

SPECIAL
GENERAL SERIES

DESIGNED

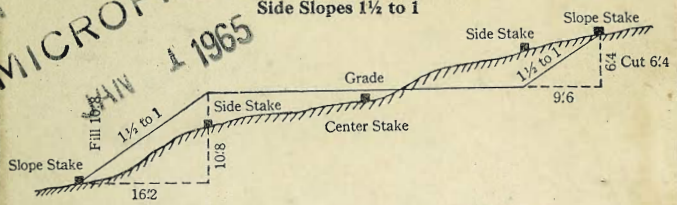
MINING

TRANSIT BOOK

No. 422 P

MICROFILMED
 JAN 1 1965
 MICROFILMED
 JAN 1 1965

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING
 Roadway of any Width
 Side Slopes 1½ to 1



In the figure above: Opposite 6 under "Cut or Fill" and under .4 read 9:6 the distance from the side stake to the slope stake at right. Opposite 10 under "Cut or Fill" and under .8 read 16:2, the distance from the side stake to the slope stake at the left.

Cut or Fill	Distance out from Side or Shoulder Stake										Cut or Fill
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.0	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	0
1	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	1
2	3.0	3.2	3.3	3.5	3.6	3.8	3.9	4.1	4.2	4.4	2
3	4.5	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	3
4	6.0	6.2	6.3	6.5	6.6	6.8	6.9	7.1	7.2	7.4	4
5	7.5	7.7	7.8	8.0	8.1	8.3	8.4	8.6	8.7	8.9	5
6	9.0	9.2	9.3	9.5	9.6	9.8	9.9	10.1	10.2	10.4	6
7	10.5	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9	7
8	12.0	12.2	12.3	12.5	12.6	12.8	12.9	13.1	13.2	13.4	8
9	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.6	14.7	14.9	9
10	15.0	15.2	15.3	15.5	15.6	15.8	15.9	16.1	16.2	16.4	10
11	16.5	16.7	16.8	17.0	17.1	17.3	17.4	17.6	17.7	17.9	11
12	18.0	18.2	18.3	18.5	18.6	18.8	18.9	19.1	19.2	19.4	12
13	19.5	19.7	19.8	20.0	20.1	20.3	20.4	20.6	20.7	20.9	13
14	21.0	21.2	21.3	21.5	21.6	21.8	21.9	22.1	22.2	22.4	14
15	22.5	22.7	22.8	23.0	23.1	23.3	23.4	23.6	23.7	23.9	15
16	24.0	24.2	24.3	24.5	24.6	24.8	24.9	25.1	25.2	25.4	16
17	25.5	25.7	25.8	26.0	26.1	26.3	26.4	26.6	26.7	26.9	17
18	27.0	27.2	27.3	27.5	27.6	27.8	27.9	28.1	28.2	28.4	18
19	28.5	28.7	28.8	29.0	29.1	29.3	29.4	29.6	29.7	29.9	19
20	30.0	30.2	30.3	30.5	30.6	30.8	30.9	31.1	31.2	31.4	20
21	31.5	31.7	31.8	32.0	32.1	32.3	32.4	32.6	32.7	32.9	21
22	33.0	33.2	33.3	33.5	33.6	33.8	33.9	34.1	34.2	34.4	22
23	34.5	34.7	34.8	35.0	35.1	35.3	35.4	35.6	35.7	35.9	23
24	36.0	36.2	36.3	36.5	36.6	36.8	36.9	37.1	37.2	37.4	24
25	37.5	37.7	37.8	38.0	38.1	38.3	38.4	38.6	38.7	38.9	25
26	39.0	39.2	39.3	39.5	39.6	39.8	39.9	40.1	40.2	40.4	26
27	40.5	40.7	40.8	41.0	41.1	41.3	41.4	41.6	41.7	41.9	27
28	42.0	42.2	42.3	42.5	42.6	42.8	42.9	43.1	43.2	43.4	28
29	43.5	43.7	43.8	44.0	44.1	44.3	44.4	44.6	44.7	44.9	29
30	45.0	45.2	45.3	45.5	45.6	45.8	45.9	46.1	46.2	46.4	30
31	46.5	46.7	46.8	47.0	47.1	47.3	47.4	47.6	47.7	47.9	31
32	48.0	48.2	48.3	48.5	48.6	48.8	48.9	49.1	49.2	49.4	32
33	49.5	49.7	49.8	50.0	50.1	50.3	50.4	50.6	50.7	50.9	33
34	51.0	51.2	51.3	51.5	51.6	51.8	51.9	52.1	52.2	52.4	34
35	52.5	52.7	52.8	53.0	53.1	53.3	53.4	53.6	53.7	53.9	35
36	54.0	54.2	54.3	54.5	54.6	54.8	54.9	55.1	55.2	55.4	36
37	55.5	55.7	55.8	56.0	56.1	56.3	56.4	56.6	56.7	56.9	37
38	57.0	57.2	57.3	57.5	57.6	57.8	57.9	58.1	58.2	58.4	38
39	58.5	58.7	58.8	59.0	59.1	59.3	59.4	59.6	59.7	59.9	39
40	60.0	60.2	60.3	60.5	60.6	60.8	60.9	61.1	61.2	61.4	40

EUGENE DIETZGEN CO.

2167

Returns:
 City Engineer
 Civic Center
 San Diego Calif

This Field Book is manufactured of a High
 Grade 50% Rag Paper having a WATER
 RESISTING SURFACE, and is sewed with
 Bing Special Enamel Waterproof thread.

Made in U. S. A.

Station 1017 Station VA Horiz.
246'

506+84 = P.O.T. 8' offset

Ref.
Set PK, Nail & Disc
in Berm

Berm

CAMINO DEL

R.P.

5098

R.P.

Set PK, Nail & Disc
in Berm

fd. Mark on Edge of Wash 2.5'
in danger of being lost.
Set Ref. as shown

58'

507+21

509+64

510+14

787 -1-39

8' on offset; Reading from 514+73.88

512+00

+07 = Power Pole 1 West.

28.1

512+43.4

Old Pump
House Bld.
Stucco

15.6

512+65.2

28'

512+80.5

Corr. Well

18.1

513+02.1

Power Line 1'E

Frame
Bld.

20.1

20.8

513+45.6

Station	VA	Horiz.
		490.07

483+66.07 = P.O.T. Set Hub on city line
 NO Mon Ft.

893 + 4004 883

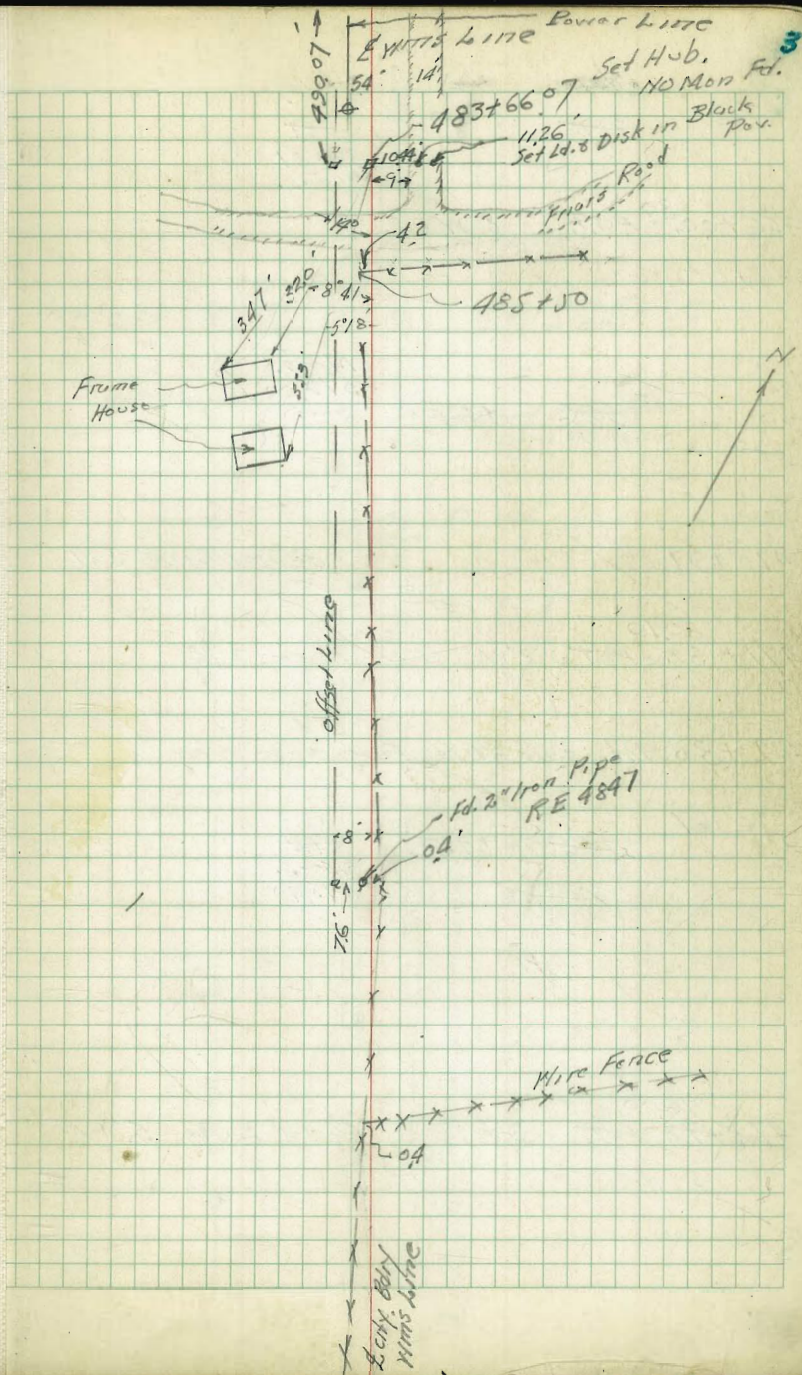
485+13 = Approx E Friars Road.

487+61 = P.O.T. 8' west.

Station	VA	Horiz.
		973

497+34 = P.O.T. 8' W Fd. 2" Pipe on line
 RE 4847

504+02



Station	VA	Height
385	to	381
		384.81
		Meas.

466+00.30 P.O.T. 8'W

586	+588'	Meas.
		579.80
		580

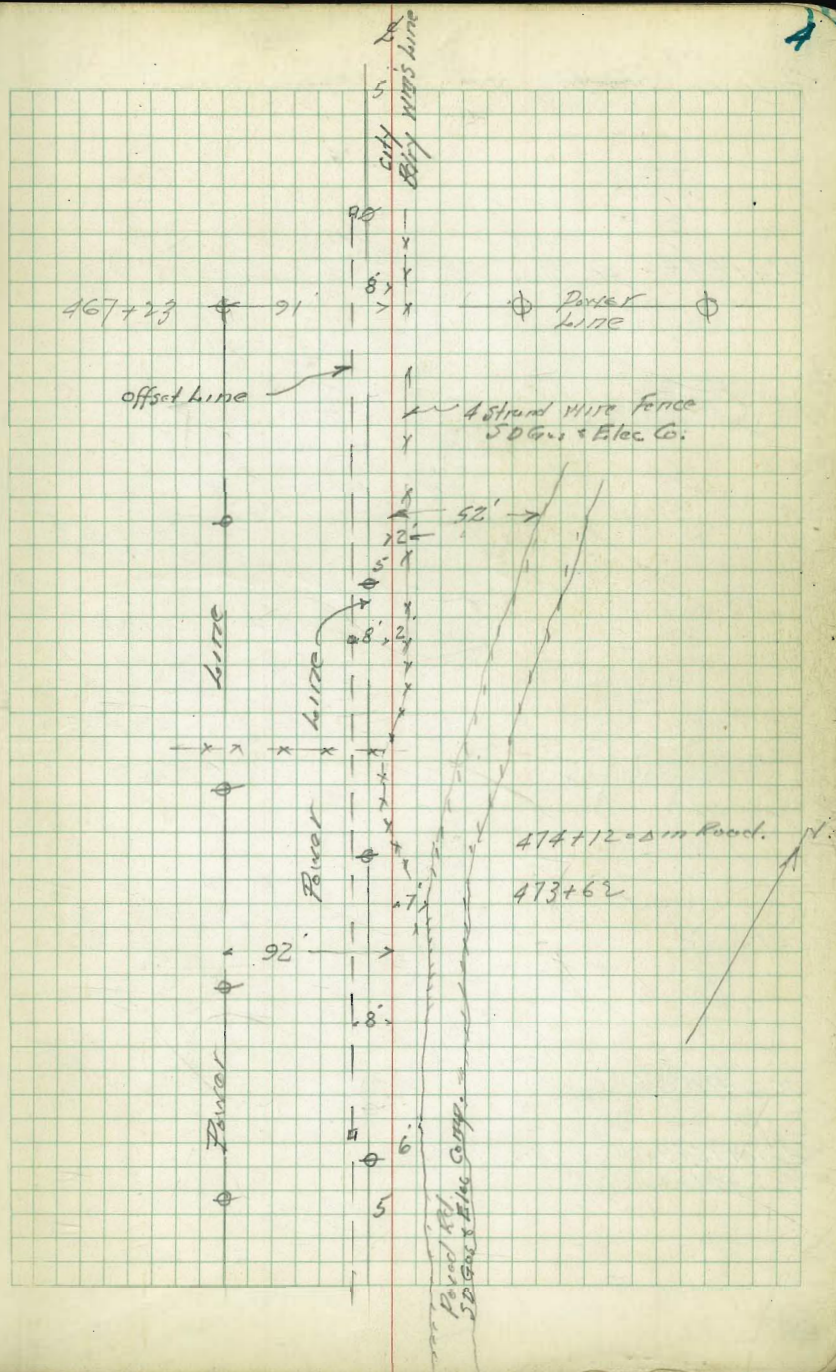
470+97 Power Line 5'W

80.10
471+88 = POT 8'W Fence 2'E

472+30 Int. two wire fence

706	+700	696
		Meas.
		695.90

76.00
478+78 = POT. 8'W Power Line 5'W



Station Station ~~xx~~ Harry

New.
444+87.92 Fd. Mon FB 1758-66

209.82

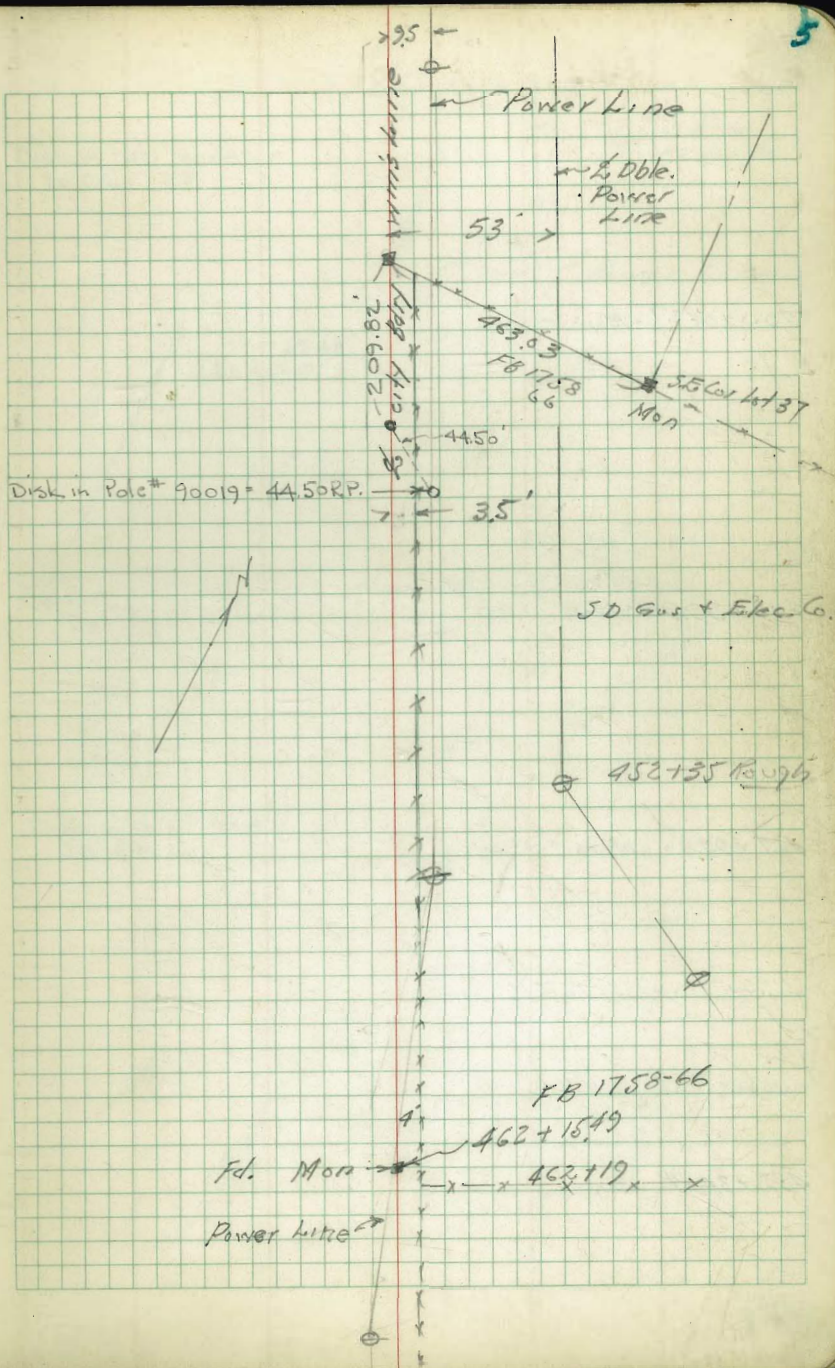
446+97.24 = Set 2" Pipe to Replace Mon. - 12-58 ^{7.0.}

461+00

462+00

462+18.49 = Chained Sta. WMS Line

462+21 = Side



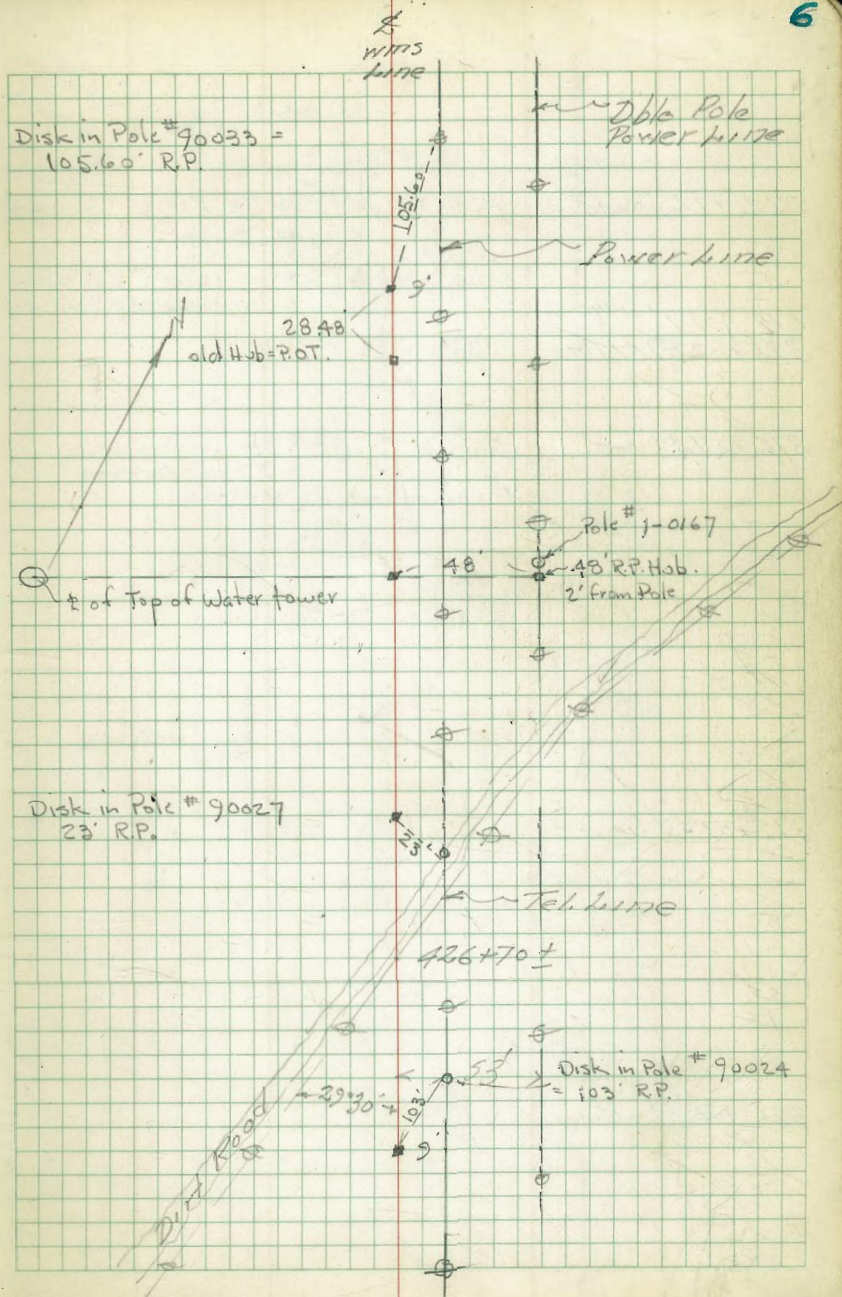
400+0427 = Mon. - old

409+99.90 = Mon. - old.

421+94.80 = Mon. - New.

426+70 = Int. Tel. Line

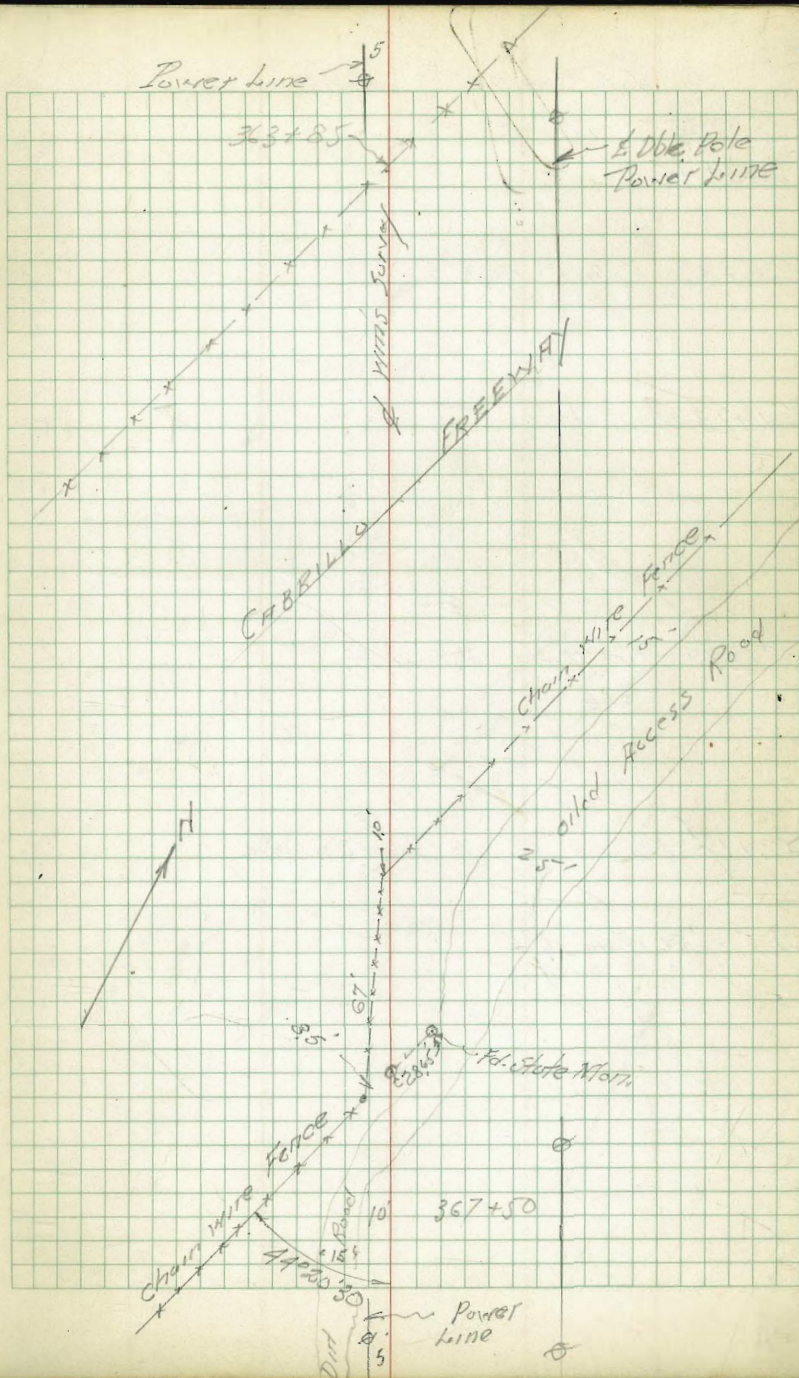
432+34.74 Mon. - old.



363+85± = Int. Chain wire Fence

366+70.74 Fd 1" x 2"

2-851/81
4966



Hadley V.S. Hallig.

360+33

360+46

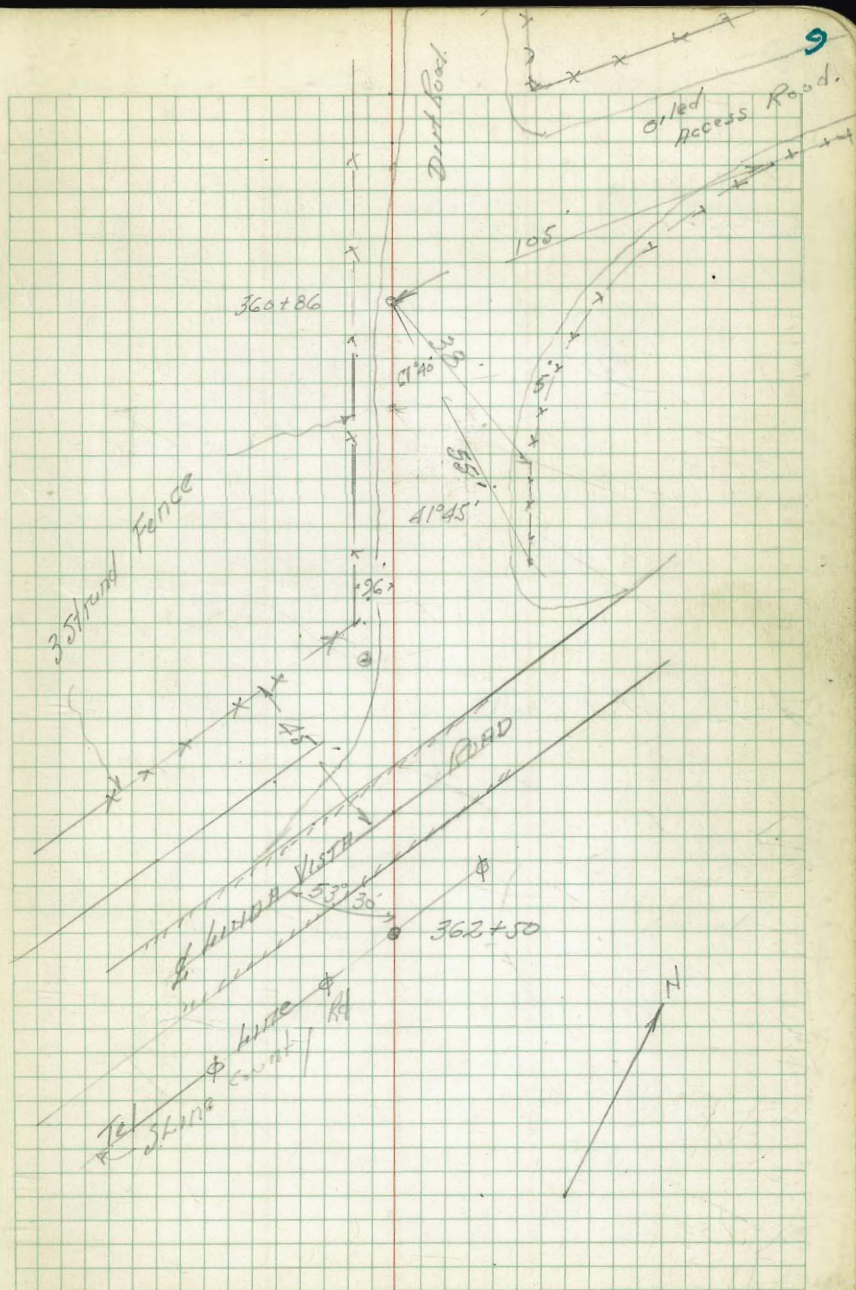
360+86 = Nail P.O.T.

361+13 = P.O.T. Nail

361+78 = Fire Hyd 8.7 West,
559

362+18 = E. Road Rd. to Hindu Vista

362+50 = State Mon



Studio vs Horiz.

345+35 Nail Post

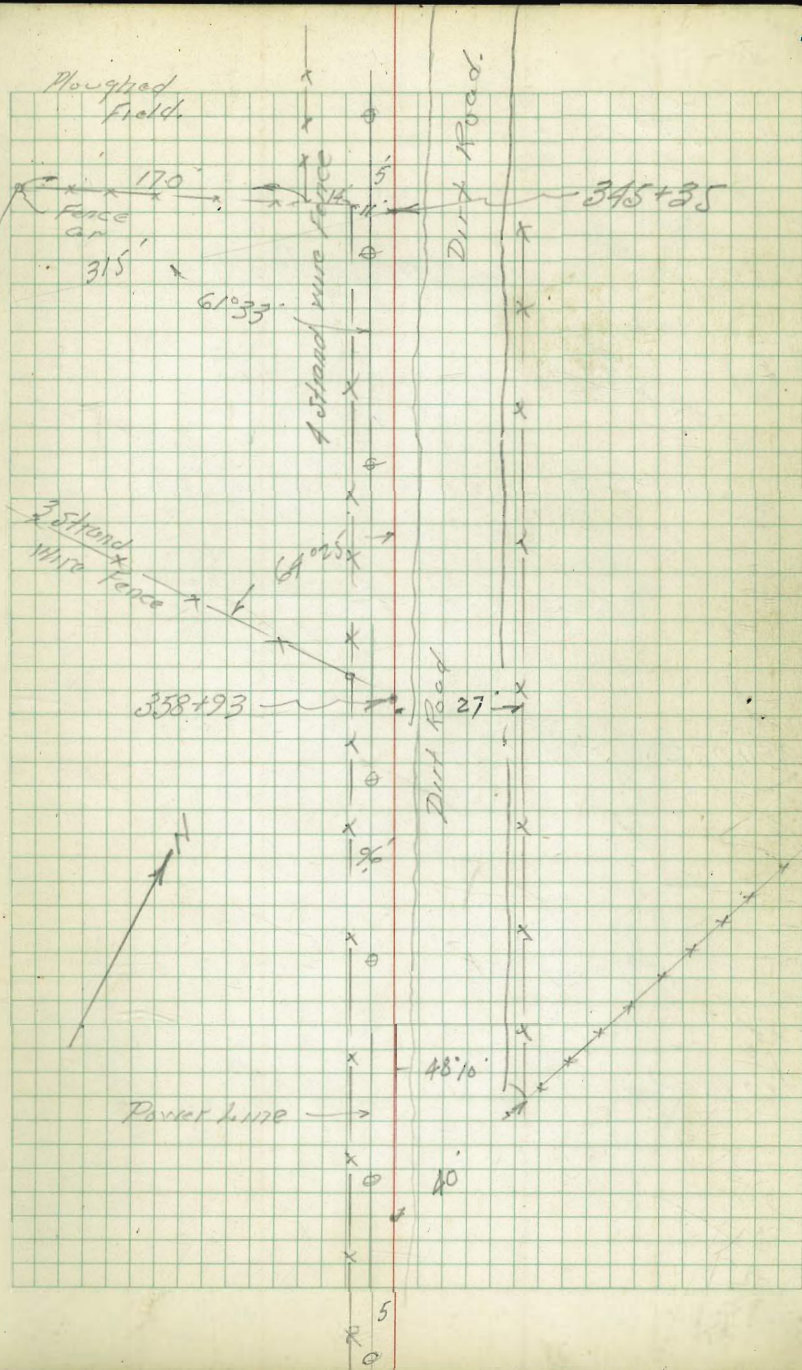
748'

352+83

610 1° 610

358+93 Nail

360+33 Nail



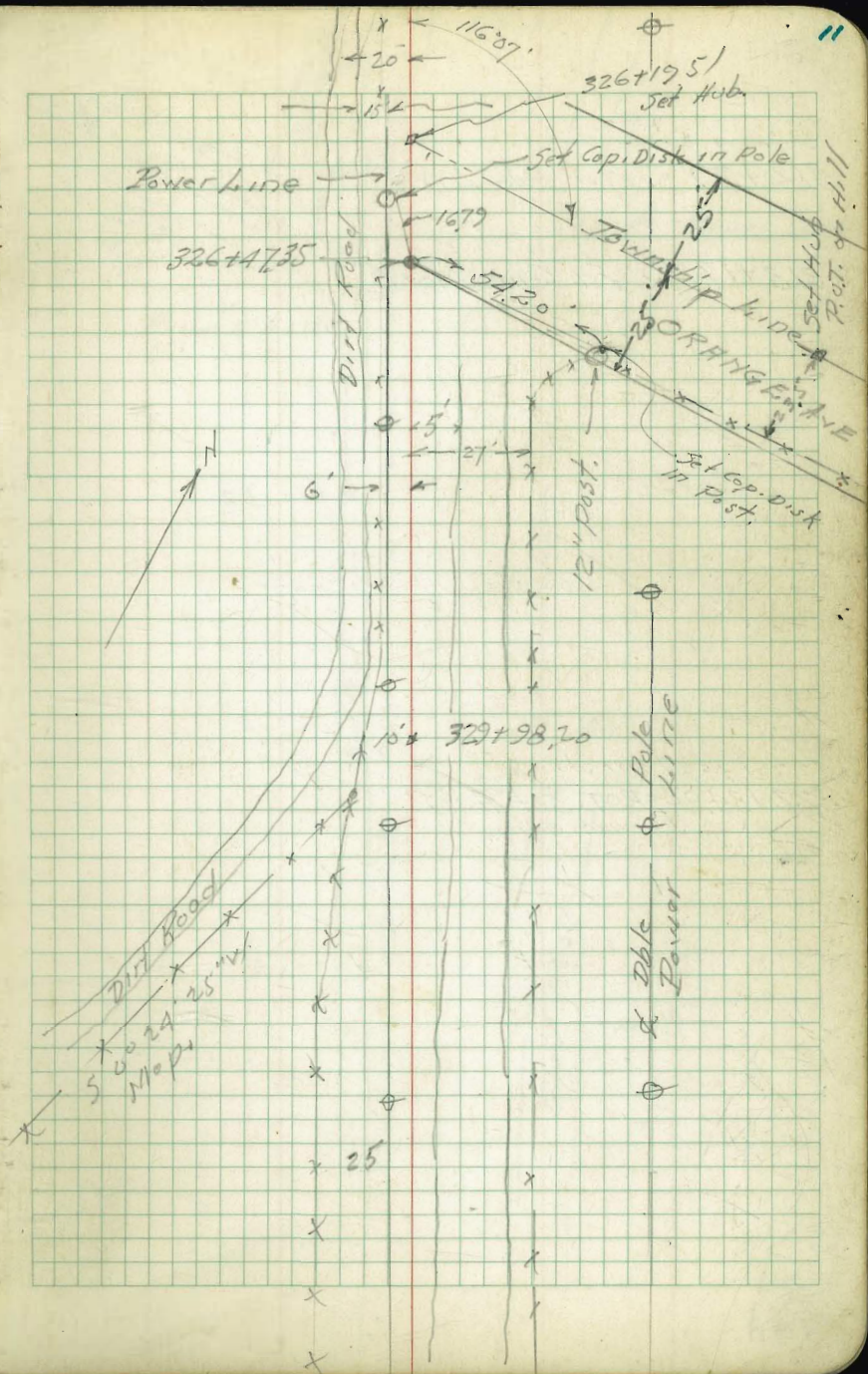
Wm's. St.
326+19.51 Set Hub. (Mon road fld.)

