STREET CENTERS
AND
PUEBLO LINES

9

TRANSIT

F.B. 72

72

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

Book No. 73.

name

date.

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M

DRAWING ... TC.,
ST

In the ... per of
links to be add...

Angle.	Cor. in						links.
°							
4	0·2						4
5	0·3						6
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

FIELD BOOK 72-

SURVEY WESTMORE & 1- 11
SANBORN ADD. & VIC.

BLK. 38, PARRISH & - 12
LOOMIS ADD.

CEDAR ST. -13

N. LINE, CARRUTHERS -15-17
ADD.

HORTON-SHERMAN 18-21
ADD.

E 14th ST. - - - 22-24
BDRY LINE BETW. - - - - - 25-27
HORTON'S & CLEVELAND'S
ADD

CENTERS, SHERMANS 28-31
ADD.

LINE OF STREET - - - - 41
CENTERS, 17th & 18th STS.

E STREET, 15th - 42

21st ST., H TO N - 43

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	2⅓	21	49	41	95⅔
2	4⅔	22	51⅓	42	98
3	7	23	53⅔	43	100⅓
4	9⅓	24	56	44	102⅔
5	11⅔	25	58⅓	45	105
6	14	26	60⅔	46	107⅓
7	16⅓	27	63	47	109⅔
8	18⅔	28	65⅓	48	112
9	21	29	67⅔	49	114⅓
10	23⅓	30	70	50	116⅔
11	25⅔	31	72⅓	51	119
12	28	32	74⅔	52	121⅓
13	30⅓	33	77	53	123⅔
14	32⅔	34	79⅓	54	126
15	35	35	81⅔	55	128⅓
16	37⅓	36	84	56	130⅔
17	39⅔	37	86⅓	57	133
18	42	38	88⅔	58	135⅓
19	44⅓	39	91	59	137⅔
20	46⅔	40	93⅓	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	13·57
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

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198.63
81.49
80.12

San

Note

all centers in Wetmore & Sanborn's Add, except on North Line; are 8 ft North of true center

Since above was noted centers have been changed to proper places

~~1111 1111 1111 1111 1111~~ 1+40

Survey in Wetmore & Sanborn

Add & vicinity

all meas accurate with steel tape

Starting at SW cor PL 1153 meas East

2645 a furrow running south. This furrow we use in establishing the SE cor of 1153

at 2658 is a 3x4 stake which was supposed to be the cor but we find that it is only an old fence post and is not at the cor of the fence as we find the old post holes both E & W of it.

Set plug at SE 1153 making S line of 1153 2645' Long

Starting at SE cor 1153 run E

326 cor of fence (this line is not on exact pueblo line but about 1.5 north)

385.8 " " "

1318.9 cor of Gregory's fence

1320 set plg on west line of blk 92 1.1E of fence

starting from this plug run east

52.8 To plg & stake marked "cor of blk 92"

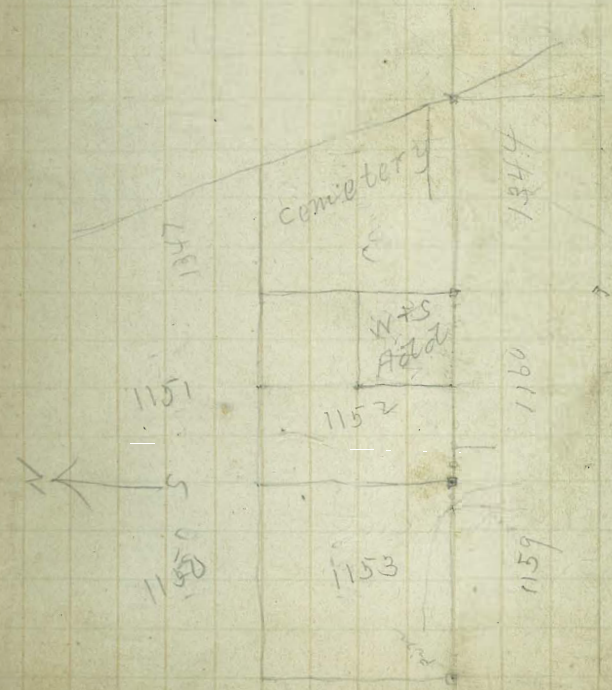
80 set plg & stake marked "center of Hofmann"

360 " plg & stake "Center of Howard St"

8-28 ~~88~~

1

E.T. Wheeler
J. Rea
L. Wilkinson
B. Woodruff
D. Crowa
} Party



Establishing Street Centers in Wetmore & Sanborn's Add 2

E T N 1270 / 780 8-28-88

421.3	white scarfed stake "Lot 6 Blk 84" S W cor
521.3	" " " " " " "
640	set plg & stak "Center of Merritt St"
681	To Old Cent Home stake N W cor of B5 E side 36th St
920	set plg & stk "Center of Pardee St"
1200	" " "Center of Pascoe St"
1220.7	Old Cent Home Stake N E cor of Blk 5
1250	3x3 white stake near cor of wire fence
1320	Set plg on exact line for Pueblo cor 1152 / 1160 (134)

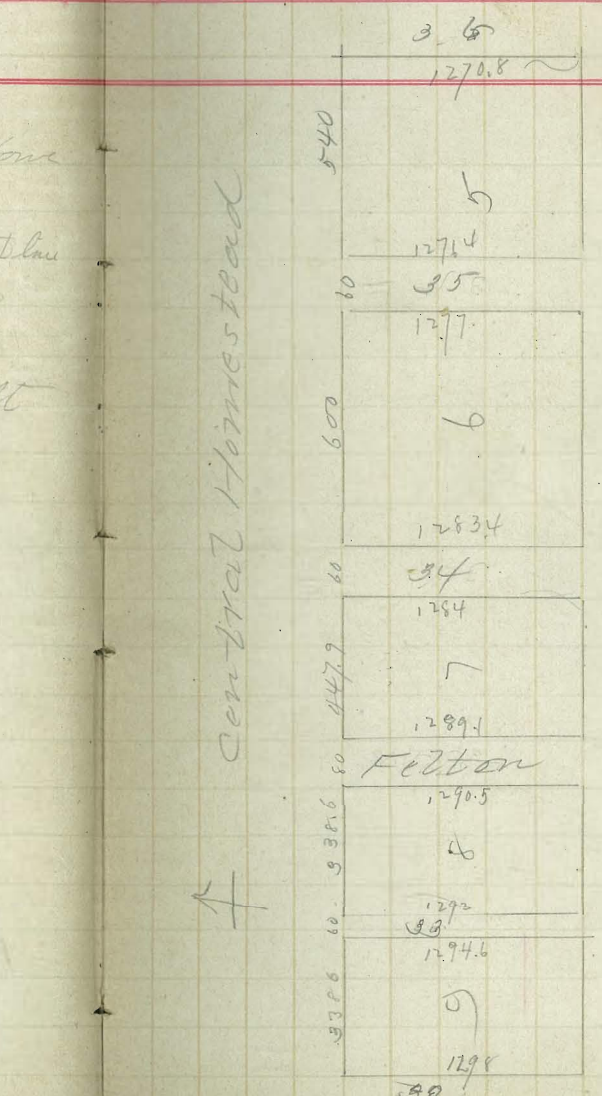
Starting at S E cor 1152 min North

Sta	on random line Var 14 1/4 E
1	Stk 1
2	Stk 2
3	"
4	"
5	"
+41.7	Center of R.R. Cut
6	Stk
7	"

