

City Park
Survey

Transit

2

Contours

#8

F.B. 619

619

Cortese

40

C

Switzer

60

C

80

C

100

C

MICROFILMED

DEC 7 1904

Book 1

14.....32½	34.....79½	54.....126
15.....35	35.....81½	55.....128½
16.....37½	36.....84	56.....130½
17.....39½	37.....86½	57.....133
18.....42	38.....88½	58.....135½
19.....44½	39.....91	59.....137½
20.....46½	40.....93½	60.....140

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SAN FRANCISCO, CAL.

Table for Running on Slopes.

In the following table the first column shows the angle, the second, the number of links to be added to a chain on the slopes, to make one chain, horizontal measurement.

Angle.	Cor. in links	Angle.	Cor. in links.	Angle.	Cor. in links.	Angle.	Cor. in links.
°		°		°		°	
4	0-24	11	1-88	18	5-14	25	10-54
5	0-38	12	2-24	19	5-76	26	11-26
6	0-55	13	2-63	20	6-42	27	12-24
7	0-76	14	3-06	21	7-11	28	13-37
8	0-98	15	3-53	22	7-85	29	14-34
9	1-24	16	4-02	23	8-64	30	15-47
10	1-55	17	4-56	24	9-47	35	22-07



61

40

60

80

100

DRAWING
ST

In the
links to be ad

Angle. Cor.

°

4

5

6

7

8

9

10

Checking measurements
on Park Survey

Party P.S. Connor
J. J. Potter

Commencing at 0 on line A

No STA

Sta 3 to 4 = 99.9

" 6 " 7 = 100.1

" 8 " 9 = 100.2

" 9 " 10 = 99.9

" 18 " 19 = 99.9

" 20 " 21 = 99.9

" 22 " 23 = 99.9

" 28 " 24 = 99.8

" 24 " 25 = 99.9

" 29 " 30 = 100.1

" 31 " 32 = 99.8

" 32 " 33 = 99.5 Brick yard

" 33 " 34 = 99.6

" 36 " 37 = 98.7

" 39 " 40 = 100.2

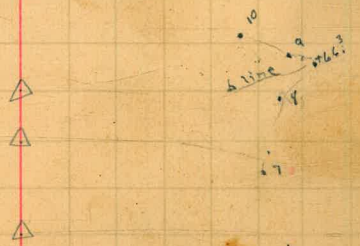
Line A Continued

Sta	To	Sta.	Dis.
43	To	44	99.8
45	"	46	99.7
46	"	47	99.7
47	"	48	99.7
48	"	49	99.9
50	"	51	99.8
51	"	52	99.9
52	"	53	99.8
53	"	54	99.7
54	"	55	99.7
55	"	56	99.9
56	"	57	99.7
57	"	58	99.8
58	"	59	99.5
59	"	60	99.9
60	"	61	99.7
61	"	62	99.4

Transverse line on Contour
 pegs in City Park Canions.
 Hudson Transit East Side.

40 ft contour in Switzer canyon

Sta	Left	Right
11	28° 27'	
10	28° 00'	
9		2° 43'
8+60.3		32° 12'
8		30° 00'
7		14° 48'
6		14° 07'
5	64° 29'	
4+27	72° 36'	
4	56° 55'	
3		3° 07'
2+41	26° 56'	
2		25° 25'
1		53° 28'
0+56.7	57° 29'	
0-191-103*		



Starting at Sta. 0 of 40 ft. grade on E. side of light on Sta. 190+20.
 Looking E. Turned into angle Left.

Set up on Sta. 190+90* = 188+65. Backsight
 Sta. 187+80 Turned to Sta 0 of 40 ft grade
 2° 12' Left dist. 20.8

40 ft contour in Switzer canyon

Sta	Left	Right
26+70	13° 54'	
26	4° 48'	
25		6° 50'
24		18° 45'
23	29° 00'	
22	29° 28'	
21	23° 00'	
20	19° 08'	
19	17° 23'	
18	13° 02'	
17	6° 23'	
16		2° 37'
15		4° 03'
14		34° 00'
13		30° 35'
12+52	33° 03'	
12	33° 02'	

from station 12+52.3 to \triangle sta. 13 = 57 ft.

West Side 40 ft contour

Sta.	Left	Right
------	------	-------

18 18°52

17 17°11

16 37°15

✓15 24°48

14 95°45

13 87°15

12 61°45

11 39°00

+18 31°40

10 31°20

9 32°22

8 5°08

7 17°45

6 33°36

5 29°53

4 27°25

3 74°56

2 70°49

1 65°47

0 = 203+02°

Sta. of 40 ft contour = 203+02° X line

Starting from Sta. 0.40 ft grade W side B.S.
x 190+90

Sta	Left	Right
37		5° 21'
36		4° 11'
35	17° 21'	
34+41	41° 33'	
34	38° 34'	
33	8° 49'	
32	20° 20'	
31	5° 06'	
30	10° 20'	
29	2° 17'	
28	4° 17'	
27	32° 10'	
26	16° 45'	
25	14° 17'	
24	20° 55'	
23	47° 22'	
22	0° 55'	
21	5° 02'	
20	20° 23'	
19	18° 33'	



Station connected out
Station connected out

Sta	Left	Right							
57		129° 32'							
56		116° 34'							
55		100° 15'							
54		82° 32'							
53		67° 41'							
52		54° 30'							
51		45° 37'							
50		39° 39'							
49		35° 18'							
48		30° 33'							
47		26° 17'							
46	46.3	24° 53'							
45		20° 49'							
44		15° 10'							
43		11° 53'							
42		10° 03'							
41+40		9° 13'							
41		8° 02'							
40		7° 06'							
39		8° 56'							
38		6° 03'							

