

FLUME 1 STATION

No 1

BARRETT'S TOWARDS DULZURA

ST. 10 ST. 5

37

400

LEVEL

Will

Table showing the difference of latitude and departure in running 80 chains at any course from 1 to 60 minutes.

MINUTES	LKS.	MINUTES	LKS.	MINUTES	LKS.
1	1 1/3	21	49	41	95 2/3
2	2 2/3	22	51 1/3	42	98
3	3 2/3	23	53 2/3	43	100 1/3
4	4 2/3	24	56	44	102 2/3
5	5 2/3	25	58 1/3	45	105
6	6 2/3	26	60 2/3	46	107 1/3
7	7 2/3	27	63	47	109 2/3
8	8 2/3	28	65 1/3	48	112
9	9 2/3	29	67 2/3	49	114 1/3
10	10 2/3	30	70	50	116 2/3
11	11 2/3	31	72 1/3	51	119
12	12 2/3	32	74 2/3	52	121 1/3
13	13 2/3	33	77	53	123 2/3
14	14 2/3	34	79 1/3	54	126
15	15 2/3	35	81 2/3	55	128 1/3
16	16 2/3	36	84	56	130 2/3
17	17 2/3	37	86 1/3	57	133
18	18 2/3	38	88 2/3	58	135 1/3
19	19 2/3	39	91	59	137 2/3
20	20 2/3	40	93 1/3	60	140

MICROFILMED  
JAN 8 1950

South east 24  
Campo Corral 10<sup>th</sup> and I  
Holmes Mann 51

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
0		0		0		0	
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

Flume Location N<sup>o</sup> 1  
Barrett toward Dutzura  
Sta. 0 to Sta. 189+00

B.M. NO. P. ELE. L. ELE. HIGH. LOW

1	1528.715			
2	1528.071	1528.070	.001	
3	1530.036	1530.060		.024
4	1518.604	1518.629		.025
5	1527.413	1527.437		.037
6	1526.307	1526.297	.010	
7	1519.494	1519.454	.040	
8		1525.173		
9	1513.776	1513.756	.020	
10	1525.500	1525.495	.005	
11	1527.092	1527.156		.064
12	1525.852	1525.903		.051
13	1529.493	1529.529		.036
14	1523.696	1523.700		.004
15	1522.043	1522.007	.036	
16	1523.830	1523.761	.069	
17	1523.868	1523.842	.026	
18	1520.310	1520.247	.063	
19	1518.108	1518.015	.093	

November 13, 1906.

B.M. 1.		1528.715	
	8.165	1536.880	
0		12.68	1524.20 =
+ 12		12.7	24.2
+ 30		1.4	35.5
+ 60		4.1	31.8
+ 80		12.76	24.12 =
+ 100		12.78	24.10
+ 20		12.80	24.08
+ 40		12.82	24.06
+ 60		12.84	24.04
+ 80		12.86	24.02
+ 100		12.88	1524.00
+ 20		12.90	1523.98
+ 40		12.92	23.96
+ 60		12.94	23.94
+ 80		12.96	23.92

1" Iron bolt on granite ledge 120' L. of Sta. 0

Hooking elev. of B.M. 1 is 82.592.

Grade at Sta. 0 on sub.

= Grade at end of work cut.

grade on rock.

" "

" "

" "

" "

" on sub.

C.P.  
B. 707

1526.880

0

13.004 1523.876

3.982 1527.858

3+00 3.96 1523.90

grade on hub.

+20 3.98 23.88

" "

+40 4.00 23.86

" on rock

+60 4.02 23.84

" "

+80 4.04 15.46

Water course

4+00 4.06 1523.80

grade on hub

+20 4.08 23.78

" " "

+45 7.10 20.76

no grade set.

+60 4.12 23.74

grade on rock.

+80 4.14 23.72

" hub.

5+00 4.16 1523.70

" " rock

0 4.880 1522.978

5.891 1528.859

+20 5.18 1523.68

grade on stake

CS

	1528.859				
5+25		+0.10	1528.96	Boulder	
+40		5.20	23.66	grade on Rock	
+60		5.22	23.62	" " hub	
+80		5.24	23.62	" "	
6+00		5.26	1523.60	" "	
+20		5.28	23.58	" "	
+40		3.92	24.94	hub	
B.W. 2	—	0.790	1528.069	= Edwards 1528.071	(hub on large boulder at L of 6+40 Elev. painted. <u>1528.070</u> ✓)
+60		5.32	23.54	grade on hub	
+80		5.34	23.52		
0		4.020	1524.839		
	26.54	1527.493			
+93		0.70	26.49		
7+00		3.99	23.50	grade on hub	
+20		2.01	23.48	" rock	
+25		11.40	16.09		
+40		2.03	23.46	" Rock	
+60		4.05	23.44		

1527.493

7+80	4.07	1523.42	grade on hub
8+00	4.09	1523.40	" rock
+20	4.11	23.38	" "
+40	4.13	23.36	" "
+60	2.0	25.49	Boulders 6' x 8' x 4' + 10' x 12' x 12'
+80	4.17	23.32	grade on White Lichen rock.
9+00	4.19	23.30	" " rock
+20	4.21	23.28	" " "
+40	4.23		not set
+62	4.25	23.24	" " Perpendicular on cliff
+80	4.27	23.22	
10+00	4.29	23.20	grade on hub
+20	4.31	23.18	" "
+40	4.33		not set
+60	4.35		not set inaccessible.
+73	4.36	23.13	



	1527.493		
10+8v		4.37	1523.12
10+9v		4.39	20.10
0		0.068	1527.425
	4.089	1531.514	
B.N.3.		1.334	1529.980
	0.600	1530.580	
11+05		1.5	29.10
+10		6.0	24.6
+20		7.50	23.05
+40		7.52	23.06
+60		7.54	23.04
+80		7.56	23.02
+90		10.7	19.9
12+00		7.58	1523.00
+20		7.60	24.98
+30		6.1	24.5

Shot on Boulder 5' L. of Sta. 11.  
Elev. 1530.060

boulders 4'x6'x8' and 12'x16'x14'

grade on hub.

dash.

grade on hub.

" "

CP

	1530.580			
12+40	7.62	1522.96	grade on hub	
+60	7.64	22.94	" "	
+80	7.66	25.92	" "	
13+05	7.68	22.90	" "	
+20	7.70	22.88	" "	
+35	5.5	25.10	Boulder 4' x 6' x 8'	
+45	7.72	22.86	grade on hub	
+65	7.74	22.84	" rock	
+80	7.76	22.82	" "	
14+00	7.78	22.80	" hub	
+15	12.10	18.5	Wash	
+25	7.80	22.78	grade on hub,	
0	2.514	1528.266		

7

November 14, 1906.

