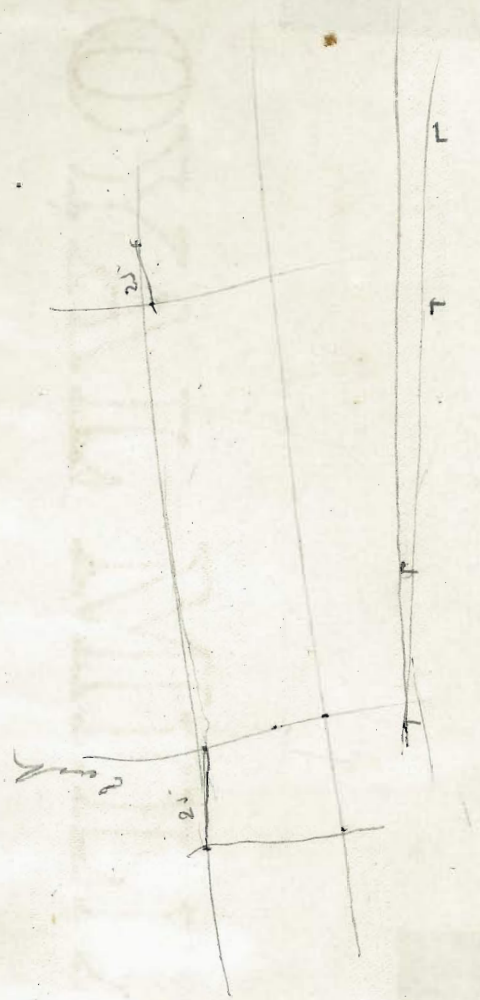
FIELD BOOK.

360 N.

F.B. 43



Plan of curve at 5th & H from North track on H to West track on 5th.

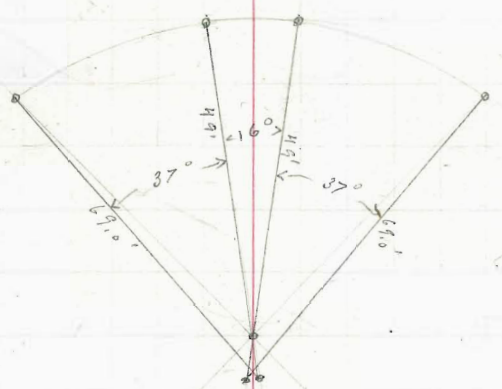
Points set 6' from center of track on South and East side of B.C. on H St.

Chord for I of 10°, 69' R = 12.03'

Chord " I of 7°, 69' R = 8.42

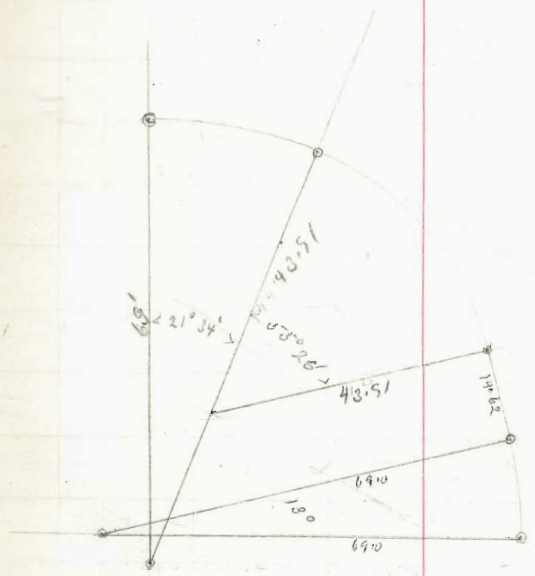
Chord for I of 8° 43' R = 6.84

Semi tangent 66.12'



Plan of curve at 5th & 16 running North from North track on 16 to West track on 5th

Rod 69'	I	13°	chord. = 15.62
Rod 43.91	I	53° 26'	chord. = 40.93
" "	I	10° 0'	chord = 7.64
	I	5° 26	" 4.21
Rod 69'	I	21° 34'	chord 25.82
" "	I	10° 47'	" 12.95



Sta for curve on 5th & 18 running north

Sta	Dist	Def	Tang
0	15.63	6° 30	
+ 15.63	14.62	0 0	13° 0'
+ 30.24	11.85	7° 43'	
+ 42.09	7.64	5° 0'	
+ 49.73	7.64	5° 0'	
+ 57.37	7.64	5° 0'	
+ 65.01	7.64	3° 0'	
+ 72.65	12.95	60° 49'	55° 26'
+ 85.60	12.95	66° 13	
+ 98+55			77° 0'
			13°
			90.0 total angle

Nov 25 1892

B.C. } on North track of 18 St
E.C. } 69' Rod to left I 13° 0'

B.C. to left Rod 44' I 55° 26'

P.C.C. } to left 69' Rod 21° 34'
21° 34
E.C. } straight track on 5th St

Grades for curve at 5th & H for

Sta	+	HI	Grade	Rail	Elev
B.M	2.41	25.47			23.06
				4.86	20.61
				4.98	20.49
			20.55	4.92	

S.H. Elec St Ry Hamlin & 2 assist.

Charge 1/8 day = $2.40

Point on south rail of south track on H. St where north rail of curve crosses it, 13' from East rail on 5th.

Point where outside rail of curve crosses East rail on 5th St

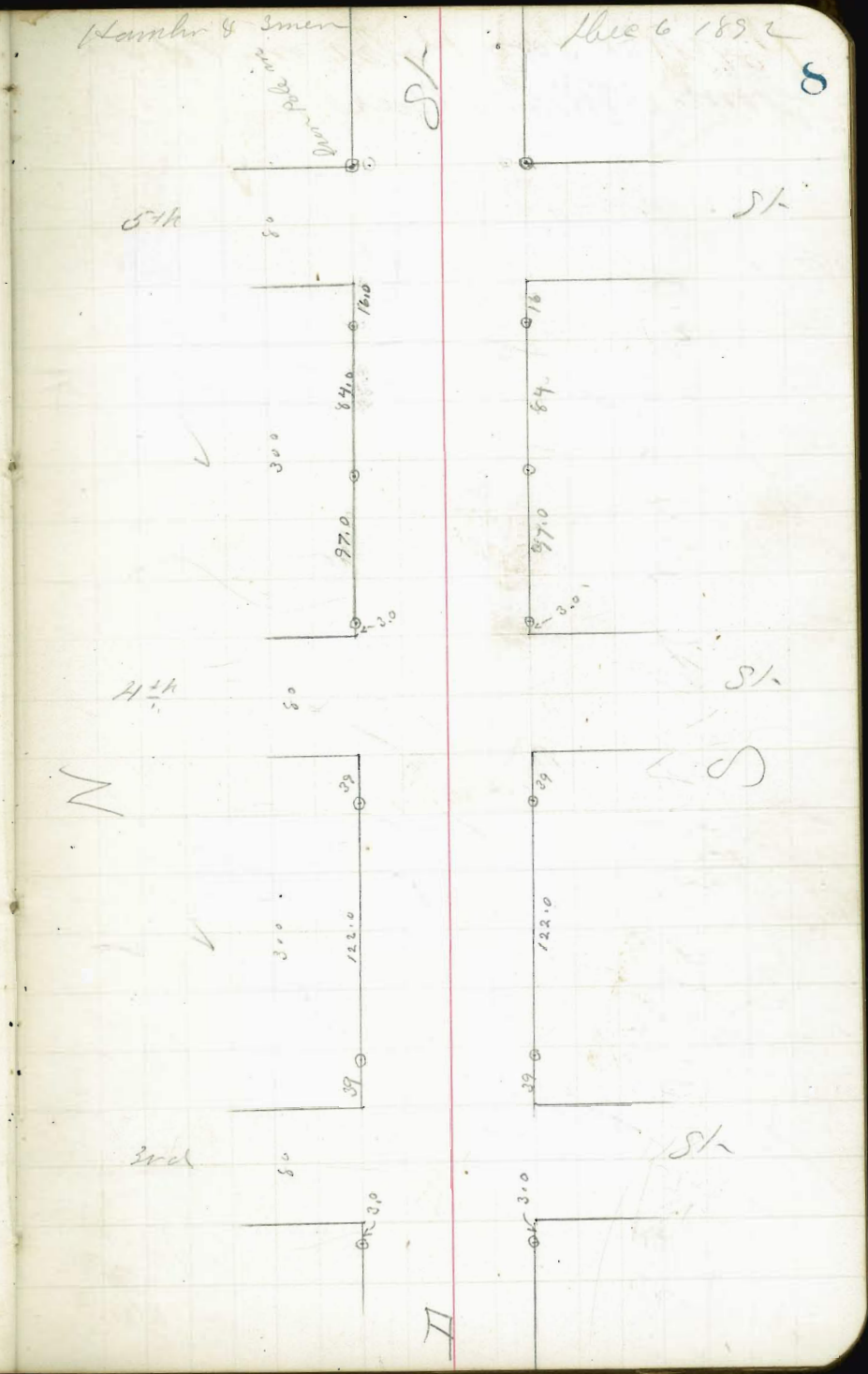
20.61
20.49
4.12
.06
20.49
20.55 — half way
.06
20.61