8-29-88

3

Set up at NW cor of Blk 8 Central Home
B.S on " " " " 9 " "
Reverse & run to S.W. cor of 1152 m correct line
inst at SW 1152 Sight E on line turn
89°49' Left to NW cor 1152 dist 2632
Inst at NW cor 1152 Sight on SW ∠ to left
to old fence 91°18'



N line of 1152

8-29-88

E.T.W

from 2x2 Stake NW cor 1152 Run East

321 cor of lath fence - thence along fence

3418.5 new so arfed stake 32st L5t Blk1 SW cor 32 & L

647.3 to stake & plg 33st B143

653.7 intersection of fence running N

655.8 to stake & tack marked on SS. "found" △

1314.2 to old fence running N & S

Running south from cor fence NE cor of W ½ 1152

377.9 34st B159 stake 4' W of fence

490.5 Blk3 1st 1st " 6" " " " also fence intersection

452.5 B4 L " " " " "

722.5 Blk4 L 5t " " " " "

783 Blk7 stake on fence line

907 Blk7 E. line alley " " " "

1051.4 fence W

1059.3 " E

1315 to 4x4 stk set by Jod Center of P.S. 1152

2630 to fence S line of 1152

Wetmore & Sanborn's Add
Resurvey

E. T. W
8-29-88

Measurements to old fences running
N & S through center of PL 1152.
Meas 81 ft E of cor fence at SW cor of SE ¼ 1752 set plg
" 80 " " of fence 1315 N of SW cor of SE ¼ of 1152 set plg
Run line through these two points
Used this transit line for center of
Hofman Street

Wetmore & Sanborns

(see page 5)

8-29-88

Set temporary stake N line of Add & center of Hoffman

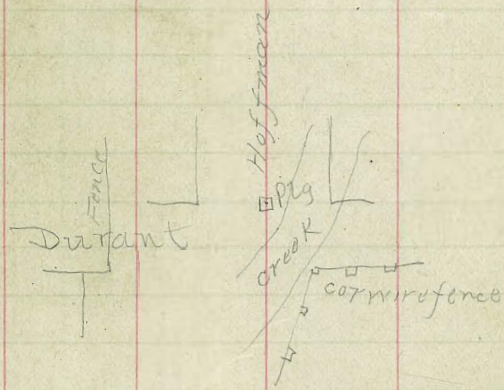
at center of Hoffman & Shafter set plg & wit

" " " " & Tompkins " "

8-31-88

at center of Hoffman & Hamilton set plg & wit

" " " " & N line of Durant " "

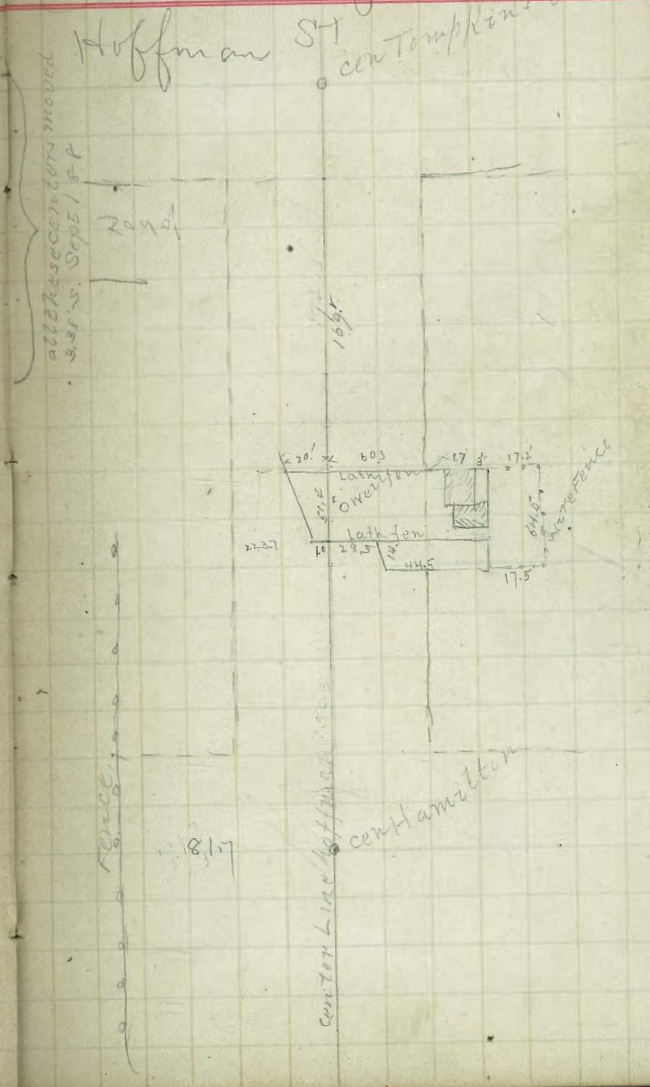


Ewheeler mst
Wilkinson } chain
Rea
B. woodruff flag
Crowe stakes

8-31-88

6

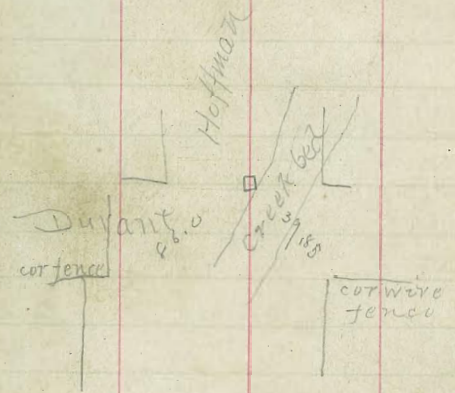
Location of house & fot on



Wetmore & Sanborn's Add

8 — 31 — 88 — 7

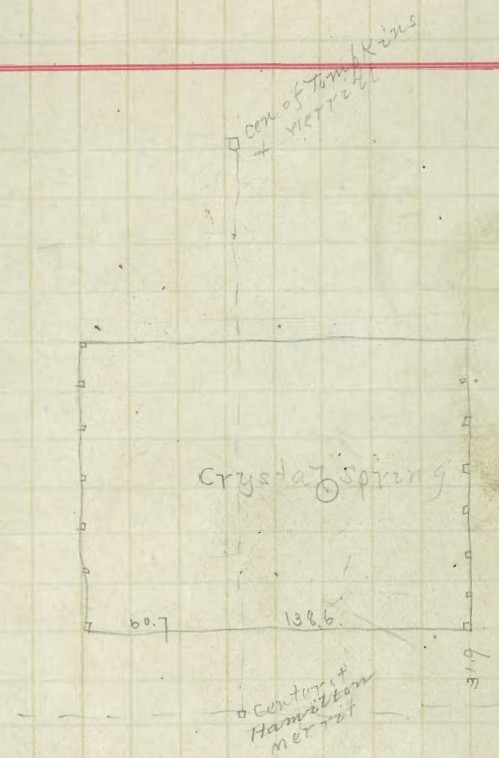
the N & S line through the center of 1152
= 2636'
Cad's Center abt 9'E & 3'N of Mine at Pascoe & Hamilton
Cen. Pascoe & Hamilton to cen SD & CRR = 168'
Cad's center Pascoe & Tompkins abt 6'E & 1'N
" " Pascoe & Shafter 4'E & 1'N
" " " & Bound 2'E & 4'S