0		1528.266		
	0.735	1529.001		
14+35		3.0	1526.0	
+45		6.24	1522.76	grade on rock.
+55		10.80	18.20	
+65		6.26	22.74	" "
+80		6.28	22.72	" huts
15+00		6.30	1522.70	" "
28.771.4		10.372	1518.029	Work on large boulder 10' 15' 15+15
	10.141	1528.770		
+20		9.0	1519.8	from 15+20 to 18+70 along face of cliff
+40		6.11	22.26	on hut
+60		6.13	22.24	" "
+80		6.15	22.22	
+90		13.8	15.0	
16+10		6.18	22.59	on ledge
0		11.790	1514.980	
	11.854	1528.834		
16+90		6.32	1522.51	on ledge

1528.834

17 + 20	6.35	1522.48	on boulder
+ 40	6.37	22.46	on ledge
18 + 30	6.46	22.37	not set

1.090 1527.444

2750 1530.194

+ 80	7.37	22.32	on rock
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19	7.39	22.30	hnt
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+ 20	37	265	low rock cut
+ 40	32	270	

B. 22.5	27.57	1527.437	hnt on boulder on line 19 + 45
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5580 1532.967

+ 60	10.72	22.24	hnt
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+ 80	10.74	22.22	"
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20	10.76	22.20	"
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+ 20	10.78	22.18	"
------	-------	-------	---

+ 40	10.80	22.16	"
------	-------	-------	---

+ 60	10.82	22.14	rock
------	-------	-------	------

1532.967

20 + 50	10.84	1522.12
+ 90	9.0	1523.0
21	7.0	25.0
+ 10	15.0	17.0
+ 25	19.0	13.0
+ 40	10.90	22.06
+ 60	10.92	22.04
+ 80	10.94	22.02
22	17.9	15.0
+ 20	10.99	21.98
+ 40	11.00	21.96
+ 60	11.02	21.94
+ 80	11.04	21.92
23	11.06	21.90
+ 20	11.08	21.88
+ 40	10.0	23.0
+ 80	11.14	21.82

cut

large boulder

20 x 30 x 5

on ledge

" "

" "

wash

cut

"

"

"

"

on boulder

1532.967

24	11.16		1521.80	on boulder
+20	11.18		21.78	" "
+40	11.20		21.76	" hub
+60	11.22		21.74	" "
+80	11.24		21.72	" "
25	11.26		21.70	" rock

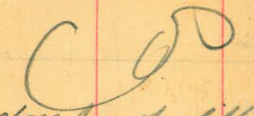
B.M. 6

6.670 1526.297

On large boulder 25' L 24+90

0.894 1527.191

+20	5.51		21.68	on rock
+40	5.53		21.66	" hub
+60	5.55		21.64	" "
+80	5.57		21.62	" "
+90	2.8	1524.4		cut low rock
26	5.59		21.60	" "
+20	5.61		21.58	
+40	5.63		21.56	
+60	13.5	13.7	21.54	
+82	20.0	07.2	21.52	



from 26+40 to 27+20 along face of cliff

to base of cliff

1527.191

27	45	5.69	1521.50	
	+20	5.71	21.48	on hut
	+40	5.73	21.46	" ledge
	+60	5.75	21.44	" rock
	+80	5.77	21.42	" boulder
	+85	4.0	1523.2	} Boulder
	+90	4.9	2.3	
28		9.7	17.5	21.40
	+20	5.81	21.38	on ledge
	+40	9.4	17.8	21.36
	+50	5.84	21.35	on hut
	+80	5.87	21.32	" "
29		5.89	21.30	" rock
	+20	5.91	21.28	" "
	+40	5.93	21.26	" "
	+80	5.97	21.22	" "
30		5.99	21.20	" ledge

CS

1527.191

30 + 20

2.01

1521.18

on ledge

0

3.111 1524.080

0.552 1524.632

+ 40

3.47

21.16

" "

+ 60

3.49

21.14

" "

+ 80

3.51

21.12

" "

31

3.53

21.10

in hut

B.M. 7

5.178

1519.454

On boulder 7' L<sup>t</sup> 30 + 90

6.604 1526.058

+ 20

4.97

21.08

in rock

+ 40

4.99

21.06

" "

+ 60

5.01

21.04

" "

+ 80

5.03

21.02

" hut

32

11.0

15.0

21.00

water way

+ 20

5.07

20.98

on boulder

+ 40

5.09

20.96

" "

0

5.840 1520.218

Nov 15<sup>th</sup> 1906

Ces



1520.218

6.8951527.113

32+60	6.17	1520.94	not set
+80	6.19	20.92	m hut
33	6.21	20.90	" "
+20	6.23	20.88	" "
+40	6.25	20.86	" "
+60	6.27	20.84	" "
+80	6.29	20.82	" "
34	6.31	20.80	" "
+20	6.33	20.78	" "
+40	6.35	20.76	" "
+60	6.37	20.74	" "
+85	6.39	20.72	" " +80 Boulder 5x12x6
35	6.41	20.70	" " Sta 35 " 8x10x20
+20	6.43	20.68	" "
+40	6.45	20.66	" "
+60	6.47	20.64	" "
+80	6.49	20.62	m ledge

1527.113

36 6.51 1520.60

on hut

+20 6.58 20.58

" boulder

B.M. 8 1.940 1525.173

On boulder 4' R. of 36 + 20

+40 6.55 20.56

on hut

+60 6.57 20.54

" boulder

+80 6.59 20.52

" rock

37 6.61 20.50

" "

+20 6.63 20.48

" "

0 5.960 1524.153

From 37 + 35 to 38 + 30 along face of cliff

4.180 1525.333

38 + 30 4.96 20.37

on ledge

+40 4.97 20.36

" "

+60 4.99 20.34

" hut

+80 5.01 20.32

" boulder

39 2.3 23.0 20.30

Some rock cut

+20 5.05 20.28

on ledge

+40 5.07 20.26

" "

CP

1525333

39+60	5.09	1520.24	on bank
+80	5.11	20.22	on ledge
110	5.13	20.20	" "
+20	5.15	20.18	" "
+40	5.17	20.16	" "
13.711.9	11.575	1513.756	bank on rock 12' 1" 40+60

9.250 1520.006

+60	286	20.14	on ledge
+80	288	20.12	" "
111	290	20.10	" boulder
+20	292	20.08	" bank
+40	294	20.06	" "
+60	296	20.04	" "
+80	298	20.02	" rock
112	300	20.00	" bank
+20	11.6	11.4	water way
+40	204	19.96	" bank

CP

1523.000

0

1.675 1521.331

5.310 1526.641

42 + 60	2.4	24.2	1519.94	Cut low rock
+75	0.6	26.0		" "
45	6.74		19.90	on rock
+20	6.76		19.88	" bank
+40	6.78		19.86	" "
+60	6.80		19.84	" rock
+80	6.82		19.82	" "
44	11.8	15.8	19.80	
+20	6.86		19.78	on bank
+30	3.2	23.4		low rock
+50	6.89		19.75	on bank
+80	6.92		19.72	" "
+90	6.0	20.6		
45	1.6	25.0	19.70	
B.M. 10	11.46	1525.495		Mark on boulder 2' L. 114 + 98

+0.005

1525.495

4.110 1529.605

45+10	0.4	29.2	
725	1.1	28.5	
740	9.94	1519.66	
760	28.6	1501.0	
770	9.97	19.63	
46	10.00	19.60	
720	10.02	19.58	
740	10.04	19.56	
760	10.06	19.54	
780	10.08	19.52	
47	10.10	19.50	
720	10.12	19.48	
740	10.14	19.46	
0	1.642	1527.963	
	0.370	1528.333	
760	8.89	19.44	

large boulder

" " also 15' lower

on ledge

Gulch, carries considerable water

on bank

"

"

"

"

"

on rock

" bank

" "

" "

NOTE!! From 46+20 to 48+80

line runs low rock point.

Distance through saddle from

grade to grade = 90 feet

with 17.0 cut

CP

1528.333

47+80	891	1519.42	on rock
48	893	19.40	" "
+20	895	19.38	" "
.	12.433	1515.900	

11.5471527.447

+40	8.08	19.36	" "
+60	8.10	19.34	" hnt
+80	8.12	19.32	" "
49	8.14	19.30	" "
+20	8.16	19.28	" "
+40	8.18	19.26	" rock
+60	8.20	19.24	" hnt
+80	8.22	19.22	" "
50	8.24	19.20	" "
+20	8.26	19.18	" "
+40	8.28	19.16	" "
+60	8.30	19.14	" "

CP

19

1527.447

50 + 80	8.32	15 19.12	on bank
51	8.34	19.10	" "
+ 20	8.36	19.08	" "

R.M. 11	0.291	1527.154	Point on rock 8' L 51 + 10	- 018
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T.P.	8.228	1517.219	
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8.216 1527.435

Nov 16<sup>th</sup> 1906

+ 40	8.37	19.06	on bank
+ 60	8.39	19.04	" "
+ 80	8.41	19.02	" "
52	8.43	19.00	" "
+ 20	8.45	18.98	" "
+ 40	8.47	18.96	on rock
+ 50	12.0	15.4	water way
+ 60	8.49	18.94	on rock
+ 80	8.51	18.92	" bank
53	8.53	18.90	" "
+ 20	8.55	18.88	" "

C.O.

