.873	3.490	1.20	10	410.28	3.058	12.18	4.20
10	1375.40	.909	3.635	1.25	30	396.20	3.168	12.62	4.35
20	1322.53	.945	3.718	1.30					
30	1273.57	.982	3.926	1.35	15	383.07	3.277	13.05	4.50
40	1228.11	1.018	4.071	1.40	30	370.78	3.387	13.49	4.65
50	1185.78	1.055	4.217	1.45	40	359.27	3.496	13.92	4.80
5	1146.28	1.091	4.362	1.50	10	348.45	3.606	14.35	4.95
10	1109.33	1.127	4.507	1.55	30	338.27	3.716	14.78	5.10
20	1074.68	1.164	4.653	1.60	40	319.62	3.935	15.64	5.40
30	1042.14	1.200	4.798	1.65	10	302.94	4.155	16.51	5.70
40	1011.51	1.237	4.943	1.70					
50	982.64	1.273	5.088	1.75	20	287.94	4.374	17.37	6.00
6	955.37	1.309	5.234	1.80	30	274.37	4.594	18.22	6.30
10	929.57	1.346	5.379	1.85	40	262.04	4.814	19.08	6.60
20	905.13	1.382	5.524	1.90	10	250.79	5.035	19.94	6.90
30	881.95	1.418	5.669	1.95	20	240.49	5.255	20.79	7.20
40	859.92	1.455	5.814	2.00					
					25	231.01	5.476	21.64	7.50
					30	222.27	5.697	22.50	7.80
					35	214.18	5.918	23.35	8.10
					40	206.68	6.139	24.19	8.40
					45	199.70	6.360	25.04	8.70
					50	193.18	6.583	25.88	9.00

Note. Chord Deflection = 2 times tangent deflection.

TABLE VI (continued)
SINES, COSINES, TANGENTS, COTANGENTS (continued)

deg.	sin 0'	tan 0'	sin 10'	tan 10'	sin 20'	tan 20'	sin 30'	tan 30'	sin 40'	tan 40'	sin 50'	tan 50'	deg.
46	7193	1.0355	7214	1.0416	7234	1.0477	7254	1.0533	7274	1.0599	7294	1.0661	43
47	314	.0724	333	.0786	353	.0850	373	.0913	392	.0977	412	.1041	42
48	431	.1106	451	.1171	470	.1237	490	.1303	509	.1369	528	.1436	41
49	547	.1504	566	.1571	585	.1640	604	.1708	623	.1778	642	.1847	40
50	660	1.1918	7679	1.1988	7698	1.2059	7716	1.2131	7735	1.2203	7753	1.2276	39
51	771	.2349	790	.2423	808	.2497	826	.2572	844	.2647	862	.2723	38
52	880	.2799	898	.2876	916	.2954	934	.3032	951	.3111	969	.3190	37
53	986	.3270	8004	.3351	8021	.3432	8039	.3514	8056	.3597	8073	.3680	36
54	8090	.3764	107	.3848	124	.3934	141	.4019	158	.4106	175	.4193	35
55	192	.4281	208	.4370	225	.4460	241	.4550	258	.4641	274	.4733	34
56	290	.4826	307	.4919	323	.5013	339	.5108	355	.5204	371	.5301	33
57	387	.5399	403	.5497	418	.5597	434	.5697	450	.5798	465	.5900	32
58	480	.6003	496	.6107	511	.6212	526	.6319	542	.6426	557	.6534	31
59	572	.6643	587	.6753	601	.6864	616	.6977	631	.7090	646	.7205	30
60	660	1.7321	8675	1.7437	8689	1.7556	8704	1.7675	8718	1.7797	8732	1.7917	29
61	746	.8040	760	.8165	774	.8291	788	.8418	802	.8546	816	.8676	28
62	829	.8807	843	.8940	857	.9074	870	.9210	884	.9347	897	.9486	27
63	910	.9626	923	.9768	936	.9912	949	2.0057	962	2.0204	975	2.0353	26
64	988	2.0503	9001	2.0655	9013	2.0809	9026	.0965	9038	.1123	9051	.1283	25
65	9063	.1445	075	.1609	088	.1775	100	.1943	112	.2113	124	.2286	24
66	135	.2460	147	.2637	159	.2817	171	.2998	182	.3183	194	.3369	23
67	205	.3559	216	.3750	228	.3945	239	.4142	250	.4342	261	.4545	22
68	272	.4751	283	.4960	293	.5172	304	.5386	315	.5605	325	.5826	21
69	336	.6051	346	.6279	356	.6511	367	.6746	377	.6985	387	.7228	20
70	397	2.7475	9407	2.7725	9417	2.7980	9426	2.8239	9436	2.8502	9446	2.8770	19
71	455	.9042	465	.9319	474	.9600	483	.9887	492	3.0178	502	3.0475	18
72	511	3.0777	520	3.1084	528	3.1397	537	3.1716	546	.2041	555	.2371	17
73	563	.2709	572	.3052	580	.3402	588	.3759	596	.4124	605	.4495	16
74	613	.4874	621	.5261	628	.5656	636	.6059	644	.6470	652	.6891	15
75	659	.7321	667	.7760	674	.8208	681	.8657	689	.9136	696	.9617	14
76	703	4.0108	710	4.0611	717	4.1126	724	4.1653	730	4.2193	737	4.2747	13
77	744	.3315	750	.3897	757	.4494	763	.5107	769	.5736	775	.6382	12
78	781	.7046	787	.7729	793	.8430	799	.9152	805	.9894	811	5.0658	11
79	816	.1446	822	5.2257	827	5.3093	833	5.3955	838	5.4845	843	.5764	10
80	9848	5.6713	9853	5.7694	9858	5.8708	9863	5.9758	9868	6.0844	9872	6.1970	9
81	877	6.3138	881	6.4348	886	6.5606	890	6.6912	894	.8269	899	.9682	8
82	903	7.1154	907	7.2687	911	7.4287	914	7.5958	918	7.7704	932	7.9530	7
83	925	8.1443	929	8.3450	932	8.5555	936	8.7769	939	9.0098	942	9.2553	6
84	945	9.5144	948	9.7882	951	10.078	954	10.385	957	10.711	959	11.059	5
85	962	11.430	964	11.826	967	12.250	969	12.706	971	13.197	974	13.727	4
86	976	14.300	978	14.924	980	15.605	981	16.350	983	17.169	985	18.075	3
87	986	19.081	988	20.206	989	21.470	990	22.903	992	24.542	993	26.432	2
88	994	28.636	995	31.242	996	34.368	997	38.189	997	42.964	998	49.104	1
89	9998	57.290	9999	68.750	9999	85.940	9999	114.58	1.000	171.88	1.000	343.77	0
deg.	60'	60'	50'	50'	40'	40'	30'	30'	20'	20'	10'	10'	deg.
	cos	cot	cos	cot	cos	cot	cos	cot	cos	cot	cos	cot	

TABLE VII Deflections for Sub Chords for Short Radius Curves.

Degree of Curve	Radius 50	$\frac{1}{2}$ sub chord = sin of $\frac{1}{2}$ def. angle				Length of arc for 100 ft.
	sin. $\frac{1}{2}$ def. ang.	12.5 Ft.	15 Ft.	20 Ft.	25 Ft.	
30°	193.18	1° 51'	2° 17'	2° 58'	3° 43'	101.15
32°	181.39	1° 59'	2° 25'	3° 10'	3° 58'	101.33
34°	171.01	2° 06'	2° 33'	3° 21'	4° 12'	101.48
36°	161.80	2° 13'	2° 41'	3° 33'	4° 26'	101.66
38°	153.58	2° 20'	2° 49'	3° 44'	4° 40'	101.85
40°	146.19	2° 27'	2° 57'	3° 55'	4° 54'	102.06
42°	139.52	2° 34'	3° 05'	4° 07'	5° 08'	102.29
44°	133.47	2° 41'	3° 13'	4° 18'	5° 22'	102.53
46°	127.97	2° 48'	3° 21'	4° 29'	5° 36'	102.76
48°	122.92	2° 55'	3° 29'	4° 40'	5° 50'	103.00
50°	118.31	3° 02'	3° 38'	4° 51'	6° 04'	103.24
52°	114.06	3° 09'	3° 46'	5° 02'	6° 17'	103.54
54°	110.11	3° 16'	3° 54'	5° 13'	6° 31'	103.84
56°	106.50	3° 22'	4° 02'	5° 23'	6° 44'	104.14
58°	103.14	3° 29'	4° 10'	5° 34'	6° 57'	104.43
60°	100.00	3° 35'	4° 18'	5° 44'	7° 11'	104.72

$$T = R \tan \frac{1}{2} I$$

$$T = \frac{50 \tan \frac{1}{2} I}{\sin \frac{1}{2} D}$$

$$\sin \frac{1}{2} D = \frac{50}{R}$$

$$\sin \frac{1}{2} D = \frac{50 \tan \frac{1}{2} I}{T}$$

$$R = T \cot. \frac{1}{2} I$$

$$R = \frac{\sin \frac{1}{2} D}{50}$$

$$E = R \text{ ex. sec } \frac{1}{2} I$$

$$E = T \tan \frac{1}{2} I$$

$$\text{Chord def.} = \frac{\text{chord}^2}{R}$$

$$\text{No. chords} = \frac{I}{D}$$

$$\text{Tan. def.} = \frac{1}{2} \text{ chord def.}$$

The square of any distance, divided by twice the radius, will equal the distance from tangent to curve, very nearly.

To find angle for a given distance and deflection.

Rule 1. Multiply the given distance by .01745 (def. for 1° for 1 ft. see Table II.), and divide given deflection by the product.

Rule 2. Multiply given deflection by 57.3, and divide the product by the given distance.

To find deflection for a given angle and distance. Multiply the angle by .01745, and the product by the distance.

GENERAL DATA

RIGHT ANGLE TRIANGLES. Square the altitude, divide by twice the base. Add quotient to base for hypotenuse.

Given Base 100, Alt. $10.10^2 \div 200 = .5$. $100 + .5 = 100.5$ hyp.

Given Hyp. 100, Alt. $25.25^2 \div 200 = 3.125$. $100 - 3.125 = 96.875 = \text{Base}$.
Error in first example, .002; in last, .045.

To find Tons of Rail in one mile of track: multiply weight per yard by 11, and divide by 7.

LEVELING. The correction for curvature and refraction, in feet and decimals of feet is equal to $0.574 d^2$, where d is the distance in miles. The correction for curvature alone is closely, $\frac{1}{3} d^2$. The combined correction is negative.

PROBABLE ERROR. If d_1, d_2, d_3 , etc. are the discrepancies of various results from the mean, and if $\Sigma d^2 =$ the sum of the squares of these differences and $n =$ the number of observations, then the probable error of the mean = $\pm 0.6745 \sqrt{\frac{\Sigma d^2}{n(n-1)}}$

TABLE VIII TANGENTS AND EXTERNALS TO A 1° CURVE.

I	T	E	I=10°	I	T	E	I=20°	I	T	E	I=30°
1°	50.00	.218		11°	551.70	26.500		21°	1061.9	97.577	
10'	58.34	.297		10'	560.11	27.313		10'	1070.6	99.155	
20'	66.67	.388		20'	568.53	28.137		20'	1079.2	100.75	
30'	75.01	.491	5° C.	30'	576.95	28.974	5° C.	30'	1087.8	102.35	5° C.
40'	83.34	.606	T	40'	585.36	29.824	T	40'	1096.4	103.97	T
50'	91.68	.733	E	50'	593.79	30.686	E	50'	1105.1	105.60	E
2°	100.01	.873	.03	12°	602.21	31.561	.06	22°	1113.7	107.24	.10
10'	108.35	1.024	.001	10'	610.64	32.447	.006	10'	1122.4	108.90	.013
20'	116.68	1.188		20'	619.07	33.347		20'	1131.0	110.57	
30'	125.02	1.364		30'	627.50	34.259		30'	1139.7	112.25	
40'	133.36	1.552		40'	635.93	35.183		40'	1148.4	113.95	
50'	141.70	1.752		50'	644.37	36.120		50'	1157.0	115.66	
3°	150.04	1.964	10° C.	13°	652.81	37.070	10° C.	23°	1165.7	117.38	10° C.
10'	158.38	2.188	T	10'	661.25	38.031	T	10'	1174.4	119.12	T
20'	166.72	2.425	.06	20'	669.70	39.006	.13	20'	1183.1	120.87	.19
30'	175.06	2.674	E	30'	678.15	39.993	E	30'	1191.8	122.63	E
40'	183.40	2.934	.003	40'	686.60	40.992	.011	40'	1200.5	124.41	.025
50'	191.74	3.207		50'	695.06	42.004		50'	1209.2	126.20	
4°	200.08	3.492	15° C.	14°	703.51	43.029	15° C.	24°	1217.9	128.00	15° C.
10'	208.43	3.790	T	10'	711.97	44.066	T	10'	1226.6	129.82	T
20'	216.77	4.099	.09	20'	720.44	45.116	.19	20'	1235.3	131.65	.29
30'	225.12	4.421	.004	30'	728.90	46.178	.017	30'	1244.0	133.50	.038
40'	233.47	4.755		40'	737.37	47.253		40'	1252.8	135.35	
50'	241.81	5.100		50'	745.85	48.341		50'	1261.5	137.23	
5°	250.16	5.459	20° C.	15°	754.32	49.441	20° C.	25°	1270.2	139.11	20° C.
10'	258.51	5.829	T	10'	762.80	50.554	T	10'	1279.0	141.01	T
20'	266.86	6.211	.13	20'	771.29	51.679	.26	20'	1287.7	142.93	.39
30'	275.21	6.606	E	30'	779.77	52.818	E	30'	1296.5	144.85	E
40'	283.57	7.013	.006	40'	788.26	53.969	.022	40'	1305.3	146.79	.051
50'	291.92	7.432		50'	796.75	55.132		50'	1314.0	148.75	
6°	300.28	7.863	25° C.	16°	805.25	56.309	25° C.	26°	1322.8	150.71	25° C.
10'	308.64	8.307	T	10'	813.75	57.498	T	10'	1331.6	152.69	T
20'	316.99	8.762	.16	20'	822.25	58.699	.32	20'	1340.4	154.69	.49
30'	325.35	9.230	E	30'	830.76	59.914	E	30'	1349.2	156.70	E
40'	333.71	9.710	.007	40'	839.27	61.141	.028	40'	1358.0	158.72	.065
50'	342.08	10.202		50'	847.78	62.381		50'	1366.8	160.76	
7°	350.44	10.707	30° C.	17°	856.30	63.634	30° C.	27°	1375.6	162.81	30° C.
10'	358.81	11.224	T	10'	864.82	64.900	T	10'	1384.4	164.86	T
20'	367.17	11.753	.25	20'	873.35	66.178	.41	20'	1393.2	166.95	.55
30'	375.54	12.294	E	30'	881.88	67.470	E	30'	1402.0	169.04	E
40'	383.91	12.847	.008	40'	890.41	68.774	.034	40'	1410.9	171.15	.078
50'	392.28	13.413		50'	898.95	70.091		50'	1419.7	173.27	
8°	400.66	13.991	35° C.	18°	907.49	71.421	35° C.	28°	1428.6	175.41	35° C.
10'	409.03	14.582	T	10'	916.03	72.764	T	10'	1437.4	177.55	T
20'	417.41	15.184	.30	20'	924.58	74.119	.46	20'	1446.3	179.72	.60
30'	425.79	15.799	E	30'	933.13	75.488	E	30'	1455.1	181.89	E
40'	434.17	16.426	.009	40'	941.69	76.869	.038	40'	1464.0	184.08	.065
50'	442.55	17.065		50'	950.25	78.264		50'	1472.9	186.29	
9°	450.93	17.717	40° C.	19°	958.81	79.671	40° C.	29°	1481.8	188.51	40° C.
10'	459.32	18.381	T	10'	967.38	81.092	T	10'	1490.7	190.74	T
20'	467.71	19.058	.45	20'	975.96	82.525	.61	20'	1499.6	192.99	.75
30'	476.10	19.746	E	30'	984.53	83.972	E	30'	1508.5	195.25	E
40'	484.49	20.447	.010	40'	993.12	85.431	.040	40'	1517.4	197.53	.088
50'	492.88	21.161		50'	1001.7	86.904		50'	1526.3	199.82	
10°	501.28	21.887	45° C.	20°	1010.3	88.389	45° C.	30°	1535.3	202.12	45° C.
10'	509.68	22.624	T	10'	1018.9	89.888	T	10'	1544.2	204.44	T
20'	518.08	23.375	.60	20'	1027.5	91.399	.76	20'	1553.1	206.77	.90
30'	526.48	24.138	E	30'	1036.1	92.924	E	30'	1562.1	209.12	E
40'	534.89	24.913	.012	40'	1044.7	94.462	.044	40'	1571.0	211.48	.078
50'	543.29	25.700		50'	1053.3	96.013		50'	1580.0	213.86	