Sept 1 88

Wetmore & Sanborn's Add

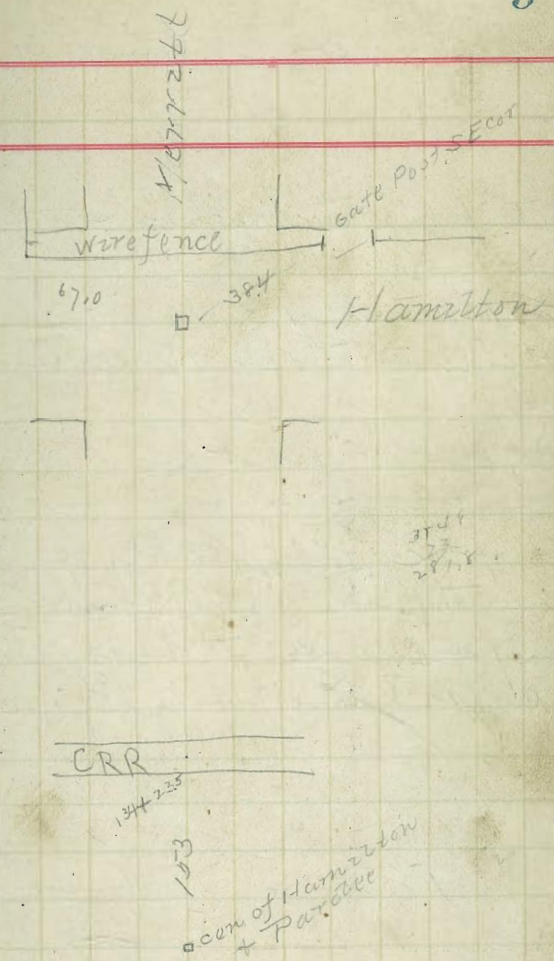
Cads center Hofman & Tompkins 7.5 E 2' N
" " " & Line 5' S & 1.5 E
Set up at Hoffman & line sight S on
Hof. & Shafter turn 90 L run E on
random line at center of Pascoe
struck 6.2 S of line



Wetmore & Sanborns Add

Ends center	Ham & Howard	2.28	N of line	(accurate)
"	" " & Merritt	2.2	" "	
"	" " & Pardee	2.05	" "	
"	" " Pascoe	1.90	" "	
"	" Tompkins & Howard	2.51	" "	
	" Merritt	2.1		
	Shafter & Howard	2.65		

Center of Hamilton & Merritt N to C.R.R. 136.6



1800
560
124
133
2620

Wetmore & Sanborns Add

set up on center Hoffman & Tompkins
Sight N on line of "
Sta 125 36°21' R 14 feet
15°08' L to Sta 124 PC 12° Curve left
15°17' L " " 123
15°17' L " " 122+25

Set up in center of Howard 190 S of
center Tompkins sight S on center Hamilton
def 37°34' Left 56' to sta 129 CRR
E.C. of 12° Curve about 130+50

Cads center Tompkins & Pardee not taken out
" " " "

Sept 1888

Lots 1, 2 & 3 Blk 83 11

Wetmore & Sanborn's Add

also 11 & 12 Block 84

12°35 97.63
11°43 97.99
12°45 86.32
281.94

9-6-88

Survey in Blk 38 Parrish & Loomis Add

E.T. Wheeler	247 1223
V. Wilkinson	
J. Rea	218
B. Woodruff	

9 [illegible]
497.65
863.[illegible]

Checking line of plugs

E.T.W.

129
98

on Cedar St

Set up on Mon. 9 & Cdr Sight on 7' Rlg SW 8 & Cdr produce East to 10th line strikes 0.6 S of 7' pt SW 10th & Cedar

Producing west strikes
.98 N of Mon 7th & Cedar
1.93 of 7' Rlg SW 6th & Cedar

Cedar St from 6 to 8 is straight
set up on 7' Pt SW cedar & 8th B.S on Cedar & 6th produce line east setting 7' Points at 9 & 10 Streets
N of Mon at 9th
N of Mon at 10th

	6'	10th	N		(299.83)	300.98
	0	9th	N	.00	(299.97)	300.89
	0	8th	Cedar Street	.64	(300.40)	300.40
.98		7th		.31	(300.11)	300.11
1.93 64 1/3		6th		.00		299.86

North line of Carruthers Add

E.T.W.

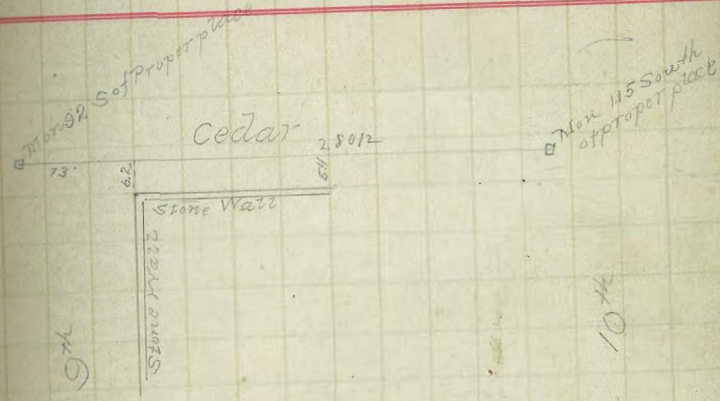
Set ~~spk~~ on line 7' E of W line of 6th
282.98' N of N line of Cedar St
Set plug on line 7' E of West line 10th
280.18' N of N line of Cedar
run line between these two points
for N. line of Carruthers Add
setting plugs at intersection of 7' lines
of the streets from 6th to tenth

E.T. Wheeler
W.V. Wilkinson
J. Rea
B. Woodruff

Measurements from Beach to Cedar

	Dist	Corrected on acct of Changes in Centers			
6th	299.86	299.86			
on 7th	300.11	300.11			
n 8th	300.40	300.40			
9th	299.97	300.89			
10th	299.89	300.98			

N W angle 10th & Cedar 90°01'



north line of Carruthers
add 9-11-88

wheeler
V. Wilkinson
J. M. van Hook

Set pts on park line at each street
from 6th to 10th as per diagram st center
book no 3

Sept 12 88
Set all the pts on E line of
Carruthers according to dists on
recorded map
wheeler
Lea
Wilkinson
J M van Hook
} sep 12

Checking line of centers etc
9-12-88

on A St from 5th to 15th

Run line through A St near center

33.	S. to 7' plg S.E. cor	Fifth St			33. 00
32.41	S. " 7' plg S.W "	Sixth			32.44 .03N
31.64	S to Monument	Seventh St			31.72
(30.93) 35.07	N " 7' plg N.W	8th		"	30.99
30.34	S " Monument	9th		"	30.26
29.75	S " Monument	10th		"	29.53
3 25 5	N " Center	11th		"	[illegible]
28.04	S " Monument	12th		"	28.07
5.83	N " Center	13th		"	5.74
6.46	N " Center	14th		"	6.46
108.1	N to N.E. cor of Horton's Add				110.95 from N line of A
5th	00				
6th	0.03 N				
7th	0.08 N				
8th	0.06 N				
9th	0.08 S				
10th	0.22 S				
11th					
12th	0.03 N				
13th	0.09 S				
14th	00				