1527.435

53+40	8.57	1518.86	on bank
+60	8.59	18.84	" "
+80	8.61	18.82	" "
54	8.63	18.80	" "
+10	12.6	14.8	water way
+20	8.65	18.78	on bank
+40	8.67	18.76	" "
+60	8.69	18.74	" "
+80	8.71	18.72	" "
55	8.73	18.70	" "
+20	8.75	18.68	" "
+40	8.77	18.66	" rock
+60	8.79	18.64	" bank
B.M. 12	1.532	1525.903	Bank on boulder 4' R 55+70
+80	8.81	18.62	on rock
56	8.83	18.60	" bank
+20	8.85	18.58	" "



1527.435

156 + 40	8.87	1518.56	on hut
+ 60	8.89	18.54	" rock
+ 80	8.91	18.52	" hut
0	5140	1522.295	

40.15 1521.360

57	7.86	18.50	" "
+ 20	7.88	18.48	" rock
+ 40	7.90	18.46	" hut
+ 60	7.92	18.44	" "
+ 80	7.94	18.42	" "
58	7.96	18.40	on boulder
+ 20	7.98	18.38	" hut
+ 40	8.00	18.36	" rock
+ 60	8.02	18.34	" "
+ 80	8.04	18.32	" "
59	8.06	18.30	not set
+ 20	8.08	18.28	on hut

COP

1526.360

59+75	16.0	1510.4
80	8.16	1518.20
+20	8.18	18.18
+40	8.20	18.16
+60	8.22	18.14
0.	2440	1523.920

8.496 1532.416

B.M. 13 2.887 1529.529

1.015 1530.544

+80	12.42	18.12
61	12.44	18.10
+20	12.46	18.08
+40	12.48	18.06
+60	12.50	18.04
+80	12.52	18.02
62	12.54	18.00

Canyon carries considerable water

" rock

" hub

" rock

" "

On Boulder 20' R 60 +20

" hub

" "

" rock

" hub

" "

" "

On Boulder

23

1530.544

62 +20	12.56	1517.98	m rock
+40	12.58	17.96	" hnt
+60	12.60	17.94	" rock
+80	12.62	17.92	" hnt
63	12.64	17.90	" "
+20	12.66	17.88	" "
0	12.650	1517.894	

11.524 1529.418

+40	11.56	17.86	" rock
+60	11.58	17.84	" "
+80	11.60	17.82	" hnt
64	11.62	17.80	" "
+20	11.64	17.78	" "
+40	11.66	17.76	" "
+60	11.68	17.74	" "
+80	11.70	17.72	" "
65	10.0	19.2	17.70

24

1529.418

C5420

1174

1517.28

on rock

B.M. 14

5718 1523.700

Unit on rock 6' R2 C4185

o

8.090 1521.328

3.930 1525.258

+40

7.20

17.66

on bank

+60

7.62

17.64

" "

+80

7.64

17.62

" "

66

7.66

17.60

" "

+20

7.68

17.58

on boulder

+40

7.70

17.56

" Edge

+70

26.0 1499.3

Gulch

67

7.70

17.52

bank

+12

2.3 1523.0

earth and loose rock

+30

7.79

17.47

bank

+63

20.0 1505.3

Gulch

+75

7.82

bank

68

7.86

17.40

bank

+20

7.88

17.38

"

CP

1525.258

68+40	7.90	15.17.30
+60	7.92	17.34
+80	7.94	17.32
69	7.96	17.30
+20	7.98	17.28
+40	8.00	17.26
+60	8.02	17.24
+80	8.04	17.22
70	8.06	17.20
+10	4.0	15.21.3
+20	8.08	17.18
+40	8.10	17.16
0	7.476	15.17.782

6.6.85 1524.467

+50	7.34	17.12	
71	3.5	21.0	17.00
+20	3.8	20.7	17.08
+40	3.3	21.2	17.00

no rock

" bnt

" "

" "

" "

" "

" "

" "

" rock

Boulders

" bnt

not set

" bnt

low rock cut

1524.467

B.M. 15

2.460 1522.007

3.040 1525.047

71 + 60 8.23 22.7 1517.04

+ 80 8.9 20.2 17.02

72 8.04 17.00

+ 20 8.06 16.98

+ 40 8.08 16.96

+ 60 8.10 16.94

+ 80 8.12 16.92

73 8.14 16.90

+ 20 8.16 16.88

+ 40 8.18 16.86

+ 60 8.20 16.84

+ 80 8.22 16.82

74 8.24 16.80

+ 20 8.26 16.78

+ 40 8.28 16.76

Hut on rock H.L. 71 + 40

} low rock cut

on rock

on hut

" "

" "

" rock

" ledge

" hut

" rock

" "

" "

" "

" rock

" hut

C.S.

1525.047

B.M. 16

1286 1523.761

0.895 1524.656

74+60

7.91

1516.74

on bank

+80

7.93

16.72

" "

75

7.95

16.70

" "

+20

2.4

22.2

16.68

earth by lower rock

+40

7.99

16.66

on rock

+60

13.0

11.6

Gulch

+70

8.02

16.63

" bank

76

8.05

16.60

" rock

+20

8.07

16.58

" bank

+40

8.09

16.56

" "

+60

8.11

16.54

on rock

ground 3' lower

+80

8.13

16.52

" "

77

8.15

16.50

" "

+20

8.17

16.48

" bank

+40

8.19

16.46

" "

2 2530  
71  
1007Nov 17<sup>th</sup> 1906

Bank on rock 12' L 74+40

1524.656

0

11.62 1523.194

1.441 1524.935

77+60

8.50

1516.44

on rock

+80

8.52

16.42

" bank

78

8.54

16.40

" "

+20

8.56

16.38

" "

+40

8.58

16.36

" "

B.M. 17

10.93 1523.842

bank on boulder 8' R 78+40

2.753 1526.595

+60

10.25

16.34

on bank

+80

10.27

16.32

" "

79

10.29

16.30

" ledge

+30

10.32

16.27

" "

+60

10.35

16.24

" bank

+80

10.37

16.22

not set

80

10.39

16.20

on bank

+20

10.41

16.18

on ledge





1520.247

1.294 1522.241

82 +80	1.32	1515.92	on rock
83	1.34	15.90	" hut
+20	1.36	15.88	" "
+40	1.38	15.86	" "
+60	1.40	15.84	" "
+80	1.42	15.82	" "
84	1.44	15.80	" "
+20	1.46	15.78	" "
+40	1.48	15.76	" "
+60	1.50	15.74	" "
+80	1.52	15.72	on rock
85	1.54	15.70	" hut
+20	1.56	15.68	" large boulder
0	1.216	1518.025	

1.377 1519.402

+40	3.74	15.66	on hut
-----	------	-------	--------

1521 541

9/1

C. 05

1519.402

85+60	376		1575.24	in bank
+80	378		15.62	" "
+93	168	02.2		water way
86+20	382		15.58	" bank
+40	384		15.56	" "
+60	386		15.54	" "
+80	388		15.52	" "
87	390		15.50	" "
+20	392		15.48	" "
+40	394		15.46	" "
+50	50	14.4		edge of bank
+60	114	08.0	15.44	gulch
+70	397		15.43	in rock
B.M. 19	1,357	1518.015		On boulder 1' R 87+75
+80	33	16.1	15.42	cut
+90	399		15.41	in rock
88+12	159	03.5		water way