T = R tan 1/2 I

E = R exsec 1/2 I

TABLE VIII TANGENTS AND EXTERNALS TO A 1° CURVE

I	T	E	I=40°	I	T	E	I=50°	I	T	E	I=60°
31°	1589.0	216.3		41°	2142.2	387.4		51°	2732.9	618.4	
10'	1598.0	218.7		10'	2151.7	390.7		10'	2743.1	622.8	
20'	1606.9	221.1	5° C.	20'	2161.2	394.1	5° C.	20'	2753.4	627.2	5° C.
30'	1615.9	223.5	T	30'	2170.8	397.4	T	30'	2763.7	631.7	T
40'	1624.9	226.0	.13	40'	2180.3	400.8	.17	40'	2773.9	636.2	.21
50'	1633.9	228.4	E	50'	2189.9	404.2	E	50'	2784.2	640.7	E
32°	1643.0	230.9	.023	42°	2199.4	407.6	.037	52°	2794.5	645.2	.056
10'	1652.0	233.4		10'	2209.0	411.1		10'	2804.9	649.7	
20'	1661.0	235.9		20'	2218.6	414.5		20'	2815.2	654.3	
30'	1670.0	238.4		30'	2228.1	418.0		30'	2825.6	658.8	
40'	1679.1	241.0		40'	2237.7	421.4		40'	2835.9	663.4	
50'	1688.1	243.5		50'	2247.3	425.0		50'	2846.3	668.0	
33°	1697.2	246.1	10° C.	43°	2257.0	428.5	10° C.	53°	2856.7	672.7	10° C.
10'	1706.3	248.7	T	10'	2266.6	432.0	T	10'	2867.1	677.3	T
20'	1715.3	251.3	.26	20'	2276.2	435.6	.34	20'	2877.5	682.0	.42
30'	1724.4	253.9	E	30'	2285.9	439.2	E	30'	2888.0	686.7	E
40'	1733.5	256.5	.046	40'	2295.6	442.8	.075	40'	2898.4	691.4	.112
50'	1742.6	259.1		50'	2305.2	446.4		50'	2908.9	696.1	
34°	1751.7	261.8	15° C.	44°	2314.9	450.0	15° C.	54°	2919.4	700.9	15° C.
10'	1760.8	264.5	T	10'	2324.6	453.6	T	10'	2929.9	705.7	T
20'	1770.0	267.2	.40	20'	2334.3	457.3	.51	20'	2940.4	710.5	.63
30'	1779.1	269.9	E	30'	2344.1	461.0	E	30'	2951.0	715.3	E
40'	1788.2	272.6	.070	40'	2353.8	464.6	.116	40'	2961.5	720.1	.168
50'	1797.4	275.3		50'	2363.5	468.4		50'	2972.1	725.0	
35°	1806.6	278.1	20° C.	45°	2373.3	472.1	20° C.	55°	2982.7	729.9	20° C.
10'	1815.7	280.8	T	10'	2383.1	475.8	T	10'	2993.3	734.8	T
20'	1824.9	283.6	.53	20'	2392.8	479.6	.68	20'	3003.9	739.7	.81
30'	1834.1	286.4	E	30'	2402.6	483.4	E	30'	3014.5	744.6	E
40'	1843.3	289.2	.093	40'	2412.4	487.2	.151	40'	3025.2	749.6	.225
50'	1852.5	292.0		50'	2422.3	491.0		50'	3035.8	754.6	
36°	1861.7	294.9	25° C.	46°	2432.1	494.8	25° C.	56°	3046.5	759.6	25° C.
10'	1870.9	297.7	T	10'	2441.9	498.7	T	10'	3057.2	764.6	T
20'	1880.1	300.6	.67	20'	2451.8	502.5	.85	20'	3067.9	769.7	.90
30'	1889.4	303.5	E	30'	2461.7	506.4	E	30'	3078.7	774.7	E
40'	1898.6	306.4	.117	40'	2471.5	510.3	.189	40'	3089.4	779.8	.255
50'	1907.9	309.3		50'	2481.4	514.3		50'	3100.2	784.9	
37°	1917.1	312.2	30° C.	47°	2491.3	518.2	30° C.	57°	3110.9	790.1	30° C.
10'	1926.4	315.2	T	10'	2501.2	522.2	T	10'	3121.7	795.2	T
20'	1935.7	318.1	.76	20'	2511.2	526.1	.95	20'	3132.6	800.4	.90
30'	1945.0	321.1	E	30'	2521.1	530.1	E	30'	3143.4	805.6	E
40'	1954.3	324.1	.065	40'	2531.1	534.2	.117	40'	3154.2	810.9	.117
50'	1963.6	327.1		50'	2541.0	538.2		50'	3165.1	816.1	
38°	1972.9	330.2	35° C.	48°	2551.0	542.2	35° C.	58°	3176.0	821.4	35° C.
10'	1982.2	333.2	T	10'	2561.0	546.3	T	10'	3186.9	826.7	T
20'	1991.5	336.3	.85	20'	2571.0	550.4	1.02	20'	3197.8	832.0	1.05
30'	2000.9	339.3	E	30'	2581.0	554.5	E	30'	3208.8	837.3	E
40'	2010.2	342.4	.117	40'	2591.0	558.6	.189	40'	3219.7	842.7	.283
50'	2019.6	345.5		50'	2601.1	562.8		50'	3230.7	848.1	
39°	2029.0	348.6	40° C.	49°	2611.2	566.9	40° C.	59°	3241.7	853.5	40° C.
10'	2038.4	351.8	T	10'	2621.2	571.1	T				

TABLE VIII TANGENTS AND EXTERNALS TO A 1° CURVE.

I	T	E	I=70°	I	T	E	I=80°	I	T	E	I=90°
61°	3375.0	920.2		71°	4086.9	1308.2		81°	4893.6	1805.3	
10'	3386.3	925.9		10'	4099.5	1315.6		10'	4908.0	1814.7	
20'	3397.5	931.6		20'	4112.1	1322.9		20'	4922.5	1824.1	
30'	3408.8	937.3		30'	4124.8	1330.3		30'	4937.0	1833.6	
40'	3420.1	943.1		40'	4137.4	1337.7		40'	4951.5	1843.1	
50'	3431.4	948.9		50'	4150.1	1345.1		50'	4966.1	1852.6	
			+ 5° C. T .25 E				+ 5° C. T .30 E .110				+ 5° C. T .36 E .149
62°	3442.7	954.8		72°	4162.8	1352.6		82°	4980.7	1862.2	
10'	3454.1	960.6		10'	4175.6	1360.1		10'	4995.4	1871.8	
20'	3465.4	966.5		20'	4188.5	1367.6		20'	5010.0	1881.5	
30'	3476.8	972.4		30'	4201.2	1375.2		30'	5024.8	1891.2	
40'	3488.3	978.3		40'	4214.0	1382.8		40'	5039.5	1900.9	
50'	3499.7	984.3		50'	4226.8	1390.4		50'	5054.3	1910.7	
			.080								
63°	3511.1	990.2		73°	4239.7	1398.0		83°	5069.2	1920.5	
10'	3522.6	996.2		10'	4252.6	1405.7		10'	5084.0	1930.4	
20'	3534.1	1002.3		20'	4265.6	1413.5		20'	5099.0	1940.3	
30'	3545.6	1008.3		30'	4278.5	1421.2		30'	5113.9	1950.3	
40'	3557.2	1014.4		40'	4291.5	1429.0		40'	5128.9	1960.2	
50'	3568.7	1020.5		50'	4304.6	1436.8		50'	5143.9	1970.3	
			10° C. T .51 E 159				10° C. T .61 E .220				10° C. T .72 E .299
64°	3580.3	1026.6		74°	4317.6	1444.6		84°	5159.0	1980.4	
10'	3591.9	1032.8		10'	4330.7	1452.5		10'	5174.1	1990.5	
20'	3603.5	1039.0		20'	4343.8	1460.4		20'	5189.3	2000.6	
30'	3615.1	1045.2		30'	4356.9	1468.4		30'	5204.4	2010.8	
40'	3626.8	1051.4		40'	4370.1	1476.4		40'	5219.7	2021.1	
50'	3638.5	1057.7		50'	4383.3	1484.4		50'	5234.9	2031.4	
			15° C. T .76 E .240				15° C. T .91 E .332				15° C. T 1.09 E .450
65°	3650.2	1063.9		75°	4396.5	1492.4		85°	5250.3	2041.7	
10'	3661.9	1070.2		10'	4409.8	1500.5		10'	5265.6	2052.1	
20'	3673.7	1076.6		20'	4423.1	1508.6		20'	5281.0	2062.5	
30'	3685.4	1082.9		30'	4436.4	1516.7		30'	5296.4	2073.0	
40'	3697.2	1089.3		40'	4449.7	1524.9		40'	5311.9	2083.5	
50'	3709.0	1095.7		50'	4463.1	1533.1		50'	5327.4	2094.1	
			20° C. T 1.02 E .321				20° C. T 1.22 E .445				20° C. T 1.45 E .603
66°	3720.9	1102.2		76°	4476.5	1541.4		86°	5343.0	2104.7	
10'	3732.7	1108.6		10'	4489.9	1549.7		10'	5358.6	2115.3	
20'	3744.6	1115.1		20'	4503.4	1558.0		20'	5374.2	2126.0	
30'	3756.5	1121.7		30'	4516.9	1566.3		30'	5389.9	2136.7	
40'	3768.5	1128.2		40'	4530.4	1574.7		40'	5405.6	2147.5	
50'	3780.4	1134.8		50'	4544.0	1583.1		50'	5421.4	2158.4	
			25° C. T 1.28 E .403				25° C. T 1.53 E .558				25° C. T 1.83 E .756
67°	3792.4	1141.4		77°	4557.6	1591.6		87°	5437.2	2169.2	
10'	3804.4	1148.0		10'	4571.2	1600.1		10'	5453.1	2180.2	
20'	3816.4	1154.7		20'	4584.8	1608.6		20'	5469.0	2191.1	
30'	3828.4	1161.3		30'	4598.5	1617.1		30'	5484.9	2202.2	
40'	3840.5	1168.1		40'	4612.2	1625.7		40'	5500.9	2213.2	
50'	3852.6	1174.8		50'	4626.0	1634.4		50'	5517.0	2224.3	
			30° C. T 1.54 E .485				30° C. T 1.84 E .671				30° C. T 2.20 E .910
68°	3864.7	1181.6		78°	4639.8	1643.0		88°	5533.1	2235.5	
10'	3876.8	1188.4		10'	4653.6	1651.7		10'	5549.2	2246.7	
20'	3889.0	1195.2		20'	4667.4	1660.5		20'	5565.4	2258.0	
30'	3901.2	1202.0		30'	4681.3	1669.2		30'	5581.6	2269.3	
40'	3913.4	1208.9		40'	4695.2	1678.1		40'	5597.8	2280.6	
50'	3925.6	1215.8		50'	4709.2	1686.9		50'	5614.2	2292.0	
69°	3937.9	1222.7		79°	4723.2	1695.8		89°	5630.5	2303.5	
10'	3950.2	1229.7		10'	4737.2	1704.7		10'	5646.9	2315.0	
20'	3962.5	1236.7		20'	4751.2	1713.7		20'	5663.4	2326.6	
30'	3974.8	1243.7		30'	4765.3	1722.7		30'	5679.9	2338.2	
40'	3987.2	1250.8		40'	4779.4	1731.7		40'	5696.4	2349.8	
50'	3999.5	1257.9		50'	4793.6	1740.8		50'	5713.0	2361.5	
70°	4011.9	1265.0		80°	4807.7	1749.9		90°	5729.7	2373.3	
10'	4024.4	1272.1		10'	4822.0	1759.0		10'	5746.3	2385.1	
20'	4036.8	1279.3		20'	4836.2	1768.2		20'	5763.1	2397.0	
30'	4049.3	1286.5		30'	4850.5	1777.4		30'	5779.9	2408.9	
40'	4061.8	1293.6		40'	4864.8	1786.7		40'	5796.7	2420.9	
50'	4074.4	1300.9		50'	4879.2	1796.0		50'	5813.6	2432.9	

E = R tan 1/2 I

E = R exsec 1/2 I

TABLE VIII TANGENTS AND EXTERNALS TO A 1° CURVE

I	T	E	I=100°	I	T	E	I=110°	I	T	E	I=120°
91°	5830.5	2444.9		101°	6950.6	3278.1		111°	8336.7	4386.1	
10'	5847.5	2457.1		10'	6971.3	3294.1		10'	8362.7	4407.6	
20'	5864.6	2469.3		20'	6992.0	3310.1		20'	8388.9	4429.2	
30'	5881.7	2481.5		30'	7012.7	3326.1		30'	8415.1	4450.9	
40'	5898.8	2493.8		40'	7033.6	3342.3		40'	8441.5	4472.7	
50'	5916.0	2506.1		50'	7054.5	3358.5		50'	8468.0	4494.6	
			+ 5° C. T .43 E .200				+ 5° C. T .51 E .268				+ 5° C. T .62 E .360
92°	5933.2	2518.5		102°	7075.5	3374.9		112°	8494.6	4516.6	
10'	5950.5	2531.0		10'	7096.6	3391.2		10'	8521.3	4538.8	
20'	5967.9	2543.5		20'	7117.8	3407.7		20'	8548.1	4561.1	
30'	5985.3	2556.0		30'	7139.0	3424.3		30'	8575.0	4583.4	
40'	6002.7	2568.6		40'	7160.3	3440.9		40'	8602.1	4606.0	
50'	6020.2	2581.3		50'	7181.7	3457.6		50'	8629.3	4628.6	
			10° C. T .86 E .401				10° C. T .103 E .536				10° C. T 1.25 E .721
93°	6037.8	2594.0		103°	7203.2	3474.4		113°	8656.6	4651.3	
10'	6055.4	2606.8		10'	7224.7	3491.3		10'	8684.0	4674.2	
20'	6073.1	2619.7		20'	7246.3	3508.2		20'	8711.5	4697.2	
30'	6090.8	2632.6		30'	7268.0	3525.2		30'	8739.2	4720.3	
40'	6108.6	2645.5		40'	7289.8	3542.4		40'	8767.0	4743.6	
50'	6126.4	2658.5		50'	7311.7	3559.6		50'	8794.9	4766.9	
			15° C. T 1.30 E .604				15° C. T 1.56 E .806				15° C. T 1.93 E 1.09
94°	6144.3	2671.6		104°	7333.6	3576.8		114°	8822.9	4790.4	
10'	6162.2	2684.7		10'	7355.6	3594.2		10'	8851.0	4814.1	
20'	6180.2	2697.9		20'	7377.8	3611.7		20'	8879.3	4837.8	
30'	6198.3	2711.2		30'	7399.9	3629.2		30'	8907.7	4861.7	
40'	6216.4	2724.5		40'	7422.2	3646.8		40'	8936.3	4885.7	
50'	6234.6	2737.9		50'	7444.6	3664.5		50'	8965.0	4909.9	
			20° C. T 1.74 E .809				20° C. T 2.08 E 1.08				20° C. T 2.52 E 1.46
95°	6252.8	2751.3		105°	7467.0	3682.3		115°	8993.8	4934.1	
10'	6271.1	2764.8		10'	7489.6	3700.2		10'	9022.7	4958.6	
20'	6289.4	2778.3		20'	7512.2	3718.2		20'	9051.7	4983.1	
30'	6307.9	2792.0		30'	7534.9	3736.2		30'	9080.9	5007.8	
40'	6326.3	2805.6		40'	7557.7	3754.4		40'	9110.3	5032.6	
50'	6344.8	2819.4		50'	7580.5	3772.6		50'	9139.8	5057.6	
			25° C. T 2.18 E 1.02				25° C. T 2.61 E 1.36				25° C. T 3.16 E 1.83
96°	6363.4	2833.2		106°	7603.5	3791.0		116°	9169.4	5082.7	
10'	6382.1	2847.0		10'	7626.6	3809.4		10'	9199.1	5107.9	
20'	6400.8	2861.0		20'	7649.7	3827.9		20'	9229.0	5133.3	
30'	6419.5	2875.0		30'	7672.9	3846.5		30'	9259.0	5158.8	
40'	6438.4	2889.0		40'	7696.3	3865.2		40'	9289.2	5184.5	
50'	6457.3	2903.1		50'	7719.7	3884.0		50'	9319.5	5210.3	
			30° C. T 2.62 E 1.22				30° C. T 3.14				

Sect. "A"
Wabash Blvd. - Slope Stakes 2-78

97+65.01 to 219+75.12

Grader for Ditch Above Cut 152 to 159 80

TABLE IX
MIDDLE ORDINATES OF RAILS
Length of Rail (feet)

C o	R Feet	30 Inch	28 Inch	26 Inch	24 Inch	22 Inch	20 Inch	C o	R Feet	30 Inch	28 Inch	26 Inch	24 Inch	22 Inch	20 Inch
0-20	17189	.08	.07	.06	.05	.04	.03	8	716.8	1.83	1.64	1.42	1.20	1.01	.84
0-40	8594	.16	.14	.12	.10	.08	.07	9	637.3	2.12	1.84	1.60	1.35	1.14	.94
1-0	5730	.24	.20	.18	.15	.13	.10	10	573.7	2.36	2.05	1.78	1.50	1.27	1.04
1-20	4297	.31	.27	.23	.20	.17	.13	11	521.7	2.59	2.26	1.95	1.65	1.39	1.15
1-40	3438	.39	.34	.29	.25	.21	.17	12	478.3	3.83	2.47	2.15	1.81	1.54	1.26
2-0	2865	.47	.41	.35	.30	.25	.20	13	441.7	3.05	2.66	2.30	1.96	1.66	1.36
2-20	2456	.55	.48	.41	.35	.29	.23	14	410.3	3.30	2.87	2.48	2.10	1.78	1.46
2-40	2149	.63	.55	.47	.40	.33	.27	15	383.1	3.54	3.08	2.68	2.26	1.91	1.57
3-0	1910	.71	.62	.53	.45	.38	.31	16	359.3	3.76	3.28	2.83	2.40	2.04	1.67
3-20	1719	.78	.68	.59	.50	.42	.35	17	338.3	4.00	3.48	3.02	2.57	2.16	1.78
3-40	1563	.86	.75	.65	.55	.46	.38	18	319.6	4.21	3.67	3.18	2.70	2.28	1.87
4-0	1433	.94	.82	.71	.60	.50	.42	19	302.9	4.45	3.89	3.36	2.86	2.41	1.98
4-20	1323	1.02	.89	.77	.65	.55	.45	20	287.9	4.70	4.09	3.55	3.00	2.54	2.09
4-40	1228	1.10	.96	.83	.70	.59	.48	22	262.0	5.16	4.44	3.84	3.30	2.80	2.29
5	1146	1.18	1.03	.89	.75	.63	.52	24	240.5	5.64	4.92	4.20	3.59	3.04	2.50
6	955.3	1.41	1.23	1.06	.90	.76	.62	26	222.3	6.07	5.29	4.58	3.88	3.29	2.70
7	819.0	1.65	1.44	1.24	1.05	.89	.73								

TABLE X
SHORT RADIUS CURVES

Radius Feet	Chord Feet	Central Angle	Deflection Angle	Deflection for 1 Foot
35	10	16-26	8-13	49.3
45	10	12-46	6-23	38.3
50	15	17-16	8-38	34.5
60	15	14-22	7-11	28.8
75	15	11-30	5-45	23.0
100	20	11-30	5-45	17.3
120	20	9-34	4-47	14.3
150	20	7-39	3-49	11.5
190	25	7-32	3-46	9.15
200	25	7-10	3-35	8.6
225	25	6-25	3-12	7.7
240	25	5 58	2-59	7.2
250	25	5 44	2-52	6.9
275	25	5-12	2-36	6.2
288	50	9-58	4-59	6.0
300	50	9-32	4-46	5.7
350	50	8-12	4-06	4.9
376	50	7-40	3-50	4.6
400	50	7-10	3-35	4.3
410	50	7-00	3-30	4.2

To find length of curve divide angle from P. C. to P. T. by central angle of chord, and multiply by length of chord.

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
99+1052	.017'		E. 53.96 53.41	54.34 44'	44'	E. 54.26 53.74	.0004	1 1/2 : 1

INDEXED
JUN 7 1950

99+0	.017		E. 53.86 53.31	54.26 44'	44'	E. 54.25 53.70	.0004	1 1/2 : 1
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98+50	1 1/2 : 1	.026'	E. 53.47 52.92	54.10 44'	44'	E. 54.41 54.50	.013'	1 1/2 : 1
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98+0	1 1/2 : 1	.036	E. 53.20 52.65	54.07 44'	44'	E. 54.71 55.02	.028	1 1/2 : 1
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E.C.			E. 53.09 52.54	54.13 44'	44'	E. 55.01 55.41	.037'	1 1/2 : 1
97+65.01	1 1/2 : 1	.043	52.54	44'	44'	55.41	.037	1 1/2 : 1

96+81.01								
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No. 22029
Lt. slope

March 6, 50
H. Siroz
D. Smith
R. Carver
R. Chavez
Rt. slope

2

BM	1.30	57.44	56.14	Mon & L Broadway West of rd.
	1.40	2.9	2.4	
	1.60	1.2	1.0	
	8.0	F 8.1	F 8.6	
	61.2	58.2	58.0	

	11.3	3.2	2.6	
	11.8	11.3	11.3	
	-0.5	F 8.1	F 8.7	
	61.3	56.3	56.0	

	10.9	3.3	2.8	
	11.1	10.9	10.5	
	0.2	F 7.6	F 8.1	
	50.4	55.4	55.0	

	1.7	1.7	1.7	
	10.0	10.0	10.0	
	F 8.3	F 8.3	F 8.3	
	4.0	4.0	4.0	

BM	1.72	55.82	54.10	Mon & L So. Broadway
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Sta.	Slope	Super	Shdr. Elev.	shdr. Width	Shdr. Width	shdr. Elev.	Super	Slope
103+00	1:1		E. 59.83 59.53	60.2) 57'	57'	E. 59.84 59.54		1:1

Lt.	8	21.1	21.4	47	47
18.4	32.4	32.1	32.4	32.1	32.4
19.4	18.4	18.4	18.4	18.4	18.4
-110	C 17.0	C 17.0	C 17.0	C 17.0	C 17.0
76.0	71.0	71.0	71.0	71.0	71.0

47
39
+0.8
78.7

102+50	1:1		E. 58.76 58.46	59.14 57'	49'	E. 58.77 Gutter 58.56		
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TP	12.04	91.92	0.26	79.88
10.8	11.2	-0.4	72.9	
41.7	10.8	C 10.8	87.9	
21.4	10.8	C 10.8	47.0	
21.4	3.9	C 17.5	47.0	
21.6	3.9	C 17.7	66.7	
3.9	4.1	-10.2	71.7	

102+00	1:1		E. 57.70 Gutter 57.49	49'	49'	E. 57.71 Gutter 57.49	71.56X 8rt Ford 2072.4	
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6.3	14.1	6.3	56.8
3.6	6.3	C 7.8	56.8
+2.2			
81.8			
22.7	14.1	C 8.7	86.18 = 5' East of 2 1/2 S Bank
14.1	5.0	C 9.1	58.1
14.1	5.0		N. R.P.