108.11
108.2

19
9

Sept 14 1888

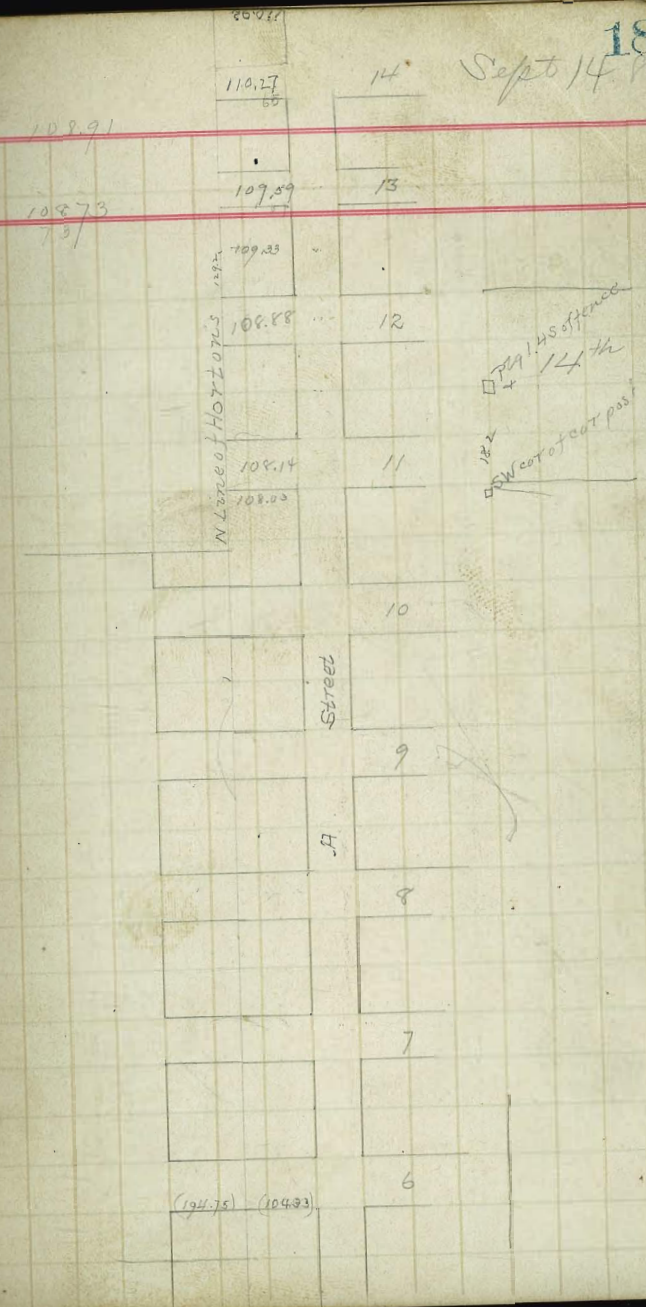
wheeler
v. wilkinson
J Rea
J M van Hook

(a.m.)

Set center Arctic & C from tie points old center was in but under a tie
Spk set yesterday by 1 Hubow supposed to be in center of Arc & 7' S of N line of C
is 0.2 E of proper place
Set centers Calif & C, Calif & B

Set plg center of 14th & N line of Hortons

Sept 14 88



Oct 1 1888

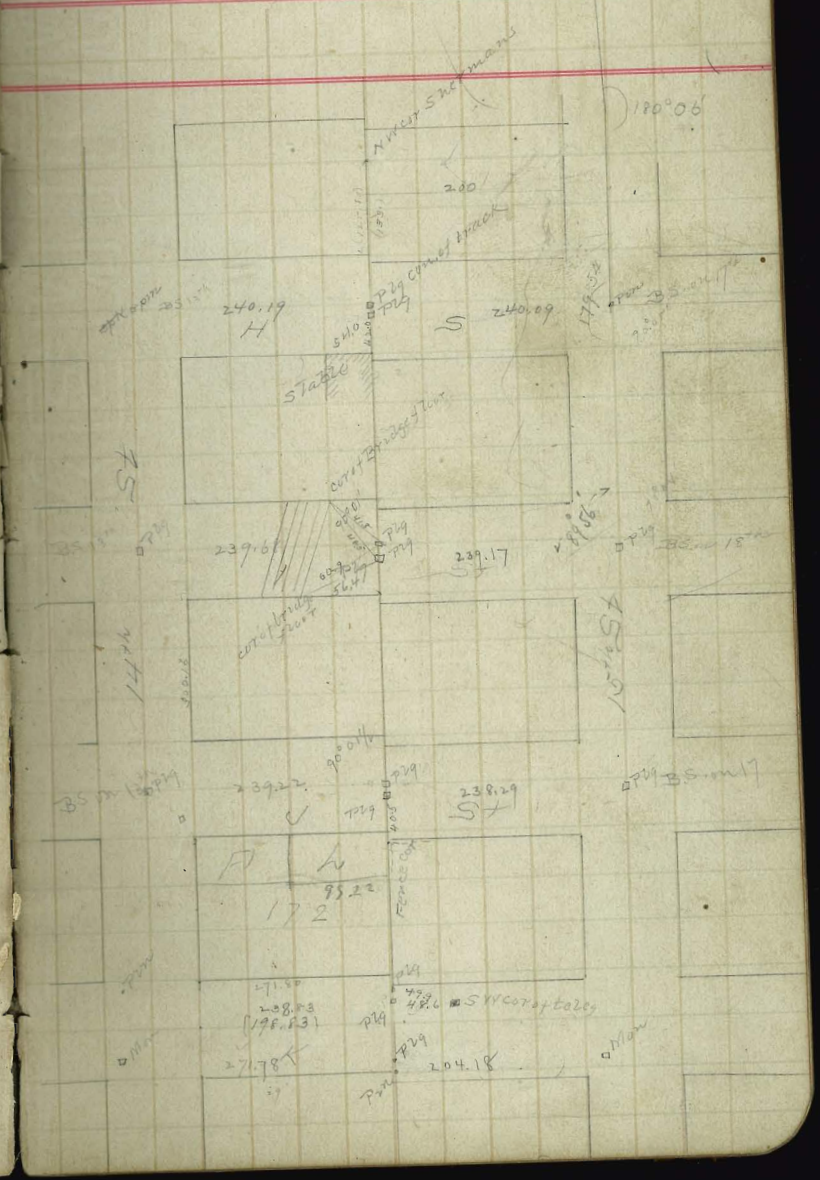
Setting centers on division line bet
Hortons & Sherman's Adds

Sig at H	8.67
" " I	7.02
J	
K	
L	
M	
N	

Set center 1 + 15th by int from H to J + from
16th B.S. on 18th checked dist to J St in 15th
offset between 14th + 15th

on H	2.68
on I	7.02
on J	6.07
on K	5.90
on L	6.51
on M	6.12
on N	6.52

measurements in ( )