1519.402

88 + 30	4.03	1515.37	in rock
+ 60	4.06	15.34	" "
+ 80	4.08	15.32	" hut
89	4.10	15.30	" rock
+ 20	4.12	15.28	" hut
+ 40	4.14	15.26	" "
+ 60	4.16	15.24	" "
+ 80	4.18	15.22	" rock
90 + 10	4.21	15.19	" hut
+ 40	4.24	15.16	" "
0	5.320	1514.082	

7.570 1521.652

+ 60	6.51	15.14	in hut
+ 80	6.53	15.12	" "
91	6.55	15.10	" "
+ 20	6.57	15.08	" "
+ 40	6.59	15.06	" rock

1521.652

91 +60	6.61	1515.04	on bush
+80	6.63	15.02	" "
92 -	6.65	15.00	" "
+20	6.67	14.98	" "
+40	6.69	14.96	" rock
+60	6.71	14.94	" bush

B.M. 20

5770 1515.882

Point on granite boulder 15' ± 93 + 40.

7305 1523.187

+80	8.27	14.92	" bush
93	8.29	14.90	" "
+20	8.31	14.88	On boulder
+40	8.5	17.7 14.86	low rock
+60	8.35	14.84	on bush
+80	8.37	14.82	" "
94	17.0	06.2 14.80	water way
+20	8.41	14.78	on bush
+40	8.43	14.76	" "

34

1523.187

94 +60	8.45	1514.74	on hub
+80	8.47	14.72	" "
95	8.49	14.70	" "
+20	8.51	14.68	" "
+40	8.53	14.66	" "
+60	8.55	14.64	" "
+80	8.57	14.62	" "
96	8.59	14.60	" "
+20	8.6	06.6 14.58	not set
+40	8.63	14.56	" rock
0	8.460	1514.727	

10.397 1525.124

+80	10.60	14.52	" ledge
97	10.62	14.50	" rock
+20	10.64	14.48	" hub
+40	10.66	14.46	" "
+60	10.68	14.44	" "

Nov 19<sup>th</sup> 1906

1525124

97+80	10.70	1514.42	in boulder
98+05	27.1	1501.0	water way
+40	10.75	14.37	on rock
+60	10.78	14.34	on bank
+80	10.80	14.32	" rock
99	10.82	14.30	" bank
+20	10.84	14.28	" "
+40	10.86	14.26	" "
+60	10.88	14.24	" "
+80	10.90	14.22	" "
100	10.92	14.20	" "

B.M. 21

3.7301521.394

1.592 1522.976

100	8.77	14.20
+20	8.79	14.18
+40	8.81	14.16
+60	8.83	14.14

On bank 12' Rt. 100

98+05 = 96+50 EATON LINE  
NORTH END TUNNEL 1

CO

May. 13-1907

S. B. Harris

Sullivan P. W. West

Johnson Max Water

Chairman { Geo. S. Sams

Geo. S. Sams  
Fred B. Bick

Ditching (Kearney)

G. W. Moore

along north bank

1522.976

100 + 80	7.75	1514.12	
101	8.87	14.10	
+20	8.89	14.0	
+40	8.91	14.06	
+60	8.92	14.04	
+80	8.95	14.02	
102	8.97	14.00	
+20	8.99	13.98	
B.M. 22	12.421	1510.565	
+40	9.01	13.96	
0	12.421	1510.565	
	11.236	1521.791	
+60	7.85	13.94	
+80	7.87	13.92	
103	7.89	13.90	
+20	7.91	13.88	
+40	7.93	13.86	

net out HI 6'9"

on hub ✓

" " ✓

" " ✓

" " ✓

" " ✓

" neck ✓

" hub ✓

" hub ✓

" hub ✓

" hub ✓

" hub ✓

" hub ✓

" hub ✓

" hub ✓

" hub ✓

" hub ✓

" hub ✓

along north hill - side  
comparatively full of rocks

on 15" dia cap 10" h 102 + 40

= B.M. 22

around summit circuit 2000'

H.I.

6'9"

CO



	1521.791		
103 + 60		7.96	1513.2
+ 80		7.97	13.8
104		7.99	13.6
+ 20		8.01	13.7
○		9.00	1513.781
	5.470	1519.251	
+ 40		5.49	13.7
+ 60		5.51	13.7
+ 80		5.53	13.7
105		5.56	13.7
+ 20		5.57	13.6
+ 40		5.59	13.6
Referenc P.		9.453	1509.798
	9.333	1519.131	
+ 60		5.49	13.7
○		9.333	1509.798
	10.400	1520.191	

On hill ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

around smooth circular point

H1

" Rock ✓

" hill ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

" " ✓

= hill at

104 + 20

on Rock 8' h 105 + 82

\* Commoned 100% May 14<sup>th</sup> 1907

= Referenc Point on Rock 8' h 105 + 82

CO

See page 35 for crew

1520197

105 + 80	6.57	1513.62
106	6.59	1360
+ 20	6.61	1358
+ 40	6.63	1356
+ 60	6.65	1354
+ 80	6.67	1352
107	6.69	1350
+ 20	6.71	1348
+ 40	6.73	1346
+ 60	6.75	1344
+ 80	6.77	1342
108	6.79	1340
+ 20	6.81	1338
+ 34	6.82	1336
+ 40	6.83	1334
+ 60	6.85	1332
+ 80	6.87	1330
109	6.89	1328

On Sub

" "

" "

" "

" Pkt

" Sub

" "

" "

" "

" "

" "

" "

" "

" Pkt

" Sub

" "

" "

" "

North + Goose Ridge

= waterway

H.I.

H.I.

Several miles  
Wagonside + glacier

	1520.198		
109 + 14	6905	13.2	on bank
+ 20	691	1519.2	over all
+ 30			
+ 40	693	13.2	on bank
+ 50	694	13.2	on bank
+ 60	695	13.2	" "
+ 80	697	13.2	" "
110	699	13.2	over all
+ 20	701	13.2	on bank
+ 40	702	13.2	" "
+ 60	705	13.2	" "
+ 80	707	13.2	" "
0	708	1518.140	" "
	11,062	1524.202	
111	11.10	13.2	" "
+ 20	11.12	13.2	" "
+ 40	11.14	13.2	Rock
+ 60	11.16	13.2	bank
+ 80	11.18	13.2	" "

13.2  
1519.2

-10.7

= gulch

min. part of  
bank + loose rock

= Sta 110+80

on bank

110+80

005

40

1524.202

112			
+30	11.23	15 129	
+40	11.24	129	
+60	11.26	129	
+80	11.28	129	
+93	8.7	15 155	129
113 +05	11.305	129	
B M23	8.744	15 158	
+20	11.32	129	
+40	11.34	129	
+62	11.36	129	
+75	11.375		
+87			
114	11.40	129	
+20	11.42	129	
+40	11.44	129	
+60	11.46	129	

-11.5 gulch.

on bank

H.I. small saddle

+2.6

cross on bank 10 ft 112+93

edge of gulch

-7.5 Bottom of gulch

on bank grade X

1524202

114 + 80	11.48	151272
115	11.50	127
+20	11.52	12
+40	11.54	12
+60	11.56	12
+80	11.58	12
0	12.524	1511678

10.720 1522398

116	9.80	12
+20	9.82	12
+40	9.84	12
+60	9.86	12
+80	9.88	12
117	9.90	12
+20	9.92	12
+40	9.94	12
+60	9.96	12

On hub ✓

grade ✓

+ on paper ✓

+ on " ✓

around circular point  
earth & sun for 24 months.

on Blackrock in 116+00

Commenced work May 15, 1907

S. B. Harris

P. Wiest

Max Watson

Geo. S. Lane

Ford Beebe

B. W. Moss

P. Hutchins

COO

117 +80	1522.398	9.98	1512.42	on hub
118		10.00	12.40	H.I.
+20		10.02	12.38	
+40		10.04	12.36	+ on Peck
+60		10.06	12.34	- hub
+80		10.08	12.32	
119		10.10	12.30	
+20				-13.0 waterway
+40		10.14	12.26	
+60		10.16	12.24	
+80		10.18	12.22	+ on Peck
120		10.20	12.20	- hub grade
+20		10.22	12.18	
+40		10.24	12.16	grade
+60		10.26	12.14	
+75		10.275	12.125	grade
121		10.30	12.10	flatish waterway 2' below grade

minor ridges + gullies

73.