27.84

326+47.35 = Wm's Map. Fd. Conc. Mon

329+98.20 Fd. Hub (Pine)

342+96.28 road



312+29 = Top in Pole Line

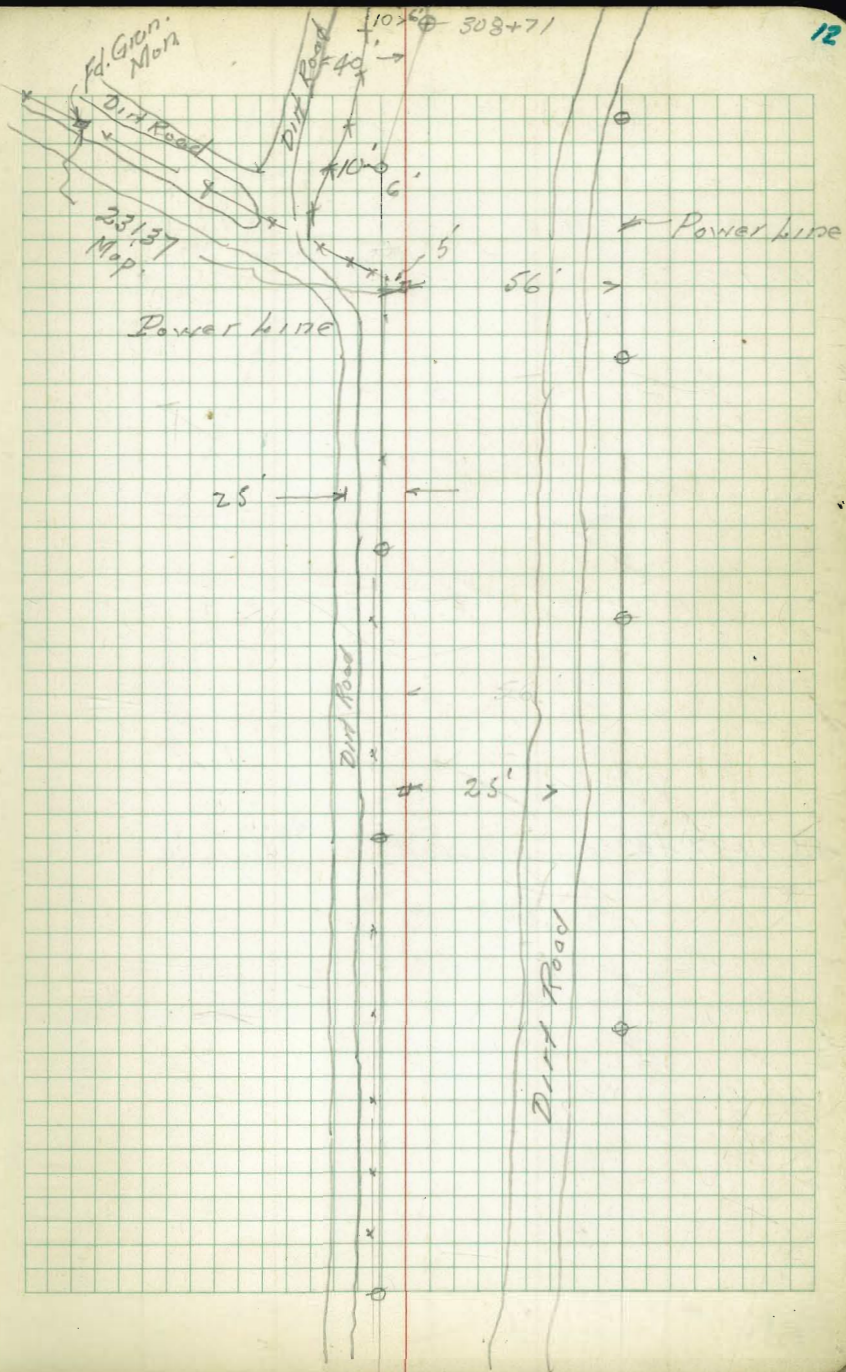
313+17, 33 Fd. Conc. Mon.

217.34
Meas. Accuracy

322 + 34, 67.00 + Sta.

322 + 34, 02 = POT. Set Hub.
2.41775 Station

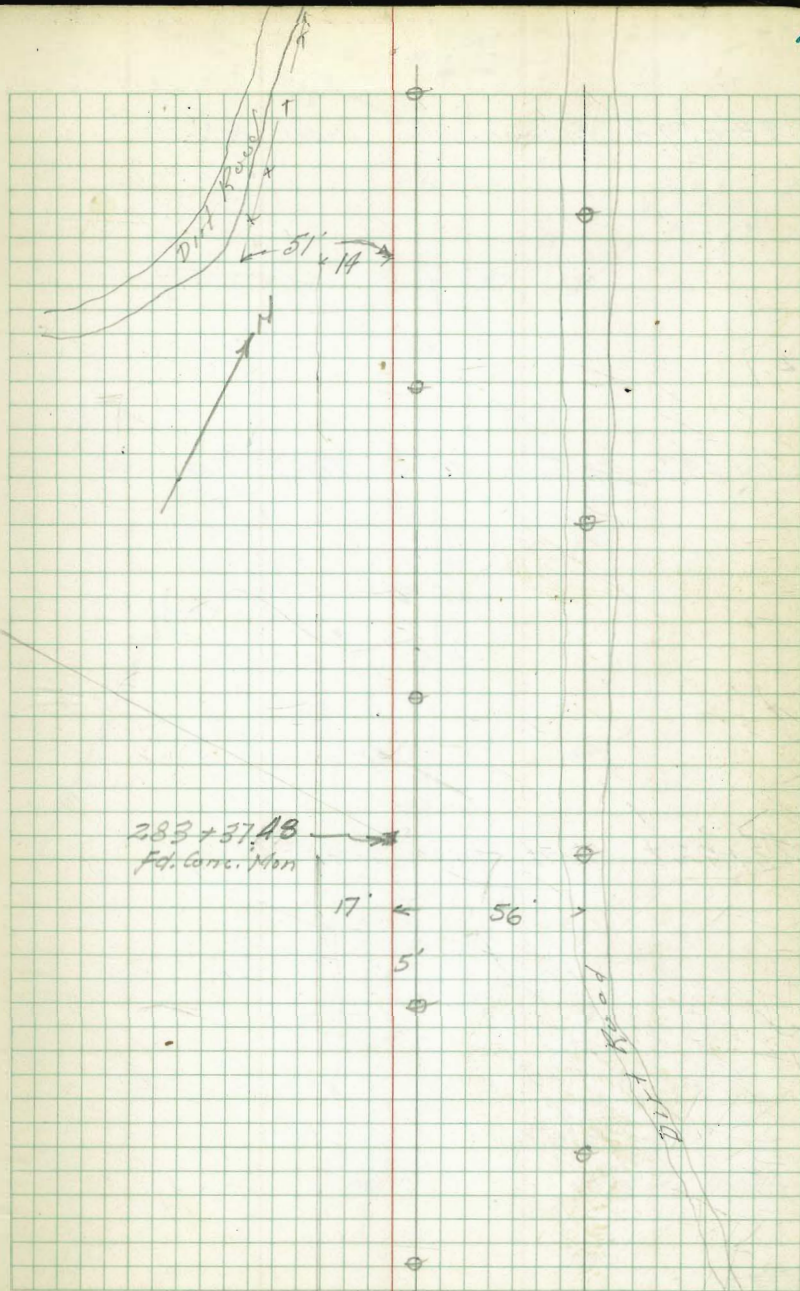
385.79 Meas



272 + 92

283 + 37.48 Fd. Conc. Man

13

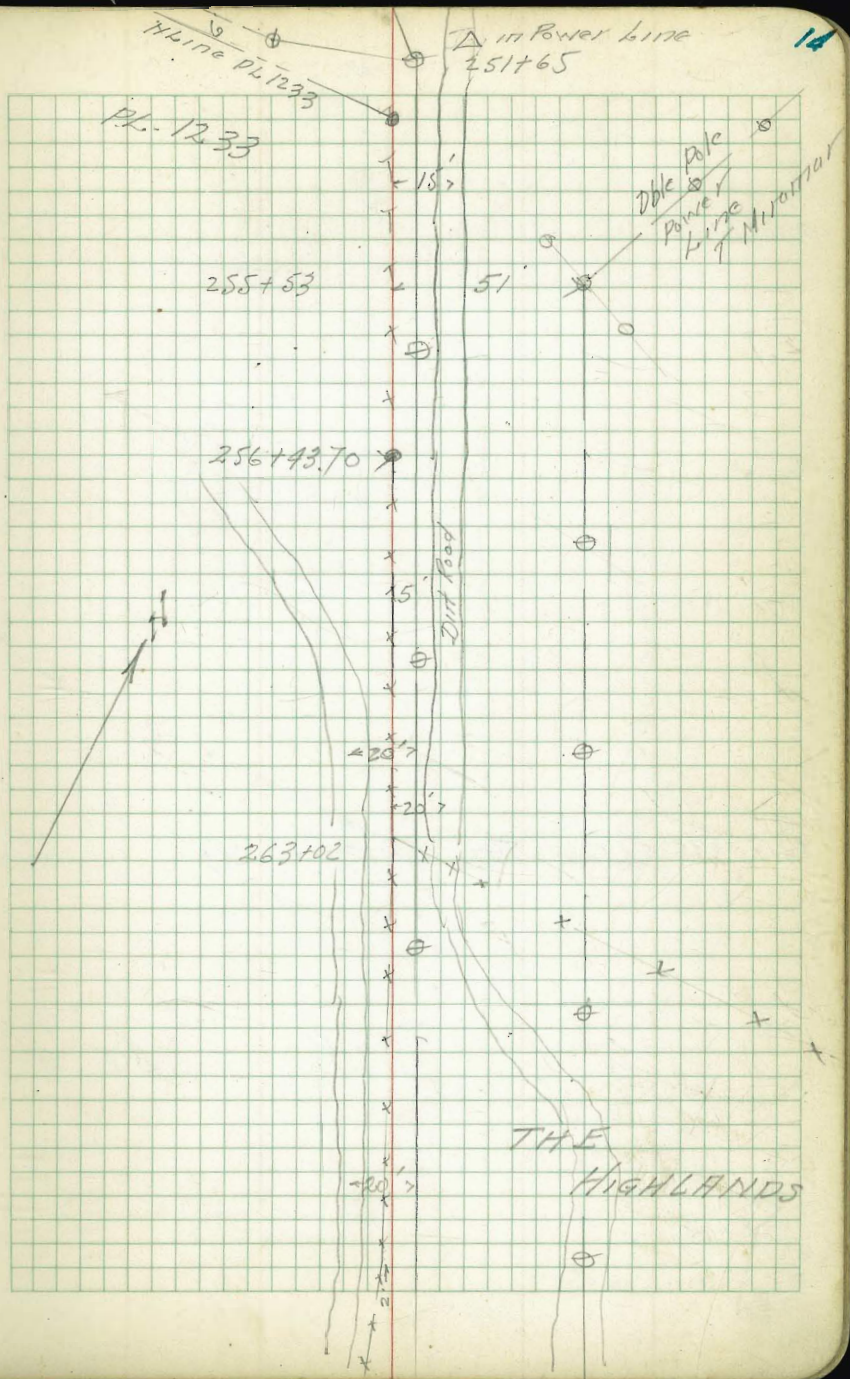


253+57.86 Fd. Conc. Mon. Under Fence

256+43.70 Fd. Conc. Mon. (Top Sinkers off)

263+02.2 = 1st Fence Line

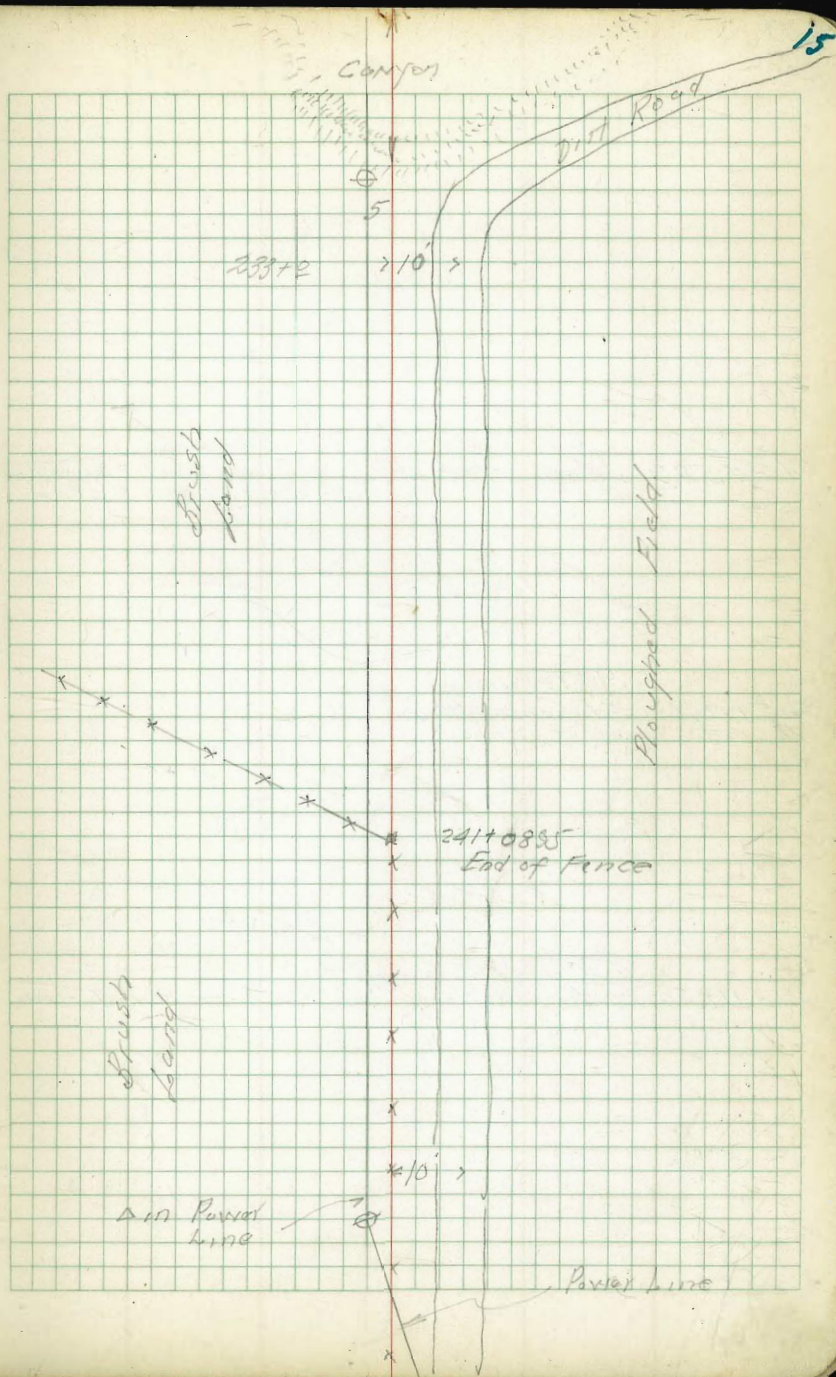
271+94



23370 +

24110895 Ed. Conc. Nlans Top Broken off

248765

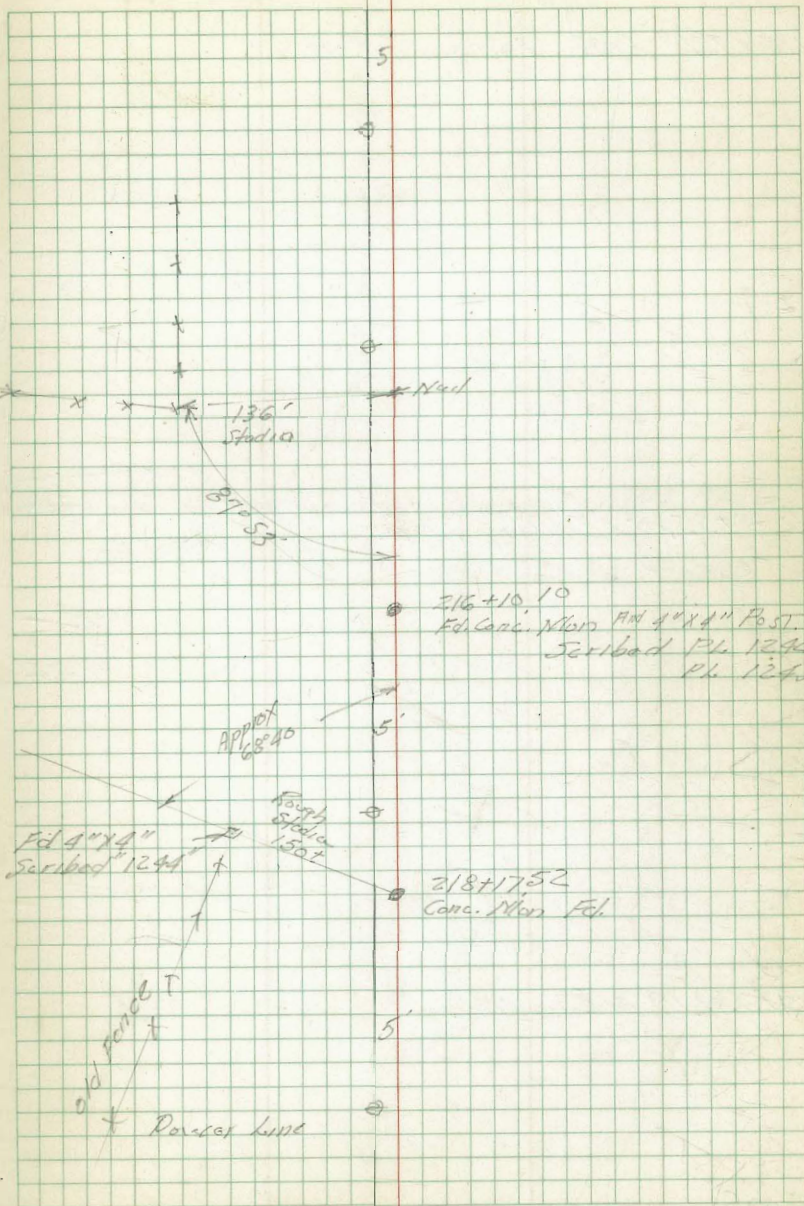


213+58.9 Mon Not Fd.

Set Nail Approx. line

POT.
216+10.10 Ed. Conc. Mon

POT
218+17.52 Ed. Conc. Mon 4"x4" Post Scribed 218+17.52



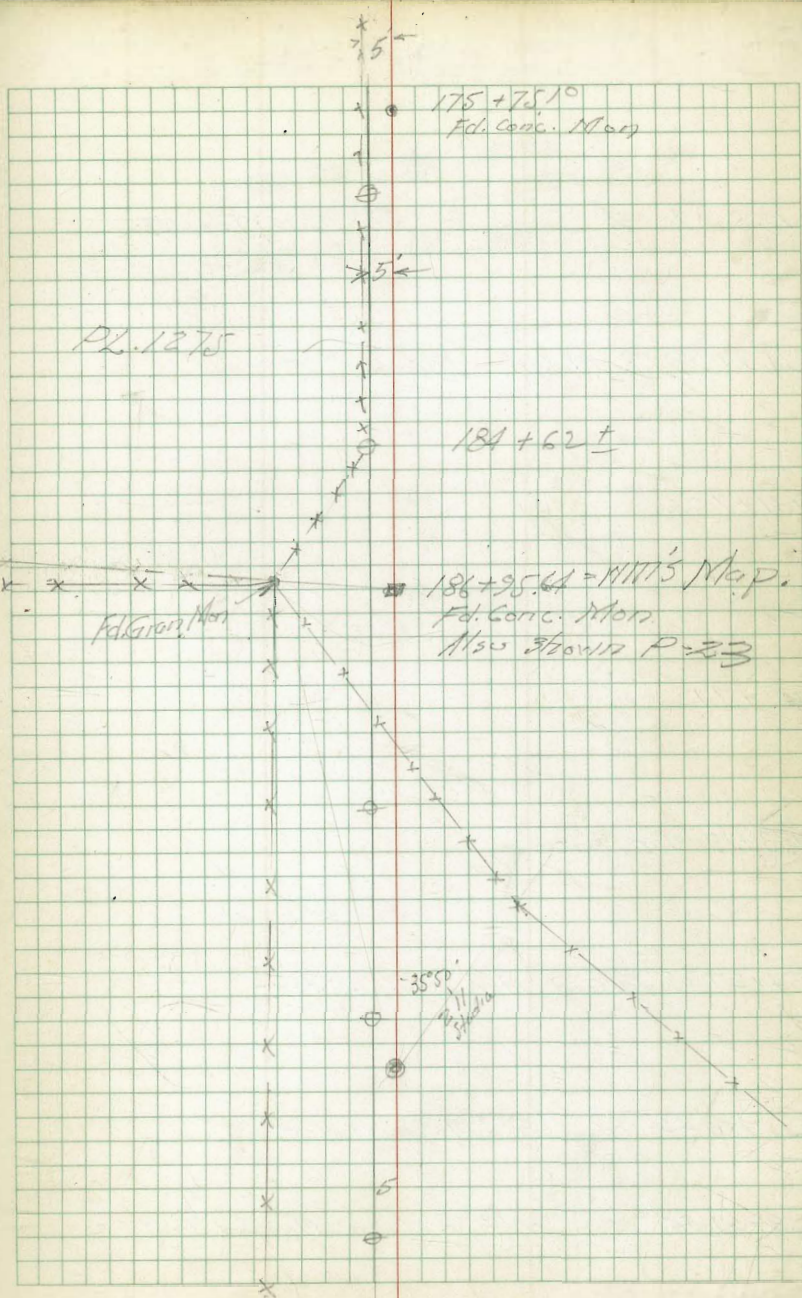
175 + 75.10 P.S.T. Fd. Conc. Map

186 + 95.64 Fd. Conc. Map.

191 + 81.19 Fd. Conc. Map

x x x x x

PL.
1246



128 + 90 = 2 Santa Fe St. Dble. Tracks

129 + 99.18 Fd. Conc. Mon

131 + 70

132 + 71

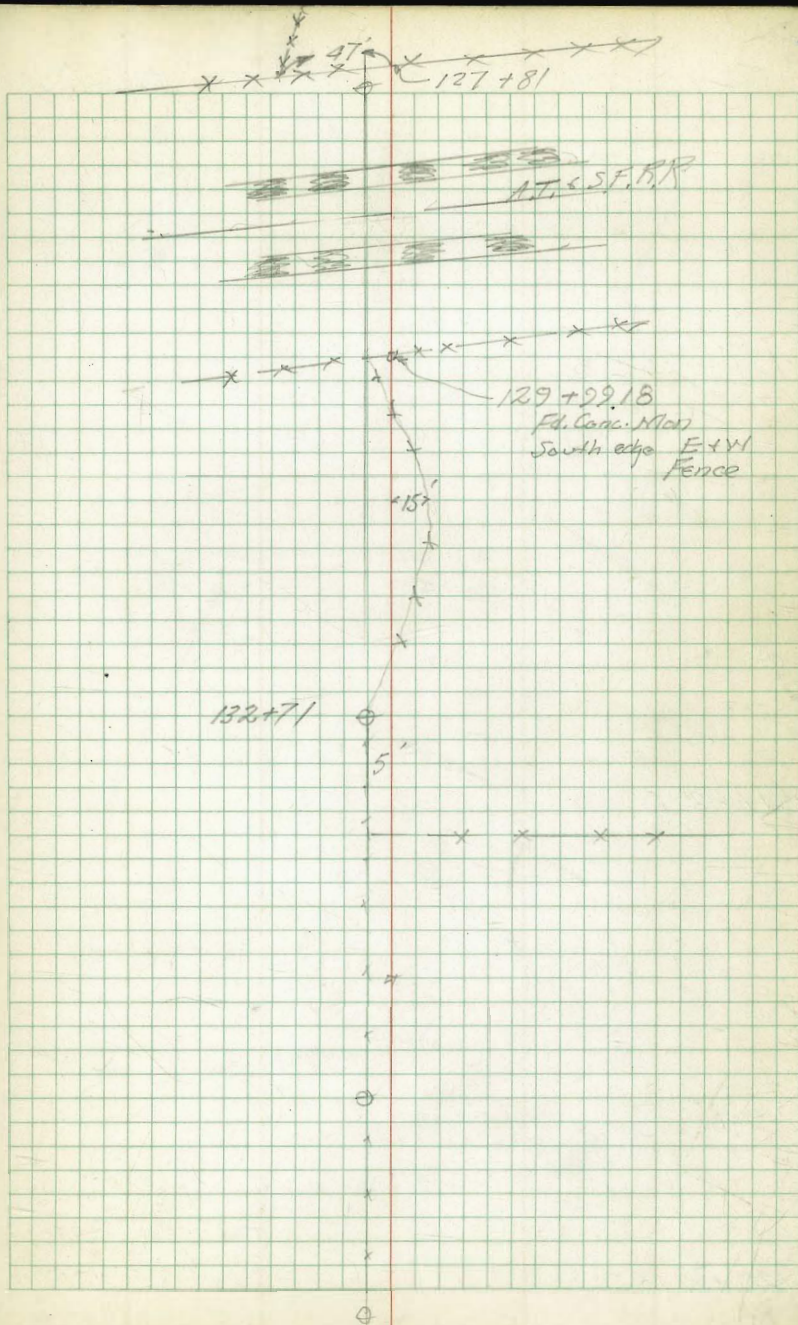
133 + 19 - 1st Fence

134 + 27.05 Fd. Conc. Mon + 4" x 4" Post

146 + 59.23 Mon Fd Plowed out

154 + 01.34 Mon Not Fd. (in Plowed Field)

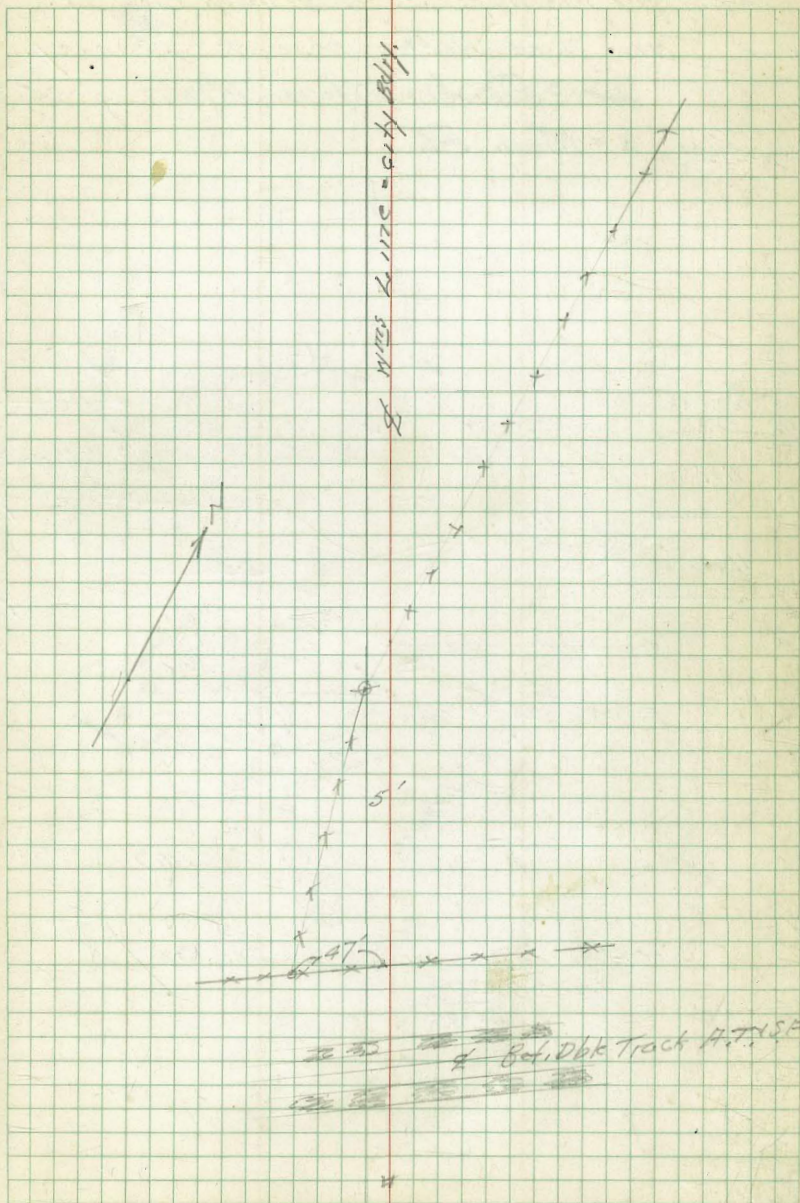
159 + 21.72 Mon Not Fd. (" " ")



124768

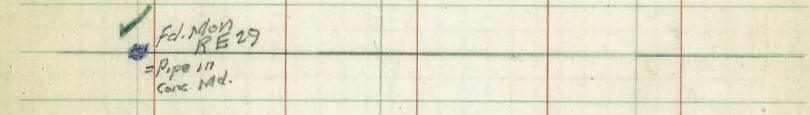
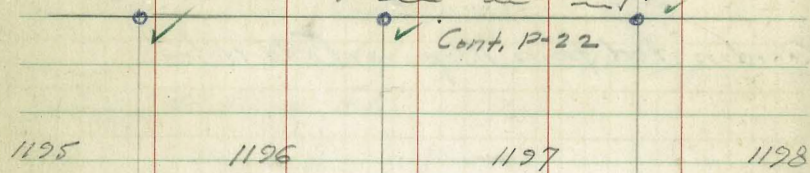
129199.18

19

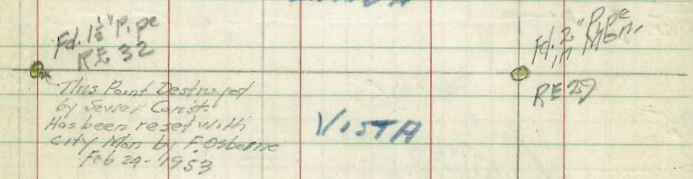


Sketch showing Pueblo Lot Corners
Found for Identification on Aerial Photos.

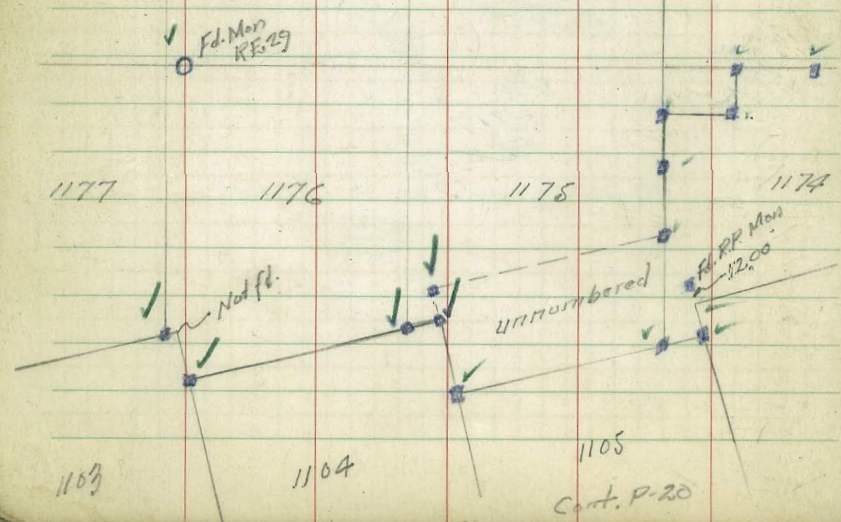
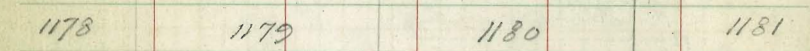
This Does Not represent a Survey.