101+50	1:1		E. 56.74 Gutter 56.53	49'	57'	E. 56.75 56.45	3:1	
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TP	6.88	80.14X	0.15	73.76
9.5	15.0	15.0	15.0	
8.3	9.5	9.5	9.5	
17.2	8.3	8.3	8.3	
59.75	54.5	54.5	54.5	
7.4	7.4	7.4	7.4	
F 0.1	0.7	C 0.7	47.0	
83.4	68.7	68.7	68.7	
TP	7.27	73.41	0.57	66.04
				66.61

5' Sub 30' N
102+05

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
105+00	1:1	.01	E. 64.68 64.76	45'	55'	E. 63.67 63.37	.022	1:1
104+75		.003			E. 63.29 55.25	62.99	.017	1:1
104+50	.01	.003	63.39		E. 62.88 55.50	62.58	.014	1:1
104+29.75								
104+25		.007			E. 62.44 55.75	62.14	.01	1:1
104+00	.01	.01	62.33		E. 61.95 56'	61.65	.01	1:1
103+84.75	1:1	.06	E. 60.79 60.49	61.94	E. 61.57 61.27	56.25'	.01	1:1
103+50	1:1	.04	E. 60.47 60.17	61.27	E. 60.90 60.60	56.50'	.01	1:1
103+25	1:1	.021	E. 60.20 59.90	61.27	E. 60.37 60.07	56.75'	.01	1:1

Cot Started

March 9-50
F. S. Mason
D. Smith
R. P. ...
Chavez

RT = F **5**

22.6 24.4 -1.8 61.8	31.4 22.6 c11.8 56.8	34.5 22.6 c11.9 33.0	25.4 22.6 c2.8 150F.	25.8 22.6 c3.2 83.1	24.1 -0.8 87.4
			25.3 8.7 c15.6 75.0	25.6 8.7 c15.9 71.9	8.7 8.4 +0.3 76.9
	TP	967	9919	2.40	89.52
					24.06 105+49.75 80.87
					29.0 22.6 c6.4 188.9
					18.4 1.7 c16.7 73.2
					19.0 2.8 c16.2 71
					30.0 22.6 c7.4 76
					30.7 22.6 c7.1 82.2
					13.7 15.2 -1.5 79.7
					31.4 13.7 c17.7 74.4
					31.1 13.7 c17.4 47.0
					30.4 22.6 c7.8 76.2
					50.7 22.6 c28.1 82.6
					41.3 22.6 c18.7 87.6
					13.7 14.8 -1.1 80.1
					31.8 13.7 c18.1 75.1
					31.5 13.7 c17.8 77.0 EP.
					31.9 22.6 c9.3 76.5 EP.
					51.9 22.6 c29.3 82.9
					29.0 22.6 c6.4 76.5
					29.3 22.6 c6.7 78.1
					29.7 22.6 c7.1 78.1
					29.7 22.6 c7.1 78.1

Nov 14-50
73.16
7.38
80.91
0.44
80.50
2.50
83.00

PH 10/10
RT 21-0
Federal

±

Sta. Slope Super Elev. Width Width Elev. Super Slope

109+00 1/2:1 .04 74.34 44' 44' 71.58 .04

Shdr. Shdr. Shdr. Shdr.

E 73.90 73.94 E 71.98

LT

R

RT

7

Slope

151/151 7.3 7.7 29.87
0.0 5.8 7.4 8.6
60.7 55.7 33.30

St. Ford
8/63
Ford

108+50 1/2:1 .04 73.28 44' 44.5' 70.57 .04 1/2:1

E 72.84 71.88 E 70.92

17.1 8.3 8.8 29.975
16.6 7.7 7.1 9.25
7.05 8.8 7.2 10.0
62.2 57.2 33.30 110

TP 0.94 132.65 12.83 131.71
BM 13.14 144.54 1.77 131.40
TP 9.53 133.17 0.08 123.64

0.2 100 RP
3+0 NEOC

2.74 120.98
on 2 Hubs
3+0
NEOC

108+00 1/2:1 .04 72.22 44' 44.5' 69.46 .04 1/2:1

E 71.78 70.82 E 69.86

100' RT - Approx 1/2
3+0 NEOC

159 9.1 9.8 29.108
16.0 15.9 15.9 108 53.9
-0.1 6.5 6.1 9.0 12.2
58.8 53.8 33.30 0.0 13.0
14.2
11.7
7.0

out

107+50 1/2:1 .04 71.15 44' 44.5' 68.39 .04 1/2:1

E 70.71 69.75 E 68.79

17.3 10.5 10.9 29.119
17.2 17.3 17.3 11.0 57.9
7.1 6.8 6.7 5.0 11.7
37.2 54.2 33.30 60 RP 13.9
38.8 F 8.6 11.1
10.3
10.8
7.6

out

TP 12.69 123.72 0.33 111.03
111.36

Sta.	Slope	Super	Elev.	Width	Width	Elev.	Super	Slope
111+00	.04		77.10	56.5	75.28	.04	1/2:1	

110+94.17 - opp o to N.E.O.C. ^{76.99}

110+50 1/2:1 .04 ^{E 77.06} 77.50 ^{76.10} 44' .04

110+00 1/2:1 .04 ^{E 76.02} 76.46 ^{75.06} 44' .04

109+50 1/2:1 .04 ^{E 74.96} 75.40 ^{74.00} 44' .04

Lt. ϕ Rt. **8**

2.91
1.3
1.3
0.0
5.0

2.91
2.1
2.1
0.0
18.0

BM

8.21

78.19

11.65

69.98

X on M.H.R.
75' to 109'
69.96

5.2

5.6

2.91
6.6
6.6
0.0
18.0

15.4
15.3
+0.1
15.8

6.7
15.2
+0.2
57.8

6.7
15.4
+0.7
33.0

2.91
7.0
7.0
0.0
13.0

81.63 Bt Ford

Sta.	Slope	Super	Elev.				Super	Slope
			Shdr.	Shdr.	Shdr.	Shdr.		
113+00	.04		80.69 53.75	E. 77.31 79.00		.04	1:1	
112+75	.04		80.37 54.69	E. 78.85 78.55		.04	1:1	
112+50	.04		79.86 55	E. 78.42 78.12		.04	1:1	
112+25	.04		79.42 55.12	E. 77.97 77.67		.04	3/4:1	
112+00	.04		78.97 55.41	E. 77.50 77.20		.04	3/4:1	
111+75	.04		78.52 55.50	E. 77.04 76.74		.04	1/2:1	
111+50	.04		78.06 55.83	E. 76.57 76.27		.04	3/4:1 1/2:1	
111+25	.04		E. 76.07 56.16	75.77		.04	1/2:1	

TP	Lt.	Rt.	9	
			95.89	9
	0.35	96.24	12.99	
		29.1	29.9	12.1
		3.65	12.1	8.7
		61.00	17.5	7.2
		79	43.5E	71.6
				76.6
TP	0.42	108.88	12.64	108.46
St. Ford		2.5	42.7	43.01
78.19T		4.5	2.7	7.7
682		4.5	2.7	7.7
7137		6.0	35.0	35.3
12.97		43.09	45.0	90.3
8434T				93.3
TP	1.17	121.10	12.72	119.93
		2.5	55.7	55.5
		5.4	1.2	6.4
		5.2	1.2	6.4
		6.0	49.8	49.1
		38.09	46.7	92.2
				97.2
		64.5	64.8	6.6
7627		51.7	57.7	5.5
122.87		13.7	76.3	71.1
141.04T		2.9	56.4	56.4
		0.1	1.2	1.2
		6.0	51.4	51.5
		71.09	46.3E	81.6
				86.6
	78.97T	132.65	T	R

Lt.		C		Rt.											
Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope							
11117+00	1/2:1	.04	E. 87.59 88.03	44'	44'	E. 85.67 85.10	.04	1/2:1	✓	39 38 7.6 62.5	-5.1 39 9.0 57.5	-46. 39 F 8.5 330=F	-27. 46 F 7.3 330F	-22. 48 F 6.8 54.2	46 49 -0.3 59.2
11116+50	1/2:1	.04	E. 86.86 87.30	44'	44'	E. 84.94 84.39	.04	1/2:1	✓	4.4 4.1 10.3 62.1	-4.3 44 F 8.7 57.1	-30. 44 F 8.3 330	-20. 41 F 6.1 330	-14. 41 F 5.5 52.3	11 39 10.7 57.3
11116+25	1/2:1	.04	E. 86.50 86.94	44'	44'	E. 84.58 84.03									
11116+00	1/2:1	.04	E. 86.15 86.59	44.38'	44'	E. 84.21 83.66	.04	1/2:1	✓	5.0 5.0 0.0 62.3	✓ -36. 50 F 8.6 57.3	-32. 50 F 8.2 334	-13. 48 F 6.1 330	-0.7. 48 F 5.5 52.3	48 49 10.1 57.3
11115+75	1/2:1	.04	E. 85.83 86.27	45.5'	44'	E. 83.85 83.30	.04	1/2:1							
11115+50	1/2:1	.04	E. 85.51 85.95	47.83'	44'	E. 83.47 82.92	.04	1/2:1		5.3 5.3 -0.2 65.3	-30. 53 F 8.3 80.3	-26. 53 F 7.9 36.8F	-0.5. 6.2 F 6.7 330F	0.0. 6.2 F 6.2 52.3	6.2 59 10.3 58.3
11115+25	1/2:1	.04	E. 85.27 85.71	50'	44'	E. 83.11 82.56	.04	1/2:1							

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
121+00	1/2:1	.04	E 93.46 93.90	44'	45'	E 91.54 91.14	.04	1:1

120+50	1/2:1	.04	E 92.72 93.16	44'	45'	E 90.80 90.40	.04	1:1
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+13			E 92.18 92.62			E 90.28 89.75		
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120+00	1/2:1	.04	E 91.99 92.43	44'	44'	E 90.07 89.52	.04	.01
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119+50	1/2:1	.04	E 91.20 91.70	44'	44'	E 89.34 88.79	.04	1/2:1
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13

Lt	S	Rt	S	Rt	S
✓ 18.3	10.7	11.2	13.1	13.5	6.5
18.5	18.3	18.3	6.5	6.5	5.8
-0.2	F 7.6	F 7.1	0.6	0.70	7.07
6.04	55.4	33.0	33.0	52.0	57.0

✓ 19.3	11.5	11.9	13.8	14.1	11.2
19.3	19.3	19.3	11.2	11.2	11.3
6.0	F 7.8	F 7.4	0.6	0.30	-0.7
6.07	55.7	33.0	33.0	48.0	33.0
TP	13.09	104.64	0.07	91.55	

7.4	-1.0	-0.6	1.4	1.9	1.0
7.8	7.8	7.1	1.9	1.9	1.0
-0.4	F 8.4	F 8.0	F 0.5	0.0	0.0
62.1	57.1	33.0	33.0	4.5	50.0

✓ 8.2	-0.8	-0.4	1.6	2.1	3.3
8.2	8.2	8.2	3.2	3.2	3.0
-0.4	F 7.1	F 8.7	F 1.7	F 1.7	3.0
62.7	57.7	33.0	33.0	45.8	50.8

✓ 9.3	-0.1	+0.4	2.3	2.8	7.2
9.2	9.3	9.3	2.2	2.2	7.0
+0.1	F 9.4	F 8.9	F 1.2	F 1.4	7.07
63.1	58.1	33.0	33.0	56.6	55.6

91.62

Sta.	Slope	Super	E			Super	Slope	Rt.
			Shdr. Elev.	Shdr. Width	Shdr. Width			
123+00	4:1	.022	96.74	48'	45'	94.50	.022	1:1
E.C.			E 95.75			E 94.45		
122+77.33			95.96		45	94.05		1:1
122+50	10:1	.033	95.75	54'	45'	93.51	.033	1:1
122+18			E 95.13					
			95.50					
122+00	4:1	.04	95.36	44'	45'	92.60	.04	1:1
121+50	1/2:1	.04	94.63	44'	45'	91.87	.04	1:1

Lt	S	Z	Rt	J	K
20.1 20.6 -0.5 75.0	20.1 20.1 0.0 70.0	20.4 20.1 C 0.3 33.0	21.6 2.9 C 17.7 33.0	22.0 3.9 C 18.1 63.1	3.9 3.5 10.4 88.1
20.3 20.8 -0.5 65.0	20.3 20.3 0.0 60.0	20.6 20.3 C 0.3 33.0	22.2 2.1 C 18.1 33.0	22.6 2.1 C 18.5 63.5	2.1 2.0 10.0 88.5
12.4 12.4 -0.5 50.0	107.88T 12.4 12.4 0.0 45.0	12.8 12.4 C 0.4 33.0			
22.1 22.9 -0.8 54.6	20.7 22.1 F 1.4 49.6	21.2 22.1 F 0.9 33.0	23.0 6.5 C 16.5 33.0	23.5 6.5 C 17.0 62.0	6.5 6.3 10.2 87.0
28.3 28.5 -0.2 59.2	21.5 28.3 F 6.8 57.8	21.9 28.3 F 6.4 33.0	23.8 5.6 C 15.2 33.0	24.3 5.6 C 15.7 80.6	8.6 8.3 10.3 86.9
TP	11.85	116.08	0.41	104.23	
		104.64			

Lt.	E				Rt.			
Sta.	Slope	Super	Elev.	Width	Width	Elev.	Super	Slope
125+00	1:1		E. 98.11 97.72	45'	45'	E. 98.12 97.72		1:1

✓	148 152 -0.5 652	30.0 148 -152 60.5	29.6 148 -148 33.2	29.6 52 -52 33.0	30.0 52 -52 89.	152 52 -10.7 746.
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124+50	1:1		E. 97.39 96.99	45'	45'	E. 97.39 96.99		1:1
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✓	160 162 -0.2 647	30.7 160 -160 59.7	30.3 160 -160 33.0	30.3 74 -74 33.0	30.7 74 -74 88.3	74 63 -11 733
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TP 11.73 12.7.71 2.53 115.98

124+00	1:1		E. 96.66 96.26	45'	45'	E. 96.66 96.26		1:1
123+97.33	End of Trans.							

✓	126 134 -0.8 607	23.3 130 -10.7 55.7	23.9 126 -10.3 33.0	23.9 22 -22 33.0	23.3 29 -29 85.4	2.9 2.9 -0.0 70.4
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116.81
12.33
103.75
3.22
105.97
134.3

Crossing MH BM 92.54
200 ft 1/2 x 0
R.R. 92.52

123+50	4:1	.01	E. 96.40 96.48	48'	45'	E. 95.92 95.52		1:1
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✓	18.5 19.5 -1.0 71.0	23.0 18.5 -1.5 66.	23.1 18.5 -1.6 33.0	23.6 52 -52 33.0	24.0 52 -52 88.8	52 52 -0.7 88.8 0.7 R.R. Hds 100 ft 122+77.32 FC
TP		5.31	119.51	1.88	114.20	
			116.08			

April 25-50
 R.S. Smith
 D. Smith
 Rorer
 Chavez
 Coto

102.31 X
 16

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope							
127+00	1/2:1		E. 101.05 100.50	44'	44'	E. 101.05 100.50 100.42		0.1	✓	9.7 9.5 +0.2 60.9	1.8 9.7 F 7.9 55.9	-1.3 9.7 F 8.4 33.0	1.3 1.9 F 0.6 33.0	1.9 1.9 0.0 62.0	1.9 +2.2 Eye level F 1.1 57.0
126+50	1/2:1		E. 100.32 99.77	44'	45'	E. 100.32 99.92		1:1	✓	10.1 9.6 +0.5 80.4	2.5 10.1 F 7.6 55.4	2.0 10.1 F 8.1 33.0	27.4 16.0 C 17.4 33.0	27.8 16.0 = 17.8 62.8	10.0 19.6 +0.4 87.8
480			E. 100.03 99.48			E. 100.03 99.63			✓	11.1 11.2 -0.1 61.5	2.8 11.1 F 8.3 56.5	2.3 11.1 F 8.8 33.0	27.7 16.0 C 24.1 33.0	28.1 16.0 = 24.5 69.5	3.6 3.6 3.0 74.0
126+00	1/2:1		E. 99.59 99.04	44'	45'	E. 99.59 99.19		1:1	✓	11.8 12.0 -0.2 102.31 X 61.8	3.3 11.8 F 8.5 56.8	2.7 11.8 F 9.1 33.0	28.1 16.0 C 23.7 33.0	28.5 16.0 C 24.1 69.1	4.4 4.0 +0.4 74.1
									TP		0.16	102.31	12.50	102.15	
									TP		0.03	114.65	13.09	114.62	Stub 75 ft 126+75
125+50	4:1		E. 98.85 98.45	44'	45'	E. 98.85 98.45		1:1	✓	19.3 21.8 -2.5 50.0	29.3 29.3 16.0 45.8	28.9 19.3 F 9.4 33.0	28.9 16.0 C 23.4 33.0	29.3 16.0 C 23.4 68.3	5.8 5.8 +0.4 73.5

See X-Sections
Additional 4' wide channel
begun from Sta 126 to
Sta. 127

127.71 X
For Pt Side

127.71

Lt. ♀ Rt.
 Sta. Slope Super Elev. Width Width Elev. Super Slope

129+00 1/2:1 E. 103.99 103.44 44' 44' E. 103.99 103.44 .01

✓ 11.6
 11.8
 -0.2
 57.9
 5.7
 11.6
 F5.9
 52.9
 5.1
 11.6
 F6.5
 33.0E
 5.1
 5.8
 F0.7
 33.0E
 5.8
 5.8
 0.0
 53.5
 5.8
 1.7
 14.1
 58.5

TP 1248 10910 5.69 96.62

128+50 1/2:1 E. 103.25 102.70 44' 44' E. 103.25 102.70 .01

✓ 5.9
 5.9
 0.0
 58.5
 -0.4
 5.9
 F6.3
 53.5
 -0.9
 5.9
 F6.8
 33.0
 -0.9
 +0.3
 F0.6
 33.0
 -0.3
 +0.3
 0.0
 51.6
 +0.3
 +3.95
 13.5

Change #2097-70

128+00 1/2:1 E. 102.52 101.97 44' 44' E. 102.52 101.97 .01

✓ 6.6
 6.4
 +0.2
 58.5
 +0.2
 6.8
 F6.3
 53.5
 -0.2
 6.6
 F6.8
 33.0
 -0.3
 0.4
 -0.6
 33.0
 0.4
 0.4
 0.0
 55.0
 0.4
 +3.5
 +4.7
 50.0

127+50 1/2:1 E. 101.79 101.24 44' 44' E. 101.79 101.14 .01

✓ 7.8
 8.1
 -0.3
 59.1
 4.8
 F6.7
 54.1
 0.5
 7.8
 F7.3
 33.0E
 0.5
 1.2
 F0.7
 33.0E
 1.2
 0.0
 53.7
 1.2
 +3.4
 +3.6
 58.7

102.31

Lt.