1522398

121 +20	10.32	1512.01
+40	10.34	12.06
+60	10.36	12.07
+80	10.38	12.02

122 +01	10.40	12.00
---------	-------	-------

BM 24	12.65	1509.740
-------	-------	----------

+20	10.42	11.98
+40	10.44	11.96
+60	10.46	11.94
+80	10.48	11.92

123	10.50	11.90
-----	-------	-------

+20	10.52	11.88
-----	-------	-------

+40	10.54	11.86
-----	-------	-------

©	12.63	1510.335
---	-------	----------

5.330 1515.665

+60	3.83	11.84
-----	------	-------

+80	3.85	11.82
-----	------	-------

on hub ✓

" " ✓ grade

" " ✓

" " ✓

+ " ✓

" " ✓

on hub ✓ grade

" " ✓

+ on " ✓

" " ✓

" " ✓

" " ✓

" " ✓ grade

" " ✓

" " ✓

" " ✓

" " ✓

on hub ✓

on Back bench 10' h 122+38

on wheel

on " 3' h 123+68

CO

	1515665		
123 + 99	387	1511.80	
124 + 20	389	" 76	
+ 40	391	" 76	
+ 60	393	" 74	
+ 79	395	" 72	
125	397	" 70	
+ 20	399	" 68	
+ 40	401	" 66	
+ 60	403	" 64	
+ 80	405	" 62	
126	407	" 60	
+ 20	409	" 58	
+ 39	411	" 56	
+ 60	413	" 54	
0	677	1508.888	
	10569	1519457	
+ 80	794	1152	

May 13	560	560
" 14	580	1020
" 15	3540	960
" 16	4130	1640

+ on Rock

+ " "

" hut grade

+ on rock "

" hut "

" " "

" " "

+ on rock

" hut

" " H.I.

+ on Rock

" hut

" " "

" " grade

on Rock

+ on Rock

x

x

CO

smaller with gas + gullies

Commenced work May 16<sup>th</sup>, 07.

S. B. Harris

R. Hutchins

Max Watson

Geo. Sam

Ford Beebe

E. W. Morse

R. Hutchins



1519.457

127	796	1511.50
+21	798	1145
+40	800	1146
+60	802	1144
+80	804	1142
128	806	1140
+20	808	1139
+40	810	1136
+60	812	1134
+80	814	1132
129	816	1130
+19	818	1128
+40	820	1126
+60	822	1124
BM 25	6203 1513254	
+60	824	1122
0	123891507.068	

on hut ✓  
 + on Rock ✓  
 hut ✓  
 + on Rock ✓  
 hut grade ✓  
 " " ✓  
 " " ✓  
 + on Rock ✓  
 " hut ✓  
 " " H.I. ✓  
 " " grade ✓  
 " " ✓  
 + on Rock ✓  
 " hut ✓

main part above  
 mixture of earth & loose aggregate

on Rock 6' L 129+29  
 on Rock 2' L 129+92

	7944 1515.012	1507.068
130+01	381	1511.70
+21	383	1118
+41	385	1116
+60	387	1114
+80	389	1112
131	391	1110
+20	393	1108
+40	395	1106
+60	397	1104
+80	399	1102
132	401	1100
+20	403	1098
+40	405	1096
+60	407	1094
+71	408	1093
+80	409	1092

Note: commencing at

Sta. 130+01 grade was  
 given on the ground to nearest  
 tenth, guard stakes driven  
 at this point and measure-  
 ments taken from stake to  
 stake. Grade-nubs omitted.  
 Old method resumed at  
 station

+ on Rock  
 Point above Sautinbeck's  
 H.I.

not out (eyeballs cliff)

CO

1515.012

133		4.11	1510.90
+20		4.13	1088
+40		4.15	1086
+49		4.16	1085
0		2.79	1512.215
	5312	1517.527	
+60		6.69	1084
+80		6.71	1082
134		6.73	1080
+20		6.75	1078
+40		6.77	1076
+60		6.79	1074
+80		6.81	1072
135		6.83	1070
+20		6.85	1068
+40		6.87	1066
+60		6.89	1064

} noiser (quartz cliff)

+ on Boulder detached from cliff

on same Boulder as Sta above 153447

noiser alt

South canon - side back of Santibachio  
South + lower quartz rock

47  
48.

1517.527

135 + 80	691	1510.62
136 + 01	693	1061
+ 20	695	1058
+ 40	697	1054
+ 60	699	1050
+ 80	701	1046
137 + 09	704	1044
+ 20	705	1040
138 + 40	707	1040
+ 60	709	1036
+ 80	711	1032
138	713	1028
+ 20	715	1024
139 + 40	717	1020
+ 60	719	1016
+ 80	721	1012
139	723	1008

South canyon-side back of  
Santa Incha - Earth T  
Loose against rock

H.I.

- 8.0 waterway

- 7.0 waterway

49.

1517.527

139	+30	726	1510.27
	+40	727	1026
	+60	729	1024
	+80	731	1022
140		733	1020
	+20	735	1018
	+40	737	1016

not out

not out

-3.0 waterway

6200 1511.327

9202 1520.527

	+60	1039	1014
	+80	1041	1012
141		1043	1010
	+20	1045	1008
	+40	1047	1006
	+58	1049	1004
	+80	1051	1002

9.202 1511.327

in Pref 5' 140+55

0.0

-5.0

= T.P. above

9.589 1520.916

1511.327

142		1092	1510.00
+ 20		1094	998
+ 40		1096	996
+ 60		1098	994

1511.327

9.594 1520.921

+ 80		11.00	1509.92
143		11.02	9.90
+ 20		11.04	9.88
+ 40		11.06	9.86
+ 60		11.08	9.84
+ 77.5		11.10	9.82
144		11.12	9.80
+ 20		11.14	9.78
+ 40		11.16	9.76
+ 60		11.18	9.74

1/2 hr. 5-21-07

Full crew.

on Post ✓  
- hub ✓  
" " ✓  
" " ✓

on rock 5' L of 140+55

5/23/07

Hanna  
Hall  
Watson  
Babe  
Lane  
Mace

on hill

Stake

12' R of 143+85 Grade in gulch

COO

1520.921

144 + 80	11.20	1509.79
145	11.22	9.70
+ 20	11.24	9.68
+ 40	11.26	9.66
+ 60	11.28	9.64
+ 80	11.30	9.62
146	11.32	9.60
+ 20	11.34	9.58
+ 40	11.36	9.56
+ 60	11.38	9.54
+ 80	11.40	9.52
147 + 05	11.42	9.50
+ 20	11.44	9.48
+ 40	11.46	9.46
+ 60	11.48	9.44
X + 80	11.50	9.42
148 + 02	11.48	

Stake

"

"

"

"

"

"

"

"

"

"

Rock

Stake

"

Rock

Not sat.