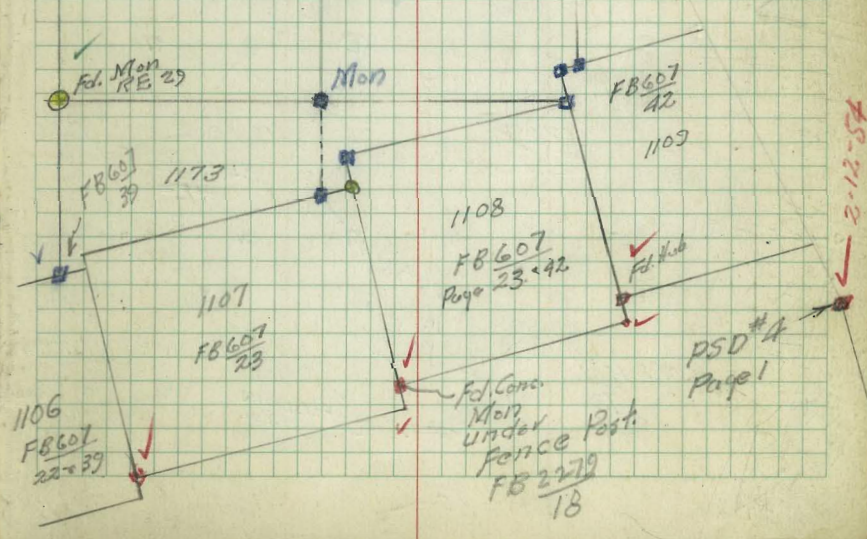
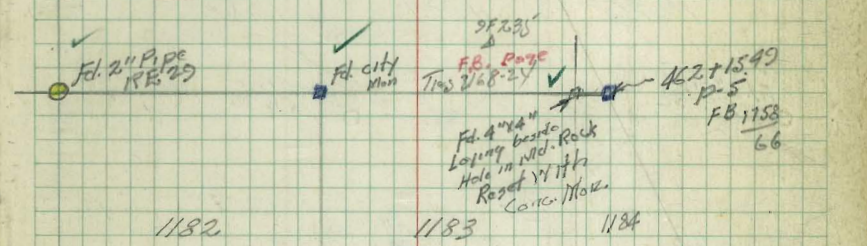
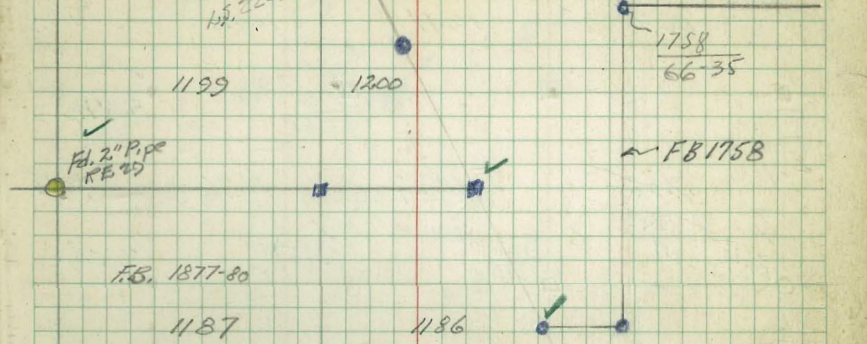
R.S.



VISTA

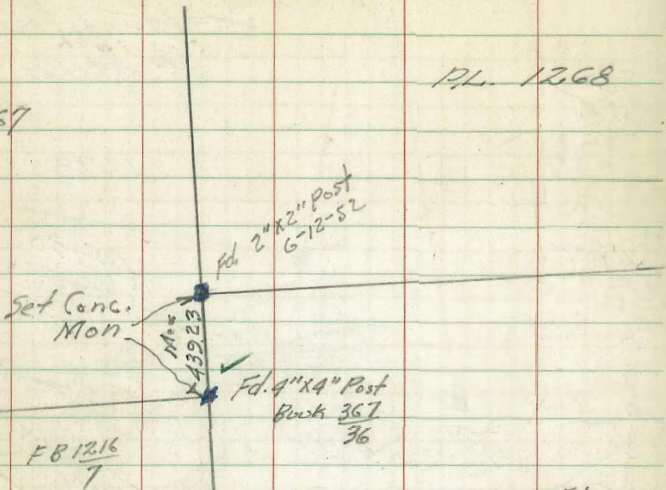


Walker
Pope
Huffman
Bishop 3-52.
FB 2130-7
Pl. 1201
- FB 1877 OF Coordinated 79 from Maps. or Field Notes



Pl. 1267

Pl. 1268

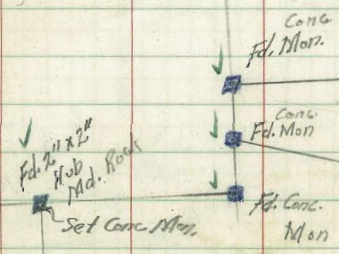


FB 1216
7

Pl. 1251
FB 2168-72

Pl. 1262

Cont. P. 26

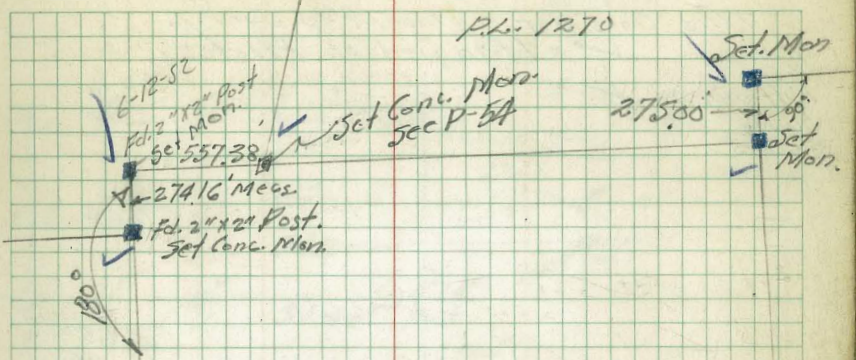


Pl. 1777

1239

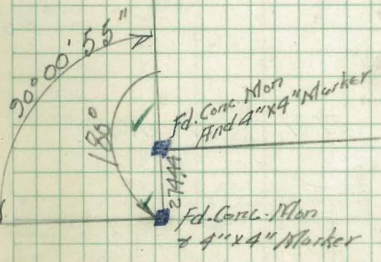
P. 54

Pl. 1270



Pl. 1250

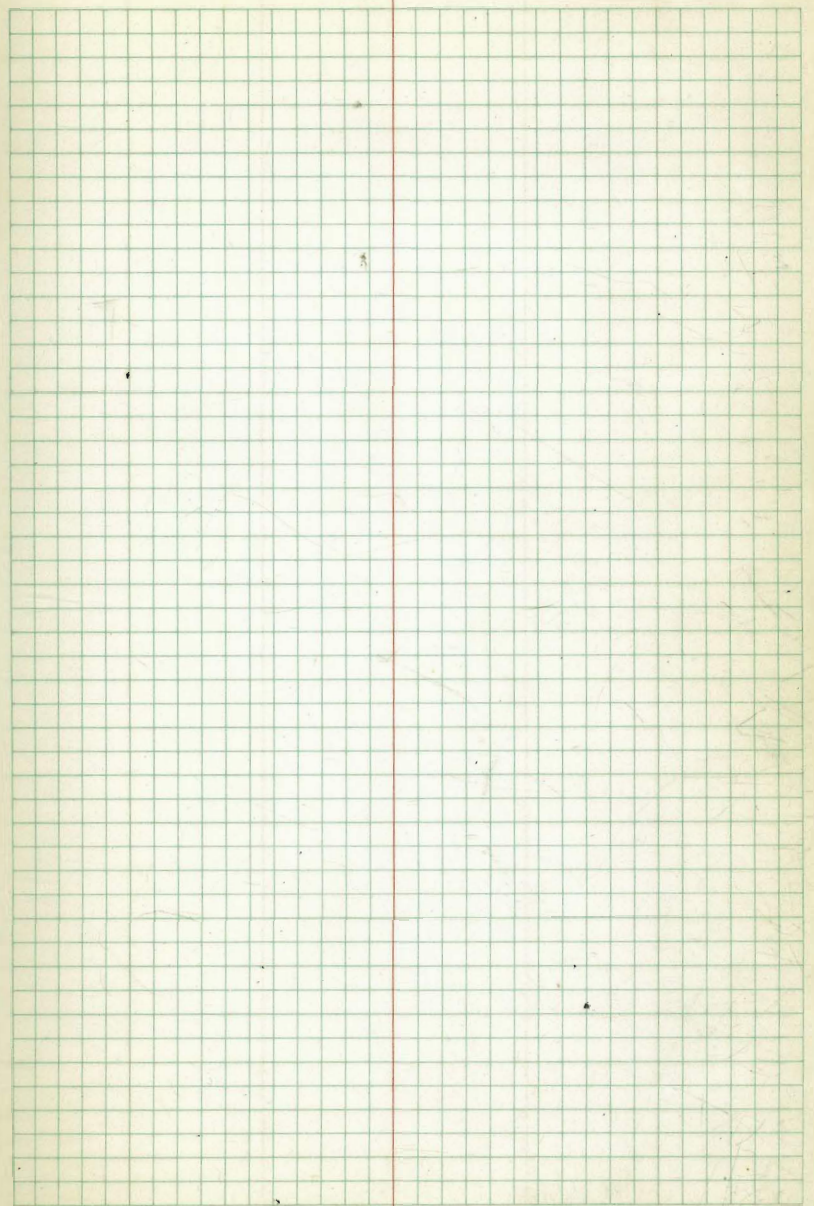
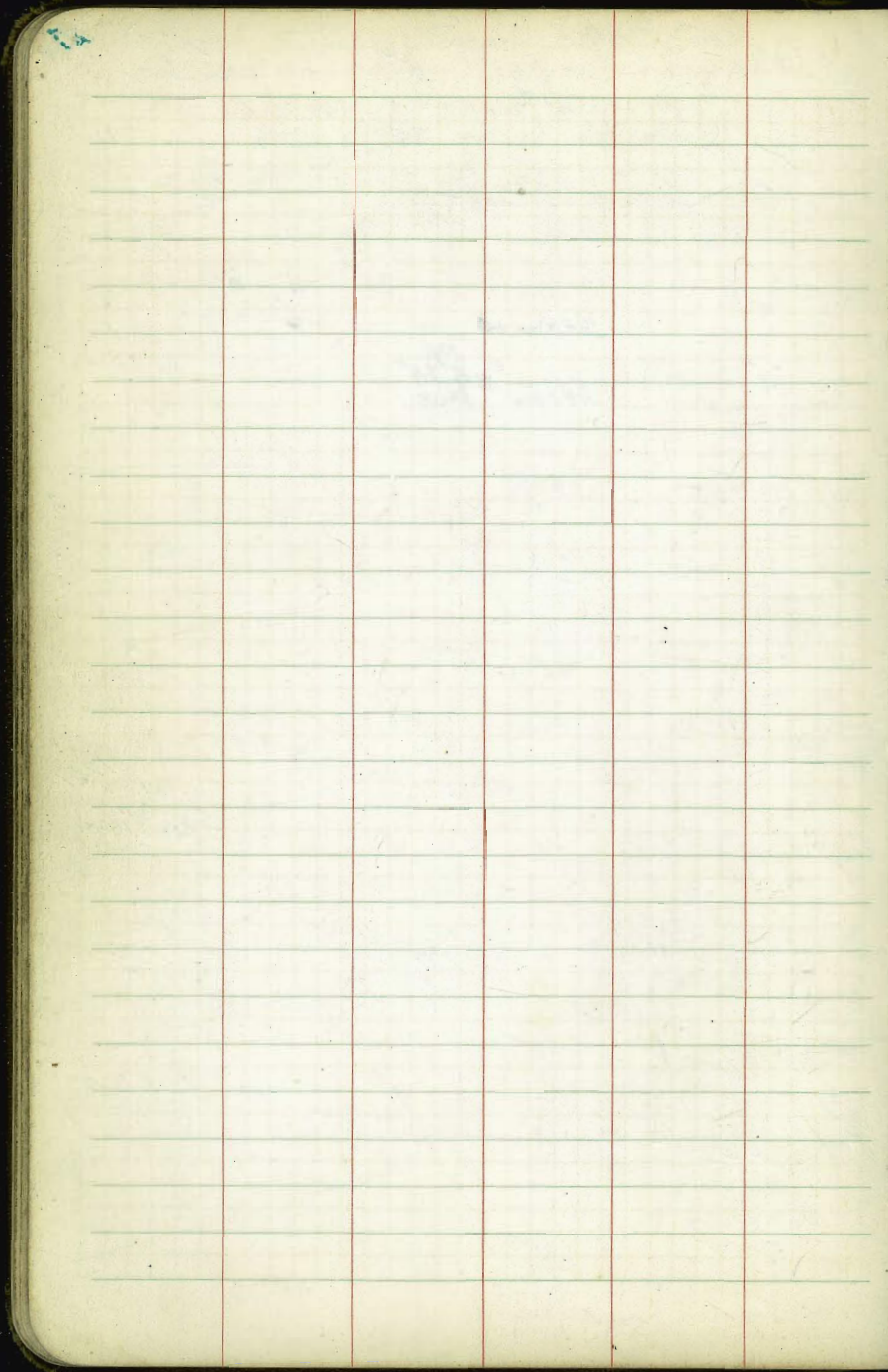
FB 2168
72

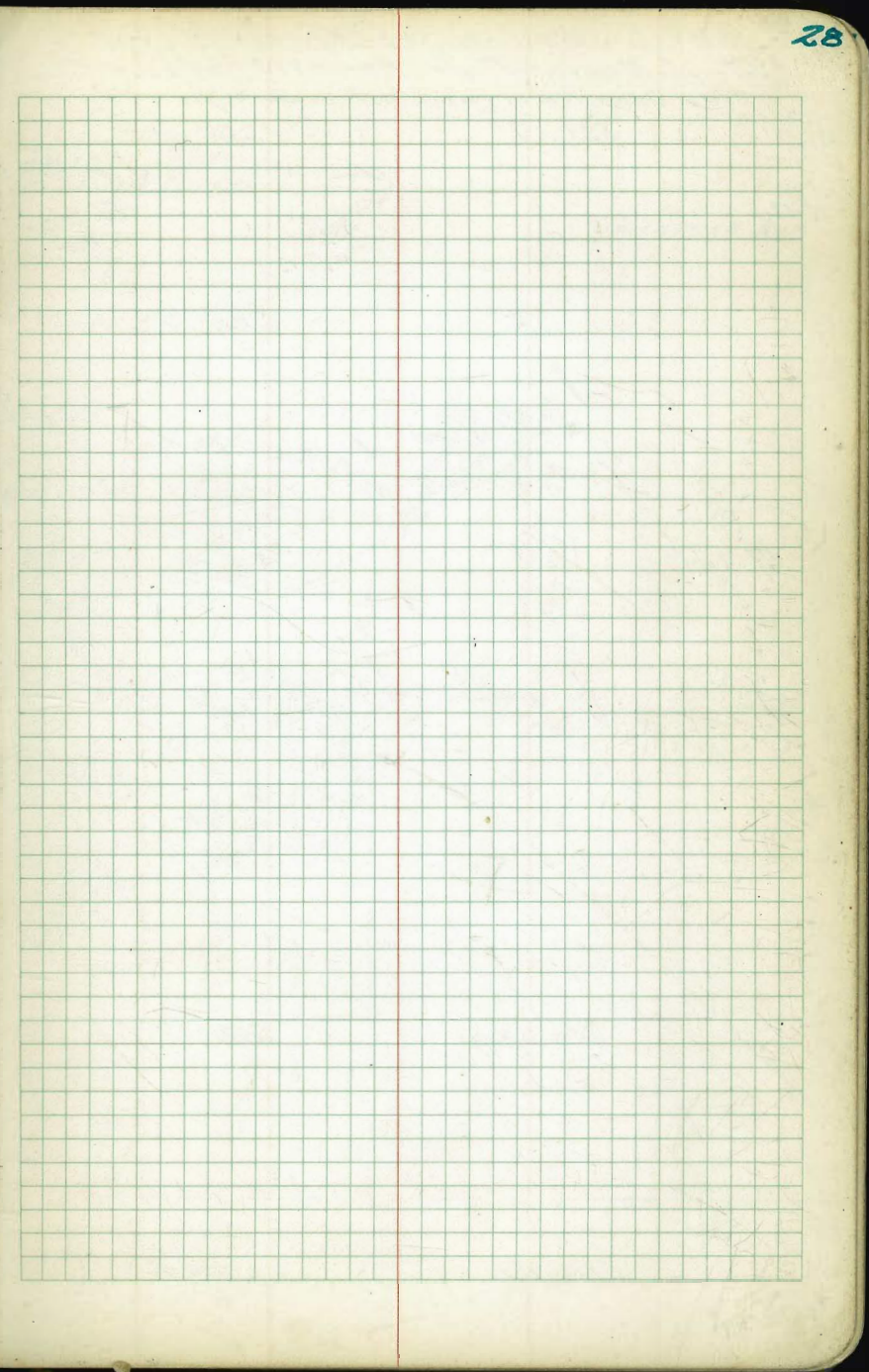
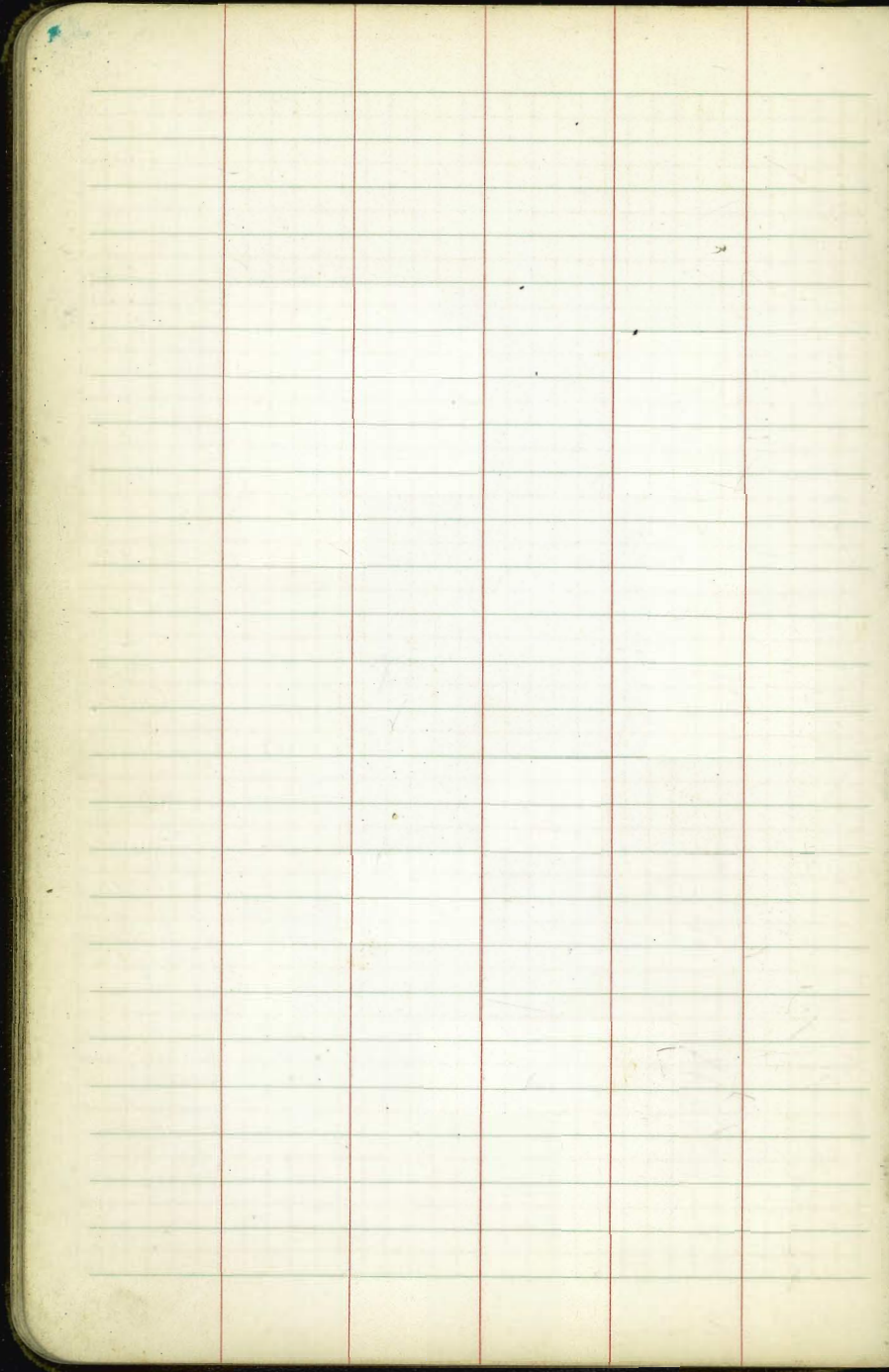


Pl. 1270

1238

Cont. P. 24





Sketch Showing Lot Corners Fd. for Identification on Aerial Photos. - ✓

This does not represent a Survey.

Walker
Pope
Huffman
Bishop
3-25-52

SEC. 7

SEC. 8

Fd. 4"x4" Post.
Sec. Cor.

Map 958
Fd. 4"x4" Post.

SEC. 18

SEC. 17

Fd. City Mon.
18" Deep
FB 1020
1056.00

Fd. 1 1/2" Pipe
FB 1020-29
1798.26

Lot 44

Ex. Mission

Ex. Mission
Pipes with Cement
and Disc.

FB 1020
2999.4

10 MM
Cor Lot 35

Lot 35
Ex. Mission

674.34
1301.4
401.40
181020
181020
181020

1301.4
1825
Map
Fd. Post.
Map
FB 1020
49

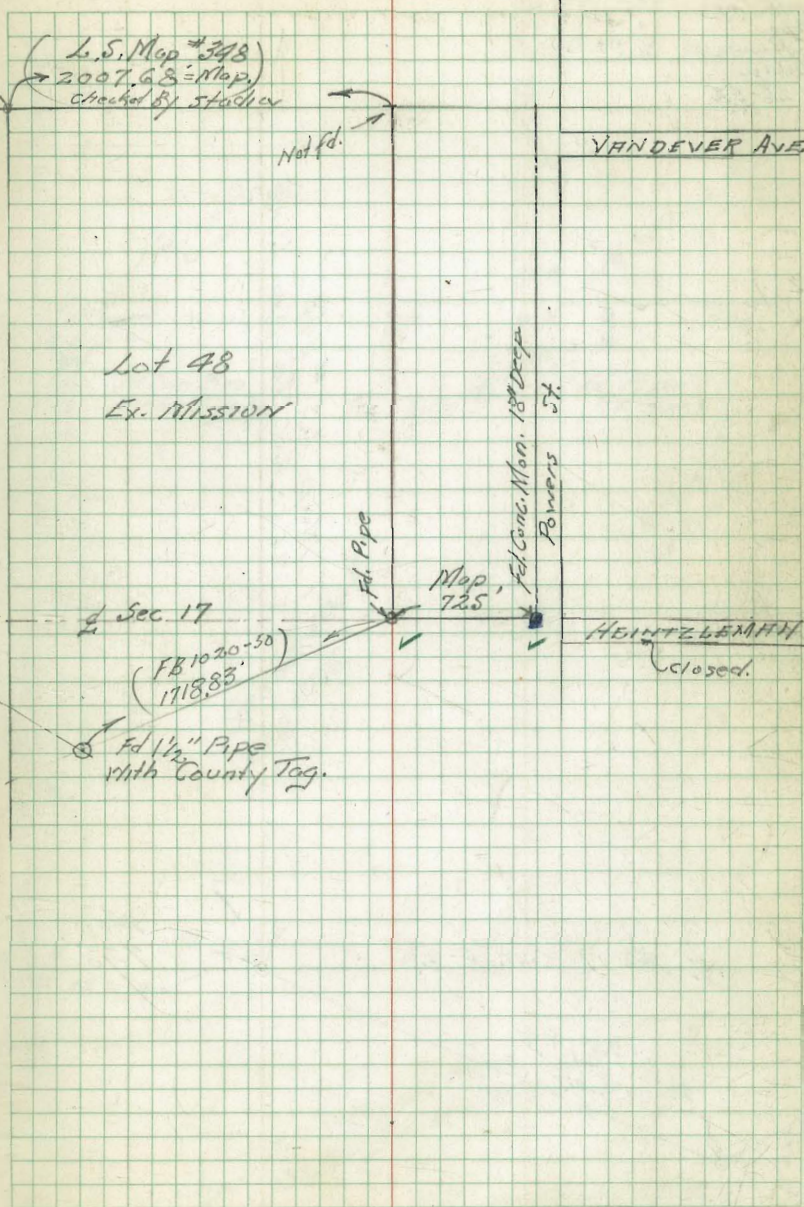
Fd. Post Mon.
181020
181020
181020

Sec. 18

SEC. 17

SEC. 19

SEC. 20



Sketch Showing Points fd. for Identification on Aerial Photos. = ✓

Walker
Pope
Huffman
Bishop
3-26-52

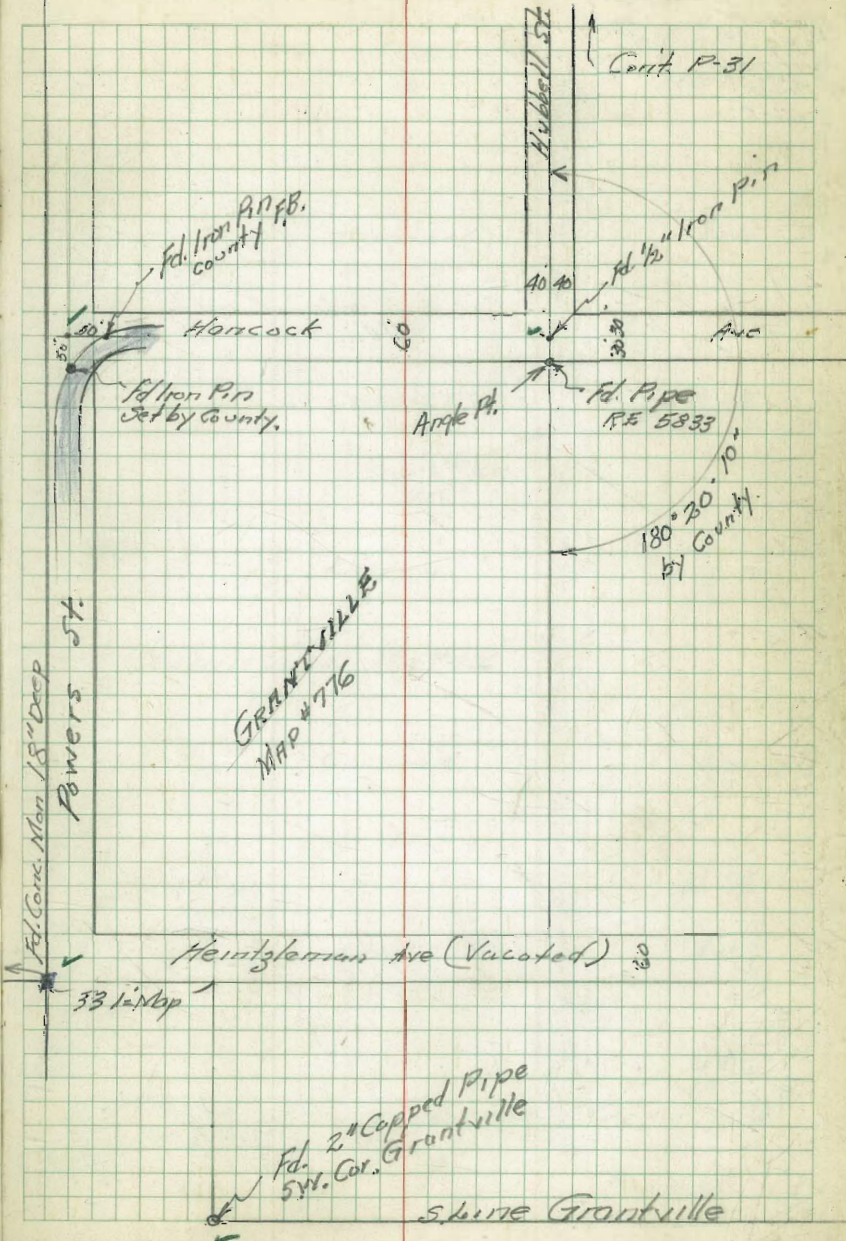
(Map 4.5 #348
2650.20' To Sec. Line)

Sec 17 Cont. P-29

Map 725

Fd. 1/2" Pipe Top
Co. P-29

Not fd.



GRANTVILLE
MAP #776

Fd. 2" Capped Pipe
SW. Cor. Grantville

skine Grantville

Sketch showing points found for identification on Aerial Photos = ✓

Walker
Pope
Huffman
Bishop
3-26-52

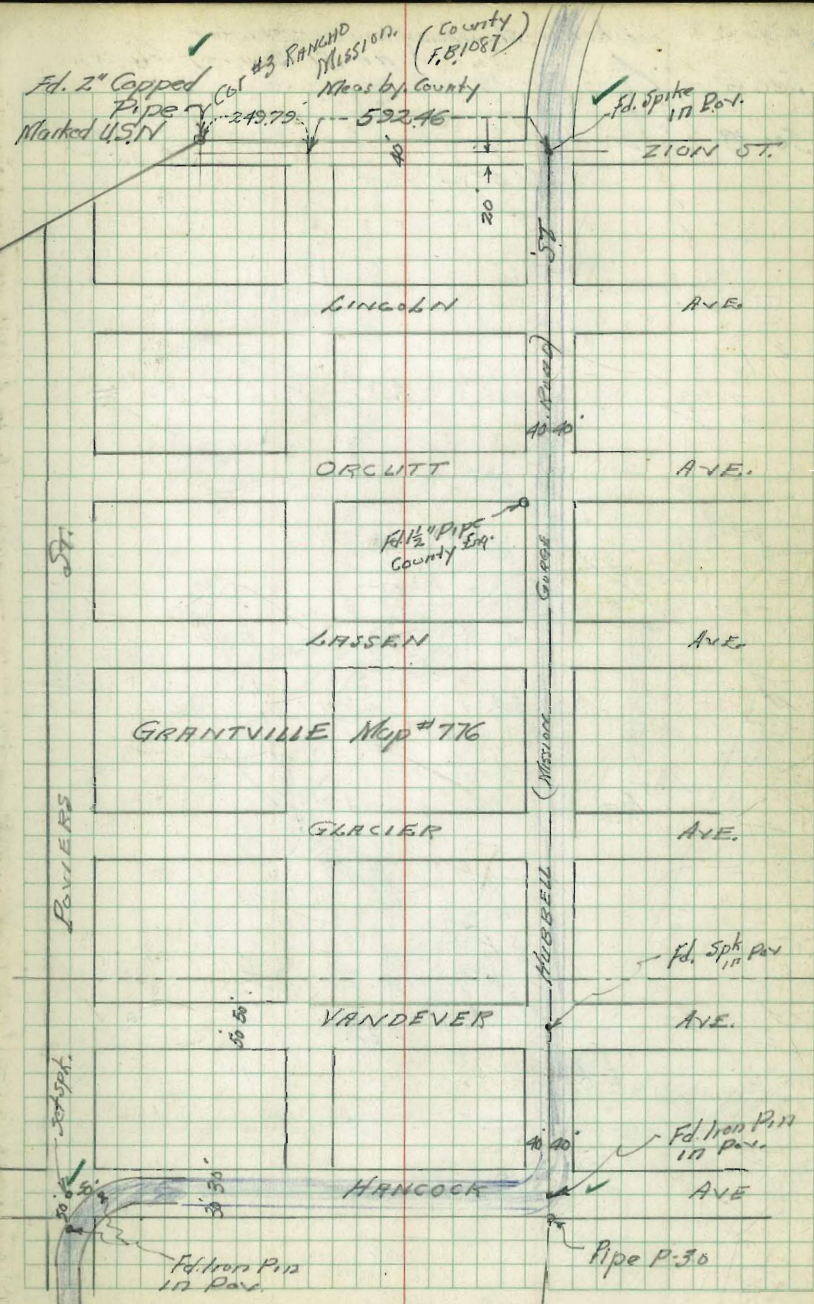
(Distances were copied from County FB 1087)

Cor. 2 Rancho Mission Not fd

Not fd

Cont. P. 29
F.B. 1087 "Past" P. 29

2nd 44 Rancho Mission



F. 2" Capped Pipe
F. 2" Capped Pipe Marked U.S.N.
Cor. #3 Rancho Mission
Meas by County
(County F.B. 1087)

F. Spike in Post

ZION ST.

LINCOLN AVE

ORCUTT AVE.

LASSEN AVE.

GRANTVILLE Map #716

GLACIER AVE.

VANDEVER AVE.

HANCOCK AVE

F. Iron Pipe in Post

Pipe P-30

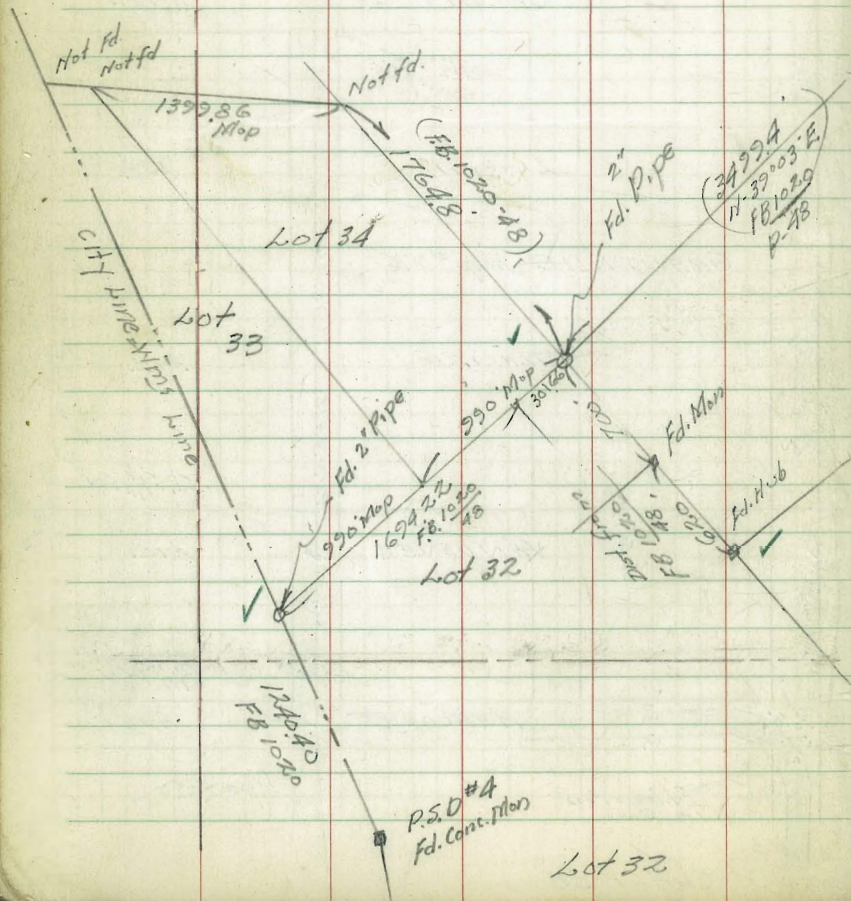
Cont. P. 30

Sketch showing Corners Fd. for Aerial Survey Photos.