12th from L to M 380.35

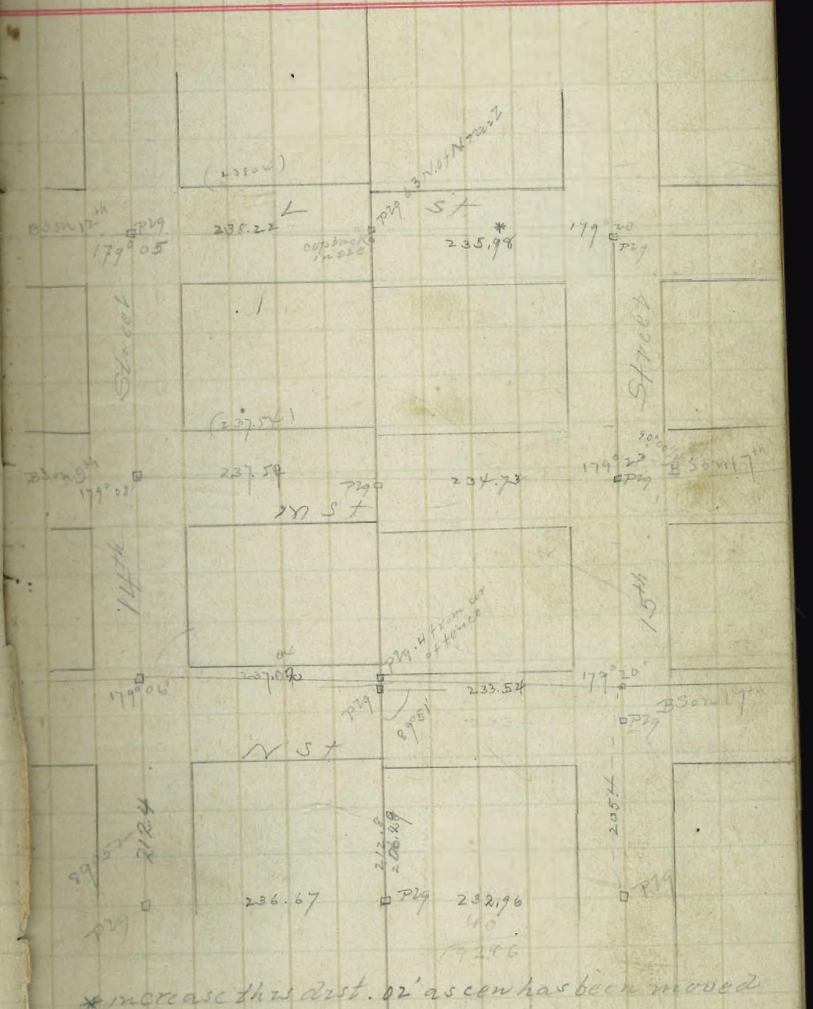
12th from M to N 380.31

L St from 13th to 14th 280.54

H St from 14th to 15 on slope from cen. to cen } 480.7 correct to 2480.28

33.61

232.96
40
192.96



Oct 2 1884

Fourteenth St

Checking Line of Centers

010

Set upon cen. 14th L Sighted on Cen. 14th A

Run North

Cen. K St	0.02 E	E of line	meas to Mon
Cen J St	0.05 W	W of line	pkg
Cen. I St	0.18 W	of line	pkg
Cen H St	0.35 W	of line	pkg
Cen G St	0.22 W	" "	pkg
Cen F St	0.10 W	" "	pkg
Cen E St	0.08 E	" "	pkg
Cen D St	0.01 E	" "	pkg 7 PT. S.W.
Cen C St	0.07 W	" "	pkg
Cen B St	0.10 W	" "	pkg
Cen A St	0.0		pkg

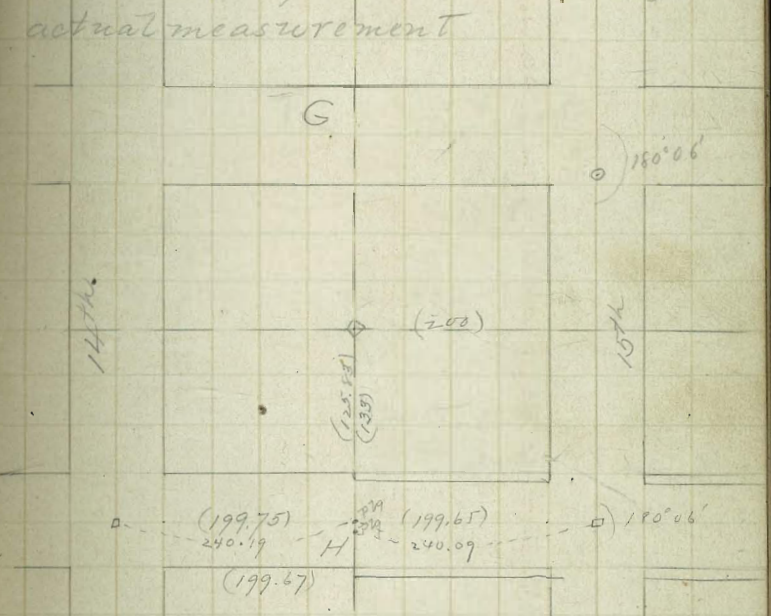
Oct 4 Set pt. stakes on S line of Horton's from 10th to B + cen. at 14th Line

Oct 5 Set centers on this line

22

Diagram showing the NW cor of Sherman's Add

Distances in ( ) are according to the recorded maps. All others are from actual measurement



The distances from 15th H to line and from 14th & H to line do not close by 0.88 feet

∴ set pt. ½ way bet. pts as located from 14th & 15th respectively

Oct 5 1888

E. T. Wheeler

Dist from 13" points 19th & Newton to Newton & N. Line =

M St - cen 22d to cen 24th		479.19	
L			.75 W
K	Move 2.6	move	.23 W
J			.70 W
I			1.0 W
H		472.49	1.34 W