C. Bangtan

44

45

46

47

47

43

Sta.	Left	Right
66+49.4	7° 03'	
66	10° 08'	
65	14° 00'	
64	17° 12'	
63	17° 42'	
62	16° 31'	
61	20° 43'	
60	12° 24'	
59	47° 39'	
58		132° 19'

66+49.4

65

64

D. 100/100

△

△

△

West Side. 60 ft contour

Sta Left Right

17	23° 33'	
16		112° 31'
15		110° 47'
14		96° 42'
13		57° 38'
12		20° 04'
11		2° 53'
10+17	6° 53'	
10	6° 04'	
9	10° 33'	
8	14° 51'	
7	36° 10'	
6	34° 32'	
5	33° 42'	
4	27° 40'	
3	65° 52'	
2	62° 23'	
1	59° 23'	

0.60 ft contour

Sta 0.60 ft contour = 204 + 71 x line
 Starting from Sta. 0.60 ft contour Sight on
 Sta. 203 + 02' = 0.60 ft contour turned inside angle
 Left

51.04
23.33
27.31

47.04
29.98
23.31

35.11
27.33
11.889

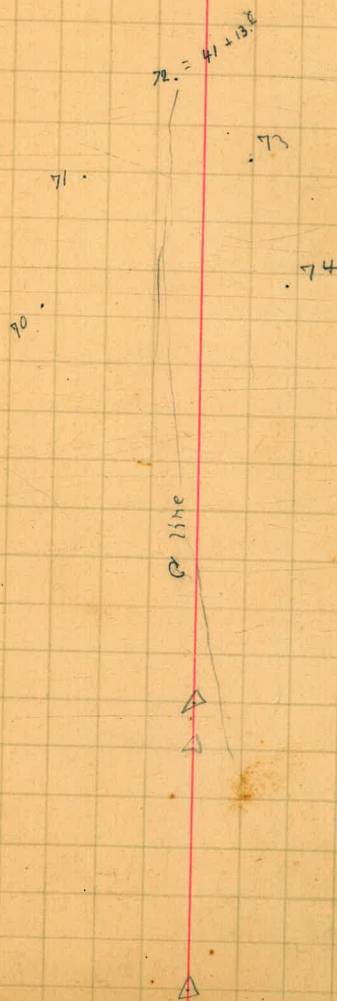
Sta.	Left	Right
36	17° 43'	
35	27° 23'	
34	12° 32'	
33	32° 30'	
32	16° 32'	
31	15° 14'	
30	17° 17'	
29+30	34° 26'	
29	33° 49'	
28	16° 14'	
27	16° 52'	
26	67° 49'	
25	68° 08'	
24	61° 04'	
23		57° 43'
22		62° 29'
21		62° 29'
20		13° 26'
19	35° 11'	
18+19	47° 04'	
18	57° 04'	

Sta.	Left	Right
55	11° 20'	
54	13° 07'	
53		25° 04'
52		23° 00'
51+48	41° 28'	
51		00° 19'
50	00° 33'	
49	3° 16'	
48	7° 41'	
47	64° 24'	
46	65° 23'	
45		108° 19'
44		100° 12'
43		30° 34'
42	3° 24'	
41+80	7° 53'	
41	11° 19'	
40	45° 23'	
39	42° 38'	
38	19° 20'	
37	14° 41'	



Sta.	Left	Right
------	------	-------

75		78° 21'
74		59° 12'
73		44° 54'
72		38° 35'
71		25° 45'
70		17° 57'
69		9° 56'
68		3° 16'
67		00° 43'
66		1° 53'
65		3° 14'
64	07° 35'	
63	6° 05'	
62	11° 56'	
61	15° 57'	15° 57'
60	17° 40'	
59	19° 23'	
58	19° 19'	
57	23° 27'	
56+75	40° 52'	
56	10° 36'	



Sta.	Left	Right
96	36° 18'	
95	42° 02'	
94	36° 35'	
93	34° 47'	
92		171° 00'
91		170° 10'
90		169° 48'
89		168° 26'
88		165° 39'
87		164° 40'
86		162° 46'
85		160° 25'
84		157° 21'
83		152° 04'
82		154° 39'
81		152° 05'
80		147° 43'
79		138° 35'
78		129° 57'
77		117° 26'
76		99° 16'



Sta.	Left	Right
117+59		64° 48'
117		45° 13'
110+29	20° 10'	
109+72.5	37° 45'	
109	36° 36'	
108+53.2		31° 15'
+68		28° 44'
107		25° 02'
106		22° 30'
105+27		22° 18'
105		19° 13'
104		19° 08'
103		6° 36'
102	9° 26'	
101+97.2	17° 21'	
101+86.2	18° 48'	
98+74	17° 58'	
99	23° 18'	
97	39° 26'	

on road bed pt. of bottom
top of bottom of RR cut

98+74

190+00.54
 155.43
 2.242

60 ft contour East side

Sta.	Left	Right	Corrected dist
14		26° 34'	
13		27° 18'	
12		26° 15'	67.5'
11+35	6° 57'		
11	44° 20'		
10	37° 57'		
9		10° 43'	
8+03		19° 04'	
8		19° 44'	
7		57° 57'	
6		15° 30'	
5	61° 30'		
4	60° 00'		
3	48° 20'		
2	11° 15'		
1+67	00° 10'		
0+37.3	1° 36'		

from station 11+35 to 12 = 67.5'



Starting from Sta. X 190+36 = 0 of 60 ft. contour
 Sight on 178+80 X Turned inside angle
 Left to Sta 0+37.3