Sec 12 ✓ Sec 7

Sec 13 ✓ Sec 18

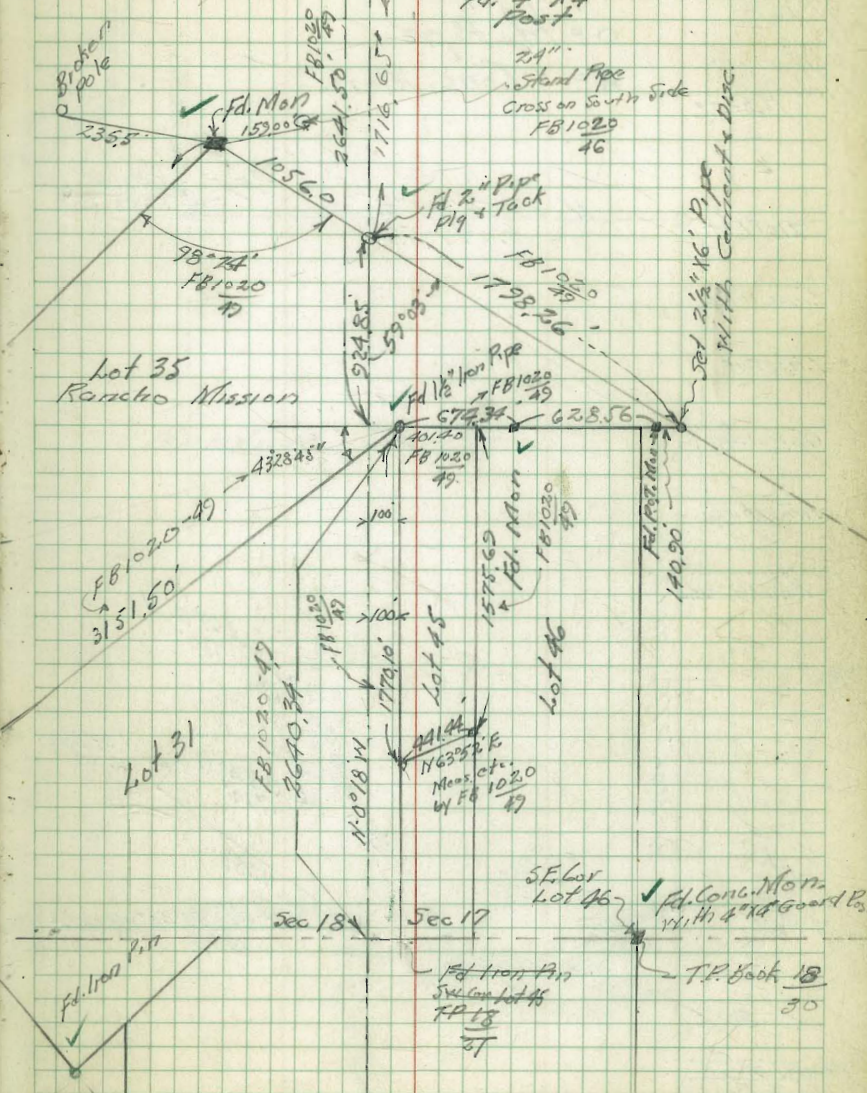
Fd. 4" x 4" Post



Sec 7 ✓ Sec 8

Sec 18 ✓ Sec 17

Fd. 4" x 4" Post



P.S.D #4
Fd. Cont. Mon

Lot 32

SE Cor Lot 46
Fd. Conc. Mon
1 1/2" x 1 1/2" x 1/2" Guard Post

T.P. Back 18
30

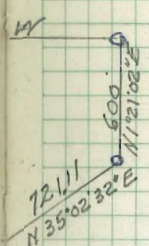
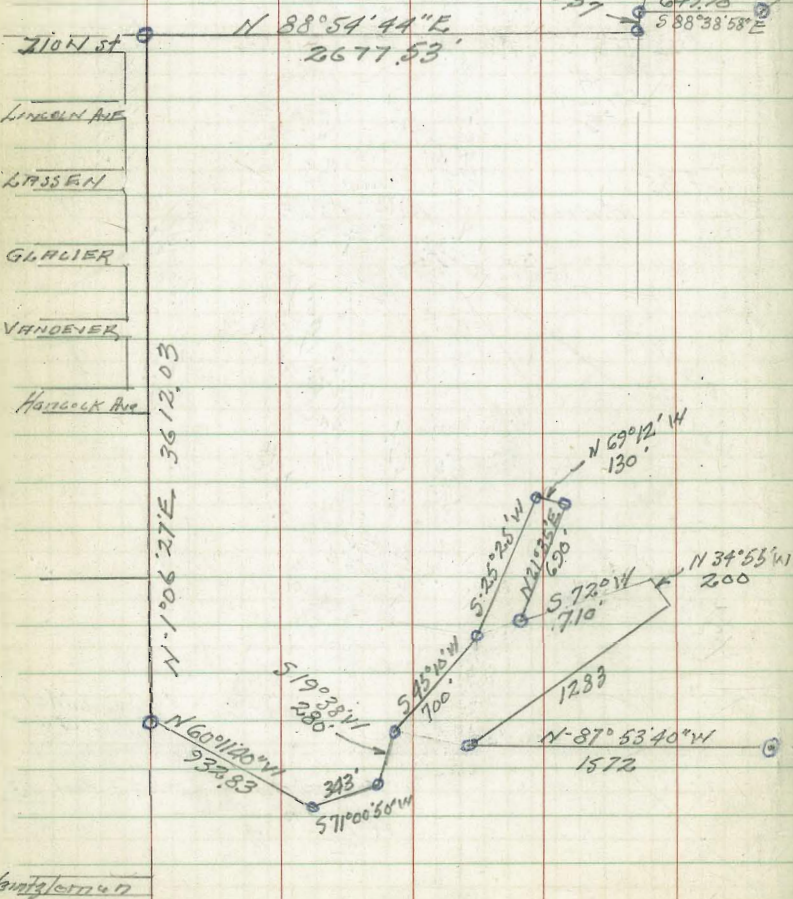
Sketch Showing CORNERS FOUND
for Identification on Aerial Photos
in Waring Tract.

Distances shown were copied
from Map 9141-L and were
checked roughly by stadia.

Walker
Pope
Hoffman
Bishop 2-52

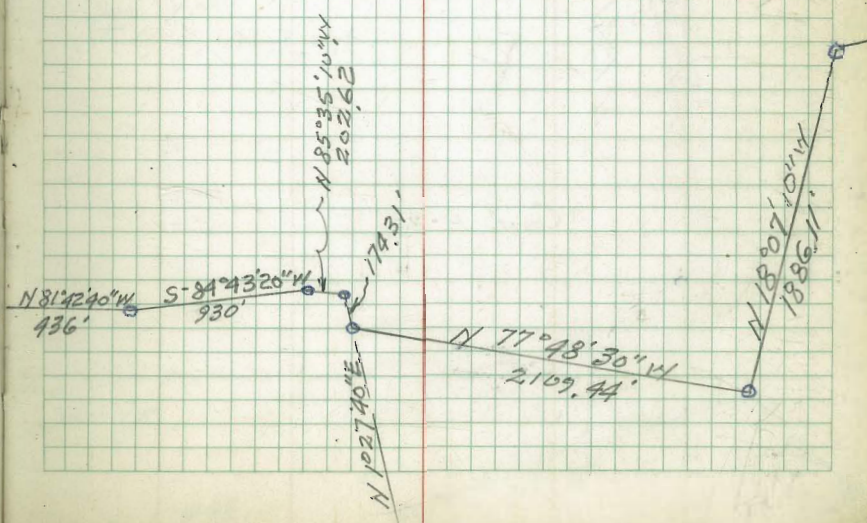
○ = Fd Pipe

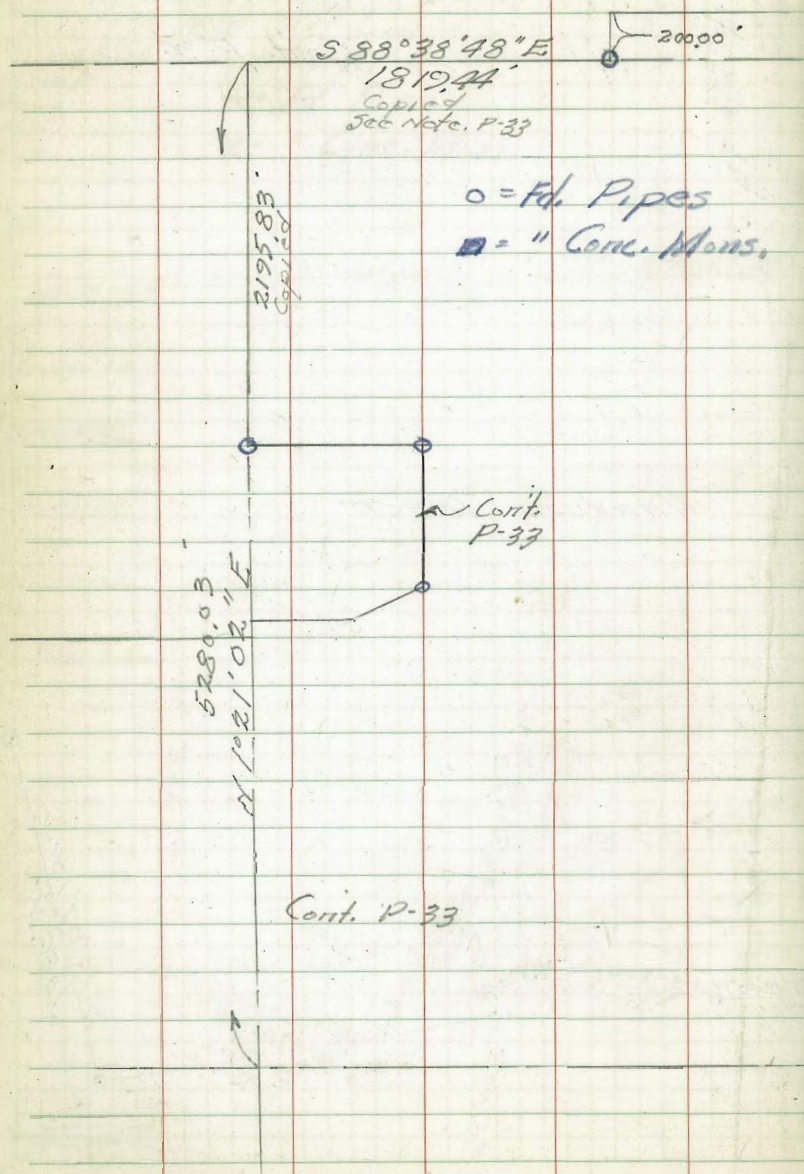
■ = " Conc. Mark.



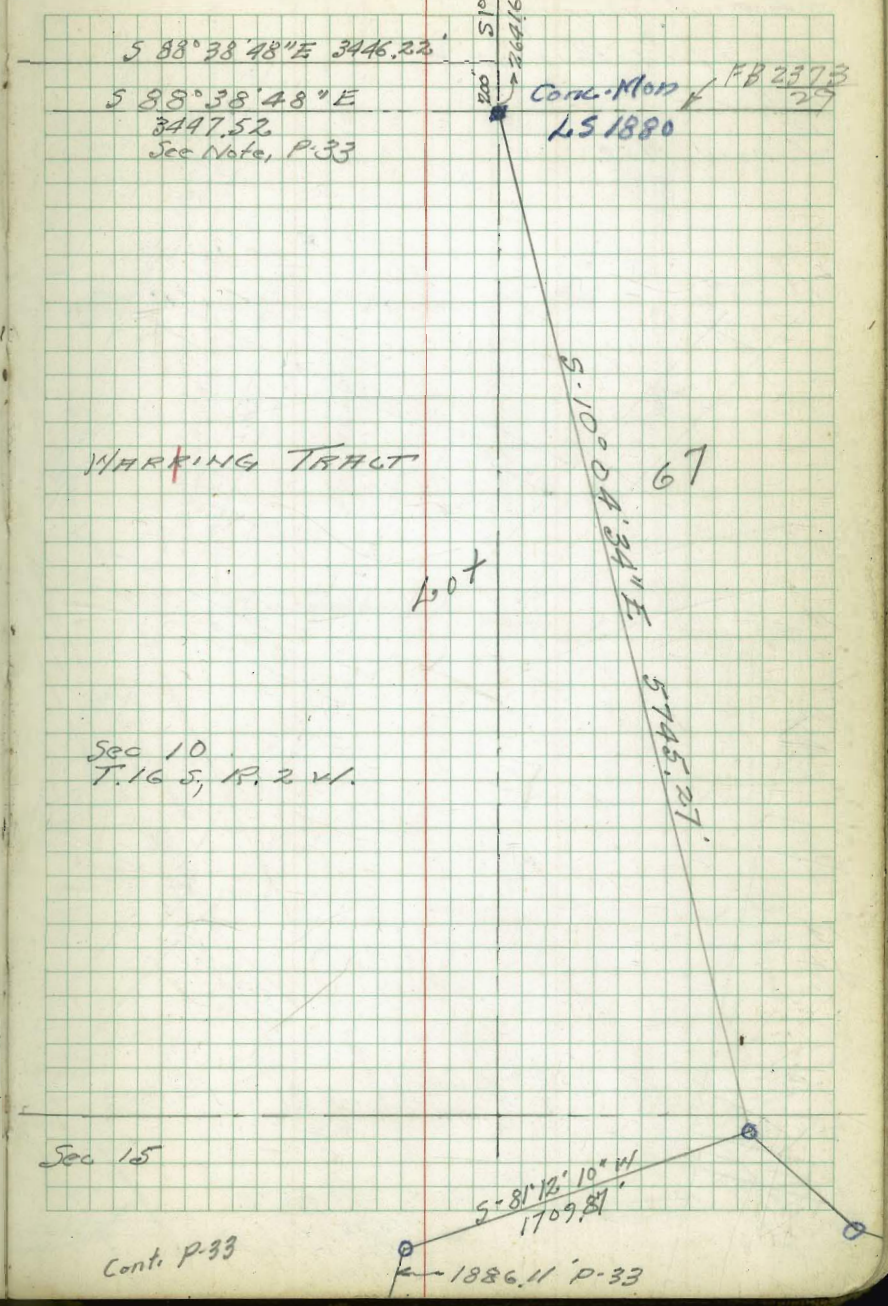
Cont. P-34

WARING TRACT



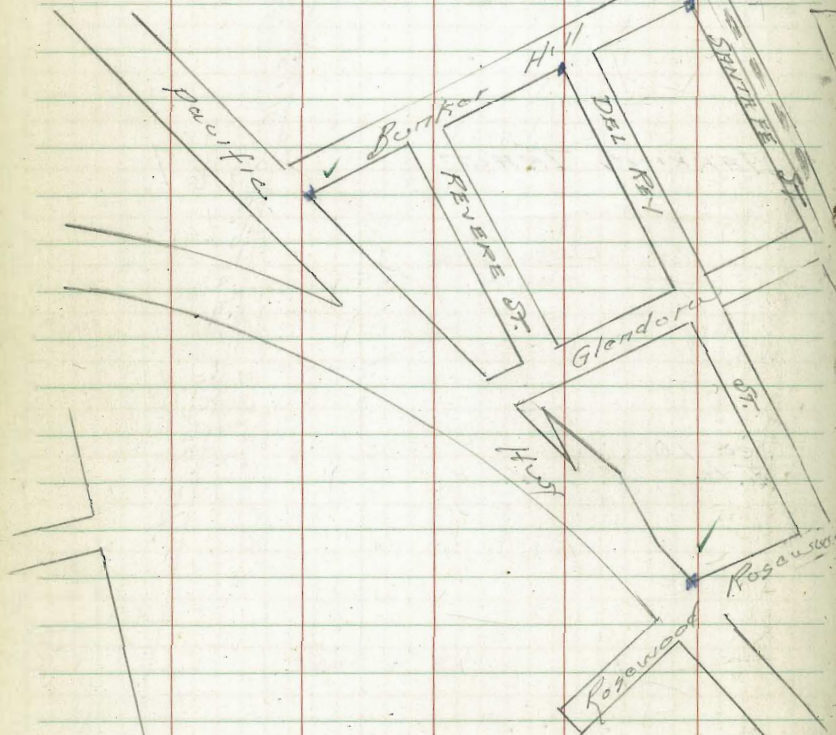


o = Fd. Pipes
 ■ = " Conc. Mon.



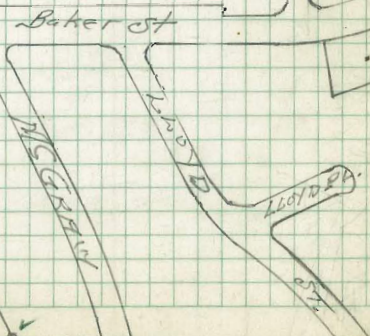
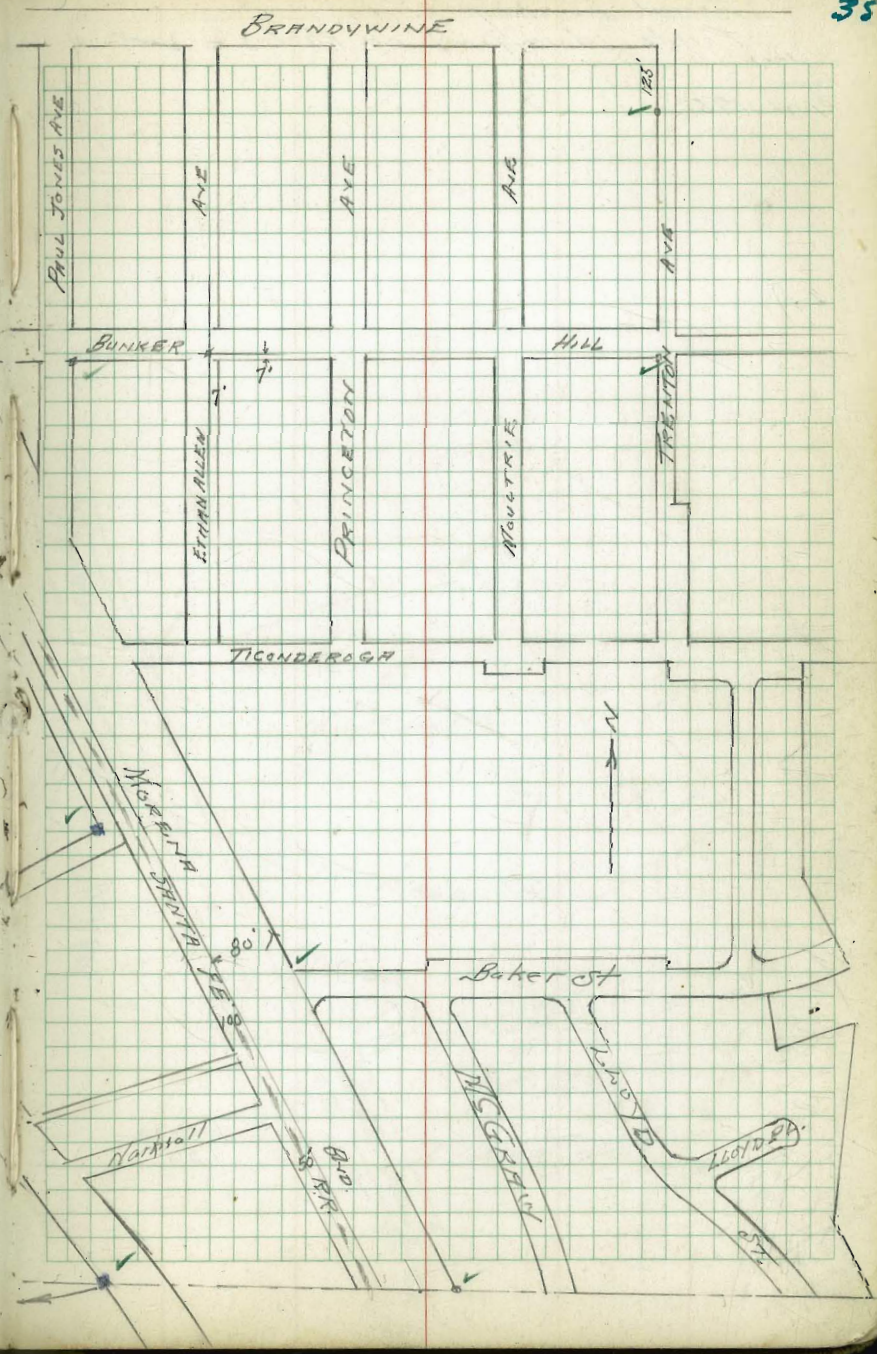
Aerial Survey
Identified Points = ✓

Walker
Pope
April 1952



$N 14^{\circ} 31' 16'' W$
90.84 - Mission Boy
Eng.

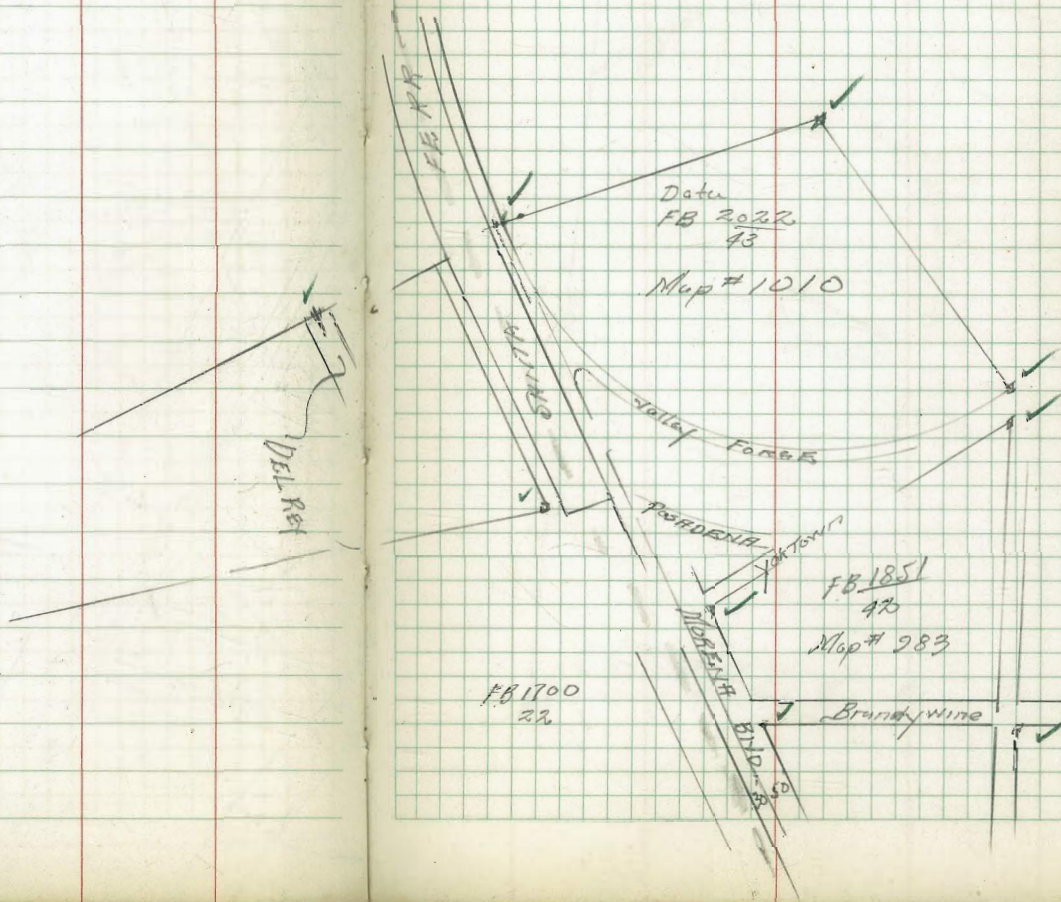
$S 89^{\circ} 28' 45'' E$
1878 of
Mission Boy
Eng.



Aerial Survey

Points identified on Photos = ✓

Walker
Pope
April 1952

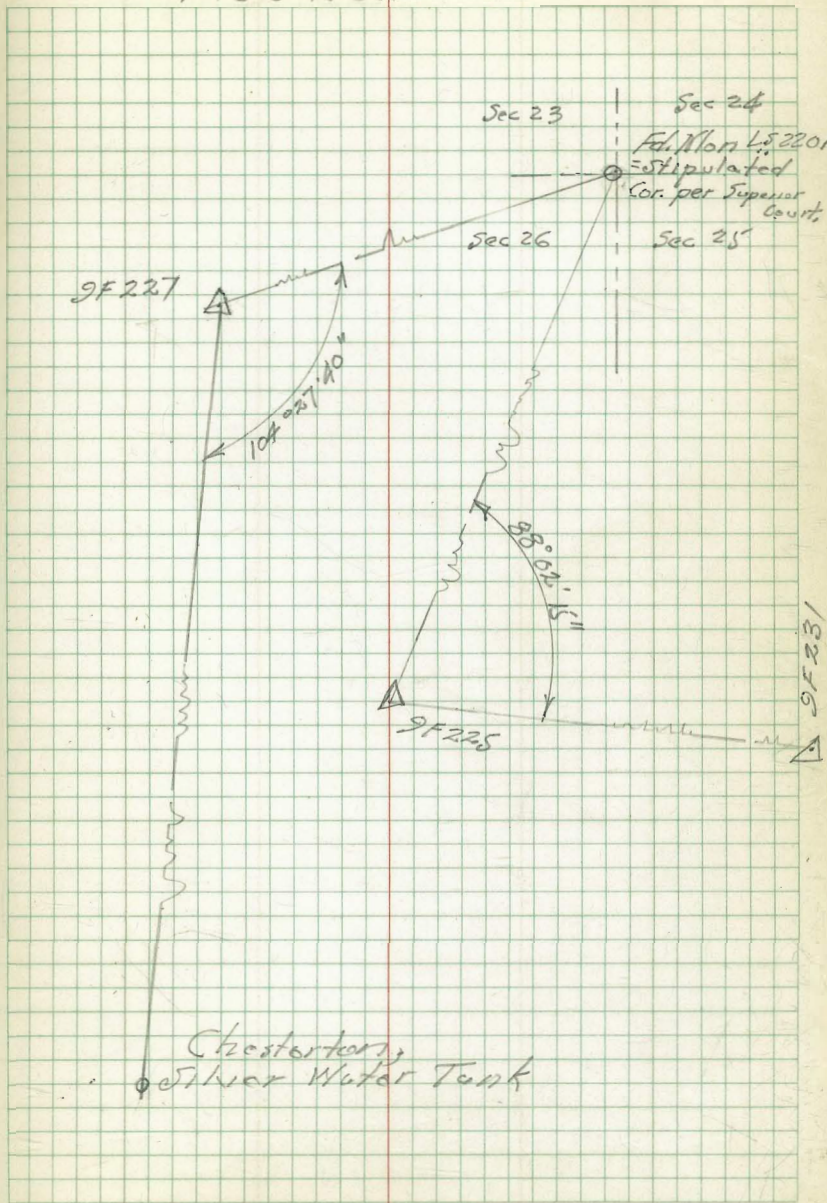


AERIAL SURVEY

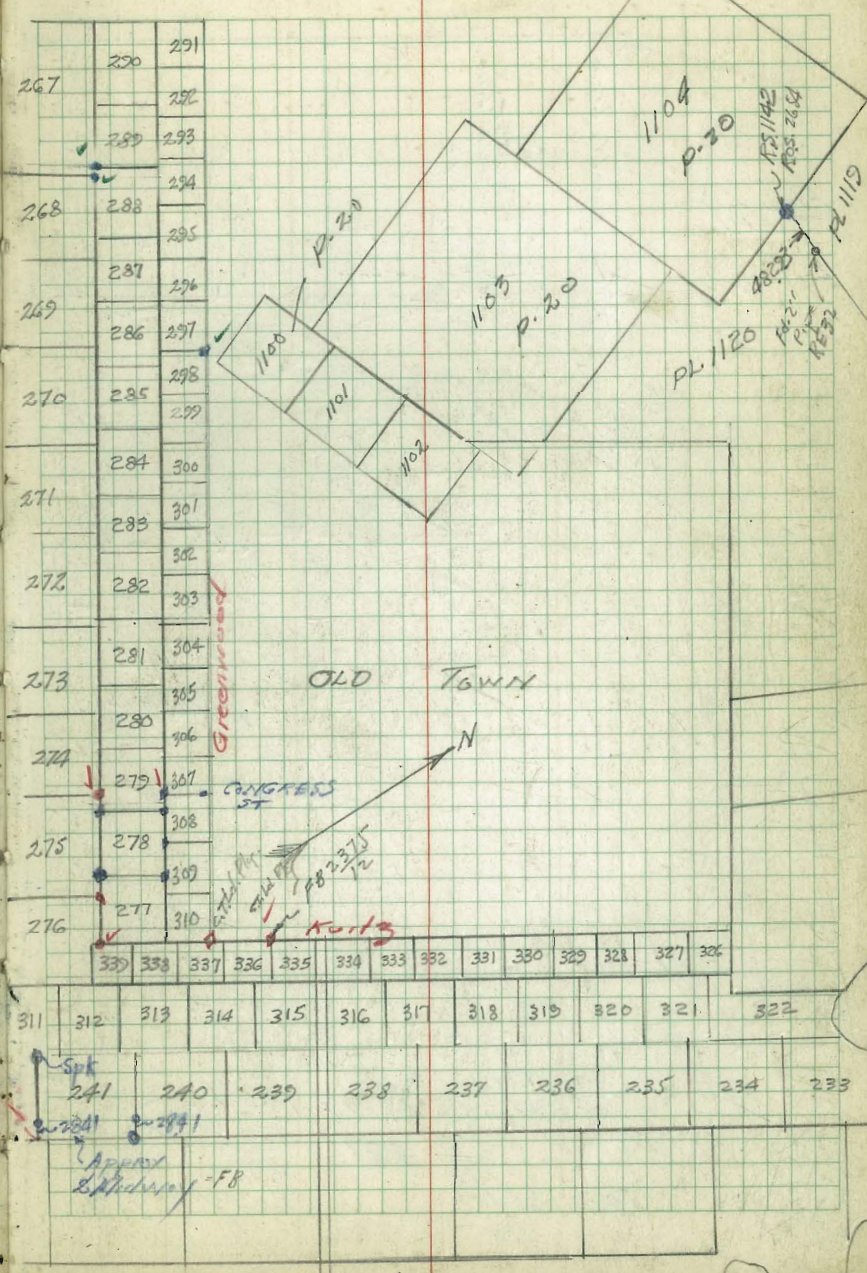
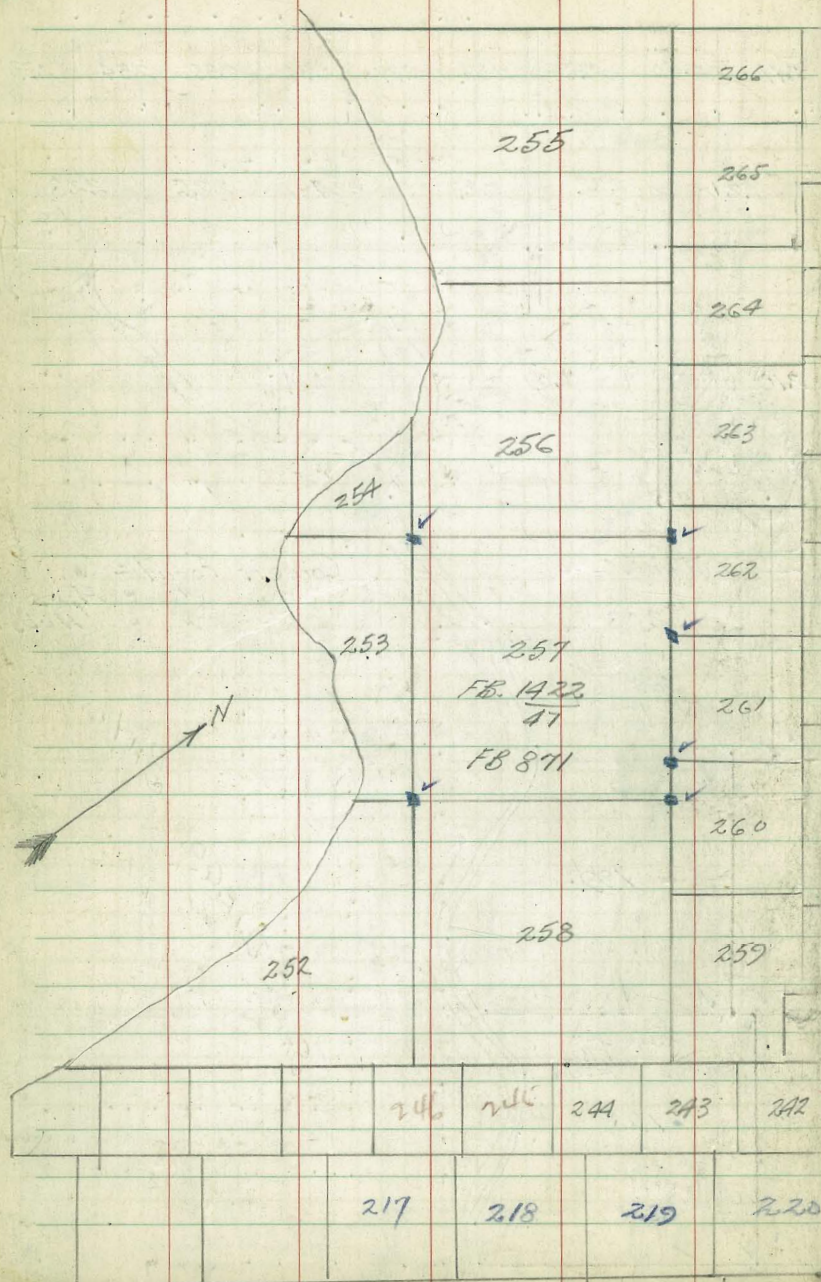
TIES TO NE Cor Sec. 26