[illegible] Points

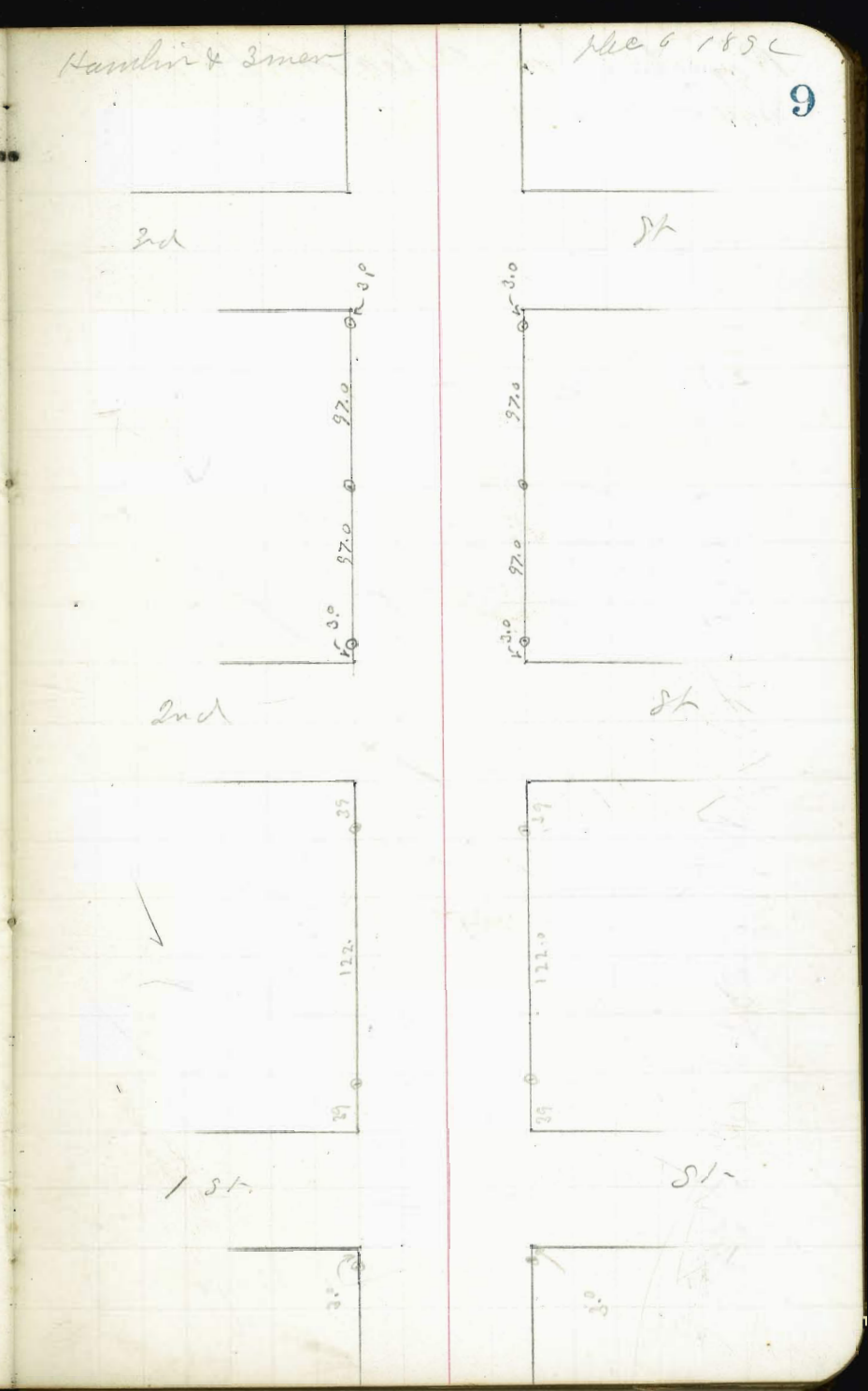
Points for Poles on 18 St from 5th to California

Curve poles on 18 St bet 4th & 5th beginning 25.67' from P.C. of curve running North on 5th St.

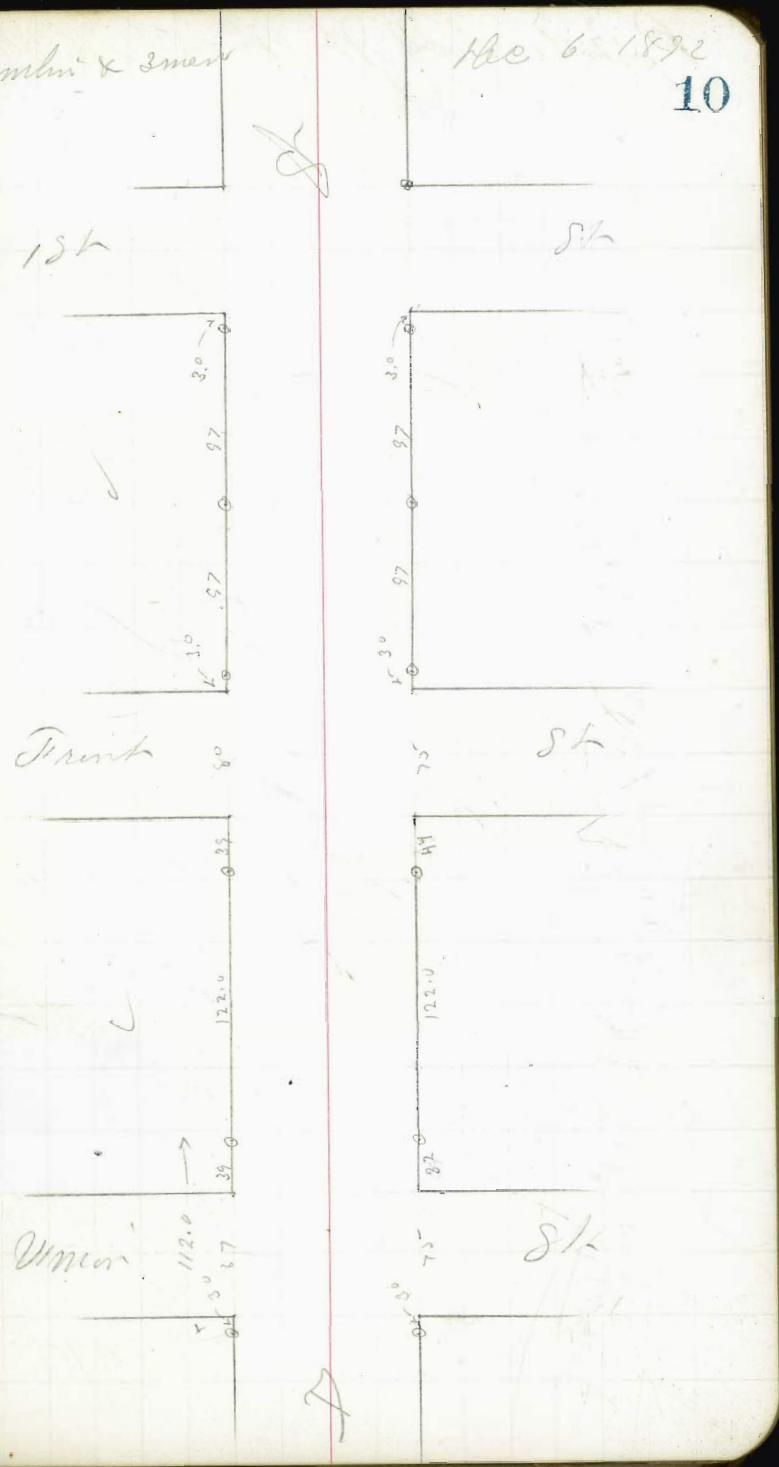
Set points 6' west of center of North track, and 21' 8" of these points at right angles