In Creek (Rattle-snake)

C

1520921

B.M. #26 10.318 1510.603

NOTE: - STA's 116+20-148+02 Superseded by

9.593 1520920 1511.327

126+03.33 7.32 7511.60

+20 9.34 11.53

+40 9.36 11.56

+60 9.38 11.54

9.592 1520.719 1511.327

126+77 9.40 11.52

127 9.42 11.50

+20 9.44 11.48

+40 9.46 11.46

+60 9.48 11.44

+80 9.50 11.42

128 9.52 11.40

+20 9.54 11.38

On tree, white oak, 6" dia. 3' L of 146+40

Tunnel Line 116+20-126+03.3

= L-143+90

On Rock

Hill

5/27/67 Cloudy

Hill

Hall  
Watson  
Beabe  
Lane  
Mass.

C



1520.919

128 + 40	9.56	11.36
+ 60	9.58	11.34
+ 80	9.60	11.32
129	9.62	11.30
+ 20	9.64	11.28
+ 40	9.66	11.26
+ 60	9.68	11.24
+ 70	9.69	11.23
130 + 00		
+ 48	9.77	11.15
+ 60	9.78	11.14
+ 80	9.80	11.12
131	9.82	11.10
+ 20	9.84	11.08
40	9.86	11.06
60	9.88	11.04
+ 95	9.91	11.01

On Rock

Hub

"

Rock

Camp of Boulders.

Hub

"

"

Grate Hub not set

Hub

"

"

Rock

"

129+70 to 130+48 = Long chord of Flume over

Battlecreek Cr. Lauterback Canon. Av. Ht. = 12'

131+60 - 131+95 Flume 35' One 8' Trestle

1520.919

132	9.92	11.00
+25	9.94	10.93
+40	9.96	10.96
+60	9.98	10.94
+80	10.00	10.92
133	10.02	10.90
+20	10.04	10.88
+40	10.06	10.86
+60	10.08	10.84
+80	10.10	10.82
134	10.12	10.80
+20	10.14	10.78
+40	10.16	10.76
+60	10.18	10.74
+80	10.20	10.72
135	10.22	10.70

Rock

Hub

Base of perpendicular rock bluff.

"

"

"

"

"

"

"

"

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"

"

"

"

Rock

C

	1520.919			
0		12.001	1508.918	
	6.790	1515.708		
0		4.488	1511.220	
	7.875	1519.095		
135 + 20		8.42	1510.68	Hub
+ 45		8.44	10.66	"
+ 60		8.46	10.64	"
+ 80		8.48	10.62	"
136		8.50	10.60	"
+ 20		8.52	10.58	"
+ 40		8.54	10.56	"
+ 60		8.56	10.54	"
+ 80		8.58	10.52	"
137		8.60	10.50	Rick
+ 20		8.62	10.48	
0		5.527	1513.568	
	15.492	1519.060		

36.

	1519.040		
137+40		8.60	10.46
+60		8.62	10.44
+80		8.64	10.42
	5.506	1519.074	1513.568
138		8.67	10.40
+20		8.69	10.38
+40		8.71	10.36
+60		8.73	10.34
+80		8.75	10.32
139		8.77	10.30
+20		8.79	10.28
+35		8.805	10.267
+55		8.83	10.24
+80		8.85	10.22
140		8.87	10.20
+20		8.89	10.18

Hub

"

"

Hub

"

"

"

"

Rock

Hub

"

"

"

5/28/07 Cloudy

Hall  
Watson  
Lane  
Beabe  
Mass.

Disintegrated Granite. Very steep

139 to 139+20 Dry wash. Flume Ht = 20 1/2. Grade 5 1/2 FF.

139+35 - 139+55 Flume over rock cut. Ht. 5'

CO

57.

1519.074

140 + 20 8.91 10.16

Hills

+ 60 8.93 10.14

"

+ 80 8.95 10.12

"

141 8.97 10.10

"

+ 20 8.99 10.08

"

+ 40 9.01 10.06

"

+ 60 9.03 10.04

"

0 6.60 1512.474

5.172 1517.146

+ 80 7.63 10.02

Hills

142 7.65 10.00

"

+ 19 7.67 9.98

"

+ 40 7.69 9.96

"

+ 60 7.71 9.94

"

+ 80 7.73 9.92

"

143 7.75 9.90

"

+ 20 7.77 9.88

"

58.

1517.646

143 + 40

7.79

1509.86

Hick

0

6.496

1511.150

8.544

1519.894

143 + 60

9.85

9.88

Hick

+ 80

9.87

9.89

"

144

9.89

9.90

"

+ 20

9.91

9.78

"

+ 40

9.93

9.76

"

+ 60

9.95

9.74

"

+ 79

9.97

9.72

"

145

9.99

9.70

"

+ 20

10.01

9.88

"

+ 40

10.03

9.66

"

+ 60

10.05

9.64

"

0

6.187

1513.507

7.084

1520.591

+ 80

10.97

9.62

1520.591

146 + 18	11.01	9.58	
+ 31	11.02	9.57	
147			
+ 16	11.10	9.49	
+ 26	11.11	9.48	
+ 46	11.14	9.45	
+ 66		9.43	21.72
+ 90	11.18	9.41	
148			
+ 06	11.20	9.37	
148+28			1525.25
+ 60	11.24	9.35	
+ 85	11.26	9.33	
149			
+ 20	11.31	9.28	
	11.630		1508.961
+ 40	11.33	9.26	
+ 60	11.35	9.24	
+ 80	11.37	9.22	

Hub	145+80-146+18	Earth cut	Ht 11'
"	146+18-146+31	Gorge.	
	146+31-147+16	Blue granite bluff	Av. cut 15'
On rock	147+16	Dry creek bed of gorge	
"	"	"	
"	147+46-147+86	Loose Rock bluff	Av. Cut 8'
C	12.3		
	147+30-148+06	Dry Gulch Flume	Ht 5'
On Hub	148+06-148+59	Tunnel or 14' Cut	
C	9.4		
Rock	148+40-148+52	Eastern line	
" Hub	148+60-148+85	Cut in rock	
Rock			
" Hub			
		Ground Elev at Sta	
On Hub			

60.

5/23/07

2 P.M.

Clear &amp; Hot.

## CHECK OF B.M.'S

B.M. #21

1521.394

5.590

1526.984

0

11.635 1515.349

4.203

1519.552

B.M. #22

8.993 1510.559

7.518

1518.077

0

4.252 1513.825

4.219

1518.044

0

6.793 1511.251

6.683

1517.934

0

5.501 1512.433

5.026

1517.459

B.M. #23

~~1.995~~ 1515.464

0

5.026

5.026 1512.433

6.456

1518.889

0

6.954 1511.935

10.0511521.986

49.746

4.154

592

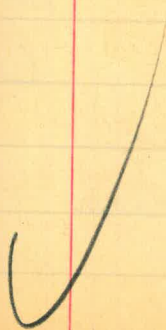
Fall  
Horton,  
Mass.15 464  
1515.458  
- 182

CS



	1521.986			
0		<del>8.820</del>	<del>1513.166</del>	
		8.817	1513.169	
6.939	1520.108			
B.M. #24		<del>10.396</del>	<del>1509.712</del>	
0		8.625	1511.483	
5.405	1518.888			
0		5.176	1511.712	
3.396	1515.108			
0		6.166	1508.942	
8.335	1517.277			
B.M. #25		3.949	1513.308	1513.258
				-0.054
B.M. #23			1515.464	
1.263	1516.727			
0		4.596	1512.181	
12.568	1524.749			

5/30/67

Hall  
Station  
Misses.1509.740  
- 7.12  
+ 1.828
$$\begin{array}{r}
 15 \\
 37.906 \\
 - 37.299 \\
 \hline
 .607
 \end{array}$$


