

## เอกสารอ้างอิง

## ภาษาไทย

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พระนคร

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ผนวก ก.

ตัวอย่างบางส่วนของตารางข้อมูล เรื่อง ระยะทางมองเห็นบนส่วนโค้ง  
ในแนวดิ่ง.

PASSING SIGHT DISTANCE ON VERTICAL CURVE.

ALGEBRAIC DIFFERENCE OF GRADE = 2.00 PER CENT.

LENGTH OF VERTICAL CURVE (M.)	SIGHT DISTANCE (M.)
20.000	282.300
40.000	293.300
60.000	303.300
80.000	313.300
100.000	323.300
120.000	332.300
140.000	343.300
160.000	353.300
180.000	363.300
200.000	373.300
220.000	383.300
240.000	392.300
260.000	403.300
280.000	413.300
300.000	423.300
320.000	433.300
340.000	443.300
360.000	453.300
380.000	463.300
400.000	473.300
420.000	483.300
440.000	493.300
460.000	503.300
480.000	513.300
500.000	523.300
520.000	533.300
540.000	543.300
560.000	554.371
580.000	564.182
600.000	573.828
620.000	583.314
640.000	592.647
660.000	601.836
680.000	610.887
700.000	619.805
720.000	628.597
740.000	637.268
760.000	645.822
780.000	654.265
800.000	662.600

END OF PROGRAM.

## NON - PASSING SIGHT DISTANCE ON VERTICAL CURVE.

012

ALGEBRAIC DIFFERENCE OF GRADE = 2.00 PER CENT.

LENGTH OF VERTICAL CURVE (M.)	SIGHT DISTANCE (M.)
20.000	120.950
40.000	130.950
60.000	140.950
80.000	150.950
100.000	160.950
120.000	170.950
140.000	180.950
160.000	190.950
180.000	200.950
200.000	210.950
220.000	220.950
240.000	231.029
260.000	240.463
280.000	249.540
300.000	258.299
320.000	266.770
340.000	274.980
360.000	282.952
380.000	290.705
400.000	299.259
420.000	305.623
440.000	312.815
460.000	319.846
480.000	326.725
500.000	333.462
520.000	340.066
540.000	346.544
560.000	352.903
580.000	359.150
600.000	365.289
620.000	371.328
640.000	377.269
660.000	383.119
680.000	388.880
700.000	394.558
720.000	400.154
740.000	405.674
760.000	411.120
780.000	416.494
800.000	421.800

END OF PROGRAM.

PASSING SIGHT DISTANCE ON VERTICAL CURVE.

mm

ALGEBRAIC DIFFERENCE OF GRADE = 3.00 PER CENT.

LENGTH OF VERTICAL CURVE (M.)	SIGHT DISTANCE (M.)
20.000	192.200
40.000	202.200
60.000	212.200
80.000	222.200
100.000	232.200
120.000	242.200
140.000	252.200
160.000	262.200
180.000	272.200
200.000	282.200
220.000	292.200
240.000	302.200
260.000	312.200
280.000	322.200
300.000	332.200
320.000	342.200
340.000	352.200
360.000	362.200
380.000	372.866
400.000	382.852
420.000	391.992
440.000	401.224
460.000	410.242
480.000	419.065
500.000	427.706
520.000	436.177
540.000	444.485
560.000	452.642
580.000	460.654
600.000	468.529
620.000	476.274
640.000	483.894
660.000	491.397
680.000	498.787
700.000	506.062
720.000	513.248
740.000	520.327
760.000	527.312
780.000	534.205
800.000	541.010

END OF PROGRAM.

## NON - PASSING SIGHT DISTANCE ON VERTICAL CURVE.

m6

ALGEBRAIC DIFFERENCE OF GRADE = 3.00 PER CENT.

LENGTH OF VERTICAL CURVE (M.)	SIGHT DISTANCE (M.)
20.000	83.967
40.000	93.967
60.000	103.967
80.000	113.967
100.000	123.967
120.000	133.967
140.000	143.967
160.000	154.020
180.000	163.362
200.000	172.199
220.000	180.604
240.000	188.635
260.000	196.337
280.000	203.749
300.000	210.900
320.000	217.816
340.000	224.520
360.000	231.029
380.000	237.360
400.000	243.526
420.000	249.540
440.000	255.412
460.000	261.153
480.000	266.770
500.000	272.271
520.000	277.663
540.000	282.952
560.000	288.144
580.000	293.244
600.000	298.258
620.000	303.188
640.000	308.039
660.000	312.815
680.000	317.519
700.000	322.155
720.000	326.725
740.000	331.232
760.000	335.678
780.000	340.066
800.000	344.399

END OF PROGRAM.