℄

Rt.

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
131+00	1/2:1		E. 106.91	44'	44'	(103) E. 106.91		.01
			104.36			106.36		

✓	10.9	2.7	2.2	2.2	2.7	6.1
	11.2	10.9	10.9	2.7	2.7	2.7
	+0.3	F8.2	F8.7	F0.5	0.0	3.1
	81.3	56.3	33.0	33.0	44.0	74.0

130+50	1/2:1		E. 106.18	44'	46.5'	E. 106.18		.01
			105.63		104.	105.63		
					33			

✓	11.5	2.5	2.9	2.9	3.8	5.1
	11.2	11.5	11.5	3.8	3.8	3.8
	+0.3	F8.0	F8.6	F0.9	0.0	3.1
	81.0	56.0	33.0	33.0	44.0	73.7

Change/Change
+2097

130+00	1/2:1		E. 105.45	44'	44'	E. 105.45		.01
			104.90		104.90	64		

✓	11.3	4.2	3.7	3.7	4.5	4.5
	11.1	11.3	11.3	4.5	4.5	2.1
	+0.2	F7.1	F7.6	F0.8	0.0	2.4
	59.7	54.7	33.0	33.0	76.0	75.0

129+50	1/2:1		E. 104.72	44'	44'	E. 104.72		.01
			104.17		104.17	104.03		

✓	11.2	4.9	4.4	4.4	5.1	5.1
	11.1	11.2	11.2	5.1	5.1	2.9
	+0.1	F6.3	F6.8	F0.7	0.0	2.2
	58.5	53.5	33.0	33.0	58.4	63.4

109.10

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
135+00	1/2:1		E. 112.78 112.23	44'	44'	E. 112.78 112.23		(108) 1/2:1
134+50	1/2:1		E. 112.04 111.49	44'	44'	E. 112.04 111.49		(107.7) 1/2:1
134+00	1/2:1		E. 111.32 110.77	44'	44'	E. 111.32 110.77		(107.3) 1/2:1
133+50	1/2:1	Culvert	E. 110.58 110.03	44'	44'	E. 110.58 110.03		(107.0) 1/2:1

Channel Change
#3097

✓	13.0 13.0 0.0 604	5.4 13.0 F7.6 55.4	4.8 13.0 F8.2 33.0F	4.8 9.6 4.8 33.0	5.4 9.6 F4.2 44.0	9.6 9.6 0.0 1315
✓	13.3 13.4 0.1 59.8	6.1 13.3 F7.2 54.8	5.6 13.3 F7.7 33.0	5.6 9.9 F4.3 33.0	6.1 9.9 F3.8 44.0	9.9 9.9 0.0 126.5
✓	12.9 13.0 0.1 58.2	6.8 13.9 F6.1 53.2	6.3 12.9 F6.6 33.0	6.3 10.3 F4.0 33.0	6.8 10.3 F3.5 44.0	10.3 10.3 0.0 112.2
✓	13.9 13.8 0.1 58.5	7.6 13.9 F6.3 53.5	7.0 13.9 F6.9 33.0F	7.0 10.6 F3.6 33.0F	7.6 10.6 F3.0 44.0	10.6 10.6 0.0 773

117.59

Lt. E. Rt.

Sta.	Slope	Super	Elev	Width	Width	Elev	Super	Slope
139+00	.N.	(daylight)	E. 118.64	44'	45'	E. 118.64		1:1

✓	26.5 30.5 -4.0 54.0	26.5 26.5 0.0 49.0	259. 265. F0.6 33.0	259. 18.4 C15.5 33.0	263. 104 C15.9 609.	10.4 10.6 +0.4 659
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TP		12.41	144.56	0.88	132.15	
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TP		13.00	133.03	0.54	120.03	
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138+50	1/2:1		E. 117.91	44'	45'	E. 117.91		1:1
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✓	120.57 4. 39. +0.2 579	9.1 9.1 F5.9 529.	2.7. 9.1 F6.4 33.0	15.1 1.5 C13.6 33.0	15.5. 1.5 C14.0 59.0	133.03 R. 1.5 0.2 +1.3 64.0
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138+00	1/2:1		E. 117.17	44'	45'	E. 117.17		1:1
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✓	120.57 4. 11.5 0.0 60.3	11.5 11.5 F7.5 55.3.	3.4. 11.5 F8.1 33.0	15.9. 3.5 C12.4 33.0	16.3. 3.5 C12.8 578.	133.03 R. 3.5 3.1 +0.4 62.8
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137+47	1/2:1		E. 116.40	44'	45'	E. 116.40		1:1
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✓	12.7 12.7 0.0 61.0	4.7. 12.7 F8.0 36.0	4.2. 12.7 F8.5 33.0	4.2. 1.5 F0.3 33.0	4.5. 1.5 0.0 71.0	4.5 2.1 +2.4 49.0
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Channel
Change

120.57

Lt. E Rt.

Std. Slope Super Elev. Width Width Elev. Super Slope
 141+00 1/2:1 E. 121.57 121.02 44' 45' 121.17 1:1

(daylight) E. 120.84 120.29 44' 45' 120.44 1:1
 140+50 .01

(daylight) E. 120.11 119.56 44' 45' 119.71 1:1
 140+00 .01

(daylight) E. 119.37 118.82 44' 45' 118.97 1:1
 139+50 .01

Lt. E Rt. 23

144867
 ✓ 125 125 53 230 204 49
 138 125 12.5 40 40 22
 +0.3 F66 F72 C190 C191 718
 589 539 330 330 644 894

126.88 07 Lt
 From Page 26

✓ 243 243 237 237 246 63
 272 243 243 63 23 52
 -30 8.0 F0.6 C174 C178 711
 54 49.0 330 330 628 678

✓ Epc 251 251 245 245 249 87
 Level 270 251 251 87 87 77
 -1.9 0.0 F0.6 C158 C162 710
 61.0 56.0 330 330 612 662

✓ Epc 259 259 252 252 256 98
 Level 301 259 259 98 98 90
 -42 0.0 F0.7 C154 C158 708
 625 575 330E 330F 608 658

14456

Sta.	Slope	Super	Elev.	Width	Width	Elev.	Super	Slope
143+00	1/2:1	.038	123.29	44'	45'	125.96	.038	1:1

✓ 9.7	3.1	3.0	24.2	23.9	2.1
9.5	9.7	9.7	21	21	2.1
+0.2	F6.1	F6.7	C20.1	C19.8	+2.0
58.2	53.2	33.0	33.0	34.8	59.8

149.827

Δ = 51°35'42"
 R = 3200'
 T = 1546.77'
 L = 2881.61'
 D = 5371

126.887 on Lt

142+50	1/2:1	.027	122.82	44'	45'	124.89	.027	1:1
B.C. 142+47.59			E123.37 122.82			E124.67 124.89		

✓ 11.4	4.1	3.5	25.3	25.1	4.7
11.0	11.4	11.4	4.7	4.7	3.3
+0.4	F7.3	F7.9	C20.6	C20.4	+1.4
60.0	53.0	33.0	33.0	35.4	70.4

149.827

TP 5.95 149.89 0.62 143.94

142+00	1/2:1	.016	122.35	44'	45'	123.79	.016	1:1
141+88			E122.90 start of Trans.			E123.66		

✓ 10.5	4.5	4.0	20.9	20.8	2.3
10.0	10.5	10.5	2.3	2.3	0.5
+0.5	F6.0	F6.5	C18.6	C18.5	+1.8
58.0	53.0	33.0	33.0	33.5	58.5

144.36

141+50	1/2:1		121.76	44'	45'	122.71	.005	1:1
141+16			E122.91			E122.67		start of Trans.

✓ 12.6	5.1	4.6	31.9	31.7	3.7
12.0	12.6	12.6	3.7	3.7	2.6
+0.6	F7.5	F8.0	C18.2	C18.2	+0.6
60.3	53.3	33.0	33.9	33.2	68.2

126.88 on Lt 144.56 on Rt

+35

Lt.

±

E. 129.00

129.33

Rt.

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
145+00	4:1	.04	E. 126.72 126.17	44'	45'	E. 128.64 128.96	.04	1:1

✓ 4.5
5.0
-0.5
64.2

0.7
4.5
F 3.8
59.2

0.2
2.5
F 1.3
33.0

27.3
4.8
C 22.5
33.9

26.0
4.8
C 22.1
67.1

4.8
3.7
+1.1
7.21

25

27.6
2.3
C 25.3
33.0

27.3
2.3
C 25.0
70.0

2.3
4.3
F 1.3
75.0

126.80 on Lt.

TP

7.87

156.26

0.78
1.50

148.39

144+50	4:1	.04	E. 125.98 125.43	44'	45'	E. 127.90 128.22	.04	1:1
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✓ 6.0
6.0
0.0
67.0

1.5
6.0
F 4.5
62.0

0.9
6.0
F 5.1
33.0

22.0
8.1
C 13.9
33.0

21.7
8.1
C 13.6
58.6

8.1
8.1
F 2.1
63.6

144+00	1/2:1	.04	E. 125.25 124.70	44'	45'	E. 127.17 127.49	.04	1:1
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✓ 7.5
7.2
+0.3
57.0

2.2
7.2
F 5.3
52.0

1.6
2.5
F 5.9
33.0

22.7
9.7
C 12.6
33.0

22.4
9.7
C 12.7
57.7

9.7
12.7
+2.0
62.7

143+50	1/2:1	.04	E. 124.52 123.97	44'	45'	E. 126.44 126.76	.04	1:1
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✓ 9.1
8.8
+0.3
58.3

2.9
9.1
F 6.2
53.3

2.4
9.1
F 6.7
33.0

23.5
3.1
C 20.4
33.0

23.1
3.1
C 20.0
65.0

3.1
3.8
+0.7
70.0

126.88 on Lt. 149.89 on Rt.

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
147+00	4:1	.04	E.129.65 129.10	44'	44.5'	E.131.57 131.89	.04	1/2:1

Lt.	L	Rt.	Lt.	L	Rt.
✓	119 119 0.0 754	53 119 F 56 70.4	47 119 F 72 330.5	35.5 5.8 C 20.7 330	35.3 6.8 C 28.4 587

146+50	4:1	.04	E.128.92 128.37	44'	45'	E.130.84 131.16	.04	1:1
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✓	119 126 -0.1 726	60 119 F 39 676	55 119 F 64 330	36.3 0.5 C 35.8 330	36.0 0.5 C 35.5 80.5
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TP 1106 167.11 0.57 156.05

TP 10.39 156.62 0.78 146.23

TP 12.92 147.01 0.29 124.09

146+00	4:1	.04	E.128.18 127.63	44'	45'	E.130.10 130.42	.04	1:1
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✓	13.4 13.3 +0.2 75.4	68 13.4 F 6.6 70.4	62 13.4 F 72 330	37.0 15.0 C 22.0 330	56.7 15.0 C 21.7 86.7
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BM 2.11 134.38 0.74
Back to Page 23

TP 6.36 126.88 12.56 120.52

TP 0.81 133.08 12.21 132.27

145+50	4:1	.04	E.127.45 126.90	44'	45'	E.129.37 129.69	.04	1:1
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✓	68 68 +0.4 76.2	0.8 8.8 F 6.8 71.2	-0.6 68 F 74 330	13.2 1.4 C 13.5 330.5	14.9 1.7 C 13.2 58.2
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TP 0.74 144.58 12.42 143.84

126.88 on Lt. 156.26 on Rt.

April 6, 50
 H. S. Brown
 D. Smith
 R. C. Forer
 Chavez
 Cota

27

Lt.		C				Rt.
Sta.	Slope	Super Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super Slope
147+00	.07	.04	44'	44.5'	134.89	.04 1/2:1

S	E	E	E	slope
6.6 7.9 -1.3 79.0	6.6 6.6 0.0 77.0	6.1 6.6 F0.5 33.0		34.9 5.7 -29.7 33.0
				33.0 59.1 84.1

148+50	4:1	.04	44'	44.5'	134.13	.04 1/2:1
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12.2 12.3 -0.1 79.0	7.4 12.4 F5.0 64.0	6.8 12.4 F5.6 33.0	6.8 6.8 0.0 33.0	34.9 5.7 -29.7 33.0	34.6 5.7 -29.7 59.0	57 7 -18.7 84.0	Page 29
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148+00	4:1	.04	44'	44.5'	133.37	.04 1/2:1
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15.8 16.0 -0.2 79.4	8.2 15.8 F7.6 74.4	7.6 15.8 F8.2 33.0	8.15 8.15 0.0 33.0	35.7 5.7 -30.0 33.0	35.4 5.7 -29.7 59.4	5.7 3.7 -2.0 84.4
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33.7
4.7 Forchuck
From 10.

BM

BM
Wrong Rt-L

147+50	4:1	.04	44'	44.5'	132.62	.04 1/2:1
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11.4 11.1 -0.3 76.2	11.4 11.4 F6.8 71.2	1.0 11.4 F7.4 33.0		34.8 2.0 -32.8 33.0	34.5 2.0 -32.5 60.8	2.0 5.3 -7.1 65.8
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134.38 1/4
167.10 1/4

Lt. E Rt.

Sta. Slope Super Shdr. Shdr. Shdr. Shdr. Elev. Super Slope

151+00 3/4:1 .04 E.135.78 135.38 44.75' 44.5' E.137.70 138.02 .04 1/2:1

✓ 7.7
8.5
-0.8
55.1
14.8
7.7
-0.7
50.1
14.4
7.7
-0.7
33.0
39.1
5.2
-0.3
33.0
38.8
5.7
-0.1
81.1
5.2
7.2
-1.4
66.1

150+50 3/4:1 .04 E.134.98 134.58 44.75' 44.5' E.136.90 137.27 .04 1/2:1

✓ 8.5
9.8
-1.3
55.1
15.6
8.5
-0.7
50.1
15.2
8.5
-0.7
33.0
39.9
2.8
-0.3
33.0
39.6
4.8
-0.2
81.9
4.8
3.2
-1.6
66.9

For Rt
168.741
2.08
168.66
10.12
176.78

TP 120.1 150.15 0.59 138.14

150+00 3/4:1 .04 E.134.19 133.79 44.75' 44.5' E.136.11 136.43 .04 1/2:1

✓ 4.9
7.5
-2.6
55.0
4.9
1.0
-0.0
30.0
5.4
4.9
-0.5
33.0
40.7
3.9
-0.8
33.0
40.4
3.9
-0.5
62.8
3.9
2.4
-1.5
67.8

+75 E.133.80 133.28 44.5' 136.04 1/2:1

✓ 5.4
7.2
-1.8
49.0
5.4
5.4
-0.0
44.0
4.9
5.4
-0.5
33.0
33.0
0.1
-0.3
33.0
32.7
0.1
-0.6
60.8
Elevant
+1.7
65.3

149+50 4:1 .04 E.132.41 132.86 44' 44.5' E.135.33 135.65 .04 1/2:1

✓ 13.5
13.5
+0.7
78.3
5.9
13.2
-7.3
78.2
5.3
13.2
-7.9
73.0
5.9
0.0
-4.0
41.0
33.4
8.7
-0.7
33.0
33.1
8.7
-0.7
56.7
8.7
7.2
-1.5
61.7

138.731
For Left Side

Sta.	Slope	Super	E			Super	Slope	Rt.
			Shdr. Elev.	Shdr. Width	Shdr. Width			

153+00	3/4:1	.04	E. 139.04 138.64	44.75	44.50	E. 140.96 141.28	.04	1/2:1
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✓	17.6 18.0 -0.4 59.2	30.2 17.2 C 12.6 54.2	29.8 17.6 C 12.2 33.0F	27.9 17.6 C 25.3 33.0F	27.6 17.2 C 25.0 57.0	3.6 1.6 +1.0 82.0
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			168.86			
			6.85	168.74	0.03	161.89
TP			12.08	161.92	0.31	149.84

152+50	3/4:1	.04	E. 138.21 137.81	44.75	44.50	E. 140.13 140.45	.04	1/2:1
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✓	3.3 4.3 -1.0 56.5	12.3 3.3 C 9.0 51.5	11.9 3.3 C 8.6 33.0	36.6 13.8 C 22.8 33.0	36.3 13.8 C 22.5 53.8	13.8 1.2 +2.6 80.8
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rt.
176.78 X
12.10
169.68
37.8
168.8 X
For to Top Page

152+00	3/4:1	.04	E. 137.39 136.99	44.75	44.5	E. 139.31 139.63	.04	1/2:1
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✓	5.6 6.2 -0.6 55.5	13.2 5.2 C 7.6 50.5	12.8 5.6 C 7.2 33.0	27.5 9.2 C 28.3 33.0	27.2 9.2 C 28.0 58.5	9.2 8.8 +1.2 63.5
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151+50	3/4:1	.04	E. 136.58 136.18	44.75	44.5	E. 138.50 138.82	.04	1/2:1
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✓	6.8 7.2 -0.4 55.2	14.0 8.2 C 7.8 50.2	13.6 8.8 C 8.8 33.0F	38.3 8.2 C 28.7 33.0F	38.0 8.2 C 28.8 59.4	8.2 7.7 +1.1 64.4
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150.15 X
For bottom

Shdr. Shdr. Shdr. Shdr.
 Sta. Slope Super Elev. Width Width Elev. Super Slope
 153+00 3/4:1 .04 E. 142.38 141.98 44.75 44.50 E. 144.30 144.62 .04 1/2:1

✓ 13.9 148 -0.2 59.5	26.9 13.9 C12.0 54.5	26.5 13.9 C12.6 33.0F	24.5 5.0 C19.6 33.0F	24.2 5.0 C19.2 34.1	5.0 4.8 +0.7 34.1
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E. 141.54 E. 143.46
 154+50 3/4:1 .04 141.14 44.75 44.50 143.78 .04 1/2:1

✓ 14.2 140 +0.2 58.9	27.7 14.2 C13.5 53.9 change	27.3 14.2 C13.1 33.0	25.4 5.2 C19.2 33.0	25.1 5.2 C19.9 34.5	5.3 4.3 +0.7 34.5
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E. 140.71 E. 142.63
 154+00 3/4:1 .04 140.31 44.75 44.50 142.95 .04 1/2:1

✓ 14.6 15.0 -0.4 30.3	28.6 14.6 C14.0 55.3	28.2 14.6 C13.6 33.0	26.7 3.7 C22.5 33.0	25.9 3.7 C22.2 33.6	3.7 3.8 +0.9 33.6
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E. 139.87 E. 141.79
 153+50 3/4:1 .04 139.47 44.75 44.50 142.11 .04 1/2:1

✓ 15.7 15.5 +0.2 60.0	29.4 15.7 C13.7 53.0	29.0 15.7 C13.3 33.0F	27.1 3.0 C24.1 33.0F	26.8 3.8 C23.8 35.4	3.0 1.8 +1.2 31.4
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Sta.	Slope	Super	Elev.	Width	Width	Elev.	Super	Slope
			Shdr.	Shdr.	Shdr.	Shdr.		