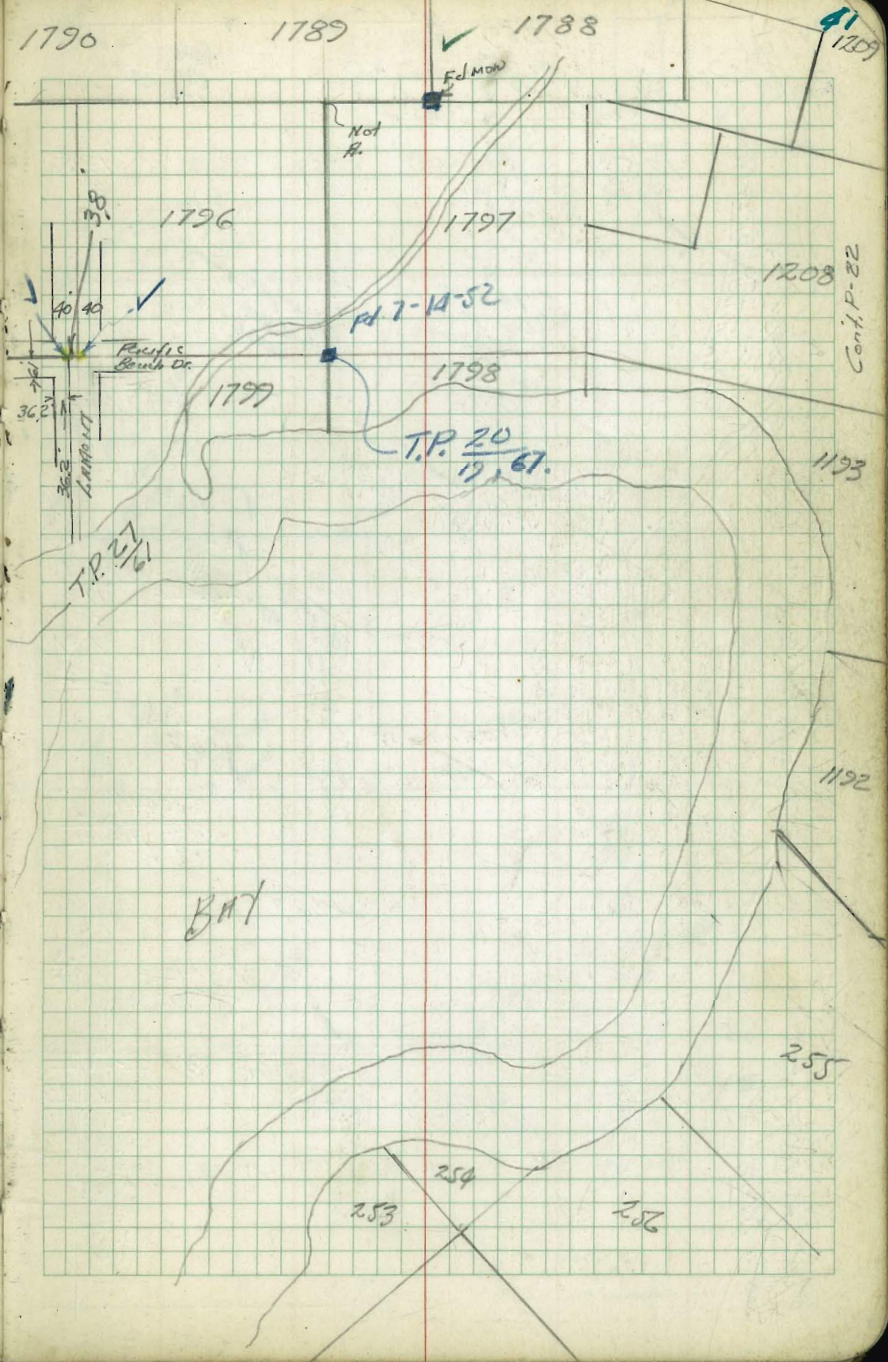
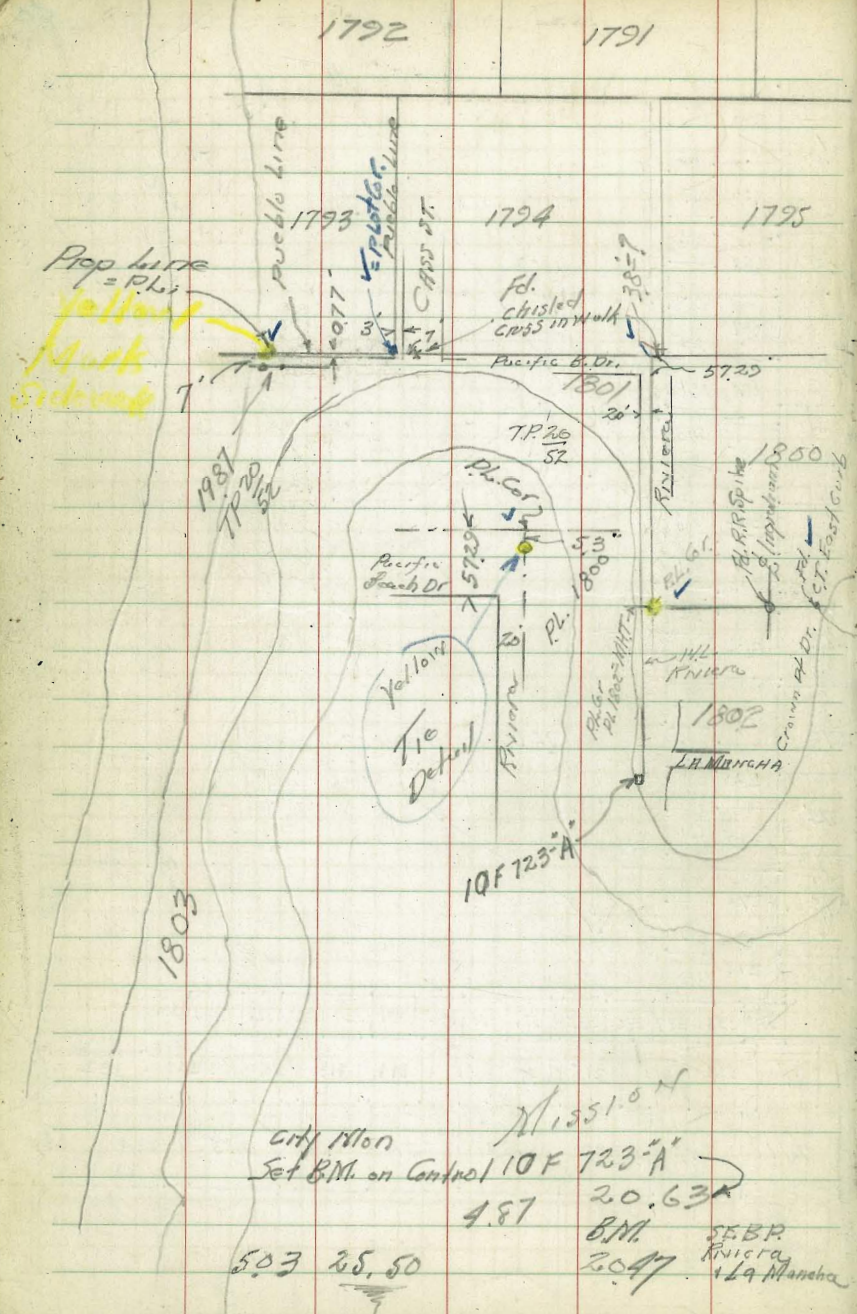
Walker
Hoffman
Bishop
4-18-52



T 15 S - R 3 W



AERIAL SURVEY

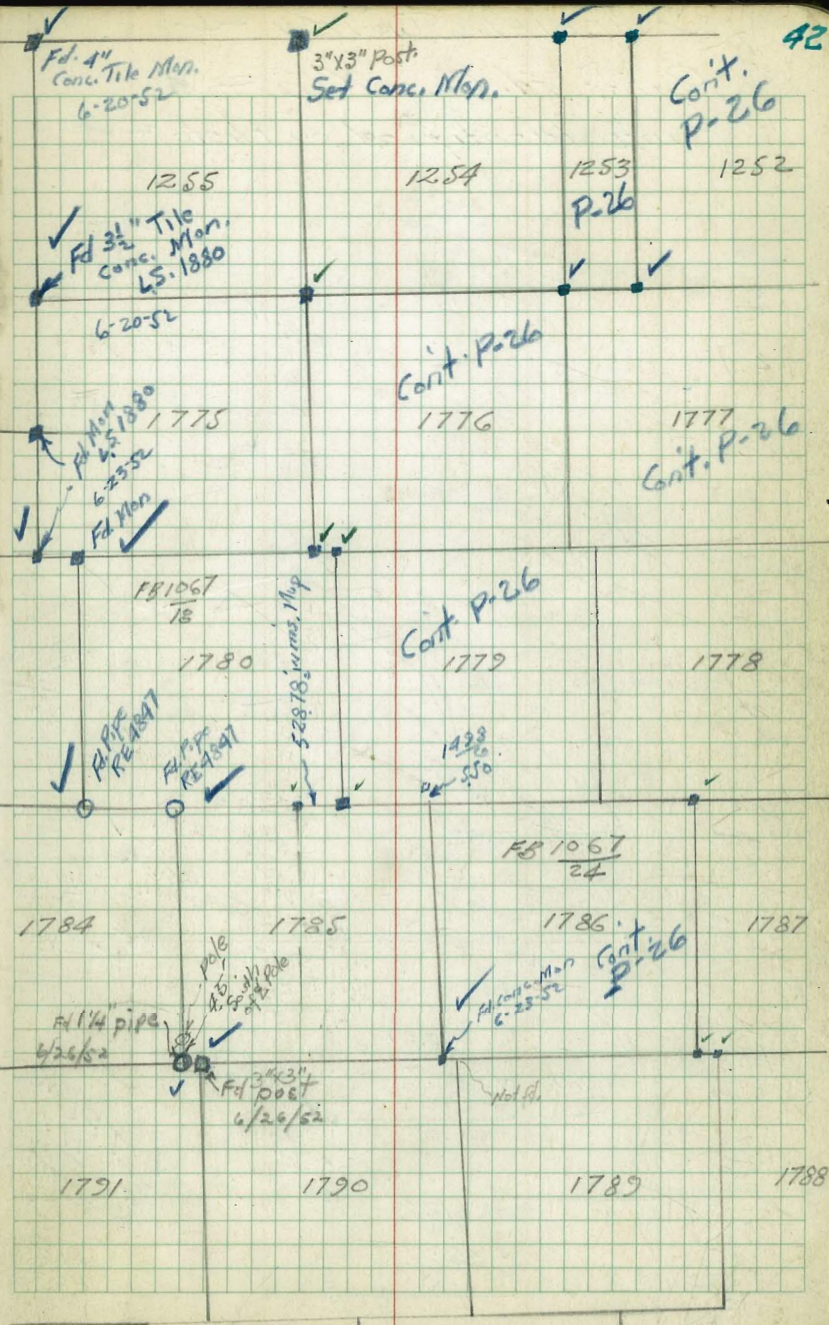
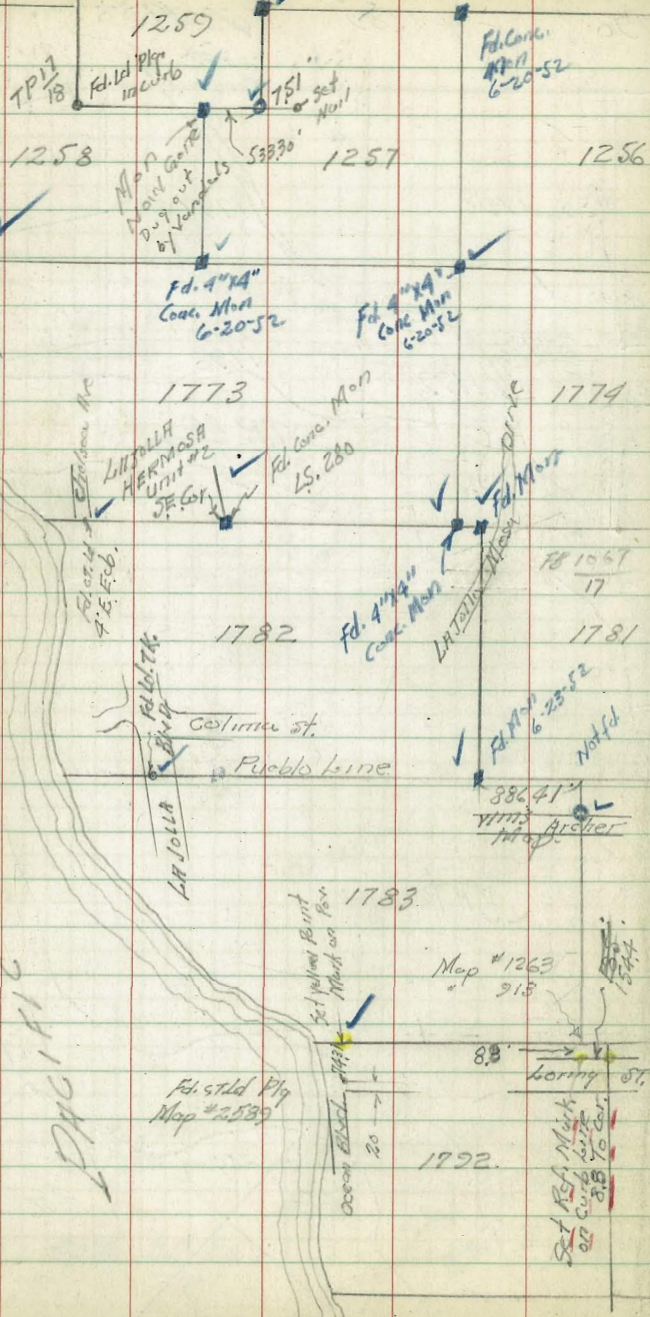




Points Identified
on Photo = 
Conc. Mon. = 

OCEAN

PACIFIC

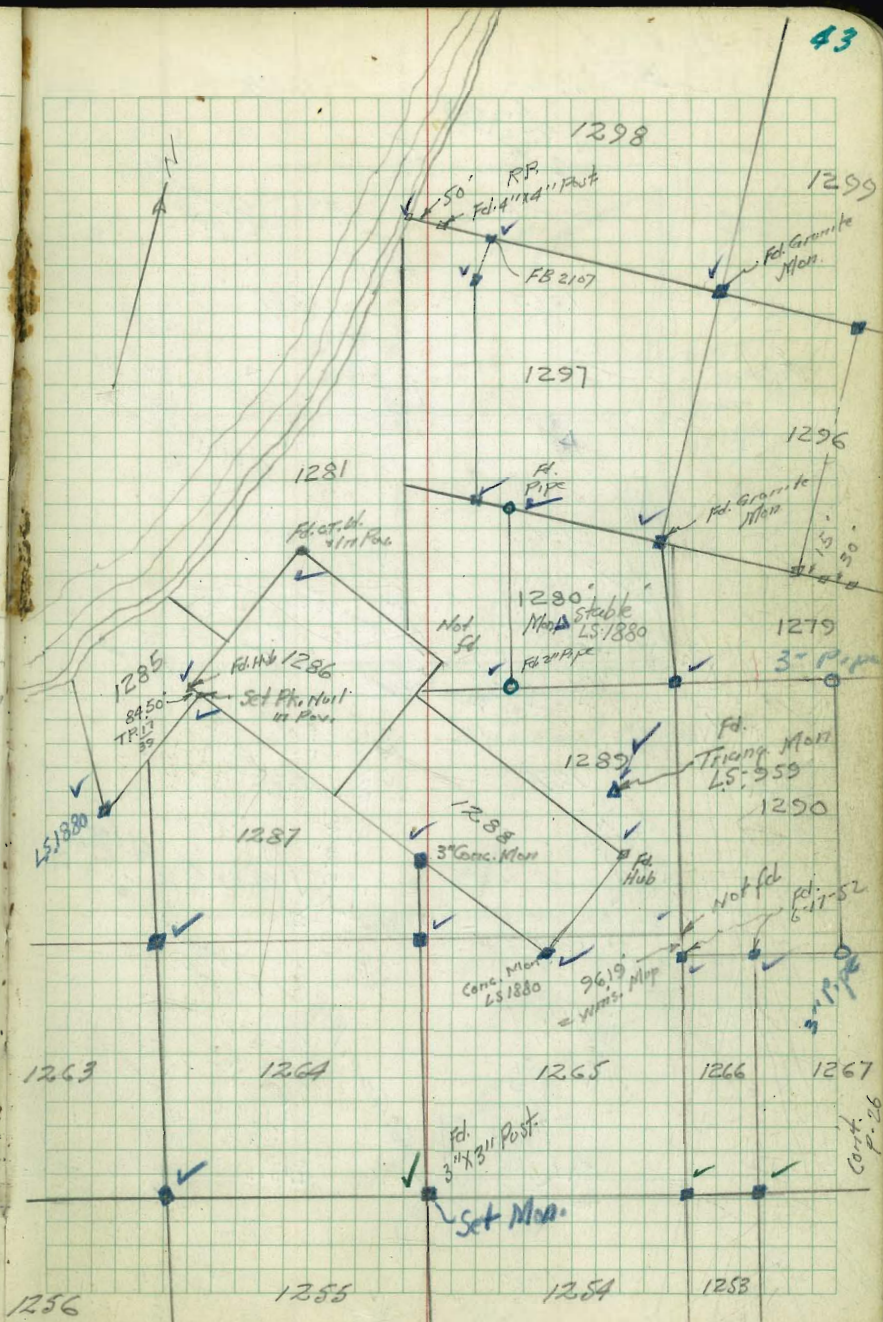
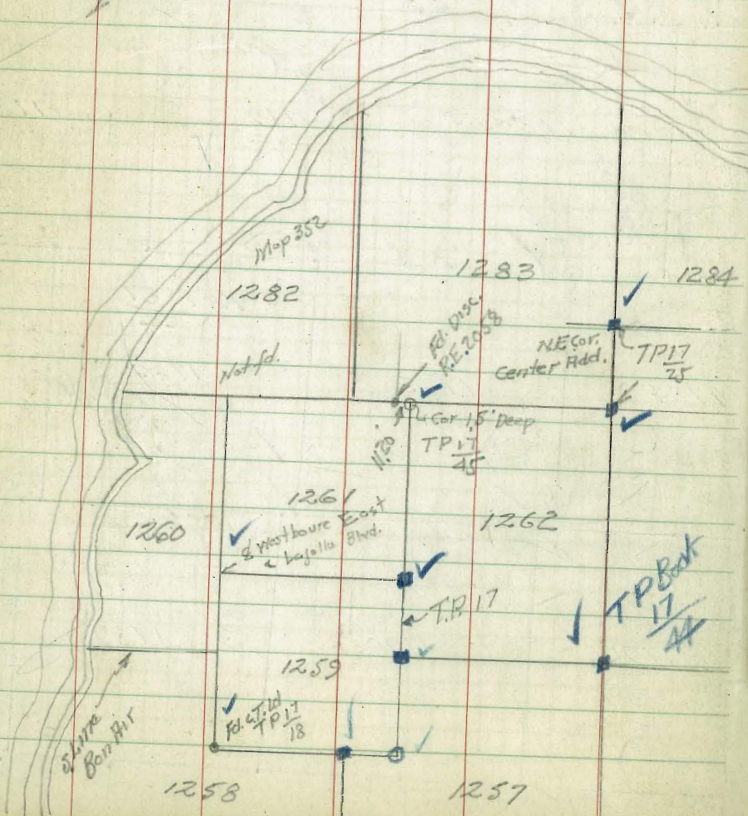


~ AERIAL SURVEY ~

Points Ft. Conc. Mon = ■

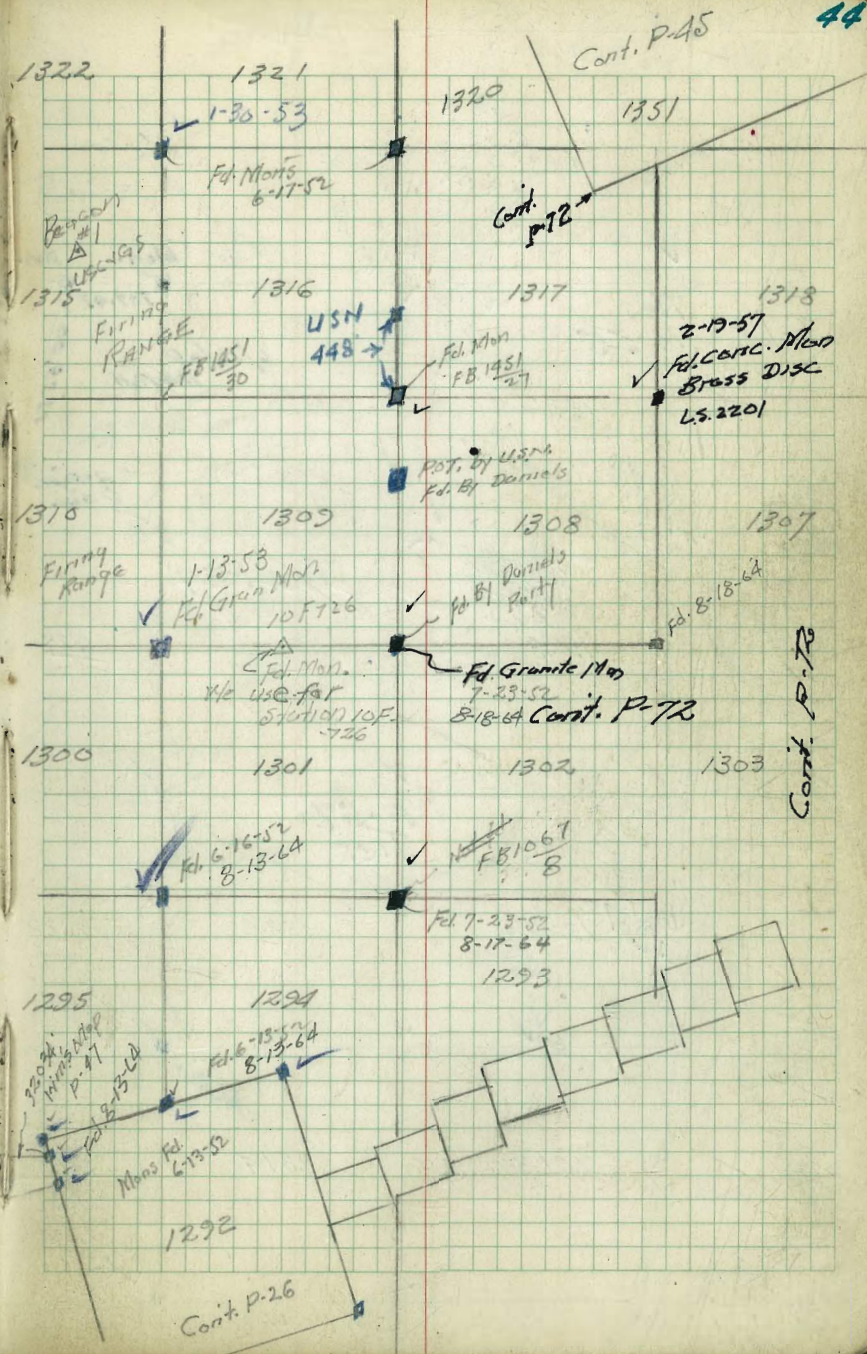
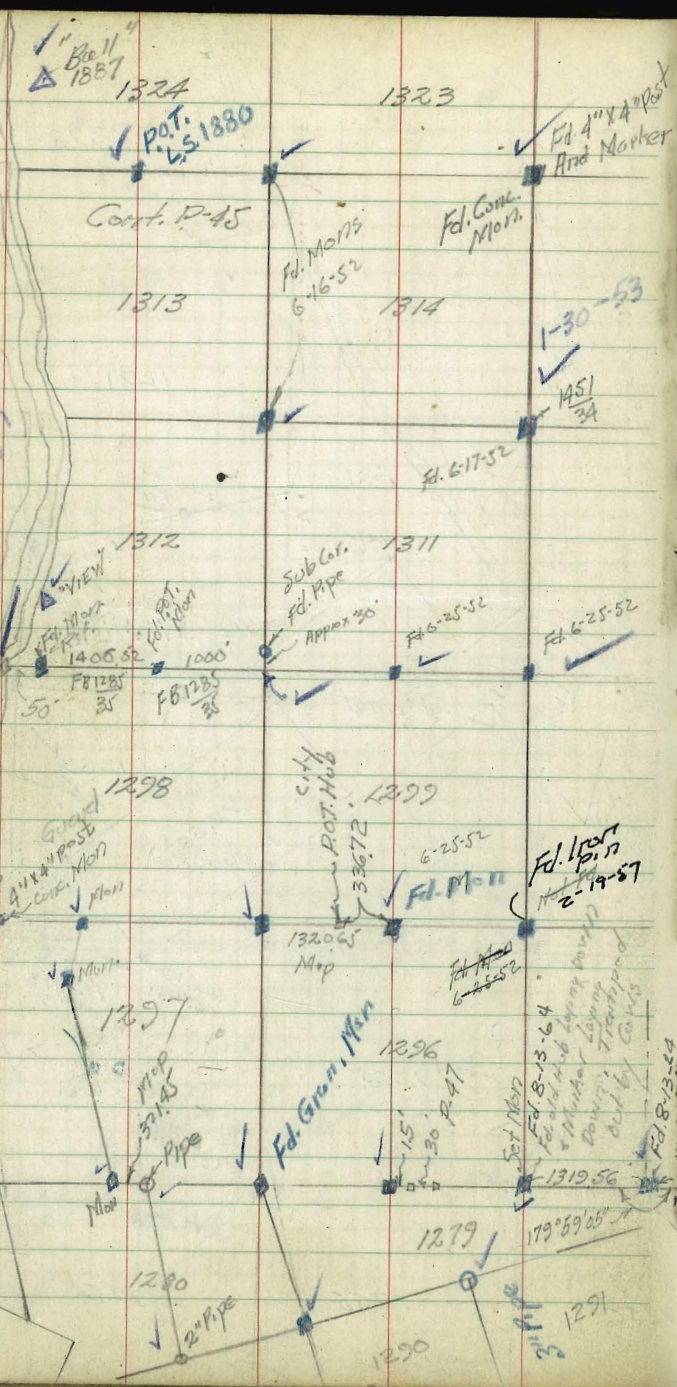
Points Identified on Photo = ✓

PACIFIC OCEAN



PACIFIC OCEAN

✓ = Prints identified on aerial photo 1-30-53



Cont. P-46

1332

1333

1334

1361

FB 1698-14
F. Prop. 6 4 1/2" 19"
11-3-52
Marker

Mon.

Mon.

707.47

6/16/60
HATCH

1331

1330

1329

2 1/2" pipe
& disc

Fd. US Govt.
Tranny. Mod. Hwy.

Ties P-57

Fd. Granite
Mon. 2' Deep.
Set Mon. in
Top.

1325

1326

1327

P-57
Ties

Not in

Box 11
1887

1324

1323

1322

1-31-53

Fd. 2 1/2" 14"
Post
& Marker

Fd. Man

1313

1314

1315

Cont. P-44

✓ = Identified on Aerial Photo 45

Fd. 1 1/2" Iron Pipe
L.S. 23/8
FB 1778
2

1360

FB 1698
8

1359

1358

1748.80

Mon.

1-30-53

FB 1698

FB 1498

1357

1328

Fd. 2 1/2" x 3/8"
Galv. Pipe
& DISC.

Fd. 1 1/2" 24"
Post

Mon.
10F-727

1321

Fd. Mon. 2 1/2" 19"
Notes.

Fd. Hub per wire
Set 1 1/2" x 3/8" Galv. Pipe
with Cement & DISC.

1356

1320

FB 1698

1351

1353

1352

Cont. P-73

1316

1317

1318

Cont. P-44

WIND LINE

WIND LINE

18.60
F. Granite
Mod. 3
1067-3
F.B. 1329-14

TRIP
TRIP'S CITY BOUNDARY

2-19-57
F. Granite
Mod. 3
DSD #3

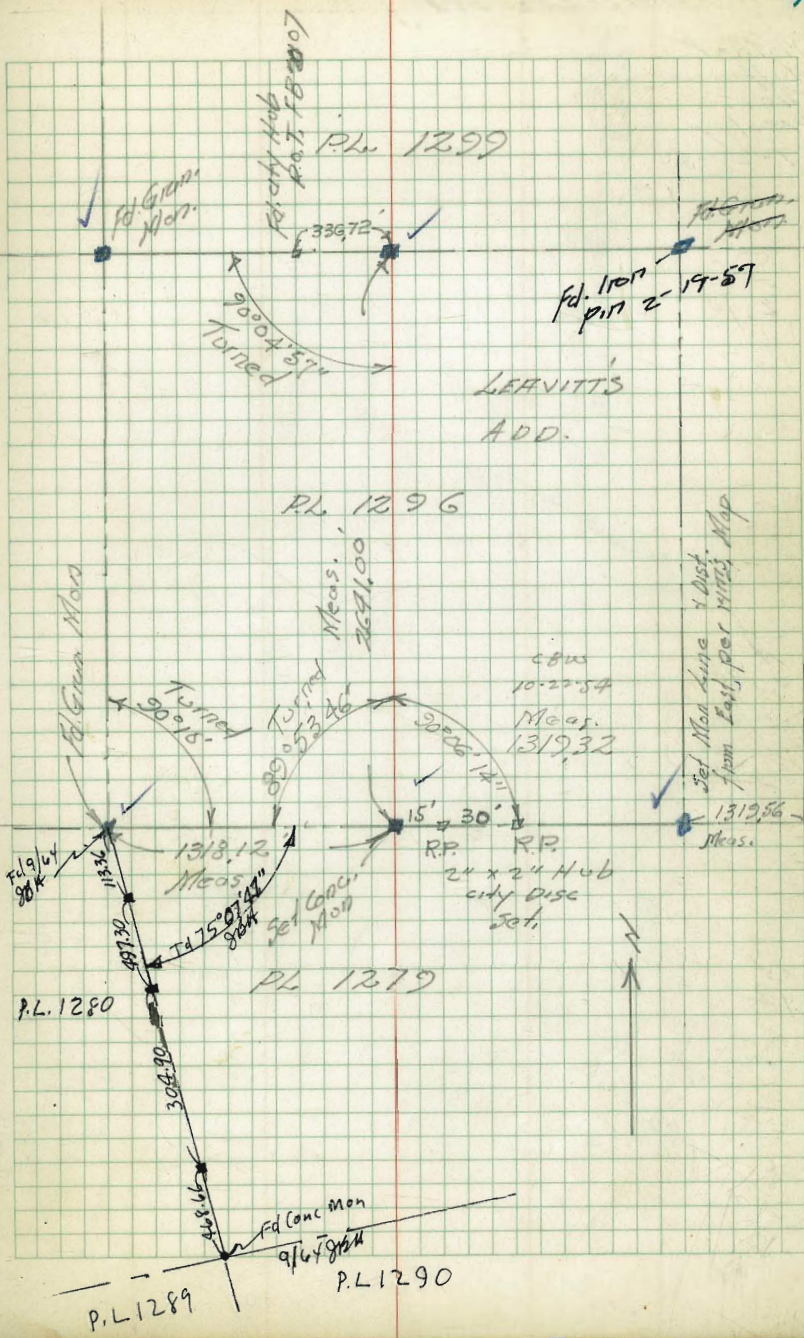
AERIAL SURVEY

Set Conc. Mon
54. Cor. Leavitt's Add.