PASSING SIGHT DISTANCE ON VERTICAL CURVE.

mC

ALGEBRAIC DIFFERENCE OF GRADE = 4.00 PER CENT.

LENGTH OF VERTICAL CURVE (M.)	SIGHT DISTANCE (M.)
20.000	146.650
40.000	156.650
60.000	166.650
80.000	176.650
100.000	186.650
120.000	196.650
140.000	206.650
160.000	216.650
180.000	226.650
200.000	236.650
220.000	246.650
240.000	256.650
260.000	266.650
280.000	277.185
300.000	286.914
320.000	296.324
340.000	305.443
360.000	314.299
380.000	322.911
400.000	331.200
420.000	339.481
440.000	347.470
460.000	355.279
480.000	362.921
500.000	370.404
520.000	377.740
540.000	384.936
560.000	391.999
580.000	398.938
600.000	405.758
620.000	412.465
640.000	419.065
660.000	425.562
680.000	431.962
700.000	438.268
720.000	444.485
740.000	450.617
760.000	456.665
780.000	462.635
800.000	468.529

END OF PROGRAM.



## NON - PASSING SIGHT DISTANCE ON VERTICAL CURVE.

mb

ALGEBRAIC DIFFERENCE OF GRADE = 4.00 PER CENT.

LENGTH OF VERTICAL CURVE (M.)	SIGHT DISTANCE (M.)
20.000	65.475
40.000	75.475
60.000	85.475
80.000	95.475
100.000	105.475
120.000	115.515
140.000	124.770
160.000	133.385
180.000	141.476
200.000	149.129
220.000	156.408
240.000	163.362
260.000	170.033
280.000	176.452
300.000	182.645
320.000	188.635
340.000	194.440
360.000	200.077
380.000	205.560
400.000	210.900
420.000	216.108
440.000	221.194
460.000	226.165
480.000	231.029
500.000	235.793
520.000	240.463
540.000	245.044
560.000	249.540
580.000	253.957
600.000	258.299
620.000	262.568
640.000	266.770
660.000	270.906
680.000	274.980
700.000	278.994
720.000	282.952
740.000	286.855
760.000	290.705
780.000	294.506
800.000	298.258

END OF PROGRAM.



PASSING SIGHT DISTANCE ON VERTICAL CURVE.

met

ALGEBRAIC DIFFERENCE OF GRADE = 5.00 PER CENT.

LENGTH OF VERTICAL CURVE (M.)	SIGHT DISTANCE (M.)
20.000	119.320
40.000	129.320
60.000	139.320
80.000	149.320
100.000	159.320
120.000	169.320
140.000	179.320
160.000	189.320
180.000	199.320
200.000	209.320
220.000	219.760
240.000	229.531
260.000	238.904
280.000	247.922
300.000	256.624
320.000	265.040
340.000	273.197
360.000	281.117
380.000	288.821
400.000	296.324
420.000	303.641
440.000	310.787
460.000	317.772
480.000	324.606
500.000	331.300
520.000	337.861
540.000	344.297
560.000	350.615
580.000	356.821
600.000	362.921
620.000	368.920
640.000	374.823
660.000	380.635
680.000	386.359
700.000	391.999
720.000	397.560
740.000	403.044
760.000	408.454
780.000	413.793
800.000	419.065

END OF PROGRAM.

NON - PASSING SIGHT DISTANCE ON VERTICAL CURVE.

22

ALGEBRAIC DIFFERENCE OF GRADE = 5.00 PER CENT.

LENGTH OF VERTICAL CURVE (M.)	SIGHT DISTANCE (M.)
20.000	54.380
40.000	64.380
60.000	74.380
80.000	84.380
100.000	94.317
120.000	103.319
140.000	111.599
160.000	119.303
180.000	126.540
200.000	133.385
220.000	139.895
240.000	146.116
260.000	152.082
280.000	157.823
300.000	163.362
320.000	168.720
340.000	173.913
360.000	178.955
380.000	183.858
400.000	188.635
420.000	193.293
440.000	197.842
460.000	202.288
480.000	206.639
500.000	210.900
520.000	215.076
540.000	219.174
560.000	223.195
580.000	227.146
600.000	231.029
620.000	234.848
640.000	238.606
660.000	242.306
680.000	245.949
700.000	249.540
720.000	253.080
740.000	256.571
760.000	260.015
780.000	263.414
800.000	266.770

END OF PROGRAM.

PASSING SIGHT DISTANCE ON VERTICAL CURVE.