Sta.	Left	Right	corrected chance
31		3° 53'	
30	52° 54'		
29	10° 08'		
28		31° 26'	
27+35		49° 32'	
27		50° 35'	
26		43° 07'	53.5
25+30		23° 08'	
25		6° 15'	
24	55° 06'		
23	57° 33'		
22	47° 41'		
21	39° 05'		
20	34° 26'		
19	9° 57'		
18		35° 53'	
17+34.5		40° 11'	
17		48° 35'	
16+33.5		25° 57'	
16		3° 25'	
15		41° 28'	

from station 25+30 to 26 = 53.5



Sta.	Left	Right
42+44		6° 00'
42		8° 18'
41		14° 47'
40		18° 44'
39		22° 46'
38		22° 15'
37		13° 20'
36		13° 00'
35	11° 24'	
34	4° 56'	
33		7° 39'
32		7° 49'

Station 42+44 = 25+37.3 D line.



80 ft contour west side

Sta Left Right

16	2° 26'	
15	8° 28'	
14 + 35	11° 02'	
14	12° 00'	
13	12° 15'	
12	10° 58'	
11	13° 54'	
10	15° 21'	
9	15° 06'	
8	15° 43'	
7	39° 48'	
6	37° 24'	
5	39° 15'	
4	41° 26'	
3	28° 38'	
2	27° 21'	
1	18° 07'	
0	25° 20'	

207 X



△ B.S. 207 X

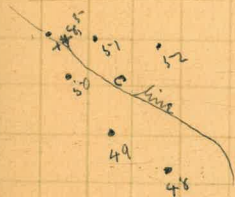
Starting from Sta. ⊙ 207 X line B.S. 215 X
 deflected 25° 20' left to Sta. 0. of 80 ft contour
 distance 82.8

Sta.	Left	Right
37	41° 33'	
36	37° 39'	
35	31° 06'	
34	50° 10'	
33	45° 36'	
32		91° 47'
31		92° 50'
30		87° 25'
29		45° 46'
28	8° 13'	
27	32° 00'	
26	29° 56'	
25	31° 34'	
24		83° 13'
23		80° 18'
22		69° 05'
21		53° 00'
20		33° 04'
19		17° 22'
18		8° 14'
17		3° 12'



Sta. Left Right

57	41° 39'	
56	22° 52'	
55		131° 11'
54		119° 41'
53		74° 47'
52		22° 37'
51		10° 11'
50+48 ^s	6° 38'	
50	8° 47'	
49	7° 21'	
48	22° 10'	
47	23° 20'	
46	2° 41'	
45	44° 43'	
44	16° 02'	
43	14° 15'	
42	18° 30'	
41	18° 05'	
40	17° 05'	
39	23° 30'	
38	22° 45'	



Sta.	Left	Right
------	------	-------

73		09° 05'
72	2° 46'	
71	5° 00'	
70	15° 46'	
69	55° 13'	
68+91	57° 57'	
68	56° 08'	
67+40	12° 46'	
67	8° 31'	
66	12° 38'	
65	14° 32'	
64+40	18° 06'	
64	13° 39'	
63	36° 24'	
62+75	56° 55'	
62	50° 35'	
61	1° 12'	
60	10° 52'	
59	11° 02'	
58+77	28° 58'	
58	21° 40'	



from station 67+40 to 68 = 70.5'



from station 64+40 to 65 = 62 ft.



Sta	Left	Right
92	23° 50'	
91	22° 00'	
90	25° 14'	
89	37° 00'	
88	54° 24'	
87	89° 08'	
86+59.2		8° 15'
86		11° 36'
85		11° 41'
84		6° 41'
83+43		2° 41'
83		4° 08'
82	00° 46'	
81	24° 06'	
80	3° 00'	
79	4° 05'	
78	2° 58'	
77	2° 56'	
76	6° 06'	
75	14° 37'	
74		00° 49'

Sta. Left Right

112		61° 27'
111		7° 23'
110		4° 10'
109 + 6x		1° 00'
9	4° 40'	
8	26° 05'	
7	39° 40'	
6	32° 20'	
5	4° 05'	
4		113° 32'
3		102° 36'
2		84° 16'
1		62° 31'
100		41° 47'
99		25° 02'
98		10° 50'
97	07° 10'	
96	6° 15'	
95	11° 34'	
94	18° 22'	
93	24° 02'	



Sta.	Left.	Right.							
132	11° 41'								
131	14° 45'								
130	17° 33'								
129	18° 37'								
128	18° 13'								
127		7° 12'						△	✓
126		2° 18'							
125	8° 24'								
124		2° 38'						△	✓
123	50° 00'								
122	5° 00'								
121	8° 53'								
120	18° 32'							△	
119	20° 52'								
118	23° 33'								
117	13° 10'							△	
116	15° 52'							△	
115		135° 21'						△	
114		137° 10'						△	
113		116° 24'						△	
112+27		73° 36'							

Sta Left Right

152	33° 22'	
151+95	33° 21'	
151	37° 00'	
150	40° 58'	
149	47° 04'	
148	48° 09'	
147	17° 25'	
146	3° 42'	
145	3° 37'	
144	7° 37'	
143	17° 16'	
142	22° 33'	
141	18° 27'	
140	35° 11'	
139	39° 54'	
138	26° 17'	
137	4° 57'	
136	4° 52'	
135	7° 53'	
134	9° 13'	
133	9° 28'	



✓



Sta.	Left	Right
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170		36° 14'
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169		29° 38'
-----	--	---------