Walker
Pope
Hoffman
Presley
6-30-52

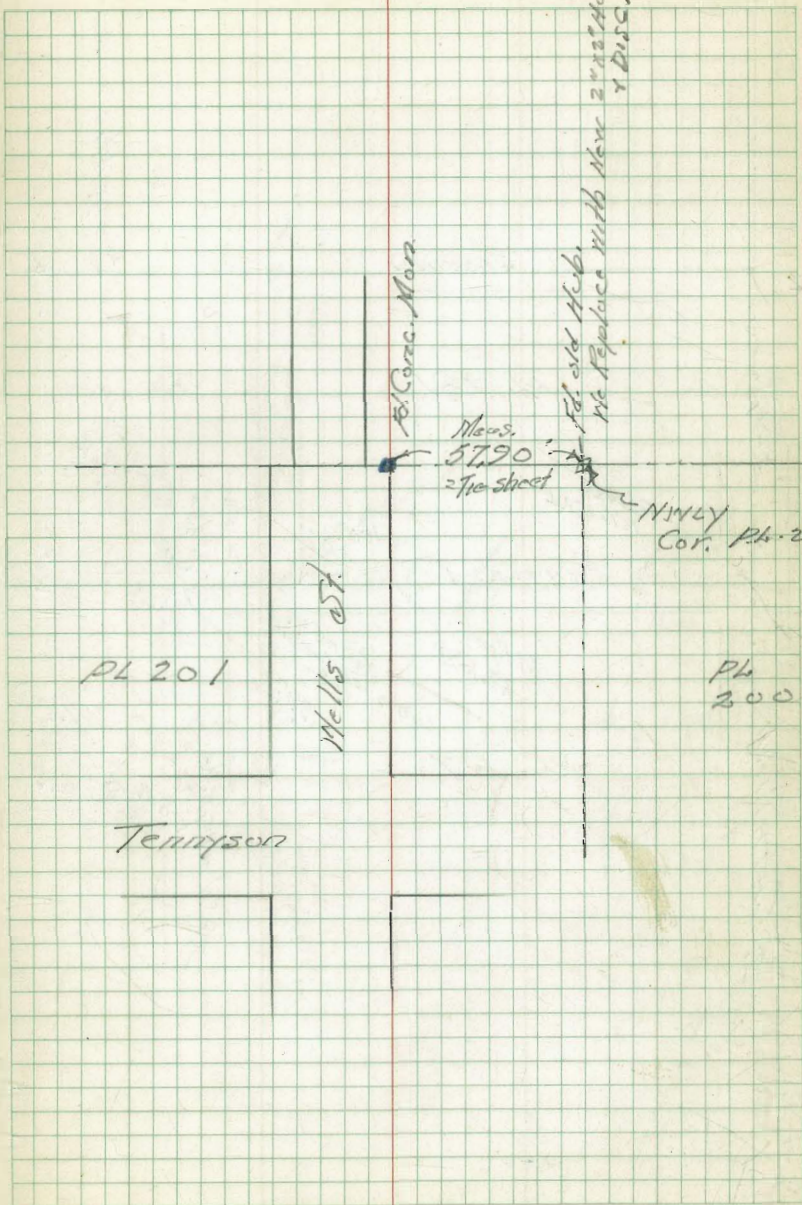
P.L. 1298

v = identified on Photo



Aerial Survey

Walker
Huffman
Mott
Preston
7-28-52



PL 201

Wells St

Tennison

PL 200

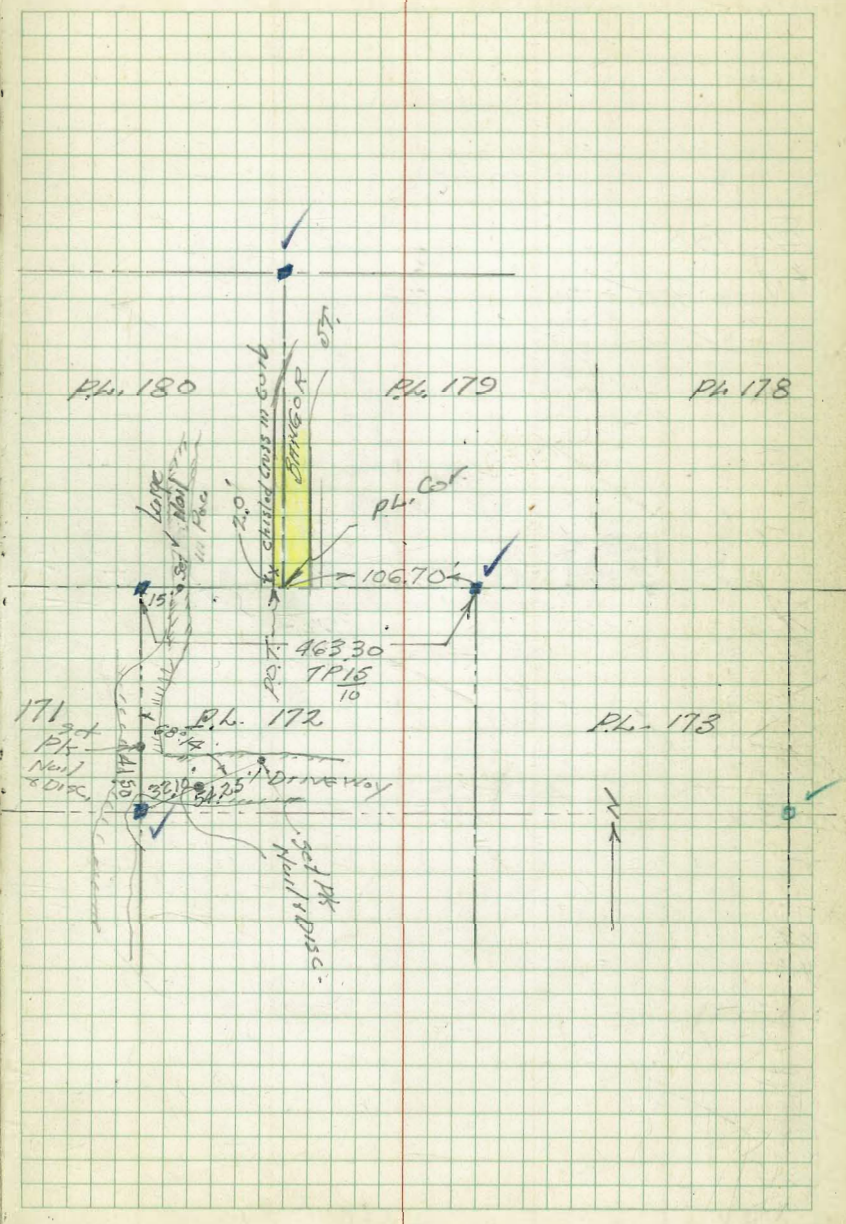
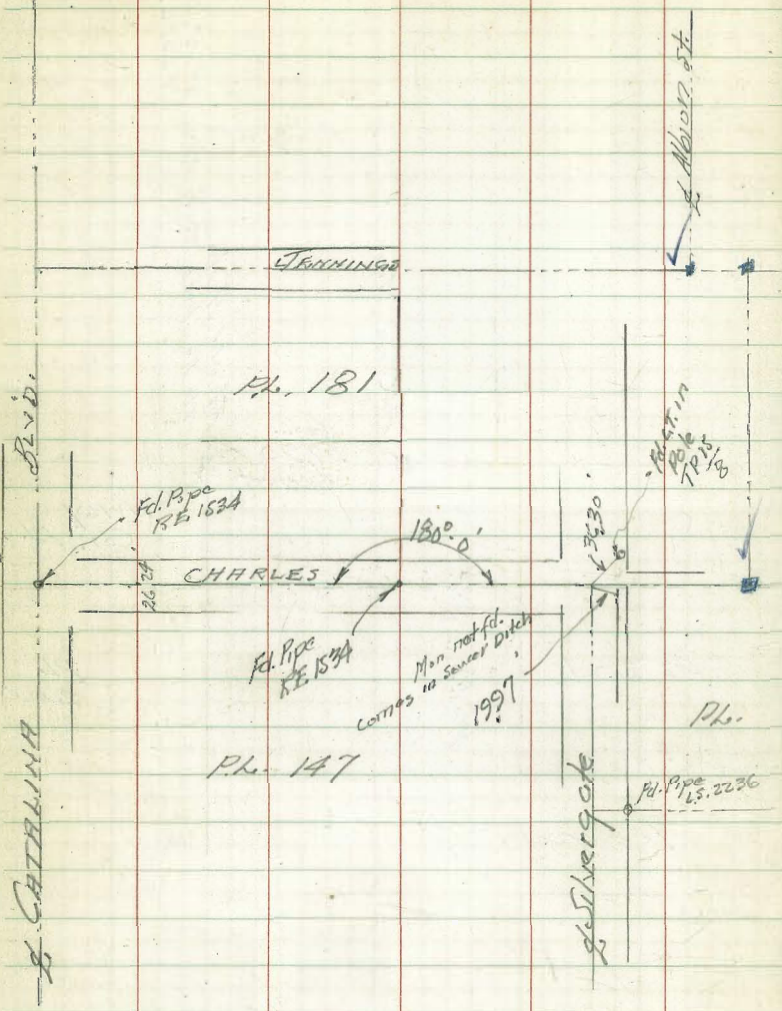
To Conc. Man

Meas. 37.90' = Tie sheet

NINLEY Cor. Ph. 200

Ed. old Hub. We replace with New 2' x 2' x 2' DISC.

Aerial Survey



VALEMONDIT

Fl. Iron Pipe

Pl. 190

Pl. 189

TP 15
18

54173
ST.

TALBOT

TP 26
14

Pl.
183

Pl. 184

Actual Survey

50

Fl. Iron Pipe

Pl. 188

200.57'

20° 03'

379.50

155.17'

TP 20'S
TALBOT 779.76

Set Iron
disc

TP 15
20

Set Iron
disc

67'

Set Iron
disc

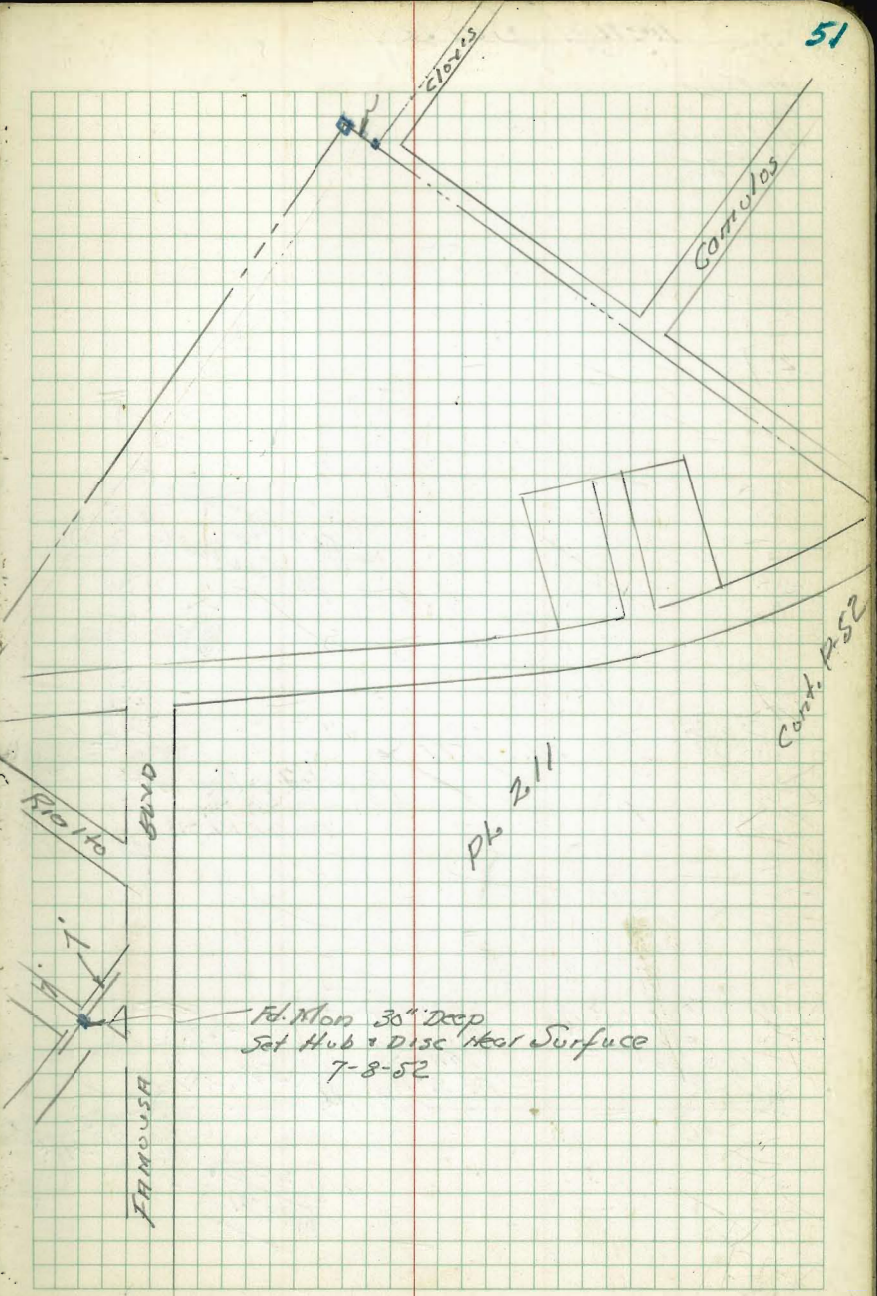
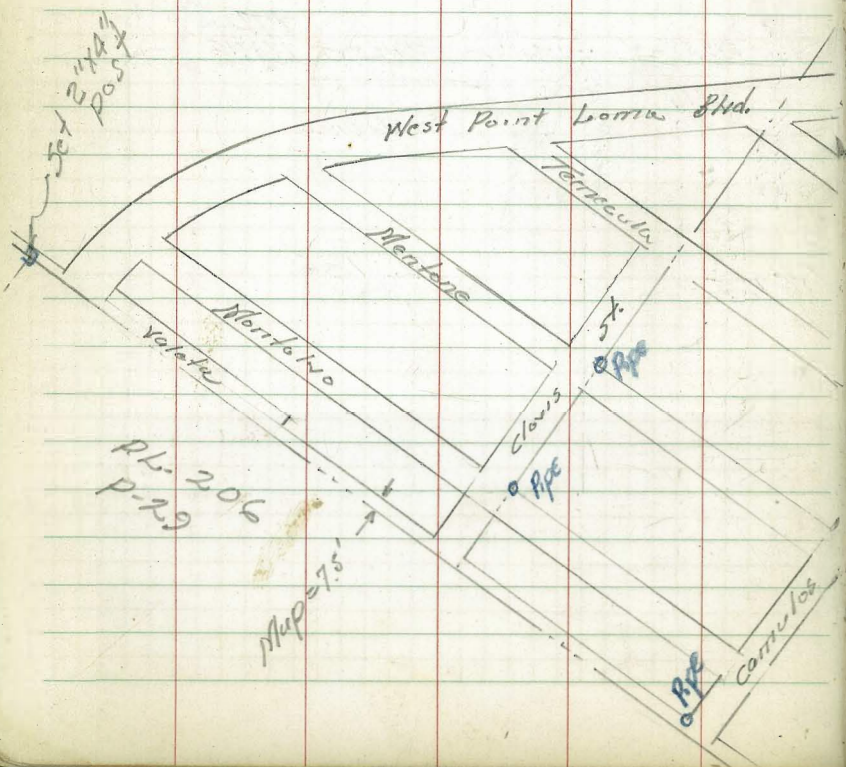
Set Iron
disc.

Set checked Cross to Conc. Pt.

Pl. 185

Pl. 186

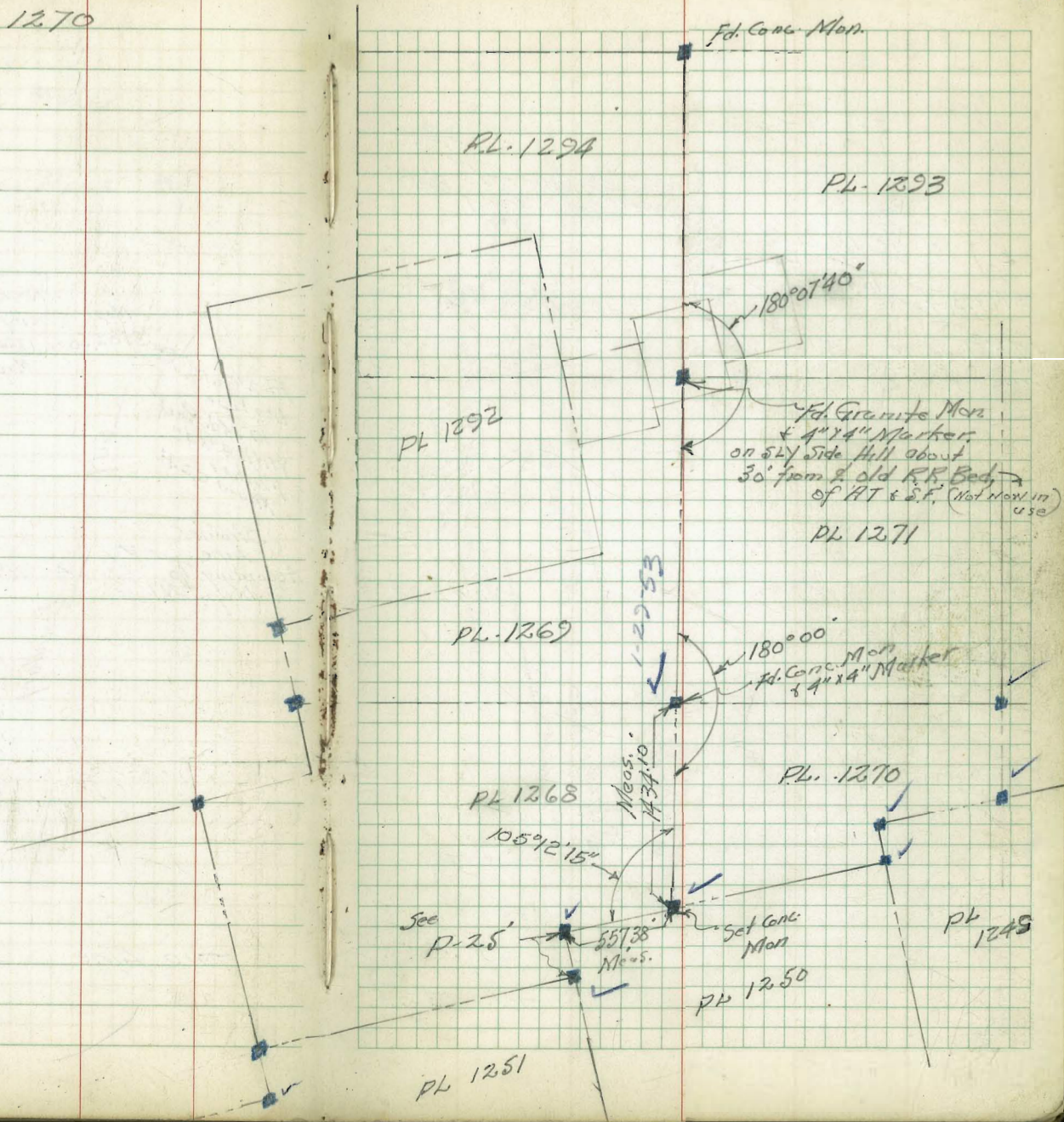
Aerial Survey



Actual Survey.

Set S.W. Cor. Pl. 1270

Mulker
Pope
Huffman
Presley
8-12-52

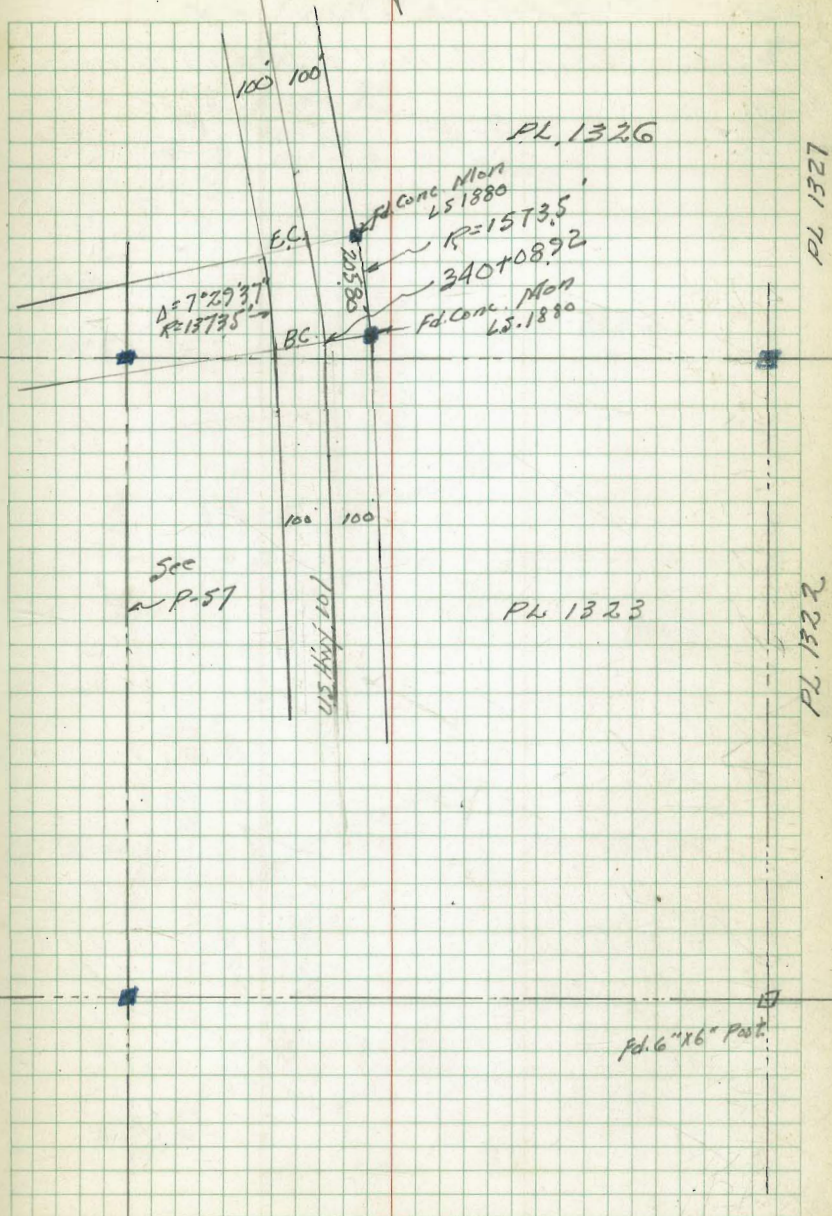


AERIAL SURVEY

PL. 1325

PL. 1324

Sec
P-57

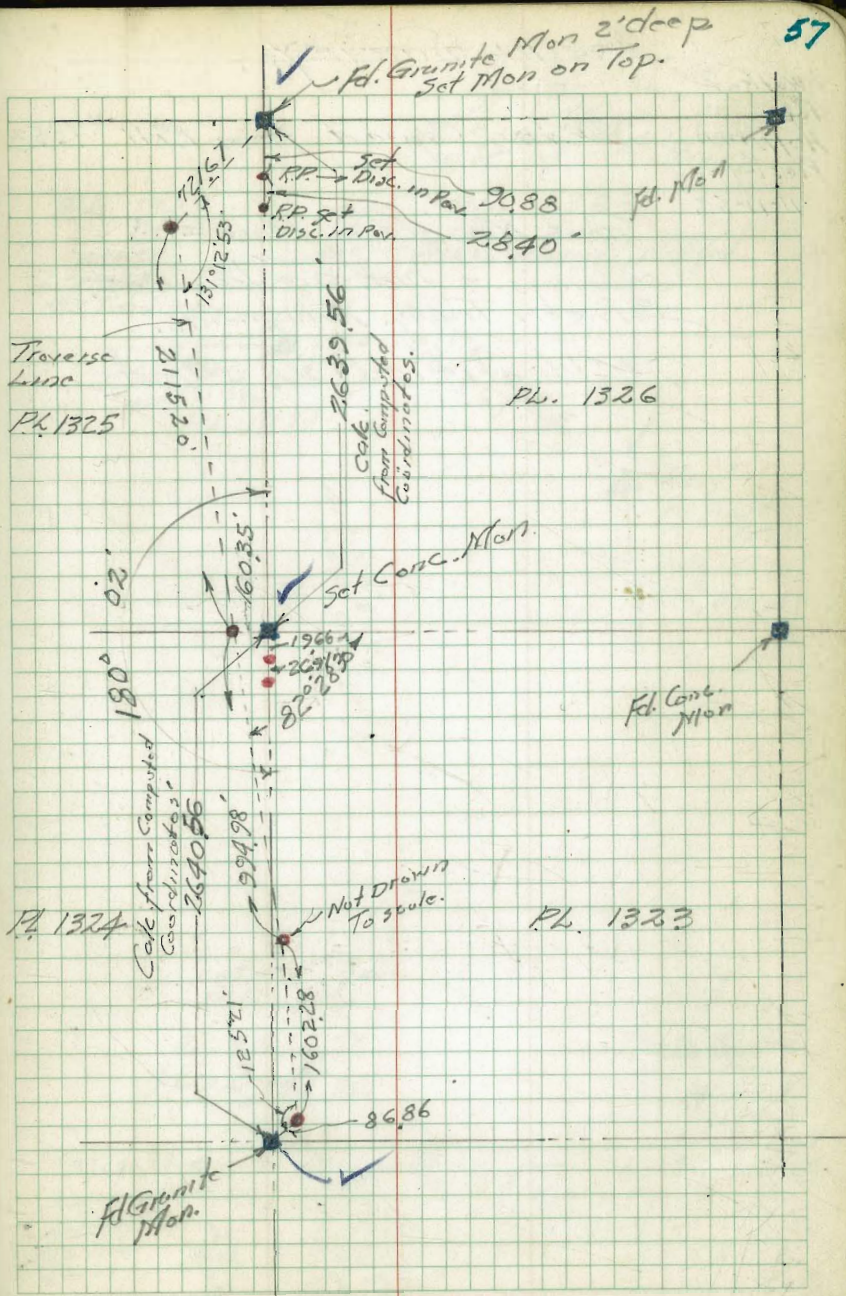


TRAVERSE TO Set S.E. Cor. PL. 1325

Walker
Pope
Huffman
Presley,
11-11-52

AERIAL SURVEY

• = Set Pk. Nail & Disc. in Paving



AERIAL SURVEY

Walker
Rope
Huffman
Presley

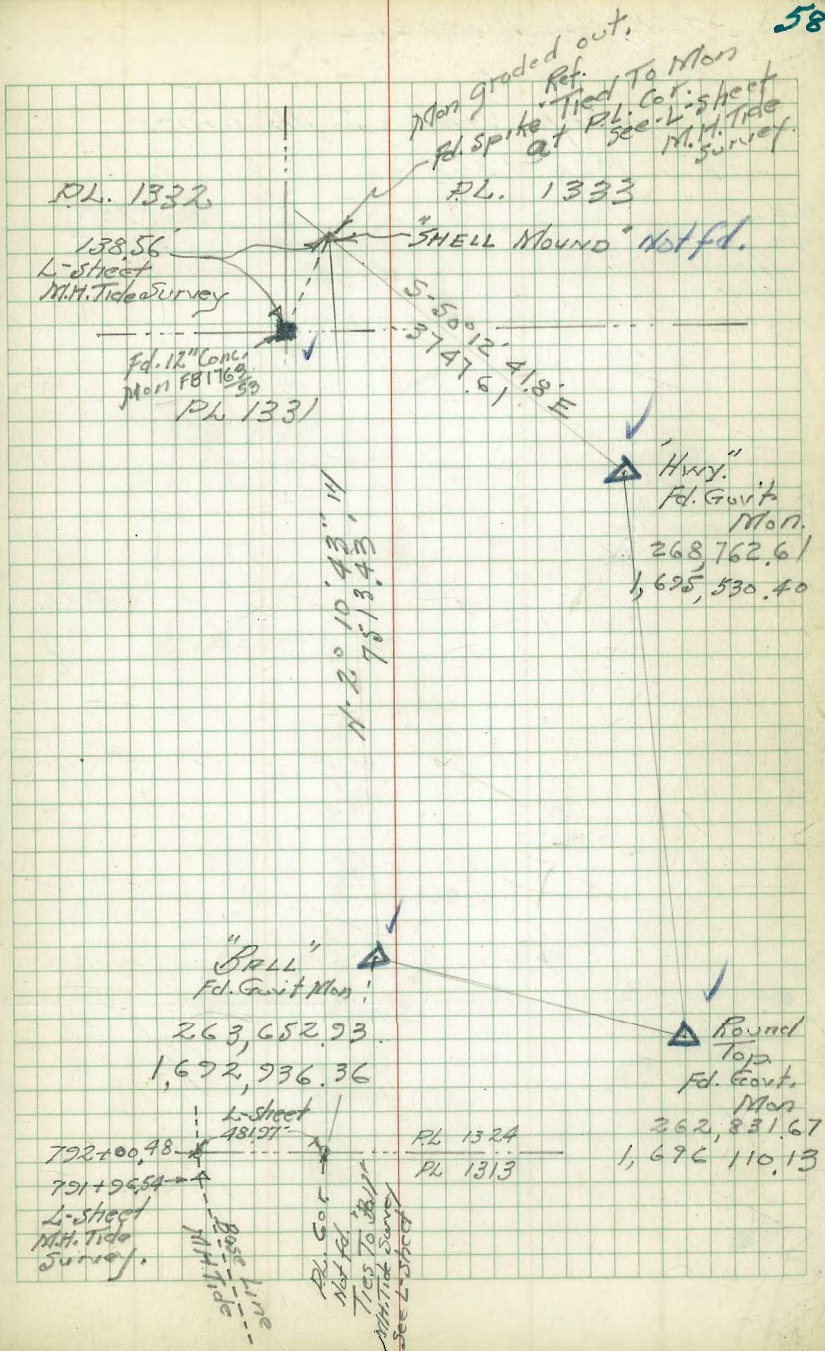
11-11-52

Data Copied from Roll # 7353

Gov't Mon. Fd. in Place = \triangle

Bearings & Dist. are Lambert,
Between Triang. Monuments.

\checkmark = Identified on Photo

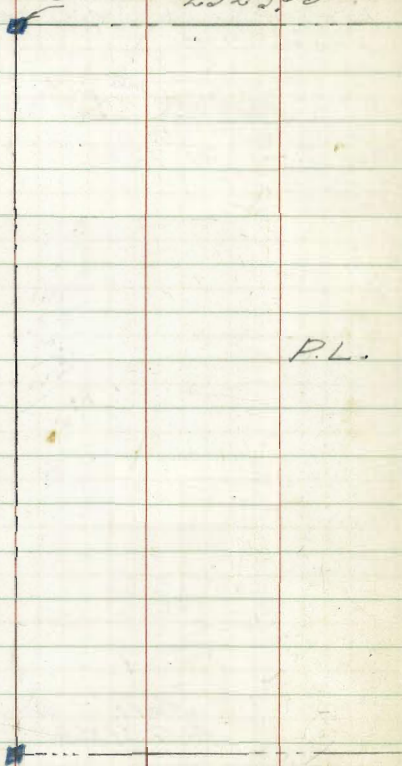


AERIAL SURVEY

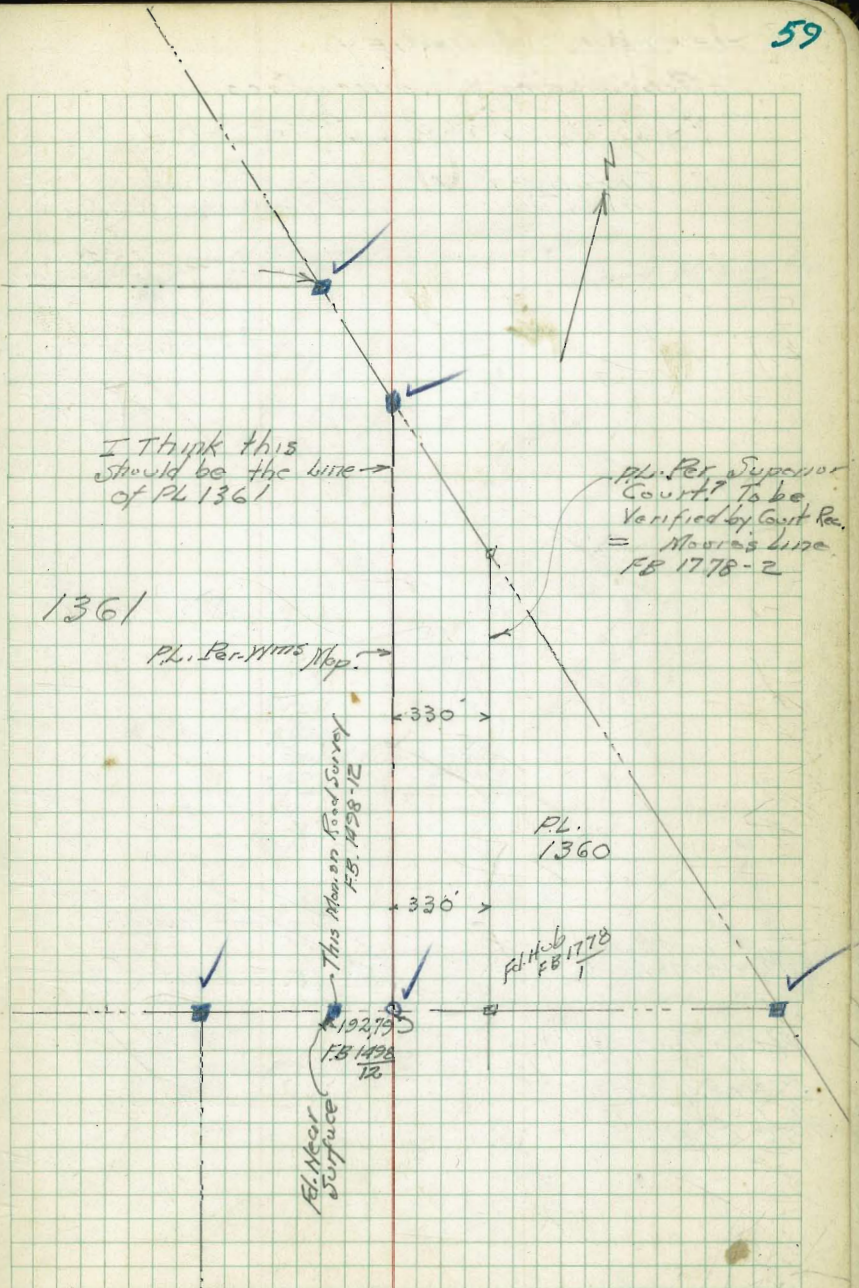
Please Check Court Records
To Verify North & South Lines
Pl. 1360, 1361,

Walker
Pope
Hoffman
Presley
11-14-52

FB 1778-1
252355



P.L. 1361



I think this
should be the line
of PL 1361

Pl. Per. Superior
Court? To be
Verified by Court Re.
= Master's Line
FB 1778-2

Pl. Per. Wms Map.

330' >

330' >

PL. 1360

This Map on Foot Survey
FB 1498-12

19279
FB 1498-12

Pl. Per. FB 1778-1

Pl. Near
Surface

AERIAL SURVEY

Sketch showing discrepancies
in Williams Map and his
Original Field Notes

Distances and Angles Underlined
in Red are, we believe the correct ones.

Wm's Station
23+62.35

6" x 8" Post
Set cap Disc
in Post

NEW ROAD
US 101

Ending Young Old Road

Use this line
for st. with line
PL 1340

PL. 1340

Calc. from Wm's
2200.68

Notes

Cross in Pacing
Wm's Map

3206

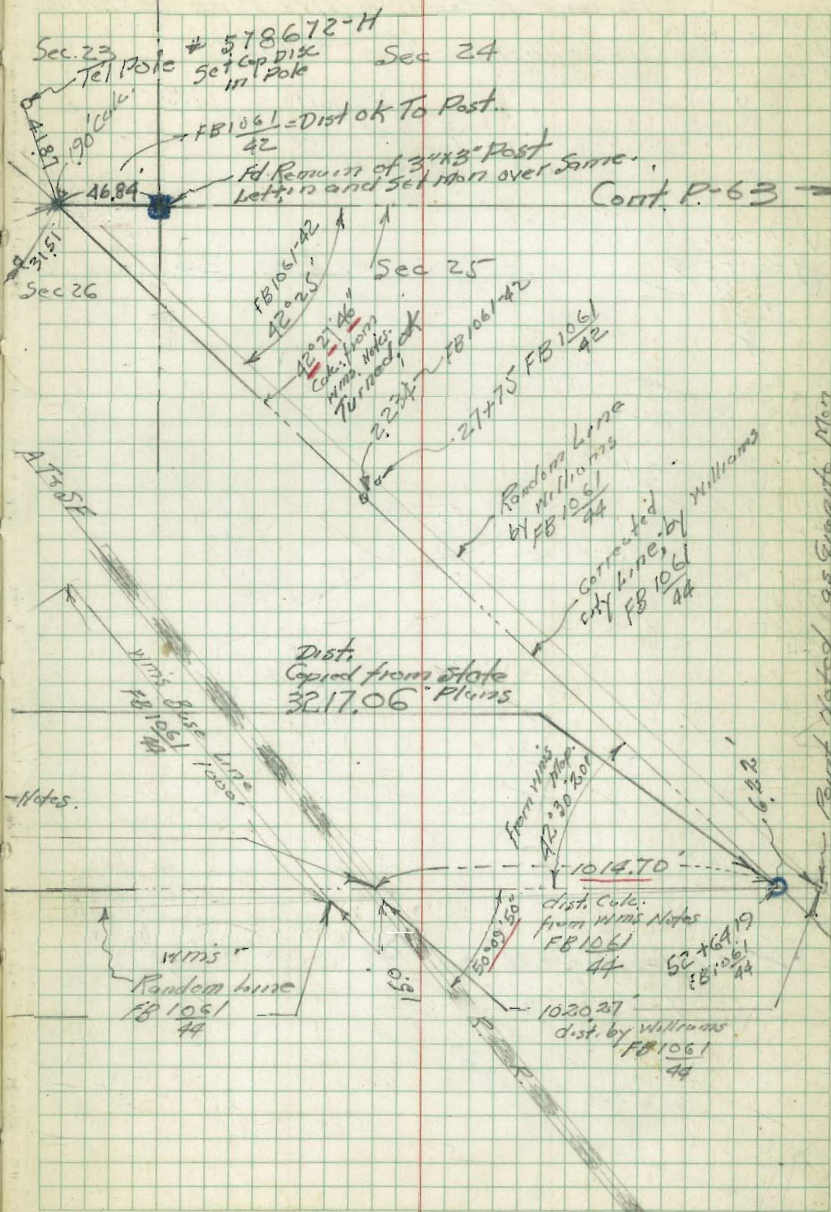
3206

Random
by Wm's.