Points for Poles on 18 St
from 6th to Cul



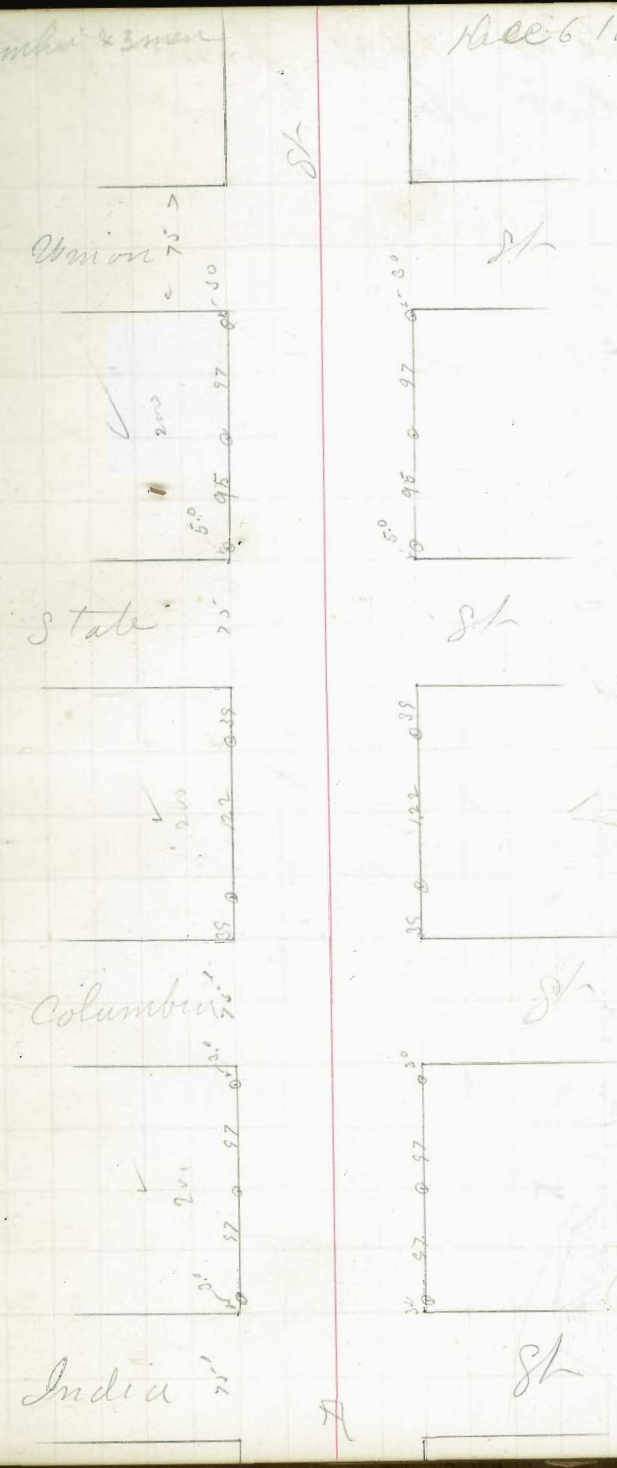
Points for Poles on 18 St
from 6th to Col.



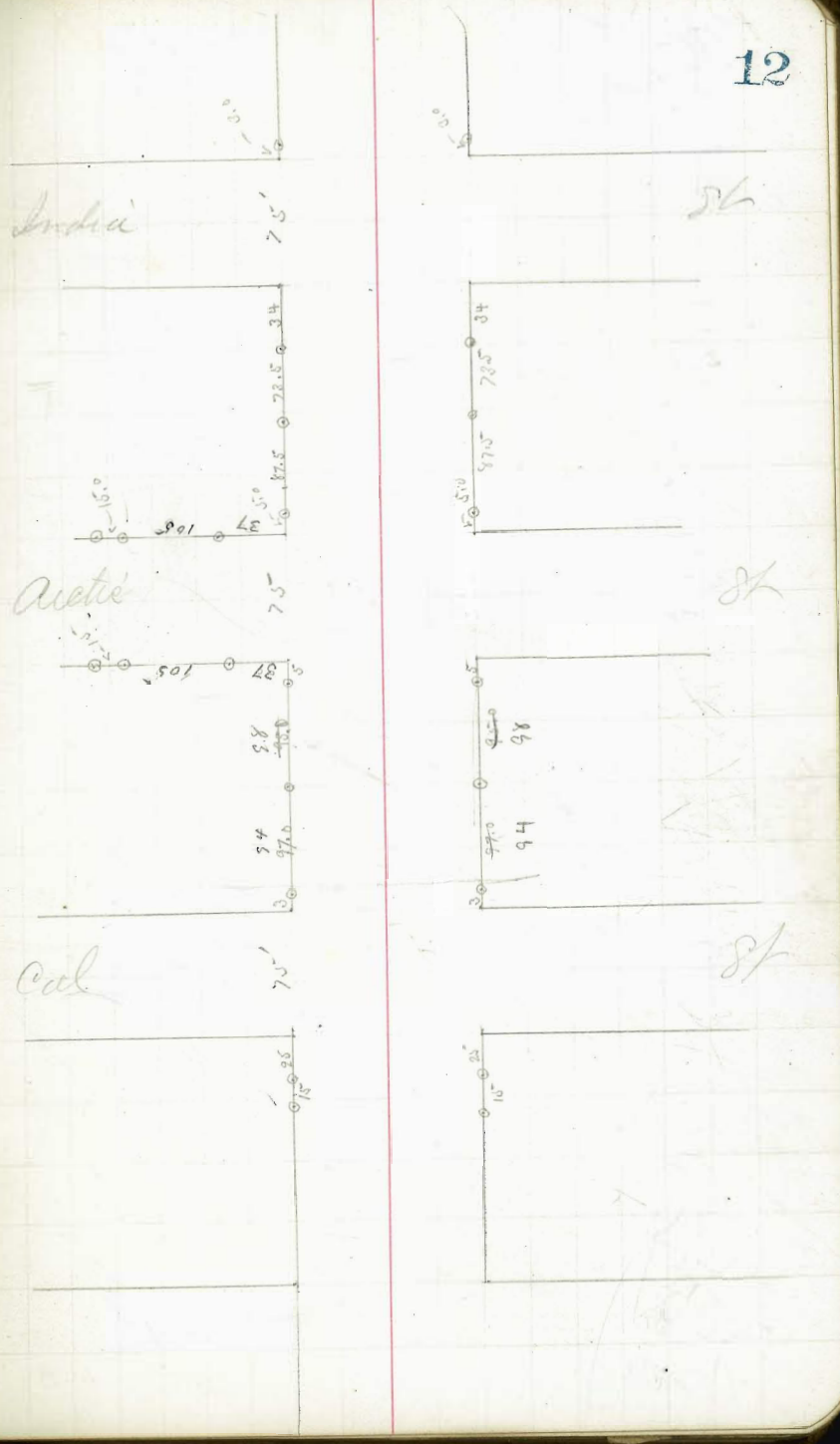
Poles on H St from 15th
to Cal St

Hamlin & 3 men

Dec 6 1892



Poles on Lb St from 5th to Cal St



Sta.	North cut Grade	Centre Grade	South cut grade	
B.M.				
a		7.00		East line of Cal St.
+50		7.75		
1		8.50		
+50		9.25		
2	10.50	10.00	9.50	
+37.5		10.50		Centre line of Aretic St.
0	11.50	11.00	10.50	
+50		11.56		
1		12.10		
+50		12.69		
2		13.25		
+37.5		13.50		Centre line of Indus St.
0		13.75		
+50		14.51		
1		15.28		
+50		16.04		
2		16.8		
+37.5		17.50		Centre line of Columbia St.