168+65.6	8° 10'	
----------	--------	--

168	27° 08'	
-----	---------	--

167+68	11° 52'	
--------	---------	--

167	10° 15'	
-----	---------	--

166	13° 24'	
-----	---------	--

165	16° 02'	
-----	---------	--

164	19° 11'	
-----	---------	--

163+30	22° 53'	
--------	---------	--

162+58	38° 52'	
--------	---------	--

161+76	5° 31'	
--------	--------	--

161	7° 21'	
-----	--------	--

160	32° 38'	
-----	---------	--

159		52° 57'
-----	--	---------

158		53° 05'
-----	--	---------

157		46° 35'
-----	--	---------

157		11° 43'
-----	--	---------

155	19° 17'	
-----	---------	--

154	27° 34'	
-----	---------	--

153	31° 31'	
-----	---------	--

from station 168+65.6 to 169 = 608

from station 161 to station 169
destroyed by R.R. graders replaced by
transit

Sta.	Left	Right							
------	------	-------	--	--	--	--	--	--	--

174

27° 37'

173

1° 57'

172

13° 38'

171 + 387

10° 16'

171

13° 48'

80 ft contour East side

Sta.	Left	Right
14+16 ^s		5° 30'
14		2° 28'
13	77° 53'	
12	77° 46'	
11	67° 10'	
10	25° 40'	
9		1° 30'
8		10° 04'
7+12 ^s		9° 48'
7		14° 53'
6		22° 35'
5		27° 04'
4		50° 47'
3+60		24° 08'
3		12° 47'
2		7° 04'
1		80° 26'

end of 80 ft.

from sta. 3+60 to \triangle sta. 4 = 50.2



starting sta. of 80 ft \circ grade four ft sta. 190+90^x

Setup on station 187+80^x foresight station 190+90^x
 turned to station 2 of 80 ft grade 1° 45' Left dist 27 ft.

Sta.	Left	Right
32		8° 57'
31+73.2		10° 30'
31		9° 08'
30		11° 39'
29		41° 12'
28		37° 30'
27		57° 10'
26	25° 48'	
25	24° 30'	
24	20° 28'	
23	11° 12'	
22	6° 50'	
21	01° 40'	
20		38° 28'
19		49° 13'
18+73.2		52° 12'
18		65° 17'
17		64° 43'
16		57° 05'
15+72.2		45° 57'
15		49° 15'

from Sta. 17+16.8 to Sta. 15 = 84.7

Sta	Left	Right
57+54.2		15° 26'
57		38° 57'
50+51	2° 58'	
57	7° 40'	
49	7° 30'	
47	4° 21'	
47		14° 28'
46		19° 48'
45		23° 31'
44		23° 50'
43		25° 47'
42		29° 50'
41		27° 27'
40		29° 27'
39	147° 35'	
38	146° 15'	
37	136° 00'	
36	113° 24'	
35	78° 18'	
34	31° 50'	
33	2° 02'	

from station 50+51 to station 57 = 55 ft.



Sta.	Left	Right
67	18° 54'	
66	10° 34'	
65	5° 00'	
64	3° 52'	
63	00° 05'	
62	25° 41'	
61	43° 30'	
60	161° 59'	
59	147° 31'	
58	127° 40'	
57	72° 44'	
56	16° 45'	
55	4° 26'	
54	6° 27'	
53	14° 00'	
52	26° 04'	

from station 51+54² to Sta. 52 = 48 ft.

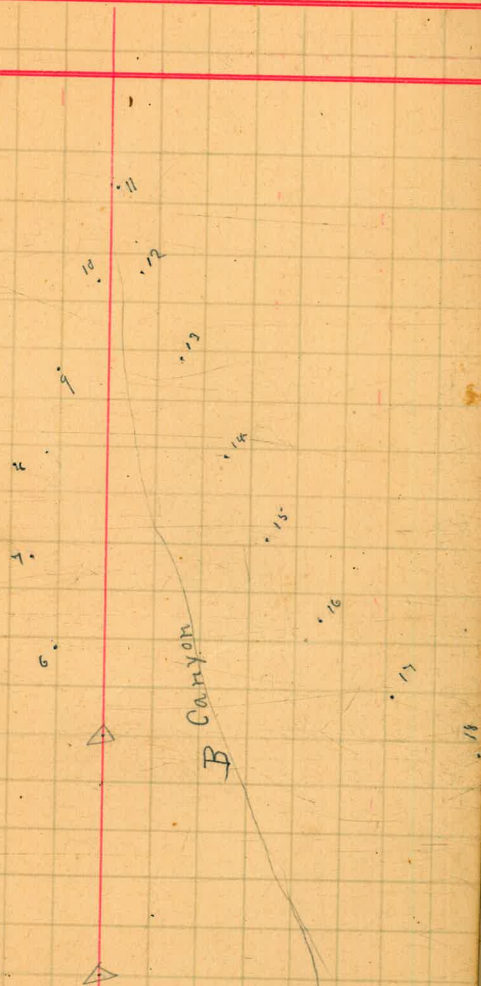
100' contour west side

Sta. Left Right

17		77° 47'
16		55° 08'
15		33° 14'
14		21° 34'
13		14° 30'
12		9° 33'
11		2° 00'
10	00° 43'	
9	1° 54'	
8	6° 02'	
7	8° 30'	
6	10° 48'	
5	12° 47'	
4	12° 02'	
3	12° 12'	
2	11° 26'	
1	9° 08'	
0 of 100'	87° 03'	

207^x

Set up on station 207^x backright to sta.
 215^x turned 87° 03' Left to sta 0 of 100' contour
 distance 744.2