Fd. Cop Truck Ld. Pkg.

470+82.63
State Plains.

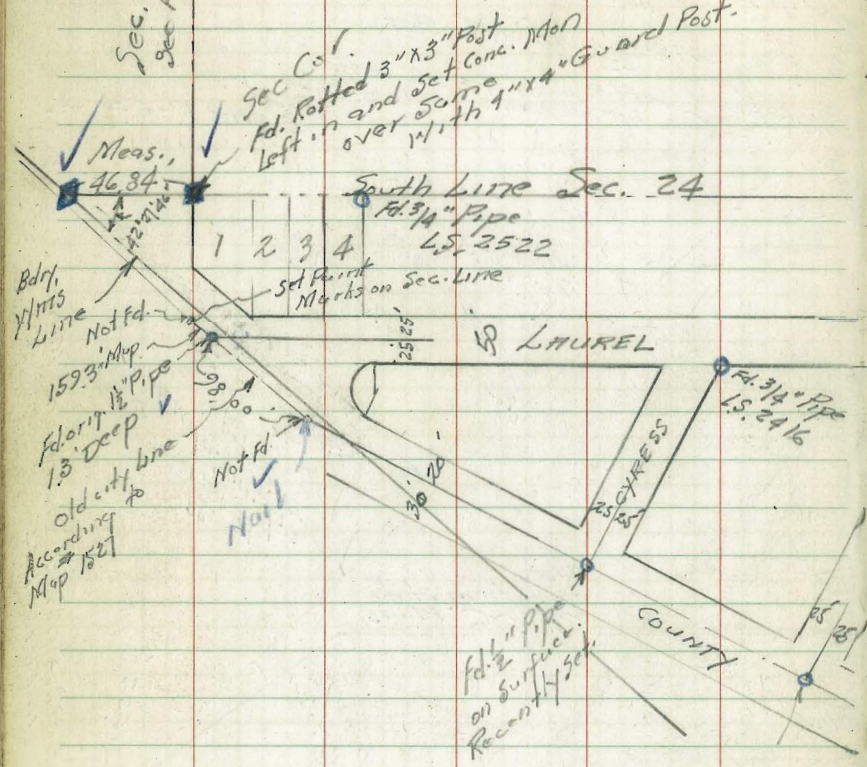
2186.33
Calc. from Wm's
Map.



AERIAL SURVEY

Walker
Pope
Huffman
Frost
11-18-52
Sec. 23
Sec. 65

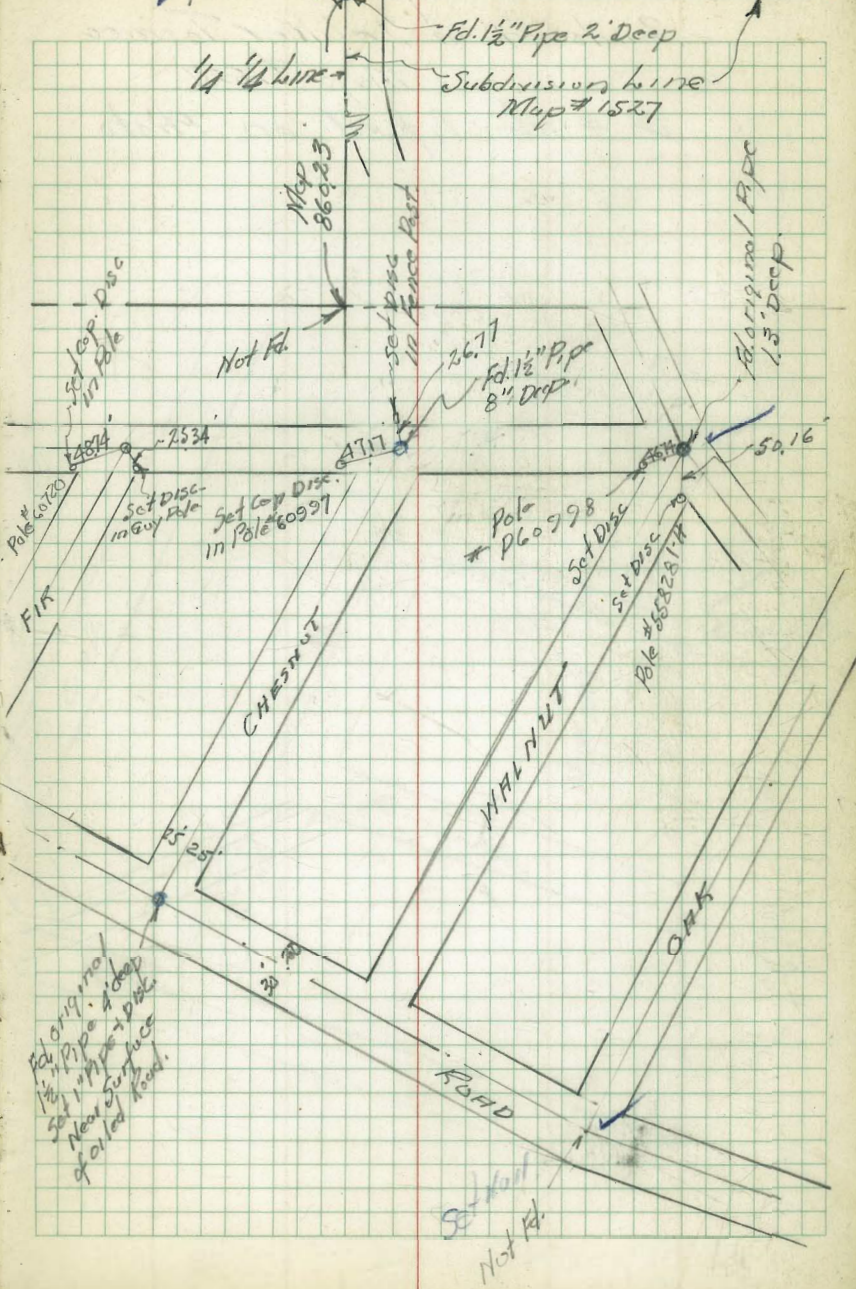
Points Found in DEL MAR TERRACE
Subdivision Map # 1527



✓ = identified on Photo
1-30-53

1 1/2\"/>

✓ fd. 3\"/>



fd. 1 1/2\"/>

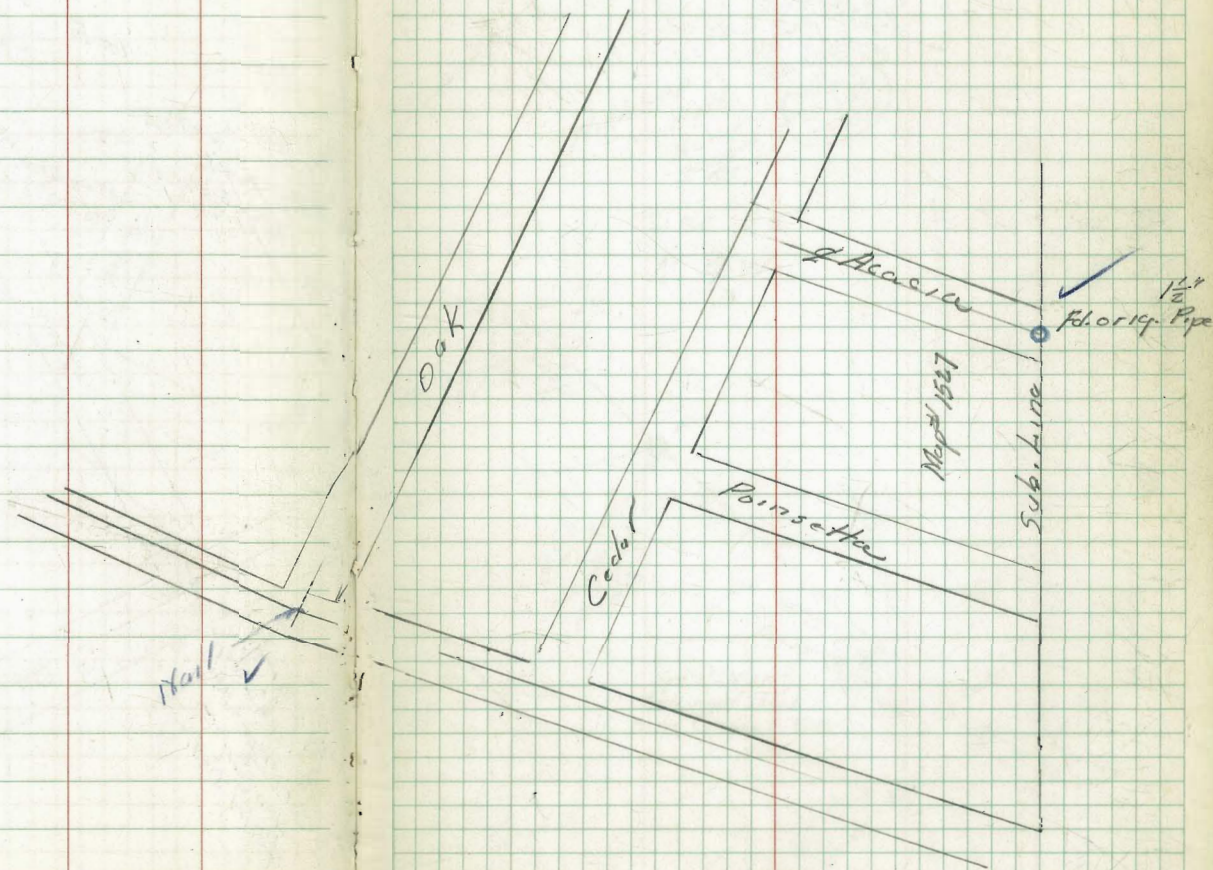
Set Nail
Not fd.

Aerial Survey

Points Fd. in Del Mar Terrace

Map #1527

✓ = identified on photo

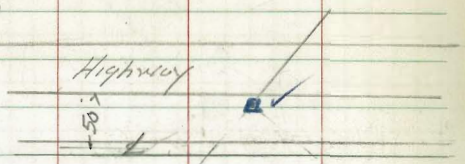


Aerial Survey

Points fld. in Sorrento MAP #483
For other Points fld. on Pueblo Lut. Coys.

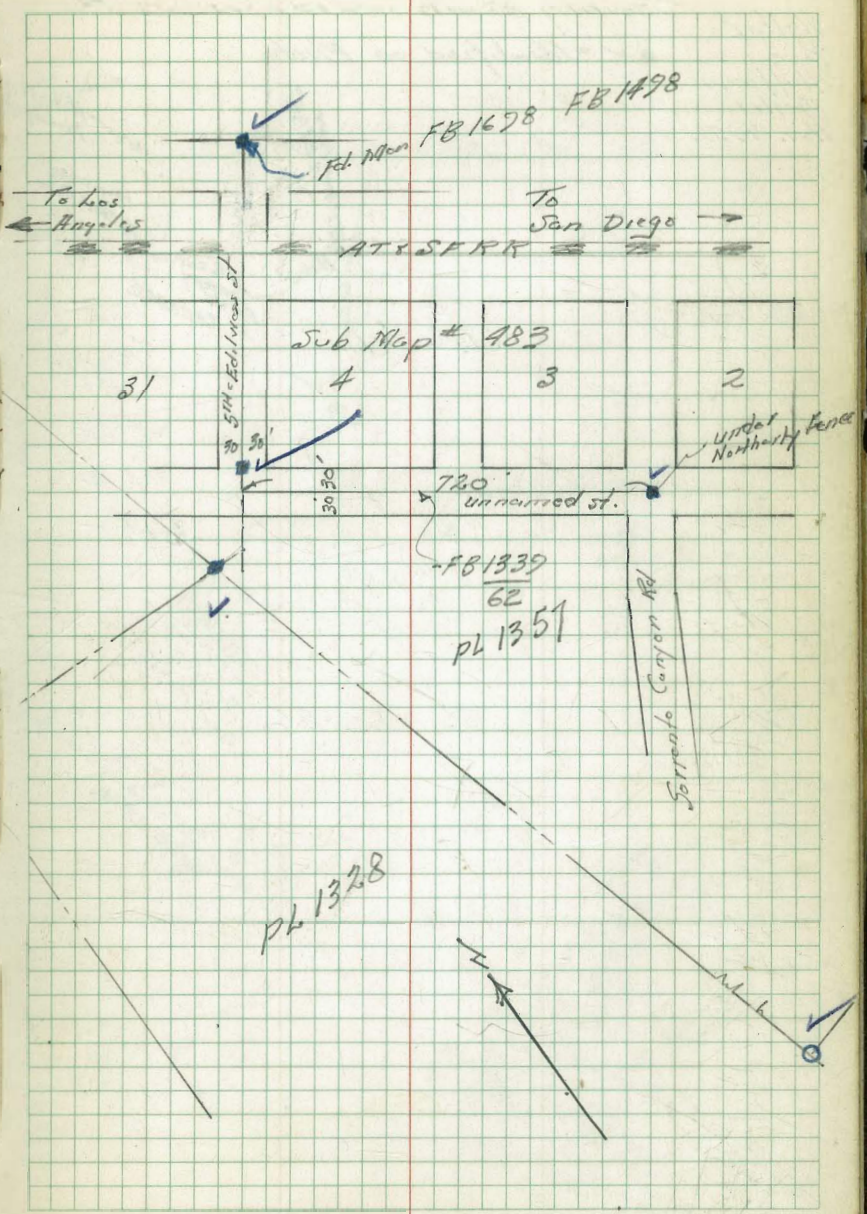
Walker see P. 45
Rope
Huffman
Pres. 11-28-52

✓ = Identified on Photo
1-30-53



PL 1329

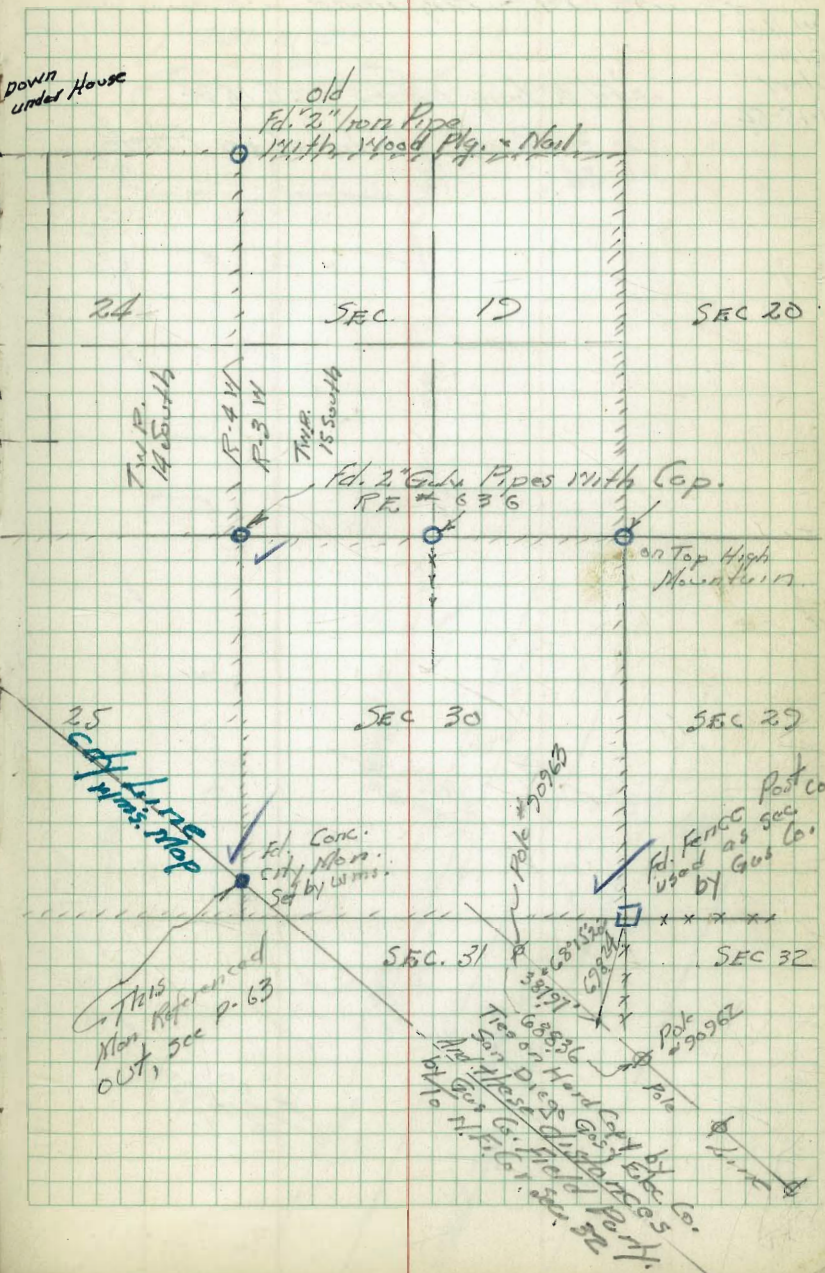
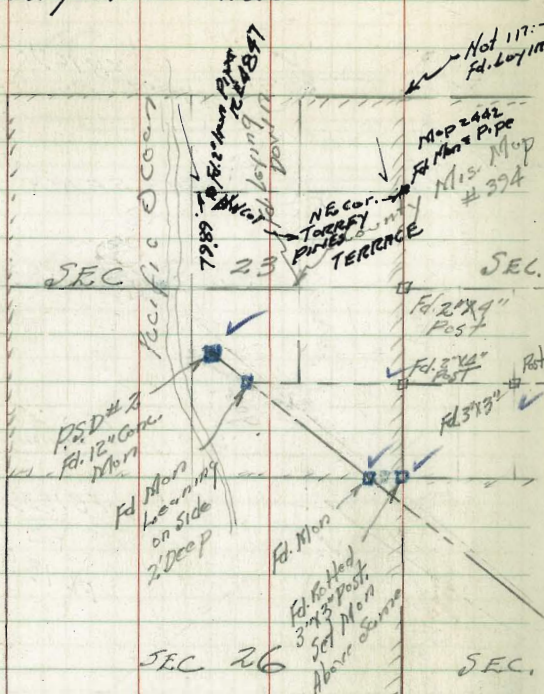
PL 1327



Aerial Survey

Walker
Pope
Huffman
Proctor
Nov. 1952

Showing sketch sections corners etc.
 • ✓ = Identified on Photo



Plans
Map Referenced
OUT, See P. 63

Top on Hand Cart by Elec. Co.
by Dies & Gas. Co. 5
No. N.F.C. 1. Sec. 32

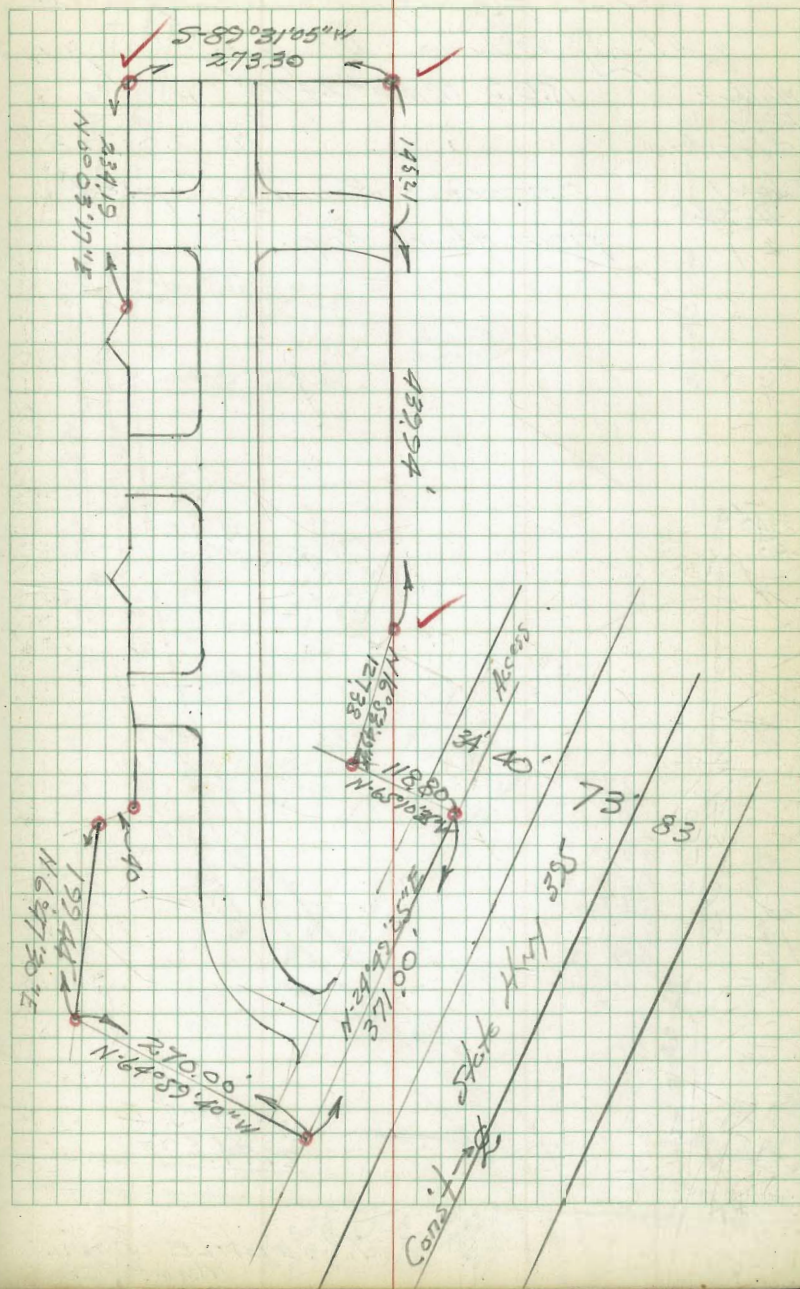
AFRICAL SURVEY

Points Ed. - Highland Mesa. Map #
Not Filed.

Walker
Oltman
Olw
1-15-54

o = Ed 2" Iron Pipes RE 1534

✓ = Points identified on Photo
3-6-54



AERIAL SURVEY

Points on city Boundary line
Along N. Line Murphy Canyon Rd.

Mulker
P.O.S.
Citation

R.O.S. MAP #2499

No 20718

Close
1-11-54

Distances & Bearings Copied
from Above Map.

128340
P-68

5° 0' 54" W
2550.5

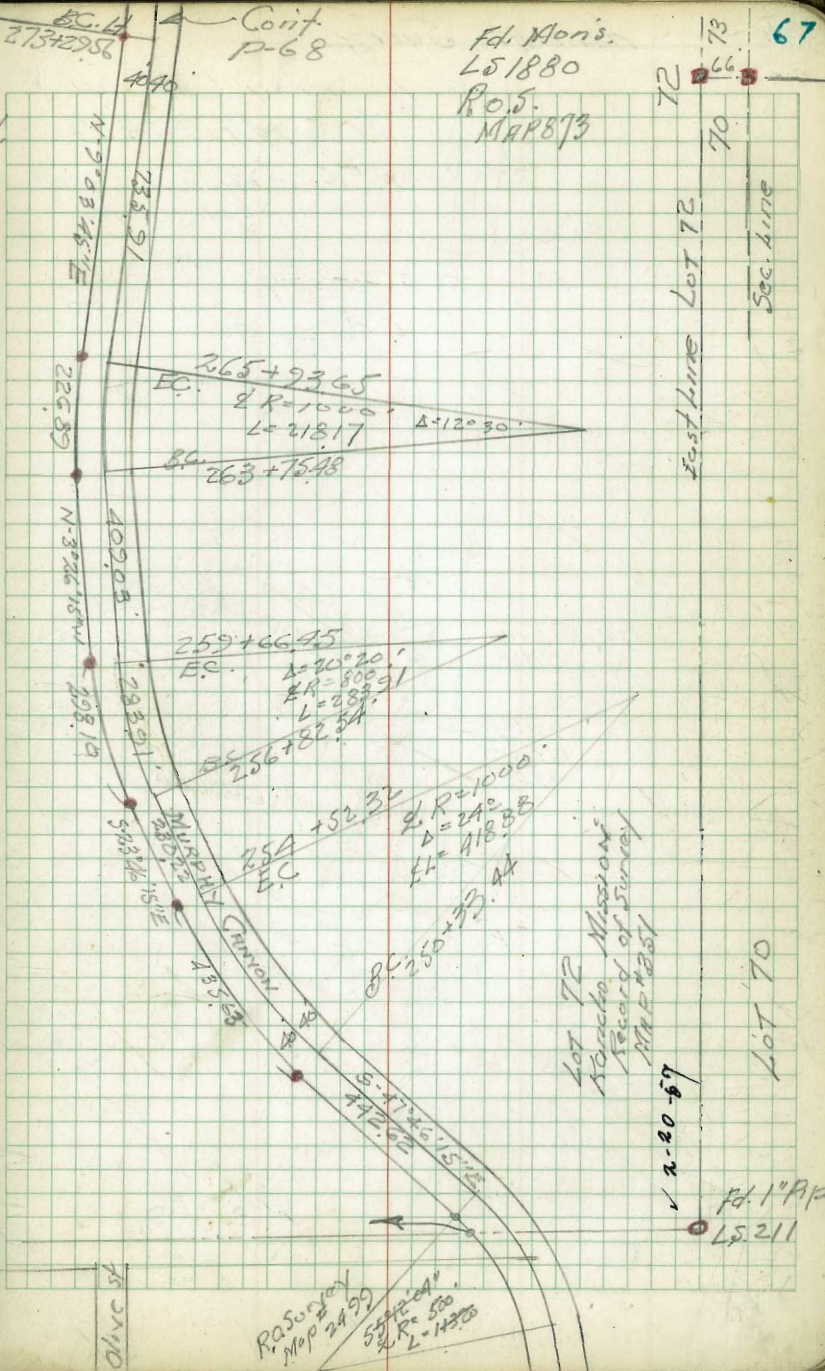


N 89° 05' E
2674.50'

ROSEDALE SUBD.
MAP # 826

Levee Ave

Oliver St

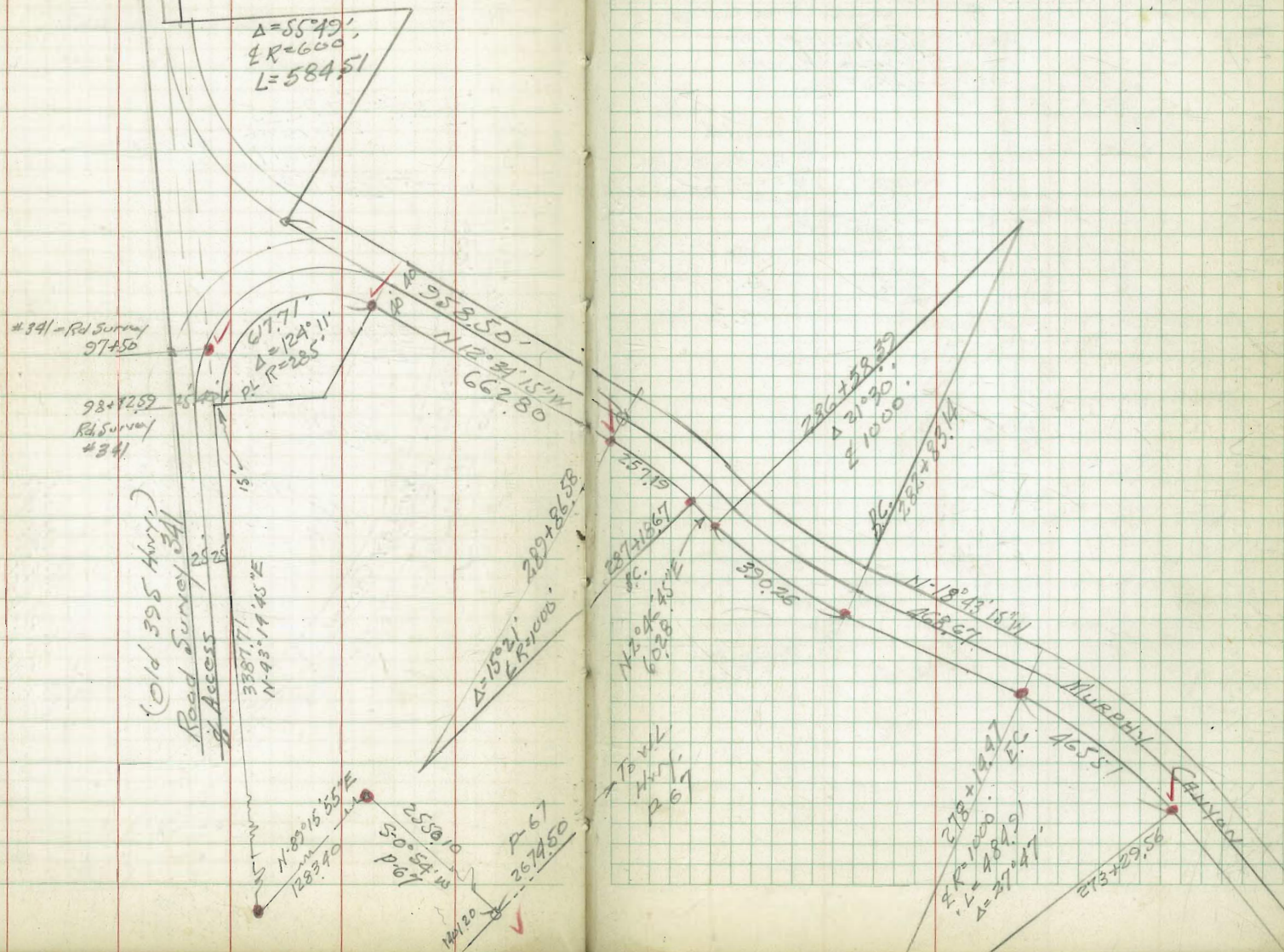


~ AERIAL SURVEY ~

MURPHY CANYON RD.

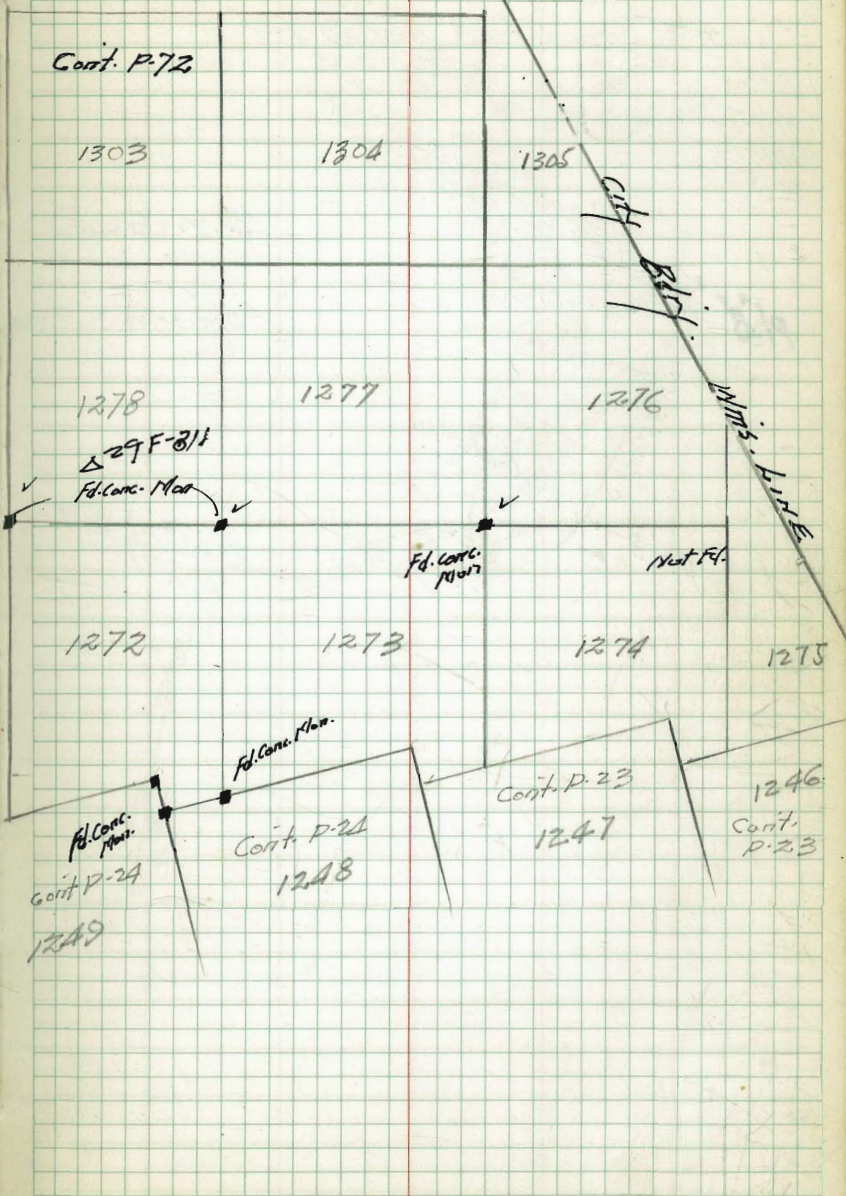
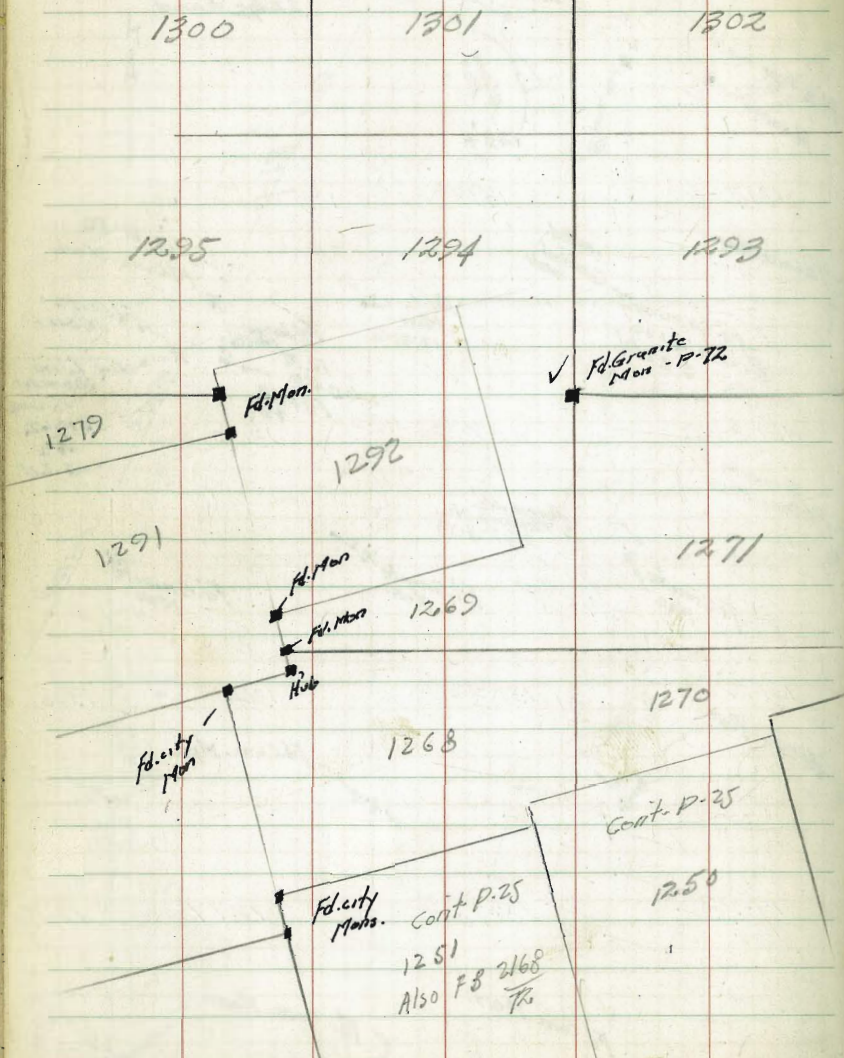
R.O.S MAP #2499

Distances & Bearings Copied
From Above Map.