Sta		North curb Grade	Centre Grade		South curb Grade	
0			18.2			
+50						
1						
+50						
2			21.8			
+37.5						
0			23.50			
+50						
1						
+50						
2	NW	26.50	26.50		26.50	SW
+37.5 (?)						
0	N.E.	27.5	27.25		27.0	S.E.
+50						
1						
+50						
2	N.W.	30.0	29.75		29.5	S.W.
+40			30.00			
0	N.E.	30.50	30.25		30.0	SE

Centre line of State St

Centre line of Union St

Centre line of Front St

Sta.		North curb grade	Center grade		South curb grade	
+50			30.66			
1			31.08			
+50			31.48			
2	NW	32.30	31.90		31.50	SW
+40			32.58			
0	N.E.	33.50	33.25		33.00	S.E.
+50			33.75			
1			34.25			
+50			34.75			
2	N.W.	35.50	35.25		35.00	S.W.
+40			35.75			
0	N.E.	36.50	36.25		36.00	S.E.
+50			37.31			
1			38.37			
+50			39.43			
2	NW	41.50	40.50		39.50	S.W
+40			41.13			
0	N.E.	42.50	41.75		41.00	S.E.
+50			42.34			

31.50
32.30
63.80
31.90

33.50
3

31.90
33.25
65.15
32.575

Center line of 1st St.

Center line of 2nd St.

Center line of 3rd St.

Sta.		North curb Grade	centre Grade		South curb Grade	
1			42.93			
+30			43.35			
2	N.W.	44.50	43.77		43.70	S.W.
+40			43.77			
0	N.E.	44.50	43.77		43.70	S.E.
+50			44.55			
1			45.84			
+50			46.13			
2	N.W.	47.80	46.92		46.70	S.W.

Center line of 47th St.

West line of 6th St.

Curve in tracks on 16 St for offset bet 3rd & 2nd Sts

B.C. = West line 3rd St. 11°46' R.

+30 1°47' ✓

+60 = 3°34' = P.R.C. 11°46' L.

+90 = 1°47'

+120 = 3°34 = E.C.

Radius 486.8'

Middle ordinate 30' dial 0.25'

Center grades for track on H St between 4th & 5th Sts.

Nov 7th 1892
Hamlin & 3 assis

Sta	+	HI	Grade	Rad	Elev	
B.M.	2.63	51.40			48.77	5th & H St S.E. N hinge of hydt
0			43.77	7.63	✓	West line of 5th St
				.78		
+50			44.55	6.85		
				.79		
1			45.34	6.06	✓	
				.79		
+50			46.13	5.27	✓	
				.79		
2			46.92	4.48	✓	East line of 4th St
B.M.				4.69	46.51	

(48.77 (5th)
48.77

Check of Stakes for South track
betn ~~4th & 5th~~

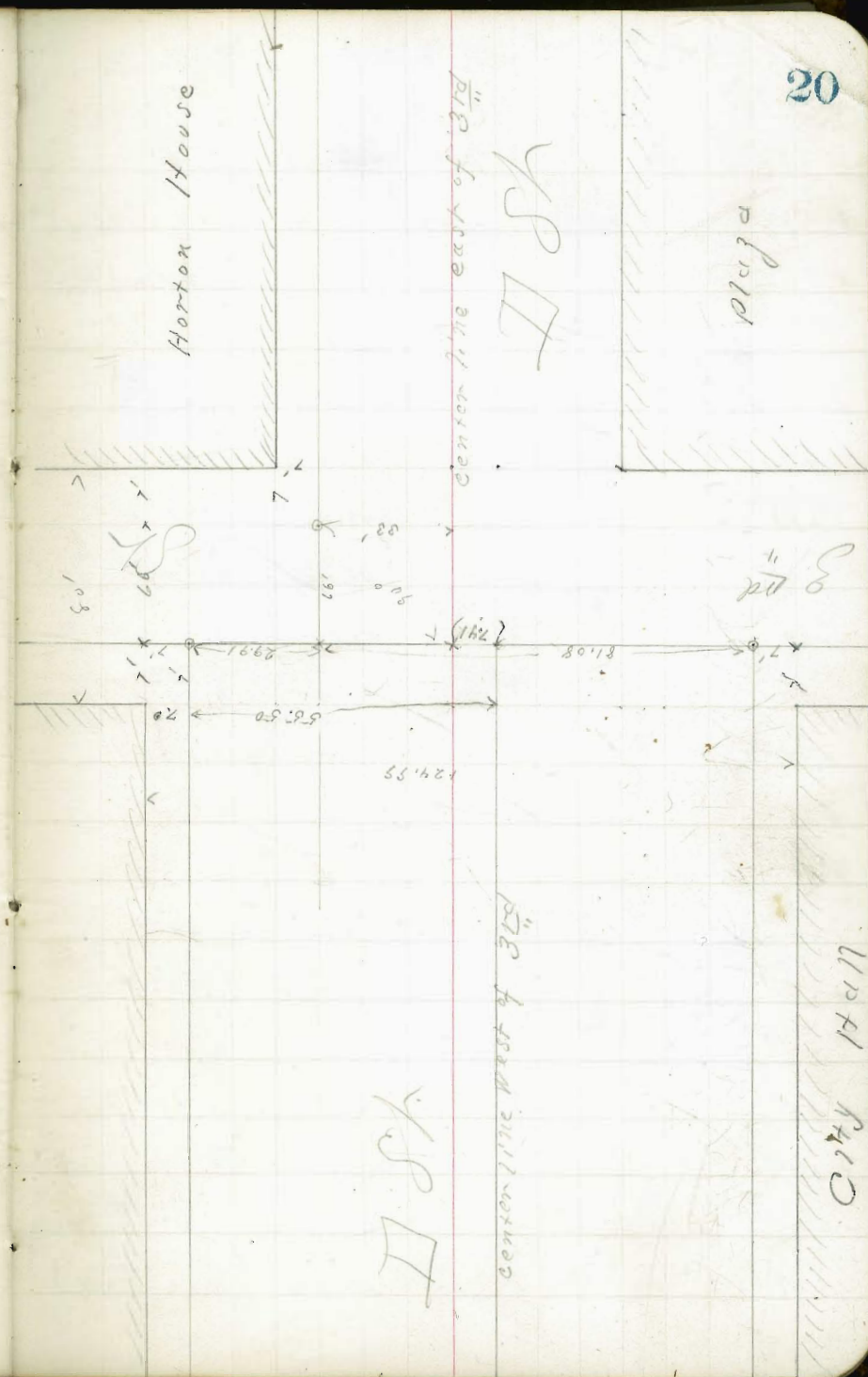
Sta	+	HI	-	Elev
B M	3.61	50.13		46.52
0			6.38	43.76
+50			5.58	44.56
1			4.78	45.36
+50			4.00	46.13
2			3.23	46.90
B M			1.36	48.77
B M		49.96	3.44	46.52
0			6.40	43.56
+50			5.63	44.33
1			4.80	45.16
+50			4.05	45.91
2			3.21	46.75
			1.18	48.76

4th & 4th St

On stake

on bitumen South of ~~track~~

Sketch showing offset of 3rd & 16 St caused by different widths of Strata



Grade for track across 4th St at
Ib for S.H. Elec St Ry Co.

Dec 13 1892 Hamlin & Party

Sta	+	HI	Grade	Rod		
B.M.	1.21	47.73			46.52	
2			43.77	3.96	✓	West line of 4th St
+04			43.65	4.08	✓	
+07			43.56	4.17	✓	
+10			43.50	4.23	✓	
+13			43.46	4.27	✓	
+16			43.44	4.29	✓	Gutter line in West side
+19			43.46	4.27	✓	
+22			43.50	4.23	✓	
+25			43.56	4.17	✓	
+28			43.65	4.08	✓	
+34			43.76	3.97	✓	
+40			43.80	3.93	✓	Center line of 4th St Bitumen 1 Low
+46			43.76	3.97	✓	
+52			43.65	4.08	✓	
+55			43.56	4.17	✓	
+58			43.50	4.23	✓	
+61			43.46	4.27	✓	
+64			43.44	4.29	✓	Gutter line of East side

Sta	+	HI	Grade	Rod	
+67		47.73	43.46	4.27	L
+70			43.50	4.23	L
+73			43.56	4.17	L
+76			43.65	4.08	L
+80			43.77	3.96	