157+00	1:1	.04	E.145.71 145.31	45'	44.75'	E.147.63 147.95	.04	3/4:1
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✓ 205 220 -15 55.9	26.4 205 C 59 50.9	26.0 205 C 55 33.0F	24.1 27 C 21.4 33.0F	23.8 27 C 21.1 60.6	27 13 +1.4 85.6
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156+50	1:1	.04	E.144.88 144.48	45'	44.75'	E.146.80 147.12	.04	3/4:1
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✓ 206 221 -15 56.7	27.3 26.6 C 67 51.7	26.8 206 C 62 33.0	24.9 38 C 21.1 33.0	24.6 38 C 20.8 60.4	58 2.2 +1.6 65.4
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156+00	1:1	.04	E.144.04 143.64	45'	44.75'	E.145.76 146.28	.04	3/4:1
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✓ 207 223 -16 57.4	28.1 207 C 74 52.4	27.7 207 C 70 33.0	25.7 54 C 20.3 33.0	25.4 54 C 20.0 59.8	5.4 3.8 +1.6 64.8
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155+50	1:1	.04	E.143.21 142.81	45'	44.75'	E.145.13 145.45	.04	3/4:1
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✓ 181 193 -12 60.8	28.9 181 C 10.8 55.8	28.5 181 C 10.4 33.0F	26.6 58 C 20.8 33.0F	26.3 58 C 20.5 60.1	58 2.2 +1.6 64.8
TP	9.64	171.70	6.80	162.06	on former Sta 1+61.14 Janiper St. #2097-1 162.08
		168.86			

Sta.	Slope	Super	Elev.	Shdr. Width	Shdr. Width	Elev.	Super	Slope
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159+00	1/2:1	.04	E. 149.04 148.44	44'	44.75	E. 150.96 151.28	.04	3/4:1
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+75	1/2:1		E. 148.63 148.08			E. 150.55 150.87	.04	3/4:1
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(daylight) 158+45	.01	.04	E. 148.13 147.60	44'	44.75	E. 150.05 150.37	.04	3/4:1
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+25	1:1	.04	E. 147.80 147.32			E. 149.71 150.08		3/4:1
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158+00	1:1	.04	E. 147.38 146.98	45'	44.75	E. 149.30 149.62	.04	3/4:1
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157+50	1:1	.04	E. 146.54 146.14	45'	44.75	E. 148.46 148.78	.04	3/4:1
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✓ 31.4	237.	22.7.	20.7.	20.4.	6.8
31.4	31.2	31.4	6.8	6.8	6.8
0.0	F8.7	F8.7	C13.2	C13.6	+1.0
81.3	56.3.	33.0	33.0	55.0.	80.0

✓ 32.2	236	23.1	21.2	20.8	5.5
32.2	32.2	32.2	5.5	5.3	4.8
+0.2	F8.6	F9.0	C15.7	C15.2	+0.7
81.9	56.9	33.0	33.0	56.2	81.2

✓ 24.1	24.1	23.8	21.6	21.3	5.7
24.1	24.1	24.1	5.7	5.7	5.0
-1.2	0.0	F0.5	C15.9	C15.6	+0.7
50.0	45.0.	33.0	33.0	56.4.	81.4

✓ 16.9	24.4	23.9	22.0	21.6	5.4
16.9	16.9	16.9	5.4	5.1	4.7
-2.0	C7.5	C7.0	C16.9	C16.5	+0.7
57.5	52.5.	33.0	33.0	57.0	62.0

✓ 15.3	24.7	24.3	22.4	22.1	4.8
15.3	15.3	15.3	4.8	4.8	4.8
-1.1	C9.5	C9.1	C17.6	C17.2	+0.9
59.5	54.5.	33.0	33.0	57.7.	

✓ 19.4	25.6	25.2	23.2	22.9	3.2
19.4	19.4	19.2	3.2	3.3	3.2
-1.6	C6.2	C5.8	C20.9	C20.6	+1.0
56.2	51.2.	33.0	33.0	60.2	65.2

171.70

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
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161+00	1/2:1	.04	E. 152.38 151.83	44'	44'	E. 154.30 154.74	.04	1/2:1
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160+50	1/2:1	.04	E. 151.54 150.99	44'	44'	E. 153.46 153.90	.04	4:1
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160+00	1/2:1	.04	E. 150.71 150.16	44'	44'	E. 152.63 153.07	.04	4:1
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765			E. 150.13 149.58			E. 152.05 152.87		
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159+50	1/2:1	.04	E. 149.88 149.33	44'	44.75	E. 151.80 152.12	.04	3/4:1
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✓ 15.6 157 -0.1 80.9	7.7 156 F7.9 559.	7.1 156 F8.5 33.0E	5.2 9.2 F10 33.0E	4.7 9.2 F6.5 508.	9.4 8.9 F1.5 55.8
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✓ 17.4 173 -62.4	8.5 172 F8.9 57.4	7.9 174 F9.5 33.0	6.0 8.0 F2.0 33.0	5.6 8.0 F2.4 33.6	8.0 8.1 F1.9 58.6
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✓ 18.8 182 F0.2 62.7 TP	9.3 18.6 F8.7 57.1 0.40	8.8 18.0 F9.2 33.0 159.48	6.8 7.6 F0.8 33.0 126.2	6.4 7.6 F1.3 48.8 159.08	7.6 8.1 F1.5 53.8
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✓ 30.7 30.2 +0.5 61.9	22.1 30.7 F8.6 56.9	21.6 30.7 F9.1 33.0	19.7 19.8 C0.4 33.0	19.3 19.3 0.0 48.0	19.3 19.5 F1.8 30.0
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✓ 30.4 30.3 +0.1 81.0	22.4 30.4 F8.0 56.0	21.8 30.4 F8.6 33.0E	19.9 18.1 C1.8 33.0E	19.0 18.7 C1.5 45.7	18.1 15.9 F2.2 50.7
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171.70

Sat. April 8-50

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Stn.	Slope	Super	Shdr. Elev	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
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163+00	4:1	.04	E.155.71 155.16	44'	44'	E.157.63 158.07	.04	1 1/2:1
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✓ 11.9 11.8 +0.1 64.6	8.0. 11.9 F3.9 59.6	7.4. 11.9 F4.5 330.5	5.5. 13.1 F7.6 330.5	5.1. 13.0 F8.0 56.0	13.1 12.3 +0.8 61.0
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162+50	A:1	.04	E.154.88 154.33	44'	44'	E.156.80 157.24	.04	1 1/2:1
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✓ 16.4 16.2 +0.2 79.4	8.8. 16.4 F7.6 74.4	8.3. 16.4 F8.1	6.3. 14.0 F7.7 330	5.9. 14.0 F8.1 56.2	14.0 13.5 +0.5 61.2
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TP 10.89 163.14 7.23 152.25 162+85 St. 0.6 8' 4" 1/2

162+00	1 1/2:1	.04	E.154.84 153.49	44'	44'	E.155.96 156.40	.04	1 1/2:1
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✓ 12.5 12.7 F0.2 58.8	6.0. 12.5 F6.5 33.8	5.4. 12.5 F7.1 33.0	3.5. 11.3 F7.8 33.0	3.1. 11.3 F8.2 56.3	11.3 10.9 +0.4 61.3
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161+50	1 1/2:1	.04	E.153.21 152.66	44'	44'	E.155.13 155.57	.04	1 1/2:1
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✓ 14.3 14.1 +0.2 60.3	6.8. 14.3 F7.5 55.3	6.3. 14.3 F8.0 330.5	4.4. 10.7 F6.3 330.5	3.9. 10.7 F6.8 54.2	10.7 9.5 +1.2 59.2
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159.48

Lt. ♀ Rt.
 Shdr. Shdr. Shdr. Shdr.
 Sta. Slope Super Elev. Width Width Elev. Super Slope

165+00 1/2:1 .04 E.159.16 44' 44' E.161.08 161.52 .04 1/2:1

$\begin{array}{r} \sqrt{107} \\ 107 \\ \underline{00} \\ 583 \end{array}$
 $\begin{array}{r} 4.5 \\ 167 \\ \underline{F62} \\ 533 \end{array}$
 $\begin{array}{r} 4.0 \\ 107 \\ \underline{F67} \\ 330E \end{array}$
 $\begin{array}{r} 2.1 \\ 70 \\ \underline{F47} \\ 330E \end{array}$
 $\begin{array}{r} 1.6 \\ 20 \\ \underline{F64} \\ 521 \end{array}$
 $\begin{array}{r} 7.0 \\ 15 \\ \underline{F05} \\ 571 \end{array}$

BM

BM 936 15378 4+TMM 705+16465 15385

164+50 4:1 .04 E.158.24 157.69 44' 44' E.160.16 160.60 .04 4:1

$\begin{array}{r} \sqrt{100} \\ 101 \\ \underline{01} \\ 870 \end{array}$
 $\begin{array}{r} 5.5 \\ 100 \\ \underline{F45} \\ 820 \end{array}$
 $\begin{array}{r} 4.9 \\ 100 \\ \underline{F51} \\ 330 \end{array}$
 $\begin{array}{r} 3.0 \\ 45 \\ \underline{F15} \\ 330 \end{array}$
 $\begin{array}{r} 2.5 \\ 45 \\ \underline{F20} \\ 320 \end{array}$
 $\begin{array}{r} 4.5 \\ 15 \\ \underline{F02} \\ 570 \end{array}$

164+00 4:1 .04 E.157.38 156.83 44' 44' E.159.30 159.74 .04 4:1

$\begin{array}{r} \sqrt{101} \\ 103 \\ \underline{02} \\ 642 \end{array}$
 $\begin{array}{r} 6.3 \\ 101 \\ \underline{F38} \\ 592 \end{array}$
 $\begin{array}{r} 5.8 \\ 101 \\ \underline{F43} \\ 330 \end{array}$
 $\begin{array}{r} 3.8 \\ 49 \\ \underline{F11} \\ 330 \end{array}$
 $\begin{array}{r} 3.4 \\ 49 \\ \underline{F15} \\ 500 \end{array}$
 $\begin{array}{r} 4.9 \\ 14 \\ \underline{F04} \\ 550 \end{array}$

163+50 4:1 .04 E.156.54 155.99 44' 44' E.158.46 158.90 .04 4:1

$\begin{array}{r} \sqrt{93} \\ 96 \\ \underline{03} \\ 574 \end{array}$
 $\begin{array}{r} 7.2 \\ 93 \\ \underline{F31} \\ 524 \end{array}$
 $\begin{array}{r} 6.6 \\ 93 \\ \underline{F27} \\ 330E \end{array}$
 $\begin{array}{r} 4.7 \\ 65 \\ \underline{F18} \\ 330E \end{array}$
 $\begin{array}{r} 4.2 \\ 65 \\ \underline{F23} \\ 532 \end{array}$
 $\begin{array}{r} 6.5 \\ 64 \\ \underline{F07} \\ 582 \end{array}$

163.14

Lt.	E			Rt.			TP	9.44	18461.	1.07	175.17.	36		
Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope						
167+00	1/2:1	.04	E. 163.43 162.87	45.50'	44.67'	E. 165.90 165.87	.04	(day light) .05	9.1 9.3 9.1 -0.2 8.2	0.0 9.1 9.1 -0.6 8.5	-0.6 9.1 9.1 -0.4 8.7	10.8 10.4 10.4 0.0 97.6	10.4 10.4 10.4 0.0 97.6	
166+75	1/2:1	.04	E. 162.89 162.33	44.35'	44'	E. 164.81 165.25	.04	1/2:1	BM Corrected 83 83 -0.6 80.7	13.22 9.36 +0.8 83 83 -0.6 80.7	176.24. 163.21. +0.3 83 83 -0.6 80.7	0.19 163.02. 153.85 -1.7 7.1 F88 33.05	163.02. 153.85 -2.1 7.1 F92 57.8	10.4 10.4 10.4 0.0 97.6
166+50	1/2:1	.04	E. 162.31 161.76	44'	44'	E. 164.23 164.67	.04	1/2:1	59 77 -1.8 55.8	+1.4 59 F45 50.9	+0.8 59 F51. 33.0	-1.1 7.4 F85. 33.0	-1.5 7.4 F82 57.4	7.4 7.4 7.4 0.0 97.6
166+00	1/2:1	.04	E. 161.20 160.65	44'	44'	E. 163.12 163.56	.04	1/2:1	✓ 11.1 11.5 -0.4 81.9	2.5 11.1 F86 56.9	1.9 11.1 F92. 33.0	0.0 89 F89. 33.0	-0.4 89 F92 58.0	8.9 8.9 8.9 0.0 97.6
165+50	1/2:1	.04	E. 160.16 159.61	44'	44'	E. 162.08 162.52	.04	1/2:1	✓ 12.0 12.0 0.0 81.8	3.5 12.0 F85 56.8	3.0 12.0 F90 33.0	1.1 9.0 F99 33.0	0.6 9.0 F84 56.6	9.0 8.8 8.8 0.0 97.6

163.14

Lt.	E				Rt.			
Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Elev.	Super	Slope

169+00	1 1/2:1	.04	E. 168.79 167.76	56'			.04	
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6.1	-7.3	-8.3
5.1	6.1	6.1
14.0	F 13.4	F 14.4
81.1	76.1	75.0 F

168+75	1 1/2:1	.04	E. 168.07 167.04	56'			.04	
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168+50	1 1/2:1	.04	E. 167.37 166.34	56'			.04	
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7.1	-5.9	-6.9
7.2	7.1	7.1
6.1	F 13.0	F 14.0
80.5	75.5	75.0

162.91X

0-89348 Rt.			E. 166.86		E. 168.98			
168+25	1 1/2:1	.04	145.86	55.62'	56'	149.69	.04	1:1

7.4	-5.4	-6.4	15.8	14.9	2.3
7.2	7.4	7.4	2.3	2.3	2.3
40.3	F 12.8	F 13.8	C 12.5	C 12.8	0.0
79.8	74.8	74.6 F	75.0	68.6	73.6

168+00	1 1/2:1	.04	E. 166.01 165.04	54.50'	55.33'	E. 167.93 148.82	.04	.05
						169.87		

7.6	-4.6	-5.5	16.7	14.7	
7.7	7.6	7.6	14.7	14.7	
6.1	F 12.2	F 13.1	C 2.0	0.0	
77.8	72.8	73.5	74.3	78.0	

167+75	1 1/2:1	.04	E. 165.36 164.46	52.62'	53.33'	E. 167.28 148.11	.04	.05
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TP Lt Side 6.40 160.48⁴ 8.82 154.08

02/00 168+31.66

167+50	1 1/2:1	.04	E. 164.72 163.93	50'	50'	E. 166.64 167.32	.05	
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8.4	-6.2	-6.8	18.0	16.5	
8.5	8.2	8.2	16.5	16.5	
1.1	F 9.4	F 10.2	C 1.5	0.0	
69.1	64.1	69.0	69.0	68.0	

167+25	1 1/2:1	.04	E. 164.09 163.40	47.38'	46.67'	E. 166.56 167.71	.04	.05
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8.9	-0.5	-1.2	10.2	8.5	
9.3	8.9	8.9	8.5	8.5	
10.4	F 9.9	F 10.1	C 1.7	0.0	
	81.5	86.4	35.7 F	70.0	

162.91X 8+ Ford 184.61 For Rt Side

02/00 168+31.66

439.20 FC

Lt.

E

Rt.

Shdr. Shdr. Shdr. Shdr.

Sta. Slope Super Elev. Width Width Elev. Super Slope

38

171+00 .035 .031

start of Trans

start of Trans

170+69.20

170+50 .039 .039

Sec 2072-81

TP

182.5 181.14 0.15 167.89

TP

8.45 168.04 0.89 159.59

170+00 .04 .04

0 = 335.93
+ 93.85 = 429.78

E. 170.27

169+50 1/2:1 .042 169.21 56.17' .04

5.0
42
708
81.8

-8.7
50
F 13.7
76.8

-9.8
50
F 14.8
45.21

160.48

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
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175+00	1/2:1		E. 188.52 187.97	44'	44'	E. 188.52 187.97		0
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+80			E. 188.00 187.45			E. 188.00 187.45		
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174+50	1/2:1		E. 187.23 186.68	44'	44'	E. 187.23 186.68		1/2:1
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174+00	1/2:1		E. 185.84 185.29	44'	44'	E. 185.84 185.29		1/2:1
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173+50	1/2:1		E. 184.35 183.80	44'	44'	E. 184.35 183.80		1/2:1
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121 122 -0.7 81.4	-9.5 121 F216 76.4	-10.0 121 F221 33.0	9.7 10.2 F0.5 33.0	10.3 10.2 0.0 50.0	10.3 8.2 +2.0 55.0
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127 128 -0.1 81.4 TP	-8.9 127 F216 76.4 104	-9.5 127 F221 33.0 178.53	10.7 10.8 F0.6 33.0 12.74	10.8 10.8 0.0 44.0 177.48	10.8 2.8 +3.2 49.0 Far left
TP	1.20	190.22	0.09	189.02	
TP	9.18	198.20		189.02	

24.4 24.1 +0.3 82.0	24.4 24.1 F220 77.0	1.9 24.4 F225 33.0	1.9 4.1 F32 33.0	2.4 4.1 F17 46.6	4.1 26.5 51.8
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25.7 25.7 0.0 81.9	3.8 25.7 F219 76.9	3.3 25.7 F221 33.0	3.3 11.1 F7.8 33.0	3.8 11.5 F7.5 35.0	16.3 +0.8 80.0
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26.3 26.0 +0.3 80.3 TP	5.3 26.3 F210 75.5 12.00	4.8 26.3 F215 33.0 189.11	4.8 5.2 F0.4 33.0 4.03	5.2 5.0 50.0 177.11	5.2 26.7 55.0
		181.14			

April 14-50 **41**

on Lt. Cont Page 53

TP 229.43

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
177+00	1 1/2:1		E. 192.75 192.20	44'	45'	192.75 192.35		1:1

123	-11.0	-11.5	15.1	4.5.5	229.43
18.9	12.3	12.3	3.0	3.0	5.40
+1.4	F 23.3	F 23.8	C 42.1	42.5	23.83X
87.0	79.0	33.0F	33.0F	87.5	229.43
					8.09
					237.82X
					3.0
					21
					409

TP								
176+50	1 1/2:1		E. 191.84 191.29	44'	45'	E. 191.84 191.44		1:1

TP	11.62	181.25	8.89	169.63	107 MH 100 1/2 174.0
					169.64
					231.837
					9.3
					8.7
					7.3
					8.51

+22.44	N/Sy Bridge		E. 191.84 190.79	45'		E. 191.84 190.68	Set on Shen 1:1	
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10.2	-12.8	-12.8	18.6	18.1F	18.6
10.2	10.3	10.3	18.6	8.3	3.6
+0.7	F 23.1	F 23.6	3.0	8.3	0.2
82.7	78.7	33.0	C 41.2	41.5	+3.1
			33.0	33.0	65.0
					11.1
					5.5 MH

1776+00	Bridge		172.50	for this				
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TP	11.38	209.31	0.27	197.93	
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+52.93	S/Sy Bridge		E. 189.85 189.20			E. 189.72 189.17	Set on Shen	
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11.0	-10.8	-11.3	8.5	9.0	9.0
11.0	11.0	11.0	8.0	9.0	9.3
0.0	F 21.8	F 22.3	F 0.5	0.0	7.7
81.7	76.7	33.0F	33.0F	78.0	53.0

1775+50	1 1/2:1		E. 189.72 189.17	44'	44'	E. 189.72 189.17		0
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178.52 For Lt Side
198.20 For Rt Side

(RIGHT LANE) "H"

Lt.