62

1524.749

11.292 1513.457

3.457 1516.914

6.227 1510.687

4.434 1515.121

B.M. #24

5.392 1509.729

5.900 1515.600 5.903 1509.218

8.226 1517.444

7.798 1509.646

8.246 1517.892

8.458 1509.434

7.368 1516.802

B.M. 25 a

3.447 1513.355

B.M. 25

1513.308

5.629 1518.937

5.521 13.416

3.965 1517.381

Handwritten scribble

63

	1517.381			
0		4.418	1512.963	
2.190	1515.653			
0		4.695	1510.958	
6.197	1517.155			
0		5.757	1511.398	
9.353	1520.751			
B.M. 26		10.113	1510.638	1510.603
B.M. 27		8.254	1512.497	
1.909	1514.406			
0		3.889	1510.517	
7.657	1518.174			
0		7.718	1510.456	
3.207	1513.663			
0		2.417	1511.246	
8.659	1519.905			
		6.308	1513.597	
7.089	1520.686			

Live oak 6" dia. 5' L Sta 128+40

On Boulder 10' L Sta. L 130+00

64

1520.686

11.635

1509.051

5.046

1515.640

1.544

1517.184

1508.961

8.15

1517.11

T.P.

1513.51

6.99

1520.50

11.54

1508.96

0

2.57

1517.73

10.79

1528.72

148+28

3.47

1528.25

147+66

7.00

21.72

1509.43

Ref. Pt. Elev. at Sta.

7/31/07 Clear

Ref. Pt.

Hall  
Walker  
Buck  
Moss  
Long  
HutchinsonA  
T

10 R. 145+60

C 9.4.

C 12.3

65

		1508.96		
	6.13	1515.09	1	
149+20		2.51	1212.58	9.24
+75		5.56		9.23
+90		5.88		9.21
150+10		1.50	13.59	9.19
+23		5.91		9.18
+40		5.93		9.16
+60		5.95		9.14
+80		5.97		9.12
151		5.99	1508.96	
	7.42	1517.38		
151		8.28		9.10
+20		8.30		9.05
+40		8.32		9.06
+60		8.34		9.04
+80		8.36		9.02
152		8.38		9.00

Tab on hill grade Stake C 3.3

On Hill 149+40 - 149+75 Side hill curve cut.

" 149+80 Small Gulch.

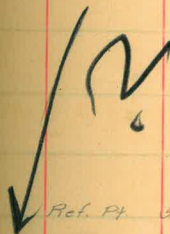
Stake C 4.4 149+90 - 150+23 Side hill curve cut. Loose Rock

Stake

"

"

"



Ref. Pt. 5' L 150+46 On Rock

Stake

"

"

"

66

	1517.38		
152+20		8.40	8.98
+40		8.42	8.96
0		6.57	1510.81
4.31	1515.12		
+60		6.18	8.94
+75		3.85	11.27
+85		6.21	8.71
153		6.22	8.70
+15		6.24	8.68
+40		6.26	8.86
+60		6.28	8.84
+80		6.30	8.82
154		6.32	8.80
+20		6.34	8.78
+40		6.36	8.76
0		7.48	1507.14
7.37	1515.01		

Hub.

Hub.

152+60 - 152+85 Side Hill Cut.

Stake C 2+ Loose Rock &amp; Earth.

Hub.

C.

67

1515.01

154+60		6.27	8.74
+81		6.29	8.72
155		6.31	8.70
+20		6.33	8.68
+40		6.35	8.66
+60		6.37	8.64
+80		6.39	8.62
156		6.41	8.60
+20		6.43	8.58
+30		6.44	8.57
B.M. 280		10.26	1804.75
	10.30	1515.05	
+50		6.50	8.65
+60		6.51	8.64
+50		6.53	8.62
157+01		6.55	8.60
+20		6.57	8.48

Tuba

"

"

"

"

"

"

"

"

"

156+30 - 156+25 Small gulch

68

1515.05

157+40		6.59	8.46
+55		1.45	13.60 8.44
+70		6.62	8.43
+80		6.63	8.42
158		6.65	8.40
+20		6.67	8.38
+40		6.69	8.36
+60		6.71	8.34
+80		6.73	8.32
159		6.75	8.30
+20		6.77	8.28
+40		6.79	8.26
+60		6.81	8.24
0		7.52	1507.53
	11.03	1518.56	
+80		10.34	8.22
160		10.36	8.20

Hub. Small gulch Disintegrated granite

C 5.2

Hub:

"

"

"

"

"

"

"

"

"

"

Hub



69

1518.56

160+20	10.38		8.18
+40	10.40		8.16
+60	10.42		8.14
+80	10.44		8.12
161	10.46		8.10
+20	10.48		8.08
+33	5.60	12.96	8.07
+45	10.50		8.06
+65	6.80	1511.76	8.04
+80	10.54		8.02
162	10.56		8.00
+20	10.58		7.98
+40	10.60		7.96
+60	10.62		7.94
0	7.76	1510.80	
5.01	1515.81		
+40	7.85		7.96

Hub.

"

"

"

"

"

C 4.9

Hub.

Small Gulch Disintegrated.

C 3.7

Hub.

"

"

✓

70

1515.81

122+60			7.87		7.94
+80			7.89		7.92
163			7.91		7.90
+20			7.93		7.88
+40			7.95		7.86
+57			7.97		7.84
+82			7.99		7.82
164+07		2.95	1512.86		7.80
+26			8.03		7.78
+50			8.06		7.75
+60			8.07		7.74
+80			8.07		7.72
81929 <sup>0</sup>		12.39	1503.42		
	9.16	1512.58			
+80			4.00	12.58	7.72
165			4.85		7.70
+20			4.90		7.68

Hub

"

"

"

"

"

163+57 - 163+82 Flume gulch, dry Av. Ht. 8'

C 5.

Earth &amp; Rock Cut.

Hub

"

"

C 4.9

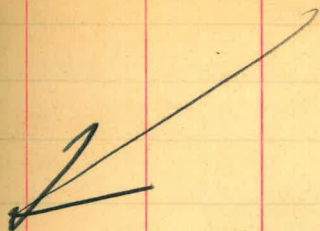
Disintegrated cut.

Hub

"

7/		1512.58		
165+40		4.92		7.66
+60		4.94		7.64
			1503.42	
9.15		1512.57		
165+40		2.65	9.92	7.66
+60		1.3	11.27	7.64
+80		1.3	11.27	7.62
166		4.97		7.60
+07		4.98		7.59
+20		10.55	1502.02	7.58
		2.26	1510.31	
0		12.06	1500.51	
0.31		1500.82		
+40		4.86	1495.96	7.56
+60		7.40	93.42	7.54
+80		12.09	87.9	7.52

Hub



6/3/07 P.M.

Hub & C Stake

C. 2.3 On granite side hill

Hub & C Stake

C. 3.6

H & C Stake

C. 3.65

Hub. Sta 166+07 to 167+09 Flume on

trusses of av. fully noted. Flume

extends on rock shelf in front of boulders

Ref. Pt. on rock Sta. 167+09

Boulders are too large to move  
economically

F 11.6 Stake

F 14.1 On Rock

F 19.6 Stake

9

	1500.82			
167		10.0	90.8	7.50
+20		5.9	97.9	7.48
+40		5.3	95.5	7.46
0		0.74	1500.08	
	12.72	1512.80		
		2.49	1510.31	
+49		5.35		7.45
			1510.31	
	8.38	1518.69		
+70		5.5	1513.2	7.43
+78		11.27		7.42
168+04		11.29		7.40
+20		11.31		7.38
+40		11.33		7.36
		8.3	1514	
+60		11.35		7.34
+83		11.37		7.32
169		11.39		7.30

F 16.7 Stake  
 F 12.6 "  
 F 12

Shell  
 Station  
 Lane  
 Buick  
 House

Ref. Pt. on rock Sta.