Checked on stake at East side of 4th St

47.73
44.53
3.20

East line of 4th St

Center line & grades for S.R. Elec St. Ry Co bet West of 3rd & W of 4th

Dec 13 1892 Hamlin & Partly

Sta	+	HO	Grade	Rod		
B.M.	0.89	47.41			46.52	4th & H St
2			40.50	6.91 .63		
+40			41.13	6.28 .62		
0			41.75	5.66		East line of 3rd
+50			42.34	5.07		
1			42.93	4.58		
+50			43.35	4.06		
2			43.77	3.64		West line of 4th
				7.41	40.00	B.M. Hd 3rd

Grades along a line 2' South of South track on FB St bet 4th & 5th

Sta	+	HI	Grade	Rod	Elev	
B.M.	2.99	49.51			46.52	
0			43.69	5.82 ✓		East line of 4th St.
+25			44.08	5.43 ✓		
+50			44.47	5.04 ✓		
+75			44.86	4.65 ✓		
1			45.26	4.25 ✓		
+25			45.65	3.86 ✓		
+50			46.04	3.47 ✓		
+75			46.43			
2			46.82			West line of 5th St.
				0.72	48.77	

Grades & lines for curve on 16
St bet 2nd & 3rd

Sta	+	HI	Inside	Rod	Elev.	
B.M.	5.84	43.02			37.18	2nd & 16 St
0			36.25	6.77		
+ 25			36.78	.53 6.24		
+ 50			37.31	.53 5.71		
+ 75			37.84	.53 5.18		
1			38.37	.53 4.65		
+ 25			38.90	.53 4.12		
+ 50			39.43	.53 3.59		
+ 75			39.96	.53 3.06		
2			40.50	.54 2.52		
B.M.				3.02	40.06	2nd & 16 St

Sta	Ref	Tang	Index	
2				E.C. West line of 2nd St
+75	0° 33'	2° 06'		
+50	0° 31'	1° 33'		
+25	0° 32'	1° 02'		
1 +0.19	0.31	0		P.R.C.
+75	0° 33'	2° 06'		
+50	0° 31'	1° 33'		
+25	0.32	1° 03'		
0	0° 31'	0		B.C. 11°.225 to right L.C. 100.17 I 4° 14'
				B.C. East line of 2nd St.

Centre grade on 16 St. from East of 1st to East of 2nd

Sta	+	H.I.	Grade	Rod	Elev	
B.M.	2.19	39.38			37.19	2nd & 16.
B.M.				6.69	32.69	1st & 16.
0			33.25	6.13		
+50						
1						
+50						
2			35.25	4.13 50		West of 2nd
+40			35.75	3.63 50		
0			36.25	3.13		East line of 2nd

Grades for S.H. Elec. St. Ry Co
on H St bet Front & 2nd

Sta	+	HI	Grade	Rod	
B.M.	4.23	36.38			32.15
0			30.25	6.13	
+21.67			30.43	5.95	
+50			30.66	5.72	
1			31.08	5.30	
+50			31.48	4.89	
2			31.90	4.48	
+40			32.58		
B.M.	4.65	38.87		7.14	31.73
0			33.25	5.62	
+50			33.75	5.12	
1			34.25	4.62	
+50			34.75	4.12	
2			35.25	3.62	
+40			35.75	3.12	
B.M.	1.68				37.15

36.38
30.11
6.27

East line of Front St

1st St

2nd St

2nd & H St

Curve of 1 St & 16 St for S.F.C. Elec. St Ry Co.

Rad to Center of track 75'
Rad to line set on inside of curve 69 which makes center of track 6' from line set

I = Tangs =
Chord for I of 10° = 69 × Sine of 5° × 2
= 12.03' Chord for I =

+
0
0 = B.C. 35' East of East line of 1 St St and
6

Dec 19 1892 Hamlin { William Shaw Van Hook.

Grades for S.H. Elec St Ry co
Curve on H St to 1st

Sta	+	H.I.	Grade	Pvd	Elev	
B.M.	5.86	38.55			32.69	
0			33.60	4.95		P.C. 35' East of East line of 1st St
12+03			33.48	5.07		Pulled up at this Point
24+06	5.78	38.47	33.36	5.11	32.69	
36+09			33.25	5.22		
48+12			33.04	5.43		
60+15			32.82	5.65		
+68.						
72+18			32.82	5.65		Depression for Gutter
84+21			32.86	5.61		
96+24			32.90	5.57		
108+27			33.05	5.42		P.T. 12.5 North of North line of H St
B.M.	4.08	36.77			32.69	
2+40			32.58	4.19		Center of 1st St.

Changed See Next Page

Grades for curve for Elec Ry
from H to 1st.

Sta	+	HI	Grade	Rail		
B.M.	5.37	38.06			32.69	1 St & H St
				5.51	32.55	
0 x			33.60	4.46		35' East of East line of 1 St St
+ 12.03			33.48	4.58		
+ 24.06			33.36	4.70		
+ 36.09 x			33.25	4.81 ✓		
+ 48.12			32.98	5.08 ✓		
+ 60.15 x			32.70	5.36 ✓		
+ 72.18 x			32.70	5.36 ✓		
+ 84.21			32.80	5.26 ✓		
+ 96.24 x			32.90	5.16 ✓		
108 + 27			33.05	5.01		E.C. 17.5 North of North line of W St

Line and grade across H St
at 1 st

Dec 20th 1892

Hamlin.
Williams.
Shaw.

Sta	+	H.I.	Grade	Rod	Elev	
B.M.	4.81	37.50			32.69	1 St & H on top of Hydt. nozzle
0			32.90			South line of H St
+ 20						Gutter line
+ 62.5			32.75	4.75		Center
1 + 05			32.55	4.95		Gutter
1 + 25			32.25			North line of H St
+ 35			33.24	4.26		North of H St

Lines & grades for St Car tracks on Hd St from Front to State

Sta	+	HI	Grade	Rod	
B.M.	4.84	27.91			23.07
0			23.50	4.41	
+50					
1					
+50					
2 BM	4.81	31.82	26.50	5.32	27.01
				75	
+					
			75		
0			27.25	4.57	
1					
+50					
2			29.75		
+					
+					
+					

Dec 22nd 1892 Hamlin { Shaw William

33

State & Hd

East line of State

31.82
30.43
1.49

4.88
23.07
27.95
23.50
4.45

31.82
29.75
2.07

77.5
21.7
55.8

Center line of Union St

Center line of Front St

Grades for Stb. Elec St. Ry
on H. St. from Columbia to State

Sta	+	HI	Grade	Rod	Elev	
BM						
0	2.96	22.58	18.20	4.38	19.62	East line of Columbia
+50						
1	set with grade screw.					
+50						
2 B.M.	4.85	27.92	21.80	6.12	23.07	West line of State
+37.5			1.7	1.70		
0			23.50	4.42		East line of State

Dec 24th 1892 Hamlin
Shaw
Williams

19.62
3.18
22.80
18.20
4.60 Rod for blk bet column & State

Center grades on H St from Arctic to Columbia for S.H. Elec St

Ry Co Sta	+	H.I.	Grade	Rod	Elev
B.M.					
0		11.00			
+50					
+					
+75					
1			12.13	5.72 .56	
+50			12.69	5.16 .52	
2	4.24	17.85	13.25	4.60	13.61
+40			13.50	4.35	
0			13.75	4.10	
+50					
1					
+50					
2 B.M.	2.83	22.45	16.80	5.65	19.62
+40			17.50	4.95	
0			18.20	4.25	

Dec 26 1892 Hamlin Shaw Williams

East line of Arctic St

B.C. of Inner curve.

B.C. of outer curve

Center line of India St

16.80
13.75
3.05
1.52

1.40
19.62
21.02
16.80
4.22

Center line of Columbia

Out side curve at Arctic & 16 St

Line set 5' South Rod =

Rod of line set 70' I 90°

Chord for I of 10° = 12.20'

Inside curve Rod of line set 70' for

38° 29' Chord for I of 10° = 12.20'

Chord for I 8° 29' = Rod of 70' = 10.35'

curve running East from Arctic to 16.