Sta.	Left	Right
------	------	-------

37	10° 07'	
----	---------	--

36	15° 53'	
----	---------	--

35	53° 13'	
----	---------	--

34	28° 04'	
----	---------	--

33	32° 14'	
----	---------	--

32	26° 32'	
----	---------	--

31		97° 25'
----	--	---------

30		95° 12'
----	--	---------

29		80° 22'
----	--	---------

28		42° 16'
----	--	---------

27		00° 05'
----	--	---------

26+69*	8° 05'	
--------	--------	--

26	11° 53'	
----	---------	--

25	69° 16'	
----	---------	--

24	59° 16'	
----	---------	--

23		127° 17'
----	--	----------

22		126° 32'
----	--	----------

21		125° 45'
----	--	----------

20		121° 35'
----	--	----------

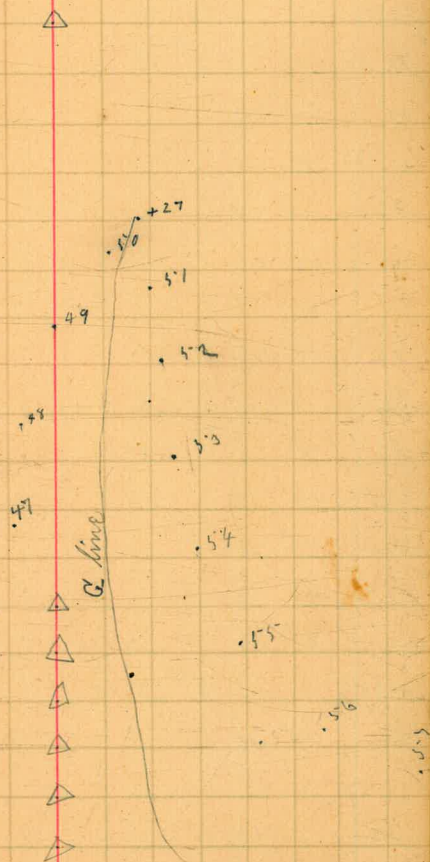
19		112° 32'
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18		98° 14'
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Sta.	Left	Right
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57		124° 18'
56		123° 12'
55		108° 05'
54		80° 04'
53		42° 20'
52		19° 40'
51		14° 58'
50+27		12° 57'
58		9° 42'
49	00° 00'	00° 00'
48	7° 20'	
47	14° 52'	
46	5° 53'	
45	5° 37'	
44	27° 40'	
43	19° 02'	
42	17° 35'	
41	11° 41'	
40	10° 02'	
39	18° 48'	
38	12° 03'	



Sta.	Left	Right
72+96.5		54° 40'
72		11° 17'
71	26° 24'	
70+80	30° 53'	
70	36° 42'	
69	41° 43'	
68	13° 07'	
67	15° 58'	
66.		21° 28'
65	3° 25'	
64	34° 15'	
63+61	42° 36'	
63	48° 35'	
62	41° 33'	
61+45.4		9° 53'
61	19° 45'	
60+33.2	5° 11'	
60	11° 12'	
59+57	29° 57'	
59	29° 25'	
58	53° 53'	

from station 61+45.4 = 61 ft.

from station 60+33.2 to 61 = 71 ft.

21 x 1
11 - 4
10

Sta.	Left	Right
90		22° 04'
89+75		19° 19'
89	13° 26'	
88	45° 10'	
87	59° 24'	
86+157		7° 54'
86		8° 02'
85	14° 36'	
84+53	31° 37'	
84	24° 40'	
83		3° 35'
82	9° 17'	
81	5° 08'	
80	4° 12'	
79	4° 40'	
78	5° 25'	
77	5° 04'	
76	11° 13'	
75	21° 38'	
74	20° 20'	
73	35° 30'	

from station 86+157 \triangleright to sta. 87 = 90.1

from station 72+90.5 \triangleright to sta. 73 = 36.9

Sta.	Left	Right
107		4° 45'
106	12° 05'	
105+92	10° 21'	
105	11° 04'	
104	13° 20'	
103		41° 27'
102		40° 35'
101		36° 58'
100		10° 00'
99+75	10° 00'	
99	23° 22'	
98+52 ³	4° 20'	
98	4° 45'	
97	4° 31'	
96	6° 45'	
95	6° 40'	
94	16° 21'	
93	28° 51'	
92	64° 20'	
91+75	7° 08'	
91	19° 54'	

from station 98+52³ to station 99 = 50.2 ft.

Sta.	Left	Right
126		12° 34'
125		11° 10'
124	37° 44'	
123+46	57° 48'	
123	57° 28'	
122		153° 45'
121		153° 02'
120		147° 23'
119		143° 02'
118		134° 44'
117		125° 13'
116		102° 03'
115		76° 14'
114		47° 24'
113		28° 50'
112		17° 49'
111+92		16° 45'
111		3° 02'
110	7° 20'	
109	10° 34'	
108	16° 18'	



111

110

+92 112
 57
 50
 C 88

113

107

Sta Left Right

145 8° 07'

144 11° 08'

143 18° 32'

142 9° 09'

141 14° 03'

140+17 76° 56'

140 75° 31'

139+25 19° 40'

139 20° 03'

138 00° 19'

137 5° 58'

136 14° 21'

135 53° 10'

134 19° 09'

133 9° 36'

132 8° 24'

131 8° 58'

130 10° 22'

129 12° 29'

128 16° 28'

127 23° 05'

Entrance to c of g. line

Entrance to g canyon



Sta.	Left	Right
162	34° 48'	
161	39° 21'	
160+35	23° 36'	(88°)
160	19° 26'	
159	22° 56'	
158+70	23° 10'	
158		00° 24'
157	00° 00'	00° 00'
+75	0° 49'	
156	52° 37'	
155		169° 04'
154		168° 46'
153		164° 24'
152		156° 16'
151		145° 58'
150		118° 23'
149		71° 33'
148		24° 45'
147		6° 28'
146	8° 35'	
145+96	9° 19'	

from 160+35 to 161 = 68 ft.

from station 158+70 to 159 = 33 ft.