Inst at 22 & M. B. S. on L Reverse

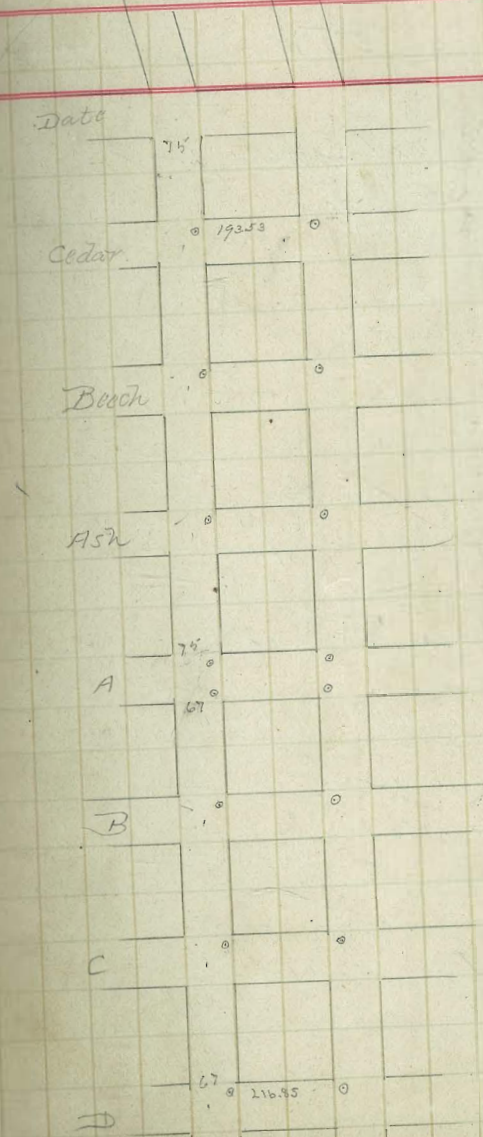
7' Pt at N is .13 East

20

Measurements from Front to Union

23

Oct 6 1888



Party
E T Wheeler
V W Wilkinson
J. Rea
B. Woodruff

Distances in ( ) are figured

Oct 8, 1888

E. T. W.

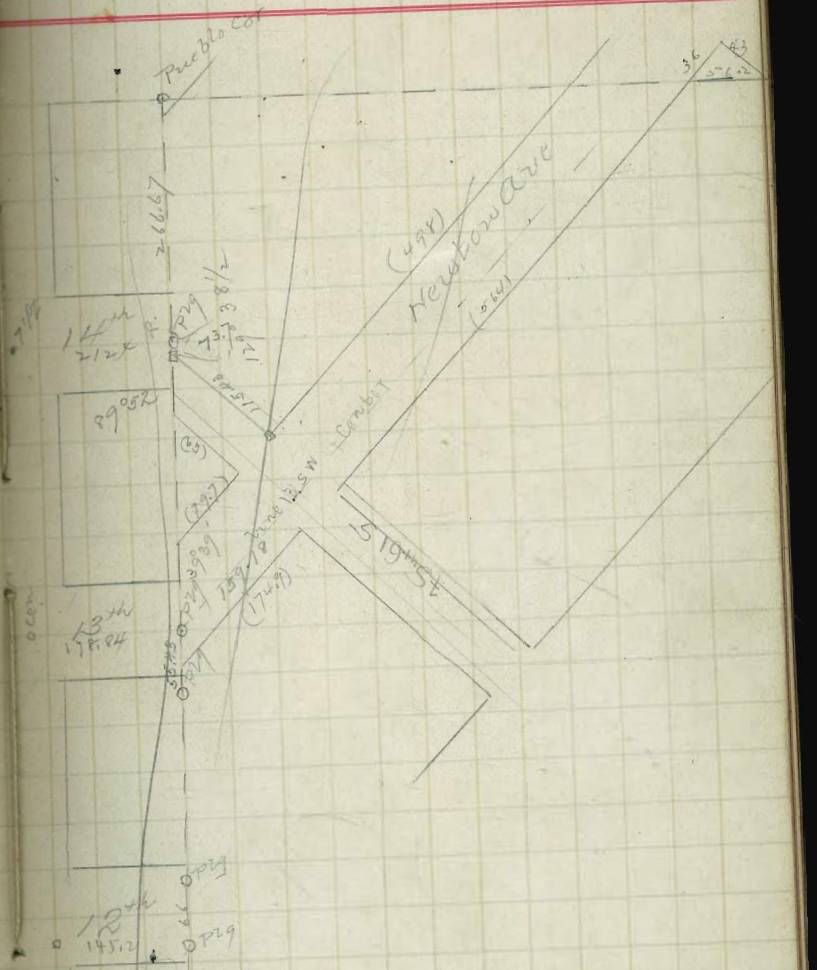
Grade for Inspec 14th & I

SW 36.0 SE 34.0

	+	Δ	−	El	Grad
B. M	3.49	40.33		36.84	
			6.00		34.33
X	12.00	52.25	0.08	40.25	
x	6.83	54.78	4.30	47.95	
B M			15.7	38.21	

38

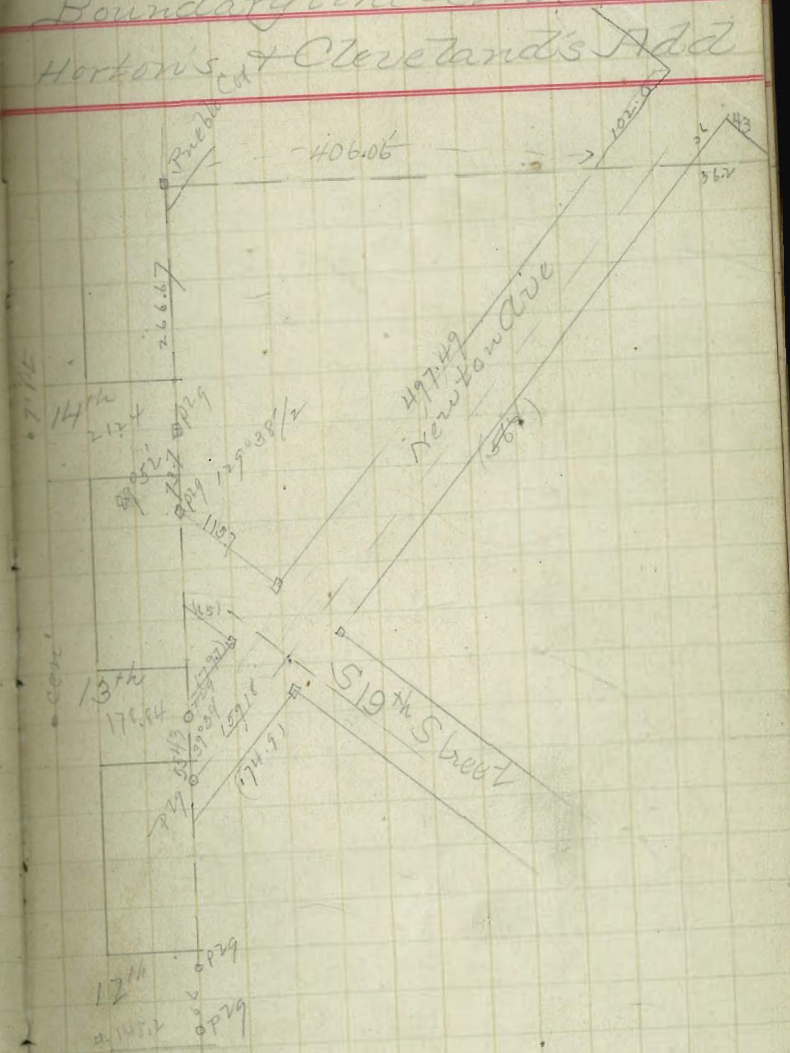
Boundary Line between Hortons & Cleveland's Adds



Oct 17 1888

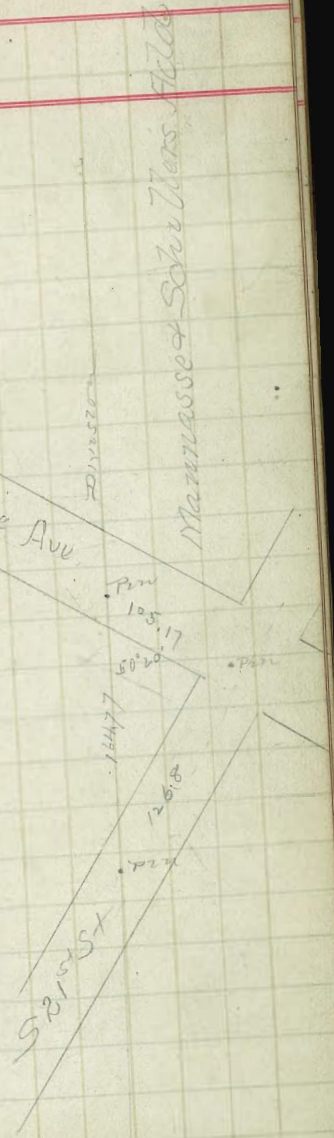
Boundary line between Horton's Cut + Cleveland's Add

The Boundary line between Clevelands Add. and Mannasseh Schillers Add produced North strikes the East Side of Chimney ~~at~~ East end of two story house at B.S.E this with many a good sight:



Oct 18 1898

E T W



Centers. Sherman's Add.