E

Rt.

Shdr. Shdr. Shdr. Shdr.

Sta. Slope Super Elev. Width Width Elev. Super Slope

179+00 45' E. 195.45 195.05 1:1

178+50 45' E. 194.92 194.52 1:1

178+00 45' E. 194.29 193.89 1:1

177+50 45' E. 193.57 193.17 1:1

TP 2.08 226.74 For 13.16 224.66

31.3
16.4
C 14.9
33.01
31.7
16.4
C 14.3
60.3
16.2
13.7
+ 2.7
65.3

31.8
6.8
C 25.0
33.0
22.2
6.8
C 25.4
70.4
6.8
5.4
+ 1.4
75.4

43.5
9.7
C 33.8
38.0
43.9
9.7
C 34.2
77.2
9.7
9.6
+ 2.1
84.2

44.5
3.0
C 41.3
33.02
44.7
3.6
C 41.7
86.7
3.0
2.0
+ 1.0
91.7

337.82 For Rt. Side

April-15-50
H. S. Smith
D. Smith
R. R. R.
C. B. R.
P. P. C.

42

(Right Lane) "H"

Lt. E Rt.

Sta. Slope Super Elev. Width Shdr. Shdr. Shdr. Shdr. Super Slope

181+00 1:1 .028 E.197.06 196.60 8' 45' E.196.39 195.99 .028 1:1

41.8
4.2
C 37.4
33.0
42.2
4.2
C 37.8
84.8
4.4
8.5
70.9
87.8

180+75 - .021 E.196.91 196.47 7.62' 45' E.196.41 196.01 .021 1:1

180+50 45' E.196.39 195.99 .015 1:1

41.8
4.2
C 38.8
33.0
42.2
3.0
C 39.2
84.2
3.9
3.9
+ 0.1
89.2

180+36.03 start of Trans. start of Trans.

TP 12.71 238.16 129 225.45

180+00 45' E.196.22 195.82 1:1

30.4
4.8
C 25.7
33.0
30.9
4.8
C 26.1
71.1
4.8
4.8
+ 2.0
76.1

179+50 45' E.195.89 195.49 1:1

30.9
16.2
C 14.7
33.0
30.9
16.2
C 15.1
60.1
16.2
16.2
+ 2.1
65.1

226.74 T For Rt.

(Right Lane) "H"

Pay 33.0 RT

44

Sta.	Slope	Super	Elev.	Width	Width	Elev.	Super	Slope
183+00	1:1	.07	196.00	45'	45'	196.00	.07	1:1

21.6	22.2	18.5
18.8	18.8	16.4
03.1	03.7	+2.1
33.0	48.7	53.7

182+52.03								
182+50	1:1	.066	195.82	45'	45'	195.82	.066	1:1

3.71	218.28	12.61	214.49
TP	2.68	227.10	13.31

41.4	41.9	8.7
8.7	8.7	8.2
32.7	03.2	+0.5
33.0	78.2	83.2

$\Delta = 54^{\circ}40'45''$
 $R = 1800'$
 $T = 930.62'$
 $L = 1717.80'$

182+00	1:1	.056	195.86	45'	45'	195.86	.056	1:1
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41.4	41.9	+1.5
41.5	41.5	5.1
03.2	03.4	-6.6
33.0	88.4	93.4

181+80 ⁰³	1:1	.049	197.15	8'	45'	195.88	.049	1:1
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TP	0.78	237.73	12.60	236.95
BM	1.15	249.53		248.40

RP 120' RT
181+80.03 RC

181+50	1:1	.042	196.96	8'	45'	195.95	.042	1:1
181+25	1:1	.035	196.79	8'	45'	195.97	.035	1:1

41.8	43.2	0.0
0.0	0.0	4.9
04.8	04.2	-4.9
33.0	87.2	92.2

87.207 Cut
RP Bank

238.16

(Right Lane) H

Lt.

E

Rt.

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
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185+00	1:1	.07	201.59	20.5'	45'	E. 197.84 197.28	.07	1:1
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184+50	1:1	.07	201.80	17.5'	45'	E. 197.46 196.90	.07	1:1
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184+00	.07	.07	200.52	15.5'	45'	E. 197.14 196.58	.07	1:1
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183+50	.07	.07	200.97	13'	45'	E. 196.85 196.29	.07	1:1
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x10 Culvert

TP

12.29

242.25

0.88

229.96

on Club
RT 185+75
45

33.0
2.1
c 30.9
33.0

33.6
2.1
c 31.5
76.5

2.1
3.6
-1.5
81.5

TP

13.19

230.84

0.55

217.65

21.1
5.4
c 15.7
33.0

21.6
5.4
c 16.2
61.2

5.4
1.8
+1.1
86.2

21.4
2.1
c 19.3
33.0

21.9
1.8
c 19.5
50.5

1.4
1.8
-0.4
5.5

218.20

(Right Lane) "H"

Note Cliff Side sketch page 47
dist. are 1/2 of 2
Rt. Side are 2

May. 6-50
Saturday

46

Sta.	Slope	Super	Elev.	Width	Width	Elev.	Super	Slope
187+00	1 1/2:1		199.08	34'	45'	199.84	.07	1:1
186+50	1 1/2:1	.05	198.70	30'	45'	199.26	.07	1:1
186+00	1 1/2:1	.07	198.18	26.5'	45'	198.74	.07	1:1
185+50	1 1/2:1	.07	197.70	23.5'	45'	198.26	.07	1:1

42.4	43.0	16.7
16.7	16.7	18.2
25.7	26.3	71.5
33.0	71.3	76.3

43.1	43.6	18.1
18.1	18.1	17.6
25.0	25.5	70.2
33.0	70.5	75.5

43.5	44.1	16.3
16.3	16.3	15.6
27.2	27.8	70.7
33.0	73.8	77.8

41.0	41.6	15.4
15.4	15.4	16.7
28.6	29.2	70.7
33.0	74.2	79.2

242.25 For Rt.

(Right Lane) "A"

May 8-50

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
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191+00	1:1	.07	E 208.03 208.77	3' Rt.	44.75	E 206.35 205.79	.07	3/4:1
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TP Lt. Side	12.78	246.26	0.53	233.48	48
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2.8	25.8	26.0	65.2	65.8	11.3
5.0	2.8		11.3	11.3	9.8
-2.2	2.0		65.2	65.4	+1.5
38.0	2.0		33.0	85.6	85.6

+75	1:1		E 207.54 207.78	3' Rt.	44.75	E 205.86 205.26	.07	3/4:1
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9.2	26.2	26.5	65.7	66.3	3.7
11.5	9.7		3.7	3.7	1.6
-4.8	18.5		65.0	66.2	+2.1
31.5	16.5		33.0	91.7	75.7

TP Lt. Side	11.94	234.01	0.05	222.07	
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190+50	4:1	.07	E 207.04 207.39	4'	44.75	E 205.36 204.80	.07	3/4:1
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5.1	14.7	15.1	66.2	66.8	5.2
7.1	5.1		5.2	5.2	2.3
-2.0	9.6		67.0	67.6	+5.4
33.4	38.4		33.0	91.0	76.0

TP For Lt.	13.12	222.12	0.77	210.00	
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TP For Rt.	11.60	271.55	0.08	259.95	190202
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190+00	.02	.07	E 206.09 206.44 207.87	4' Rt.	44.75	E 204.41 203.85	.07	3/4:1
--------	-----	-----	------------------------------	--------	-------	--------------------	-----	-------

3.5	3.5	4.7	55.6	56.2	0.1
4.8	3.5		0.1	0.1	+2.8
-1.3	0.0		55.5	56.1	+2.9
46.6	4.6		33.0	86.8	91.8

189+50	.02	.07	E 206.20 205.55 206.09	4' Rt.	44.75	E 203.52 202.96	.07	3/4:1
--------	-----	-----	------------------------------	--------	-------	--------------------	-----	-------

4.7	4.7	5.6	55.5	57.1	3.1
1.1	4.7		3.1	3.1	1.7
-1.9	6.6		53.4	57.0	+3.7
48.0	30.0		33.0	85.3	90.3

21077 For Lt

26003 For Rt

(Right Lane) "H"

Lt. $\frac{1}{2}$ Rt.

Sta. Slope Super Shdr. Shdr. Shdr. Shdr. Elev. Super Slope

193+00 1:1 .07 E. 212.43 212.57 3' Rt. 44.50' 210.19 .07 $\frac{1}{2}$:1

192+50 1:1 .07 E. 211.30 211.44 3' Rt. 44.50' 209.06 .07 $\frac{1}{2}$:1

192+00 1:1 .07 E. 210.18 210.32 3' Rt. 44.50' 207.94 .07 $\frac{1}{2}$:1

191+50 1:1 .07 E. 209.08 209.22 3' Rt. 44.50' 206.84 .07 $\frac{1}{2}$:1

May 9. 50
Left Side
Start 192+50

49

49	32.4	32.5	80.3	80.9	5.0
7.2	4.9		5.0	5.6	5.0
<u>22.2</u>	<u>27.5</u>		<u>75.3</u>	<u>75.9</u>	<u>10.6</u>
33.5	37.5		33.0	82.5	87.5

TP Rt Side 7.09 291.08 0.50 283.99

3.3	33.5	33.6	74.9	75.4	3.9
15.8	3.2		2.0	2.0	10.6
<u>22.5</u>	<u>30.3</u>		<u>72.9</u>	<u>73.4</u>	<u>10.6</u>
35.2	30.2		30.0	81.2	86.3

TP Lt Side 1.43 244.93 11.45 243.50 ^{0.57} Lt 192+50

10.3	44.6	44.8	76.0	76.6	6.3
13.7	16.2		8.3	8.3	5.8
<u>24.0</u>	<u>34.4</u>		<u>69.7</u>	<u>69.9</u>	<u>10.5</u>
37.7	34.4		33.0	79.7	84.7

TP Lt side 9.48 254.95 0.79 245.47

TP Rt side 12.18 284.49 0.24 271.31

3.0	37.0	37.2	64.7	64.7	3.7
5.7	2.0		3.7	3.7	1.7
<u>8.7</u>	<u>34.0</u>		<u>61.0</u>	<u>61.0</u>	<u>4.2</u>
39.0	34.0		33.0	78.0	80.0

246.26 Lt.
274.55 Rt

(Right Lane) "H"

Sta.	Slope	Super	Shdr. Elev	Shdr. Width	Shdr. Width	Shdr. Elev	Super	Slope
195+00	.02	.07	E. 217.10 217.45 218.52	4' RT.	44.75	E. 215.42 214.86	.07	3/4:1
194+50	.02	.07	E. 215.84 216.19 217.17	4' RT.	44.5'	E. 214.16 213.60	.07	1/2:1
194+00	4:1	.07	E. 214.68 215.03	4' RT.	44.5'	E. 213.00 212.44	.07	1/2:1
193+50	2:1	.07	E. 213.35 213.90	1' RT.	44.5'	E. 211.87 211.31	.07	1/2:1

4.7 5.3 -0.6 33.3	4.7 1.7 -0.6 28.5	5.7.	65.0 81 -4.6 33.0	55.5 81 -4.7 80.3	81 50 +2.5 85.3
TP Rtside	1.49	270.37	12.35	268.88	
TP Rtside	2.37	281.23	12.22	278.86	
56 66 -10 54.0	56 5.6 -0.6 49.0	6.9.	76.0 15.2 -6.1 33.6	77.5 15.3 -6.2 75.7	15.2 12.2 +3.0 82.7
TP For Ltside	0.92	222.76	11.91	221.84	
81 10.4 -2.0 46.2	18.7 8.4 -0.3 41.3	19.1.	78.1 10.1 -6.8 33.0	78.6 10.5 -6.8 78.8	10.1 8.5 +1.6 83.8
TP For Ltside	2.00	233.75	13.18	231.75	
11.8 13.8 -2.0 43.4	31.0 11.8 -0.3 38.4 ?	31.4.	79.1 3.7 -0.7 33.0	79.8 3.7 -0.7 82.7	3.1 2.8 +0.6 87.7
244.93 For Ltside 291.08 For Rtside					

(Right Lane) "A"

Lt. Rt.

Sta. Slope Super Elev. Width Width Elev. Super Slope

197 197+00 4:1 .07 223.31 4'Rt. 45' 220.72 .07 1:1

RP out 12.7 17.2 55.0 30.0 12.6 14.3 5.5 8.8 33.0 14.8 5.5 69.3 57.3 55 3.2 71.8 59.3

198 196+50 4:1 .07 221.72 4'Rt. 45' 219.13 .07 1:1

235.55 Rt + Lt 0.82 234.73 TP Rt side 13.29 234.73 TP Lt side 13.07 235.55 0.38 222.48 5.5 +10. 1.9 5.5 10.6 5.5 23.0 18.0 28.3 18.0 18.3 33.0 38.9 10.0 18.9 63.9 10.0 8.1 11.9 68.9 Take out over lap 8"

199 196+00 4:1 .07 220.21 4'Rt. 45' 217.62 .07 1:1

TP Rt side 0.55 248.02 12.19 247.47 5.0 2.6 1.9 41.5 42.0 4.1 0.5 5.0 4.4 1.2 14.6 9.6 5.0 37.1 33.0 37.6 82.6 73.2 87.6

193 195+50 .02 .07 218.79 4'Rt. 45' 216.20 .07 1:1

TP Rt side 2.00 259.66 12.71 257.66 2.3 2.3 4.3 53.6 54.2 5.6 0.7 0.0 0.5 48.0 48.6 43.9 0.7 0.0 31.0 33.0 33.0 93.6 98.6 10.8 196+50.8 222.76 For Lt side 270.37 For Rt side

(Right Lane) H''

Lt.

E

Rt.

Sta.	Slope	Super	Elev.	Width	Width	Elev.	Super	Slope
199+13.76 (229.60)			E. 230.10			E. 228.90		
198+97.834	4:1	.05	230.36	4' Rt.	44'	228.50	.05	.05

ch 78.03

(227.20)	E. 228.26	E. 226.76						
198+50	4:1	.063	228.57	4' Rt.	45'	226.26	.063	1:1

198+26 Start of Trans.

Start of Trans.

(224.70)	E. 226.40	E. 224.74						
198+00	4:1	.069	226.75	4' Rt.	45'	224.19	.069	1:1

(222.50)	E. 224.64	E. 222.96						
197+50	4:1	.07	224.99	4' Rt.	45'	222.40	.07	1:1

Cont Page 65

BM

12.31

234.42

13.44

222.11

X on Mt. King
75 ft 1972 80

52

5.2

5.5

6.7
7.1
F0.4
33.0

7.1
6.0
47.0

7.1
6.3
F0.8
32.0

7.0

7.3

8.8
9.3
F0.5
33.0

9.3
9.3
9.0
45.0

9.3
8.7
F0.6
50.0

8.8

9.2

10.8
10.8
C0.8
33.0

11.4
10.6
C1.4
46.4

10.0
9.1
F0.9
37.5

RP. out

10.6
16.9
F6.3
26.2

10.9

12.1
10.2
C2.4
33.0

13.2
10.6
C3.0
48.0

10.2
9.2
F1.0
33.0

238.55

(Left Lane) 8"

Lt. E

Sta. Slope Super Elev. Width Width Elev. Super Slope

E. 195.95
179+00 1/2:1 .02 194.84 47.0'

E. 195.20
178+75 1/2:1 .02 194.61 46.0'

E. 194.92
178+50 1/2:1 .02 194.35 45.2'

E. 194.62
178+25 1/2:1 .02 194.05 44.8'

E. 194.29
178+00 1/2:1 .02 193.73 44.3'

$\Delta = 5^{\circ}46'19.3''$
R = 5000'
T = 252.07'
L = 503.71'

E. 193.57
177+50 1/2:1 .015 193.02 44'

B.C.
177+47.93

Note: Rt Side Dist are 4' of Δ Sketch Paper 54
Lt Side are Δ

53

11.4 11.5 -0.1 856	-11.0 11.4 F 22.4 80.6	-11.6 11.9 F 23.5 36.01
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11.5 11.5 0.0 832	-10.5 11.5 F 22.0 78.2	-11.1 11.5 F 22.6 34.2
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11.1 11.7 -0.6 80.8	-9.9 11.1 F 21.0 73.8	-10.4 11.1 F 21.5 33.3
------------------------------	--------------------------------	---------------------------------

TP 2.64 183.86 0.03 181.22

Sta 6 of 11
St. 178+0

11.6 11.4 -0.2 841	-11.8 11.6 F 23.4 79.1	-12.3 11.6 F 23.9 33.01
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181.25 of Ford
Page 51

(Left Lane) 'B'

Sta.	Slope	Super	Lt. Shdr. Elev.	Shdr. Width	Shdr. Width	Rt. Shdr. Elev.	Super	Slope
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181+00	1/2:1	.02	E. 196.90 196.03	60.08'	4' Lt.	E. 197.38 197.48	.02	1/2:1
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180+75	1/2:1	.02	E. 196.69 195.85	58.33'				
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180+30	1/2:1	.02	E. 196.52 195.73	56.45'	7' Lt.	E. 197.07 197.07	.02	1/2:1
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180+25	1/2:1	.02	E. 196.38 195.62	54.4'				
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180+00	1/2:1	.02	E. 196.23 195.51	52.9'	7' Lt.	E. 197.07 197.07	.02	1/2:1
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179+75	1/2:1	.02	E. 196.07 195.38	51.0'				
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179+50	1/2:1	.02	E. 195.89 195.23	49.4'	7' Lt.	E. 197.07 197.07	.02	1/2:1
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179+25	1/2:1	.02	E. 195.68 195.05	48.2'				
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BM 7.66 187.63

7.2	-12.2	-13.0
7.1	7.2	7.2
+0.1	F 19.4	F 20.2
9.2	89.2	49.15

7.9	-11.9	-12.7
7.9	7.9	7.9
+0.0	F 19.8	F 20.6
9.2	86.2	45.3

8.3	-11.7	-12.4
8.1	8.3	8.3
+0.2	F 20.0	F 20.7
8.7	82.7	41.7

10.1	-11.4	-12.0
9.8	10.1	10.1
+0.3	F 21.5	F 22.1
86.7	81.7	38.45

18386

x Cross on
79.4
54
130 678.450
179.97

(Left Lane) "8"

Sta.	Slope	Super Elev.	Width	Width	Elev.	Super	Slope
183+00			4' Lt.		E. 199.99 199.99	-	1 1/2:1
182+50	1/2:1	.012	67.96'	3' Lt.	E. 199.30 199.30	.012	1:1
182+25	1/2:1	.017	67.02'	3' Lt.	E. 198.98 198.98	.017	1:1
182+24							
182+00	1/2:1	.019	65.83'	3' Lt.	E. 198.63 198.63	.019	1:1
181+75	1/2:1	.02	64.58'	3' Lt.	E. 198.28 198.28	.02	1:1
181+50	1/2:1	.02	63.20'	3' Lt.	E. 197.92 197.92	.02	1:1
181+25	1/2:1	.02	61.70'	3' Lt.	E. 197.67 197.67	.02	1:1

Magays for
Slope or
Doubt

4.7	4.2
10.6	10.6
F 5.9	F 5.9
13.9	8.9
5.0	5.0
15.3	15.3
F 10.3	F 10.3
20.5	15.5
Slope Factor	
5.6	5.6
5.6	5.6
0.0	0.0
50.5	0.0-3.10%
11.0	-9.3'
10.4	11.0
+0.8	F 20.3
103.5	98.5
-9.7'	-9.7'
11.0	11.0
F 20.7	F 20.7
57.0	57.0
5.7	5.7
5.6	5.6
0.7	0.7
10.7	10.7
Slope Factor	

11.5	-8.1'	-8.8'	6.4	6.3
11.5	11.5	11.5		
0.0	F 19.6	F 28.3		out over lap of lane
105.2	95.2	54.8		
TP	12.77	20496.8	0.15	192.69
B.M.	12.85	192.84		179.99
B.M.	9.33	189.32	For Lt.	179.99
10.1	-8.9'	-9.8'		
9.8	10.1	10.1		
+0.3	F 19.0	F 19.7		
9.67	9.17	52.2F		

X on M.H.P.
120.4/181.00

187.634

(Left Lane) B''

Lt. E Rt.

shdr. shdr. shdr. shdr.