Entrance to a branch



Sta.	Left	Right
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181+40	39° 36'	
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181	31° 40'	
-----	---------	--

180	00° 15'	
-----	---------	--

179	10° 59'	
-----	---------	--

178	2° 15'	
-----	--------	--

177	2° 42'	
-----	--------	--

176	3° 57'	
-----	--------	--

175	6° 07'	
-----	--------	--

174	9° 50'	
-----	--------	--

173	9° 54'	
-----	--------	--

172	8° 12'	
-----	--------	--

171		2° 34'
-----	--	--------

170		2° 50'
-----	--	--------

169	2° 14'	
-----	--------	--

168	00° 28'	
-----	---------	--

167	2° 09'	
-----	--------	--

166	5° 42'	
-----	--------	--

165	11° 02'	
-----	---------	--

164	19° 27'	
-----	---------	--

163+50	26° 45'	
--------	---------	--

163	31° 36'	
-----	---------	--

from 181+40 to 182 = \triangle 77 ft.



from station 163+50 to 164 = 57.9



121.24

Sta. Left. Right

195+57 121.47

195 122.45

194 124.32

193 126.15

192 128.07

191 130.18

190 132.06

189 133.14

188 133.49

187+50 134.41

187 138.52

186 149.00

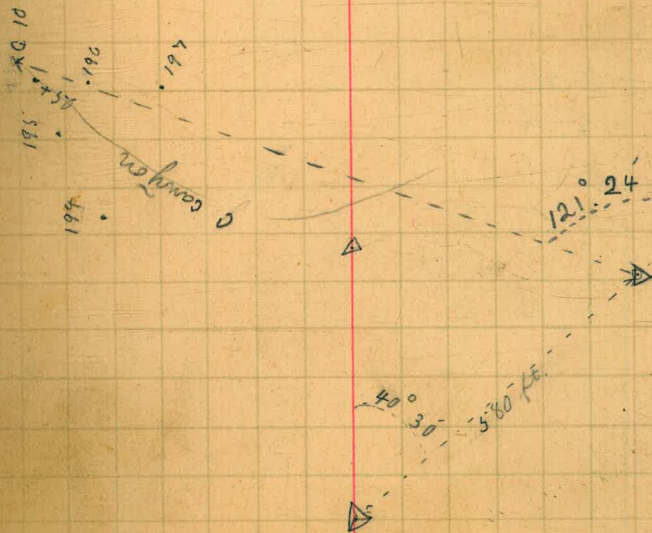
185 160.11

184 171.02

40.30

183 75.03

182 74.00



Sta Left. Right.

216	11° 53'
215	28° 11'
214	3° 01'
213	75° 20'
212	77° 57'
211	79° 35'
210	81° 42'
209	83° 49'
208	81° 39'
207	83° 39'
206	88° 06'
205	94° 48'
204	100° 29'
203	108° 11'
202	115° 49'
201	119° 58'
200	120° 24'
199	120° 23'
198	120° 25'
197	120° 39'
196	121° 25'

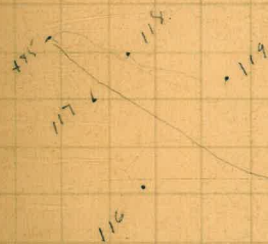
Entrance to



canyon

Sta	Left	Right
232	18° 34'	
231	15° 35'	
230		10° 20'
229		2° 14'
228		1° 53'
227		00° 55'
226	7° 12'	
225	9° 44'	
224	17° 38'	
223+74		12° 32'
223+60	21° 16'	
223+35	56° 16'	
+96.9		114° 50'
121		88° 35'
120		36° 26'
119		08° 48'
118	12° 15'	
+75	15° 20'	
117	16° 30'	

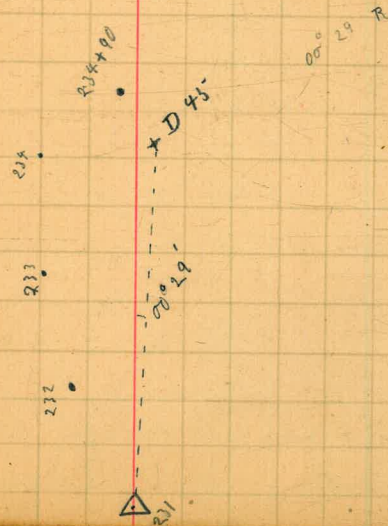
from station 228 to station 229 = 28 ft



Top of R.R. cut

Sta	Left	Right
234+90	3° 33'	
234	13° 51'	
233	16° 12'	

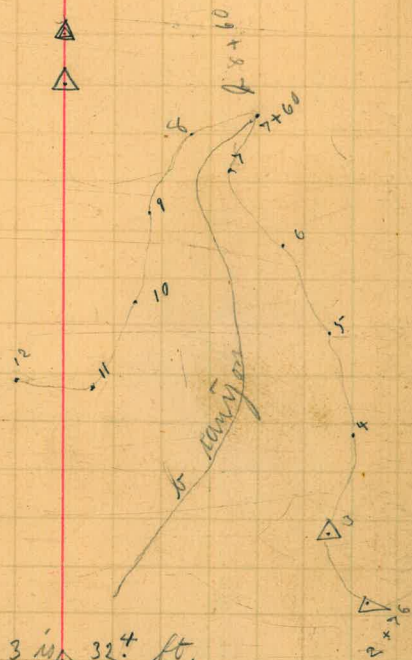
234+90	3° 33'
234	13° 51'
233	16° 12'