Nov 14th 1888 To — . —

Run straight line from center H St
To on on: at K, on Each street
Inst at Cen H & 22 B.S on cen 22d at K
Reverse def 0° 02' L. to cen 22 at J line G St
Moved cen 22d & I .11' west
" " 22 & J .24' west
Running S. on 22d L at K 0° 03' Left
Moved cen 17th & M .06 West
" " " & L .10 West
" " " & I .08 East
" " " & J .11 "
Running S. on 17th L at K 0° 01½' Left
Moved cen 18th & L .15 East
" " 18th & M .03 west
" " 18 & J .15 East
" " 18 & I .13 East
Running S. on 18th L at K 0° 03' Left
Inst at cen H & 19th B.S on K L to G St 0° 01½' Left
Moved Cen 19 & I .05 East
" " 19 & J .19 East
" " 19 & L 0.0
" " 19 & M .08 West

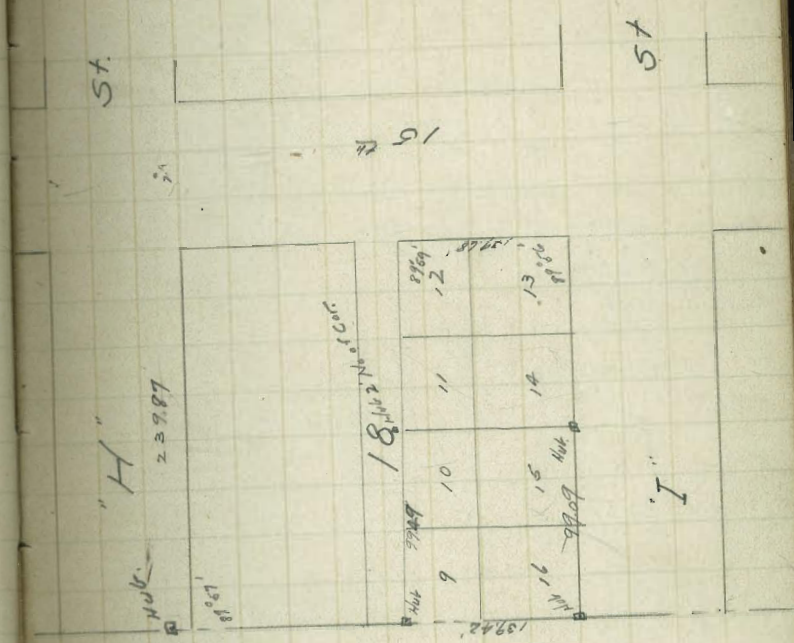
Running S on 19th L at K 0° 02' Left
Cen 20th & M on line
" 20th & L " "
Moved " 20 & J .14 East cen Wall at NE. cor ^ 0.2 W of line
" 20 & I 0.06 East " " SE cor 1.0 W of line
Inst at K B.S on H Def Left 0° 03½' To cen at N
" " H " " I " " 0° 01' " " of G
No cen at 21 & J put one in
Moved cen 21 & I
Running N. on 21st L at H 0° 02' Left
Running S. on 21st L at K 03' Left
Moved cen 21 & L .26 East
" " 21 & M .10 "
" " 21 & M .19 "
" " 22 & L .50 "
" " 15 & L .02 East
" 15 & J Move W
" 15 & I
Running S. on 15th L at K 0° 05' Right

Dec 3 1888

Set 7' Pts 3d & J 4 cors
1st & J NE
4 & J NE
4 & K NE
} a.m.

N	S.W.	Gutter	center	Gutter	S.W.
35.22	34.72	33.72	(41.32) 34.32	33.62	
6.1	4.4	7.6	7.0	7.7	34.22
34.62	34.12	35.22	35.92	34.92	35.52
4.7	5.2	6.1	5.4	6.4	5.8

Soil	Sta	+	HI	−	Elev
34.72					
6.6	1450	9.58	41.32		31.79
35.82					
5.5	2				
		6.47	44.20	3.59	37.73
	B.M. 22 and Logan			2.58	41.62


St.
St
16 th
"H"
239.87
18
9
10
11
12
13
14
15
16
Hub
Hub
Hub
Hub
139.42'
"I"

Checking lines of St Centers
17th & 18th Sts

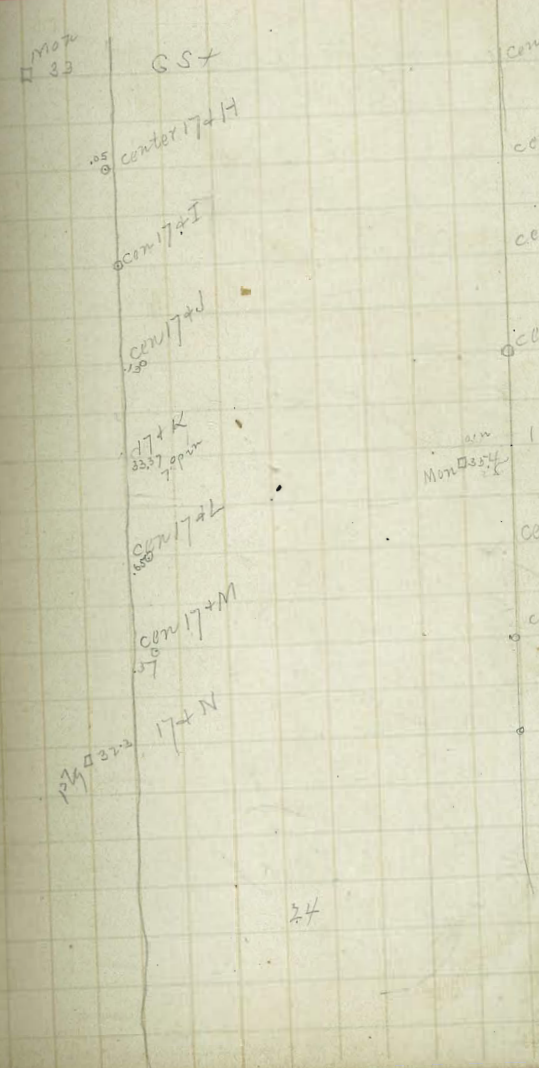
ETW

Run transit line South through a point 33'
W of Mon at 17 & G & the center at I
Cen 17 & H .05 W of line
" 17 & I 00
" 17 & J .13 E of line
" 17 & K 7' pin SE cor 33.37 E of line
" 17 & L .65 E of line
" 17 & M .57 E of line
17 & N 7' Plug NW cor 32.3 W of line

Str. line bet Cen 18 & J and 18 & M
plg 32.5 E of plg 7' pt at SW cor
18 & G monument 30.75 E of line
18 & H center .65 E of line
18 & I center 0.3 E of line
18 & J center on line
18 & K Mon 35.4 west of line
18 & L Cen .15 W of Line
18 & M cen on line
18 & N 7' plg NW cor 33' W of line

8 - 30 - 88

41



Checking lines of 5th Centers

Oct 8 1888 ETW

Transit line from H to L produced to N

Cen	H	+10	0	00	
	I	+15	0.2	E of line	
	J	"	0.4	E of line	
Mon	K		32.55	W of line	H E
	L	"	0 0	———	
	M	"	0.4	W of line	adv
	N		0.8	W of line	

SIXTEENTH St

Transit line from N to I produced to G

N	00	7' Pt NE
M	0.02	W of line NE 7' Pt
L	0.08	W of line 7' Pt SE cor
K	0.11	W of line " "
J	0.04	W of line 7' Pt NE
I	00	7' Pt SE
H	0.07	E Pt cen H + 7' W of E line 16th
G	0.57	W of line SE 7' Pt

Oct 9 1888

Nineteenth Street

Line from H to L Pt produced to G + N

G	0.15	W of line	Mon
H	00		center
I	0.13	W of line	"
J	0.29	W of line	"
K	0.15	W of line	Mon
I	00	of line	center
M	0.29	E of line	"
N	0.39	E of line	7' Pt N W cor

TWENTIETH STREET Oct 9 1888

Line from H to L produced to G + N

G	0.05	E of line	7' Pt S W cor
H	0.00		
I	0.12	West of line	Center
J	0.32	" "	"
K	0.28	West "	Mon
L	00		center
M	0.35	East of line	Center
N			7' Pt NE cor