๓๘

ALGEBRAIC DIFFERENCE OF GRADE = 6.00 PER CENT.

LENGTH OF VERTICAL CURVE (M.)	SIGHT DISTANCE (M.)
20.000	101.100
40.000	111.100
60.000	121.100
80.000	131.100
100.000	141.100
120.000	151.100
140.000	161.100
160.000	171.100
180.000	181.100
200.000	191.276
220.000	200.612
240.000	209.533
260.000	218.088
280.000	226.321
300.000	234.264
320.000	241.947
340.000	249.394
360.000	256.624
380.000	263.656
400.000	270.505
420.000	277.185
440.000	283.708
460.000	290.085
480.000	296.324
500.000	302.434
520.000	308.424
540.000	314.299
560.000	320.066
580.000	325.732
600.000	331.300
620.000	336.776
640.000	342.165
660.000	347.470
680.000	352.696
700.000	357.845
720.000	362.921
740.000	367.927
760.000	372.866
780.000	377.740
800.000	382.552



END OF PROGRAM.

## NON - PASSING SIGHT DISTANCE ON VERTICAL CURVE.

60

ALGEBRAIC DIFFERENCE OF GRADE = 6.00 PER CENT.

LENGTH OF VERTICAL CURVE (M.)	SIGHT DISTANCE (M.)
20.000	46.983
40.000	56.983
60.000	66.983
80.000	77.010
100.000	86.100
120.000	94.317
140.000	101.874
160.000	108.909
180.000	115.515
200.000	121.763
220.000	127.706
240.000	133.385
260.000	138.831
280.000	144.072
300.000	149.129
320.000	154.120
340.000	158.760
360.000	163.362
380.000	167.839
400.000	172.199
420.000	176.452
440.000	180.604
460.000	184.563
480.000	188.635
500.000	192.524
520.000	196.337
540.000	200.077
560.000	203.749
580.000	207.355
600.000	210.900
620.000	214.386
640.000	217.816
660.000	221.194
680.000	224.520
700.000	227.798
720.000	231.029
740.000	234.216
760.000	237.360
780.000	240.463
800.000	243.526

END OF PROGRAM.

ผนวก ข.

ตัวอย่างบางส่วนของตารางข้อมูล เรื่องความลาดการระบายน้ำ สำหรับ

นิเวศวิทยา.

THE DRAINAGE SLOPE FOR PAVEMENTS.

62

DRAINAGE SLOPE = 1.00 PER CENT CROWN.

WIDTH OF PAVEMENT = 6.00 M.

DISTANCE	Y.	OFFSET	ELEVATION
0.00	0.0000	.0600	36.8750
.50	.0017	.0583	36.8733
1.00	.0067	.0533	36.8683
1.50	.0150	.0450	36.8600
2.00	.0267	.0333	36.8483
2.50	.0417	.0183	36.8333
3.00	.0600	0.0000	36.8150

END OF PROGRAM.

THE DRAINAGE SLOPE FOR PAVEMENTS.

60

DRAINAGE SLOPE = 1.00 PER CENT CROWN.

WIDTH OF PAVEMENT = 9.00 M.

DISTANCE	Y.	OFFSET	ELEVATION
0.00	0.0000	.0900	36.9050
.50	.0011	.0889	36.9039
1.00	.0044	.0856	36.9006
1.50	.0100	.0800	36.8950
2.00	.0178	.0722	36.8872
2.50	.0278	.0622	36.8772
3.00	.0400	.0500	36.8650
3.50	.0544	.0356	36.8506
4.00	.0711	.0189	36.8339
4.50	.0900	0.0000	36.8150

END OF PROGRAM.



THE DRAINAGE SLOPE FOR PAVEMENTS.

66

DRAINAGE SLOPE = 1.00 PER CENT CROWN.

WIDTH OF PAVEMENT = 12.00 M.

DISTANCE	Y.	OFFSET	ELEVATION
0.00	0.0000	.1200	36.9350
.50	.0008	.1192	36.9342
1.00	.0033	.1167	36.9317
1.50	.0075	.1125	36.9275
2.00	.0133	.1067	36.9217
2.50	.0208	.0992	36.9142
3.00	.0300	.0900	36.9050
3.50	.0408	.0792	36.8942
4.00	.0533	.0667	36.8817
4.50	.0675	.0525	36.8675
5.00	.0833	.0367	36.8517
5.50	.1008	.0192	36.8342
6.00	.1200	0.0000	36.8150

END OF PROGRAM.

THE DRAINAGE SLOPE FOR PAVEMENTS.

DRAINAGE SLOPE = 1.00 PER CENT CROWN.