100 ft contour East side

Sta Left Right

16		35° 45'
15		5° 16'
14	70° 39'	
13	69° 28'	
12	57° 39'	
11	28° 45'	
10	5° 42'	
9	00° 17'	
8		8° 04'
7+60		13° 13'
7		18° 10'
6		16° 26'
5		26° 57'
4		37° 18'
3		50° 53'
2+76		38° 34'
2		88° 16'
1		79° 30'
0		



from sta. 2+76 to 3 is Δ 32.4 ft.

+76 entrance to canyon Δ b.

from station 0 to 1 is 100.5 ft.

starting from sta. 147+25 x line = 0 of 100 ft contour
 foresight sta. 147+80 x line looking west

Sta.	Left	Right
35		10° 12'
34		17° 25'
33		6° 45'
32		6° 30'
31		3° 16'
30		10° 24'
29		24° 28'
28		40° 38'
27+46.3		20° 11'
27	15° 22'	
26	11° 13'	
25	4° 58'	
24	1° 11'	
23	10° 05'	
22	29° 05'	
21	45° 13'	
20	60° 48'	
19	78° 50'	
18	76° 44'	
17	76° 16'	
16+17	39° 39'	

from sta. 27+46.3 to sta. 28 = 60.4
 entrance to canyon



from sta 16+17 to sta 17 = 89.3 ft.

Sta	Left	Right
-----	------	-------

53		21° 45'
----	--	---------

52		27° 06'
----	--	---------

51		38° 18'
----	--	---------

50		27° 43'
----	--	---------

49		7° 27'
----	--	--------

48	74° 15'	
----	---------	--

47	62° 54'	
----	---------	--

46	13° 20'	
----	---------	--

45		8° 15'
----	--	--------

44		12° 53'
----	--	---------

43		27° 21'
----	--	---------

42+44	147° 16'	
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42	148° 05'	
----	----------	--

41	132° 48'	
----	----------	--

40	121° 11'	
----	----------	--

39	88° 08'	
----	---------	--

38+42	42° 30'	
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38	72° 47'	
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37	32° 45'	
----	---------	--

36	8° 23'	
----	--------	--

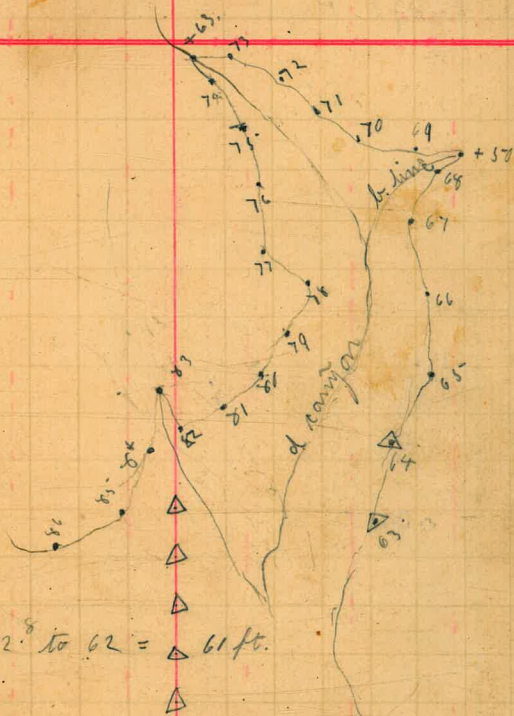
35+31		8° 12'
-------	--	--------

from sta. 42+44' to 43 = 58.4



Sta Left Right

71	23° 58'
70	18° 23'
69	6° 36'
68+58	1° 02'
68	3° 35'
67	5° 14'
66	1° 54'
65	3° 27'
64	10° 20'
63	22° 22'
62	30° 57'
61+42 ^o	43° 20'
61	10° 48'
60	12° 14'
59	12° 46'
58	21° 45'
57+59 ^o	7° 01'
57	8° 45'
56	16° 40'
55	13° 24'
54	16° 41'



from 60+42 to 62 = 61 ft.

from sta 57+59 to sta 56 = 44 ft.

Sta.	Left	Right
------	------	-------

89+83		26° 45'
89		9° 23'
88		27° 57'
87		17° 26'
86+47	159° 31'	
86	157° 33'	
85	145° 45'	
84	127° 30'	
83	109° 13'	
82	114° 36'	
81	90° 12'	
80	53° 17'	
79	31° 21'	
78	27° 06'	
77	33° 00'	
76	32° 40'	
75	32° 15'	
74	35° 25'	
73+63	38° 15'	
73	32° 30'	
72	28° 08'	

from 86+47 to 87 = 52.9 ft.



85 30 45 25 18
 86 26 40 21 08
 87 21 41 26 61
 88 16 41 21 31
 89 11 40 16 31
 90 6 40 11 9

Sta.