Hub bet. rocks

167+49 - 167+78 Line runs thru boulders  
 to be scamed out

C 5.8

On Boulder

Hub

"

"

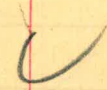
C 3.1

Hub's cut stake

Hub

Granite slab side hill rock to be traversed

On Rock



73

1518.69

169+21		11.41	7.28
+30		11.42	7.27
+60		11.45	7.24
+80		11.47	7.22
170		11.49	7.20
+20		11.51	7.18
+40		11.53	7.16
+60		11.55	7.14
+80		11.57	7.12
171		11.59	7.10
+20		11.61	7.08
⊙		10.97	15 07.72
6.32	1514.04		
+40		6.98	7.06
+60		7.00	7.04
+80		7.02	7.02
172		7.04	7.00

Hub.

169+30-169+60 Flume dry gulch

Hub.

74

1507.72

6.32 15 14.04

172 + 20		7.06		6.98
+ 40		7.08		6.96
+ 60		7.10		6.94
+ 80		7.12		6.92
173		1.1		
		7.14		6.90
+ 20		7.16		6.88
		2.8	11.2	
+ 50		7.18		6.85
+ 60		7.20		6.84
+ 80		7.22		6.82
174		7.24		6.80
+ 20		7.26		6.78
+ 40		7.28		6.76
+ 60		7.30		6.74
+ 80		7.32		6.72
175 <sup>o</sup>		6.90	1507.14	6.70

7.20 15 14.34

6/4/07.

Hall  
Watson  
Laney  
Beck  
More

Stake

"

"

"

C 6.0

Disintegrated Granite Dry gulch  
Grade & cut stake

C 4.3

Stake in dry gulch on grade

Grade & cut stake

Stake

"

"

"

"

"

"

95

1514.34

175		7.44		6.70
+20		7.66		6.68
+40		7.68		6.66
+60		7.70		6.64
		4.25	10.09	
+80		7.72		6.62
		4.8	9.5	
176		7.74		6.60
+20		7.76		6.58
+40		7.78		6.56
+60		7.80		6.54
B.M. #30		11.25	1503.09	
+80		7.82		6.52
177		7.84		6.50
+20		7.86		6.48
+40		7.88		6.46
+60		7.90		6.44
+80		7.92		6.42
0		7.66	1506.68	

76

Stake

"

"

"

C 3.5

C 2.9

C.

Stake

"

"

Grade &amp; cut stakes

" " " "

Boulder gorge

15' L sta. 152.80 On rock

Stake

Over S' boulder

Mark on rock

Stake

"

"

"

	1574.34			
178		7.94		6.40
			1506.65	
	12.35	1519.53		
178+28		2.6	16.9	6.87
+43		2.3	17.2	6.36
			1506.68	
	3.57	1510.25		
+80		0.9		
		3.93	9.35	6.32
179		3.95		6.30
+20		3.97		6.28
+40		3.99		6.26
+66				
180		4.05		6.20
+20		4.07		6.18
+40		4.09		6.16
+60		4.11		6.14

Stake

sta. 178 to 178+80 Boulder and slab  
rock almost perpendicular

C 10.5

C 10.8

C 3.0

178+70 Grade on rock.

Stake

Stake not set.

Stake

179+40 to 179+66 Two boulder slab rocks to be

removed



77

	1510.25				
180+80		4.13		6.12	On Rock
181		4.15		6.10	Stake
0		4.62	1505.63		
	6.27	1511.90			
+20		5.82		6.08	Stake
+40		5.84		6.06	"
+60		5.86		6.04	"
+80		5.88		6.02	"
182		5.90		6.00	"
+20		5.92		5.98	"
+40		5.94		5.96	"
+60		5.96		5.94	"
+80		5.98		5.92	"
0		8.46	1503.44		
	8.94	1512.38			
183		6.49		5.90	"
+19		6.50		5.88	"

78

1512.38

183+40		6.52		5.86	
+60		6.54		5.84	
+80		6.56		5.82	
184		6.58		5.80	
+20		6.60		5.78	
+40		6.62		5.76	
+60		6.64		5.74	
+80		6.66		5.72	
185		6.68		5.70	
+20		6.70		5.68	
+0		9.05	1503.33		
	12.45	1515.78			
+40		10.12		5.66	
+60		10.14		5.64	
+80		10.16		5.62	
185+99		10.18		5.60	
186+20		10.20		5.58	

Stake

"

"

"

"

"

"

"

"

"

Large Boulder 185+30

Stake

"

"

"

"

79

1515.78

0		6.94	1508.84	
	4.94		1513.78	
		8.1	8.7	
186+40		8.22		5.56
+60		8.24		5.54
+70		8.25		
187+				
+25		8.31		5.47
+40		8.32		5.46
+60		8.34		5.44
+70		8.35		5.43
188		8.39		
+10				5.39
+31			7.8	
+35		6.1		5.36
+60		8.44		5.34
+80		8.46		5.32
189		8.48		5.30

Continued in Book #2.

C 3.1 Loose Rocks.  
Grade on rock.Stake 186+63 to 188+25 Vertical rock slab  
overlaid with large boulders to a height  
of 70 feet. To be removed.187+70-188+10 span rocky narrow  
gorge 40' long end of curve over  
height of track 25'To Boulder 188+10 shelf to be constructed in slab  
C 2.2 rock

80

89 15.30

90 15.20

91 15.10

92 15.00

93 14.90

94 14.80

95 14.70

96 14.60

97 14.50

98 14.40

99 14.30

100 14.20

101 14.10

102 14.00

103 13.90

104 13.80

105 13.70

106 13.60

70  
130

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CS

26 - 1006' 3' L 10440  
**TRAVERSE TABLE FOR TRANSIT BOOK**

From 1° to 90° for a distance of 100.  
 25 - R - 61 10440

Degrees.	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		Degrees.
	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	
0	99.98	1.75	100.00	0.44	100.00	0.87	99.99	1.31	89
1	99.94	3.49	99.98	2.18	99.97	2.62	99.95	3.05	88
2	99.86	5.23	99.92	3.93	99.91	4.36	99.88	4.80	87
3	99.76	6.98	99.84	5.67	99.81	6.10	99.79	6.54	86
4	99.62	8.72	99.73	7.41	99.69	7.85	99.66	8.28	85
5	99.45	10.45	99.58	9.15	99.54	9.58	99.50	10.02	84
6	99.25	12.19	99.41	10.89	99.36	11.32	99.31	11.75	83
7	99.03	13.92	99.20	12.62	99.14	13.05	99.09	13.49	82
8	98.77	15.64	98.97	14.35	98.90	14.78	98.84	15.21	81
9	98.48	17.36	98.70	16.07	98.63	16.50	98.56	16.93	80
10	98.16	19.08	98.40	17.79	98.33	18.22	98.25	18.65	79
11	97.81	20.79	98.08	19.51	97.99	19.94	97.90	20.36	78
12	97.44	22.50	97.72	21.22	97.63	21.64	97.53	22.07	77
13	97.03	24.19	97.34	22.92	97.24	23.34	97.13	23.77	76
14	96.59	25.88	96.92	24.62	96.81	25.04	96.70	25.46	75
15	96.13	27.56	96.48	26.30	96.36	26.72	96.25	27.14	74
16	95.63	29.24	96.00	27.98	95.88	28.40	95.76	28.82	73
17	95.11	30.90	95.50	29.65	95.37	30.07	95.24	30.49	72
18	94.55	32.56	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	87.45	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							

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