WIDTH OF PAVEMENT = 15.00 M.

DISTANCE	Y.	OFFSET	ELEVATION
0.00	0.0000	.1500	36.9650
.50	.0007	.1493	36.9643
1.00	.0027	.1473	36.9623
1.50	.0060	.1440	36.9590
2.00	.0107	.1393	36.9543
2.50	.0167	.1333	36.9483
3.00	.0240	.1260	36.9410
3.50	.0327	.1173	36.9323
4.00	.0427	.1073	36.9223
4.50	.0540	.0960	36.9110
5.00	.0667	.0833	36.8983
5.50	.0807	.0693	36.8843
6.00	.0960	.0540	36.8690
6.50	.1127	.0373	36.8523
7.00	.1307	.0193	36.8343
7.50	.1500	0.0000	36.8150

END OF PROGRAM.

THE DRAINAGE SLOPE FOR PAVEMENTS.

cb

DRAINAGE SLOPE = 1.00 PER CENT CROWN.

WIDTH OF PAVEMENT = 18.00 M.

DISTANCE	Y.	OFFSET	ELEVATION
0.00	0.0000	.1800	36.9950
.50	.0006	.1794	36.9944
1.00	.0022	.1778	36.9928
1.50	.0050	.1750	36.9900
2.00	.0089	.1711	36.9861
2.50	.0139	.1661	36.9811
3.00	.0200	.1600	36.9750
3.50	.0272	.1528	36.9678
4.00	.0356	.1444	36.9594
4.50	.0450	.1350	36.9500
5.00	.0556	.1244	36.9394
5.50	.0672	.1128	36.9278
6.00	.0800	.1000	36.9150
6.50	.0939	.0861	36.9011
7.00	.1089	.0711	36.8861
7.50	.1250	.0550	36.8700
8.00	.1422	.0378	36.8528
8.50	.1606	.0194	36.8344
9.00	.1800	0.0000	36.8150

END OF PROGRAM.

THE DRAINAGE SLOPE FOR PAVEMENTS.

67

DRAINAGE SLOPE = 1.00 PER CENT CROWN.

WIDTH OF PAVEMENT = 21.00 M.

DISTANCE	Y.	OFFSET	ELEVATION
0.00	0.0000	.2100	37.0250
.50	.0005	.2095	37.0245
1.00	.0019	.2081	37.0231
1.50	.0043	.2057	37.0207
2.00	.0076	.2024	37.0174
2.50	.0119	.1981	37.0131
3.00	.0171	.1929	37.0079
3.50	.0233	.1867	37.0017
4.00	.0305	.1795	36.9945
4.50	.0386	.1714	36.9864
5.00	.0476	.1624	36.9774
5.50	.0576	.1524	36.9674
6.00	.0686	.1414	36.9564
6.50	.0805	.1295	36.9445
7.00	.0933	.1167	36.9317
7.50	.1071	.1029	36.9179
8.00	.1219	.0881	36.9031
8.50	.1376	.0724	36.8874
9.00	.1543	.0557	36.8707
9.50	.1719	.0381	36.8531
10.00	.1905	.0195	36.8345
10.50	.2100	0.0000	36.8150



END OF PROGRAM.

ผนวก ก.

ตัวอย่างบางส่วนของตารางข้อมูล เรื่องการะดับที่จุดต่าง ๆ ตามส่วนโค้ง

ในแนวกิ่ง

## ELEVATIONS ALONG VERTICAL CURVES.

66

PERCENT GRADE	LENGTH	DISTANCE	OFFSETS	ELEVATIONS
2.00	100 M.	0	0.0000	36.8150
		2	.0396	36.8546
		4	.0784	36.8934
		6	.1164	36.9314
		8	.1536	36.9686
		10	.1900	37.0050
		12	.2256	37.0406
		14	.2604	37.0754
		16	.2944	37.1094
		18	.3276	37.1426
		20	.3600	37.1750
		22	.3916	37.2066
		24	.4224	37.2374
		26	.4524	37.2674
		28	.4816	37.2966
		30	.5100	37.3250
		32	.5376	37.3526
		34	.5644	37.3794
		36	.5904	37.4054
		38	.6156	37.4306
		40	.6400	37.4550
		42	.6636	37.4786
		44	.6864	37.5014
		46	.7084	37.5234
		48	.7296	37.5446
		50	.7500	37.5650
		52	.7696	37.5846
		54	.7884	37.6034
		56	.8064	37.6214
		58	.8236	37.6386
		60	.8400	37.6550
		62	.8556	37.6706
		64	.8704	37.6854
		66	.8844	37.6994
		68	.8976	37.7126
		70	.9100	37.7250
		72	.9216	37.7366
		74	.9324	37.7474
		76	.9424	37.7574
		78	.9516	37.7666
		80	.9600	37.7750
		82	.9676	37.7826
		84	.9744	37.7894
		86	.9804	37.7954
		88	.9856	37.8006
		90	.9900	37.8050
		92	.9936	37.8086
		94	.9964	37.8114
		96	.9984	37.8134
		98	.9996	37.8146
		100	1.0000	37.8150

END OF PROGRAM.