Walker
 Taylor
 Hamilton
 Dec. Jan
 1956-1957

PUEBLO LOTS CORNERS
 ■ = Mon. Fd.
 ▽ = Identified on AERIAL PHOTOS

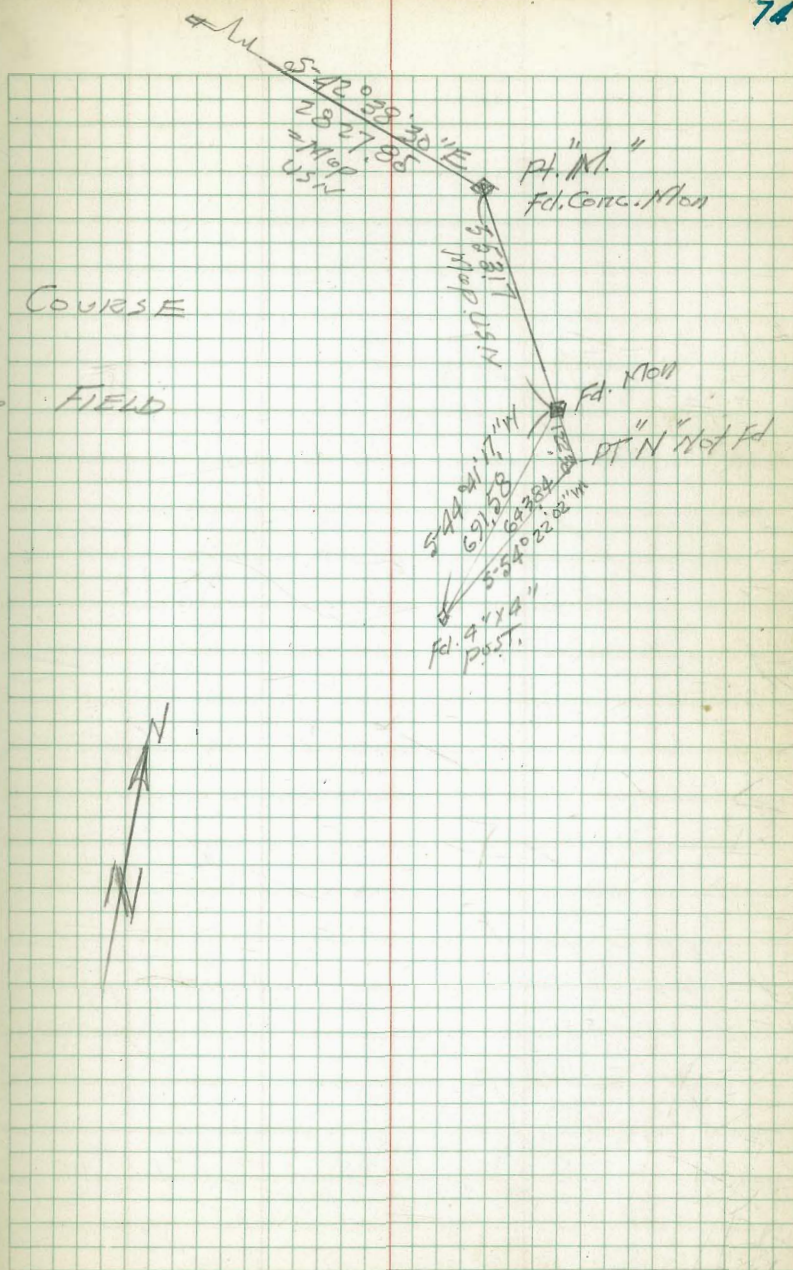
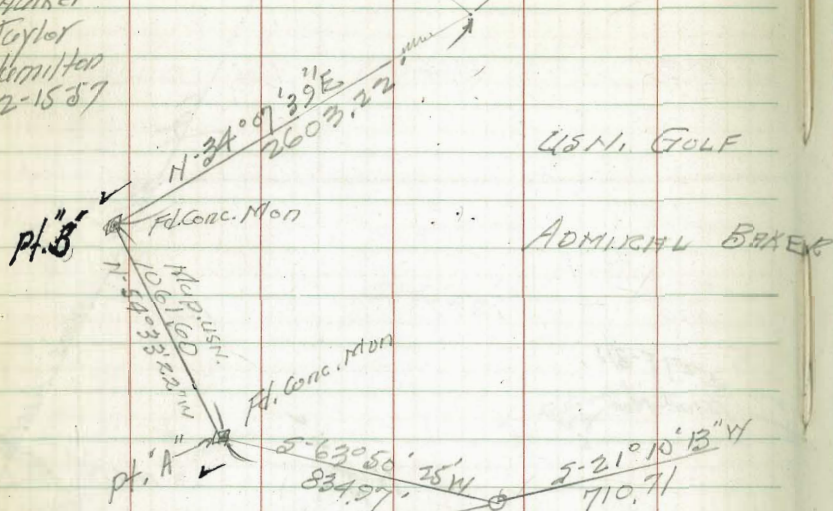


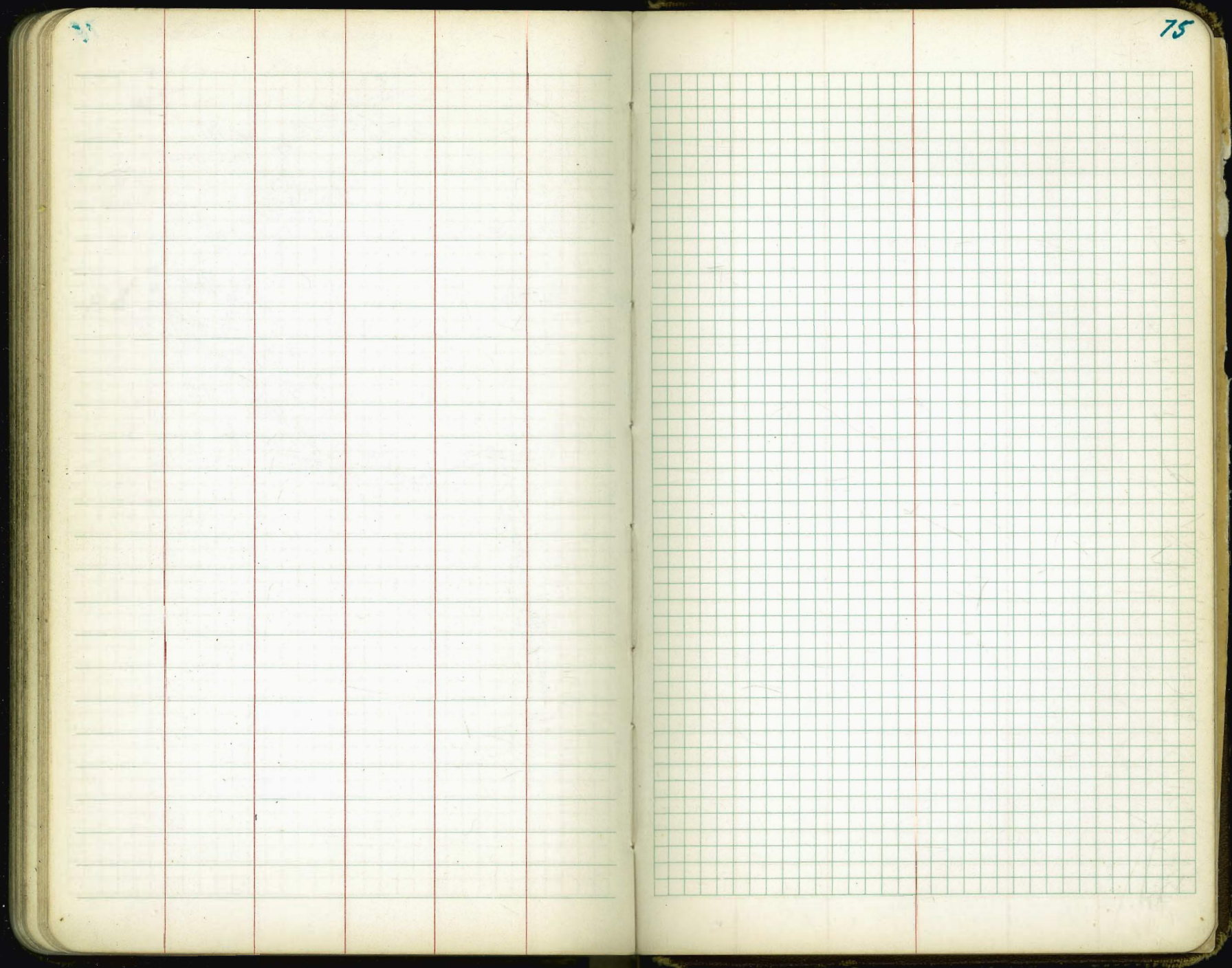
AERIAL SURVEY

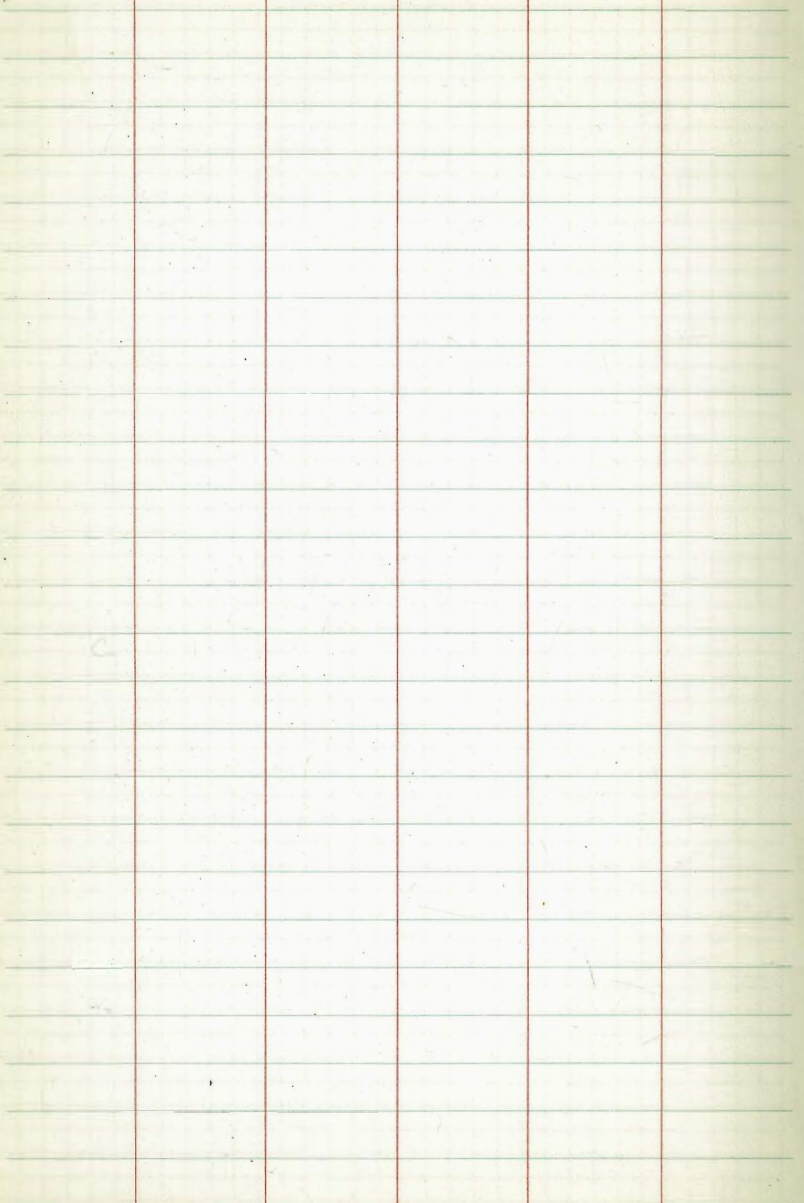
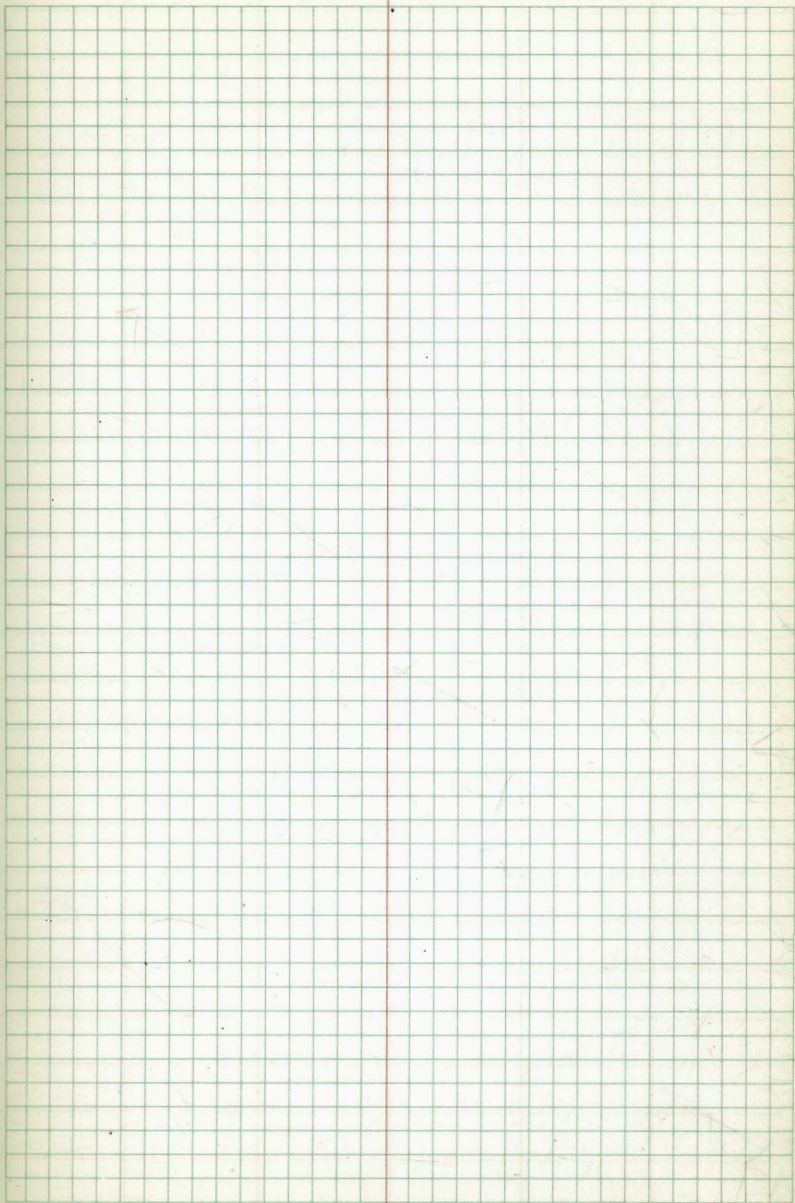
▣ = Points Found

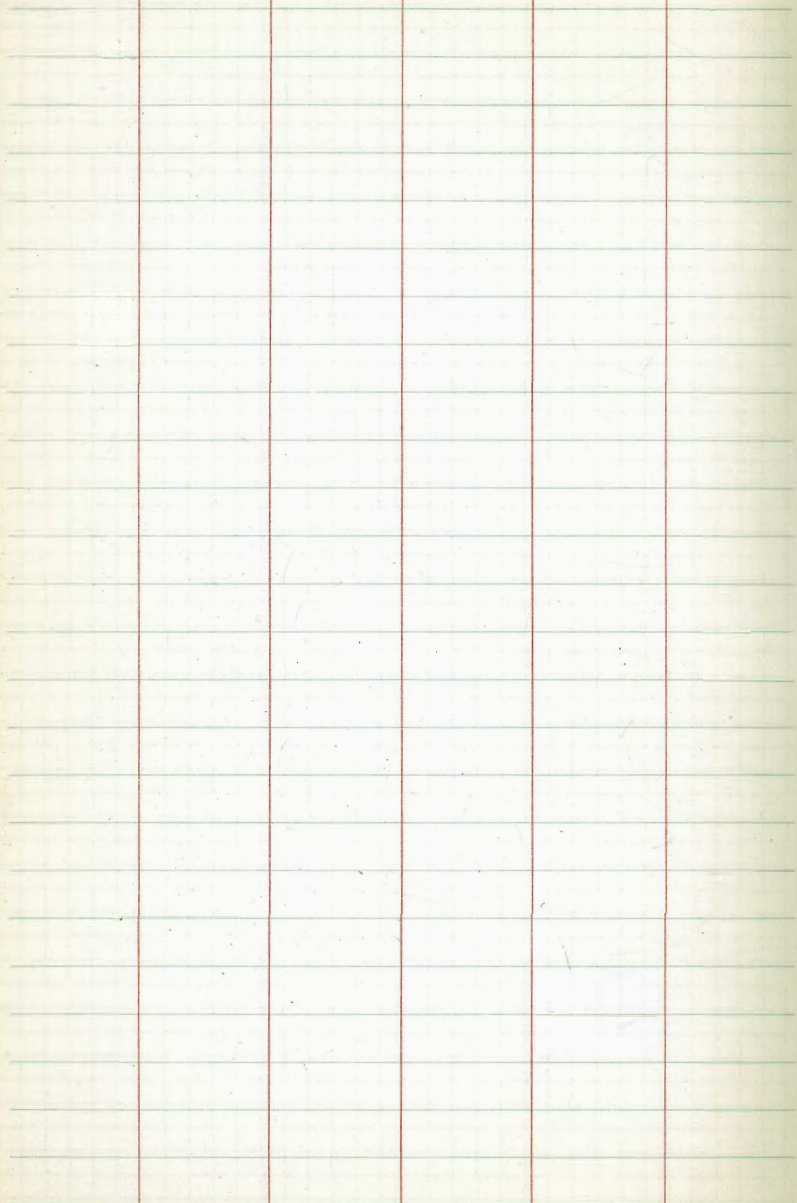
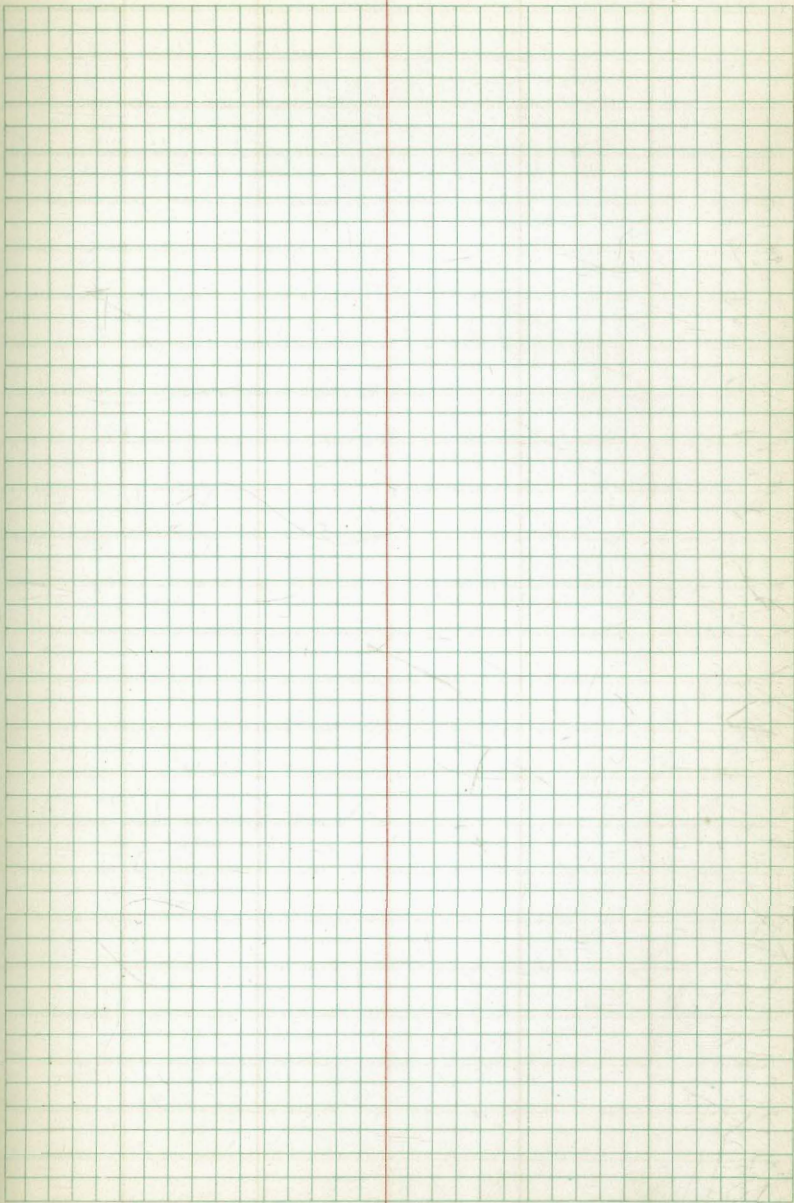
▣ = Identified on Photo

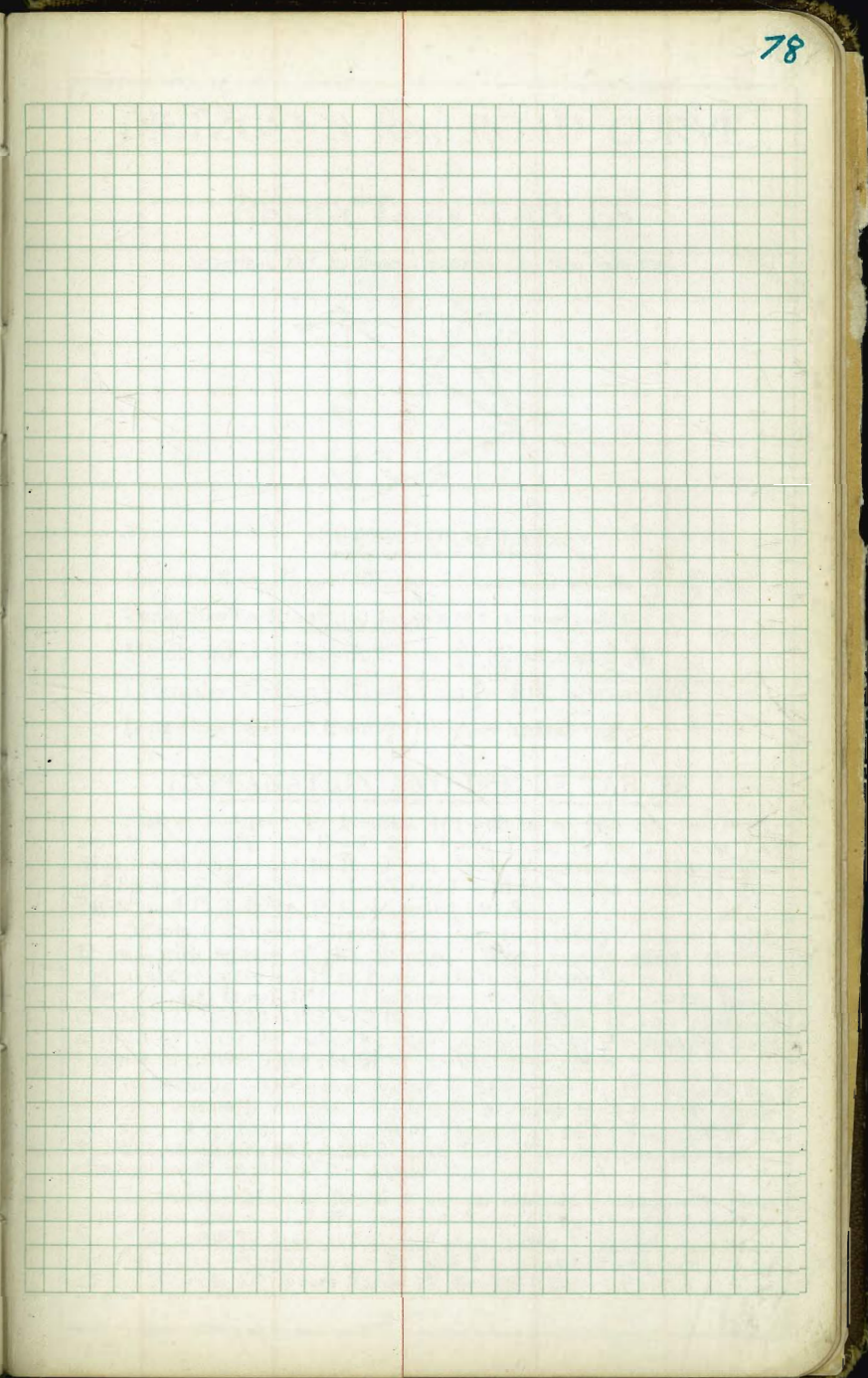
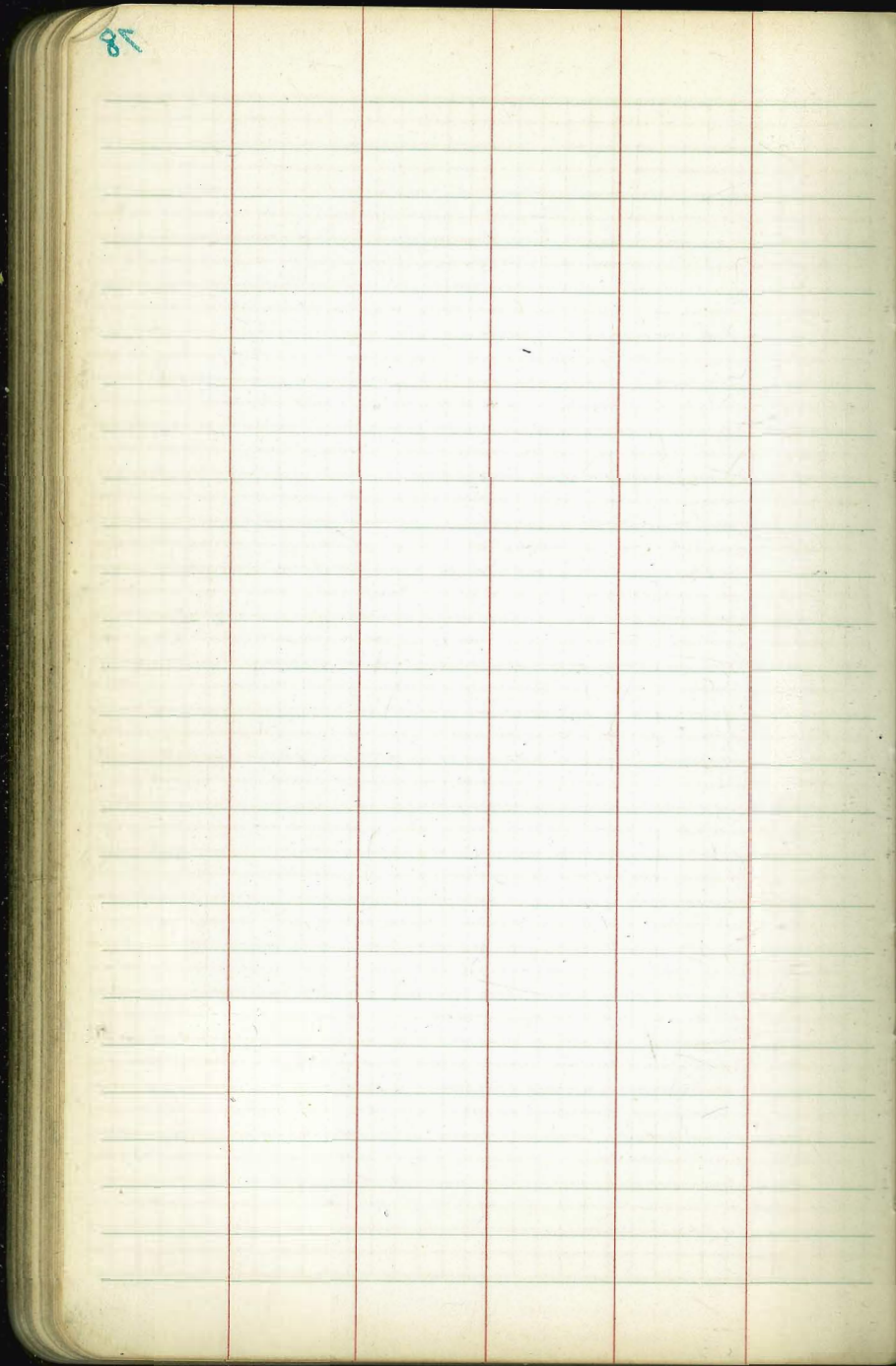
Walker
Taylor
Hamilton
2-15-57



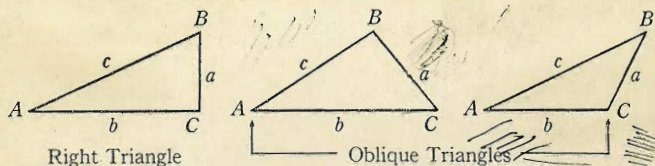








TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\text{cosec} = \frac{c}{a}$

Given	Required	Formulas
a, b	A, B, c	$\tan A = \frac{a}{b} = \cot B$, $c = \sqrt{a^2 + b^2} = a\sqrt{1 + \frac{b^2}{a^2}}$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B$, $b = \sqrt{(c+a)(c-a)} = c\sqrt{1 - \frac{a^2}{c^2}}$
A, a	B, b, c	$B = 90^\circ - A$, $b = a \cot A$, $c = \frac{a}{\sin A}$
A, b	B, a, c	$B = 90^\circ - A$, $a = b \tan A$, $c = \frac{b}{\cos A}$
A, c	B, a, b	$B = 90^\circ - A$, $a = c \sin A$, $b = c \cos A$

Solution of Oblique Triangles

Given	Required	Formulas
A, B, a	b, c, C	$b = \frac{a \sin B}{\sin A}$, $C = 180^\circ - (A+B)$, $c = \frac{a \sin C}{\sin A}$
A, a, b	B, c, C	$\sin B = \frac{b \sin A}{a}$, $C = 180^\circ - (A+B)$, $c = \frac{a \sin C}{\sin A}$
a, b, C	A, B, c	$A+B = 180^\circ - C$, $\tan \frac{1}{2}(A-B) = \frac{(a-b) \tan \frac{1}{2}(A+B)}{a+b}$ $c = \frac{a \sin C}{\sin A}$
a, b, c	A, B, C	$s = \frac{a+b+c}{2}$, $\sin \frac{1}{2} A = \sqrt{\frac{(s-b)(s-c)}{bc}}$ $\sin \frac{1}{2} B = \sqrt{\frac{(s-a)(s-c)}{ac}}$, $C = 180^\circ - (A+B)$
a, b, c	Area	$s = \frac{a+b+c}{2}$, $\text{area} = \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	$\text{area} = \frac{bc \sin A}{2}$
A, B, C, a	Area	$\text{area} = \frac{a^2 \sin B \sin C}{2 \sin A}$

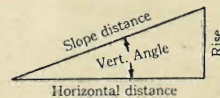
REDUCTION TO HORIZONTAL

Horizontal distance = slope distance multiplied by the cosine of the vertical angle. Thus, for a slope distance of 403.6 ft. and a vertical angle of $4^\circ 40'$ —the cosine of $4^\circ 40'$, taken from a table of natural trigonometrical functions, = .9967, and horizontal distance = $403.6 \times .9967 = 402.27$ ft.

Horizontal distance also = Slope distance minus slope distance times (1 - cosine of vertical angle). Using the same figures as in the preceding example— $\text{Cos. } 4^\circ 40' = .9967$, $1 - .9967 = .0033$, $403.6 \times .0033 = 1.33$ ft. Horizontal dist. = $403.6 - 1.33 = 402.27$ ft.

When the rise is known, the horizontal distance may be found by the following approximate rule:—the slope distance less the square of the rise divided by twice the slope distance. Thus, for a slope distance of 372.5 ft., and a rise of 15 ft. the horizontal distance =

$$372.5 - \frac{15 \times 15}{2 \times 372.5} = 372.5 - .30 = 372.2 \text{ ft.}$$



12 20
11 25
14° 44' 30"