Oct 9 1888 ETW

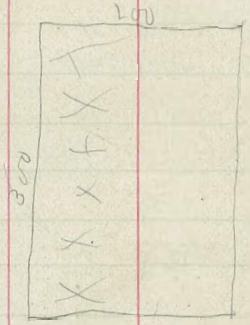
TWENTY FIRST Street
Line from H to N

G		
H	on	Center
I	0.26 E of line	Center
J	"	No Center
K	0.08 West of line	Monument
L	0.57 " "	Center
M	0.33 " "	Center
N	on	7th Pt Division

November 9th 1888

Measurements of Blocks on K Street

15-16	199.6
16-17	200.52
17-18	199.7
18-19	200.0
19-20	199.8
20-21	199.6
21-22	201.0


200
300

C		E			
~~R~~	~~El~~	R	El	R	El
		119,5		~~108,11~~ Sta ~~Stan~~	
0,0	112,5	3,9	115,6	0	
3,3	116,2	0,1	119,4	+	
		130,6			
10,0	120,6	6,8	123,8	1	
6,2	124,4	3,3	127,3	+	
2,7	127,9			2	
		139,7			
		8,5	131,2	2	
7,8	131,9	5,4	134,3	+50	
3,6	136,1	2,9	136,8	3	
1,3	138,4	00	139,7	~~+40~~ ~~0~~	+40

11 38	119,49			10811
11,66	130 58	0,57	118,92	
10,06	139,74	0,90	129,68	

200 N K Keel on cement walk

50 N of J 0.05 E

100 N of J 0.02 W

12.3.09
25.04

.52
8 2/3
4 1/3

95

S vy of N ½ K Blk 62 H.C
Tin tack 2 E of NE Cor
SE cor tack cap 2 E

400.26
399.09
1.17

239.51
239.70
479.21

107

17.35

40

32

89°40'

.61

357 / 610 (17
357
2530
2499

3 / 17
6

20

32
40.18

40.2
32.14
38.18

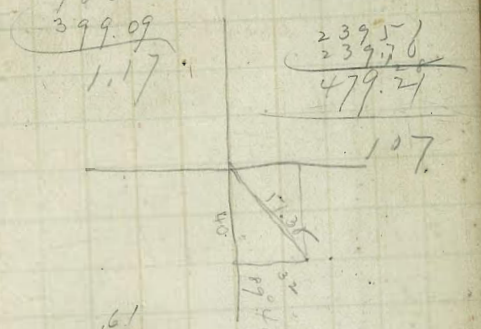
.079

.58
.29
.36
.17
.18
.56

.08

40.2
40.2
40.4
48.80
90.4
1.20

101 / 140
140
1023 / 3900
3899
1026 / 8310
1026



1111

27 K to J 380 93
26 " 93
25 95
24 97

1889.2
1889.2

Lot 10 Blk 76

225

64.32 + 93.67 = 157.99

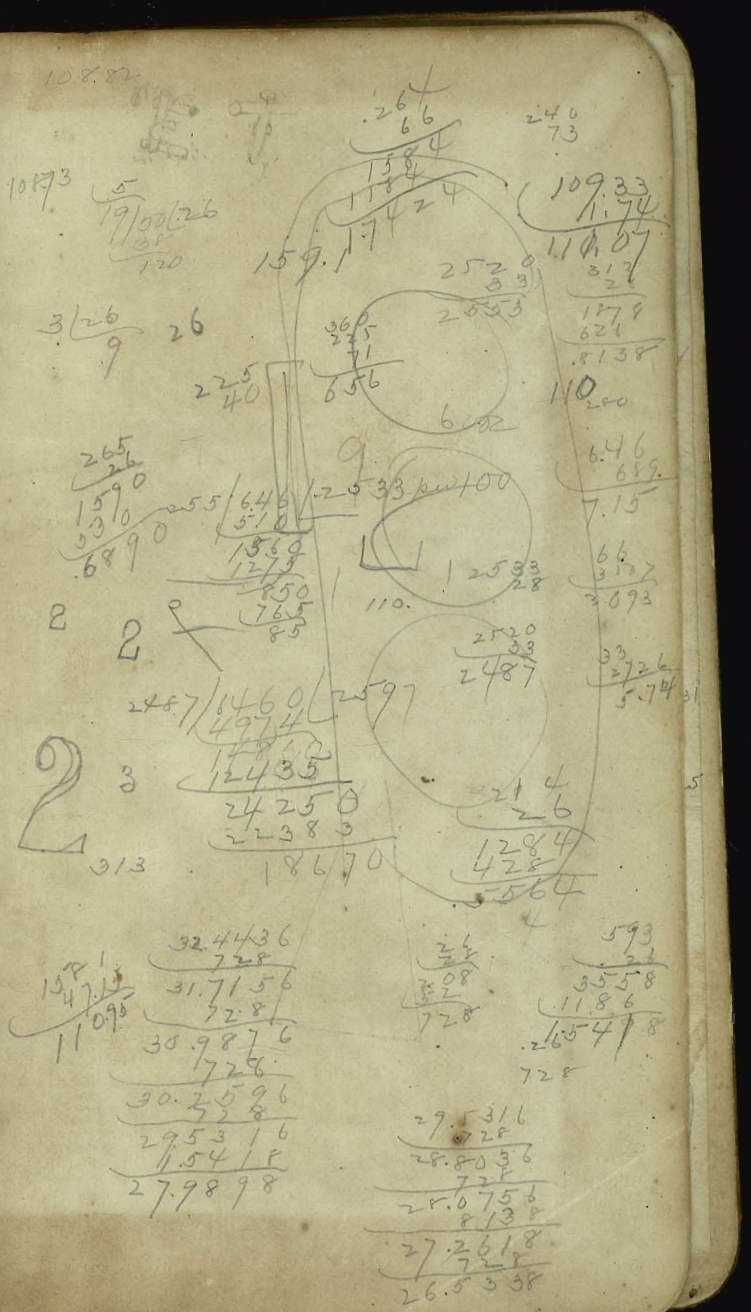
264

10 + ash
8 + ad
9 + Park

1889.2

189 | 500 | 264
378
1220
1134
860

a b c d e f g h i j k l m n
o p q r s t u v w x y z 26



.04 W
16 E

108.82

108.73

5
19 | 00 | 26
38
120

3 | 26
9 26

.264
66
1584
1184
17424

240
73

109.33
1.74
110.07

159.1

2520
33
2553

313
26
1878
626
.8138

360
225
71
656

225
40

6.02

110
280

265
26
1590
530
.6890

255 | 646 | 2533 per 100
510
1560
1275
850
765
85

9

6.46
689
7.15

66
3507
3.093

2533
28

110.

2 2

2520
33
2487

33
2726
5.74

2487 | 6460 | 2597
4974
14860
12435
24250
22383
18670

2 3

313

214
26
1284
428
.5564

32.4436
728
31.7156
728
30.9876
728
30.2596
728
29.5316
1.5418
27.9898

1581
47.15
110.95

26
28
208
52
728

593
26
3558
11.86
1.5418

.26
728

29.5316
728
28.8036
728
28.0756
8138
27.2618
728
26.5338

Return to City Engineers Office
City Hall, San Diego, Cal.

E.T. Wheeler,
San Diego,
Cal.

Return to City Engineers Office
City Hall, San Diego, Cal.

TRAVERSE TABLE FOR TRANSIT BOOK.

From 1° to 90° for a distance of 100.

Degrees.	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ 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	97.63	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	97.03	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	62.95	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 58	47
43	73.14	68.20	72.84	68.52	72.54	68.84	72.24	69.15	46
44	71.93	69.47	71.68	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.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		

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