## ELEVATIONS ALONG VERTICAL CURVES.

20

PERCENT GRADE	LENGTH	DISTANCE	OFFSETS	ELEVATIONS
2.50	100 M.	0	0.0000	36.8150
		2	.0495	36.8645
		4	.0980	36.9130
		6	.1455	36.9605
		8	.1920	37.0070
		10	.2375	37.0525
		12	.2820	37.0970
		14	.3255	37.1405
		16	.3680	37.1830
		18	.4095	37.2245
		20	.4500	37.2650
		22	.4895	37.3045
		24	.5280	37.3420
		26	.5655	37.3805
		28	.6020	37.4170
		30	.6375	37.4525
		32	.6720	37.4870
		34	.7055	37.5205
		36	.7380	37.5530
		38	.7695	37.5845
		40	.8000	37.6150
		42	.8295	37.6445
		44	.8580	37.6730
		46	.8855	37.7005
		48	.9120	37.7270
		50	.9375	37.7525
		52	.9620	37.7770
		54	.9855	37.8005
		56	1.0080	37.8230
		58	1.0295	37.8445
		60	1.0500	37.8650
		62	1.0695	37.8845
		64	1.0880	37.9030
		66	1.1055	37.9205
		68	1.1220	37.9370
		70	1.1375	37.9525
		72	1.1520	37.9670
		74	1.1655	37.9805
		76	1.1780	37.9920
		78	1.1895	38.0045
		80	1.2000	38.0150
		82	1.2095	38.0245
		84	1.2180	38.0330
		86	1.2255	38.0405
		88	1.2320	38.0470
		90	1.2375	38.0525
		92	1.2420	38.0570
		94	1.2455	38.0605
		96	1.2480	38.0630
		98	1.2495	38.0645
		100	1.2500	38.0650

END OF PROGRAM.



## ELEVATIONS ALONG VERTICAL CURVES.

69

PERCENT GRADE	LENGTH	DISTANCE	OFFSETS	ELEVATIONS
3.00	100 M.	0	0.0000	36.8150
		2	.0594	36.8744
		4	.1176	36.9326
		6	.1746	36.9896
		8	.2304	37.0454
		10	.2850	37.1000
		12	.3384	37.1534
		14	.3906	37.2056
		16	.4416	37.2566
		18	.4914	37.3064
		20	.5400	37.3550
		22	.5874	37.4024
		24	.6336	37.4486
		26	.6786	37.4936
		28	.7224	37.5374
		30	.7650	37.5800
		32	.8064	37.6214
		34	.8466	37.6616
		36	.8856	37.7006
		38	.9234	37.7384
		40	.9600	37.7750
		42	.9954	37.8104
		44	1.0296	37.8446
		46	1.0626	37.8776
		48	1.0944	37.9094
		50	1.1250	37.9400
		52	1.1544	37.9694
		54	1.1826	37.9976
		56	1.2096	38.0246
		58	1.2354	38.0504
		60	1.2600	38.0750
		62	1.2834	38.0984
		64	1.3056	38.1206
		66	1.3266	38.1416
		68	1.3464	38.1614
		70	1.3650	38.1800
		72	1.3824	38.1974
		74	1.3986	38.2136
		76	1.4136	38.2286
		78	1.4274	38.2424
		80	1.4400	38.2550
		82	1.4514	38.2664
		84	1.4616	38.2766
		86	1.4706	38.2856
		88	1.4784	38.2934
		90	1.4850	38.3000
		92	1.4904	38.3054
		94	1.4946	38.3096
		96	1.4976	38.3126
		98	1.4994	38.3144
		100	1.5000	38.3150

END OF PROGRAM.

ELEVATIONS ALONG VERTICAL CURVES.