65° 42

3° 42

2° 51

curve from Arctic & West on 16 St

Line set 5' West Rod = 70' for I of

18° 0' Chord = 15.85'

Tang 14.62

Rod 50' I of 11° 18' Chord = 9.84

Rod 70' Chord for I of 10° = 12.2'

" " " 5° 24 6.60

2° 42'

Straight track on arctic to connect with track laid and curve

Sta	+	HI	Grade	Rod	
B.M.	1.05	14.66			13.61
3			10.0	4.66	
+			9.83	4.73	
+ 50			9.54	5.12	
2			9.08	5.58	
+ 50			8.62	6.04	
1			8.17		
+ 50			7.71		
0			7.25		
			~~10.50~~	~~4.16~~	
3			10.00		
+ 22			9.60	5.06	
+ 62.5			10.50	4.16	
+ 77.5			10.44	4.22	
1 + 89.70	12.20 / 15.67	5.31	15.31	10.40	4.91	10.00
2 1 + 05.37				10.34		

E P.B. RR

Center of 16 St & arctic

South line of 16 St

B.C. of 75' Rod curve to East from direct

North line of 2 & arctic

~~Center of 16 St & arctic~~

Road off south side of 16 St

B.C. 70 Rod curve to Right I 10°

E.C. " " " " " " "

B.C. 80' Rod curve to left I 10°

Grades on 16 St from East line of arctic 100' East

Sta	+	HI	Grade	Rod	
B.M	1.10	14.71			13.61
2			10.00	4.71	
+ 37.5					
0			11.00	3.71	✓
+ 32.5			11.36	3.35	✓
+ 50			11.56	3.15	✓
				.57	
1			12.13	2.58	

Dec 28 1892 Hamlin & 2 assists

B.C. of outside curve

Sta	+	HI	−	Elev
B M	2.12	15.73		13.61
0				
+ 12.2			4.56	11.17
+ 24.4			4.71	11.02
+ 36.6			4.87	10.86
+ 48.8			5.20	10.53
+ 61.0			5.54	10.19
+ 73.2 ✓			5.69	10.04
+79 + 85.4 ✓			6.08	9.65
+ 97.6 ✓			5.84	9.89
1+09.8				
				4.73

B.C. 32.5 East of E line of arctic

Gutter

E.C. 7.5' South of N St

C.C.

checked on East line of arctic

Grades from out side curve of arctic & Hg Sts

Sta	+	HI	Grade	Pod	
BM	1.74	15.35			13.61
0			11.36	3.99	
+12.2			11.21	4.14	
+24.4			11.07	4.28	
+36.2			10.75	4.60	
+48.8			10.43	4.92	
+61.0			10.12	5.23	
+73.2			9.80	5.55	
+85.4			9.70	5.65	
+97.6			9.83	5.52	
1+09.8			9.93	5.42	

Dec 29 1892

Hamlin
Shaw
Williams

Sta	+	HI	Mulle	Rod	
B.M.					
11.44			11.44		
B.M.	4.85	14.85			10.0
0			9.90	4.95	✓
+ 12.2			9.84	5.01	✓
+ 24.4			9.78	5.07	
+ 36.6			9.72	5.13	✓ x
+ 46.95			10.05		
B.M.	4.32	15.32			11.0
0			11.44	3.88	✓
+ 12.2			11.21	4.11	✓
+ 24.4			10.98	4.34	✓
+ 36.6			10.75	4.57	x
+ 46.95			10.42	4.90	

15.32
10.05
5.27

15.32
9.72
5.60

36.6
10.35
46.95

80 29
40 14½
15
190 14½

B.C. 39.3' East of East of arctic on stake set at South line of [illegible]

B.C. of inside curve on Arctic St

10.55
9.72
.83

11.3
10.3
21.6

Gutter line

B.C. of inside curve on [illegible]

B.C.C.

Grades for inside curve at Arctic & H.S.

Sta	+	HO	Grade	Rod	Elev
B.M.	1.72	15.33			13.61
0			x 11.44	3.89	
+ 12.2			11.21	4.12	✓
+ 24.4			-1.88 % 10.98	4.35	✓
+ 36.6			x 10.75	4.58	✓
+ 46.95			10.42	4.91	✓
+ 58.25			-3.22 % 10.05	5.28	✓
+ 68.60			x 9.72	5.61	✓
+ 70.80			9.77	5.56	✓
+ 83.0			9.82	5.51	
+ 95.2			x 9.87	5.46	

checked on old stakes O.K

Dec 29 1892 Hamlin & 2 men

checked grade

Indian & H.S.

B.C. 39.29' East of E. line of Arctic

P.C.C

P.C.C

E.C. 14.29' South of South line H.S.

Grades for outside curve on Arctic & H St Running East

Sta	+	HI	Grade	Rod	Elev.
B.M.	1.72	15.33			13.61
0			11.36		
+12.2			11.21		
+24.4			11.07		
+36.6			10.75		
+48.8			×10.43	4.90 ✓	
+61.0			10.11	5.22 ✓	
+73.2			9.79	5.54 ✓	
+80.2			×9.60		
+85.4			9.64	5.69 ✓	
+97.6			9.73	5.60 ✓	
1+09.8			×9.82	5.51 ✓	

checked on old stakes O.K.

Dec 29 1892

Hamlin & 2 men

India & H St

B.C. 32.5 East of East line of Arctic

Lines & grades on Lb St bet Cal. & arctic St

Dec 30 1892

Hamlin & 2 men

Sta	+	HI	Grade	Pod.	Elev	
B.M.	0.91	14.52			13.61	
0			7.00	7.52		East line of Cal.
+50			7.75	6.77		
+79.4			8.19	6.33		B.C. of curve to Power House
			31	.31		
1			8.50	6.02		
+50			9.25	5.27		
+55.47			9.33	5.19		B.C. of curve to arctic St
2			10.0	4.52		West line of arctic.

checked on stakes on East line of arctic O.K.

Prelim grade

Sta	+	HI	Grade	Rod
0			× 9.90	9.90
+ 15.85			9.70	9.70
+ 30.47			9.50	9.52
+ 40.31			9.40	9.40

Sta	+	HI	−	Elev
B M	3.68	13.68		
0				
+ 12.2				
+ 24.4			3.94	9.70
+ 36.6			3.63	10.05
+ 48.8			3.78	9.90
+ 61.0			4.0	9.68

10.00 stake at West of arctic

3.96
10
13.96
9.66
4.30

10
4.57
14.57
9.66
4.91

4.04
10
14.04
9.40
4.64

14.04
9.52
4.52

14.04
9.70
4.34

Grader on curve running west from Arctic to N

Dec 30 1892 Hamlin & Party

Sta	+	HI	Grade	Rod	Elev
B M	3.68	13.68			10.00
0			9.33	4.35	
+ 12.2			9.51	4.17	✓
+ 24.4			× 9.70	3.98	✓
+ 36.6			9.80	3.88	✓
+ 48.8			× 9.90	3.78	✓
+ 61.0			9.71	3.97	✓
+ 73.2			9.51	4.17	✓
+ 80.2			× 9.40	4.28	✓
+ 90.04			9.50	4.18	✓
1+04.66			9.70	3.98	✓
1+20.51			9.90	3.78	✓

B.C.

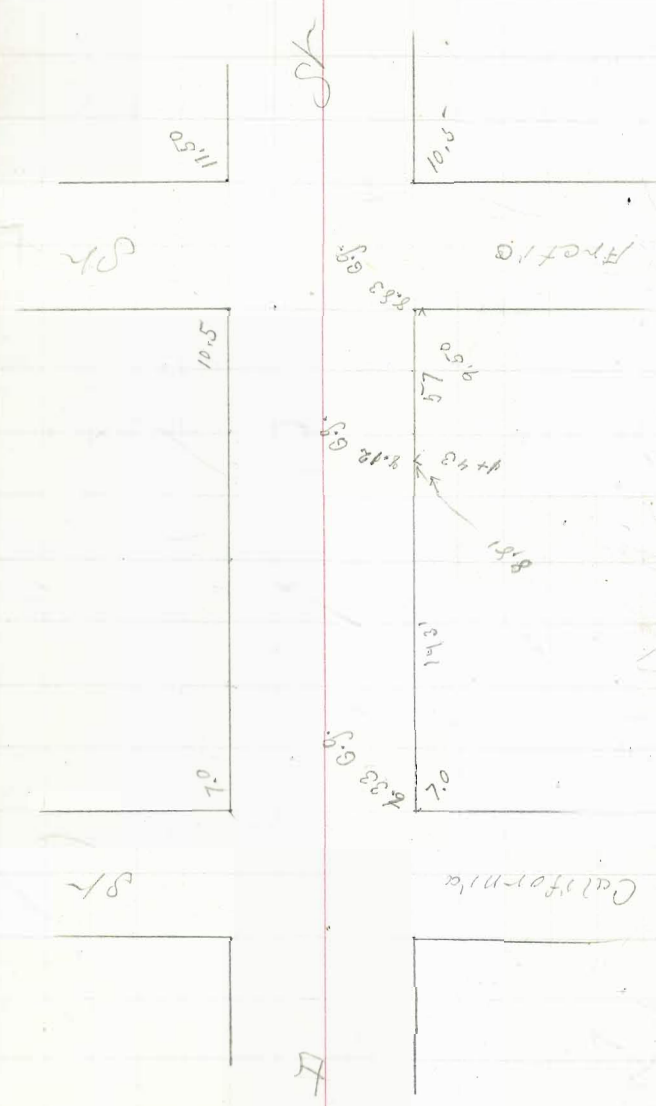
curve run in with 6 def's of 5° Each chord of 12.2 and one def of 2°51' chord of 7.0'

P.C.C. Def of. 5°39' chord 9.84

E.C.