Sta. Slope Super Elev. Width Width Elev. Super Slope

185+00 1/2:1 .057 4' Lt. 204.36 204.07 .057 1/2:1

184+50 1/2:1 .043 4' Lt. 203.02 202.80 .043 1/2:1

184+00 1/2:1 .029 4' Lt. 201.85 201.70 .029 1/2:1

183+50 1/2:1 .015 4' Lt. 200.84 200.74 .015 1/2:1



56

RP
-10.9
90
F199
31.5 From
Staff

-10.6
90
F196
29.4

90
89
701
344

-9.5
88
F183
323

-9.3
88
F181
273

-8.3
8
F183
248

-8.2
50
F183
198

F183
540

-7.3
1.8
F91
18.5

-7.2
1.8
F90
12.5 or 9.5 1/2

12.53
396

193.51
192.43
201.00

Stub
12/84
83+30

TP
*

108
193.51
204.96

(Left Lane) 'B'

Lt. E Rt.

57

Sta. Slope Super Elev. Width Width Elev. Super Slope

187+00 1/2:1 .10 E. 213.92 215.02 44' 4' Lt. 211.02 .10 1/2:1

6.9
8.9
85.6
-17.5
8.7
F 32.4
80.6
-16.4
6.9
-22.3
33.0
-11.0
8.5
F 22.5
-10.5
8.5
F 22.0
33.0
8.5
8.0
-8.5
38.0

186+56 End of Trans. E. 211.69 212.27 39' 4' Lt. 208.91 .096 1/2:1

9.5
8.8
+8.7
80.3
-14.7
9.5
F 24.2
75.3
-14.2
9.5
F 23.7
33.0
-11.9
9.9
F 21.8
-11.4
9.9
F 21.3
32.0
9.9
9.7
+0.2
37.0

+15 210.63 8' 8" 66.6 6' 1/2" S-Curve MH F 18.0 5+ 192.63 188.94 Top of Rise 4.06

186+00 1/2:1 .085 E. 209.54 209.97 38' 4' Lt. 207.08 .085 1/2:1

9.4
9.1
+0.3
75.7
-12.4
9.4
F 21.8
70.7
-12.0
9.4
F 21.4
33.0
-10.0
11.0
F 21.0
-9.5
11.0
F 20.5
30.8
11.0
10.9
+0.1
35.8

Δ = 60° 27' 04.3"
R = 900'
T = 524.35'
L = 949.57'

TP 8.53 197.54 4.50 189.01 4+ + MH 167.62' Lt. 185+95.8 2072.24 188.99

185+50 1/2:1 .071 E. 207.55 207.91 38' 4' Lt. 205.49 .071 1/2:1

7.6
7.3
+0.1
76.0
-14.4
7.6
F 22.0
71.0
-14.0
7.6
F 21.6
33.0
-12.0
8.1
F 20.4
35.2
-12.0
8.1
F 20.1
30.2
8.1
8.0
-0.2
35.2

B.C. 185+16.92

193.57

(Left Lane) "B"

Sta.	Slope	Super	Elev.	Width	Shdr.	Shdr.	Shdr.	Elev.	Super	Slope
189+50	1/2:1	.10	224.21	44'	4' Lt.		220.21	.10	1/2:1	

189+0	1/2:1	.10	222.69	44'	4' Lt.		218.69	.10	1/2:1	
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188+50	1/2:1	.10	221.01	44'	4' Lt.		217.01	.10	1/2:1	
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188+00	1/2:1	.10	219.17	44'	4' Lt.		215.17	.10	1/2:1	
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187+50	1/2:1	.10	217.18	44'	4' Lt.		213.18	.10	1/2:1	
--------	-------	-----	--------	-----	--------	--	--------	-----	-------	--

B.M. 7.10 207.48 4.30 200.88

L.V. Dist. M.H. Sed
W. Gears Blvd
+ 11.12
58 100.10

9.3	-19.5	-18.4
16.2	9.3	9.3
-1.0	F 28.8	F 27.1
92.2	87.2	33.0

10.1	-18.9	-16.9	-14.5	-14.0	11.1
10.7	10.1	10.1		11.1	11.1
-0.6	F 28.1	F 27.0		F 25.1	16.0
91.2	88.2	33.0		37.7	42.7

12.2	-16.3	-15.2	-12.8	-12.3	12.5
13.0	12.2	12.2	12.5	12.5	12.5
-0.8	F 28.5	F 27.4	F 25.3	F 24.8	+ 0.2
91.8	82.8	33.0		37.2	42.2

TP 10.25 204.68 3.11 194.43

57.05
50.27 188.8

5.2	-21.6	-20.5	-18.1	-17.6	6.8
5.2	5.2	5.2	6.8	6.8	6.8
-0.4	F 26.8	F 25.7	F 24.7	F 24.1	-15.7
89.2	84.2	33.0		36.6	41.6

6.6	-19.6	-18.5	-16.1	-15.6	7.6
6.6	6.6	6.6	7.6	7.6	7.6
+0.5	F 26.2	F 25.1	F 24.2	F 23.3	-0.2
88.3	83.3	33.0		34.8	39.8

197.54

(Left Lane) "B"

Lt. E Rt.

Shdr. Shdr. Shdr. Shdr.

Sta. Slope Super Elev. Width Width Elev. Super Slope

193+00 1/2:1 .10 E. 229.33 230.23 44' 4' Lt. 226.43 .10 1/2:1

192+50 1/2:1 .10 E. 228.92 230.02 44' 4' Lt. 226.02 .10 1/2:1

192+00 1/2:1 .10 E. 228.35 229.45 44' 4' Lt. 225.45 .10 1/2:1

191+50 1/2:1 .10 E. 227.62 228.72 44' 4' Lt. 224.72 .10 1/2:1

13.0
12.7
+0.3
88.3

-13.2
13.0
F 26.2
88.3

-12.1
13.0
F 25.1
33.05

-9.7

-9.2
4.7
F 13.9
30.9

4.7
+1.2
25.9

14.4
13.2
+1.0
89.8

-13.8
13.2
F 27.2
84.8

-11.7
13.2
F 25.1
33.0

-9.3

-8.8
8.9
F 15.7
23.6

6.9
4.7
+2.2
28.6

TP

999

217.21

0.26

207.22

4.8
5.3
-0.5
89.2

-22.0
4.8
F 26.8
84.2

-20.9
4.8
F 25.7
33.0

-18.5

-18.0
1.2
F 19.2
28.8

1.2
+0.3
+1.5
33.8

7.6
6.7
+0.9
92.2

-21.2
7.6
F 28.8
87.2

-20.1
7.6
F 27.7
33.05

-17.7
5.4
F 23.7

-17.2
5.2
F 22.6
33.9

5.4
4.8
+0.6
33.9

207.48

May 19. 50
A. J. Sisson
D. Smith
R. R. R.
C. H. Voz
Coto

60

(Left Lane) "B"

61

Sta.	Slope	Super	Elev.	Width	Width	Elev.	Super	Slope
			Shdr.	Shdr.	Shdr.	Shdr.		
195+00	1/2:1	.049	E. 228.80 229.34	44'	4' Lt.	E. 227.62 227.37	.049	1/2:1

13.6	-6.6	-6.0	-4.8	-4.6	5.6
14.3	13.8	13.6		5.6	3.1
0.7	F 20.2	F 19.6		F 10.2	1.25
79.3	74.3	33.0E		15.3	20.3

E.C.	1/2:1	F 229.11		I	227.59		1/2:1
194+66	.49	.663	229.80	44	227.28	.663	1/2:1

14.0	-7.0	-6.3	-4.8	-4.5	5.9
14.0	14.0	14.0		5.9	4.1
0.0	F 21.0	F 20.3		F 10.4	2.18
80.5	75.5	33.0E		15.6	20.6

194+50	1/2:1	.07	E. 229.26 230.03	44'	4' Lt.	E. 227.58 227.23	.07	1/2:1
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14.8	-7.2	-6.5	-4.8	-4.4	6.3
15.3	14.8	14.8		6.3	4.4
0.5	F 22.0	F 21.3		F 10.7	1.9
82.0	77.0	33.0		16.1	21.1

TP

9.10	222.79	3.52	213.69
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194+00	1/2:1	.089	E. 229.56 230.54	44'	4' Lt.	E. 227.42 226.97	.089	1/2:1
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10.3	-12.3	-12.4	-10.2	-9.8	3.5
9.7	10.3	10.3		9.8	3.5
7.6	F 23.6	F 22.7		F 13.3	1.29
84.4	79.4	33.0		20.0	25.0

193+78 Start of Trans.

Start of Trans.

193+50	1/2:1	.099	E. 229.58 230.67	44'	4' Lt.	E. 227.20 226.70	.099	1/2:1
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11.2	-12.5	-12.4	-10.0	-9.5	5.9
11.2	11.2	11.2		5.9	3.8
0.0	F 24.7	F 23.6		F 15.4	1.2
86.1	81.1	33.0E		23.1	28.2

217.21

(Left Lane) "B"

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
197+00	1/2:1	-	E. 227.05 226.67	44'	4' Lt.	E. 227.29 227.04	-	1/2:1

8.7	-3.9	-4.3	-4.5	-4.3	5.4
8.5	8.7	8.7		5.4	5.4
10.2	F 12.6	F 13.0		F 9.7	F 0.3
67.9	62.9	33.0 F		14.6	19.6

62

196+50	1/2:1	.006	E. 227.25 227.11	44'	4' Lt.	E. 227.39 227.14	.006	1/2:1
196+42	End of Trans.		End of Trans.					

10.0	-4.3	-4.5	-4.6	-4.4	70.5
9.8	10.0	10.0		2.8	310.4
10.3	F 14.3	F 14.5		F 7.6	195+50
70.5	65.5	33.0		10.8	17"

196+00	1/2:1	.008	E. 227.70 227.78	44'	4' Lt.	E. 227.52 227.27	.008	1/2:1
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11.3	-5.0	-4.9	-4.7	-4.5	
11.0	11.3	11.3		6.0	
10.3	F 16.3	F 16.3		F 10.5	
73.5	68.5	33.0		15.8	

195+50	1/2:1	.028	E. 228.25 228.32	44'	4' Lt.	E. 227.57 227.32	.028	1/2:1
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12.4	-5.8	-5.5	-4.8	-4.5	NORP
12.4	13.4	12.4		5.5	6.0
0.0	F 18.2	F 17.9		F 10.0	190 Lt
76.3	71.3	33.0 F		15.0	194.50

222.79

(Left Lane) "B"

Sta.	Slope	Super	LT. Shdr. Elev.	E Shdr. Width	Rt. Shdr. Width	Elev.	Super	Slope
199+00	1/2:1	-	E. 228.76 228.21	44'	4' Lt.	E. 229.00 228.75	(224.70)	1/2:1

3.4	-5.4	-6.0
32.2	3.4	2.4
10.2	F 8.8	F 7.4
62.2	57.2	33.0

198+50	1/2:1	-	E. 228.01 227.46	44'	4' Lt.	E. 228.25 228.00	(222.50)	1/2:1
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4.7	-4.7	-5.2
4.5	4.7	4.7
10.2	F 9.4	F 9.9
63.1	58.1	33.0

198+00	1/2:1	-	E. 227.44 226.89	44'	4' Lt.	E. 227.68 227.43	(220.00)	1/2:1
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6.2	-4.1	-2.7
6.3	6.2	6.2
0.1	F 10.2	F 10.9
64.5	59.5	33.0

197+50	1/2:1	-	E. 227.14 226.59	44'	4' Lt.	E. 227.37 227.12	1/2:1
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7.3	-3.8	-4.1
7.6	7.3	7.3
0.3	F 11.7	F 11.7
65.7	66.7	33.0

take out

-4.3	5.9
5.9	5.9
F 10.2	F 10.7
15.3	20.3

over Lap H'line

222.79

(Left Lane) 'B'

Sta.	Slope	Super	Elev.	Width	Width	Elev.	Super	Slope
			Lt. Shdr.	E Shdr.	Rt. Shdr.			

199+12.76	1/2:1		E. 231.04	44'	4' Lt	E. 231.29		(229.60)
200+01.16	5K		230.49			231.04		4:1

8.2	1.7	1.2
7.9	8.2	8.2
76.3	53.8	77.0
58.8		33.0

BM	10.07	232.21	0.65	222.14
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X on MH
954 197+804
Page 52
222.11

199+50	1/2:1		E. 229.77	44'	4' Lt	E. 230.01		1/2:1
			229.22			229.76		

1.8	6.1	7.0
4.8	1.8	1.8
2.0	7.2	7.8
81.3	56.3	33.0

222.79

May 12 50
Start 202+0

66

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope						
203+00	1/2:1	-	E. 247.54 246.99	44'	44'	E. 247.54 246.99	-	1/2:1	8.3 8.1 +0.2 8.3	-3.1 8.3 F11.4 8.1	-3.7 8.5 F12.2 33.0	-3.7 8.5 F12.2 33.0	-3.1 8.5 F11.4 8.1	8.5 7.7 +0.8 66.4
202+50	1/2:1	-	E. 245.05 244.50	44'	44'	E. 245.05 244.50	-	1/2:1	9.4 8.7 +0.7 8.4	-0.6 9.4 F10.6 59.0	-1.2 9.7 F10.6 33.0	-1.2 9.7 F12.4 33.0	-0.6 9.7 F11.8 8.1	11.2 11.0 +0.2 66.7
202+00	1/2:1	-	E. 242.56 242.01	44'	44'	E. 242.56 242.01	-	1/2:1	11.2 10.3 +0.9 63.0	1.9 11.2 F9.3 58.0	1.3 11.2 F9.9 33.0	1.3 11.6 F10.3 33.0	1.9 11.6 F9.7 58.6	11.6 12.0 -0.4 63.6
201+51.75	= SCYR M/H 24 1/2' x 9'					Raise 9.00								
						240.33 Elev Top		IP		12.40	240.88	2.94	231.48	on M/H 25.21 201+53
						231.48								
						F 8.87 From Riv								
201+50	1/2:1	-	E. 240.08 239.53	44'	44'	E. 240.15 239.60	-	1/2:1	3.3 3.1 +0.2 61.6	-5.1 3.3 F8.4 56.6	-5.7 3.3 F9.0 33.0	-5.7 3.3 F8.7 33.0	-5.1 3.3 F8.2 56.3	3.0 2.8 +0.2 61.3

234.42

Lt. ϕ Rt.
 Shdr. Shdr. Shdr. Shdr.
 Sta. Slope Super Elev. Width Width Elev. Super Slope

B.M.

9.14 244.52 ²⁰⁵⁴⁸⁰
 185.14
67
 205480
 244.52

205+00 1/2:1 - E.257.50 256.95 44' 44' E.257.50 256.95 - 1/2:1

13.0 -3.3 -3.8 -3.8 -3.3 8.9
 12.5 13.0 13.0 8.9 8.9 5.6
 10.5 F16.2 F16.8 F16.2 F16.2 13.3
 73.5 68.5 33.0F 33.0F 62.3 67.3

TP

12.05 253.66 2.27 241.61

204+50 1/2:1 - E.255.01 254.46 44' 44' E.255.01 254.46 - 1/2:1

3.7 -10.6 -11.1 -11.1 -10.6 3.2
 10.6 3.7 3.7 3.2 3.2 1.2
 70.5 F14.3 F14.8 F14.3 F13.8 11.2
 65.5 33.0 33.0 64.7 69.7

204+00 1/2:1 - E.252.52 251.97 44' 44' E.252.52 251.97 - 1/2:1

6.7 -8.1 -8.6 -8.6 -8.1 4.9
 6.6 8.7 8.7 4.4 4.4 2.7
 10.7 F14.8 F15.2 F13.0 F12.5 11.7
 71.2 66.2 33.0 33.0 62.8 67.8

203+50 1/2:1 - E.250.03 249.48 44' 44' E.250.03 249.48 - 1/2:1

7.3 -5.6 -6.2 -6.2 -5.6 4.1
 6.9 7.3 7.3 4.4 4.4 3.1
 10.4 F12.9 F13.5 F10.6 F10.0 11.3
 68.4 63.4 33.0F 33.0F 59.0 64.0

243.88

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
207+00	1/2:1	-	E. 267.48 266.93	44'	45'	E. 267.48 267.08	-	1:1

TP for Rt Side	12.35	315.45	0.46	302.10	68
14.7	-6.0	-6.6	36.1	36.5	29
14.7	14.7	14.7	29	29	19
0.2	F 20.7	F 21.3	C 33.2	C 33.6	+1.1
80.1	75.1	33.0F	33.0F	78.6	82.6

206+50	1/2:1	-	E. 264.97 264.42	44'	45'	E. 264.97 264.57	-	1:1
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TP For Rt Side	12.20	303.56	0.12	290.36
17.5	-3.5	-4.1	25.5	25.9
17.9	17.5	17.5	43	43
-0.4	F 21.0	F 21.6	C 24.2	C 24.6
81.5	75.5	33.0	33.0	86.6

at back
290.48 Page 69

290.48 T

206+00	1/2:1	-	E. 262.48 261.93	44'	45'	E. 262.48 262.08	-	1:1
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19.1	-1.0	-1.6	16.8	17.2	9.1
19.0	19.1	19.1	9.1	9.1	5.7
+6.1	F 20.1	F 20.7	C 7.7	C 8.1	+5.7
79.2	74.2	33.0	33.0	83.1	88.1

+90 = Service MH 61' N of A

Raise 7.00

244.16 Elev Top

205+80			E. 261.48 261.02					
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TP For Lt Side	8.9	260.90	1.35	252.31
-0.6	-0.6	-0.6	-0.6	+2.3
+0.1	+0.1	+0.1	+0.1	50.0
F 0.5	F 0.5	F 0.5	45.0	11.2
33.0	33.0	33.0	33.0	25.5

205+50	1/2:1	-	E. 259.99 259.44	44'	44'	E. 259.99 259.44	-	1/2:1
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13.1	-5.8	-6.3	0.9	4.5	6.1
13.1	13.1	13.1	6.1	6.1	3.2
0.0	F 18.9	F 19.4	F 5.2	F 4.6	+2.9
77.4	72.4	33.0F	33.0	50.9	55.9