60

PERCENT GRADE	LENGTH	DISTANCE	OFFSETS	ELEVATIONS
3.50	100 M.	0	0.0000	36.8150
		2	.0693	36.8843
		4	.1372	36.9522
		6	.2037	37.0187
		8	.2688	37.0838
		10	.3325	37.1475
		12	.3948	37.2098
		14	.4557	37.2707
		16	.5152	37.3302
		18	.5733	37.3883
		20	.6300	37.4450
		22	.6853	37.5003
		24	.7392	37.5542
		26	.7917	37.6067
		28	.8428	37.6578
		30	.8925	37.7075
		32	.9408	37.7558
		34	.9877	37.8027
		36	1.0332	37.8482
		38	1.0773	37.8923
		40	1.1200	37.9350
		42	1.1613	37.9763
		44	1.2012	38.0162
		46	1.2397	38.0547
		48	1.2768	38.0918
		50	1.3125	38.1275
		52	1.3468	38.1618
		54	1.3797	38.1947
		56	1.4112	38.2262
		58	1.4413	38.2563
		60	1.4700	38.2850
		62	1.4973	38.3123
		64	1.5232	38.3382
		66	1.5477	38.3627
		68	1.5708	38.3858
		70	1.5925	38.4075
		72	1.6128	38.4278
		74	1.6317	38.4467
		76	1.6492	38.4642
		78	1.6653	38.4803
		80	1.6800	38.4950
		82	1.6933	38.5083
		84	1.7052	38.5202
		86	1.7157	38.5307
		88	1.7248	38.5398
		90	1.7325	38.5475
		92	1.7388	38.5538
		94	1.7437	38.5587
		96	1.7472	38.5622
		98	1.7493	38.5643
		100	1.7500	38.5650

END OF PROGRAM.

## ELEVATIONS ALONG VERTICAL CURVES.

PERCENT GRADE	LENGTH	DISTANCE	OFFSETS	ELEVATIONS <sup>cm</sup>
4.00	100 M.	0	0.0000	36.8150
		2	.0792	36.8942
		4	.1568	36.9718
		6	.2328	37.0478
		8	.3072	37.1222
		10	.3800	37.1950
		12	.4512	37.2662
		14	.5208	37.3358
		16	.5888	37.4038
		18	.6552	37.4702
		20	.7200	37.5350
		22	.7832	37.5982
		24	.8448	37.6598
		26	.9048	37.7198
		28	.9622	37.7782
		30	1.0200	37.8350
		32	1.0752	37.8902
		34	1.1288	37.9438
		36	1.1808	37.9958
		38	1.2312	38.0462
		40	1.2800	38.0950
		42	1.3272	38.1422
		44	1.3728	38.1878
		46	1.4168	38.2318
		48	1.4592	38.2742
		50	1.5000	38.3150
		52	1.5392	38.3542
		54	1.5768	38.3918
		56	1.6128	38.4278
		58	1.6472	38.4622
		60	1.6800	38.4950
		62	1.7112	38.5262
		64	1.7408	38.5558
		66	1.7688	38.5838
		68	1.7952	38.6102
		70	1.8200	38.6350
		72	1.8432	38.6592
		74	1.8648	38.6798
		76	1.8848	38.6998
		78	1.9032	38.7182
		80	1.9200	38.7350
		82	1.9352	38.7502
		84	1.9488	38.7638
		86	1.9608	38.7758
		88	1.9712	38.7862
		90	1.9800	38.7950
		92	1.9872	38.8022
		94	1.9928	38.8078
		96	1.9968	38.8118
		98	1.9992	38.8142
		100	2.0000	38.8150

END OF PROGRAM.

## ELEVATIONS ALONG VERTICAL CURVES.

66

PERCENT GRADE	LENGTH	DISTANCE	OFFSETS	ELEVATIONS
4.50	100 M.	0	0.0000	36.8150
		2	.0891	36.9041
		4	.1764	36.9914
		6	.2619	37.0769
		8	.3456	37.1606
		10	.4275	37.2425
		12	.5076	37.3226
		14	.5859	37.4009
		16	.6624	37.4774
		18	.7371	37.5521
		20	.8100	37.6250
		22	.8811	37.6961
		24	.9504	37.7654
		26	1.0179	37.8329
		28	1.0836	37.8986
		30	1.1475	37.9625
		32	1.2096	38.0246
		34	1.2699	38.0849
		36	1.3284	38.1434
		38	1.3851	38.2001
		40	1.4400	38.2550
		42	1.4931	38.3081
		44	1.5444	38.3594
		46	1.5939	38.4089
		48	1.6416	38.4566
		50	1.6875	38.5025
		52	1.7316	38.5466
		54	1.7739	38.5889
		56	1.8144	38.6294
		58	1.8531	38.6681
		60	1.8900	38.7050
		62	1.9251	38.7401
		64	1.9584	38.7734
		66	1.9899	38.8049
		68	2.0196	38.8346
		70	2.0475	38.8625
		72	2.0736	38.8886
		74	2.0979	38.9129
		76	2.1204	38.9354
		78	2.1411	38.9561
		80	2.1600	38.9750
		82	2.1771	38.9921
		84	2.1924	39.0074
		86	2.2059	39.0209
		88	2.2176	39.0326
		90	2.2275	39.0425
		92	2.2356	39.0506
		94	2.2419	39.0569
		96	2.2464	39.0614
		98	2.2491	39.0641
		100	2.2500	39.0650

END OF PROGRAM.