B.C. Def of 6°30' chord 15.85

E.C. on Arctic St


Sh
Sh
Sh
Arctic
California
11.50
10.5
10.5
7.0
7.0
8.83 G.P.
9.50
9.12 G.P.
8.81
14.3
8.33 G.P.

Grades on curve into Car house

Sta	+	H.O.	Grade	Mod	
B.M.	2.59	12.59			10.00
0		8.19	8.19		
+12.2			8.37	4.22	
+26.3			8.59	4.00	
+35.02	3.59	13.59	8.51	5.08	10.00
+43.74			8.43	5.16	
+52.46			8.35	5.24	
+59.86			8.29	5.30	
+71.48	2.70	12.70	8.19	4.51	10.00
+83.10			8.19	4.51	
+94.50			8.44	4.26	

Dec 30 1892

10.00 is stake on West side of arctic & H used as B.M. H & Pacy

48

Rod 70' From B.C. Def 5° chord 12.20

" 3°47' " 14.1 to P.C.C

P.C.C

Rod 50 From P.C.C three def's of 5° chord 8.72' and one of Def of 4°15 chord 7.40

P.C.C

Rod 66.71 From Sta 71+50 curve was run in with two 5° Def's chord 11.62 and 1 def of 4°54' " 11.40 to E.C.

E.C.

Elev on Reverse curve at crossing of Hd arctic.

Sta	+	HI	−	Elev	
B M	1.56	15.17		13.61	Indian St
+62.5			4.67	10.50	Center of Hd arctic
+72.5			4.73	10.44	
+89.70			4.80	10.37	
			4.71	10.46	Gutter line
			4.26	10.91	North line of Hd St

15.17
9.90
5.27

15.17
9.71
5.46

Grades and line at crossing of Alley and 16th St. Tracks to connect with S.P., O.T. & P.B. Ry.

Sta	+	H.I.	Grade	Rock Elev	
0		5.34	15.34	no grade set	10.00
+ 20				9.60	4.74
+ 62.5				10.50	4.84
+ 77.5				10.44	4.80
+ 89.70				10.40	4.94
1 + 05.37				10.34	5.00
1 + 19.32		5.31	15.31	10.80	4.51
1 + 23.8		5.64	15.64	11.00	4.64

16.0'
12.20
15.67
13.95'
5.030

Dec 31 1892 — Hamlin Shaw Williams

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Throughout this work a stake at the West line of alley set to an elev of 10.00 will be used as B.M.

South line of 16th St center of alley

Gutter line

center of K St

P.C. 70' Rad curve to Right

E.C. 70' Rad curve to Right

B.C. 80' Rad curve to Left Gutter grade

E.C. 80' Rad curve to Left

North line of 16th St

Check line to test alignment of 16 St

Set up on the center line of 16 St at the East line of Front; Back sight along center line of 16 St to Columbia St.; Reversed transit, angle 0° 25' 30' to Left along center line of 16 St to Third. Produced line East along 16 St, Measured offset at East line of third and found it to be 7.41' to South.

At 7th & 16 7.48'

at 11th & 16 7.65'

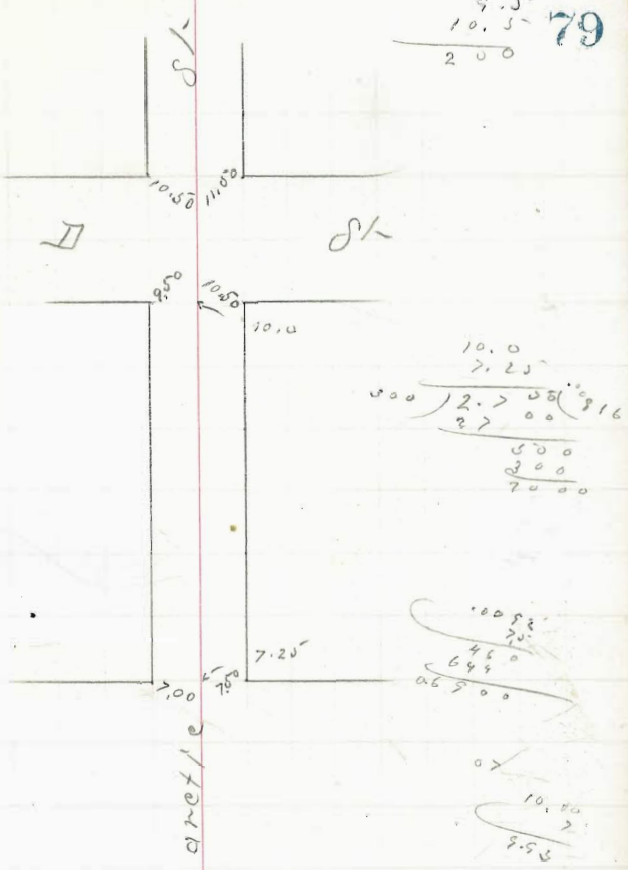
at 20th & 16. 7.30; which shows that 16 St is straight (practically) from the east line of Front to West line of 20th. and that the angle is at East line of Front St and is 0° 25' 30"

Dec 31 1892

Hamblin
Williams
Shaw

51

T.M. Shaw's new transit was used in this work.