253.66

May 15-50

Sta.	Slope	Super	Elev.	Shdr. Width	Shdr. Width	Elev.	Super	Slope
209+00	1/2:1	-	E. 277.59	44'	45'	E. 277.57	-	1:1

			277.02			277.17		
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208+50	1/2:1	-	E. 275.04	44'	45'	E. 275.04	-	1:1
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			274.49			274.64		
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208+00	1/2:1	-	E. 272.51	44'	45'	E. 272.51	-	1:1
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			271.96			272.11		
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207+50	1/2:1	-	E. 269.99	44'	45'	E. 269.99	-	1:1
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			269.44			269.59		
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27929A

56	2.3	1.7
79	56	5.6
200	F 33	F 39
54	49.0	38.5

32809A

50.5	50.9	7.7
77	77	7.7
42.8	42.2	40.1
33.0	88.2	32

69

TP 11.73 290.48 0.54 278.75

TP 7.83 279.29 0.32 271.46
For Lt Side

13.3	-2.7	-3.3	53.1	53.5	11.9
15.1	13.5	13.3	11.9	11.9	11.1
1.8	F 40	F 16.6	41.2	41.6	40.8
73.0	88.0	33.0	33.0	86.6	91.6

TP on Rt. side 13.12 32809A 0.48 314.97

TP on Lt. side 11.23 271.78 0.35 260.55

13.8	-1.6	-1.6	43.9	43.3	3.2
13.3	12.8	12.8	3.2	3.2	3.2
0.5	F 23.9	F 24.4	39.7	40.1	40.8
	79.9	33.0	33.0	85.1	90.1

13.6	-8.5	-9.1	15.5	45.9	8.9
14.0	13.6	13.6	8.9	8.9	8.9
0.4	F 22.1	F 22.7	36.6	37.0	36.0
82.2	77.2	33.0	33.0	82.0	87.0

315.45 Rt Side
260.90 For Lt Side

Sta.	Slope	Super	Shdr. Eley.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
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211+00	2:1	-	E. 287.78 287.38	46'	45'	E. 287.92 287.89	.004	1:1
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210+80

start
of
Trans

210+50	1:1	-	E. 285.22 284.82	45'	45'	E. 285.22 285.08	-	1:1
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210+00	1:1	-	E. 282.67 282.27	45'	45'	E. 282.67 282.41	-	1:1
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209+50	.05	-	E. 280.11 279.71 279.18	44"	45'	E. 280.11 279.74	-	1:1
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77 +369 330.30 148 326.61 **70**

389 30.6 -17 77.6	407. 387. C118. 69.6	40.3. 28.9 C114. 33.0	40.2. 15. C387. 33.0E	40.2. 15. C387. 837.	1.5 1.7 -0.2 88.7
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36.7 33.4 -3.7 62.6	43.3. 30.7 C126. 57.6	42.9. 35.7 C122. 33.0	42.9. 37. C40.0. 33.0	43.0. 29. C40.1. 85.1	2.8 2.9 10.1 90.1
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380 41.1 -31 57.8	458. 329. C7.8 52.8	454. 386. C24. 33.0	45.1. 39. C115. 33.0	457. 39. C41.8 86.8	3.9 3.9 8.0 91.8
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489 51.1 -22 59.5	489. 487. C.0. 54.5	480. 489. F.04. 33.0F	480. 55. C128. 33.0F	481. 55. C43.9 87.9	5.5 5.5 10.2 92.9
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328.09 For RT. & Lt.

May 17-50

71

Sta.	Slope	Super	Shdr. Elev.	Shdr. Width	Shdr. Width	Shdr. Elev.	Super	Slope
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213+00	2:1	.046	E. 297.14 296.74	41.5'	40.5'	E. 299.34 299.71	.046	1:1
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209	33.6	33.2	31.0	30.6	31.5
236	20.9	20.9	3.5	3.5	3.2
-24	12.7	12.3	27.5	27.1	20.3
719	66.9	28.5	38.5	67.6	7.28

212+75	2:1	.04	E. 296.01 295.61	42.81'	41.81'	E. 297.93 298.25	.04	1:1
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212+50	2:1	.034	E. 294.87 294.47	44'	43'	E. 296.51 296.78	.034	1:1
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17.5	35.8	35.4	33.8	33.5	33
18.5	17.5	17.5	3.2	3.2	3.2
-1.0	78.3	17.9	30.6	30.3	0.0
85.6	80.6	31.0	31.0	73.3	78.2

212+25	2:1	.027	E. 293.76 293.36	45.38'	44.38'	E. 295.06 295.28	.027	1:1
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212+00	2:1	.02	E. 292.64 292.24	46'	45'	E. 293.61 293.77	.02	1:1
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19.8	38.1	37.7	36.7	36.5	3.3
21.2	19.2	19.2	3.3	3.3	3.3
-1.4	18.3	17.9	33.7	33.2	0.0
87.6	82.6	33.0	33.0	78.2	88.2

211+60 start of Trans.

211+50	2:1	-	E. 290.29 289.89	46'	45'	E. 290.78 290.84	.008	1:1
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21.4	40.4	40.0	39.5	39.5	3.7
28.2	21.1	21.1	3.7	3.7	3.5
3.8	16.0	15.6	35.8	35.8	70.2
83.0	78.0	33.0	33.0	80.8	85.8

330.30

+20

Lt.

E

E 311.85
312.76
Rt.

Sta.	Slope	Super	Elev.	Width	Width	Elev.	Super	Slope
215+00	1/2:1	.097	305.07	37'	38'	310.80	.097	1:1

E. 303.89

214+50	1/2:1	.084	302.97	37'	38'	308.60	.084	1:1
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F 303.21

302.69

$\Delta = 34^{\circ}01'30''$
 $R = 1000'$
 $T = 305.97'$
 $L = 593.85'$

E 301.63

214+00	2:1	.072	301.05	39'	38'	305.67	.072	1:1
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E 300.77

213+81.27	1:1	.067	300.76	39.1'	38.1'	304.55	.067	1:1
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E 299.33

213+50	2:1	.059	298.77	39.4'	38.4'	302.67	.059	1:1
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E 298.26

213+25	2:1	.052	297.84	40.31'	39.31'	301.20	.052	1:1
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291.98T

18.1	-13.1	-14.2	16.5	15.8	1.0
18.1	18.1	18.1	16.5	15.8	1.0
0.0	F 31.2	F 32.3	0.0	0.0	0.0
88.8	83.8	86.0	26.0	29.8	34.8

303.97T

11.4	1.0	0.1	19.4	18.7	2.0
14.6	14.6	11.4	19.4	18.7	1.5
2.2	F 10.4	F 11.3	0.0	0.0	0.0
37.6	32.6	36.0	26.0	29.7	29.7

12.8	12.8	12.0	12.8	12.8	12.0
12.8	12.8	12.0	12.8	12.8	12.0
7.0	7.0	7.0	7.0	7.0	7.0
43.0	38.0	38.0	38.0	38.0	38.0

315.21T

8.2	14.2	13.6	22.2	21.7	2.3
8.2	8.2	8.2	22.2	21.7	1.5
2.1	C 6.0	C 5.9	0.0	0.0	0.0
36.0	31.0	36.0	26.0	29.4	29.4

TP

6.97 327.03T
 9.94 320.36

22.5	30.1	29.5	26.3	25.8	2.6
22.5	22.5	22.5	26.3	25.8	2.6
1.8	0.0	0.0	0.0	0.0	0.0
59.3	54.3	56.1	26.1	29.2	26.3

21.9	31.2	30.9	28.1	27.6	2.1
21.9	21.9	21.9	28.1	27.6	2.1
2.7	C 9.5	C 9.0	0.0	0.0	0.0
68.4	58.4	64.5	26.2	29.9	29.9

320.80

Lt. E Rt.
 Shdr. shdr. shdr. shdr.
 Sta. Slope Super Elev. Width Width Elev. Super Slope

2 219+00 1:1 .045 327.23 37' 39' 330.15 .045 1:1
 4825.71 328.83
 325.29 328.83
 +65 327.52
 +75 .052 .052

2 218+50 1:1 .059 328.47 37' 39' 328.26 .059 1 1/2 : 1
 E. 324.94 321.24 E. 327.74
 328.47 328.26

+30 328.28 327.42
 E 325.33 327.42
 0.52 0.52

2 218+00 1:1 .073 321.50 37' 39' 326.17 .073 1 1/2 : 1
 E. 324.08 323.81 E. 325.54
 321.50 326.17

+80 320.92 320.19
 E 320.92 320.19

+75 319.73 325.01
 E 319.18 323.32
 319.73 324.06

2 217+50 1 1/2 : 1 .086 318.23 37' 39' 324.06 .086 1 1/2 : 1
 E 318.23 324.06

BM
 Now 3.45 331.20
 N.E. D. on Redoubt Land 1443
 74

5.0 7.1 7.0
 7.0 7.4 7.0
 74.4 39.4 26
 4.9 4.5 5.2
 5.3 5.3 5.2
 F 36.0 F 36.0 F 36.0

5.4 9.4 8.9
 5.0 6.0 5.4
 76.0 41.0 36.0
 Corrected 4.33 334.65
 B.M. 0.87 330.33
 330.38 330.33 330.33

1.5 6.8 6.3
 1.5 0.53 1.5
 97.3 43.3 26.0
 + 3.5 + 3.0 9.5
 9.5 9.5 10.1
 F 36.0 F 36.0 F 36.0
 36.0 18.8 538

TP 11.17 331.25 0.34 320.08
 TP 12.56 320.42 0.46 307.86
 TP 12.26 308.32 0.37 295.96

331.25
 8.2 9.8 9.1
 8.2 8.2 8.2
 10.3 7.6 0.9
 43.6 38.6 26.0
 -29.9 -29.9 9.1
 29.9 29.9 9.1
 F 36.0 F 36.0 F 36.0
 36.0 36.0 36.0
 -35.6 -36.2 2.3
 35.6 35.6 10.1
 F 36.0 F 36.0 F 36.0
 36.0 36.0 36.0

320.42 +0.2 -0.5
 Eye 10.3 0.2
 Lev. +0.3 87.0
 72.0 F 36.0 36.0

320.42 2.2 1.2
 1.5 1.5 4.5
 31.4 F 36.0 F 36.0
 +1.2 40.5 36.0
 76.5 12.83 296.33
 B.M. 8.48 283.50

291.98 For Rt. Side
 283.44

Sta.	Lt. Super	Elev.	E	Width	Rt. Super	Elev.
221+00		335.29	33'	33'		335.63

220+50	.021	333.49	33'	33'		334.26 .004
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220+00	.022	331.46	33'	33'		332.68 .018
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219+75.12		330.14				331.77
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219+50	.032	328.91	32.75	33.25		330.86 .031
--------	------	--------	-------	-------	--	-------------

45
39
C 24 = Gutter
70.0

29
28
20.1 Gutter Conc
40
20.1

58
39
C 27 Gutter
39.75

37
35
20.2 Gutter
70.25

334.65

	Lt.	E		RT.	
Sta.	Super	Gutter Elev	Gutter Width	Gutter Elev	Super

223+09	340.23	33'	33'	339.73	
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222+59	339.46	33'	33'	338.96	
--------	--------	-----	-----	--------	--

222+09	338.49	33'	33'	337.99	
--------	--------	-----	-----	--------	--

221+59	337.34	33'	33'	336.99	
--------	--------	-----	-----	--------	--

	Lt.	£		Rt.	
Sta.	Gutter Elev.	Gutter Width	Gutter Width	Gutter Elev.	
225+09	341.70	33'	33'	341.70	
224+59	341.45	33'	33'	340.95	
224+09	341.20	33'	33'	340.70	
223+59	340.81	33'	33'	340.31	

Sta.	Lt. Gutter Elev.	C Gutter Width	Gutter Width	Rt. Gutter Elev.
21	341.83	33'	33'	341.33

10

21
225+34
21

341.83 33' 33' 341.33

BM 5.875 142.075 136.20 X 0.0 M H Run
 70605 H. 1
 + Sunipps!

TP 8.250 148.005 2.82 139.755

TP 13.015 156.970 4.05 148.955

BM 2.75 154.22 SFGF
 H Inlet
 Lt 16240

BM 6.18 160.03 Lt. MH
 70 Lt
 16446.5

BM 5.78 154.25 J.F. Car.
 H Inlet
 Lt 16240

Grade for Ditch Above Cut
152+0 to 159+0 Habers Blvd.

+50 = A	90' Rt of $\frac{1}{2}$ = $\frac{1}{2}$ Ditch	171.0 6.2 5.1 0.7
155+0		171.3 5.9 8.6 F0.6
+50		171.7 5.6 5.0
154+0	85' Rt of $\frac{1}{2}$ = $\frac{1}{2}$ Ditch	172.00 5.7 3.2 0.10
TP	3.85 177.23 5.18	173.38 ^{0.2 Top} _{2.0 154+0}
+50		172.3 1.3 6.2 00.7
153+0		172.7 5.9 5.3 F0.4
+50		173.0 5.6 5.1 F0.3
152+0	87' Rt of $\frac{1}{2}$ = $\frac{1}{2}$ Ditch	173.3 5.3 4.3 0.0
BM	1261 178.58	165.95 ^{0.2 Stub} _{RT 153+0} _{50.1 F0.4}

Jan 6-51
H. Sisson
Bertolucci
Fritz

80

159+0 70' Rt.

+50 71' Rt.

158+0 72' Rt.

+50 75' Rt.

157+0 73' Rt.

+50

156+0

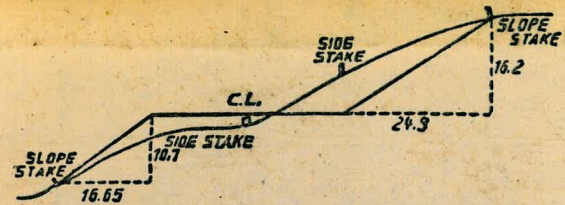
169.7
7.5
1.2
0.32

170.0
7.2
4.7
0.25

170.3
6.9
6.6
0.33

170.7
6.1
4.9
0.17

8320 L



DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING.
SLOPE 1 1/2 TO 1. ROADWAY OF ANY WIDTH.

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.00	0.15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	0
1	1.50	1.65	1.80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	1
2	3.00	3.15	3.30	3.45	3.60	3.75	3.90	4.05	4.20	4.35	2
3	4.50	4.65	4.80	4.95	5.10	5.25	5.40	5.55	5.70	5.85	3
4	6.00	6.15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7.35	4
5	7.50	7.65	7.80	7.95	8.10	8.25	8.40	8.55	8.70	8.85	5
6	9.00	9.15	9.30	9.45	9.60	9.75	9.90	10.05	10.20	10.35	6
7	10.50	10.65	10.80	10.95	11.10	11.25	11.40	11.55	11.70	11.85	7
8	12.00	12.15	12.30	12.45	12.60	12.75	12.90	13.05	13.20	13.35	8
9	13.50	13.65	13.80	13.95	14.10	14.25	14.40	14.55	14.70	14.85	9
10	15.00	15.15	15.30	15.45	15.60	15.75	15.90	16.05	16.20	16.35	10
11	16.50	16.65	16.80	16.95	17.10	17.25	17.40	17.55	17.70	17.85	11
12	18.00	18.15	18.30	18.45	18.60	18.75	18.90	19.05	19.20	19.35	12
13	19.50	19.65	19.80	19.95	20.10	20.25	20.40	20.55	20.70	20.85	13
14	21.00	21.15	21.30	21.45	21.60	21.75	21.90	22.05	22.20	22.35	14
15	22.50	22.65	22.80	22.95	23.10	23.25	23.40	23.55	23.70	23.85	15
16	24.00	24.15	24.30	24.45	24.60	24.75	24.90	25.05	25.20	25.35	16
17	25.50	25.65	25.80	25.95	26.10	26.25	26.40	26.55	26.70	26.85	17
18	27.00	27.15	27.30	27.45	27.60	27.75	27.90	28.05	28.20	28.35	18
19	28.50	28.65	28.80	28.95	29.10	29.25	29.40	29.55	29.70	29.85	19
20	30.00	30.15	30.30	30.45	30.60	30.75	30.90	31.05	31.20	31.35	20
21	31.50	31.65	31.80	31.95	32.10	32.25	32.40	32.55	32.70	32.85	21
22	33.00	33.15	33.30	33.45	33.60	33.75	33.90	34.05	34.20	34.35	22
23	34.50	34.65	34.80	34.95	35.10	35.25	35.40	35.55	35.70	35.85	23
24	36.00	36.15	36.30	36.45	36.60	36.75	36.90	37.05	37.20	37.35	24
25	37.50	37.65	37.80	37.95	38.10	38.25	38.40	38.55	38.70	38.85	25
26	39.00	39.15	39.30	39.45	39.60	39.75	39.90	40.05	40.20	40.35	26
27	40.50	40.65	40.80	40.95	41.10	41.25	41.40	41.55	41.70	41.85	27
28	42.00	42.15	42.30	42.45	42.60	42.75	42.90	43.05	43.20	43.35	28
29	43.50	43.65	43.80	43.95	44.10	44.25	44.40	44.55	44.70	44.85	29
30	45.00	45.15	45.30	45.45	45.60	45.75	45.90	46.05	46.20	46.35	30
31	46.50	46.65	46.80	46.95	47.10	47.25	47.40	47.55	47.70	47.85	31
32	48.00	48.15	48.30	48.45	48.60	48.75	48.90	49.05	49.20	49.35	32
33	49.50	49.65	49.80	49.95	50.10	50.25	50.40	50.55	50.70	50.85	33
34	51.00	51.15	51.30	51.45	51.60	51.75	51.90	52.05	52.20	52.35	34
35	52.50	52.65	52.80	52.95	53.10	53.25	53.40	53.55	53.70	53.85	35
36	54.00	54.15	54.30	54.45	54.60	54.75	54.90	55.05	55.20	55.35	36
37	55.50	55.65	55.80	55.95	56.10	56.25	56.40	56.55	56.70	56.85	37
38	57.00	57.15	57.30	57.45	57.60	57.75	57.90	58.05	58.20	58.35	38
39	58.50	58.65	58.80	58.95	59.10	59.25	59.40	59.55	59.70	59.85	39
40	60.00	60.15	60.30	60.45	60.60	60.75	60.90	61.05	61.20	61.35	40
41	61.50	61.65	61.80	61.95	62.10	62.25	62.40	62.55	62.70	62.85	41
42	63.00	63.15	63.30	63.45	63.60	63.75	63.90	64.05	64.20	64.35	42
43	64.50	64.65	64.80	64.95	65.10	65.25	65.40	65.55	65.70	65.85	43
44	66.00	66.15	66.30	66.45	66.60	66.75	66.90	67.05	67.20	67.35	44
45	67.50	67.65	67.80	67.95	68.10	68.25	68.40	68.55	68.70	68.85	45
46	69.00	69.15	69.30	69.45	69.60	69.75	69.90	70.05	70.20	70.35	46
47	70.50	70.65	70.80	70.95	71.10	71.25	71.40	71.55	71.70	71.85	47
48	72.00	72.15	72.30	72.45	72.60	72.75	72.90	73.05	73.20	73.35	48
49	73.50	73.65	73.80	73.95	74.10	74.25	74.40	74.55	74.70	74.85	49
50	75.00	75.15	75.30	75.45	75.60	75.75	75.90	76.05	76.20	76.35	50

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