## ELEVATIONS ALONG VERTICAL CURVES.

22

PERCENT GRADE	LENGTH	DISTANCE	OFFSETS	ELEVATIONS
5.00	100 M.	0	0.0000	36.8150
		2	.0990	36.9140
		4	.1960	37.0110
		6	.2910	37.1060
		8	.3840	37.1990
		10	.4750	37.2900
		12	.5640	37.3790
		14	.6510	37.4660
		16	.7360	37.5510
		18	.8190	37.6340
		20	.9000	37.7150
		22	.9790	37.7940
		24	1.0560	37.8710
		26	1.1310	37.9460
		28	1.2040	38.0190
		30	1.2750	38.0900
		32	1.3440	38.1590
		34	1.4110	38.2260
		36	1.4760	38.2910
		38	1.5390	38.3540
		40	1.6000	38.4150
		42	1.6590	38.4740
		44	1.7160	38.5310
		46	1.7710	38.5860
		48	1.8240	38.6390
		50	1.8750	38.6900
		52	1.9240	38.7390
		54	1.9710	38.7860
		56	2.0160	38.8310
		58	2.0590	38.8740
		60	2.1000	38.9150
		62	2.1390	38.9540
		64	2.1760	38.9910
		66	2.2110	39.0260
		68	2.2440	39.0590
		70	2.2750	39.0900
		72	2.3040	39.1190
		74	2.3310	39.1460
		76	2.3560	39.1710
		78	2.3790	39.1940
		80	2.4000	39.2150
		82	2.4190	39.2340
		84	2.4360	39.2510
		86	2.4510	39.2660
		88	2.4640	39.2790
		90	2.4750	39.2900
		92	2.4840	39.2990
		94	2.4910	39.3060
		96	2.4960	39.3110
		98	2.4990	39.3140
		100	2.5000	39.3150

END OF PROGRAM.

หมวด ง.

ตัวอย่างบางส่วนของตารางข้อมูล เรื่อง การขงรูปเปอร์เซนต์เวท

ของถนน  
๕



RADIUS OF CURVE = 200.00 M.  
WIDTH OF ONE ROADWAYS. = 7.00 M. 67

NORMAL SECTION.

ELEVATION OF OUTSIDE EDGE = 36.8150 M.  
ELEVATION OF CENTER LINE = 36.9200 M.  
ELEVATION OF INSIDE EDGE = 36.8150 M.

START SUPERELEVATION.

ELEVATION OF OUTSIDE EDGE = 36.9200 M.  
ELEVATION OF CENTER LINE = 36.9200 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 45.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.5494 M.  
ELEVATION OF CENTER LINE = 37.2347 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 50.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.6970 M.  
ELEVATION OF CENTER LINE = 37.3085 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 55.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.8602 M.  
ELEVATION OF CENTER LINE = 37.3901 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.



FULL SUPERELEVATION.

22

DESIGN SPEED = 60.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 38.0389 M.  
ELEVATION OF CENTER LINE = 37.4794 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 65.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 38.2331 M.  
ELEVATION OF CENTER LINE = 37.5766 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 70.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 38.4429 M.  
ELEVATION OF CENTER LINE = 37.6815 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

END OF PROGRAM.

RADIUS OF CURVE	=	300.00	M.
WIDTH OF ONE ROADWAYS.	=	7.00	M.

66

NORMAL SECTION.

ELEVATION OF OUTSIDE EDGE	=	36.8150	M.
ELEVATION OF CENTER LINE	=	36.9200	M.
ELEVATION OF INSIDE EDGE	=	36.8150	M.

START SUPERELEVATION.

ELEVATION OF OUTSIDE EDGE	=	36.9200	M.
ELEVATION OF CENTER LINE	=	36.9200	M.
ELEVATION OF INSIDE EDGE	=	36.9200	M.

FULL SUPERELEVATION.

DESIGN SPEED	=	45.00	KM. PER HR.
ELEVATION OF OUTSIDE EDGE	=	37.3396	M.
ELEVATION OF CENTER LINE	=	37.1298	M.
ELEVATION OF INSIDE EDGE	=	36.9200	M.