10.50
11.00
9.50
10.50
10.0
7.25
7.25
7.00

Angle at East side of Front & St to Union St is 25

32.90
32.65
25

86
60
.36) 25.00 (.073
242
80

.073
8
4 2

.007
8
.056

12
.007
.051

32.71
9
32.80
9

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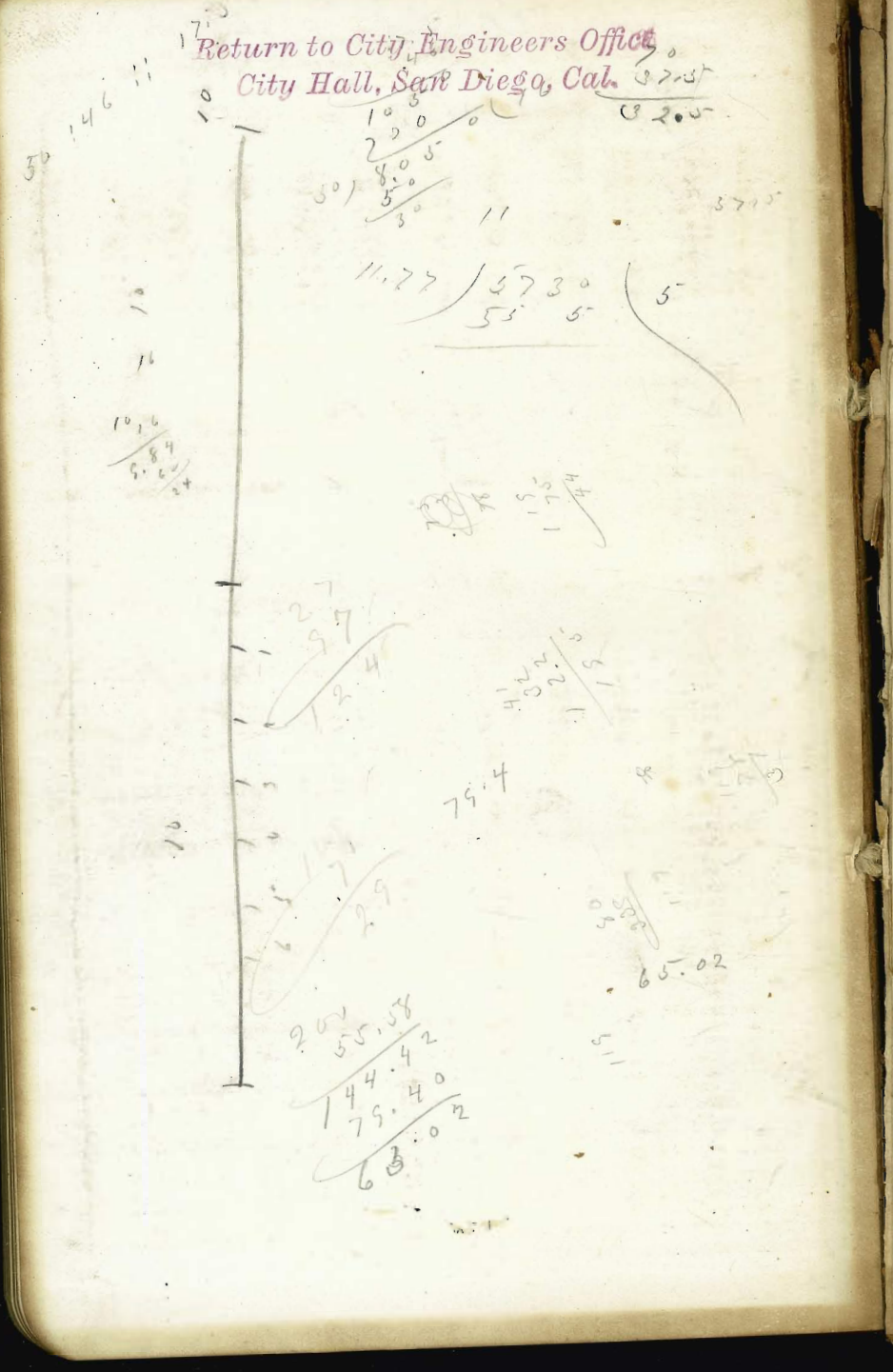

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TABLE I.—Minutes in Decimals of a Degree.

1′	.0167	**11′**	.1833	**21′**	.3500	**31′**	.5167	**41′**	.6833	**51′**	.8500
2	.0333	**12**	.2000	**22**	.3667	**32**	.5333	**42**	.7000	**52**	.8667
3	.0500	**13**	.2167	**23**	.3833	**33**	.5500	**43**	.7167	**53**	.8833
4	.0667	**14**	.2333	**24**	.4000	**34**	.5667	**44**	.7333	**54**	.9000
5	.0833	**15**	.2500	**25**	.4167	**35**	.5833	**45**	.7500	**55**	.9167
6	.1000	**16**	.2667	**26**	.4333	**36**	.6000	**46**	.7667	**56**	.9333
7	.1167	**17**	.2833	**27**	.4500	**37**	.6167	**47**	.7833	**57**	.9500
8	.1333	**18**	.3000	**28**	.4667	**38**	.6333	**48**	.8000	**58**	.9667
9	.1500	**19**	.3167	**29**	.4833	**39**	.6500	**49**	.8167	**59**	.9833
10	.1667	**20**	.3333	**30**	.5000	**40**	.6667	**50**	.8333	**60**	1.0000

TABLE II.—Inches in Decimals of a Foot.

1-16	3-32	⅛	3-16	¼	5-16	⅜	½	⅝	¾	⅞
.0052	.0078	.0104	.0156	.0208	.0260	.0313	.0417	.0521	.0625	.0729

1	2	3	4	5	6	7	8	9	10	11
.0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167

TABLE III.—Radii, Ordinates and Deflections.

Deg.	Radius	Mid. Ord.	Tan. Def.	Chd. Def.	Def. for 1 Foot	Deg.	Radius	Mid. Ord.	Tan. Def.	Chd. Def.	Def. for 1 Foot
0°10′	34377.	.036	.145	.291	0.05′	**7°**	819.0	1.528	6.105	12.21	2.10′
20	17189.	.073	.291	.582	0.10	20′	781.8	1.600	6.395	12.79	2.20
30	11459.	.109	.436	.873	0.15	30	764.5	1.637	6.540	13 08	2.25
40	8594.4	.145	.582	1.164	0.20	40	747 9	1.673	6.685	13.37	2.30
50	6875.5	.182	.727	1.454	0.25	**8**	716.8	1.746	6.976	13.95	2.40
1	5729.6	.218	.873	1.745	0.30	20	688.2	1.819	7.236	14.53	2.50
10	4911.2	.255	1.018	2.036	0.35	30	674.7	1.855	7.411	14.82	2.55
20	4297.3	.291	1.164	2.327	0.40	40	661.7	1.892	7.556	15.11	2.60
30	3819.8	.327	1.309	2.618	0.45	**9**	637.3	1.965	7.843	15.69	2.70
40	3437.9	.364	1.454	2.909	0.50	20	614.6	2.037	8.136	16.27	2.80
50	3125.4	.400	1.600	3.200	0 55	30	603.8	2.074	8.281	16.56	2 85
2	2864.9	.436	1.745	3.490	0.60	40	593.4	2.110	8.426	16.85	2.90
10	2644.6	.473	1 891	3.781	0.65	**10**	573.7	2.183	8.716	17.43	3.00
20	2455.7	.509	2.036	4 072	0.70	30	546.4	2.292	9.150	18.30	3.15
30	2292.0	.545	2.181	4.363	0.75	**11**	521.7	2.402	9.585	19.16	3.30
40	2148.8	.582	2.327	4.654	0.80	30	499.1	2.511	10.02	20.04	3.45
50	2022.4	.618	2.472	4.945	0.85	**12**	478.3	2.620	10.45	20.91	3.60
3	1910.1	.655	2.618	5.235	0.90	30	459.3	2.730	10.89	21.77	3.75
10	1809.6	.691	2.763	5.526	0.95	**13**	441.7	2.839	11.32	22.64	3.90
20	1719.1	.727	2.908	5.817	1.00	30	425.4	2.949	11.75	23.51	4.05
30	1637.3	.764	3.054	6.108	1.05	**14**	410.3	3.058	12.18	24.37	4.20
40	1562 9	.800	3.199	6.398	1.10	30	396.2	3.168	12.62	25.24	4.35
50	1495 0	.836	3.345	6.689	1.15	**15**	383.1	3.277	13.05	26.11	4.50
4	1432.7	.873	3.490	6.980	1.20	30	370.8	3.387	13.49	26.97	4.65
10	1375 4	.909	3.635	7.271	1.25	**16**	359.3	3.496	13.92	27.84	4.80
20	1322.5	.945	3.718	7.561	1.30	30	348.5	3.606	14.35	28.70	4.95
30	1273.6	.982	3.926	7.852	1.35	**17**	338.3	3.716	14.78	29.56	5.10
40	1228.1	1.018	4.071	8.143	1.40	**18**	319.6	3.935	15.64	31.29	5.40
50	1185.8	1.055	4.217	8.433	1 45	**19**	302.9	4.155	16.51	33.01	5.70
5	1146 3	1.091	4.362	8.724	1 50	**20**	287.9	4.374	17.37	34.73	6.00
10	1109.3	1.127	4.507	9.014	1 55	**21**	274.4	4.594	18.22	36.44	6.30
20	1074.7	1.164	4.653	9.305	1 60	**22**	262 0	4 814	19.08	38.16	6.60
30	1042.1	1.200	4.798	9.596	1.65	**23**	250.8	5.035	19.94	39.87	6.90
40	1011.5	1.237	4 943	9.886	1.70	**24**	240.5	5.255	20.79	41.58	7.20
50	982.6	1.273	5.088	10.18	1.75	**25**	231 0	5.475	21.64	43.28	7.50
6	955.4	1.309	5.234	10.47	1 80	**26**	222.3	5.697	22.50	44.99	7.80
10	929.6	1.346	5.379	10.76	1.85	**27**	214 2	5.918	23.35	46.69	8.10
20	905.1	1.382	5.524	11.05	1 90	**28**	206.7	6.139	24.19	48.38	8.40
30	881.9	1.418	5.669	11.34	1 95	**29**	199.7	6.360	25.04	50 07	8.70
40	859.9	1.455	5.814	11.63	2.00	**30**	193.2	6 583	25.88	51.76	9.00