89+83

89

88

87

86+47

106

18° 32'

86

105

14° 17'

85

104

12° 35'

84

103

10° 20'

83

102

5° 43'

82

101

6° 54'

81

100

1° 43'

80

99

1° 31'

79

98

21° 11'

78

97

50° 40'

77

96

34° 48'

76

95

2° 00'

75

94

1° 40'

74

93

3° 42'

73+63

92

6° 14'

73

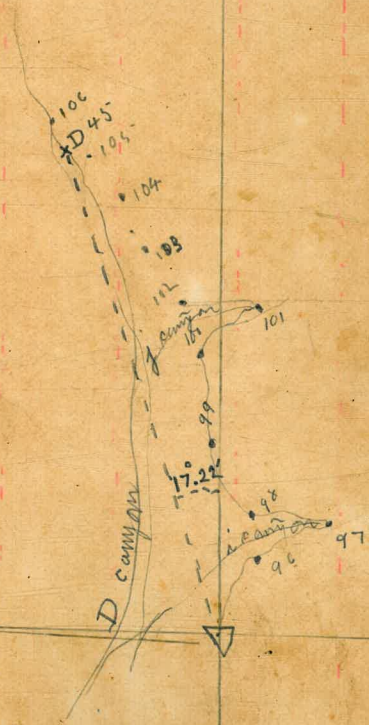
91

8° 57'

72

90

21° 10'



2
 ref
 203 + 02
 1 + 24
 201 + 75.7
 14.57
 207 + 77
 205 + 74
 12.52
 5.2
 10 + 85.7
 98 + 45
 3 + 40.7

TRAVERSE TABLE FOR TRANSIT BOOK,
 From 1° to 90° for a distance of 100.

Degrees.	DEGREES.		¼ DEGREE.		¼ DEGREE.		¼ DEGREE.		Degrees.
	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	
0			100.00	0.44	100.00	0.87	99.99	1.31	89
1	99.98	1.75	99.98	2.18	99.97	2.62	99.95	3.05	88
2	99.94	3.49	99.92	3.93	99.91	4.36	99.88	4.80	87
3	99.86	5.23	99.84	5.67	99.81	6.10	99.79	6.54	86
4	99.76	6.98	99.73	7.41	99.69	7.85	99.66	8.28	85
5	99.62	8.72	99.58	9.15	99.54	9.58	99.50	10.02	84
6	99.45	10.45	99.41	10.89	99.36	11.32	99.31	11.75	83
7	99.25	12.19	99.20	12.62	99.14	13.05	99.09	13.49	82
8	99.03	13.92	98.97	14.35	98.90	14.78	98.84	15.21	81
9	98.77	15.64	98.70	16.07	98.63	16.50	98.56	16.93	80
10	98.48	17.36	98.40	17.79	98.33	18.22	98.25	18.65	79
11	98.16	19.08	98.08	19.51	97.99	19.94	97.90	20.36	78
12	97.81	20.79	97.72	21.22	97.68	21.64	97.53	22.07	77
13	97.44	22.50	97.34	22.92	97.24	23.34	97.13	23.77	76
14	97.05	24.19	96.92	24.62	96.81	25.04	96.70	25.46	75
15	96.59	25.88	96.48	26.30	96.36	26.72	96.25	27.14	74
16	96.13	27.56	96.00	27.98	95.88	28.40	95.76	28.82	73
17	95.63	29.24	95.50	29.65	95.37	30.07	95.24	30.49	72
18	95.11	30.90	94.97	31.32	94.83	31.73	94.69	32.14	71
19	94.55	32.56	94.41	32.97	94.26	33.38	94.12	33.79	70
20	93.97	34.20	93.82	34.61	93.67	35.02	93.51	35.43	69
21	93.36	35.84	93.20	36.24	93.04	36.65	92.88	37.06	68
22	92.72	37.46	92.55	37.86	92.39	38.27	92.22	38.67	67
23	92.05	39.07	91.88	39.47	91.71	39.87	91.53	40.27	66
24	91.35	40.67	91.18	41.07	91.00	41.47	90.81	41.87	65
25	90.63	42.26	90.45	42.66	90.26	43.05	90.07	43.44	64
26	89.88	43.84	89.69	44.23	89.49	44.62	89.30	45.01	63
27	89.10	45.40	88.90	45.79	88.70	46.17	88.50	46.56	62
28	88.29	46.95	88.09	47.33	87.88	47.72	87.67	48.10	61
29	87.46	48.48	87.25	48.86	87.04	49.24	86.82	49.62	60
30	86.60	50.00	86.38	50.38	86.16	50.75	85.94	51.13	59
31	85.72	51.50	85.49	51.88	85.26	52.25	85.04	52.62	58
32	84.80	52.99	84.57	53.36	84.34	53.73	84.10	54.10	57
33	83.87	54.46	83.63	54.83	83.39	55.19	83.15	55.56	56
34	82.90	55.92	82.66	56.28	82.41	56.64	82.16	57.00	55
35	81.92	57.36	81.66	57.71	81.41	58.07	81.16	58.42	54
36	80.90	58.78	80.64	59.13	80.39	59.48	80.13	59.83	53
37	79.86	60.18	79.60	60.53	79.34	60.88	79.07	61.22	52
38	78.80	61.57	78.53	61.91	78.26	62.25	77.99	62.59	51
39	77.71	62.93	77.44	63.27	77.16	63.61	76.88	63.94	50
40	76.60	64.28	76.32	64.61	76.04	64.94	75.76	65.28	49
41	75.47	65.61	75.18	65.93	74.90	66.26	74.61	66.59	48
42	74.31	66.91	74.02	67.24	73.73	67.56	73.43	67.88	47
43	73.14	68.20	72.84	68.52	72.54	68.84	72.24	69.15	46
44	71.93	69.47	71.63	69.78	71.33	70.09	71.02	70.40	45
45	70.71	70.71							
Degrees.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Degrees.
Degrees.	DEGREES.		¼ DEGREE.		¼ DEGREE.		¼ DEGREE.		Degrees.

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