FULL SUPERELEVATION.

DESIGN SPEED	=	50.00	KM. PER HR.
ELEVATION OF OUTSIDE EDGE	=	37.4380	M.
ELEVATION OF CENTER LINE	=	37.1790	M.
ELEVATION OF INSIDE EDGE	=	36.9200	M.

FULL SUPERELEVATION.

DESIGN SPEED	=	55.00	KM. PER HR.
ELEVATION OF OUTSIDE EDGE	=	37.5468	M.
ELEVATION OF CENTER LINE	=	37.2334	M.
ELEVATION OF INSIDE EDGE	=	36.9200	M.

FULL SUPERELEVATION.

bo

DESIGN SPEED	=	60.00 KM. PER HR.
ELEVATION OF OUTSIDE EDGE	=	37.6659 M.
ELEVATION OF CENTER LINE	=	37.2930 M.
ELEVATION OF INSIDE EDGE	=	36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED	=	65.00 KM. PER HR.
ELEVATION OF OUTSIDE EDGE	=	37.7954 M.
ELEVATION OF CENTER LINE	=	37.3577 M.
ELEVATION OF INSIDE EDGE	=	36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED	=	70.00 KM. PER HR.
ELEVATION OF OUTSIDE EDGE	=	37.9353 M.
ELEVATION OF CENTER LINE	=	37.4276 M.
ELEVATION OF INSIDE EDGE	=	36.9200 M.

END OF PROGRAM.

RADIUS OF CURVE = 400.00 M.  
WIDTH OF ONE ROADWAYS. = 7.00 M. bo

NORMAL SECTION.

ELEVATION OF OUTSIDE EDGE = 36.8150 M.  
ELEVATION OF CENTER LINE = 36.9200 M.  
ELEVATION OF INSIDE EDGE = 36.8150 M.

START SUPERELEVATION.

ELEVATION OF OUTSIDE EDGE = 36.9200 M.  
ELEVATION OF CENTER LINE = 36.9200 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 45.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.2347 M.  
ELEVATION OF CENTER LINE = 37.0773 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 50.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.3085 M.  
ELEVATION OF CENTER LINE = 37.1143 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 55.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.3901 M.  
ELEVATION OF CENTER LINE = 37.1550 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

bl

DESIGN SPEED = 60.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.4794 M.  
ELEVATION OF CENTER LINE = 37.1997 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 65.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.5766 M.  
ELEVATION OF CENTER LINE = 37.2483 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 70.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.6815 M.  
ELEVATION OF CENTER LINE = 37.3007 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

END OF PROGRAM.

RADIUS OF CURVE = 500.00 M.  
WIDTH OF ONE ROADWAYS. = 7.00 M. bm

NORMAL SECTION.

ELEVATION OF OUTSIDE EDGE = 36.8150 M.  
ELEVATION OF CENTER LINE = 36.9200 M.  
ELEVATION OF INSIDE EDGE = 36.8150 M.

START SUPERELEVATION.

ELEVATION OF OUTSIDE EDGE = 36.9200 M.  
ELEVATION OF CENTER LINE = 36.9200 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 45.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.1717 M.  
ELEVATION OF CENTER LINE = 37.0459 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 50.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.2308 M.  
ELEVATION OF CENTER LINE = 37.0754 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 55.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.2961 M.  
ELEVATION OF CENTER LINE = 37.1080 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.



FULL SUPERELEVATION.

66

DESIGN SPEED = 60.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.3675 M.  
ELEVATION OF CENTER LINE = 37.1438 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 65.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.4452 M.  
ELEVATION OF CENTER LINE = 37.1826 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

FULL SUPERELEVATION.

DESIGN SPEED = 70.00 KM. PER HR.  
ELEVATION OF OUTSIDE EDGE = 37.5292 M.  
ELEVATION OF CENTER LINE = 37.2246 M.  
ELEVATION OF INSIDE EDGE = 36.9200 M.

END OF PROGRAM.



ประวัติการศึกษา

นายแสงตะวัน พลานันท์กุลธร จบปริญญาตรี ทางวิศวกรรมศาสตร์  
สาขาวิศวกรรมโยธา จากจุฬาลงกรณ์มหาวิทยาลัย พ.ศ. ๒๕๑๓ ทำงานในตำแหน่ง  
ช่างตรี แผนกวิศวกรรมโยธา กองออกแบบและควบคุมการก่อสร้าง ฝ่ายการโยธา  
กรุงเทพมหานคร (เทศบาลนครกรุงเทพเดิม)